Intonation in language contact:
The case of Spanish in Catalonia

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Meiner Familie

Рідна мова – не полова: її за вітром не розвієш.
(Українське прислів’я)

Contents

Abstract

While it is well-known that the long-lasting and ever more intense language contact between Spanish and Catalan in Catalonia has led to cross-linguistic influence at all linguistic levels, the effects of the close contact on the prosodic properties of the two languages have hardly received any attention to date. The present study fills this research gap by investigating the intonation of 31 Catalan–Spanish bilinguals from Girona. Drawing on a corpus of semi-spontaneous and read speech data specifically compiled for this purpose, it provides a detailed description of the intonational patterns of the previously undocumented variety Girona Spanish and first addresses Girona Catalan intonation under the angle of its speakers' bilingualism. The main findings of the work reveal that the two contact varieties share numerous intonational properties and display only very few differences. Both use the same inventories of pitch accents and boundary tones and pattern alike with regard to the realization of nuclear configurations in a large array of utterance types. Differences can almost exclusively be observed in the frequencies with which particular tunes appear in specific contexts. However, due to cross-linguistic influence, the varieties are also characterized by a great deal of variation, which can often be traced back to extralinguistic factors such as the bilinguals' language dominance. Overall, the intonation of the current contact varieties can be interpreted as an of outcome of substratum transfer and wholesale convergence between the prosodic systems of Spanish and Catalan.

Zusammenfassung (résumé in German)

Wenn nicht gar alle, so sind doch zweifellos die allermeisten Sprachen im Laufe ihrer Geschichte durch den Kontakt zu anderen Sprachen beeinflusst worden (siehe Hickey 2010: 7; Thomason/Kaufman 1988: 3). Wie unzählige Studien zu ganz unterschiedlichen Kontaktszenarien gezeigt haben, kann sich durch Sprachkontakt ausgelöster Wandel auf praktisch alle sprachlichen Ebenen auswirken; so z. B. auf das Lexikon, die Syntax oder die segmentale Phonologie. Ein Feld, das jedoch bislang kaum erforscht ist und erst in den letzten zwanzig Jahren nach und nach entdeckt wurde, stellt die Intonation (bzw. die Prosodie insgesamt) im Sprachkontakt dar. Dies hängt sicherlich damit zusammen, dass die empirische Intonationsforschung selbst erst in den letzten Jahrzehnten deutlich an Fahrt aufgenommen hat – wohl in erster Linie aufgrund der verbesserten technischen Möglichkeiten.

Der im Zentrum dieser Dissertation stehende spanisch-katalanische Sprachkontakt, der bereits seit vielen hunderten von Jahren besteht und dessen Dynamik stetig an Intensität gewinnt, ist zweifelsohne eine der am umfassendsten erforschten Kontaktsituationen.[1] Seine sprachlichen Auswirkungen sind mittlerweile Gegenstand zahlreicher linguistischer Arbeiten geworden, und gegenseitiger Spracheneinfluss zwischen dem Spanischen und Katalanischen konnte auf sämtlichen sprachlichen Ebenen dokumentiert und erforscht werden (zum Einfluss des Katalanischen auf das in katalanischsprachigen Gebieten gesprochene Spanisch siehe z. B. Moll 1961; Badia i Margarit 1979, 1981; Wesch 1992, 1997; Casanovas Català 1995, 2000; Argenter/Pujolar/Vilardell 1998; Sinner 2004 und Abschnitt 2.3; zum spanischen Einfluss auf das Katalanische siehe, neben vielen anderen, Fabra 1912: IX f., 1925; Payrató 1985; Colón 1993, Veny 2006; Lleó et al. 2009; Cortés et al. 2009; Arnal 2011; Ferrando/Nicolás 2011: 294 f., 341, 525–530; Benet et al. 2013). Zur Illustration mögen an dieser Stelle die folgenden drei Besonderheiten des katalanisch-beeinflussten Spanisch genügen (siehe Abschnitt 2.3):

[1] Bis zur dynastischen Vereinigung der (weitgehend katalanischsprachigen) Krone von Aragonien mit der (spanischsprachigen) Krone Kastilien infolge der Heirat der Katholischen Könige im Jahre 1469 hatte das Spanische in den heutigen katalanischsprachigen Gebieten praktisch keinerlei Bedeutung. Danach begann es jedoch, zunächst nur als Sprache des Hofes, spätestens nach dem Erlass der Nueva-Planta-Dekrete (1707–1716) aber auch als einzige offizielle Staatssprache, das Katalanische in einem jahrhundertelangen Prozess nach und nach aus praktisch allen öffentlichen Bereichen zu verdrängen. Dennoch blieb das Katalanische (wenigstens in Katalonien) die Alltagssprache aller Gesellschaftsschichten und es kann relativ sicher davon ausgegangen werden, dass der größte Teil der Bevölkerung bis weit ins 20. Jahrhundert *de facto* einsprachig war. Spätestens unter dem Franco-Regime (1939–1975), als die Unterdrückung mit dem Verbot des Katalanischen im öffentlichen Raum ihren Höhepunkt erreichte, wurden jedoch auch die letzten Katalanischsprecher zweisprachig. Seit der Wiedererlangung der Demokratie 1979 genießt das Katalanische nun erneut einen kooffiziellen Status und ist wieder in allen Bereichen des öffentlichen Lebens zu finden, insbesondere im Bildungs- und Verwaltungsbereich. Es gilt heute in der Regel sogar als Prestigesprache (Ramallo 2018: 478). Nichtsdestotrotz ist das Spanische aufgrund des massiven Zustroms spanischsprachiger Einwanderer (besonders von den 1950ern bis ’70ern sowie in den 2000ern) in der Gegenwart die meistgesprochene Sprache und die häufigste Erstsprache in Katalonien (siehe Vila 2016: 145, 2020: 634 f.). In den letzten Jahren ist allerdings die Zahl der Erstsprecher des Spanischen, die das Katalanische als Zweitsprache beherrschen, so stark angestiegen, dass sie inzwischen fast identisch mit der der katalanischen Erstsprecher ist (siehe Arnal 2011: 16).

– Auf Ebene des Lexikons und der Semantik: der Gebrauch von *faena* statt *trabajo* im Sinne von 'Arbeit' statt eig. 'schwere (Feld-)Arbeit' in Anlehnung an kat. *feina* 'Arbeit'
– Auf Ebene der Morphosyntax: der Gebrauch der frageeinleitenden Partikel *que* in neutralen Entscheidungsfragen (z. B. *¿Que te has hecho daño?* 'Hast du dir wehgetan?')
– Auf der Ebene der segmentalen Phonologie: die velarisierte Realisierung von /l/ als [ɫ], insbesondere in der Silbencoda, die geradezu als Schibboleth gilt

Kaum Beachtung gefunden haben allerdings bisher die Auswirkungen des engen Kontakts auf die prosodischen Eigenschaften der beiden Sprachen: Während Spracheneinfluss in der (in den letzten Jahren aufblühenden) Forschung zur katalanischen Intonation nahezu vollständig vernachlässigt wurde, geht auch das, was über die Intonation des in Katalonien und anderen katalanischsprachigen Gebieten gesprochenen Spanisch bekannt ist, kaum über impressionistische Bemerkungen und einige wenige, datenarme Studien zu neutralen Aussagesätzen und Ja-Nein-Fragen hinaus.[2] Dies überrascht umso mehr als Sprecher der Katalanischen heute ausnahmslos mindestens zweisprachig sind und überdies auch das Spanische in den katalanischsprachigen Gebieten fast durchweg nur mehr von Bilingualen gesprochen wird.

An dieser Stelle setzt die vorliegende Dissertation an. Durch eine detaillierte empirische Untersuchung der Intonation von bilingualen Sprechern aus Girona[3] sowohl im Katalanischen als auch im Spanischen wird versucht, die benannte Forschungslücke zu schließen. Das Hauptziel der Arbeit besteht darin, eine umfassende Beschreibung der Intonations- und Phrasierungsmuster der beiden in Girona gesprochenen Kontaktvarietäten zu liefern. Ein besonderer Fokus wird dabei auf die (bislang kaum berücksichtigte) Zweisprachigkeit der Sprecher und deren Auswirkungen auf ihr intonationsphonologisches System sowie dessen phonetische Realisierung gelegt. Durch die konsequente Berücksichtigung soziolinguistischer Faktoren (wie insbesondere der Sprachdominanz[4]) wird einerseits die Verbreitung von Kontaktmerkmalen in den jeweiligen sozialen und sprachlichen Ökologien der zweisprachigen Gemeinschaft erfasst. Andererseits wird versucht, deren Ursprung nachzugehen und die Prozesse der sprachlichen Beeinflussung in den beiden Varietäten zu rekonstruieren. Durch einen breit angelegten Ansatz, der fundierte dialektale Vergleiche ermöglicht, wird nicht nur erstmalig die Intonation einer

[2] Eine erwähnenswerte Ausnahme stellen allerdings die Arbeiten von Simonet (2008, 2010, 2011) zum spanisch-katalanischen Kontakt in Mallorca dar.

[3] Girona ist eine Stadt im Norden Kataloniens, etwa 100 km nordöstlich von Barcelona gelegen. Sie ist die Hauptstadt der gleichnamigen Provinz und hat ca. 103.000 Einwohner (IDESCAT 2021a). Katalanisch wird von 87,4 % der Bevölkerung der Provinz gesprochen, und 55,3 % verwenden es als Hauptsprache im Alltag (siehe Generalitat de Catalunya 2021: 15, 21). Die Wahl dieses Ortes für die Untersuchung erfolgte aus drei Hauptgründen: (1) Girona hat wie Katalonien insgesamt einen hohen Anteil an Zuwanderern (ca. 35 %; Generalitat de Catalunya 2021: 11), (2) der Grad der gesellschaftlichen Zweisprachigkeit sowie die Präsenz des Katalanischen im öffentlichen Raum ist höher und beständiger als in der Metropole Barcelona, wo es große Unterschiede zwischen den einzelnen Stadtvierteln gibt (siehe z. B. Boix-Fuster 2015: 154 f.), d. h. die Bevölkerung Gironas ist aus soziolinguistischer Sicht homogener, (3) die Präsenz der Universität ermöglichte einen einfachen Zugang zu einer vergleichsweise homogenen und zugleich repräsentativen Gruppe von Versuchspersonen.

[4] Der Begriff Sprachdominanz bezieht sich im Zweisprachigkeitskontext auf Asymmetrien hinsichtlich der Kompetenz in oder des Gebrauchs von zwei Sprachen (für eine ausführliche Diskussion des Begriffs siehe Birdsong 2014: 374 und Abschnitt 3.4).

Varietät des katalanischen Spanisch anhand des Girona-Spanischen überhaupt eingehend beschrieben, sondern auch die bereits bestehende Forschung zur Girona-katalanischen Intonation um die diastratische Ebene erweitert. Es soll so zu einer umfassenderen Kenntnis der intonatorischen Variation in beiden romanischen Sprachen beigetragen und das derzeitige Wissen über die panspanische und pankatalanische Intonation bereichert werden. In Anbetracht des Pioniercharakters des Vorhabens, eine möglichst erschöpfende Beschreibung der Intonation des in Girona gesprochenen Spanisch vorzulegen, wird diese bisher noch nicht dokumentierte Varietät stärker im Vordergrund stehen.

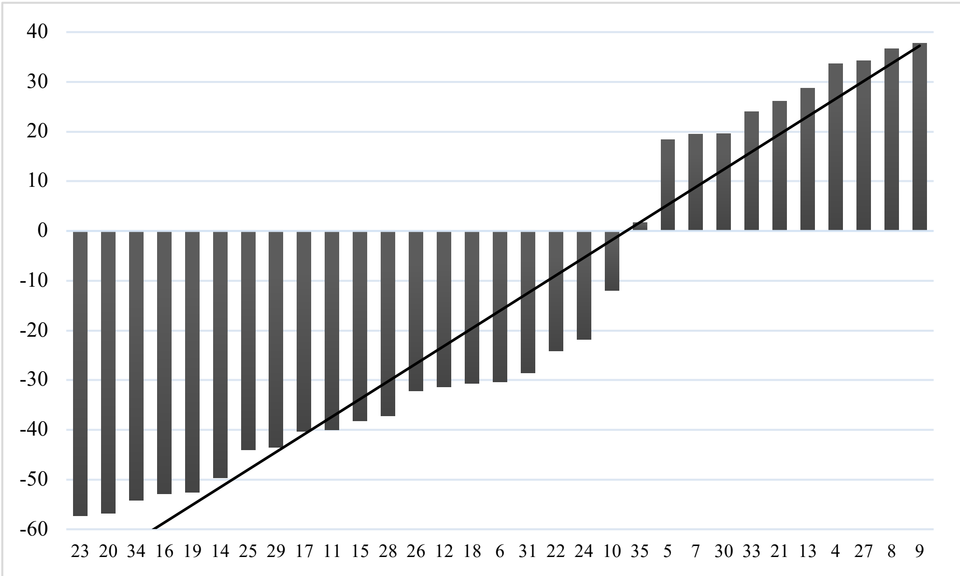
Als eine von bisher nur wenigen Studien, die Intonationsdaten von Bilingualen in ihren beiden Sprachen berücksichtigen, trägt die vorliegende Dissertation jedoch nicht nur zur Intonationsdialektologie bei, sondern auch zu den wachsenden Bereichen der Mehrsprachigkeits- und Sprachkontaktforschung. Ihr sekundäres Forschungsziel ist es daher, die bisher noch spärliche Forschung zum kontaktinduzierten Intonationswandel auf empirischer Basis zu erweitern und so die Sprachkontaktforschung durch ein besseres Verständnis dafür, wie sich prosodische Systeme in Kontaktsituationen verändern, auch von theoretischer Seite zu bereichern und voranzutreiben. Zu diesem Zweck werden u. a. die folgenden **Forschungsfragen** diskutiert:

1. Wie ähnlich sind sich die Intonationssysteme des Girona-Spanischen und des Girona-Katalanischen?
2. Wie einheitlich ist die Intonation der beiden in Girona gesprochenen Kontaktvarietäten über Sprechergruppen und einzelne Sprecher hinweg? Kann die varietäteninterne Variation mit Faktoren der Mehrsprachigkeit wie Sprachdominanz in Verbindung gebracht werden?
3. Welche Unterschiede und Gemeinsamkeiten bestehen zwischen dem Gironaer und dem kastilischen Spanisch auf der Intonationsebene? Welche Unterschiede und Gemeinsamkeiten liegen zwischen dem Girona-Katalanischen und anderen zentral-katalanischen Varietäten vor?
4. Wie lassen sich die Ähnlichkeiten und Unterschiede zwischen dem Girona-Katalanischen und dem Girona-Spanischen auf der prosodischen Ebene vor dem Hintergrund des intensiven Sprachkontaktes erklären, d. h. wie sind die heutigen Intonationssysteme entstanden?
5. Rechtfertigen die Unterschiede zu anderen spanischen Varietäten und, falls vorhanden, seine sprecherübergreifende interne Homogenität, das Girona-Spanische (bzw. das katalanische Spanisch im weiteren Sinne) als eine eigenständige Varietät innerhalb des spanischen Diasystems zu betrachten?
6. Wie funktioniert kontaktinduzierter Intonationswandel? Und wie wird er von den außersprachlichen Bedingungen der jeweiligen Kontaktsituation beeinflusst?
7. Welche Arten von Intonationsmerkmalen können übertragen werden? Sind prosodische Merkmale stärker von Spracheneinfluss betroffen als segmentale?

Um die oben genannten Ziele zu erreichen, wurden eigens erstellte Sprachaufnahmen von 31 katalanisch-spanisch bilingualen Sprechern des Girona-Spanischen und Girona-Katalanischen untersucht. Alle **Probanden** waren in der Provinz Girona aufgewachsen – überwiegend in der Provinzhauptstadt selbst oder in ihrer unmittelbaren Umgebung – und hatten dort ihre gesamte Schulzeit innerhalb des weitgehend katalanischsprachigen Schulsystems absolviert. Ihr Alter reichte, mit Ausnahme eines 29-jährigen Sprechers, von 18 bis 24 Jahren; das Durchschnittsalter betrug 20 Jahre. Der Anteil der Frauen (n = 18) war geringfügig höher als der der Männer (n = 13) und alle waren Studenten der Universität Girona. Die Stichprobe war folglich insgesamt recht homogen. Erwähnenswert ist allerdings, dass ein knappes Drittel der Eltern der Probanden außerhalb Kataloniens, d. h. konkret in anderen Teilen des spanischen Staates oder in Südamerika, geboren worden war und erst im Erwachsenenalter nach Girona gezogen ist. Auch Teilnehmer aus Zuwanderermilieus waren folglich in repräsentativem Maße in der Untersuchungsgruppe vertreten.

Wie bereits erwähnt, waren alle Teilnehmer bilingual, was hier heißen soll, dass sie unter Grosjeans (2010: 4) Definition von Zweisprachigen als „diejenigen, die in ihrem täglichen Leben zwei Sprachen verwenden" fielen (meine Übersetzung; siehe Abschnitt 3.5). Dennoch waren die meisten – wie im katalanischen Kontext üblich – klar dominant in einer ihrer beiden Sprachen, was sich auch in den für alle Teilnehmer ermittelten Dominanzwerten widerspiegelt. Da es noch kein Standardverfahren zur Bestimmung von **Sprachdominanz** gibt (siehe auch Abschnitt 3.4), wurde diese anhand eines Fragebogens zum sprachlichen Hintergrund der Sprecher (*language-background questionnaire*, LBQ) ermittelt. Es handelte es sich dabei um eine leicht angepasste Version des Sprachenprofils für Bilinguale (*bilingual language profile*, BLP) von Birdsong et al. (2012), das auf Basis der Selbsteinschätzung der Sprecher und unter Berücksichtigung der vier Dimensionen Sprachbiographie, Sprachgebrauch und -kompetenz sowie sprachliche Einstellungen die Berechnung eines kontinuierlichen Dominanzwertes ermöglicht. Dafür wurde zunächst getrennt für jede Sprache anhand der einzelnen Antworten aus dem Fragebogen und unter Verrechnung der Punktzahlen aus den vier Modulen eine Gesamtpunktzahl berechnet und schließlich durch Subtraktion der beiden Gesamtpunktzahlen (hier Katalanisch von Spanisch) ein Dominanzwert bestimmt, der sich im vorliegenden Fall zwischen –100 (entspräche einsprachig katalanisch) und +100 (entspräche einsprachig spanisch) bewegte. Werte nahe 0 zeigen eine ausgewogene Zweisprachigkeit an, positivere oder negativere Werte spiegeln jeweils Dominanz im Spanischen bzw. im Katalanischen wider.

Die von den Studienteilnehmern erreichten Dominanzwerte verteilen sich entlang eines Kontinuums, das von –57,8 (d. h. stark dominant im Katalanischen) bis 37,8 (dominant im Spanischen) reichte und somit die graduelle Natur von Sprachdominanz deutlich macht (siehe Graphik 0.1). Zugleich war die Verteilung jedoch auch klar bimodal (siehe Abschnitt 4.2) – d. h., die Teilnehmer waren im Allgemeinen dominant in einer ihrer beiden Sprachen und ausgewogene Zweisprachigkeit kam in der vorliegenden Stichprobe nur selten vor – wodurch sich die vorgenommene binäre Aufteilung der Teilnehmer in zwei Dominanzgruppen rechtfertigt. Interessanterweise war die katalanisch-dominante Gruppe mit 20 Sprechern nicht nur fast doppelt so groß wie die spanisch-dominante (n = 11), sondern durchschnittlich auch deutlich stärker dominant (Ø = –38,9 vs. 25,5). Die Verteilung der Dominanzwerte in der Versuchsgruppe spiegelt also deutlich die starke Position des Katalanischen in Girona wider, die sich auch in soziolinguistischen Arbeiten zeigt.



Graphik 0.1: Dominanzwerte der 31 Teilnehmer (mit Trendlinie). Negative Werte zeigen Sprachdominanz im Katalanischen, positive Dominanz im Spanischen an. Die Zahlen auf der horizontalen Achse geben die Sprecher-ID an.

Was den Sprachgebrauch (siehe Abschnitt 4.2.2) anbelangt, so verwendeten beide Dominanzgruppen in den abgefragten Bereichen in der Regel am häufigsten ihre dominante Sprache. Es fiel allerdings auf, dass Spanisch-dominante sich deutlich häufiger des Katalanischen bedienten als umgekehrt Katalanisch-Dominante des Spanischen. So nutzten die befragten spanisch-dominanten Teilnehmer in den Bereichen des öffentlichen Lebens (Arbeit, Universität, Einkaufen, Gespräche mit Unbekannten) beide Sprachen etwa zu gleichen Teilen. In Gesprächen mit ihren Freunden verwendeten sie das Katalanische durchschnittlich sogar etwas häufiger als das Spanische. Ähnliche Tendenzen zeigten sich auch bei der selbsteingeschätzten Sprachkompetenz und den sprachlichen Einstellungen. Spanisch-Dominante schätzten sich im Katalanischen kompetenter ein und es war ihnen wichtiger, diese Sprache gut zu beherrschen als dies umgekehrt bei den Katalanisch-Dominanten im Hinblick auf das Spanische der Fall war. Nicht zuletzt war auffällig, dass die Teilnehmer praktisch immer katalanisch-dominant waren, wenn mindestens ein Elternteil Muttersprachler im Katalanischen war.

Hinsichtlich des verwendeten Sprachmaterials basiert die **Intonationsanalyse** der beiden Varietäten, die den Kern der vorliegenden Arbeit darstellt, vorwiegend auf einem **semispontansprachlichen Korpus**; ergänzend wurden jedoch auch einige gelesene Daten herangezogen. Diese Wahl liegt darin begründet, dass semispontane Daten im Gegensatz zu vollständig spontansprachlichen Daten bis zu einem gewissen Grad kontrolliert werden können und dadurch einen besseren Vergleich verschiedener Äußerungstypen über Varietäten und Sprecher hinweg ermöglichen, zugleich aber noch immer als vergleichsweise natürlich und ökologisch valide angesehen werden können (siehe Vanrell et al. 2018 und die Diskussion in 4.3.1.1). Wie in den meisten vorausgehenden Studien zur Intonation romanischer Varietäten wurde das semispontane Sprachmaterial durch *discourse completion tasks* (DCT; Abschnitt 4.3.1.1) erhoben (je einen katalanischen und einen spanischen). Solche Intonationsfragebögen bestehen aus einer Reihe von kurzen Rollenspielen, die auf alltäglichen Situationen basieren und jeweils spezifische Sprechakte hervorrufen sollen. In der vorliegenden Arbeit wurden auf diese Weise die folgenden Äußerungstypen evoziert:

1. neutrale Aussagen:
   - Aussagen mit und ohne periphere Elemente (Dislokationen, Vokative, Einschübe und Appositionen)
   - Aufzählungen
2. nicht-neutrale Aussagen:
   - Aussagen mit kontrastivem Fokus
   - exklamative Aussagen (Ausrufe)
   - kontradiktive Aussagen (Widersprüche)
   - dubitative Aussagen (Zweifel)
3. neutrale Entscheidungsfragen (reine Informationsfragen):
   - Ja-Nein-Fragen (mit und ohne periphere Elemente)
   - disjunktive Fragen
4. nicht-neutrale Entscheidungsfragen:
   - exklamative Ja-Nein-Fragen
   - bestätigende Ja-Nein-Fragen
5. neutrale Ergänzungsfragen (reine Informationsfragen)
6. nicht-neutrale Ergänzungsfragen:
   - exklamative Ergänzungsfragen
   - imperativische Ergänzungsfragen
7. Echo-Fragen:
   - Echo-Engscheidungsfragen
   - Echo-Ergänzungsfragen
   - exklamative Echo-Entscheidungsfragen
8. Imperative:
   - Aufforderungen
   - Bitten
9. Vokative

Die 30 dafür verwendeten Szenarien wurden zum größten Teil aus den bewährten Intonationsfragebögen für das nördliche bzw. zentrale peninsulare Spanisch (Prieto/Roseano 2009–2013;

2010) und für das Zentralkatalanische (Prieto/Cabré 2007–2012) übernommen. Um zwei identische Fragebögen in beiden Sprachen verwenden zu können, wurden sie zum Teil geringfügig angepasst (die vollständigen Fragebögen sind im Anhang einsehbar). Die Situationsbeschreibungen wurden den Probanden vorgelesen, während sie zur visuellen Unterstützung eine PowerPoint-Folie mit einem Bild sahen, das mit der beschriebenen Situation in Verbindung stand. Dann wurden sie gebeten, verbal mit einem vollständigen Satz auf den gegebenen Stimulus zu reagieren. Von den 1860 aufgezeichneten Antworten (30 Situationen × 31 Sprecher × 2 Sprachen) waren insgesamt 1602 IPs für die Intonationsanalyse geeignet (824 für Girona-Spanisch und 778 für Girona-Katalanisch). Die übrigen Antworten entsprachen entweder nicht dem gewünschten Äußerungstyp oder waren zu stark von Verzögerungen oder anderen Häsitationsphänomenen betroffen, wodurch eine robuste Analyse nicht möglich war.

Daneben wurden zur Erstellung weiterer Datensätze auch unterschiedliche Arten von Leseaufgaben herangezogen (d. h. konkret ein Dialog, mehrere Sets von Einzelsätzen und ein Erzähltext). So wurde zur Ergänzung der Intonationsanalyse neben dem Intonationsfragebogen auch ein kurzer spanischer **Dialog** aufgenommen (siehe Abschnitt 4.3.1.2 und Anhang 5), wodurch von jedem Teilnehmer die folgenden beiden (Girona-spanischen) Äußerungstypen erfasst werden sollten: (1) Entscheidungsfragen, die mit der Fragepartikel *que* eingeleitet werden, und (2) neutrale Aussagen, die Dislokationen enthalten. Beide Satztypen kommen der wissenschaftlichen Literatur zufolge (siehe Abschnitt 2.3) in monolingualen Varietäten des Spanisch entweder gar nicht vor (Entscheidungsfragen mit *que* zum reinen Erfragen von Information) oder treten dort zumindest deutlich seltener auf als im katalanischen Spanisch (*que*-Fragen in anderen pragmatischen Kontexten sowie Dislokationen). Sie enthalten folglich Merkmale, deren Vorkommen im katalanischen Spanisch üblicherweise auf den intensiven Sprachkontakt mit dem Katalanischen zurückgeführt wird, wo sie vergleichsweise frequent sind (siehe Abschnitt 2.3). Da ihre Intonation in dieser Varietät jedoch noch nicht eingehend beschrieben wurde, wurde die Leseaufgabe verwendet, um die Intonationsanalyse dieser Äußerungstypen bei jedem Teilnehmer auch im Spanischen zu gewährleisten.

Die **Intonationsanalyse** wurde mithilfe der akustischen Analysesoftware Praat (Boersma/Weenink 2020) innerhalb des theoretischen Rahmens des Autosegmental-Metrischen Modells (siehe Pierrehumbert 1980; Beckman/Pierrehumbert 1986; Silverman et al. 1992; Beckman et al. 2005; Ladd 2008) durchgeführt. Dieses Intonationsmodell fußt auf einer klaren Unterscheidung zwischen der phonologischen Struktur, die aus zugrundeliegenden tonalen Zielpunkten besteht (repräsentiert auf einer separaten Tonschicht), und der Oberflächen-F0-Kontur, die beim Sprechen durch phonetische Interpolation zwischen den zugrundeliegenden tonalen Zielpunkten erzeugt wird (siehe Abschnitt 3.1.1). Darüber hinaus wird angenommen, dass die zugrundeliegenden Töne mit verschiedenen Ebenen der Prosodischen Hierarchie (PH; siehe Selkirk 1984 und Abschnitt 3.2.1) assoziiert sind: Während sog. Tonhöhenakzente auf betonten, d. h. metrisch starken Silben verankert sind, sind tonale Zielpunkte, die prosodische Grenzen signalisieren (sog. Grenztöne), mit höheren Schichten der PH verbunden, z. B. mit der Intonationsphrase (IP) oder der Intermediärphrase (ip). Auf Grundlage dieser Annahmen wurde u. a. das heute weitverbreitete ToBI-System (*Tone and Break Indices*) zur Transkription der melodischen Eigenschaften empirischer Daten entwickelt. Die zahlreichen Versionen der vorliegenden ToBI-basierten Notationssysteme haben die Eigenschaft gemeinsam, dass Tonhöhenakzente mit einem Sternchen markiert werden – entweder als monotonale Tonakzente (z. B. H* und L*) oder als Tonkombinationen (z. B. L*+H, L+H* oder L+<H* für steigende Tonhöhenakzente, in denen der Anstieg in unterschiedlicher Weise mit der metrisch starken Silbe aligniert ist; siehe Überblick in Abschnitt 3.1.2.1). Grenztöne werden je nachdem, welcher Ebene der PH sie zugeordnet sind, unterschiedlich markiert (z. B. markieren die diakritischen Zeichen „-“ und „%“ Grenztöne auf ip- bzw. IP-Niveau).

Die hier durchgeführte Intonationsanalyse nutzt die bestehenden ToBI-Annotationssysteme für das Spanische und das Katalanische (Estebas-Vilaplana/Prieto 2008, 2010; Hualde/Prieto 2015; Prieto et al. 2009, 2015) und umfasst eine detaillierte Beschreibung der phonetischen Realisierung und der phonologischen Repräsentation von Tonhöhenakzenten und Grenztönen in den oben genannten Satztypen. Dabei wurde stets auch der Gebrauch von Varianten innerhalb und zwischen verschiedenen Gruppen von bilingualen Sprechern – vornehmlich zwischen spanisch- und katalanisch-dominanten Sprechern – analysiert, um so einen Einblick in die Verbreitung und Entwicklung derselben innerhalb der zweisprachigen Gemeinschaft zu erhalten (vgl. Forschungsfragen 2, 4 und 6)

Die zweite Leseaufgabe diente der Erhebung von Sprachmaterial zur Untersuchung der prosodischen **Phrasierung**. Sie umfasste pro Sprache je zwei Sets à vier Sätze. Jedes Set enthielt einen einfachen SVO-Deklarativsatz sowie drei weiter ausgebaute Versionen dieses Satzes, die verschiedene Grade der Verzweigung von Subjekt und/oder Objekt enthielten. Um eine maximale Vergleichbarkeit mit früheren Studien zu anderen Varietäten des Spanischen und des Katalanischen zu gewährleisten (siehe Abschnitt 3.2), folgte die Gestaltung der Datensets eng dem experimentellen Design von Gabriel et al. (2011), die ihrerseits auf frühere Arbeiten im Rahmen zweier sprachübergreifender Studien von D’Imperio et al. (2005) und Frota et al. (2007) zurückgriffen. Die spanischen Zielsätze wurden entsprechend weitgehend unverändert von Gabriel et al. (2011: 160 f.) übernommen; ihre katalanischen Entsprechungen sind im Wesentlichen wörtliche Übersetzungen. Darüber hinaus wurden auch diejenigen neutralen Aussagen aus dem semispontanen Datensatz (siehe oben), die als SVO-Sätze formulierten waren, im Hinblick auf ihre prosodische Phrasierung analysiert, um so die auf der Grundlage der Lesedaten gewonnenen Erkenntnisse zu untermauern.

Die Analyse des Datensatzes wurde erneut mit Praat (Boersma/Weenink 2020) durchgeführt. Der erste Schritt bestand in der Identifizierung von Phrasierungsgrenzen auf der Grundlage einer auditiven Analyse. Danach wurde jede Grenze im Hinblick auf ihre tonale Realisierung untersucht, wobei insbesondere nach den aus der wissenschaftlichen Literatur zur tonalen Markierung von ip-Grenzen im Spanischen und Katalanischen bekannten tonalen Grenzsignalen gesucht wurde.

Um schließlich den Einfluss des soziolinguistischen Hintergrundes der Sprecher und insbesondere ihrer Sprachdominanz über verschiedene phonologische Teilbereiche hinweg vergleichen zu können (vgl. Forschungsfrage 7), wurde abschließend die Aussprache des spanischen **/s/ im intervokalischen Kontext** untersucht. Die Realisierung von Sibilanten in der spanisch-katalanischen Sprachkontaktsituation ist besonders interessant, da sich die beiden Sprachen sowohl hinsichtlich ihres phonemischen Inventars (im Spanischen nur /s/ vs. /s/, /z/, /ʃ/, /ʒ/ im Katalanischen) als auch in Bezug auf die allophonische Verteilung der entsprechenden Oberflächenvarianten stark unterscheiden (siehe Abschnitt 2.3 und 4.3.3). Zudem wurde in verschiedenen Studien gezeigt, dass die Zischlaut-Realisierung bei spanisch-katalanisch Bilingualen in der nicht-dominanten Sprache häufig Spracheneinfluss der dominanten Sprache aufweist (siehe z. B. Davidson 2012, 2015a, 2015b zur /s/-Sonorisierung im Barcelona-Spanischen; und Ballart 2004, 2013; Benet et al. 2012 zur Entstimmung von Zischlauten im Barcelona-Katalanischen; siehe auch Arnal 2011: 18–19).

Grundlage für die Untersuchung der /s/-Realisierung im Girona-Spanischen bildete gelesenes Sprachmaterial von denselben 31 katalanisch-spanisch Bilingualen. Der bereits oben erwähnte Lesetext wurde, abgesehen von einigen wenigen Details, aus dem korpusphonologischen Forschungsprogramm *(Inter-)Fonología del Español Contemporáneo* ((I)FEC; Pustka et al. 2018) übernommen und bestand aus 386 (orthographischen) Wörtern (siehe Anhang 6). Er wurde den Teilnehmern auf einem Blatt Papier vorgelegt. Der formal-konservative Sprechstil, der beim Lesen in der Regel verwendet wird, wurde bevorzugt, weil er weniger anfällig für (sporadische) Stimmhaftigkeitsassimilationen sowie generell für das Auftreten von Nicht-Standard-Varianten ist als (schnellere) umgangssprachliche Sprechstile (siehe Davidson 2015a: 105, 208 f., 2015b: 124; Hualde et al. 2011; Moreno Fernández 2009: 101; Tagliamonte 2012: 34). Gelesene Daten sind folglich besser geeignet, um zu untersuchen, inwiefern die /s/-Sonorisierung im katalanischen Spanisch einen systematischen Prozess darstellt und ob sie als charakteristisches Merkmal desselben angesehen werden kann.

Insgesamt wurden 20 intervokalische /s/-Tokens aus dem Text ausgewählt, die bei jedem Sprecher hinsichtlich ihrer Stimmhaftigkeit analysiert wurden (d. h. 20 Zielsegmente × 31 Teilnehmer = 620 Segmente insgesamt). Die Hälfte der Items befand sich in wortfinaler intervokalischer und die andere Hälfte in wortinterner intervokalischer Position. Was die erste Art lautlicher Umgebung anbetrifft, so wird das Auftreten stimmhafter Realisierungen (d. h. von [z]) in den spanischen Varietäten, die mit dem Katalanischen in Kontakt stehen, gemeinhin auf den dessen Einfluss zurückgeführt, da das Katalanische – im Gegensatz zum herkömmlichen monolingualen Spanisch – eine phonologische Regel aufweist, der zufolge /s/ am Wortende vor folgendem Vokal zu [z] sonorisiert wird. Zur Bestimmung der Stimmhaftigkeit wurde der prozentuale Anteil der stimmhaften Dauer eines jeden Zielsegments manuell gemessen. Dabei wurden diejenigen Segmentteile als stimmhaft betrachtet, bei denen im Spektrogramm ein deutlicher Stimmbalken (*voice bar*), Stimmlippenverschlüsse (*glottal pulses*) sowie eine klare Formantenstruktur erkennbar waren und die im Oszillogramm Periodizität und damit eine Grundfrequenz aufwiesen (siehe Campos-Astorkiza 2014: 21; Gradoville 2011; Hualde 2014: 48–53; Chappell 2011: 60; Rohena-Madrazo 2011: 31–33; Schmidt/Willis 2011: 6; Torreira/Ernestus 2012; Davidson 2015: 129–132).

Die wichtigsten **Ergebnisse** der Arbeit haben gezeigt, dass das Girona-Spanische und das Girona-Katalanische zahlreiche intonatorische Eigenschaften teilen und nur sehr wenige Unterschiede aufweisen (siehe die ausführliche Gegenüberstellung in Kapitel 6.1). Zunächst liegt beiden Varietäten dasselbe Inventar an Tonhöhenakzenten und Grenztönen zugrunde: Es umfasst die sechs Tonhöhenakzente L*, H*, L*+H, L+H*, L+<H* und H+L* (wovon L*+H und L+<H* nur in pränuklearer Position vorkommen; siehe Abschnitt 5.2.1) sowie drei monotonale (H-/H%, !H-/!H%, und L-/L%) und zwei bitonale Grenztöne (LH% und HL%). Darüber hinaus werden in beiden Varietäten zur tonalen Realisierung der untersuchten Satztypen dieselben nuklearen Tonkonfigurationen verwendet (siehe Tabelle 0.1).

Table 0.1: Nuklearkonfigurationen in verschiedenen Äußerungstypen im Girona-Katalanischen und -Spanischen.

Äußerungstyp		Girona-Katalanisch	Girona-Spanisch
neutrale Aussagen	neutrale Aussagen	L* L%[5]	gleich
	Aufzählungen	L* L%	gleich
	periphere Elemente in neutralen Aussagen		
	Dislokationen	L* L%	gleich
	Vokative	L+H* L%	gleich
	Einschübe	L* L%	gleich
	Appositionen	L* L%	gleich
nicht-neutrale Aussagen	Aussagen mit kontrastivem Fokus	L+H* L%[6]	gleich
	exklamative Aussagen (Ausrufe)	L+H* L%[7]	gleich
	kontradiktive Aussagen (Widersprüche)[8]	H+L* L% L+H* L% L* HL% H+L* HL%	gleich, aber L+H* L% ist häufiger

5 Realisierungsvariante: H+L* L% (nach vorausgehendem Hochton).

6 Realisierungsvarianten: H* L% (nach vorausgehendem Hochton); L* L% (wenn der kontrastive Fokus syntaktisch markiert wird (z. B. durch einen Spaltsatz).

7 Realisierungsvarianten: H* L%; L+¡H* L% (emphatischer); L* L% (wenn die Exklamativität durch intensivierte Tonbewegungen im pränuklearen Bereich ausgedrückt wird).

8 Verschiedene sprecherspezifische Inventare infolge der Konvergenz der ursprünglich unterschiedlichen Systeme des Katalanischen und Spanischen (siehe Abschnitt 6.4.2.2). Für Realisierungsvarianten siehe Abschnitt 5.1.2.3).

	dubitative Aussagen (Zweifel)	L+H* L%[9]	gleich
neutrale Entscheidungsfragen	Ja-Nein-Fragen[10]	L* H%[11] H+L* L%[12]	gleich, aber H+L* L% ist seltener
	disjunktive Fragen	H+L* L% L* L%	L* L% H+L* L%
nicht-neutrale Entscheidungsfragen	exklamative Ja-Nein-Fragen	*gleich wie neutrale Entscheidungsfragen*[13]	
	bestätigende Ja-Nein-Fragen	L* H% H+L* L%[14]	gleich
neutrale Ergänzungsfragen	neutrale Ergänzungsfragen (reine Informationsfragen)[15]	H* L% L* L% L* H%	gleich, aber H* L% ist seltener
nicht-neutrale Ergänzungsfragen	exklamative Ergänzungsfragen[16]	H* L%[17] L+H* L%[18] L* H%[19]	gleich, aber L+H* L% ist häufiger
	imperativische Ergänzungsfragen	H+L* L% L* H%	H+L* L% L* H% L+H* L%
Echo-Fragen	Echo-Entscheidungsfragen	L* H% L+H* L%	gleich
	Echo-Ergänzungsfragen	L* H% L+H* L%[20] L+H* LH%[21]	gleich, aber L+H* L% ist etwas häufiger
	exklamative Echo-Entscheidungsfragen	L* H%[22] H+L* L% L+H* L%	gleich
Imperative	Aufforderungen	H+L* L%[23] L+H* L%[24]	gleich
	Bitten	H+L* L% L+H* L%[25] L+H* HL%[26]	gleich

9 Realisierungsvarianten: H* L%; L* L% (wenn der Zweifel lexikalisch ausgedrückt wird).
10 Verschiedene sprecherspezifische Inventare infolge der Konvergenz der ursprünglich unterschiedlichen Systeme des Katalanischen und Spanischen (siehe Abschnitt 6.4.2.3).
11 Realisierungsvariante: L* ¡H%.
12 Nur in Fragen mit der Partikel *que*.
13 Die Exklamativität wird üblicherweise durch einen größeren Tonumfang ausgedrückt (Realisierungsvarianten: L* H%; H+L* H%).
14 Überwiegend in Verbindung mit „disjunktiven Elementen" (siehe Abschnitt 5.1.4.2).
15 Verschiedene sprecherspezifische Inventare infolge der Konvergenz der ursprünglich unterschiedlichen Systeme des Katalanischen und Spanischen (siehe Abschnitt 6.4.2.4).
16 Vermutlich sprecherspezifisch verschiedene Inventare.
17 Realisierungsvariante: ¡H* L% (emphatischer).
18 Realisierungsvariante: L+¡H* L% (emphatischer).
19 Realisierungsvariante: L+H* (¡)H% (emphatischer).
20 Realisierungsvariante: H* L% (nach vorausgehendem Hochton).
21 Realisierungsvariante: H* LH% (nach vorausgehendem Hochton).
22 Realisierungsvarianten: L* ¡H%; H+L* (¡)H% (emphatischer).
23 Realisierungsvariante: L* L% (weniger nachdrückliche Aufforderung).
24 Bei nur einem prosodischen Wort.
25 Bei nur einem prosodischen Wort.
26 HL% drückt mehr Nachdruck aus als L%.

Vokative		L+H* HL% L+H* !H%[27] L+H* H%[28]	gleich

Wie in Tabelle 0.1 angedeutet, sind Unterschiede zwischen dem Girona-Katalanischen und -Spanischen nahezu ausschließlich in Bezug auf die Häufigkeit zu beobachten, mit der einzelne Töne bzw. Tonkombinationen in einem konkreten Äußerungstyp auftreten (siehe Kapitel 5 für Details). Ein Beispiel dafür ist, dass in Ja-Nein-Fragen im Girona-Katalanischen mit einer gewissen Regelmäßigkeit fallende (nukleare) Intonationskonturen (H+L* L%) verwendet wurden, während diese im Girona-Spanischen recht selten waren und stattdessen nahezu ausschließlich steigende Nuklearkonturen eingesetzt wurden (L* H%). Typischerweise traten solche fallenden Melodien in Kombination mit der Fragepartikel *que* auf, die in diesem Kontext im Katalanischen üblich, aber in monolingualen bzw. Nicht-Kontakt-Varietäten des Spanischen ungrammatisch ist. Interessanterweise wurden die *que*-Fragen im Spanischen nahezu ausschließlich von (stark) katalanisch-dominanten Sprechern realisiert. All dies lässt vermuten, dass hier (1) kontaktinduzierter Wandel stattgefunden hat und (2) zum gegenwärtigen Zeitpunkt nicht alle Sprecher über dasselbe Melodieninventar verfügen. In ähnlicher Weise zeigte sich dies auch bei einigen weiteren Äußerungstypen (z. B. bei kontradiktiven Aussagen sowie bei neutralen und exklamativen Ergänzungsfragen; siehe die ausführliche Diskussion in Kapitel 6.4).

Darüber hinaus ließen sich starke Ähnlichkeiten auch hinsichtlich der prosodischen Phrasierung neutraler SVO-Deklarativsätze beobachten: In beiden Varietäten war (S)(VO) in den gelesenen Deklarativsätzen eindeutig das vorherrschende Phrasierungsmuster. In kurzen Sätzen mit nicht-verzweigtem Subjekt wurden (SVO)-Gruppierungen bevorzugt. In den spontansprachlichen Daten lag insgesamt etwas mehr Variation vor, aber (SVO) trat in beiden Sprachen am häufigsten auf. Zur tonalen Markierung der Phrasengrenzen verwenden beide Varietäten in erster Linie kontinuierliche Tonanstiege bis zur Phrasengrenze, d. h. sog. *continuation rises* (L+H* H-). In seltenen Fällen wurde die Tonhöhe nach dem letzten Tonhöhenakzent bis zur Phrasengrenze auf dem gleichen Niveau gehalten (sog. *sustained pitches*, L+H* !H-). In den spontansprachlichen Daten war dies im Girona-Spanischen signifikant häufiger.

Die weitgehend identische prosodische Form der beiden Kontaktvarietäten lässt folgende Annahmen zu: Die Intonation des Girona-Spanischen und des Girona-Katalanischen sind direkt durch den Kontakt beeinflusst, d. h. ihre heutige Form kann als Ergebnis umfassender Konvergenz zwischen den Intonationssystemen des Spanischen und des Katalanischen interpretiert werden. Darüber hinaus wurden beide Varietäten, insbesondere aber das Girona-Spanische, auch durch (Substrat-)Transfer beeinflusst, der erfolgte, als monolinguale Sprecher die jeweils andere Sprache als Fremdsprache erlernten. Diese Entwicklungen haben aber auch dazu ge-

[27] !H% drückt mehr Nachdruck aus als HL%.
[28] Realisierungsvariante: L* H% (interrogative Vokative).

führt, dass die beiden Varietäten zahlreiche konkurrierende Melodien aufweisen und sich insgesamt durch eine große sprachliche Variation auszeichnen, die oft mit der Sprachdominanz ihrer bilingualen Sprecher in Verbindung gebracht werden kann (siehe die Diskussion in Abschnitt 6.2). Beispielsweise sind melodische Muster, die ursprünglich aus dem Katalanischen stammen, im Spanischen der katalanisch-dominanten Sprecher häufiger anzutreffen als im Spanischen spanisch-dominanter Sprecher. Ebenso manifestieren sich „typisch spanische" Merkmale in der Intonation des Girona-Katalanischen sozial häufiger bei Sprechern mit erhöhtem Gebrauch des Spanischen, d. h. stärker bei spanisch-dominanten als bei katalanisch-dominanten Sprechern. So zeigen die Ergebnisse zwar, wie der Weg der Verbreitung von Kontaktmerkmalen in der zweisprachigen Gesellschaft notwendigerweise durch Sprachdominanz gesteuert wird, zugleich lassen sich die beiden Sprechergruppen jedoch anhand ihres sprachlichen Verhaltens auf der Ebene der Intonation nicht (mehr) sauber voneinander abgrenzen. Dies bedeutet in erster Linie, dass eindeutige Unterschiede, die wahrscheinlich zu einem früheren Zeitpunkt in der Geschichte der beiden Sprachen einmal bestanden haben, in der Gegenwart durch weitreichende Konvergenzprozesse verwischt worden sind. Infolgedessen sind die heutigen „bilingualen Varietäten" des Spanischen und Katalanischen (siehe Boix-Fuster/Sanz 2008), die in Girona gesprochen werden, nicht vollkommen homogen, sondern es können (noch immer) kleinere Unterschiede zwischen einzelnen bilingualen Sprechern beobachten werden. Solange sich die äußeren Bedingungen des Sprachkontakts nicht maßgeblich verändern (z. B. im Zuge zukünftiger politischer oder demographischer Entwicklungen), kann allerdings ein kontinuierliches Fortschreiten der Konvergenzprozesse erwartet werden. Gegenwärtig scheint die demolinguistische Vorherrschaft des Katalanischen in Girona, d. h. die wesentlich größere Zahl von Bilingualen mit Dominanz im Katalanischen sowie die stärkere Verbreitung dieser Sprache im öffentlichen Raum, dazu zu führen, dass die Kontaktvarietäten insgesamt etwas mehr „katalanische" als „spanische" Merkmale aufweisen.

Hinsichtlich des Status des Spanischen in Girona (bzw. in Katalonien generell) innerhalb des spanischen Diasystems bedeutet dies, dass es sich zwar als Kontaktvarietät insbesondere durch den deutlich spürbaren katalanischen Einfluss von anderen, monolingualen Varietäten des Spanischen wie beispielsweise dem kastilischen Spanisch unterscheidet (siehe den Vergleich dieser Varietäten in Abschnitt 6.3), allerdings aufgrund der großen internen Variation gegenwärtig nur bedingt als (klar umreißbarer) Dialekt des Spanischen gesehen werden kann (siehe die Diskussion in Abschnitt 6.5).

Weiterhin hat die vorliegende Untersuchung empirische Belege dafür geliefert, dass Intonation in Sprachkontaktsituationen sehr anfällig für Spracheneinfluss ist (siehe Matras 2008: 231–233 und Abschnitt 3.3.2). So konnten im betrachteten Fall wechselseitige Einflüsse u. a. hinsichtlich der folgenden Charakteristika festgestellt werden: Phrasierungsmuster, pränukleare Tonhöhenakzente, Grenztöne, Nuklearkonfigurationen und sogar ganze melodische Konstruktionen (hier zu verstehen als Kombinationen aus pränuklearen Tonhöhenakzenten und Nuklearkonfigurationen). Diese Beobachtungen lassen vermuten, dass prinzipiell alle Arten von Intonationsmerkmalen übertragen werden können, wenn zwei Sprachen in Kontakt treten. Mit anderen Worten: Jedes intonatorische Merkmal kann Ergebnis von Transfer- und/oder Konvergenzprozessen zwischen zwei (oder mehr) Sprachen sein. Die hier angestellten Überlegungen bestätigen somit, zumindest im Hinblick auf die Intonationsebene, die Annahme von Thomason (2001: 63), dass Sprachen (frei übersetzt) „alles aus einer anderen übernehmen können".

Zudem lieferten die Ergebnisse der segmentalen Analyse neue Anhaltspunkte für die Hypothese, dass die segmentale Phonologie weniger anfällig für (1) Spracheneinfluss im Allgemeinen und (2) für Konvergenz im großen Stil im Besonderen ist als die Prosodie (siehe Abschnitt 3.3.2 und die Diskussion in Abschnitt 6.7). Während die intonationsphonologischen Systeme des Girona-Spanischen und -Katalanischen weitgehend zusammengefallen sind, konnten im Girona-spanischen Phonemsystem (mindestens hinsichtlich der Sibilanten) keine Veränderungen beobachtet werden. Konkret bedeutet dies, dass das katalanische Phonem /z/ von den untersuchten bilingualen Sprechern nicht ins Girona-Spanische übernommen wurde. Allerdings war die Schnittstelle zur Phonetik im Gegensatz dazu sehr wohl von Spracheneinfluss betroffen: Einige Studienteilnehmer verwendeten auch im Spanischen praktisch durchgehend die ursprünglich aus dem Katalanischen stammende phonologische Regel, durch die auslautendes /s/ in intervokalischer Position zu [z] sonorisiert wird (z. B. Girona-spanisch *lo*[z] *otros* 'die anderen' statt herkömmlich *lo*[s] *otros*). Auf der Segmentebene scheint die Phonetik (bzw. die Schnittstelle zwischen Phonologie und Phonetik) demnach stärker von Spracheneinfluss betroffen zu sein als das Phoneminventar an sich. Zugleich war das Ausmaß des Transfers dieses phonologischen Prozesses stark sprecherabhängig und kam signifikant häufiger vor je stärker ein Sprecher dominant im Katalanischen war (siehe Kapitel 5.4). Interessanterweise kamen solche Übernahmen jedoch auch bei mehreren spanisch-dominanten Sprechern vor, was erneut auf weitreichende Konvergenzprozesse zwischen den beiden Sprechergruppen schließen lässt.

Insgesamt wurde in der Untersuchung deutlich, dass es entscheidend von den **außersprachlichen Bedingungen der Kontaktsituation** abhängt, ob kontaktinduzierter Sprachwandel stattfindet oder nicht und in welche Richtung er (stärker) geht (siehe die Diskussion in Abschnitt 6.6). Dementsprechend erklärt sich die nachhaltigere Beeinflussung des Girona-Spanischen durch das Katalanische in erster Linie dadurch, dass das Katalanische in Girona – anders als beispielsweise in Barcelona – gesamtgesellschaftlich eine etwas stärkere Position innehat als das Spanische. So ist nicht nur (rein demolinguistisch gesehen) die Zahl katalanischer Erstsprecher bzw. katalanisch-dominanter Bilingualer größer, sondern Katalanisch wird zudem im öffentlichen Leben auch häufiger verwendet – oft auch von spanischen Erstsprechern. „Katalanische" Elemente sind somit auf dem gemeinsamen „sprachlichen Markt" stärker präsent als „spanische" und haben es folglich leichter, sich zu etablieren. Zudem besitzt das Katalanische seit dem Ende der massiven Repression während des Franco-Regimes auch wieder das höhere Prestige, was seiner Ausbreitung ebenfalls zugutekommt (siehe Abschnitt 2.1).

Die **vorliegende Arbeit gliedert** sich in fünf Hauptkapitel. Nach einer Einleitung in Kapitel 1 skizziert Kapitel 2 den spanisch-katalanischen Sprachkontakt in seiner historischen Entwicklung und umreißt die gegenwärtige soziolinguistische Situation Kataloniens. Darüber hinaus wird ein Überblick über die bisherige Forschung zum Spanischen im katalanischen Sprachraum und dessen wichtigste sprachliche Eigenschaften gegeben.

Kapitel 3 ist mit der Darstellung des theoretischen Hintergrunds der Arbeit und mit der Beschreibung der Intonation der beiden Standard- bzw. Referenzvarietäten befasst, mit denen das Girona-Spanische und -Katalanische in Kapitel 6 verglichen werden (kastilisches Spanisch und Zentralkatalanisch). Das Kapitel ist in vier Abschnitte unterteilt, wobei jeder einem anderen theoretischen Aspekt gewidmet ist: Abschnitt 3.1 ist mit der Intonation befasst. Neben dem Phänomen an sich liegt der Fokus auf dem theoretischen Rahmen, der im Analyseteil dieser Arbeit Anwendung findet (nämlich auf dem autosegmental-metrischen Modell sowie den ToBI-Annotationssystemen). Außerdem werden die innerhalb dieses Models für verschiedene Satztypen erstellten Ton- und Melodieinventare des kastilischen Spanisch und Zentralkatalanischen vorgestellt. In der Folge behandelt Abschnitt 3.2 die prosodische Struktur und Phrasierung, während Abschnitt 3.3 auf Sprachkontakt eingeht: Er enthält einerseits Definitionen der Schlüsselbegriffe, die zur Beschreibung von Sprachkontakt verwendet werden, andererseits erklärt er die Mechanismen, die kontaktinduziertem Sprachwandel zugrundeliegen und auf die bei der Interpretation der Ergebnisse der Intonationsanalyse des Girona-Spanischen und -Katalanischen in Kapitel 6 Bezug genommen wird. Weiterhin werden in diesem Abschnitt die Ergebnisse zahlreicher Fallstudien zur Intonation in verschiedenen Sprachkontaktsituationen diskutiert. Abschnitt 3.4 schließlich befasst sich mit dem Thema der Sprachdominanz bei Bilingualen.

In Kapitel 4 wird die im empirischen Teil dieser Arbeit angewandte Methodologie vorgestellt. Zunächst wird erläutert, wie die Sprachdominanz der bilingualen Sprecher gemessen wurde (Abschnitt 4.1). Dann wird ein ausführlicher Überblick über die Hintergrunddaten der Probanden gegeben, da außersprachliche Faktoren für die vorliegende Studie von besonderem Interesse sind (Abschnitt 4.2). Darauffolgend werden die Sprachdaten vorgestellt, die im Hinblick auf die Intonation und die Realisierung des spanischen intervokalischen /s/ analysiert wurden, und abschließend werden die Kriterien erläutert, die für die Segmentierung und Analyse des Sprachmaterials angewendet wurden (Abschnitt 4.3).

Die Ergebnisse der Intonationsanalyse des Girona-Spanischen und -Katalanischen sowie der segmentalen Vergleichsdaten werden in Kapitel 5 vorgestellt. Die Intonationsanalyse der oben genannten Satztypen umfasst jeweils eine detaillierte Beschreibung der phonetischen Realisierung der verwendeten Tonhöhenakzente und Grenztöne (in Abschnitt 5.1) sowie die Ableitung der diesen Oberflächenformen zugrundeliegenden phonologischen Kategorien (in Abschnitt 5.2). Darüber hinaus werden in Abschnitt 5.3 die prosodischen Phrasierungsmuster der neutralen SVO-Deklarativsätze dargestellt. Abschnitt 5.4 schließlich ist der segmentalen Analyse des intervokalischen /s/ im Girona-Spanischen gewidmet.

In Kapitel 6 werden die oben formulierten Forschungsfragen beantwortet. Zunächst werden die Gemeinsamkeiten und Unterschiede zwischen den Intonationssystemen des Girona-Spanischen und -Katalanischen zusammengefasst (siehe Abschnitt 6.1). Anschließend wird erörtert, wie einheitlich die Kontaktvarietäten sind und ob die Variation, der sie unterliegen, auf mit der Zweisprachigkeit der Sprecher in Verbindung stehende Faktoren wie die Sprachdominanz zurückgeführt werden kann (siehe Abschnitt 6.2). In einem nächsten Schritt werden die intonatorischen Besonderheiten des Girona-Spanischen denen des kastilischen Spanisch gegenübergestellt (siehe Abschnitt 6.3). Daneben wird in Abschnitt 6.3 auch die Girona-katalanische Intonation im Kontext anderer zentral-katalanischer Varietäten besprochen. In Abschnitt 6.4 wird die Intonation der Kontaktvarietäten mit den jeweiligen Referenzvarietäten verglichen, um zu ermitteln, welche intonatorischen Merkmale durch Transfer- und/oder Konvergenzprozesse während des langjährigen Kontakts zwischen Katalanisch und Spanisch in Girona entstanden sind. In Abschnitt 6.5 wird der Status des Girona-Spanischen als eigenständige Varietät innerhalb des spanischen Diasystems betrachtet. Die Abschnitte 6.6 und 6.7 schließen das Kapitel ab, indem sie Intonationswandel aus einer eher theoretischen Perspektive betrachten.

Zuletzt werden in Kapitel 7 die wichtigsten Ergebnisse der vorliegenden Studie rekapituliert, einige abschließende Bemerkungen gemacht sowie offene Fragen aufgezeigt, für deren Beantwortung weitere Forschungen angestellt werden müssen.

Abbreviations

%voiced	percentage of a segment's duration that is voiced
AM	autosegmental-metrical
Cat.	Catalan
CatD	Catalan-dominant
CatS	Spanish spoken in the Autonomous Community of Catalonia, Catalonian Spanish
CB	complex boundary tone
CC	Central Catalan
CCS	Catalan-contact Spanish, i.e. Spanish spoken in Catalan-speaking regions
CLI	cross-linguistic influence
CR	continuation rise
CS	Castilian Spanish
CYNQ	confirmation-seeking yes–no question(s)
DCT	discourse completion task
F0	fundamental frequency
GC	Girona Catalan
GS	Girona Spanish
HC	(sustained) hat contour
ILD	index of language dominance
ip	intermediate phrase
IP	intonation(al) phrase
IQR	interquartile range
IYNQ	information-seeking yes–no question(s)
L1	first language
L2	second language
LB	low boundary tone
LD	language dominance
NP	noun phrase
Oc.	Occitan
PL	(pitch) plateau
PP	prepositional phrase
PR	pitch reset
PU	pre-boundary upstep
SD	standard deviation
SLA	second-language acquisition
SP	sustained pitch
Sp.	Spanish

SpD	Spanish-dominant
SVO	subject–verb–object
ToBI	Tone and Break Indices
VP	verb phrase

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На останок, але не менш важливо: ця дисертація не була б можливою без Владислава. Насправді без тебе вона нічого не була б вартою. Ця дисертація й для тебе, тому що я не маю нічого більшого, щоб присвятити тобі. Щиро дякую за все!

Chapter 1: Introduction

The varieties of Catalan and Spanish spoken in present-day Catalonia[1] provide outstanding examples of long-lasting and intense contact between two closely related Romance languages. The historical background helps understand how these two varieties came about: the territories of what is now Catalonia used to constitute the centre of gravity of the Crown of Aragon until 1479, when the dynastic union with the Crown of Castile through the marriage of Catholic Kings (1469) and their joint rule marked the *de facto* formation of Spain (cf. Ferrando 2020). As a consequence thereof, Spanish in a century-long process began to supplant Catalan in virtually all public domains—especially so after the enaction of the *Nueva Planta* decrees (1707–1716), which formally united the kingdoms and made Spanish the sole official language of the state (i.e. banning other languages from use in, e.g., courts, education, or printing). Nonetheless, Catalan never ceased to be the every-day spoken language of all social classes in Catalonia and it is relatively safe to presume that the lion's share of the population was effectively monolingual until well into the 20th century, i.e. in most cases Spanish was only learned as a foreign language at school (cf. Bernat et al. 2019, 2020; Vila 2020a: 632–636). After various short interludes during which Catalan even succeeded to regain a co-official status at the beginning of the 20th century, its repression finally reached its peak under the Francoist regime (1939–1978), when all signs of Catalan identity were severely prohibited from the public sphere and the use of Catalan was relegated to the familial domain. In 1979, after the recovery of democracy, when virtually all Catalan-speakers had become fully bilingual, Catalan anew obtained a co-official status through Statute of Autonomy of the newly formed Autonomous Community of Catalonia. Since then, it has re-entered all domains of public life in Catalonia, especially the educational and administrative ones, and is even considered a prestige language (Ramallo 2018: 478). Nevertheless, due to the massive and ongoing influx of Spanish-speaking immigrants setting in at the beginning of the 20th century and reaching its peaks between the '50s and '70s and in the first decade of the 21st century, Spanish has by now become the most widely spoken language and the most frequent initial language in Catalonia (cf. Vila 2016: 145, 2020a: 634f.). The two languages therefore remain in close contact, and their speakers today are almost invariably bilingual (cf., e.g., Boix-Fuster/Sanz 2008). Still, significant differences persist be-

[1] In this work, I will use the designation Catalonia first and foremost to refer to the territories that constitute the present-day Autonomous Community of Catalonia (see Appendix 1, Figure A1 for a map). Note that this political unit is somewhat smaller than the historic Principality of Catalonia, which also comprised areas belonging to France today (the so-called *Catalunya del Nord*, see Appendix 1, Figure A2).

tween individual speakers and speaker groups regarding their actual language use and proficiency or, in other words, their language dominance[2], such that Catalonia's current sociolinguistic situation is characterized by a bilingual continuum with different degrees of competence and use at the individual level (cf. Arnal 2011: 13–15, see also Boix-Fuster 2015).

The results of the secular and ever more intense contact between Catalan and Spanish in Catalonia are said to be mutual influences detected in different linguistic domains such as phonetics/phonology, morphology, syntax, or the lexicon (for Catalan influence on local Spanish see, e.g., Moll 1961; Badia i Margarit 1979, 1981; Wesch 1992, 1997; Casanovas Català 1995, 2000; Argenter et al. 1998; Sinner 2004, and Section 2.3; for Spanish influence on Catalan see Fabra 1912: IXf., 1925; Payrató 1985; Colón 1993; Veny 2006; Lleó et al. 2009; Cortés et al. 2009; Arnal 2011; Ferrando/Nicolás 2011: 294f., 341, 525–530; Benet et al. 2011, among many others). However, the effects of the close contact on the prosodic properties of the two languages have hardly received any attention to date: while cross-linguistic influence (CLI) has been almost completely neglected in the research on Catalan intonation (flourishing in recent years; cf., e.g., Prieto 2002a, 2014; Prieto/Cabré 2007–2012, 2013; Escudero et al. 2012; Prieto et al. 2015, among numerous others), what we know about the intonation of Spanish spoken in present-day Catalonia and other Catalan-speaking areas does not exceed a few impressionistic remarks and some cursory, rather data-poor studies of neutral declaratives and yes–no questions.[3] Likewise, the effects of the almost generalized bilingualism that characterizes the Catalan society today have not sufficiently been taken into account so far: only in very recent years have researchers begun to consider language dominance as an explanatory factor for the variation observed across Catalan–Spanish bilingual speakers (e.g. Simonet 2008, 2011, 2015; Davidson 2012, 2015, 2020; Amengual 2016; Machuca 2016; Ramírez/Simonet 2017; Amengual/Simonet 2020; Hualde/Nadeu 2020, among others).

The present study attempts to fill this research gap by investigating the intonation of both Catalan and Spanish spoken by bilinguals in Girona.[4] The major goal is thus to offer a detailed description of the intonational patterns of the two contact varieties spoken there, bearing in mind the speakers' language dominance and its effects on their phonetic realizations, so that a more comprehensive understanding of intonational variation in both Romance languages may be achieved. A broad initial approach, enabling principled dialectal comparisons, is pursued to enrich our current knowledge of pan-Hispanic and pan-Catalan intonation and with the secondary aim of opening questions for further research on more specific issues. Given the pioneer character of the enterprise of providing an ample description of its intonational intricacies, a somewhat stronger focus will be allocated to Girona Spanish. In addition to this, the following research questions will be addressed:

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2 For a definition and an extensive discussion of the term *language dominance* see Sections 3.5 and 4.1.

3 Note, however, that the intonation of statements and yes–no questions in the Spanish and Catalan spoken by bilinguals in Majorca has been thoroughly examined by Simonet (2008, 2010, 2011).

4 Girona is a city in the north of Catalonia, located roughly 100 km northeast of Barcelona (see Appendix 1, Figure A1 for a map; for the reasons why this locality was chosen see Section 4.2).

1. How similar is the intonation of Girona Spanish and Girona Catalan?
2. How uniform is the intonation of the two contact varieties spoken in Girona across speaker groups and individual speakers? Can variation be linked to bilingualism factors such as language dominance?
3. What are the differences and similarities between Girona Spanish and Castilian Spanish intonation? What are the differences and similarities between Girona Catalan and other Central Catalan varieties on the intonational level?
4. How can the similarities and differences between Girona Catalan and Girona Spanish at the prosodic level be explained in terms of language contact, i.e. how did the current intonational systems emerge?
5. Does the prosodic distance to other Spanish varieties and the level of homogeneity of its intonation across speakers justify that Girona Spanish (or Catalonian Spanish in a wider sense) should be viewed as a distinctive variety or a dialect of Spanish in its own right?[5]
6. How does contact-induced intonational change work? And how is it influenced by the extralinguistic conditions of the contact situation?
7. Which kinds of intonational features can be transferred? Are prosodic features more likely to be affected by CLI than segmental ones?

The analysis of the intonation of both varieties is chiefly based on a corpus of semi-spontaneous speech, although some supplementary read data were used as well (mainly in the analysis of prosodic phrasing[6]). The reason for this choice was that in opposition to fully spontaneous data, semi-spontaneous data can be controlled to a certain degree and thus enable a better comparison of different utterance types across varieties and speakers, while still providing relatively natural and ecologically valid data (cf. Vanrell et al. 2018 and the discussion in 4.3.1.1). As in numerous previous studies on Romance intonation, the semi-spontaneous data were elicited by administering a discourse completion task (DCT; cf. Prieto/Cabré 2007–2012, 2013; Prieto/ Roseano 2009–2013, 2010, and Section 4.3.1.1) and, for the collection of the read data sets, different sorts of reading tasks were used (cf. Section 4.3.1.2). The intonational analysis was carried out using the *Praat* acoustic analysis software (Boersma/Weenink 2020) and within the theoretical framework provided by the Autosegmental-Metrical (AM) model and the Tone and Break Indices (ToBI) annotation systems for Catalan and Spanish (cf. Pierrehumbert 1980; Beckman/Pierrehumbert 1986; Silverman et al. 1992; Beckman et al. 2005; Ladd 2008; Estebas-Vilaplana/Prieto 2008, 2010; Prieto et al. 2009, 2015, among others). The analysis offers a description of the phonetic realization and the phonological representation of pitch accents and boundary tones in the following sentence types: i.e. **neutral statements** (neutral

5 It is, of course, very challenging, if not altogether impossible, to establish hard criteria that can serve to assess this issue. Moreover, linguistic varieties are, needless to say, not defined merely by their prosodic characteristics. Nevertheless, it seems worthwhile to discuss this question at least tentatively in the light of the results of the intonational analysis carried out in this study.

6 Apart from the phrasing analysis, read data were used to endorse the investigation of some interrogative sentence types as well as of dislocations in Girona Spanish (see Section 4.3.1.2 for the motivation).

declarative statements with and without peripheral elements such as dislocations, vocatives, and appositions), enumerations, **biased statements** (contrastive-focus statements, exclamative statements, contradiction statements, dubitative statements), **neutral polar questions** (information-seeking yes–no questions with and without peripheral elements and disjunctive questions), **biased polar questions** (exclamative yes–no questions with counterexpectational meaning, confirmation-seeking yes–no questions), **neutral wh-questions** (information-seeking wh-questions), **biased wh-questions** (exclamative wh-questions, imperative wh-questions), **echo questions** (echo yes–no questions, echo wh-questions, exclamative echo yes–no questions with counterexpectational meaning), **imperatives** (commands and requests), and **vocatives**.[7] The neutral statements that presented an SVO word order were also analysed with respect to prosodic phrasing so as to complement the results obtained on the basis of the read data. Additionally, to enable comparisons of the influence of the speakers' background characteristics, viz. of their language dominance, across different areas of phonology, the voicing of intervocalic Spanish /s/ was studied in the (read) speech of the same bilinguals.[8]

The main findings of the work reveal that Girona Spanish and Girona Catalan share numerous intonational properties and display very few differences. The same tonal inventories underly both varieties and the same combinations of tones are used to mark identical utterance types. Differences can almost exclusively be observed in the frequencies with which some particular tunes occur in a certain context. As a case in point, information-seeking yes–no questions regularly present falling tunes in Girona Catalan, whereas this is rare in Girona Spanish. Typically, such falling tunes co-occur with the use of the interrogative particle *que*, which is customary in Catalan but agrammatical in monolingual or non-contact varieties of Spanish in this context.

The alike prosodic shape of the two contacting varieties allows for the following assumptions: the intonational systems of Girona Spanish and Girona Catalan are an outcome of wholesale convergence between the intonational systems of Spanish and Catalan. Furthermore, both

7 Preliminary results of some parts the present work were presented at the following conferences, workshops, and colloquia: *Phonetik und Phonologie im deutschsprachigen Raum (P&P) 2018*, Vienna, September 2018; *26. Katalanistentag*, Mainz, September 2018; *Mehrsprachigkeit – Identität – Authentizität*, Augsburg, November 2018; *XV. LIMES*, Germersheim, January 2019; Summer school "Wissenschaftliches Spanisch für deutschsprachige Hispanisten", Mainz, August 2019; *XVI. LIMES* 2020, Mannheim, February 2020; *Linguistisches Kolloquium*, Mainz, January 2021; *Forschungskolloquium,* Institut für Romanistik, Hamburg, February 2021, *XVII. LIMES*, Jena, März 2021; *Prosodic variation* (workshop at *Phonetics and Phonology in Europe* (PaPE 2021)), Barcelona, June 2021; *XII Workshop sobre la prosòdia del català*, Barcelona/Palma, July 2021. Note, furthermore, that the language dominance and the linguistic uses of the experimental group are also discussed in Grünke (2020).

8 The realization of sibilants in Spanish-Catalan language contact is particularly interesting as the two languages largely differ regarding their phonemic inventories (only /s/ in Spanish vs /s/, /z/, /ʃ/, /ʒ/ in Catalan) as well as with respect to the allophonic distribution of the corresponding surface variants (cf. Section 2.3 and 4.3.3). Since various studies have shown that Spanish–Catalan bilinguals tend to display cross-linguistic influence of the dominant language in their non-dominant language regarding sibilant realization (cf., e.g., Davidson 2012, 2015a, 2015b on /s/ voicing in Barcelona Spanish; and Ballart 2004, 2013; Benet et al. 2012 on sibilant devoicing in Barcelona Catalan; see also Arnal 2011: 18–19), it was chosen to study /s/ voicing in Spanish to create the basis for a direct comparison of the influence of the bilinguals' language dominance across different areas of phonology.

varieties, and especially Girona Spanish, have also been influenced by substratum transfer occurring when monolingual speakers learned the other language as an (early) foreign language (for definitions of the terms convergence and substratum transfer see Section 3.3.1). Yet, these developments have also entailed that the two varieties feature many competing tunes and that they are characterized by a vast amount of variation, which can often be traced back to the language dominance of the bilingual speakers. For instance, melodical patterns that originally stem from Catalan are more common in the Spanish of Catalan-dominant speakers than in that of Spanish-dominants. Likewise, the Girona Catalan intonation of Spanish-dominant bilinguals is more prone to display 'typically Spanish' features than that of Catalan-dominants. However, the two speaker groups cannot be neatly told apart merely on the grounds of their linguistic behaviour on the intonational level, i.e. clear-cut differences that are likely to have existed at some point in history have become blurred through large-scale convergence processes. As a consequence, the current 'bilingual varieties' of Spanish and Catalan spoken in Girona are not yet completely uniform as minor differences can be observed across individual bilingual speakers. Yet, unless the external conditions of the language contact situation change (e.g. in the wake of new political or demographic shifts), further convergence can be expected. At the moment, the demolinguistic predominance of Catalan in Girona, i.e. the substantially greater number of Catalan-dominant bilinguals as well as the more widespread use of this language in the public domain, seems to entail that the contact varieties present overall somewhat more 'Catalan' than 'Spanish' features.

In the following, I describe the structure of the present work: in **Chapter 2**, I outline the historical development of the Spanish-Catalan language contact as well as the current sociolinguistic situation of Catalonia. In addition, I provide an overview of previous research into the Spanish spoken in Catalan-speaking regions and, on the basis of these studies, sketch its most important linguistic properties.

Chapter 3 is concerned with the presentation of the theoretical background of this work and with the description of the intonation of the two reference varieties to which Girona Spanish and Girona Catalan are compared in Chapter 6 (i.e. Castilian Spanish and Central Catalan). The chapter is divided into four sections, with each section devoted to a different theorical aspect: Section 3.1 deals with intonation, i.e. it focuses on the frameworks applied in the intonational analysis (namely, the AM model and the ToBI annotation system) and presents the inventories of tones and tunes established within these frameworks for various sentence types in Castilian Spanish and Central Catalan. Section 3.2 addresses prosodic structure and phrasing, while Section 3.3 is dedicated to language contact: it provides definitions of the key terms used to describe language contact and explains the mechanisms underlying contact-induced change which I refer to when interpreting the results of the intonational analysis in Chapter 6. Furthermore, the section discusses the results of numerous case studies on intonation in language contact. Section 3.4, finally, is concerned with the topic of language dominance in bilinguals.

Chapter 4 introduces the methodology applied in the present work. It first discusses the assessment of the bilingual speakers' language dominance (Section 4.1). Then, an extensive overview of the background data for all subjects is given as extralinguistic factors are of particular interest to the present study (Section 4.2). Next, I present the speech data analysed with respect to intonation and regarding the voicing of Spanish intervocalic /s/ and specify the criteria adopted for the segmentation and analysis of the linguistic material (Section 4.3).

The aim of **Chapter 5** is to present the results of the intonational analysis of Girona Spanish and Girona Catalan as well as of the segmental control data. The intonational analysis of each of the sentence types mentioned above includes the detailed description of the phonetic realization of pitch accents and boundary tones (in Section 5.1) and the establishment of the phonological categories underlying these surface forms (in Section 5.2). Furthermore, the prosodic phrasing patterns of neutral SVO declaratives are depicted in Section 5.3. Section 5.4, finally, is devoted to the segmental analysis of Girona Spanish intervocalic /s/.

The purpose of **Chapter 6** is to try and give answers to the research questions formulated above. To begin with, I summarize the similarities and differences between the intonational systems of Girona Spanish and Girona Catalan (cf. Section 6.1). Then, I discuss how uniform the contact varieties are and whether the variation to which they are subject results from bilingualism factors such as language dominance (cf. Section 6.2). In a next step, I depict the distance between Girona Spanish and Castilian Spanish and between Girona Catalan and other Central Catalan varieties on the intonation level (in Section 6.3). In Section 6.4, the intonation of the contact varieties will be compared to the respective reference varieties in order to find out which intonational features have resulted from transfer and/or convergence processes during the long-standing contact between Catalan and Spanish in Girona. In Section 6.5, I consider the status of Girona Spanish within the Spanish diasystem and Sections 6.6 and 6.7, eventually, bring the chapter to a close in that they are concerned with intonational change from a more theoretical point of view.

Last, **Chapter 7** recapitulates the main findings of the present study, offers some concluding remarks, and puts forth some open questions which remain for further research.

Chapter 2: Spanish-Catalan language contact and Catalonian Spanish

This chapter offers a brief description of the Spanish-Catalan language contact as well as of the Spanish varieties that are in contact with Catalan (henceforth referred to as Catalan-contact Spanish, CCS). In Section 2.1, I depict the external historical background of the contact between the two languages and describe Catalonia's present sociolinguistic situation. In Section 2.2, I give an overview of previous research into the linguistic features of Spanish spoken in Catalan-speaking regions and shall identify some major research gaps. In Section 2.3, eventually, I shall summarize the most important characteristics of CCS on the basis of the outcomes of the few existing studies.

2.1 Spanish-Catalan language contact: Historical background and present sociolinguistic situation

Both present-day Catalan and Spanish have developed on the Iberian Peninsula alongside other Romance languages from varieties of the northern Peninsular dialect continuum that came into being after the gradual adoption of the Latin vernacular brought about by the Romans (Penny 2000: 80–104). In the course of the *Reconquista*, i.e. the Christian 'reconquest' of territories controlled by the Moors, the single counties eventually grew into the Crown of Aragon[9] and the Crown of Castile with Catalan and Spanish[10] as their respective 'state languages' (Bossong 2008: 77, 100). However, it was only through the concomitant southward expansion of the respective language areas that the number of their speakers increased considerably and both languages became important languages of culture with a flourishing literature[11] (Ferrando 2020: 472, 478, 480–482; Bossong 2008: 99).

In the 15th century, Spanish for the first time began to sneak in into the Crown of Aragon as language of the royal court when the monarchy fell to the (Castilian) House of Trastámara in consequence of the Compromise of Caspe (1412; Ferrando 2020: 472–473). In 1479, the position of the Spanish language was further expanded through the dynastic union of the Crown of Aragon with the Crown of Castile by the Catholic Monarchs and their subsequent decision "to designate Castilian as the sole national language" (Bochmann 2018: 435), whereby Catalan was

9 Please note that, despite the name 'Crown of Aragon', the confederation consisted of individual entities, such as the Kingdom of Aragon, the Kingdom of València, or the Principality of Barcelona, and present-day Catalonia was not only an integral part of it but actually its centre of gravity, with Barcelona being the crown's 'capital' (Bossong 2008: 100; see Appendix 1, Figure A2 for a map).

10 When referring to language, I use the terms Spanish and Castilian interchangeably in this chapter.

11 It is interesting to note that the heyday of mediaeval literature begins not in Catalonia but with Ramon Lull (1235–1316) in the Balearic Islands. Also, in the 15th century, it is València that becomes the centre of the Golden Age of Catalan literature with (epic) poets such as Ausiàs March (1379–1459) and Joanot Martorell (1410–1468) (Bossong 2008: 100).

hierarchically subordinated to Spanish (see also Argenter 2020: 600). The ‘discovery’ of America in 1492 additionally precipitated the decline of Catalan at the end of the Middle Ages in shifting the orientation of the new realm from the Mediterranean to the Atlantic coast, i.e. from Barcelona and València to Cádiz and Seville (Bossong 2008: 101; Nicolás 2020: 486).[12] Especially in the western parts of the former Crown of Aragon, i.e. in the Kingdom of Aragon, where Aragonese dialects were spoken originally, and the western strip of the Kingdom of València, mainly colonized by Aragonese settlers, the new ‘official’ language was quickly adopted. In the rest of the territories, Catalan remained the spoken language of all strata of society, even though at least parts of the nobility, clergy, literati, and merchants had already become bilingual by the 15th century.

The following centuries (16th–19th) are commonly referred to as *Decadència* due to the considerable decline in the use of Catalan as a written language in the light of the Spanish Golden Age (Sp. *Siglo de Oro*). However, this term may be misleading, since Catalan always stayed vital as a spoken language: indeed, in Catalonia and the Balearic Islands, it continued to be the every-day spoken (and also written) language of all social classes, and even in València, only the upper classes shifted to Spanish overall (Bossong 2008: 101; see also Vila 2016: 136–141, Escartí 2005; Nicolás 2020: 488–490). Catalan thus “had the status of a tolerated majority language and was [even] used […] in some areas of public communication” for various centuries (Bochmann 2018: 44).

This was to be changed in the 18th century, when the monarchy began to enforce Castilian in those parts of the kingdom that were not castilophone in the aftermath of the war of the Spanish Succession (1700–1714), in which the Catalan countries had allied themselves with the Habsburgs. Following their military defeat, the new Bourbon king, Philip V—coming from centralist France—took rigorous measures against the defeated: he abolished Catalan institutions, privileges, and ancient charters (Sp. *fueros*, Cat. *furs*) and established Castilian as only language in all public areas (e.g. in education, courts, book printing) by enacting the Nueva Planta (‘Reform’) decrees (Sp. *Decretos de Nueva Planta*, Cat. *Decrets de Nova Planta*) in València (1707), the Balearic Islands (1715), and Catalonia (1716) as well as a series of additional language decrees in the subsequent years (Bochmann 2018: 436f., 440f.; Nicolás 2020: 287f.; for a general overview of the linguistic persecution see Ferrer i Gironés 1985).

Following the centralist trend of most young or arising European national states, this Castilo-centred course, which had already characterized absolutism, was maintained in the succeeding centuries, so that from the 18th until the 20th century Spanish was the only ‘official’ language of the state (cf. Bernat 2014: 5; Nicolás 2020: 488, 492). “There thus came a point when only Spanish remained ideologically connected to ideas of modernity, progress and reason, forcing the other languages to remain in the realm of traditions and emotions; in other words, considered informal and only useful within the family context” (Ramallo 2018: 464; see Kailuweit 1997

[12] As a seafaring nation, the Crown of Aragon had been oriented towards the East. Its overseas possessions included, e.g., the Kingdom of Sardinia, the Kingdom of Naples (with Sicily), Malta, and for brief periods even parts of modern-day Greece (see Appendix 1, Figure A2 for a map).

for an extensive analysis of the diglossic situation). Furthermore, the number of Catalans who learned Spanish as a foreign language slowly increased, not least because of the introduction of obligatory Spanish-medium primary education in 1857 by the *Ley Moyano* (cf. Bernat et al. 2020; Vila 2020a: 633, 2020b: 670).

In the 19th century, however, in spite of the Castilian nationalism and its demand for authority throughout the country, denying other nationalities the right to co-exist within its territory, movements for a national rebirth eventually began to develop in both Catalonia and the Basque Country against the backdrop of their rise as industrial and economic powers (cf. Kremnitz 2018; Bernat et al. 2020: 100).[13] This process, which is known today under the name of *Renaixença* ('rebirth'), initially began with literary and cultural events in the wake of Romanticism (such as the *Jocs Florals* reviving the mediaeval traditions of the troubadours). At length, however, it transformed into an ideological and political movement (the so-called *Catalanisme*), which also translated in the programmes of the increasingly strengthened political organizations (Bochmann 2018: 441). The administrative union of the four provinces of Catalonia into the *Mancomunitat de Catalunya* ('Commonwealth of Catalonia') in 1914 under the leadership of Enric Prat de la Riba, as well as language policies aiming to reintroduce and further the use of Catalan in all public domains (see Pla Boix 2005 for an overview) are clearly results of this development. The same holds for the publication of some Catalan-medium newspapers and the foundation of the *Institut d'Estudis Catalans* in 1906, which subsequently initiated a process of standardization (mainly under the aegis of Pompeu Fabra) that had become necessary since Catalan, although it never had ceased to be the spoken language of the overwhelming majority of the population, for centuries had been excluded from formal written registers.

This evolution towards the autonomy was interrupted by the dictatorship of Primo de Rivera (1923–1930), restored in 1931 for the short period of the Second Spanish Republic, during which Catalan (and also Basque) gained a far-reaching support, "right up to supporting a co-official existence" (Bochmann 2018: 449), and finally disrupted again for more than forty years by the civil war caused by the coup of General Francisco Franco and his dictatorship. Under the Franquist regime, impactful measures for oppressing all hints at Catalan identity (e.g. in public signs, street names, and periodicals) were taken, and Catalan was entirely banned from the public sphere, including the complete prohibition of its use in administration and education at all levels and the enforcement of severe punishments for perpetrators (cf. Ferrer i Gironés 1985: 177–201; Ferrando/Nicolás 2011: 401–404; Rafanell 2020: 545–548). This relegation of the language to the familial domain, eventually "led to the loss of many text types, the disruption of passing on written norms to the next generation, gradually emerging illiteracy in one's own language, [and] a new dialectal fragmentation of the common language" (Bochmann 2018: 450; see also Kremnitz 2015), whose effects continue to the present day. However, during the last years of the dictatorship, i.e. in the period from the 1960s to Franco's death in 1975, sometimes

[13] In València, the process was delayed by local oligarchy (Bochmann 2018: 441).

referred to as *dictablanda* 'soft dictatorship', some of the restrictions were relaxed, allowing, for instance, for some publications in Catalan (Rafanell 2020: 551–554).

The advent of democracy in 1978, eventually, entailed the recognition of Catalonia as one of the 'historic nationalities' of the Spanish state in the new Constitution, granting them wide-reaching rights for linguistic self-determination. Only one year later, in the Statute of Autonomy of Catalonia of 1979, Catalan was declared co-official language and in 1983, a Normalization Law was passed with the aim of achieving a 'normal' situation for the previously supressed language, i.e. one in which it would be "a fully functional means of communication in the community" (Bochmann 2018: 451) and in which every Catalan can live his whole live—from first-language acquisition to university education—in his own language, without ever having to use another language than the one he speaks in daily family life (Bossong 2008: 102). The language policies of the Catalan governments hence focused mainly on adjusting both the public administration and the educational system to the use of Catalan, "rolling back Castilian in public life in a much more decisive and successful way than other communities" (Bochmann 2018: 451).[14] It is mainly therefore that today, at least in Catalonia, Catalan is a language endowed with prestige (Woolard 1989, 2009) and knowing it represents a type of recognized social capital (Ramallo 2018: 478). For instance, it even slightly increases the possibility of employment (Alarcón 2011) and thus may work as "a vehicle of social promotion for working and lower middle class speakers of non-Catalan origin" (Boix-Fuster/Woolard 2020: 713). Recent studies have even revealed that "the relatively higher status of Catalan appears not only undiminished but even strengthened across the years" (Woolard 2009: 132). However, it must not be forgotten that, in opposition to other regions, the language was never socially ostracized in Catalonia, whose bourgeoisie abandoned it only to a relatively minor degree (cf. Boix-Fuster/Moran 2014). Rather, the Catalan language has always been regarded as a symbol of national identity and independence vis-à-vis Madrid (Bossong 2008: 103; Pujolar 2010: 240, 2020; Boix-Fuster/Woolard 2020).[15] It therefore comes as no surprise that, on the other hand, the Catalan policies (especially those targeting the educational system) have repeatedly engendered resistance of unitary forces, among them the conservative press as well as the Spanish governments led

[14] Within only few years, the Catalan Conjunction Model (CCM) was implemented all over Catalonia (see Vila 2020b for other Catalan-speaking regions). Rejecting the separation of students according to first language and using Catalan as main language of instruction, this system already by the end of the '90s effectively provided high levels of oral and written proficiency in Catalan and Castilian among pupils, such that it is viewed by many as a means of linguistic and social integration of (Spanish-speaking) immigrants and their descendants (cf. Vila 2020b: 670f.; see also Múñoz 2005 and Pradilla Cardona 2016). In the aftermath of the wave of foreign immigration that had arrived in the early 2000s, the model was adapted to the increasing diversification of the learners and is now usually referred to as Cat. *immersió lingüística*, i.e. 'language immersion (programme)' (cf. Vila 2020b: 671; see also Pujolar 2010). Furthermore, it is worth mentioning that the Catalan governments—in addition to many private institutions—equally made considerable efforts to teach Catalan to adult immigrants: for example, until 2019, over two million students had taken a course organized by one of the centres of the *Generalitat*'s Consortium of Language Normalization (CPNL; cf. Generalitat de Catalunya 2021: 71; Vila 2020b: 678–680).

[15] Although this was (and is) crucially not the case in other Catalan-speaking areas, such as the Valencian Country, it is interesting to note that newer studies have reported recent gains in prestige and upgrading of the language status there, too (e.g. Casesnoves 2010).

by the post-Franquist *Partido Popular*, who tried to obstruct certain measures of the Catalan *Generalitat* through constitutional acts (Bochmann 2018: 451; Vila 2020b: 671). Namely, this was the case of the new Statute of Autonomy of 2006, which was partly ruled unlawful by the Spanish Constitutional Court in 2010, given that it described Catalonia as a nation and should partly repair the shortcoming of the Spanish Constitution of 1978[16] by the means of a 'positive discrimination' of Spanish, i.e. "by giving [Catalan] priority over [Spanish] in Catalonia and creating a more transparent description of the rights and duties that arise from the legislation" (Ramallo 2018: 478; see below and Pons 2013 for the effects of this decision). By the same token, all language laws adopted by the Catalan Parliament to implement the guidelines developed in the Statute of Autonomy (e.g. in areas such as the public media or consumer rights) have equally been challenged by constitutional appeals (cf. Pons 2020: 644).

Today, using the still fitting words of Wesch (1997), Catalonia has "una realidad lingüística […] extremadamente compleja", which mainly results from the secular co-existence of and the contact between its two languages Catalan and Spanish.[17] It is "una sociedad oficialmente trilingüe y socialmente plurilingüe" (Vila 2016): trilingual, because in addition to Spanish (official by means of the Spanish Constitution) and Catalan (official through the Statute of Autonomy), in 2006, Aranese, i.e. the variety of Occitan spoken in the Aran valley (Oc. *Val d'Aran*), was declared third official language in all Catalonia; plurilingual, first of all due to the increasing presence of numerous extra-territorial languages spoken by a great many migrants (see below). The Statute of Autonomy of 2006 furthermore defined that Catalan "is the language of normal and preferential[18] use in Public Administration bodies and in the public media of Catalonia, and is also the language of normal use for teaching and learning in the education system" (Parlament de Catalunya 2012: Article 6, paragraph 1) and that "all persons have the right to use the two official languages and citizens of Catalonia have the right and the duty to know them" (Article 6, paragraph 2).

Catalan has thus (re-)attained a firm position in Catalonia, being present in all areas of public life: there is no social context in which only one official language would be used (Vila 2016: 145). Although some shortcomings continue to persist in certain areas[19], Catalan is clearly dominant in other areas, such as the much acclaimed educational system: in primary and secondary

[16] The Spanish Constitution of 1978 has (possibly unintendedly) contributed to the minorization of national languages other than Spanish by privileging the latter as only official language of the Spanish state and the only one that all Spaniards are required to know (even in legally bilingual areas) and has thereby perpetuated a clear hierarchical gulf (Ramallo 2018: 464, 478). Furthermore, this unequal footing has on various occasions been reaffirmed by different judgements of the Constitutional Court, emphasizing the supremacy of the official status of Castilian (Pons 2020: 664f.).

[17] For a comparison of the demolinguistic and legal situation of Catalan in all Catalan-speaking areas see, e.g., Vila (2020a) and Pons (2020).

[18] As has been mentioned before, the expression "and preferential" has been declared unconstitutional and null and void by the Constitutional Court in 2010 (STC 2010/31), giving rise to a big public polemic in Catalonia, which has without doubt fuelled the debate about its independence (cf. Pons 2013).

[19] Especially in the legal system, the use of Catalan continues to be low: e.g. in 2018, the share of sentences in Catalan was of only 7.7% (cf. Generalitat de Catalunya 2019: 49; see also Observatori Català de Justícia 2012). Furthermore, Castilian in overwhelmingly dominant in the mass media and commercial culture (cf. Woolard 2009: 132f; Sinner/Wieland 2008).

education it is the vehicular language for all non-linguistic subjects, and even in universities, where everyone is free to choose either official language, its use is high (Boix-Fuster/Sanz 2008: 89, Vila 2020b: 676–678; on the linguistic education model in Catalonia see also Fn. 14, above). This exemplary model, which requires everyone to be at least passively bilingual, thus guarantees prestige and vitality for Catalan without preventing full fluency in Spanish (Ramallo 2018: 478): as a matter of fact, in 2018, the percentage of Catalans being able to speak Spanish was almost 100% for all age groups over 15 (Generalitat de Catalunya 2019: 13). Being essentially bilingual, the Catalan society cannot be conceptualized as a diglossic one today in the sense of Ferguson (1959) or Fishman (1967), since it is not (anymore) one in which there is a social consensus about using one ('high') language or variety in formal situations and another one, the 'low variety', in informal contexts (Vila 2016: 144f.; Pujolar 2011: 366–367; Meisenburg 1999: 32).

Nevertheless, practically everyone being bilingual does not mean that everyone uses both of his languages to the same extent in every-day life, as can easily be seen in the surveys on linguistic uses regularly carried out and published by the Catalan government. In the last reports, referring to 2018 and 2019 (Generalitat de Catalunya 2019, 2021), it can be seen that the linguistic knowledge of Catalan is high and has continually been rising in recent years. Figure 2.1 shows that at present 94.4% of the Catalans can understand it and 81.2% are able to speak it.

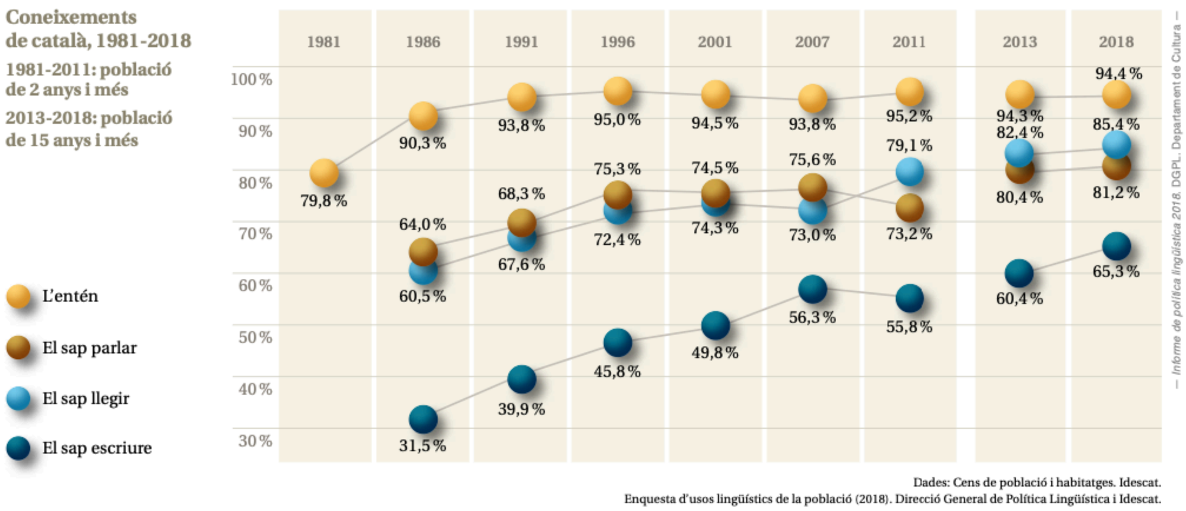

Figure 2.1: Knowledge of Catalan (understanding, speaking, reading, and writing) in Catalonia from 1981 to 2018 (taken from Generalitat de Catalunya 2019: 11).

Interestingly, the percentage of the population who can write Catalan is noticeably lower. This is clearly an aftereffect of the Franco era, during which a great part of today's Catalan adults were alphabetized exclusively in Spanish (Boix-Fuster/Sanz 2008: 90; Vila 2020a: 638). On the other side, the report also manifests the effectiveness of the contemporary educational system, given that in the age groups under 24 over 90% are able to both speak and write Catalan (Generalitat de Catalunya 2019: 13).

Nonetheless, despite the fact that linguistic competence in both Spanish and Catalan is very widespread in present-day Catalonia, especially among the younger generations, there is a large gap between the knowledge of Catalan and its day-to-day use. The *Informe de política lingüística 2018* (Generalitat de Catalunya 2019: 19) documents that only 36.1% of the inhabitants of Catalonia make use of Catalan as their habitual language and, indeed, it is known that in the 21st century Spanish has become the most frequently spoken language in Catalonia, being the initial language of 52.7% and the usual language of 48.6% of its population (see also Vila 2016: 145). This fact evinces an enormous change in the course of the 20th century, which finds its explanation in the first place in the massive arrival of Spanish-speaking immigrants and the concomitant changes in the composition of Catalonia's population: whereas until the 1920s the Catalans were largely monolingual and Spanish was only spoken by a very small part of the aristocracy, bourgeoisie, and some immigrants (summing less than 10%), the massive immigrations of workers from other parts of the Spanish state[20], slowly beginning around the turn of the century and reaching its peaks between 50–75, entailed that in the 1950s the proportion of initial Spanish-speakers for the first time exceeded the threshold of 10% of the population (Vila 2016: 140; see also Bernat et al. 2020; Vila 2020a: 634f.). However, Spanish only became the most frequent initial language and the socially most used language much later, i.e. after the second big wave of immigration taking place in the first decade of the 21st century (the so-called Cat. *noves immigracions*). Between 2001 and 2012, the Catalan population increased by 1.2 million mainly due to immigration from other countries, among them many South-American ones, such as Colombia, Ecuador, Argentina, Peru, Venezuela, Honduras, and Bolivia (IDESCAT 2021b; Vila 2016: 141). As a consequence, in 2018, 35.3% of the inhabitants were born outside of Catalonia and many more are part of the second generation of immigrants (Generalitat de Catalunya 2019: 9). It is thus the recent "immigration, much more than language shift, [that] has been the leading cause behind the drop in the percentage of the population whose first language is Catalan" (Comellas 2016: 155) and which, in the words of Vila (2020a: 646), has "shaken" the position of Catalan in Catalonia. Furthermore, migration has noticeably augmented the percentage of speakers with other initial languages, such as Arabic or Romanian (approximately 11%, Generalitat de Catalunya 2019: 19).[21]

Still, significant socio-geographic differences can be found in the figures regarding the first language and the language of daily use between urban and rural areas, or sometimes even between different neighbourhoods (Ramallo 2018: 475; Vila 2020a: 638f.), given that immigrants for the most part settled down in the Catalan cities and the respective metropolitan areas (espe-

[20] The lion's share of the immigrants came from the south of the Peninsula, especially from Andalusia. Sinner (2004: 126) gives the following benchmarks: approx. 50% from Andalusia, 20% from Castile, Estremadura, and the province of Albacete, and the rest from other communities such as Galicia (4.5%), the Basque Country, or Aragon (see also Moyer 1991). This can still be seen to a certain degree in the share of inhabitants of Catalonia born in other parts of the Spanish state today: in 2017, ca 8% were born in Andalusia (ca 13% in 2000) and each 2% in Extremadura in Castile and León (IDESCAT 2021b).

[21] In 2020, over 3% of the inhabitants of Catalonia were born in Morocco, and 1% in Romania (IDESCAT 2021b).

cially the one of Barcelona). By way of illustration, in the metropolitan area of Barcelona, Catalan is the (exclusive) habitual language of only 27.5% of the population, while it is slightly majoritarian in the region of Girona, attaining a share of 54.1%. Its social use is highest in the Land of the river Ebro (Cat. *Terres de l'Ebre*, 72.2%; Generalitat de Catalunya 2019: 21). Similarly, more people are able to speak Catalan in Girona (87.4%) than in the Metropolitan Area of Barcelona (78.4%), although the composition of the population in terms of immigrants and locals is very similar in both areas (Generalitat de Catalunya 2019: 15).

In sum, Catalan may be characterized today "a vibrant medium-sized language community", "[t]hough always in a context of societal bilingualism or even multilingualism" (Vila 2020a: 645). However, before bringing this chapter to a close, I rapidly want to address the kinds of Catalan and especially of Spanish spoken in Catalonia at present times—the linguistic characteristics of the latter will be treated with more detail in the following section, 2.2. Since the bulk of the Catalans is nowadays (at least) bilingual, these varieties are probably best characterized as "bilingual varieties", as was proposed by Boix-Fuster and Sanz (2008). This is especially true for the younger generations, who typically also have some command of English as a foreign language and quite frequently qualify as speakers of a heritage language.

As for Catalan, the varieties spoken are essentially those of the traditional dialect continuum (cf. Penny 2000: 93–98; Veny/Massanell 2015: 62–63; see Appendix 1, Figure A3 for a map). However, these have been in growingly intense contact with Spanish, as we have seen, for almost half a millennium and there are no monolingual speakers left today. While the traditional dialects are on the decline, mainly due to the prescriptive standard norms taught in school education and their spread through the media (Ulldemolins-Subirats 2019; Massanell i Messalles 2012; see also Veny/Messanell 2015: 83–85; Camps/Labèrnia 2020: 687f.), in recent years, a steadily increasing number of initial speakers of Spanish (and/or other languages) have become proficient users of Catalan to the extent that their number is now almost identical to that of first-language Catalan speakers (cf. Arnal 2011: 16): "Today, in contrast to the past, the group of [Catalan] speakers whose first language is Spanish includes teachers, politicians, radio and television announcers, actors, and people interviewed in the media". Furthermore, surveys have shown that many of them use Catalan at work or with their friends (Arnal 2011: 24; Vila/Sorolla 2019a, 2019b).[22] "As a result, it is now common to hear Catalan spoken with different degrees of competence" and "with a Spanish accent" (Arnal 2011: 16; see also Prats et al. 1990: 36–37). Whereas the Spanish influence was traditionally mainly on the lexicon (cf., e.g., Payrató 1985; Colón 1993), it is now increasingly becoming noticeable in the area of phonology and also in syntax and pragmatics (Arnal 2011: 17–19; Ferrando/Nicolás 2011: 527–530; Lleó et al. 2009; Cortés et al. 2009; Benet et al. 2011). As Woolard (1992: 240) points out, this entails that today's young Catalans, especially in urban areas, hear more non-native Catalan spoken

[22] Indeed, this also corresponds to the indications of the bilinguals examined in the present study (cf. Section 4.2.2).

than previous generations did, and, in turn, are often no longer able to distinguish between native and non-native speaking styles (cf. Arnal 2011: 16).

Concerning Spanish (as spoken in Catalonia), we have seen in the historic overview that until the beginning of the 20th century it clearly was a foreign language for the overwhelming part of Catalonia's inhabitants. Until the Civil War (1936–1939), the first contacts with Spanish typically took place at school given that virtually no one actually spoke it in their daily life (cf. Bernat et al. 2020: 105). It was only from the 1950s and in consequence of the massive influx of migrants that a noteworthy part of the Catalan population were initial Spanish-speakers and that initial speakers of Catalan, for their part, had opportunities to speak Spanish in informal situations and to natives (Bernat et al. 2020: 105–108). Still today, however, the greatest part of the Spanish spoken in Catalonia is produced by people born outside a Catalan-speaking territory, i.e. "by persons, who with a high degree of certainty, have a variety of Spanish coming from the rest of Spain (32.66%) or from some other hispanophone country (11.79%)" (Vila 2016: 148, translation is mine). Initial Spanish-speakers born in Catalonia account for another 32.49% of the Spanish spoken there, while initial speakers of Catalan only contribute some 10% to this share. This on the one hand shows that the predominance of Spanish at the societal level—however narrow it may be—is mainly a result of the immigration of Spanish-speaking populations. On the other, it raises the question of how uniform the Spanish spoken in Catalonia is at presence and whether there is such a thing as a Catalonian dialect of Spanish (see also Section 2.2, below).

In sum, the description of the linguistic uses made in this section clearly shows that it would flawed to conceptualize them by assuming that they spring from the cohabitation of two clear-cut language communities. Rather, between the exclusive users of Spanish and the exclusive users of Catalan, the majority of the Catalans is to be situated on a bilingual continuum with significant numbers of speakers for all ratios (Vila 2016: 147). In consequence, the Catalan society is characterized by "virtually universalized bilingualism" (Pujolar 2011: 366), but the language-dominance patterns of individual speakers are widely variegated. This aspect of bilingualism will be treated extensively in Section 3.4.

2.2 Research into Catalan-contact Spanish

The aim of this section is to give an overview of the research into the linguistic features of Spanish as spoken in Catalonia and other Catalan-speaking areas existing to date.[23] As mentioned above, I will refer to these varieties of Spanish as Catalan-contact Spanish (CCS).[24] Besides that, I shall pinpoint the most glaring research gaps and bring up some desiderata for future research at the end of the section.

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23 In this overview, I mainly draw on the accounts of Sinner/Wesch (2008) and Poch Olivé (2016).

24 I thus use the abbreviation 'CCS' to refer to Spanish spoken in all Catalan-speaking regions (independently of the individual speaker's language dominance or origin) following Davidson (2015a). To refer to 'Catalonian

As outlined in the diachronic synopsis of the intense language contact between Catalan and Spanish in Catalonia in the previous section (2.1), Spanish has passed—mainly in the course of the last century—from being a foreign or second language (L2)[25], acquired only by the societal elites, to being the most frequently spoken language, known by virtually everyone. With respect to the Spanish spoken in Catalonia before the 20th century, little is known about its constitution and few studies have been carried out, possibly owing to the fact that coetaneous written productions and metalinguistic descriptions are the only sources that allow for its analysis. The most important pieces of (later) research are probably Badia i Margarit (1976), Vallverdú (1979), Jorba (1979), Jungbluth (1996), and Kailuweit (1997). Although Spanish in the 19th century had already been the single official language and the only one allowed in public schooling for quite some time, it most likely continued to be an L2 for most Catalans and therefore probably showed typical features of learner varieties (cf. Lüdtke 1998: 29–30), such as interference (i.e. negative transfer) from the L1.[26] In contemporary sources, such as dictionaries, grammars, or manuals, features of Catalonian Spanish were typically categorized as *catalanismos*, i.e. interferences from Catalan, that 'impoverish' the language and should be avoided. They were also generally attributed to a 'lack of culture'. A compilation of such Catalanisms is provided in Solà (1980). Interestingly, this **puristic view** persisted until wide into the 20th century and the traditional Spanish dialectology largely ignored Spanish spoken in Catalan-speaking regions (CCS) or else relegated it "to varieties spoken by less cultured sectors of society" (Blas Arroyo 2011: 375).[27] Only in the 1980s and '90s would a change of paradigm slowly begin to take place (cf. Sinner/Wesch 2008: passim and below). Nevertheless, from the negatively tainted remarks in Catalan press texts as well as some other factors, Kailuweit (1996: 737) concluded that by the end of the 18th century there was already a relatively clear-cut variety of 'Catalonian Spanish' (CatS), packed with interferences from Catalan, which can be considered a tertiary dialect of Spanish in the sense of Coseriu (1980, 1981; see also Krefeld 2011); a position legitimately questioned by Sinner (2004: 22), who takes into consideration the fact that it is completely unknown to which extent the criticised interferences were pervasive in the Catalan society and whether their originators were already L1 speakers of Spanish or simply L2 learners.

In the 20th century, eventually, first research studies on CCS began to appear and Dalmau (1936) was the first author to underpin his critics with extracts from Catalan Spanish-medium

Spanish' only, i.e. to Spanish as spoken in Catalonia but not in other Catalan-speaking regions such as Valencia or the Balearic Islands, I use the label 'CatS'.

25 Following Montrul (2013b: 168), I understand a second language (L2) as a language that "is acquired *after* the basic foundations of the *first language* (L1) are assumed to be in place". The term foreign language is largely used as a synonym, especially when the L2 is acquired through formal instruction. Furthermore, I use native or initial language as synonyms of L1.

26 For definitions and a discussion of the terms 'transfer' and 'interference' see Section 3.4.1.

27 Most classics of Spanish dialectology either completely ignore CCS (e.g. Zamora Vicente 1960; Alvar 1996) or at best mention it as an "adstrate variety" (Lapesa 1996: 332, see also García Mouton 2007: 44). In more recent years, it is often referred to as "variety in contact with other languages" (e.g. Fernández-Ordóñez 2016; Escobar 2021), but its position within the Spanish diasystem must still be determined (cf. Sinner/Wesch 2008: 11, 20).

press. Moreover, scholars increasingly took into account phonetic features in order to characterize what they typically used to call a Catalan accent (e.g. Navarro Tomás 1935). Later on, in 1961, the Menorcan teacher Francesc de Borja Moll first proposed a classification of the phonetic, lexical, and syntactic characteristics of the Spanish spoken in a Catalan-speaking region (cf. Sinner/Wesch 2008: 14 f.), which was followed by many other works (e.g. Moll 1974, 1986). He furthermore drew attention to the fact that schoolteachers of Spanish often transmitted their own language mistakes to their pupils and children, who therefore unconsciously assimilated them in early childhood when learning Spanish as an L2[28], and he highlighted that Catalanisms were not limited to the uneducated sectors of society (Moll 1961: 473; see also Enrique-Arias 2021: 199). In such cases of perpetuation of L2 features by intergenerational transmission and subsequent nativization, the respective features should thus rather be viewed as integrated elements of CCS than as interferences in learner varieties (cf. Sinner 2004: passim; for similar cases in Mozambican Portuguese and Argentinian Spanish see Gonçalves 2005; Gabriel/Kireva 2014; Kireva/Gabriel 2015).

The numerous studies by Badia i Margarit (1965, 1979, 1981, among others, see Brumme 1998: 39–68 for an overview) provide some simple lists of the most striking linguistic features found in Barcelona Spanish—especially in L1-Catalan speakers educated in the L2 Spanish—, such as the velar pronunciation of /l/ or the missing *distinción* of the phonemes /s/ and /θ/ (cf. Section 2.3). However, the author did not indicate any clear sources and most of his observations were based on his intuition and perception. Moreover, he continued to see these characteristics as "failed productions" vis-à-vis the Castilian norm and accused a "lack of spontaneity" in many L1 Catalan speakers when speaking Spanish (cf., e.g., Badia i Margarit 1981: 28–29, translation is mine), which was in line with the many contemporary "works on applied linguistics, such as grammars, style and pronunciation guides, in which the vernacular variants have traditionally been classed as errors of performance" (Blas Arroyo 2011: 375). On the other hand, he observed that many traits were generalizable to other areas and thus suggested that CCS had common features in all Catalan-speaking regions (Badia i Margarit 1979: 135–136). His work furthermore took note of the massive immigration into Catalonia of monolingual Spanish speakers and thereby retraced the changing sociolinguistic conditions until the beginning of the normalization process of Catalan in the 1980s (cf. Sinner/Wesch 2008: 15). At the latest with Colón (1967: 203), it became apparent that features whose presence can be traced back to contact with Catalan are not only found in the Spanish produced by initial speakers of Catalan but also in the Spanish spoken by the migrants and their descendants. He therefore recommended distinguishing between occasional Catalanisms and "aquellos que arraigan" 'those which take root' (Colón 1967: 238).

While during the '70s many authors had kept compiling and copying stereotyped lists of 'typical errors' from preceding works, it was from the change of perspective in the '80s that the

[28] Please recall that until the 1950s, Spanish was the initial language of less than 10% of the population in Catalonia.

interest in CCS and the number of **empirically based studies** slowly began to grow. Deviations from Castilian Spanish (CS) norms were now increasingly conceived as interferences which come along with (individual and societal) bilingualism rather than as simple speech errors, and the view that 'good' bilinguals should not have an accent in any of their languages was progressively abandoned (Poch Olivé 2016: 316). In this vein, Payrató (1985) provided an extensive classification of the phonetic, morphosyntactic, and lexical interferences that result from Spanish-Catalan language contact from a structuralist and generativist perspective. However, he never considered the existence of CCS as a distinct variety (cf. Poch Olivé 2016: 325). Gómez Molina (1986) analysed the reciprocal influence between the two languages in Sagunt (València), and Marsá (1986: 99) described the typical "marcas del bilingüismo" in Catalan–Spanish bilinguals' behaviour, such as the avoidance of certain forms for fear of making mistakes.

Nevertheless, the "real avalanche of works" (Sinner/Wesch 2008: 26, translation is mine; see also Sinner 2004: 28–36 for an overview) on Spanish in Catalan-speaking areas came only in the **1990**s due to a combination of various boosting factors, such as the profound political and social changes after the advent of democracy that originated an increasing interest in language contact in general and especially in the Catalan educational system, where **didactic issues** of teaching Spanish both as a native and as a foreign language were getting more and more attention in the light of the ongoing bilingualization and the different patterns of language dominance[29] found among students (e.g. Montolío/Vila Pujol 1993; Pelegrina 1996; Serrano Vázquez 1996; Hernández García 1998). Although initially many works continued to copy more or less extensive, uninspired lists of deviations from the Castilian norm (Sinner/Wesch 2008: 26), the **puristic views** of the past were now eventually abandoned—Vila (2016: 152) speaks of "el *destronamiento* del *castellano acatalanado*" 'the *dethroning* of *Catalanized Spanish*'—and the status of Catalonian Spanish (CatS) as a distinct regional variety or dialect within the Spanish diasystem was discussed more seriously (Wesch 1992: 94; Kailuweit 1996; see also Sinner 2004: 28). Comprehensive compendia, such as Szigetvári (1994) and Sinner (1996) were created with the aim of compiling, describing and classifying the greatest possible number of elements that could be considered distinctive features of CCS.

Whereas until the 1990s most studies had relied on existing qualitative descriptions or intuitions and only a minimal part had an **empirical basis**, especially in the second half of the decade, a progressively growing number of corpus- and data-based research studies into more specific and finer-grained aspects of morphosyntax, semantics and pragmatics, and the lexicon were carried out, allowing to draw much more reliable conclusions and hence to both confirm and refute some of the characteristics traditionally ascribed to CCS (cf. Section 2.3). Although to a lesser extent, this tendency also spread to the domain of phonetics and phonology, in which first quantitative acoustical studies emerged. For instance, Poch Olivé and Harmegnies (1994) studied the phonetic realization of CatS vowels in different speech styles. Wesch (1992, 1994,

[29] See Section 3.4 for a detailed discussion of the term 'language dominance'.

1997, 2002, among others), based on recordings of colloquial and formal situations by Catalan L1 speakers and concentrating on lexical and semantic phenomena as well as the differences between spoken and written registers, reached the conclusion that an "influjo mínimo", i.e. a certain number of permanent interferences from Catalan on the CSS system, can be found in all speakers living in bilingual regions (Wesch 1997: 294, 1994: 168). Nevertheless, he also underlined that the characteristics of CatS necessarily need to be studied in a variationist framework, since in many cases only a Labovian perspective allows to explain the facts present in the data (cf. Wesch 1997: 288f., and below). He furthermore introduced the topic of CCS to Hispanistic studies outside of Spain, i.e. in German-speaking countries. Vann (1997, 1998, 2002, among many others) dealt with pragmatic aspects on the basis of corpus studies and thereby addressed questions of language identity and ideology. Also Casanovas Català used corpora to investigate the Spanish variety spoken in Lleida in a series of studies on phonetic, morphosyntactic, and lexical aspects, pointing among other things to the lack of some typical features of habitual vernacular languages in the Spanish produced by Catalan-dominant bilingual subjects, such as missing "relajación fonética" ('phonetic relaxation') or lacking use of phraseology (cf., e.g., Casanovas Català 1995: 54, 1996a, 2000). For Spanish in València, the numerous works of Blas Arroyo (1991, 1993, 1994, among many others) on interference and convergence resulting from the linguistic contact between Catalan and Spanish ought to be mentioned.

Simultaneously, as the presence of the salient phonetic features (see Section 2.3) that had characterized CCS in previous times notably diminished in view of increasing social bilingualism or was limited to marginal groups of society (Sinner/Wesch 2008: 23, see also Vila 2016: 152), it was, among other things, the documentation of linguistic features of Catalan origin in L1 Spanish speakers that entailed theoretical advances such as the distinction between interferences and integrated elements, and raised the sensitivity for sociolinguistic factors.[30] It became increasingly evident that the nature of Catalan interferences in CCS in large part depends on the **sociolinguistic background** and language history of the analysed subjects: for instance, Moyer (1991) and Báez Aguilar de González (1995, 1997, among others) focused on the Spanish spoken by Andalusian immigrants and their descendants; Blas Arroyo and Porcar (1997) showed the influence of language dominance on speakers' linguistic choices in Castelló; and Hernández García (1998) found that students with the L1 Catalan or grown up with Catalan-medium education primarily exhibit grammatical interferences, whereas those who attended school in Spanish are more likely to display lexical or semantic interferences. She furthermore took into consideration the metalinguistic knowledge of her subjects disclosed in sociolinguistic interviews. In 2004, Sinner, too, used a huge corpus of sociolinguistic interviews to discuss the question of the existence of a regional norm, comparing frequencies and the acceptability of different lexical, morphosyntactic, and pragmatic aspects in CatS and CS. However, Vila (2016:

[30] Please note, however, that the term 'interference', just as the term 'accent', usually continued to have a negative connotation at that time, i.e. the presence of 'interferences' was still evaluated as deviation from a systemic norm or from an 'expected' realization (Poch Olivé 2016: 317; Blas Arroyo 1991: 267).

152) recently anew put into doubt whether one can speak at present of a "single variety" of CatS in the view of the "kaleidoscope of varieties imported" in the last decades (translation is mine). A conclusive clarification of the status of CCS within the Spanish dialect system (e.g. as a regional variety or dialect) is thus still pending.

In the first two decades of the third millennium, luckily, most empirical studies have provided at least some information on their subjects' linguistic backgrounds and habits, and works taking into consideration sociolinguistic facets or even directly relating heterogeneity in the data with sociolinguistic factors such as language dominance are progressively becoming more numerous (cf., e.g., Simonet 2008, 2015; Davidson 2012, 2015a, 2020; Torres et al. 2013; Machuca/Poch 2015; Machuca 2016; Hualde/Nadeu 2020, among many others). Moreover, there has been an increase in studies devoted to a range of sociolinguistic aspects such as identity, attitudes, language markets, language policies, and related discourses (e.g. Boix-Fuster/Sanz 2008; Pujolar 2008; Woolard 2009, 2013; Pujolar/Gonzàlez 2013; Boix-Fuster 2015; Bochmann 2018, among many others)—possibly also triggered by the rise of Catalan nationalism, independentism, and the ongoing political conflict with the central government.

In synthesis, through the great amount of research carried out in the 1990s and at the beginning of the new millennium, it has become ever more evident that empirical studies essentially need to consider extralinguistic factors such as the participants' sociolinguistic background, language history, and language use when tackling CCS due to the complex sociolinguistic situation that is strongly marked by pervasive bilingualism both at the individual and societal level (cf., e.g., Wesch 1997: 288f.; Blas Arroyo 2011: 391; Poch Olivé 2016: 330). Unfortunately, up to the present time, conducting empirical studies remains difficult because of the persisting lack of (electronic) oral (and also written) corpora (cf. Sinner/Wesch 2008: 28–33)[31] as well as due to the highly complex sociolinguistic situation, resulting first of all from the massive immigration taking place during the last decades (cf. Section 2.1). Some clear research gaps thus still remain to be filled. Among these, the most outstanding desideratum would probably be to catch the linguistic variation of CCS in a far more systematic way (cf. Blas Arroyo 2011: 388).

For one thing, the **diastratic variation** would certainly be worth more extensive exploration: in the course of the almost complete bilingualization and diversification of what once used to be a relatively homogeneous Catalan-speaking society, the heavily accented and interfered L2-Spanish of L1 Catalan speakers has become socially secondary or even disappeared completely in the youngest generations (Vila 2016: 152; Arnal 2011: 16)—this is reflected, for instance, in

[31] Apart from some more or less comprehensive collections of transcribed sociolinguistic interviews (e.g. Vila Pujol 2001; Sinner 2001; Blas Arroyo et al. 2009), there are almost no bigger corpora, since projects with the aim of creating them, such as the one by *Grupo de investigación del español de Barcelona* (GRIESBA), have "largely failed" as Wesch and Sinner (2008: 29) put it. However, in the meantime, some other corpus projects have been (partly) completed and the respective corpora are available online (e.g. Val.Es.Co for Valencian Spanish (Pons Bordería 2021), the Corpus Mallorca (www.corpusmallorca.es, see also Enrique-Arias 2021) for Majorcan Spanish, or some subcorpora of COSER (Fernández-Ordóñez 2005–) and PRESEEA (2014–), which include various cities and rural areas in Catalan-speaking territories). Besides these, of course some general Spanish corpora also include material from Catalan-speaking territories (e.g. the GADIA corpus; cf. Garachana 2021: 323f.).

the fact that it is now frequently exploited in humoristic and literary productions (cf., e.g., Woolard 1987; Heinemann 1996; Illamola 2003; Igarreta Fernández 2019). Instead, immigration has made Catalonia a melting pot of different languages and cultures, which of course impacts substantially on the varieties of Spanish (and Catalan) spoken there. Besides further taking into consideration the (still understudied) extralinguistic factors that mediate variation in CCS (e.g. ethnolinguistic density, degree of individual bilingualism, patterns of language dominance, ideological factors), future research ought to tap especially into the Spanish varieties spoken by different migrant communities as these have only sporadically been an object of study. This holds true first of all for the Spanish spoken by the first-generation migrants (from both Spanish-speaking and alloglottal areas) but equally for their descendants (as well as for the Catalan and the other languages spoken by these social groups). For example, the L1-Spanish produced by Andalusian or Latino communities, which is likely to be affected by the influence of the autochthonous varieties of CCS and Catalan as well as by levelling processes has hardly been addressed yet.[32] The same applies to the L2-Spanish produced, e.g., by Maghribi and Romanian communities, among many others. Furthermore, with respect to the varieties spoken by the Catalonia-born descendants of first-generation migrants, the influence of heritage languages such as Romanian on both Spanish and Catalan and vice versa definitely would require further research (cf. Schulte 2018). Another interesting question would be which effects political factors such as the normalization of Catalan or the recent rise of nationalism have had on CCS.

Finally, the geographic aspect, i.e. **diatopic variation,** has been widely neglected, as well, most research studies dealing solely with data from Barcelona Spanish (cf. Section 2.3). Indeed, the Spanish varieties spoken in other Catalan-speaking areas have received little (Lleida, València, Castelló, Majorca) or almost no attention (e.g. the Catalan hinterland and the interior regions, such as Girona, central Catalunya, the Pyrenees, or the Lands of the River Ebro, but also Alacant, Menorca, and the Pityusic Islands Eivissa and Formentera) (see also Sinner/Wesch 2008: 33). Yet, the further investigation of the Spanish varieties spoken in such areas would be of particular interest, first and foremost because the Catalan dialects they are in contact with exhibit some major linguistic differences (e.g. with respect to vowel reduction, mid-vowels, or intonation).

Finally, besides variation, there is also an urgent need to address some understudied linguistic areas: for instance, the promising field of prosody—although having often been called an essential characteristic of CCS (cf. Section 2.3)—has received almost no attention until the present date. However, major research gaps exist in all linguistic domains as we shall see in the following section.

32 Some noteworthy exceptions are Moyer (1991), Báez Aguilar de González (1995, 1997) on the Spanish of Andalusian immigrants and, more recently, Corona et al. (2013), Newman et al. (2013), Corona/Block (2020), who focus on adolescents of Latin American descent.

2.3 Linguistic features of Catalan-contact Spanish

Regardless of its complex sociolinguistic situation and the diastratic variation that originates from it (see Section 2.1), Spanish as spoken in Catalonia (CatS) and other Catalan-speaking areas (CCS)[33] presents specific features that evidence long-lasting contact with Catalan at virtually all linguistic levels. In this section, I will give a synthesis of the most important of these characteristics by summarizing the extant literature, focusing primarily on the phonetic and phonological level (for an overview of the diachrony of research into CCS and the most important studies, cf. previous section). I will first provide a series of lexical, semantic, pragmatic, morphologic, and syntactic examples (Section 2.3.1), before expanding on segmental phonetic and phonological phenomena (Section 2.3.2). Then, I will turn to the less-studied field of suprasegmental phonology, laying out the principal findings of the handful of studies on CCS prosody that have preceded the present work (Sections 2.3.3).

2.3.1 Lexical and grammatical features of CCS

Doubtlessly, the numerous **lexical** loans from Catalan are easy to discover in CCS and represent probably the most apparent manifestation of Catalan influence on Spanish. As Bondzio (1980) puts it: "Der Wortschatz ist kontaktbedingten Veränderungen am stärksten ausgesetzt." 'The lexicon is most subjected to contact-induced change'. Cerdà (1984: 297) distinguishes between elements that are borrowed *in praesentia*, i.e. those in which both the phonic form and the meaning are transferred, and borrowings *in absentia*, i.e. when the influence is merely semantic. The first type, i.e. borrowing of whole phonic sequences together with their respective meaning (cf. Payrató 1985: 88), comprises a range of different items. First, it includes the (virtually inevitable) use of names of unique referents (cf. Matras 2010: 82), e.g. of institutions (such as *Generalitat*, the Catalan government, *Mossos d'Esquadra*, the Catalan police) or places (*Eixample*, a quarter of Barcelona, *Palau de la Música Catalana*, a concert hall), as well as of culinary and cultural or environment-specific items (*butifarra*, a type of sausage, Cat. *botifarra*; *la Diada de Sant Jordi* 'Saint George's day'). These can sometimes be found in the monolingual Spanish of other regions, too. Second, there is the loan of single Catalan words that are not syntactically integrated into the Spanish sentence, such as interjections (1a and b) or fixed expressions (1c), i.e. usually so-called automatized routines or pragmatic markers which serve the purpose of monitoring and directing the linguistic interaction and escape the speaker's control over selection and inhibition mechanisms (cf. Matras 2010: 81). Both types can be seen as borrowings of "free-floating", "non-systemic elements" because they are not part of the grammatical structure of a language and do not require integration into the system (Hickey 2013:

[33] Given that most of the studies cited in this section draw only on Catalonian Spanish (CatS) or Barcelona Spanish, the reported examples usually stem from these varieties (if not further specified). However, many or probably most of these are also found in the Spanish varieties spoken in other Catalan-speaking regions (CCS). For a map of the Catalan-speaking areas see Appendix 1, Figure A3.

11). Finally, there are syntactically more integrated lexical borrowings (such as regular nouns (2a), verbs (2b), or expressions used as attributes (2c)). In some cases, these can be phonetically adapted to the Spanish sound system (3a and b).

(1) a. *¡Adéu!* 'Bye!' (Sp. *¡Adiós!*) (Sinner 1996: 52)
b *¡Va!* 'Come on!' (Sp. *¡Venga!*, *¡Vamos!*) (Szigetvári 1994 VI, Sinner 2004: 502–505)
c. *¡No pateixis!* 'Nevermind!' (Sp. *¡No te preocupes!*) (Wesch 1997: 308)

(2) a. *pica* 'sink' (Sp. *fragadero*) (Wesch 1997: 303)
b. *embolicar* 'wrap up' (Sp. *envolver*) (Wesch 1997: 303)
c. *com cal* 'as it has to/should be' (Sp. *como debe ser*, *como es debido*) (Wesch 1992: 10)

(3) a. CCS *rachola* [raˈtʃola] 'tile' (Cat. *rajola* [rəˈʒɔlə]; Sp. *azulejo*, *baldosa*) (Szigetvári 1994: 48)
b. CCS *enchegar* [eɲtʃeˈɣar] 'turn on, start' (Cat. *engegar* [əɲʒəˈɣa]; Sp. *poner en marcha*, *encender*) (Wesch 1997: 305)

The second major type of lexical interference, i.e. the already mentioned borrowings *in absentia*, do not entail the integration of originally Catalan morphemes into Spanish but merely concern the **semantic** level. In that case, the meaning of native Spanish words is extended or limited in conformity with a Catalan model (cf. Payrató 1985: 88; Weinreich 1953: 84). (4a) and (b) offer two examples.

(4) a. CCS *faena* 'work' vs Sp. 'labor, hard work' (Cat. *feina* 'work', Sp. *trabajo* 'work')
b. CCS *explicar* 'explain, tell' vs Sp. 'explain' (Cat. *explicar* 'explain, tell', Sp. *contar* 'tell')

A similar case are calques or loan-translations (Weinreich 1953: 51, Payrató 1985: 89), where more or less fixed expressions (5a) and structures (5b), or phraseologisms (5c) are 'literally' translated from Catalan into Spanish:

(5) a. CCS *hacer servir* 'use, utilize' (Cat. *fer servir*, Sp. *utilizar*, *emplear*) (Szigetvári 1994: 29)
b. CCS *a la hora de* + infinitive 'when, while' (Cat. *a l'hora de*, Sp. *cuando*, *al* + infinitive) (Sinner 1996: 81)
c. CCS *¿Quieres decir?* 'Do you think so?' (Cat. *Vols dir?*, Sp. *¿Estás seguro?*) (Wesch 1997: 308)

Finally, some shifts in meaning also affect the domain of **pragmatics**. Namely, this is the case of the tripartite Spanish deictic system, which generally encompasses proximal, medial, and distal forms (e.g. the demonstratives *este* – *ese* – *aquel*). Under the influence of the simpler (Central) Catalan system, this system is often reduced to a bipartite one in CatS by merging the functions of the proximal and medial forms (cf. Vann 1998; Wesch 1997: 299; Sinner 2004: 549–562).

Also with reference to **morphology**, CCS presents some particularities that set it apart from other Spanish varieties. However, only in very few cases are Catalan morphemes directly transferred to Spanish (as is probably the case, when, e.g., *ves* is used instead of *ve* as the imperative form of the verb *ir* 'to go'; cf. Cat. *vés*). More recurrently, morphology is affected indirectly by the influences of the language contact situation. For instance, Catalan lacks a direct equivalent to the Spanish verbal periphrasis '*ir a* + infinitive' to express the immediate or near future and, in CCS, both the synthetic future tense as well as the present tense can often be found in contexts where other Spanish varieties would generally prefer the periphrastic expression: e.g. CCS *Lo haré enseguida* 'I'm going to do it in a moment' (Wesch 1997: 301, see also Sinner 2004: 225–229; Enrique-Arias/Méndez Guerrero 2020; Garachana 2021). Besides that, another phenomenon, which has often been related—for unjustified reasons and without any empirical proof—to a lack of education and culture, is the regularization of certain irregular Spanish verb paradigms in CCS via analogy with regular patterns (cf. Sinner 2008): for example, *andé* instead of *anduve* 'I walked' or *traducí* instead of *traduje* 'I translated'. Such uses are typically regarded as an interlanguage phenomenon resulting from incomplete L2 acquisition. However, even if that were the case, they should sooner be treated today as nativized elements perpetuated as authentic features of CCS via intergenerational transmission considering the fact that they are widely documented in other (monolingual) Spanish varieties, as well (Sinner 2008: 261).

In the field of (morpho-)**syntax**, the frequent presence of the definite article before personal names in colloquial and familiar registers is without doubt one of the most recurrently named characteristics of CCS (cf., e.g., Badia i Margarit 1981: 26; Montolío/Vila 1993: 100; Wesch 1997: 299f; Sinner 2004: 233–235, among many others).

(6) a. La Luisa ya lo sabe. (Badia i Margarit 1981: 26)
'Luisa already knows it.'
b. Vendrán también la María y el Joaquín. (Wesch: 1997: 300)
'María and Joaquín will be coming, too.'
c. La Marina come mandarinas. (example from the present DCT corpus[34])
'Marina is eating tangerines.'

Yet, neither this usage is an exclusive feature of CCS, considering that it is well-documented in the history of Spanish (Calderón Campos 2015) and still can be observed in some monolingual varieties of Spanish in both Spain and Hispano-America (cf. Fernández Leborans 1999: 111–113): for instance, in Andalusia, Extremadura, or in Chile.[35] Nevertheless, some authors consider its use in Spanish a vulgarism and attribute a derogatory connotation to it (Jordana 1968: 26; Briz 2001). Its relatively common 'neutral' use without any negative connotation might thus indeed be a characteristic of CCS. On the other hand, some authors have suggested that such occurrences could also be interpreted as instances of code-switching from Spanish to Catalan (Vila Pujol 1996).

A further frequently cited phenomenon is the use of a so-called 'partitive *de*' (cf. Badia i Margarit 1981: 26; Blas Arroyo 1993: 51, 2007: 85; Szigetvári 1994: 15; Sinner 1996: 44; Fernández-Ordóñez 2016: 400, among others). Although a partitive *de* may be found in monolingual Spanish in some fixed expressions such as *un poco (de agua)*, as signalled by Szigetvári (1994: 15), its usage in CCS is clearly more extended and follows patterns existent in Catalan.

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34 In the semi-spontaneous oral corpus of Girona Spanish utterances recorded for the present study (cf. methodology in Section 4.3.1.1), examples of personal names preceded by the definite article were attested in a total of seven speakers, six of whom were Catalan-dominant bilinguals.

35 However, also bear in mind the massive integration of emigrants from Southern Spain into Catalonia. The use of the definite article before proper names in CatS may thus have multiple causes (cf. Casanovas Català 1996b: 153).

For instance, in (7a) it occurs after a numeral and introduces the adjectival complement of a dropped noun. In (7b) and (c), it surfaces in so-called pseudo-partitive constructions, i.e. in conjunction with quantitative quantifiers (cf. Brocart/Rigau 2002: 1538–1545; Rigau/Pérez Saldanya 2020: 174). The Catalan translations are mine.

(7) a. Hay tres de muy buenos. (Cat. *Hi ha tres de molt bons.*) (Badia i Margarit 1981: 26)
'There are three very good ones'
b. Tengo muy poca, de paciencia. (Cat. *En tinc molt poca, de paciència.*) (Szigetvári 1994: 15)
'I have very little patience.'
c. No eran nada, de tontos. (Cat. *No n'eren gens, de ximples.*) (Atienza et al. 1996: 8)
'They weren't stupid at all.'

The examples in (7b) and (c) furthermore show that in CCS *de* may be used following the Catalan model as a "partitive marker" to introduce dislocated elements (cf. Rigau/Pérez Saldanya 2020: 184). This is particularly interesting, as it points towards the possibility that dislocations, which are known to be much more commonplace in Catalan than in other Romance languages (cf., e.g., Villalba 2011; Leonetti 2017: 889, 904; Feldhausen/Villalba 2020: 255), could equally appear with a higher frequency in CCS than in CS and emerge even in contexts where Mainstream Spanish[36] prescriptive rules would forbid them. Yet, there exists a crucial difference between the constructions given in (7a) and (b) for the two languages because in Catalan the dislocated quantified element must be resumed by the (partitive) clitic pronoun *en*—inexistent in Spanish. Examples (7b) and (c) therefore illustrate not only that such constructions can be transferred to CCS but also in which way this is achieved, viz. without deploying a resumptive pronoun. Aside from the many single examples presented in the literature, however, 'partitive *de*' is rarely attested in corpus studies: for instance, Sinner (2004: 262) did not find any examples of it in his large oral corpus of CatS. Besides, he underlines that there is a high social awareness among the Catalans about this particular phenomenon being a Catalanism and that many speakers therefore consciously avoid it. Fernández-Ordóñez (2016: 400), too, points out that such pseudo-partitive constructions are less accepted as compared to other characteristics of CCS.[37]

Finally, a third phenomenon regularly described as syntactic interference of Catalan in Spanish is the use of *que* in (different types of) yes–no questions. This issue will be dealt with in some more detail as it is going to take on a prominent role in the intonational analysis of Girona Spanish and Girona Catalan presented in Chapter 5. Wesch (1992, 1997) states that in both Catalan and Spanish absolute interrogatives are expressed by means of intonation (he does not specify the shape of the pitch contours). However, according to his account, (Central) Catalan and Barcelona Spanish questions are "for the most part" headed by a "*que* átono" (Wesch 1992:

[36] In accordance with, among others, Hualde/Şaul (2011) and Gabriel et al. (to appear), I use the term Mainstream Spanish as a generic term to refer to all Peninsular and American non-contact varieties of Spanish, i.e., more precisely, all Spanish varieties that are not considerably influenced by (ongoing) language contact.

[37] A series of metalinguistic comments made by the participants of the present study on the dialogue reading task (cf. Section 4.3.1.2) confirm this observation (e.g. one participant said *Aquí hay un fallo. Lo sabes, ¿no?* 'There's an error here. You know that, don't you?' when asked to read out the sentence presented in 7b, above).

6) or the occurrence of *que* is at least "very typical" and occurs "very frequently" (Wesch 1997: 301, the translations are mine). For Spanish, he ascribes "a clear diaphasic mark that could be qualified as 'colloquial'" to these questions. Some examples are provided in (8a–e); the Catalan translations are mine.

(8) a. ¿Que te has hecho daño? (Cat. *Que t'has fet mal?*) (Moll 1961: 472; Wesch 1997: 301)
'Have you hurt yourself?'

b. ¿Que tiene zanahorias? (Cat. *Que té pastanages?*) (Wesch 1992: 6)
'Do you have any carrots?' (to a vegetable merchant)

c. ¿Que me entiendes? (Cat. *Que m'entens?*) (Wesch 1997: 301)
'Can you understand me?'

d. ¿Que te ha gustado? Pues, a mí no. (Cat. *Que t'ha agradat?*) (Montolío/Vila 1993: 100)
'Did you like it? Well, I didn't'

e. ¿Que está Marina, por ahí? (Cat. *Que hi ha la Marina, per aquí?*) (present corpus[38])
'Is Marina around?

In other sources, *que* is described as expletive (Payrató 1985: 92; Sinner 2004: 287), particle (Montolío/Vila 1993: 100), or atonic introductory element (Szigetvári 1994: 47). Its nature is thus not fully clear yet. In any case, while Briz (2001) points out that it is "not always unstressed", suggesting that it could receive more stress in exclamative than in assertive or confirmatory questions, Sinner (2004: 286) underlines that it is invariably unstressed, penalizing its orthographic rendering as *qué*. He additionally highlights that the phenomenon is apparently quite well known and very easy for the speakers to detect, considering that such questions have a clearly Catalan intonation. As opposed to that, only 20 out of 50 bilingual participants recognized initial *que* in yes–no questions as a non-normative element in Spanish in a test carried out in Barcelona by Hawkey (2014: 407; see also Piqueres Gilabert/Fuss 2018 for similar results in València).

The intonational aspect, on the other hand, was already highlighted by Szigetvári (1994: 47): "[l]a entonación descendente del catalán y el QUE delatan inmediatamente al hablante" ('the descending Catalan intonation and the *que* immediately give away the speaker'). A falling intonational pattern is equally mentioned by Briz (2001) for València, although he remarks that these constructions are less frequent there than in Catalonia. Moreover, Sinner (2004: 288) retraces the intonation of two *que*-questions found in his oral corpus as a high plateau with a fall towards the end, and such an intonation pattern will also be the one described for this question type later on in the first intonational studies on Barcelona Spanish (Romera et al. 2007, 2008, 2009; see below).

Finally, Szigetvári (1994: 47) points out that phrase-initial *que* can also occur in "normative Spanish" when "something is literally repeated in the question", i.e. in so-called echo-questions:

[38] In the oral corpus of semi-spontaneous Girona Spanish utterances recorded for this study using a DCT (cf. methodology in Section 4.3.1.1), seven information-seeking yes–no questions headed by *que* were attested, six of which stemmed from clearly Catalan-dominant bilinguals (cf. Section 5.1.3.1.5). Furthermore, there were also some echo-questions introduced by the complementizer *que*.

e.g. in *¿Que viniste antes de ayer, dices?* 'Are you saying that you came the-day-before-yesterday?' (the translation is mine). These cases must thus be distinguished from the ones where *que* is proscribed by Mainstream Spanish prescriptive rules, which does not always seem to be done (cf., e.g., Sinner 1996: 49). Interestingly, none of the studies known to me specifies the pragmatic type of question in which *que* may occur in CCS as most authors merely mention that this is the case in yes–no questions. I therefore permit myself a short digression on *que*-questions in the source language Catalan.

According to Prieto/Rigau (2007, 2011), the Catalan dialects present a "substantially rich intra- and interdialectal variation" with reference to this topic. I will therefore concentrate on Central Catalan here. In neutral polar questions, i.e. in information-seeking yes–no questions, the subdialects of Barcelona and Tarragona allow for both (9a) and (b). The presence of the complementizer *que* is thus optional:

(9) a. Plou? (Prieto/Rigau 2007: 33)
b. Que plou?
'Is it raining?'

However, two different intonational patterns are typically associated with these two questions: a rising pattern with (9a), and a falling pattern with (9b).[39] While the falling one can also occur when *que* is absent, the "presence of the complementizer *que* is incompatible with the rising intonation pattern" (Prieto/Rigau 2007: 34f.; see also Nadeu/Prieto 2011: 845). Furthermore, adopting the view of Payrató (2002: 1203f.), the authors suggest that the use of either intonational pattern is sensitive to the pragmatic cost-benefit scale, on which the cost or benefit of the proposed action to the hearer is estimated (see Leech 1983). In the aforementioned Central Catalan subdialects, the falling intonation pattern (and hence *que*) can thus only be applied when the cost of the proposed action to the hearer is considered low. For instance, asking for information about the weather as in (9a) and (b) is a frequent situation and rather unlikely to be perceived as imposing a high cost onto the hearer. The same is usually the case, e.g., in offers or invitations (cf. 10a and 10b). Empirical studies such as Nadeu/Prieto (2011) and Astruc et al. (2016) have largely confirmed this.

(10) a. Que vols més cafè? 'Would you like some more coffee?' (Prieto/Rigau 2007: 36)
b. Que vindreu amb mi? 'Are you coming with me?'

This pragmatic distinction hence entails the secondary effect that *que*-questions are generally excluded in formal speech styles (e.g. in courts of law or in ceremonial formulas their use would be inappropriate, cf. Prieto/Rigau 2007: 36).

With reference to the Northern Central Catalan subdialect, spoken mainly in the province of Girona, but also for Valencian and Rossellonese, the authors state that neutral, i.e. information seeking, yes–no questions "cannot begin with the complementizer *que*". In these varieties, the

[39] The two patterns will be described in more detail in Section 3.1.2.2 on Central Catalan and Castilian Spanish intonation as well as in Section 5.1.3.1 on the intonation of yes–no questions in the varieties of Spanish and Catalan spoken in Girona.

use of *que* is limited to biased questions, i.e. those in which the speaker is biased in favour of one answer over another. For instance, the combination of *que* heading the interrogative and a falling intonation pattern can be found in Northern Central Catalan anti-expectational questions, i.e. when the speaker intends to convey an additional nuance of surprise or astonishment. A similar dialectal distribution of the particle is also attested in alternative questions like *(Que) Véns o no (véns)?* 'Are you coming or not?'. In other question types, such as rhetorical or exploratory questions, the use of *que* is considered optional (cf. Prieto/Rigau 2007: 48–51). Confirmation-seeking questions typically use dialect-specific "question markers" such as *oi* or *eh* rather than simple *que*.

Finally, it is worth pointing out that concerning their syntax Catalan *que*-questions often present dislocations (Feldhausen/Villalba 2020: 259). This concerns particularly the subject, which, in information-structurally neutral interrogatives (of both the yes–no and wh-type), must usually be dislocated either to the left or the right—and thus be pronounced in a separate intonational phrase (Prieto/Rigau 2007: 54; GEIEC 2018: §3.3.2, §30.2.1, §31.1). This is illustrated in the following examples:

(11) a. En Joan, que viu a Barcelona? (Prieto/Rigau 2007: 54)
b. Que viu a Barcelona, en Joan?
'Does John live in Barcelona?'

(12) Que ho ha portat en Joan? (Prieto/Rigau 2007: 54)
'John brought it?'

Whereas the examples in (11) represent neutral information-seeking yes–no questions, (12) cannot occur in out-of-the-blue contexts and delivers a counterexpectational connotation.

Turning back to Spanish, it is highly surprising that, as far as I know, all authors that mention the occurrence of yes–no questions headed by *que* in CCS limit their remarks to the mere existence of the phenomenon, ignoring altogether the huge variation of the phenomenon found in, (a), the respective Catalan varieties CCS is in contact with, and, (b), the fine-grained pragmatic distinctions between interrogative modalities in Catalan, which should most probably also be present in CCS unless a generalization, i.e. a semantic extension, had taken place. Yet, such shortcomings as well as a general lack of sensitivity and rigour in relation to diasystematic variation appear to be a more widespread problem in the research into the syntactic properties of CCS, since, for example, also in the aforementioned case of the 'partitive *de*' most scholars do not bother to capture its exact use in neither the Catalan contact varieties, nor in CCS itself. Instead, they merely present uninspired lists of single and context-less examples without further classifying or categorizing them in any way whatsoever.

2.3.2 Segmental features of CCS phonetics and phonology

In what follows, I eventually address the domain of CCS phonetics and phonology. Based on the major results of the principal experimental studies, an overview of the most salient features of CS phonology will be provided.[40] I shall first present some selected segmental features referring to the pronunciation of both consonants and vowels, before turning to suprasegmentals and naming some desiderata.

Probably the most recurrently named and most iconic feature of CCS pronunciation is the use of velarized realizations of /l/. Wesch (1997: 298) calls it "el rasgo clásico", its 'classic feature'. In Catalan, the phoneme /l/ is traditionally described as having two allophones that occur in complementary distribution: 'clear' [l] in the onset of syllables and 'dark', i.e. velarized, [ɫ] in the syllabic coda (cf., e.g., Wheeler 2005: 34). However, the Catalan dialects show some variation in this respect, and some varieties (such as Balearic and Central Catalan) are even said to use the dark [ɫ]-realization irrespective of the position of /l/ within the word (cf. Recasens/Espinosa 2005). The transfer of this dark [ɫ] to Spanish was thus one of the first phonic characteristics penalized as a "matiz defectuoso", a 'defective hue', of CCS pronunciation (cf., e.g., Moll 1961: 470; or Badia i Margarit 1979: 148, who states that it "tant enlletgeix la dicció" 'it so much disfigures the diction'). Yet, authors generally fail to mention how pervasive this transfer is, i.e. whether it occurs invariably or only sporadically. Badia i Margarit (1979: 148) mentions that it is "incorporada per la majoria de catalans a llur pronunciació del castellà" ('integrated by the majority of Catalans into their Spanish pronunciation'), but already Wesch (1997: 298) signals that its use is less strong in the younger generations. In fact, recent studies (such as Simonet 2008; Davidson 2012, 2015a) have revealed that today, i.e. in the light of an on-going bilingualization, the appearance of dark [ɫ] in CCS is by far less pervasive than it might have been in earlier times when (a) Spanish was still an L2 and (b) the presence of L1 Spanish speakers in Catalan-speaking regions had not yet reached a remarkable level. Rather than by linguistic factors, the use of this feature seems to be conditioned nowadays principally by social factors (such as degree of exposure to and usage of Catalan, cf. Davidson 2014, 2015a: 268). For instance, in both Simonet's (2008) and Davidson's (2014, 2015a) studies, the degree of velarization was lowest in young and in Spanish-dominant bilinguals (typically descendants of Spanish-speaking immigrants). Simonet (2008: 278–281) furthermore shows that the social stigma connected with the use of dark [ɫ] in Spanish has even led to a partial decline in its use in Majorcan Catalan because Spanish-dominant speakers as well as Catalan-dominant females habitually use clear allophones of /l/ in both of their languages and merely Catalan-dominant males continue to use 'dark' realizations in Catalan. The current social meaning of dark laterals in Majorcan Catalan is thus that of a gender mark. Blas Arroyo (2019), finally, demonstrates that the use of the velarized [ɫ] in CatS can be a sign of identity and (nationalistic) ideology as is the case in many politicians.

A further characteristic of CCS that is mentioned almost with the same frequency is the sonorization of word-final /s/ to [z]. Whereas in Mainstream Spanish, voiced [z] can only appear as an allophone of /s/ before voiced consonants through assimilation (e.g. in Sp. *mismo* [ˈmizmo] 'same'; cf. Gabriel et al. 2013: 64; Hualde 2014: 154–155; Hualde et al. 2010: 74),

[40] The present summary mainly draws on Poch Olivé (2016).

in Catalan, word-final /s/ and other sibilants become voiced before vowels as a rule (cf. Palmada 2002: 259–260; Wheeler 2005: 162).[41] This also holds for /s/ at the end of some prefixes, such as {des-} or {trans-}. The transfer of this rule yields examples such as:

(13)	a.	CCS *los hombres* [loˈzombɾes] 'the men'	(Badia i Margarit 1979: 149)
	b.	CCS *seis años* [sejˈzaɲɔs] 'six years'	(Wesch 1997: 296)
	c.	CCS *deshacer* [dezaˈθeɾ]	(Badia i Margarit 1979: 149)

The phenomenon is sometimes infelicitously called *liaison* due to a distant resemblance with a phonologic process in French whereby underlying (or latent) word-final consonants surface only in the context before a vowel (e.g. in Moll 1961: 469; Colón 1967: 203; Sinner 1996: 17f.). It has often been condemned as a distinctive feature of a Catalan accent, with Marsá (1986: 101) calling it a "pecado fonético capital", i.e. a 'capital phonetic sin', that needs to be fought (see also Casanovas Català 1995: 56–57). All the same, word-final intervocalic [z], as opposed to the velarized [ɫ], is a linguistic marker of CCS that has no salient social stigma attached to it and generally passes below the level of overt awareness (Davidson 2015a: 257). Traditionally, scholars did not make any reference to the pervasiveness of the phenomenon across different groups of society, but recently empirical studies have revealed that it is mediated not only by linguistic factors (e.g. speech style) but crucially also by extralinguistic parameters such as language dominance and gender (Davidson 2012, 2015a, 2020; McKinnon 2012). For example, regarding language dominance, the results of Davidson (2014, 2015a, 2015b) suggest that voicing of intervocalic word-final /s/—albeit more common in the speech of Catalan-dominant bilinguals—is also being adopted by many Spanish-dominant bilinguals. A possible reason for this might be that its non-stigmatized status makes it "more conducive (or more permissive) to the selection and diffusion" from Catalan- to Spanish-dominant bilinguals (cf. Davidson 2015a: 257f.).

A slightly different case is the word-internal sonorization of Sp. /s/ between vowels that has occasionally been reported too for CCS (cf. Davidson 2015a: 71; McKinnon 2012: 24). Although Catalan can have both /s/ and /z/ in such positions, many cognate words, such as Sp./Cat. *presentar*, display /z/ in Catalan and /s/ in Spanish. The voiced pronunciation in Spanish is thus often interpreted as an interference of the voiced Catalan phoneme /z/.

Another typical phenomenon concerns the pronunciation of the voiced plosives /b d g/ in the syllable coda (both word-internal and word-finally). In monolingual varieties of Spanish, the phonemic contrast with the voiceless counterparts /p t k/[42] is neutralized in those contexts and surface realizations in most speech styles range from voiced plosives ([b d g]) over voiced fricatives or approximants ([β ð ɣ][43]) to elision (cf. Hualde 2005; Gabriel et al. 2013: 60;

[41] At the phonetic level, the phenomenon is generally viewed as resulting from voicing assimilation due to gestural overlap (cf. Sections 4.3.3 and 6.4.3 and the sources mentioned therein).

[42] Please note that the only Spanish plosive that can occur word-finally in the "patrimonial" Spanish lexicon is /d/ and the remaining ones are limited to "more recent loan words". In Catalan, on the contrary, word-final plosives are frequent (Hualde/Nadeu 2020: 22, 23).

[43] Following, among others, Wheeler (2005: 23, 312–313), I transcribe these sounds as fricatives in the present work (in both Catalan and Spanish). Even though they do not usually display the turbulence characteristic of

Hualde/Eager 2016). In Catalan, on the other hand, devoicing rules applying to all non-sonorant coda consonants (cf. Cat. *ensordiment final*) require a voiceless realization of the voiced stop phonemes /b d g/ as [p t k] when no voiced consonant is following (Wheeler 2005: 145–165; Recasens 2014: 325). Even though such pronunciations are not considered incorrect in Spanish, they are rare in monolingual varieties and probably perceived as hyperarticulated by most natives, i.e. as distinctive of an emphatic speech style (Gabriel et al. 2013: 60). Their comparably frequent use in CCS therefore sticks out a typical feature of these varieties (cf. Hualde/Nadeu 2020: 35). This is particularly evident in the case of word-final /d/ pronounced as [t] by bilingual speakers (although it may also be heard in some monolingual Spanish varieties): e.g. *usted* [usˈtet] 'you (formal)', *popularidad* [populaɾiˈðat] 'popularity' (cf. Moll 1961: 469; Wesch 1997: 297; Casanovas Català 1995; Radatz 2008: 116f.; Blas Arroyo 2020). To my knowledge, the first experimental study on this phenomenon in CCS was carried out by Machuca (2016), who demonstrates that Catalan-dominant bilinguals produce less elisions of coda-consonants when speaking Spanish than bilinguals who speak this language predominantly. The author attributes this to the fact that Catalan-dominants "are used to realizing a greater articulatory effort in this position". Igarreta Fernández (2019) points towards register-specific differences in some L1 Catalan speakers in the sense that they use more voiceless plosives in spontaneous speech than in more controlled and planned registers. Hualde/Nadeu (2020), finally, show that over 90% of word-final plosives are pronounced as voiceless plosives by Catalan–Spanish bilinguals in both Catalan and CatS. Still and all, they observe some more variation in CatS than in Catalan, which is mainly attributable to the elision of /d/ or its realization as a voiceless fricative ([θ]) or voiced fricative or approximant ([ð]) in the speech of Spanish-dominant bilinguals.

Further consonantal features frequently ascribed to CCS are the following:

– Non-elision of the voiced plosive /d/ in intervocalic position: many speakers of monolingual Spanish varieties use to drop this segment in colloquial speech instead of realizing it as an interdental fricative or approximant ([ð]), especially in participles ending in -*ado(s)* (cf. NGRAE 2011: 146–148). Its presence is thus often described as a typical feature of the Spanish spoken by L1-Catalan speakers (Casanovas Català 1995; Briz 2001; Blas Arroyo 2007: 86; Igarreta Fernández 2019) because it represents a "pronunciación ultracorrecta" 'a hypercorrect pronunciation' as Briz (2001) puts it.
– Similarly, the presence or retention of *lleísmo*, or rather the absence of *yeísmo*, i.e. the loss of the phonemic contrast between /ʎ/ and /ʝ/ in favour of the latter, which is characteristic of most contemporary varieties of Mainstream Spanish (cf. Hualde 2014: 42; NGRAE 2011: 213–214; Gabriel et al. 2013: 66; Rost Bagudanch 2017, 2019), has frequently been described as a Catalan interference as /ʎ/ continues to be a fully-fledged phoneme in most Catalan varieties (cf., e.g., Navarro Tomás 1971: 135; Payrato 1985: 105; Marsá 1986: 101;

typical fricatives such as sibilants and hence may be characterized as approximants, the main reason for this is that they behave phonologically like obstruents, i.e. like fricatives, and not like sonorants.

Sinner 1996: 19f.).[44] However, recent empirical studies show that at least in Barcelona Spanish the "advance of *yeísmo* has been intense in recent years" and the distinction between /ʎ/ and /ʝ/ is no longer systematic (Torres et al. 2013: 34, translation is mine). The same holds largely for Spanish in Majorca, too (Romera 2003; Ramírez/Simonet 2017; Rost Bagudanch/Blecua 2017; Rost Bagudanch 2019). On the other hand, perceptive studies show that in Girona, Catalan-dominant bilinguals are able to discriminate /ʎ/ and /ʝ/ in both Catalan and Spanish, although the phonetic distance of the contrast is significantly smaller in the Spanish pair (Rost Bagudanch 2016). In Majorca, this is true for Catalan-dominant bilinguals, too (although to a lesser extent than in Girona), but not so for Spanish-dominants, who do not identify the segments above chance level (Rost Bagudanch 2020).

- In spite of the fact that *distinción* (i.e. the distinction of /s/ and /θ/) is clearly the norm of (present-day) CCS, some authors mention that merger of these phonemes in favour of /s/, called *seseo* (cf. Hualde 2014: 42; NGRAE 2011: 167–168; Gabriel et al. 2013: 63f.), may still sometimes occur in CCS (e.g. Badia i Margarit 1979: 148; Payrató 1985: 82; Sinner 1996: 18f.). Historically, it was certainly one of the most typical features of the L2-Spanish spoken by Catalans before the bilingualization of the Catalan society and has been documented as early as from the 16th century (Blas Arroyo 2011: 283f.). It is usually explained as a phenomenon of incomplete L2 acquisition by L1 Catalan speakers in view of the fact that Catalan lacks /θ/. The same holds for the substitution of Sp. /x/ by [k], sometimes reported as well (Cerdá Massó 1967; Veny 2006: 33–60). However, Wesch (1997: 297f.) remarks that he did not find any interferences with /θ/ or /x/ in Barcelona Spanish and to my knowledge no empirical studies exist on the topic. Nevertheless, at the moment, the (competing) use of *seseo* and the *distinción* system in migrants from Latin America and their descendants is a topic that would deserve further study.
- Finally, Wesch (1997: 298) brings up the sporadic sonorization of word-final /θ/ before following vowels (*diez años* [djeˈðaɲos]) and, especially for Majorca, some further features like the pronunciation of /tʃ/ as [ʃ], gemination and assimilations of some consonants (e.g. *colegio* as [koˈɫːexjo], *amable* as [aˈmabːɫe]), dissimilation of /s/ before sibilants, and the differentiation of <v> /v/ and <b> /b/ have occasionally been reported (cf., e.g., Moll 1691: 469f.; Badia i Margarit 1979; Payrató 1985; Sinner 1996).

In the domain of vocalism, the characteristics of CCS concerning both stressed and unstressed vowels are traditionally traced back to two fundamental differences between the Spanish and the Catalan vowel systems. Whereas Mainstream Spanish has only the five vowel phonemes /a e i o u/ (cf. Hualde 2014: 41, 113–114; Gabriel et al. 2013: 78f.), most Catalan varieties exhibit

[44] Please note that the phenomenon known as *iodització* or *ieisme històric*, whereby the Latin groups -C'L-, -G'L-, -T'L-, and -L'Y- have developed to [j] instead of [ʎ] in some Central and Balearic varieties of Catalan (cf. Veny/Massanell 2015: 144–146, 190, 395; Wheeler 2005: 35), does not represent a case of phoneme merger as *yeísmo* in Spanish, since it does not affect the phonemic status of /ʎ/.

seven, since they distinguish open and close mid-vowels (/e o/ vs /ɛ ɔ/, respectively). In Mainstream Spanish, on the other hand, [ɛ ɔ] can at best be allophones of /e o/ (cf. Hualde 2014: 78; Gabriel et al. 2013: 79).[45] In addition, Eastern Catalan varieties present regular vowel reduction, i.e. raising and/or centralization of (most) unstressed vowels (cf. Wheeler 2005: 52–61, for some exceptions see Wheeler 2005: 61–77). Figure 2.2 illustrates how this process works in Central Catalan, where most phonemic distinctions are neutralized in unstressed position such that only three vowel qualities can occur [i ə u].

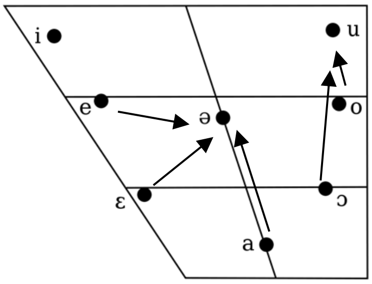

Figure 2.2: The Catalan vowel system (adapted from Carbonell/Llisterri 1999: 62). The arrows represent the vowel reduction of unstressed vowels as it operates in Central Catalan. [ə] only occurs in unstressed positions.

Regarding CCS, impressionistic studies often criticize the use of [ɛ] and [ɔ] as well as the reduction of unstressed vowels according to the Catalan pattern (e.g. Badia i Margarit 1979: 150, 1981: 25; Marsá 1986: 101; Royo 1991: 123; Casanovas 1995: 55; Sinner 1996: 14; Blas Arroyo 2007: 84). However, while they typically accuse the Catalans of using too open mid-vowels, already Wesch (1997: 298) observes that, in fact, the contrary seems to be the case: speakers of CatS with the L1 Catalan appear to use a very closed [e] even in positions where most Mainstream Spanish varieties would recur to the open allophone [ɛ]. This observation was confirmed in acoustic studies on CatS vowels, which showed that the realizations of the mid-vowels /e/ and /o/ in CatS do not occupy the centre of the space between /i/ and /a/ and /u/ and /a/, i.e. mid-positions but are much closer to the high vowels (Balari et al. 1988; Poch Olivé/Harmegnies 1994; Machuca/Poch 2016). Poch Olivé and Harmegnies (1994: 23) therefore conclude that Catalan-dominant bilinguals are conscient of interlinguistic differences and, rather than restructuring their vowel system, they simply deactivate the segments inexistent in Spanish; that is, they use a subsystem of their Catalan vowel system when speaking Spanish. Spanish-dominant bilinguals, on the contrary, performed like Spanish monolinguals in Machuca and Poch (2016). Helms (2021), finally, confirms that productions of Barcelona Spanish /e/ are closer to Cat. /e/ than to Cat. /ɛ/ in Catalan-dominants, although there still is a phonetic contrast between the /e/ productions in the two languages. She furthermore finds that productions of Spanish /e/ are becoming increasingly diffuse, as the corresponding F1 values present more variability in younger than in older speakers. Helms interprets this as an influence from their Catalan, which has lost the mid-vowel contrast.

[45] Some Eastern Andalusian varieties constitute an exception to this (cf. Penny 2000: 125f.; Gabriel et al. 2013: 101; Hualde 2014: 124–125).

With respect to unstressed vowels, Wesch (1997: 297) indicates that in Barcelona Spanish there is a tendency to pronounce unstressed /e/ and /a/ (the latter especially in word-final position) as [ə]: e.g. CatS. *dinámica* [diˈnamikə]. Concerning unstressed /o/, he underlines that its raising to [u] is inexistent in Barcelona Spanish but can be found in rural varieties of CatS. Unfortunately, no acoustic studies have yet been carried out on the quality of CCS unstressed vowels to my knowledge.

2.3.3 Suprasegmental features of CCS phonetics and phonology

At the suprasegmental level, surprisingly little research has been dedicated to CCS to date, even if already the earliest descriptions highlight the strong influence Catalan has on CCS with regard to its speech rhythm and intonation: for instance, Navarro Tomás (1935: 32) remarks the "ímpetu de su entonación" ('the boost of its intonation'), Badia i Margarit (1979: 153) comments on a "dilació sorprenent en el compàs de l'expressió" ('surprising delay in the speech rhythm') in L1 Catalan speakers, which he attributes to a general lack of naturalness of their Spanish, and according to Briz (2001) intonation is one of the most distinctive characteristics of Spanish spoken in València. Also Poch Olivé (2016: 336) underlines that the investigation of intonation is essential to give a proper account of CCS phonic characteristics: as it "doubtlessly will be very different in the whole of the bilingual geography", it deserves "extraordinary attention" (translation is mine). Besides, it is known that prosodic features are particularly susceptible to be transferred from one language to another, given that they are hard to control by the speaker even if one is conscious of them (cf., e.g., Weinreich 1953: 24; Baetens Beardsmore 1986: 73–74; Matras 2009: 232–233; and Section 3.4), which is not always the case (cf., e.g., Bernhard 1998: 10). The neglect of the study of CCS prosody (cf. Poch Olivé 2016: 336) might be linked with the fact that domains such as intonation have traditionally been given little attention by linguists (cf. Font Rotchés 2007: 21) and the interest in studying and describing it—both from an experimental and theoretical perspective—has only grown in recent decades (see also Section 3.1.1).

Concerning the intonation of CCS, the aforementioned *que*-questions do, to some extent, represent an exception, since they have been attributed a falling intonation pattern in some auditive descriptions such as Szigetvári (1994), Briz (2001), and Sinner (2004), as has been shown above. The first experimental study of Spanish intonation including CCS varieties known to me is by Sosa (1999: 193f., 210), who observes that declaratives have very similar contours in Barcelona and in Madrid. Also for yes–no questions, he finds that Barcelona Spanish follows the model of the canonical Castilian intonation in using a rising toneme. Later on, Romera et al. (2007, 2008) study the intonation of declarative and yes–no interrogatives with and without *que* on the basis of read speech from one L1 Spanish speaker from Barcelona within the framework of the AMPER project (Contini 2005; Fernández Planas 2005, 2009; Martínez Celdrán et al. 2003–2020).[46] In synthesis, they find strong similarities with the intonation of Barcelona Catalan but also with other Spanish varieties of the Iberian Peninsula (Valladolid, Salamanca), for both statements and questions. However, it is striking that in (neutral) yes–no interrogatives introduced by the particle *que*, which do not exist in other Spanish varieties, there is an overall coincidence between the Barcelona Spanish and Barcelona Catalan patterns, which the authors describe as H% H* H+L* H+L* L%[47] using the Autosegmental-Metrical (AM) framework (cf. 3.1.1.1). In Romera et al. (2009), a perception experiment was conducted showing that the participating judges were not able to tell apart Barcelona Spanish and Barcelona Catalan merely by intonational cues (i.e. when lexical and segmental information was concealed). The participants generally managed to recognize the sentence modality of statements and questions without *que*, but there were noticeably more confusions with statements in the case of questions headed by *que*. A similar experiment (including Barcelona-Catalan stimuli but no Spanish *que*-questions) had been carried out by Van Oosterzee (2005), who equally found that the two languages can hardly be distinguished by their intonation. However, in his study, monolingual speakers of Spanish had more difficulties than Catalan–Spanish bilinguals to recognize Catalan *que*-questions. Furthermore, important similarities were also found by Martínez Celdrán et al. (2011: 37) in the intonation of declaratives and absolute interrogatives between Spanish and Catalan spoken in Lleida, although the authors show that the contours are not identical in the two languages. Still within the AMPER project, Romera et al. (2015) compare information- and confirmation-seeking interrogatives in different Catalan and CCS varieties (Barcelona, Palma, Tortosa): what they find is that information-seeking yes–no questions most frequently end with rising nuclear configurations (viz. L* H%, L+H* H%) in all varieties. As for confirmation-seeking yes–no questions, L+H* H% was used in Barcelona Spanish (whereas in Barcelona Catalan H* L% was preferred). However, the number of items in this study was rather small. The same is true for Romera (2014), who studies the realization of different types of interrogatives in Barcelona Spanish spontaneous speech recorded from two speakers. Only partly confirming the findings made for scripted speech, her major conclusion is that confirmation-seeking yes–no questions and wh-questions tend to end in a low boundary tone, while information-seeking yes–no questions usually present a final rise.

Simonet (2008, 2011) investigates sentence-final pitch accents in declarative and yes–no interrogatives in Majorcan Spanish and Catalan. For declaratives, he observes that all subjects transferred melodic patterns from their dominant language to their non-dominant language

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46 Please note that within the subproject AMPER-CAT a series of corpora of (mainly read) Spanish utterances was recorded from speakers from Barcelona, Tortosa, Lleida, València, Alacant, and Palma. However, although these materials are available online, no detailed intonational analyses were made to my knowledge.

47 All recorded sentences show a 'verb–object, subject' structure. According to the authors, they begin with a high initial boundary tone, a high first pitch accent on the verb, and a second steeply falling accent on the complement of the verb, and then a low plateau until the last stressed syllable on the subject, where another gentle fall is observed before the low final boundary tone. Note also that the transcription of the initial boundary tone as 'H%' instead of the now more common '%H' follows Pierrehumbert's (1980) original AM conventions and is not meant by the authors to imply a prosodic boundary after the high tone on the initial syllable *que* (see also Section 3.1.1.1).

('substratum interference') with the exception of Spanish-dominant young females, who were using configurations that resembled Catalan in both of their languages. Simonet (2008: 274) interprets this finding as pointing towards an ongoing process of convergence of Majorcan Spanish intonation patterns towards Catalan led by young females. His analysis of absolute interrogatives confirms this idea, as all speaker groups, independently of their language dominance, show a tendency to use typically Catalan F0 contours when speaking Spanish. While this once more can be interpreted as 'substratum interference' in the case of Catalan-dominant speakers, for Spanish-dominant speakers it rather represents an instance of 'adstratum interference' or 'borrowing' from Catalan (Simonet 2008: 278). Here too, the young Spanish-dominant speakers seem to be the drivers of the convergence process. In sum, Simonet concludes that (especially the young) bilinguals seem to collapse the two languages' intonational systems into only one.

Similar observations were made by Romera/Elordieta (2013). In a study into the intonation of four monolingual speakers of Castilian Spanish, who had moved to Majorca as adults, the authors found that prosodic features of L2 Majorcan Spanish, viz. final falls, were consistently adopted by the migrants in their interrogatives.

Finally, Alfano (2016) used the INTSINT method (cf. Hirst et al. 2000 and Section 3.1.1) to analyse the interface between intonation and information structure in Barcelona Spanish yes–no questions. She finds that this question type presents a melodic pattern that is stationary-descending or ascending until the first peak (located on the first post-tonic syllable), then globally descending up to the last tonic syllable of the utterance, and, at its termination, decidedly ascending (i.e. essentially the same pattern as Castilian Spanish, cf. Section 3.1.2.2). Topics within such questions exhibit a significant rise at their right boundary.

With reference to other areas of prosody, such as phrasing, Rao (2007, 2008a) showed that in Barcelona Spanish (as spoken by Spanish-dominant speakers) it is possible to explain the distribution of prosodic words in phonological phrases[48] solely by prosodic factors, while previous proposals (made on the basis of other Spanish and Romance varieties) had placed more emphasis on phrase boundaries being determined mainly by syntactic cues. He found that the ideal length of a phonological phrase in Barcelona Spanish is two prosodic words and that balanced length, symmetry, and a rightward increase in length are other crucial factors influencing phrasing decisions. Concerning the deaccenting of lexically stressed words in spontaneous speech, Rao (2008b, 2009) observed, again for Barcelona Spanish, that the following characteristics increase the odds of stressed words to be deaccented: having few syllables; being globally frequent in Spanish; being adverbs or verbs; being recently repeated in discourse; and located in an initial or medial position of the phonological phrase. As for the acoustic correlates

[48] Rao considers phonological or minor phrases to be inferior to the so-called major or intonational phrases (IPs). They thus correspond to the intermediate phrases (ips) suggested in other pieces of research (cf. Section 3.2.1; see also 3.1.1.1).

of stress and accent, Ortega-Llebaria and Prieto (2007) discovered, equally for Barcelona Spanish, that in the absence of a pitch accent, stress is conveyed mainly by duration and to a lesser extent by intensity and vowel quality.

Finally, some works studying the voice quality of CCS speakers on the basis of long-term average spectra are worth mentioning, as they reveal that Spanish–Catalan bilinguals tend to behave differently in their two languages in function of their language dominance (Harmegnies et al. 1989; Bruyninckx et al. 1990, 1994; Llisterri et al. 1992). For instance, they exhibit greater voice coherence and their speech is generally more restrained in the non-dominant language due to a "global insecurity", while the dominant one seems to allow for more variability as speakers are more confident.

Chapter 3:
Theoretical background and description of Castilian Spanish and Central Catalan intonation

Chapter 3 provides the necessary prerequisites to the analysis and discussion presented later in this work. At the onset, subchapter 3.1 deals with intonation. Section 3.1.1 offers a description of the framework applied for the intonational analysis of Central Catalan (CC) and Castilian Spanish (CS): the Autosegmental-Metrical (AM) model and the ToBI annotation system. In Section 3.1.2, I first introduce the inventory of pitch accents and boundary tones established within the AM model and the ToBI transcription system for CC and CS, before depicting the intonational realization of various sentence types in these two varieties. In Section 3.2, I outline the hierarchical organization of prosodic constituents and the prosodic phrasing patterns of CC and CS. Section 3.3 is devoted to the presentation of terms and phenomena to which I refer in Chapter 6 when discussing the results of the prosodic and segmental analysis of Girona Catalan and Girona Spanish in terms of language contact (e.g. borrowing, transfer, convergence, language attrition, etc.). In addition, I summarize the findings of various studies on transfer and convergence of suprasegmental features in that section to show the variety of prosodic patterns which can be affected in language-contact situations. Section 3.4, finally, is dedicated to language dominance.

3.1 Intonation

3.1.1 Models of intonation and annotation systems

Research on intonation has long been a marginal field within linguistics—first and foremost due to a series of unresolved issues regarding its representation and meaning as well as to the lack of a generally accepted model in the face of fundamentally different approaches (cf. Wakefield 2020; Ladd 2008; Prieto 2003; Navarro Tomás 1974; Stockwell 1972). This is already evident from the difficulty of clearly defining the term *intonation*. Ladd (2008: 4) puts it as follows: "Intonation [...] refers to the use of *suprasegmental* phonetic features to convey 'post-lexical' or *sentence-level* pragmatic meanings in a *linguistically structured* way" (emphasis in italics his). By the suprasegmental features mentioned in this definition he first of all makes reference to the phonetic properties of fundamental frequency (F0), intensity, and duration, although he remarks that it is often unclear whether these or their psychophysical correlates (i.e. pitch, loudness, and quantity) are most appropriately used as terms of reference when talking about suprasegmental phenomena, which is why they are often used interchangeably (p. 5). Regarding pragmatics, it is said that intonation conveys meanings such as information structure and sentence type (e.g. the difference between neutral and contrastive focus or between declaratives, interrogatives, and imperatives). These meanings thus apply to phrases or utterances as a whole (Ladd 2008: 6; for a critical view of this aspect see Wakefield 2020: 13). Furthermore, Ladd's definition excludes features of stress, accent, and tone that are determined in the lexicon. Finally, he assumes that intonational features are organized "in terms of categorically distinct entities [...] and relations" and that paralinguistic features such as tempo and loudness that signal continuously variable states of the speaker (e.g. arousal) are not part of them.

Taking into consideration this definition of intonation, which will be adopted here, it can be suggested that studies on intonation ought to concentrate on the concrete phonetic realization first before establishing an inventory of contrastive entities and defining the relation between prosodic units relevant for the intonational description of the languages under consideration. Some of the fundamental questions regarding the analysis of intonation that arise are:

(1) How can we best describe the intonation of a particular language?
(2) Which kinds of prosodic units should be taken into account in order to establish a universal model of intonation?
(3) How do languages differ with respect to their intonational properties?

During recent decades, the interest in describing and modelling intonation has steadily grown both from an experimental and theoretical perspective. As a result of this boom, a large array of methodologies and models have been put forth for its analysis. In the aim of describing English prosody to aid foreign-language learning and teaching, the first linguistic frameworks emerged from the important conceptual work of the British (Jones 1918; Palmer 1922; Armstrong/Ward 1926; O'Connor/Arnold 1973 [1 1961]; Crystal 1969; see García-Lecumberri 2003 for an overview) and American Schools (Trager/Smith 1975 [1 1951]; see Martínez-Celdrán 2003 for an overview). While the former analyses the melodic contours as 'configurations' of tonal movements, the primitives of the latter are combinations of static tonal levels—an idea that dates back to Pike (1945) and Wells (1945). Both models have been applied to Spanish in the influential works of Navarro Tomás (1974) and Quilis (1981, 1993), respectively, and have also clearly inspired later frameworks such as, e.g., the IPO model of the Dutch School (Cohen/'t Hart 1967; 't Hart/Collier 1975; De Pijper 1983; see Garrido 2003 for an overview), which takes up tonal movements and configurations as minimal units from the British School but subjects pitch curves to a stylization process prior to the linguistic analysis. This phonetic approach including resynthesis of the speech signal is also central in the level-based model of intonation developed by Hirst, Di Cristo, and Espesser in Aix-en-Provence at the *Laboratoire Parole et Langage* (Hirst/Di Cristo 1998; Hirst et al. 2000; see Baqué/Estruch 2003 for an overview), in the Kiel intonation model (Kohler 1991, 1997) as well as in the many studies elaborated within the AMPER project (*Atlas Multimédia Prosodique de L'Espace Roman*), which was originated by Michel Contini and Antonio Romano at the *Centre de Dialectologie de Grenoble* (Université Stendhal de Grenoble) (Contini 2005; Fernández Planas 2005; Romano et al.

2005; Martínez Celdrán et al. 2003–2020; among many others). Undoubtedly, the Autosegmental-Metrical (AM) model (Pierrehumbert 1980; Beckman/Pierrehumbert 1986; Pierrehumbert/Beckman 1988; see Hualde 2003a and Section 3.1.2, for an overview), which was originally developed for the analysis of English intonation by Pierrehumbert (1980) in her seminal dissertation, and consequently adapted to describe a large variety of Romance and other languages (cf. Frota/Prieto 2015; Jun 2005, 2014), has had the largest impact on the field and is still dominant today (cf. Martin 2015: 46).

In conjunction with these models of intonation, a variety of annotation systems have been proposed, including, among many others, the transcription systems INTSINT (*INTernational Transcription System of INTonation*; Hirst et al. 2000), OXIGEN (*OXford Intonation GENerator*; Grabe et al. 2003), PENTA (*Parallel Encoding and Pitch Target Approximation*; e.g. Xu 2005), and the ToBI (*Tones and Break Indices*) labelling system, which is based on the AM model (Silverman et al. 1992; Beckman et al. 2005, among others). Especially for German, DIMA (*Deutsche Intonation – Modellierung und Annotation*) was proposed as a consensual system that allows for a phonetically informed phonological annotation and is easily translatable to other AM frameworks (Kügler/Baumann 2020). In most recent years, work on an International Prosodic Alphabet (IPrA), similar to the transcription system IPA (*International Phonetic Alphabet*) for speech sounds, has been initiated with the aim to develop a set of cross-linguistically transparent and consistent labels building on the AM framework and the ToBI notation (Hualde/Prieto 2016).[49]

Considering the array of co-existing models of intonation and labelling systems just mentioned, researchers need to carefully choose the model and the annotation system which best serve the purposes of their investigation. For the intonational analysis of the two contact varieties Girona Spanish and Girona Catalan carried out in the present work this is doubtlessly the AM framework and the ToBI system for the following reasons: first, both are demonstrably adequate tools to describe the intonation of a given language, since they can be used to establish inventories of contrastive pitch contours and to define how the relevant prosodic entities are organized while abstracting irrelevant aspects such as the number or syllables or words of each utterance (cf. Hualde 2003a: 180). Second, as will be shown in the intonational analysis presented in Chapter 5, the ToBI labelling systems proposed for Spanish and Catalan (Sp_ToBI: Estebas-Vilaplana/Prieto 2008, 2010; Hualde/Prieto 2015, Prieto/Roseano 2018, among others; Cat_ToBI: Prieto et al. 2009; Prieto et al. 2015, among others) enable both phonetic and phonological descriptions of the F0 contour. In this, they resemble the IPA, whose symbols are

[49] Both the ToBI labelling system and the IPrA are based on the AM model and are thus quite similar. The most important difference between these two annotation systems consists in the fact that a specific ToBI system is developed for each language (or variety), whereas IPrA attempts to offer a cross-linguistic annotation of intonation. This means that ToBI can be defined as a language-specific labelling system, while IPrA can be considered a sort of IPA for prosody. Furthermore, as opposed to ToBI, IPrA uses two levels of prosodic representation, a broad phonetic and a phonological one—an idea already put forth by, e.g., Armstrong/Cruz (2014). However, IPrA is a very new proposal and has not yet been applied to any language.

used in both transcriptions of physically realized phones and representations of the corresponding underlying phonemes. Third, the AM model and the ToBI annotation system are nowadays two of the most widespread frameworks (cf. Hualde 2003a; Hualde/Prieto 2016, among others). The fact that they have been applied to several dozen (typologically distinct) languages with very different prosodic systems as well as to a large variety of sentence types, facilitates cross-linguistic comparison of different intonational systems. Fourth and most importantly, the major part of research studies on the intonation of CS and CC, i.e. the two varieties to which I compare Girona Spanish in Chapter 6, have been conducted within these two approaches—especially when it comes to the analysis of the diatopic and diastratic variation present in the intonation of these varieties as well as of the pitch contours used in different pragmatic situations, there is no comparable amount of studies in any other theoretical framework. In the next sections, I will therefore introduce the AM model and the ToBI annotation system adopted in the present work.

3.1.1.1 Autosegmental-Metrical model

The Autosegmental-Metrical model (AM model) has its starting point in the intonational analysis of American English proposed by Pierrehumbert (1980) in her seminal dissertation. However, some of its fundamental aspects are clearly inspired by the ideas of Leben (1973) and Goldsmith (1976) for the analysis of tone languages and other preceding work on the intonation of English (Leben 1976; Liberman 1975) and of the tone-accent language Swedish (Bruce 1977) (cf. Hualde 2003a; Ladd 2008: 43; Beckman/Venditti 2010; Arvaniti 2011, among others).[50] The central aim of the AM model is to neatly distinguish between the phonological structure, which consists of underlying tonal targets represented as strings of (level) tones on a separate tonal tier, and the surface F0 contour produced by a speaker as a result of phonetic interpolation between phonologically specified underlying tonal units, i.e. it builds on a formal separation between phonetics and phonology. As a phonological model of intonation, it intends to capture and represent exclusively "the linguistically significant parts of the melody" (Arvaniti 2011: 769), instead of providing a merely phonetic description or transcription of the course of the F0 contour. As opposed to most other models, which have focused solely on faithful representations of entire F0 curves, it thus tackles the question of what should be represented phonologically when it comes to annotating intonation in a parsimonious and elegant way (Arvaniti 2011). The term *Autosegmental-Metrical* was coined by Ladd (2008 [[1]1996]) (cf. Hualde 2003a: 155; Gussenhoven 2004: 123). It makes reference to the central assumption of Autosegmental Phonology (Goldsmith 1976) that the melody or tonal modulation of an utterance

[50] To give some examples, Leben (1973) first conceptualized tones as distinct tonal segments rather than features of particular tone-bearing units, such as syllables, and Goldsmith (1976) represented them as *autosegments* residing on a separate tier. He furthermore analysed English intonational melodies as sequences of H and L level tones. Bruce (1977), finally, demonstrated the importance of *turning points*, i.e. F0 minima and maxima that temporally align with particular elements of the segmental string (cf. Arvantiti 2011).

constitutes an independent level, i.e. an apart *tonal tier* containing its *tone-bearing units* ('autosegments'), in addition to the segmental level. Furthermore, it refers to Liberman's (1975) observation that, at least in English, the way in which these tones associate with specific syllables is determined by the prominence relations between the syllables of each word and those between the words of each utterance, i.e. by metrical structure (cf. Hualde 2003a: 156f.). Through the means of a sparse tonal specification of the contour, the model captures the similarities between superficially different melodies that arise from the properties of the metrical structure with which the melodies associate and, in this way, accounts for both local phonetic detail and abstract phonological form, something that configurational and full specification models cannot do (for extensive discussions of this point see Pierrehumbert/Beckman 1988; Arvaniti/Ladd 2009).

As already mentioned, the AM approach is established on the premise that intonational tunes can be characterized adequately in terms of a string of categorically distinct tonal events which can be mapped to continuous acoustic parameters by associating them with certain points in the segmental string (cf. Ladd 2008: 43f.). In languages like English, Spanish, or Catalan, the most important events of the tonal string, i.e. the basic components of the model, are *pitch accents*, which are aligned with prominent syllables in the segmental string[51], and *edge tones*, which are associated with the edges of intonational contours. In Pierrehumbert's (1980) and many following proposals, the latter encompass *phrase accents* and *boundary tones*. Whereas boundary tones are anchored at the very end of the intonation phrase (IP)[52], phrase accents follow the last pitch accent and are realized as free-standing tones occupying an intermediate position between the last pitch accent and the boundary tone of the IP (cf. Pierrehumbert 1980: 19–29; see also Hualde 2003a; Gussenhoven 2004: 123f.; Ladd 2008: 87f.; Arvaniti 2011).[53] Both pitch accents and edge tones can be analysed as consisting of the two primitive level tones or pitch targets High (H) and Low (L). In Pierhumbert's (1980) analysis of English, pitch accents encompass a single tone, or a combination of two tones, and are indicated with an asterisk or 'star'. While the phonetic description of the H* pitch accent as a local peak and of the L* as a local valley are "fairly straightforward" (Ladd 2008: 92), bitonal pitch accents are used when the F0 is characterized by rapid local movement rather than just a local minimum or maximum. In this case, one tone is assumed to be central in some way and its alignment with the metrically strong syllable is indicated by the asterisk, whereas the other one is considered a leading or a trailing tone depending on its position before or after the starred tone (Pierrehumbert 1980: 25–26; see

[51] In languages such as English, Spanish or Catalan, prominent or metrically strong syllables are those which have lexically (or morphologically) defined stress. In consequence, almost all words may bear a tonal accent as a concrete perceptual cue expressing stress of the respective metrically strong syllable (exceptions are mainly the definite articles as well as some (generally monosyllabic) prepositions and functional words; cf. Hualde 2003: 157; Ladd 2008: 44). However, it is an asset of the AM model to formally separate stress from intonation and to provide a mechanism for their interaction (cf. Arvaniti 2011).

[52] The intonational or intonation phrase, IP, is usually considered to be the largest phonological unit in which an utterance can be divided (see Section 3.2 for an extensive overview of prosodic constituency).

[53] Please note that boundary tones have also been associated with the very beginning of the IP in some cases, but they are usually considered optional in that position (cf., e.g., Hualde 2003: 169f.; Ladd 2008: 88).

also Gussenhoven 2004: 128; Ladd 2008: 87–100; Arvaniti 2011).[54] As mentioned above, Pierrehumbert (1980: 22f.) distinguishes two types of edge tones: phrase accents or phrase tones (notated H- and L-) and boundary tones (notated H% and L%[55]). Unlike pitch accents, which can be monotonal or bitonal, these are single tones, i.e. either high or low, in the original proposal (cf. Ladd 2008: 88). When an IP contains more than one pitch accent, the last one is referred to as *nuclear pitch accent* according to its position, whereas all preceding pitch accents are considered *prenuclear* (Pierrehumbert 1980: 37–40; Ladd 2008: 89–90, 131–134). However, this does not imply an internal constituent structure in the earliest approach, such that Pierrehumbert (1980: 93) proposes the same tonal inventory for both the prenuclear and the nuclear position.

In her original analysis, she suggests two monotonal and five bitonal pitch accents for English and, in addition to these, two phrase accents and two boundary tones. Given that every intonation phrase is made up of one or more pitch accents the last one of which must be followed by a phrase accent and a boundary tone, there are actually 28 logically possible combinations for the obligatory phrase-final sequence of pitch accent, phrase accent, and boundary tone. The schematic representation in Figure 3.1 gives all sequences of tonal events theoretically allowed within an English intonational phrase by her finite-state grammar (Pierrehumbert 1980: 29).

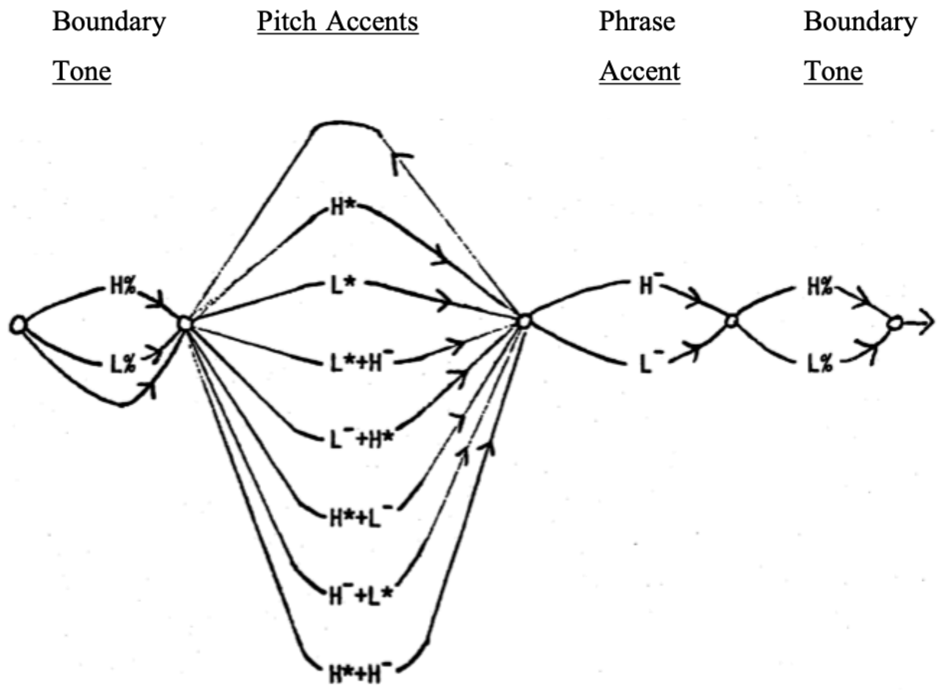


Figure 3.1: Finite-state grammar to generate tunes of English intonation according to Pierrehumbert (1980: 29).

54 In the original notation, trailing and leading tones were written with a following raised hyphen (H^- or L^-), dispensed with in subsequent work and retained instead as ordinary hyphen to indicate phrase accents. Furthermore, the two tones of a bitonal pitch accent are joined with a plus sign (e.g. L*+H), omitted in some early work based on Pierrehumbert but usually part of the notation today (cf. Ladd 2008: 88).

55 Note that initial boundary tones are now usually annotated as '%H' and '%L' to avoid ambiguity regarding the position of the boundary.

However, as she deems six of these to be indistinguishable from other sequences, Pierrehumbert (1980: 390–401) assumes that only 22 combinations of nuclear pitch accents, phrase accents, and boundary tones are actually possible in English. Many of the problematic sequences involve the H*+H pitch accent, which—after some controversy—is eventually dispensed with in later versions of the model, leaving only six pitch accents (cf. Beckman/Pierrehumbert 1986; see also Ladd 2008: 92, 208f. for a detailed discussion). The same is true of the low initial boundary tone, L% (Silverman et al. 1992).

The major modification of the revised version in Beckman/Pierrehumbert (1986) consists in the introduction of an additional layer of structure, the *intermediate phrase* (‘little’ or ‘minor’ ip), such that two levels of phrasing can be distinguished instead of only one (i.e. the intonation phrase, ‘big’ or ‘major’ IP). Given this reanalysis, each IP may consist of one or more ips. Furthermore, phrase accents are reinterpreted as edge tones for the intermediate phrase.[56] Figure 3.2 illustrates tonal association in the revised model.

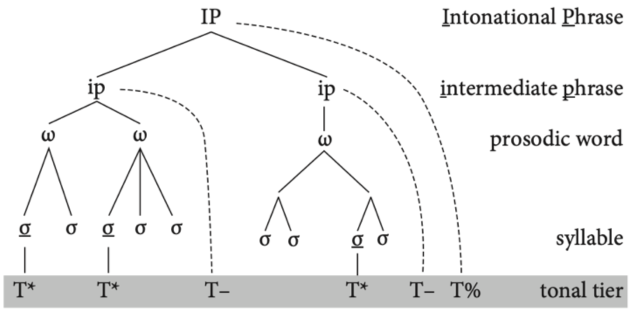


Figure 3.2: Association of tonal targets with different levels of the prosodic hierarchy (adopted from Pešková et al. 2012: 370).

As can be seen, pitch accents (T*[57]) associate with the stressed (i.e. metrically strong) syllables (σ̲) of each ip (or IP)[58] and each ip, be it final or not, ends in an ip boundary tone (T-, the former *phrase accent*). Additionally, each IP ends in an IP boundary tone (T%). According to this revised understanding, nuclear accents can thus be defined as the last accent of each *intermediate* phrase (cf. Ladd 2008: 90). Considering this, it can be said that IPs end in a T* T- T%

[56] There seems to be no consensus about which term should best be used to refer to the tonal targets signalling a prosodic boundary at the end of the ip. While Beckmann/Pierrehumbert (1986) continue to use *phrase accent*, other (later) descriptions adopt the term *intermediate boundary tone* (e.g. Pierrehumbert 2000: 21), as I will do here. Please also note that besides the tonal marking at the end of the intermediate phrase there are also other cues indicating the presence of (inner, i.e. IP-internal) intermediate phrases such as pauses or phrase-final lengthening (Beckman/Pierrehumbert 1986; Pierrehumbert/Hirschberg 1990; Beckman et al. 2005, among others).

[57] ‘T’ is a placeholder for different pitch accents (both monotonal or bitonal ones) and boundary tones.

[58] According to Beckman (1996: 34), “[...] every intermediate phrase must have at least one (nuclear) pitch accent [...].” As opposed to Pierrehumbert’s original proposal, in which the nuclear pitch accent was merely the last of the intonational phrase, it should now be thought of as more prominent than prenuclear accents (Ladd 2008: 90) and can be seen as the head of the ip (Terken/Hermes 2000).

sequence, where T* is the nuclear pitch accent of the (last) ip, T- is the boundary tone of that ip, and T% is the boundary tone of the IP. This sequence is often referred to as nuclear contour or configuration (cf. Estebas-Vilaplana/Prieto 2008, 2010; Hualde/Prieto 2015 for Spanish; Prieto et al. 2009, 2015; Benet et al. 2011; Prieto 2014 for Catalan, among many others). Optionally, an initial boundary tone (%T) may be produced at the beginning of the IP in some languages (as mentioned above). Furthermore, an ip can contain one or several prenuclear pitch accents (T*) in addition to its nuclear configuration. If an IP comprises more than one ip, each of these ips has at least one (i.e. a nuclear) pitch accent (T*) and an ip boundary tone (T-) (cf. Beckman/Pierrehumbert 1986; Beckman 1996; Pierrehumbert 2000; Gussenhoven 2004: 130–141; Ladd 2008: 87–107; Frota 2012, among others). However, it is worth mentioning that these two levels of phrasing have not been retained in all of the intonational analyses proposed for other languages the AM model has been applied to. For instance, intermediate phrases (ips) are usually considered necessary in languages such as Spanish or Catalan (see Sosa 1999; Estebas-Vilaplana/Prieto 2008, 2010; Hualde/Prieto 2015 for Spanish; Prieto et al. 2009, 2015; Benet et al. 2011; Prieto 2014 for Catalan, among many others), but they can be forgone in Portuguese (cf. Frota 2000; Cruz 2013; Frota 2014; Frota et al. 2015). Furthermore, concerning phrase-final contours, the nuclear configuration of the IP is assumed to consist merely of a nuclear pitch accent and an IP boundary tone in some languages, i.e. the ip boundary tone (or 'phrase accent') of the last and IP-final ip is considered to be dropped or merged with the IP boundary tone. Namely, this is the case of the systems proposed for Spanish and Catalan (cf. Section 3.3 for more details).

While the AM model was originally motivated mainly by phonetic and phonological considerations, any model of intonation can only be comprehensive when it is able to capture and explain the connection between the established tunes and **meaning**, i.e. if it succeeds to provide a semantic or pragmatic interpretation of F0 movements (Pierrehumbert/Hirschberg 1990: 8). Yet, to date, research on intonational meaning has not been very extensive (cf. Arvaniti 2011; Prieto 2015). Concerning the AM framework, Büring (2016: 260) recalls that, while the autosegmental analysis it proposes has "proven extremely useful", the phonemic status, i.e. the categorical meaning, "of the tones and distinctions it assumes is very much in need of confirmation". However, analogously to the segmental level, where linguistic categories are expected to relate to both differences in sounds and differences in semantic interpretation, several proposals have been made concerning the meaning of the tonal elements posited in the AM model (see Arvaniti 2011; Prieto 2015; Büring 2016: 219–260 for an overview).

While traditionally most analyses of the meaning of F0 contours have taken a holistic approach, treating F0 contours as gestalts or configurations and confining the domain of interpretation to the entire clause or utterance (cf. Bolinger 1958, 1982; Delattre 1966; O'Connor/Arnold 1973; Ladd 1980; Truckenbrodt 2012, among others)[59], Pierrehumbert and Hirschberg

[59] One more recent approach of this type worth of mention is the 'melodic construction' proposed by Torreira and Grice (2018), who build on Ladd's (2008) ideas to represent tunes as sequences of abstract tones.

(1990: 308) in their seminal work on English defend that tune meaning is compositional in the same way as the tone sequences in the tonal tier are composed of tonal primitives. In their hierarchical model, they propose that speakers chose intonational contours to convey, (a), how the hearer should interpret the relationships between (the propositional content of) an utterance and preceding or following ones, and (b), how the hearer should interpret the utterance with respect to the shared mutual beliefs of the conversational participants, the so-called common ground (cf. Büring 2016: 220, 224; Féry 2016: 157f.). The scope of interpretation of tones is the node to which they are attached. Pitch accents and boundary tones are thus interpreted with respect to different phonological domains (Pierrehumbert/Hirschberg 1990: 286). Edge tones, for instance, have scope over the phrase with whose edge they associate, i.e. over the ip or over the whole IP, respectively. Büring (2016: 231) remarks that this tacitly includes the basic "assumption that ips and IPs map one-to-one on syntactic clauses or at least something that has propositional content" (for a critique of this view see, e.g., Martin 2015: 50, 57).

First, Pierrehumbert and Hirschberg (1990) assume pitch accents to render salient the material with which they are associated and to convey information about their status in discourse. For instance, in English, the H* pitch accent generally signals that the element it is associated with is 'new' in discourse (p. 289) and should be added to the common ground (cf. Féry 2016: 158), while low pitch accents tend to convey 'oldness' (cf. Büring 2016: 233). Pierrehumbert and Hirschberg often phrase these meanings in terms of instructions (to the addressee of the utterance) or intentions (of the speaker), as was noted by Büring (2016: 232). He furthermore criticizes that such informationstructural meanings actually refer to the meaning of the entire clause, or, more specifically, that they operate on its propositional content (p. 235f.). Additionally, Pierrehumbert and Hirschberg (1990: 286, 289) assume that pitch accents can specify the relationship between accented lexical items and, e.g., modifiers or predicates). Second, phrase accents (i.e. ip boundary tones, cf. Pierrehumbert/Hirschberg 1990: 227) are assumed to convey information about the relatedness of an ip with previous and subsequent ips and, third, boundary tones convey "the directionality of interpretation for the current intonational phrase", i.e. "whether it is 'forward-looking' or not" (Pierrehumbert/Hirschberg 1990: 308). Edge tones are thus supposed to have a mainly structuring function. For instance, phrases that end in a high boundary tone, are more likely to be interpreted as units with a phrase that follows (p. 287), whereas low phrasal tones emphasize the separation of a current phrase from a subsequent phrase (p. 302). As a consequence, boundary tones play a considerable role in discourse segmentation. Considering this, it can be said that pitch accents, phrase accents, and boundary tones can be seen as tonal morphemes which have their own pragmatic meaning, and that, vice versa, the pragmatic meaning of each IP can be defined simply as the sum of meanings of the pitch accents, phrase accents, and boundary tones that occur in it (cf. Arvaniti 2011; Büring 2016: 222; see also Ladd 2008: 41 as well as Wakefield 2020, who makes a strong case for the morphemic nature of intonation).[60] Consequently, the meaning of an IP can be seen as "compositional" and depending "on [semantic] contributions from all tones" (Arvaniti 2011: 772).

"The bulk of subsequent literature", as Büring (2016: 223) points out, "has been content with repeating Pierrehumbert and Hirschberg's (1990)" assumptions and very little has been done to make their ideas more precise in other compositional approaches to the meaning of intonational tunes.[61] However, as mentioned before, there are also more holistic views according to which intonational meaning may depend on strings of intonational primitives rather than being strictly compositional, and, as Féry (2016: 157) puts it, "even the strictest tone-sequence approach, like the one of Pierrehumbert and Hirschberg, which assigns meanings to every individual tone, needs sequences of tones (and appropriate texts) to illustrate […] meanings". The partly holistic approaches (such as, e.g., Bolinger 1958 or Gussenhoven 1984; see also Ladd 2008: 286) typically suggest that the nuclear pitch accent or nuclear tunes (i.e. the nuclear pitch accent and the subsequent edge tone) play a crucial role in the interpretation of the meaning of tunes—in contrast to the prenuclear pitch accents, which do not seem to contribute to information structure and thus to meaning (cf. Ladd 2008: 147–156; Arvaniti 2011). In such proposals, it is assumed that an 'abstract tune' containing a meaningful 'intonational morpheme' is linked to prosodic structure in an autosegmental way: the pitch accent associates with the head of the intermediate phrase, i.e. its nuclear syllable, and the boundary tones are linked to the edges of the respective phrases (cf. Büring 2016: 220). Prenuclear accents, on the other hand, can be reiterated as many times as necessary depending on how much prenuclear material there is (cf. Büring 2016: 221). Although approaches of this type have enjoyed great popularity in recent years, and especially in Romance languages (cf., e.g., Frota/Prieto 2015), the special status of the nuclear accent or contour has freshly been questioned by Torreira/Grice (2018). In sum, although a series of proposals have been made representing different degrees of the "holistic–compositional" opposition, it remains unclear or at least a subject of controversial debate which the smallest meaning-bearing (prosodic) units are.

Before closing the overview of the AM model presented in this section, some further important terms related with the phonological interpretation of global F0 trends that warrant consideration are *declination*, *downstep*, *final lowering*, *upstep*, and *deaccenting* or *deaccentuation*. Already since Pike (1945), it is known that in many languages the F0 tends to decline over the course of phrases and utterances, although this *declination* is sometimes suspended or can even be reversed in questions (cf. Ladd 2008: 75; Gussenhoven 2004: 100). Pierrehumbert (1980: 116) defines the term as "a gradual downdrift and narrowing of the pitch range, which occurs within the body of the intonation phrase" (Pierrehumbert 1980: 116). It has sometimes been contemplated as a merely phonetic and therefore universal effect resulting from the falling subglottal pressure as one speaks (cf. Bolinger 1978; Connell 2002; Pompino-Marschall 2003

[60] Note however that such an approach neglects the meanings conveyed through, e.g., duration-based aspects of the IPs such as speech rate, intensity, or lengthenings; see also below and Martin 2015: 57)

[61] Two more recent compositional approaches put forth for English and French intonation, respectively, can be found in Steedman (2014) and Portes/Beyssade (2015).

246f.). Within the AM framework, declination has generally been interpreted as an effect of *downstep*, i.e. “the stepwise lowering of pitch (or of the tonal space) at specific pitch accents” (Ladd 2008: 76), which entails that “each successive F0 peak is lower than the preceding peak” (Face 2003: 118). Inspired by many African tone languages, in which the second High in High–Low–High sequences is realized at a lower level than the first one, and then, in turn, sets a new ceiling for the realization of further high targets, Beckman and Pierrehumbert (1986: 280) suggest that this “catathesis” (i.e. ‘downstep’) of following tones (both pitch accents and edge tones) is automatically triggered by bitonal pitch accents (cf. Ladd 2008: 97). Due to the local interpretation of pitch events relative to preceding events in the AM model, this kind of downstep does not need to be marked explicitly in the tonal transcription. However, downstepped pitch accents (and boundary tones) can be indicated with an exclamation mark, e.g. !H* (cf. Silverman et al. 1992; Beckman et al. 2002, among many others). This is necessary, if, on the other hand, they are interpreted as a phonological feature [± downstep] that can be selected independently and applied to essentially any accent in any sequence of tones (cf. Ladd 1983; 2008: 97). The effects of downstep disappear at the intermediate phrase boundary, i.e. pitch is reset for each new intermediate phrase (cf. Pierrehumbert/Hirschberg 1990: 280). Both the overall downward trend of the F0 contour (gradual declination) and the downstep at specific points in the IP, whose result is a ‘terraced’ tonal space, are illustrated in the representations of the tonal space in Figure 3.3 (cf. upper and lower panel, respectively):

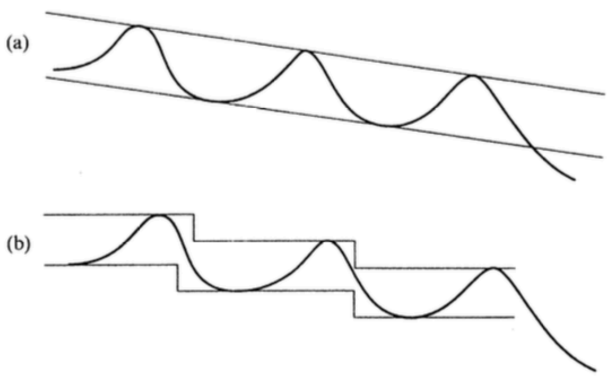


Figure 3.3: Illustration of the overall downward trend as the consequence of (a) gradual declination and (b) downstep at specific points in the utterance (adopted from Ladd 2008: 76).

A phenomenon that is usually distinguished from downstep is *final lowering*: for the analysis of production data has shown that the final accent within a prosodic phrase is often lower than would have been predicted by the constant proportion in the phonetic model of downstep, a lowering process is assumed to operate on the last accent in a sequence (cf. Ladd 2008: 79–80; see also Liberman/Pierrehumbert 1984; Arvaniti/Godjevac 2003; Face 2003: 118). This process is illustrated in Figure 3.4, where the left panel shows merely common downstep (of the second and third peak) and the right panel downstep (of the second) and final lowering (of the third peak).

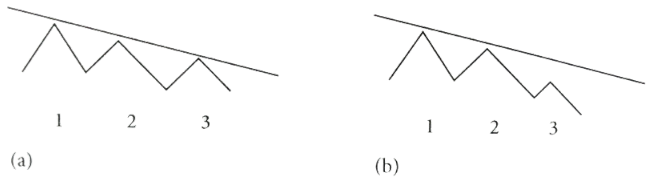


Figure 3.4: Schematic representation of downstep (in both panels) and final lowering (only in the right panel) (adopted from Benet et al. 2011: 109).

Furthermore, the opposite of downstep, i.e. *upstep*, has also been suggested to exist in some languages. Today, it is habitually indicated by an inverted exclamation mark: e.g. ¡H*. Although originally solely applied to boundary tones in the analysis of English and German (Pierrehumbert 1980: 144; Grice et al. 2005), many analyses of Romance languages assume that upstep can also affect pitch accents (e.g. Hualde 2002; Beckman et al. 2002; Prieto/Roseano 2010, among many others). Unfortunately, however, there is no single definition on how it ought to be employed in intonation labelling practices and its phonological status oftentimes remains unclear (cf. the discussion in Henriksen/García-Amaya 2012: 148–149). While some researchers simply use the diacritic phonetically to indicate that a peak was higher than a previous H peak or than all other tonal gestures of the same melody (Estebas-Vilaplana/Prieto 2008, 2010: 23, 28; Willis 2010: 125), others seem to use it on paradigmatic terms, viz. to indicate that a peak is higher than otherwise typical occurrences of the accent in question (e.g. Gabriel et al. 2010: 289, 313; Hualde/Prieto 2015: 362). In the latter case, the upstepped pitch accent is thus not characterized relative to previous peaks but considered an allotonic variant of a given pitch accent. In some cases, scholars have understood the higher scaling of a pitch accent as the manifestation of independent phonological entities basic to the underlying tonal inventory, i.e. they posit contrastive 'upstepped' tones and, hence, assume an additional level of phonological pitch scaling (e.g. Borràs-Comes et al. 2010; Vanrell 2011; Vanrell et al. 2013; Prieto et al. 2015: 29, 49).

In addition, it is worth mentioning that in lexical-stress languages such as English, Spanish, or Catalan, it is sometimes possible for metrically strong syllables not to receive a tonal marking by a pitch accent, i.e. underlyingly stressed syllables may remain pitch *deaccented*.[62] The extent to which this is 'normal' widely differs between languages: whereas *deaccenting* or *deaccentuation* rates have been shown to be high in English or Portuguese (cf., e.g., García-Lecumberri 1995; Vigário/Frota 2003: 16; Frota et al. 2015: 281), Catalan and Spanish present higher 'tonal density' (cf. Hualde 2003a: 164; Rao 2009; Prieto et al. 2015: 11, and Section 3.3). The opposite phenomenon, i.e. tonal marking of unstressed syllables, can also be observed in some cases. Especially in French but also in Spanish and Catalan, this often affects the word-initial syllable (cf. Delais-Roussarie et al. 2015; Hualde 2007, 2009; Nadeu/Hualde 2012; Hualde/Nadeu 2014). Furthermore, enclitics may receive optional or obligatory stress in some Spanish and

[62] Note that this does not necessarily imply that the respective metrically strong syllable also loses other correlates of stress such as durational or intensity cues (cf. Torreira et al. 2014).

Catalan varieties (cf. Moyna 1999; NGRAE 2011: 413; Colantoni/Cuervo 2013; Hualde/Prieto 2015: 384; and Colomina i Castanyer 2002: 578–579; Veny/Massanell 2015: 179, 197, 366). Both pitch deaccenting and the association of pitch movements to unstressed syllables are generally interpreted as conveying pragmatic meanings such as emphasis, focus, or speaker involvement (cf. Bolinger 1972; Hualde 2003a: 173f.; Hualde/Prieto 2015: 358).

Finally, some issues put forth by the critics of the AM model are worthy of mention. For instance, Martin (2015: 57) rightfully points out that the model does not take into account duration parameters although "prosodic events appear in reality in a timely fashion, one after the other in a time sequence". The same is true for intensity. Furthermore, he criticizes the quasi-exclusive use of laboratory speech, which generally involves (very) short sentences. As a result, especially the earlier versions of the AM framework assumed that (a) prosodic structure must be congruent with the syntactic structure of the sentence (i.e. that boundary tones align on syntactic boundaries) and (b) that only one prosodic structure can be associated with a given sentence (except for syntactically ambiguous sentences) (cf. Martin 2015: 57; see also Section 3.2 on prosodic phrasing). If one looks at spontaneous speech, however, it can be seen that "IPs can float and not maintain any dependency relation with another IP when prosodic parentheses are embedded in the sentence" (p. 50). Hence, "descriptions of the prosodic structure should be strictly separated from other structures organizing the language, and especially the syntactic structure" (p. 57).[63]

3.1.1.2 ToBI

The ToBI ('<u>To</u>nes and <u>B</u>reak <u>I</u>ndices') prosodic labelling system was originally developed by Silverman et al. (1992) for the analysis of corpora of spoken (American) English with the aim of marking phonologically contrastive intonational events based on the Autosegmental-Metrical model of intonational phonology (cf. Sosa 2003a: 187; Hualde/Prieto 2016: 1).[64] Since then, it has been adapted for a wide range of (typologically diverse) languages and become a general framework for the development of prosodic annotation systems at the phonological level (cf. Beckman et al. 2005: 9; for adaptions to languages other than English see Jun 2004, 2015, which include analyses of Arabic, Basque, Bengali, Catalan, Chinese, Dutch, Georgian, German, Japanese, Papiamentu, Portuguese, or Swedish, among others). Essentially phonological in their conception, the ToBI annotation systems proposed are supposed to reflect the current state of knowledge of the intonational phonology of a given language. However, it needs to be underlined that, even though there is an ample consensus among researchers on the basic

[63] Another argument of Martin's (2015: 57) is that the generation of a sentence's syntactic structure depends on the presence of a simultaneously generated prosodic structure in both spontaneous speech and read speech: "One can pronounce a prosodic structure without text, and thus without syntax, but the opposite (i.e. to pronounce a sentence without intonation, without a prosodic structure) is not actually possible, even in silent reading".

[64] This original system has later become known under the term 'Mainstream American English ToBI' (MAE_ToBI; cf. Beckman et al. 2005: 9)

tenets of the AM framework, the phonological labels and phonetic implementation rules of the different ToBI systems are language-specific and cannot always be compared cross-linguistically (see Hualde/Prieto 2016 for a detailed discussion of this problem). In recent years, some efforts have thus been made to increase ToBI portability across Romance languages and varieties (cf. Prieto/Roseano 2010 for the development of a common Sp_ToBI proposal suitable for nine dialects of Spanish (see also Section 3.1.2) and Frota/Prieto 2015 for phonological analyses of the intonation of nine Romance languages and their geographic varieties).[65]

The ToBI annotations comprise a number of so-called 'tiers' or 'annotation levels' which contain segmental and prosodic information that is aligned with the waveform (or oscillogram) and the pitch curve of the respective utterance. Among these, the *tonal tier*, where the pitch accents and edge tones are transcribed applying the AM model, and the *break-index tier*, which reflects the (perceived) strength of the junctures between different prosodic units (such as, e.g. words or phrases), are the most important and name-giving ones. This inclusion of perceived junctures in the descriptions is also one of the main assets of the ToBI model as opposed to the AM model. The original system of break indices proposed by Silverman et al. (1992: 869) is given in Table 3.1 (cited from Beckman et al. 2005: 23). It is based on the seven-point scale proposed by Price et al. (1991) and has largely been adopted in subsequent ToBI systems. However, some minor modifications concern, for instance, the use of break index 2: as shown in the following section (3.1.2.1), the Catalan and Spanish ToBIs do not recur to this index; yet, in other languages it is used to indicate the boundary of groups of words minor to the intermediate phrase (e.g. in French ToBI, it denotes the right edge of Accentual Phrases (APs); cf. Delais-Roussarie et al. 2015: 68).

Table 3.1: The inventory of MAE_ToBI Break-Indices tier labels (adapted from Beckman 2005: 23).

Basic break-index values
0 very close inter-word juncture (i.e. a 'zero boundary' or rather the absence of a boundary)[66] **1** ordinary phrase-internal word end **3** intermediate phrase end, with phrase accent (i.e. with ip boundary tone) **4** intonational phrase end, with IP boundary tone
Diacritics
- uncertainty, e.g. 4- (i.e. intermediate between BI 3 and 4) **p** perceived hesitation: 1p 'cut-off', 2p and 3p for 'prolongation'
Tones-breaks mismatch
2 (perceived 1 with unexpected tonal marker, or lengthening, etc., suitable for break index 3 or 4 without an edge tone)

[65] Moreover, strong arguments in favour of developing an International Prosodic Alphabet (IPrA), i.e., "a set of cross-linguistically transparent and consistent labels", have been recently adduced, among others, by Hualde/Prieto (2016: 1). They furthermore advocate a segue from the conceptually phonological ToBI labelling systems into transcribing intonation by using two levels of prosodic representation, i.e. a broad phonetic and a phonological one.

[66] The use of this break index value is typically motivated orthographically (cf. Beckman et al. 2005: 25). For example, it may indicate the 'boundary' between a clitic and its host (cf. Gabriel et al. 2013: 194).

With reference to the tonal tier, it is also worth pointing out that besides the different labels of basic tones (i.e. pitch accents and edge tones), the original ToBI system proposes a series of labels and diacritics that can be used to indicate, e.g., phonetic ambiguity or uncertainty of the describer about the presence or absence of a "tonal morpheme" (i.e. *?, -?, %?) or about the nature of a tone (i.e. X*?, X-?, X%?), which clearly reflects the practically applied use it had in the beginning (cf. Beckman 2005: 23).

Furthermore, ToBI systems generally include a *word tier* that provides an orthographic transcription and/or a *syllable tier* (typically including an IPA or SAMPA transcription of the segments comprised in each syllable of the utterance). Finally, a *miscellaneous tier* may be added, including annotations of events such as hesitations, disfluencies, breaths, coughs, laughs, false starts, or pauses (Silverman et al. 1992).

Figure 3.5 provides an illustration of a Spanish declarative statement annotated following the model of Spanish ToBI (Sp_ToBI; cf. Section 3.1.2.1). As can be seen, alongside the waveform representation of the audio signal and a representation of the F0 and the spectrogram, there are four annotation tiers: the uppermost one is the tonal tier, i.e. it includes a transcription of the intonation contour based on the AM framework and the labels provided by Sp_ToBI; the tier below the tonal tier is a syllable tier including a broad phonetic IPA transcription; the next tier is a word tier encompassing an orthographic transcription of each word, and, finally, the last tier contains the break indices that indicate the degree of boundary strength.

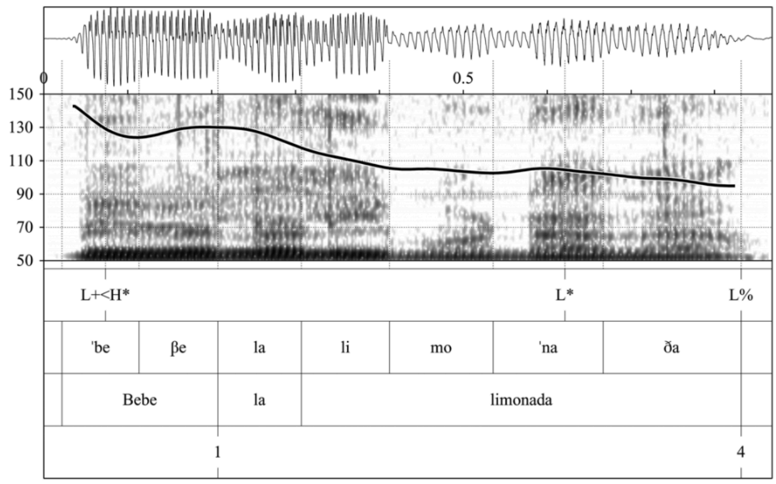


Figure 3.5: Exemplary ToBI-style analysis of the Spanish statement *Bebe la limonada* 'S/he is drinking lemonade' (taken from Hualde/Prieto 2015: 364).

Despite its remarkable success, the ToBI transcription system also been subject to some criticism: as pointed out by Martin (2015: 56), the quasi-exclusive use of this system involves an oversimplification of the description of melodic events. As a case in point, it provides no explicit means for describing temporal aspects of intonation other than the perceived break durations. Furthermore, transcriptions are often impressionistic and combine both phonetic and phonological elements, which can entail that "the link with the actual data of some specific ToBI sequences seems rather inspired by a theoretical necessity than by the actual reality of facts" (p.

56). Likewise, Torreira and Grice (2018: 23) criticize that ToBI-style transcriptions, while able to encode many important phonetic aspects and hence to provide useful approximations of the phonetic form of a specific utterance, cannot be used to generate new utterances of varying length, i.e. ToBI labels ultimately fail to represent the phonological structure of a tune.

3.1.2 Intonation of Castilian Spanish and Central Catalan in comparison

CS and CC display numerous similarities concerning their stress patterns and intonational systems. Indeed, there might be actually more similarities than differences—which comes as no surprise given the fact that Catalan and Spanish are closely related languages within the Romance family. The compilation presented in this section aims to summarize both types of features. Before comparing the typical tunes of the two Iberian standard varieties, I will briefly address their stress systems, tone-bearing units, and tonal density.

Concerning **stress**, both Spanish and Catalan in principle exhibit free stress placement on one of the last three syllables of each stressable word.[67] However, penultimate stress is by far most frequent and rules based on syllable weight and, in the case of verbs, also on morphological factors can account for stress placement in over 95% of the time (cf. NGRAE 2011: 358f.; Gabriel et al. 2013: 154–155; Hualde 2014: 224–258, Hualde/Prieto 2015: 357–358, among others, for Spanish and Oliva/Serra 2002: 345–359; Wheeler 2005: 276–306; Prieto 2006a; Prieto et al. 2015: 11, among others, for Catalan). In non-verbs of both languages, stress usually falls on the last syllable if this syllable is heavy, i.e. when its nucleus is complex or when it has a coda. Otherwise, the penultimate bears the stress (see Hualde 2005: 223–228; Kubarth 2009: 180–182; and NGRAE 2011: 376–378 for exceptional cases in Spanish and Oliva/Serra 2002: 352–359; Wheeler 2005: 288–297; GEIEC 2018: §3.2.1 for exceptional cases in Catalan). In regular verbs, stress falls on the penultimate or ultimate (in the present tense and imperative[68])

[67] Some authors, such as Kager (1995: 368), therefore prefer to describe such stress systems as "bounded" instead of 'free'. Furthermore, the use of the term 'stressable words' is in line with the principal accounts of stress in Spanish and Catalan, which generally distinguish between 'stressable' and 'unstressable' words (Sp. *palabras tónicas* and *átonas*, Cat. *mots tònics* and *àtons*, cf., e.g., NGRAE 2011: 370–376; GEIEC 2018: §3.2; GIEC 2016: 96–97). The latter group encompasses mainly clitics such as definite articles, object pronouns, and some prepositions (see also Hualde 2007: 64–66; Wheeler 2005: 278 for an overview), which form clitic groups or 'prosodic words' with the stressable elements of the former group. This cliticization process can sometimes yield prosodic words stressed on the fourth-to-last syllable, such as Sp. *cuéntaselo* 'tell him about it' or Cat. *porta-me-la* 'bring it to me', or even further ahead (cf. Sp. *comiéndosemelas* 'eating them on me' (Hualde/Prieto 2015: 357); *Quedi-se-me-la* 'Keep it to yourself for me' (Wheeler 2005: 345)). Nevertheless, it is usually not considered that this changes the general rule that Spanish and Catalan words can only be stressed on one of the last three syllables (known as the 'three-syllable window'), since clitics are not counted within this window. Please note, however, that in some dialects not considered here clitics may receive primary or secondary stress in some cases (see Colomina i Castanyer 2002: 578–579, Veny/Massanell 2015: 366 and passim for Menorcan, Majorcan, Valencian, and Roussillon Catalan; and Moyna 1991; NGRAE 2011: 413; Colantoni/Cuervo 2013 for Argentinean Spanish).

[68] In the present tense stress usually falls on the penultimate. Exceptions are: the Spanish 2PL, stressed on the ultimate (e.g. *vosotros habláis* 'you speak') as well as the 2SG in the varieties with verbal *voseo* (e.g. *vos hablás*); and, in Catalan, the 1PL and 2PL (e.g. *nosaltres parlem* 'we speak', *vosaltres parleu* 'you speak') as well as the (often monosyllabic) 2SG and 3SG of many 2nd and 3rd group verbs (e.g. *perd* 's/he loses'). This same holds true for some imperative forms: the Spanish (positive and negative) 2PL (*hablad* 'speak', *no habléis*

or else it affects the syllable containing either the theme vowel (in the past tenses, participles, infinitives[69], and gerunds) or the tense/mood marker (in the future tense and conditional)[70] (for more detailed descriptions see Hualde 2005: 222–233; Kubarth 2009: 180–185; Gabriel et al. 2013: 155–160 for CS, and Perea 2002; Wheeler 2005: 284–288; GEIEC 2018: §3.2.1 for Catalan). These patterns can sometimes yield forms stressed on the third-to-last syllable in Spanish, but not in Catalan (e.g. Sp. *hablábamos* vs Cat. *parlàvem* 'we spoke').

The two languages under concern also correspond to the same **type concerning intonation**: in line with the terminology used in Gussenhoven (2004: 12), CS and CC can be typologically classified as belonging to the intonation-only languages, since both varieties are languages without lexical tone. Moreover, intonational studies couched within the AM model (cf. previous section), generally assume stressed syllables and phrase edges to be the relevant **tone-bearing units** in both languages. Tones thus associate with stressed syllables in the form of pitch accents and with phrase edges in the form of boundary tones. Concerning phrasing, most recent studies on Spanish and Catalan posit two levels: intonational (IPs) and intermediate phrases (ips) (cf. Section 3.2).[71] However, there still is some controversy about whether there could be a third, inferior level to the two of them, the phonological phrase. Yet this is "an unresolved issue", as Prieto (2014: 48–49) puts it, since to date "no conclusive evidence" has been found that would proof the need of such a level, e.g. as the domain of application of phonological processes. Whereas the AM model generally posits separate edge tones for each layer of prosodic constituency, i.e. an (IP) boundary tone for each 'major' IP and an intermediate boundary tone corresponding to each 'minor' ip (cf. Section 3.1.1.1), there is common agreement in recent studies on Catalan and Spanish that no phrase accents are needed to describe the intonation of these two Iberian varieties, given that pitch movements at the end of intermediate phrases can be accounted for by combinations of boundary tones (Estebas-Vilaplana/Prieto 2008, 2010 for CS and Prieto et al. 2009; Prieto 2014 for Catalan). Phrase accents are thus not included in the current proposals for Spanish and Catalan ToBI, even though they are part of the original AM proposals and are generally posited in analyses of English, and also German, intonation (see Pierrehumbert 1980; Beckman/Pierrehumbert 1986; Beckman et al. 2005; Grice et al. 2005). Instead, it is assumed that the same inventory of boundary tones can associate with both ip and IP edges. Although it is, to my best knowledge, never mentioned explicitly, this almost invariably entails that the pitch movements at right edge of IP-final ips are conceived as realizations

'don't speak') and the (positive) 2SG in *voseo* varieties (*hab<u>lá</u>* 'speak'); the Catalan (positive and negative) 1PL and 2PL (e.g. *(no) par<u>lem</u>* 'let's (not) speak' and *(no) par<u>leu</u>* '(don't) speak'), as well as the 2SG positive imperatives in most 2nd and 3rd group verbs (*serveix* 'serve') (cf. Perea 2002).

69 Please note that some (irregular) Catalan 2nd group infinitives, such as *conéixer* 'to know', *batre* 'to beat', are stressed on the penultimate.

70 In the Spanish *indefinido*, theme vowel and personal ending are not always clearly separable. In those cases, it is the compound morpheme that bears the stress, e.g. *hablé* 'I spoke'. The same holds true for the Catalan *passat simple*.

71 A known exception is Sosa (1999: 93–95), who assumes only one level of prosodic constituency for Spanish, namely the IP.

of IP boundary tones only, not as combinations of ip and IP boundary tones (see also Fn. 221 in Section 4.3.1.3).

With reference to the frequency of tones, i.e. **tonal density**, CS and CC are characterized by similar distributions of pitch accents and boundary tones. Classically, tonal density is said to be high in both Iberian standard varieties as almost every content word, i.e. all words bearing primary stress tend to be accented unless they occur in a stress-clash situation, where pitch deaccenting[72] of the first stressed syllable involved (also called 'stress deletion') is the preferred strategy (cf. Hualde 2007, 2009; Ortega-Llebaria/Prieto 2007, 2010; Prieto 2014: 45–46, Prieto/Roseano 2018: 214–216; for the resolution of stress clashes in general see Oliva 1992; Prieto et al. 2001; Hualde 2010; Prieto 2005a, 2011; Martínez Celdrán/Roseano 2019). Nevertheless, recent studies have shown that the common one-to-one association between stress and pitch accentuation sometimes breaks down in other cases, too, and that speech style, frequency of the respective word, and its position within the phrase are the main decisive factors determining the presence or absence of a pitch accent. For instance, formality is assumed to be positively correlated with high tonal density, whereas phrase-initial and medial positions as well as a high over-all frequency of the word rather seem to favour pitch deaccenting (cf., e.g., Face 2003 and Rao 2007, 2009, who concentrated on declaratives in Castilian and Barcelona Spanish, respectively). Moreover, Torreira et al. (2014) focused on deaccenting of phrase-medial positions in single-IP wh-questions and Kimura (2006: 144) presented examples of Spanish wh-questions in which none of the non-final stressed syllables carried any pitch-movement. For Catalan, too, sentence-medial deaccenting of interrogatives has been reported occasionally (cf. Prieto 2002a: 423f.; Prieto et al. 2015: 11). Besides interrogatives, deaccentuation of utterance-medial words has furthermore been observed in (Spanish) exclamative sentences (cf. Hualde 2007: 77f.), in Barcelona Spanish parenthetical and reportative clauses (Ortega-Llebaria/Prieto 2007, 2010), and in CC extra-sentential elements (Astruc 2005; Astruc/Nolan 2007) and post-focal material (Estebas-Vilaplana 2003a). The opposite phenomenon, i.e. the pitch accentuation of unstressed syllables owing to emphasis or focus, which typically though not exclusively affects word-initial syllables or clitics, was already mentioned in Section 3.1.1.1, above (see also Hualde 2007, 2009; Nadeu/Hualde 2012; Hualde/Nadeu 2014). In sum, Hualde/Prieto (2015: 389) conclude for Spanish that "[i]n careful speech, such as reading, speaking to an audience, or giving instructions, every content word will tend to carry a pitch-accent [...] the few studies of more casual speech that have been undertaken have noticed that about 30% of content words fail to show evidence of tonal prominence. In even more casual styles, such as conversations between friends, the rate of de-accentuation is likely to be much higher." This is probably true for Catalan, as well.

[72] For pitch deaccenting in the AM model see also Section 3.1.1.1.

3.1.2.1 Inventory of pitch accents and boundary tones

The Autosegmental-Metrical framework and the ToBI annotation system have been used in recent years to describe and transcribe the intonation of numerous varieties of both Catalan and Spanish (cf. Sosa 1991, 1999, 2003a; Face 2002a, 2002b, 2002c; Beckman et al. 2002; Hualde 2002; Ramírez Verdugo 2005; Estebas-Vilaplana 2006, 2009; Face/Prieto 2007; Estebas-Vilaplana/Prieto 2008, 2010; Prieto et al. 2010; Hualde/Prieto 2015; Prieto/Roseano 2018, among others for CS; cf. Gabriel et al. 2010 for Argentinian Spanish, López Bobo/Cuevas Alonso 2010 for Cantabrian Spanish, Cabrera Abreu/Vizcaíno Ortega 2010 for Canarian Spanish, Willis 2010 for Dominican Spanish, Armstrong 2010 for Puerto Rican Spanish, Astruc et al. 2010 for Venezuelan Andean Spanish, O'Rourke 2010 for Ecuadorian Andean Spanish, Ortiz et al. 2010 for Chilean Spanish, and De-la-Mota et al. 2010 for Mexican Spanish; Henriksen/García-Amaya 2012 for Andalusian Jerezano Spanish, among others; for CC see Estebas-Vilaplana 2000, 2003b; Prieto 2002b, 2009, 2014; Astruc 2005, 2007; Prieto et al. 2006, 2009, 2015; Aguilar et al. 2009–2011; Escudero et al. 2012; Roseano et al. 2016a, 2016b among many others; for Valencian see Crespo-Sendra 2011; for Balearic Catalan see Vanrell 2007, 2011, 2013, Roseano et al. 2019; Mascaró/Roseano 2020). This comes as no surprise since, as we have seen in the previous sections, the AM model as well as the ToBI annotation systems can be "considered to be the *de facto* standard of prosodic representation" (Kimura 2006: 141).

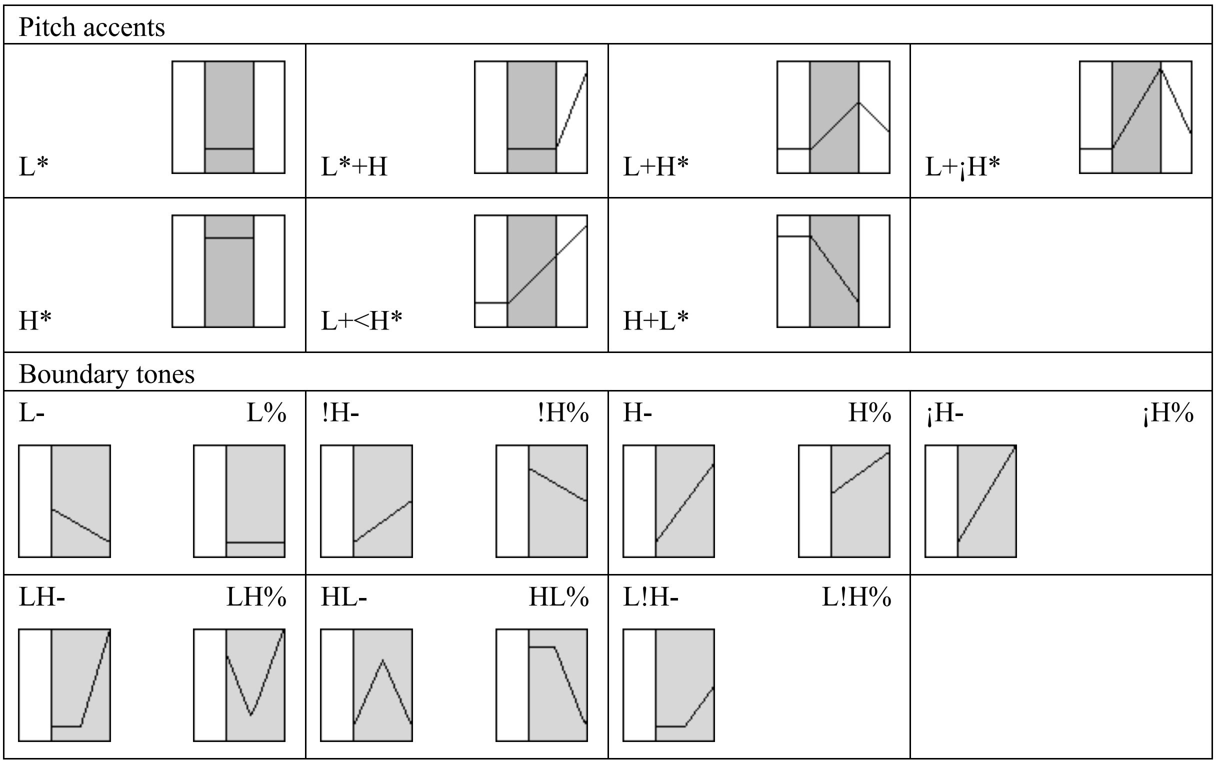
However, as shown in Section 2.2, the intonation of Spanish as spoken in Catalan-speaking territories is still seriously understudied and the few existing studies only cover some minor and very restricted aspects of it. Regarding Catalan intonation, most dialectal varieties have been explored more or less extensively (mainly within Prieto and Cabré's large-scale intonation atlas project from 2007 to 2012 and the many resulting works) but the effects of Catalan-speakers' bilingualism on prosodic realization have basically been disregarded. With the aim of filling these research gaps, the present work is chiefly concerned with the varieties of Spanish and of Catalan spoken by bilinguals in Girona. So as to provide a basis for the comparison of the present study's results with what is already known about Spanish and Catalan intonation and to show how the intonation of these languages generally works, the following paragraphs and sections will offer an overview of the inventories of pitch accents and boundary tones proposed for the two 'standard' or 'reference' varieties of Catalan and Peninsular Spanish, which are also among the most important and best-described contact varieties for Girona Spanish and Catalan: i.e. CS, the (geographically) closest variety of monolingual Spanish for whose intonation in-depth descriptions are available, and CC, of which Girona Catalan is actually a subdialect.[73]

With regard to **(Castilian) Spanish**, the first Spanish ToBI (Sp_ToBI) was proposed in Beckman et al. (2002). It has subsequently been refined in Sosa (2003a), Face/Prieto (2007), the latest 'official' proposal being Estebas-Vilaplana/Prieto (2008). In the following, this system has been used to describe many Spanish varieties (cf. the list at the beginning of this

[73] For further arguments for these choices see Section 6.3.

chapter). The present account of CS intonation thus mainly relates to Estebas-Vilaplana/Prieto (2010), where an extensive description within the framework of Sp_ToBI is provided. According to that paper, the variety under concern shows two monotonal pitch accents (L* and H*[74]) and five bitonal pitch accents (L*+H, L+H*, L+¡H*, L+<H*, and H+L*).[75] While most of these (L*, L+H*, L+¡H*, (¡)H*) typically occur in nuclear position, where the variety of tonal movements is richer, L+<H*, and L*+H are restricted to prenuclear positions. CS makes use of four monotonal boundary tones (L- %, !H- %, H- %, and ¡H- %[76]) and three bitonal boundary tones (LH- %, HL- %, and L!H- %), all of which can associate with the edges of both 'major' intonational (IPs) and 'minor' intermediate phrases (ips). The authors claim that, "in principle, the same inventory of boundary tones can appear at the end" of both types of units. Table 3.2 gives a schematic representation of these tonal movements.

Table 3.2: Schematic representation of the complete inventory of pitch accents and boundary tones proposed for Castilian Spanish (taken from Kireva 2016a, who adopted it from Estebas/Vilaplana 2010).



74 All high pitch accents have "the option of being realized with either downstep or upstep", i.e. as ¡H* or !H* (Estebas-Vilaplana/Prieto 2010: 18).

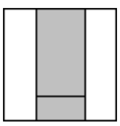
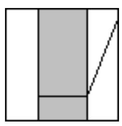
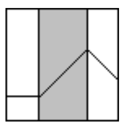
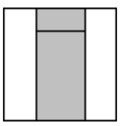
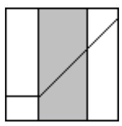
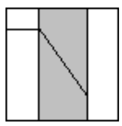
75 Note that I slightly adapted some of the original labels proposed by Estebas-Vilaplana/Prieto (2010) in accordance with later applications of Sp_ToBI, such as Hualde/Prieto (2015) and Prieto/Roseano (2018) to bring the transcription in line with the labels proposed in Catalan ToBI (and the analyses of other Romance languages). This is the case of the pitch accent label 'L+<H*' (instead of 'L+>H*') and of the '!H' target (instead of 'M') in boundary tones. Furthermore, original 'HH' is rendered as '¡H', which implies considering this boundary tone, which is "phonetically realized as a sharp rise at the end of the phrase" (Estebas-Villaplana/Prieto 2010: 21), underlyingly as a monotonal rather than bitonal boundary tone. As Armstrong/Cruz (2014) point out "HH% has always been treated as a monotonal category, which is perhaps counterintuitive based on the two H characters used in the label". What is more, this practice is also in line with the use of '¡H' for the comparable surface contours in Catalan and other Romance varieties (cf. Prieto 2014).

76 The use of two diacritics—namely, the hyphen (-), marking ip boundaries, and the percent sign (%), marking IP boundaries—indicates that these boundary tones can associate with either of these two levels of prosodic constituency (see also Section 3.2, below).

How these pitch accents and boundary tones combine and how the resulting tunes are used will be the matter of the next section (3.1.2.2).

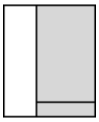
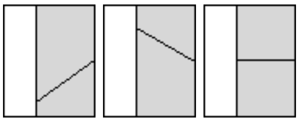
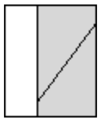
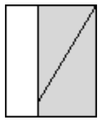
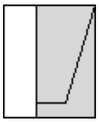
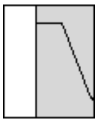
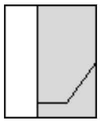
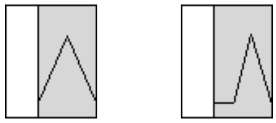
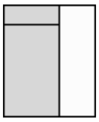
With respect to **Catalan**, the first Cat_ToBI proposal is Prieto et al. (2009), based on CC. It has been further diffused in Aguilar et al. (2009–2011), and tested in Escudero et al. (2012), where some minor changes were proposed (mainly concerning the labels used). Prieto (2014), who aimed to give a "full-fledged ToBI annotation proposal for Catalan" (p. 45), can be considered the last version of Cat_ToBI. Accordingly, Catalan has only six basic pitch accents: two monotonal (L*, H*) and four bitonal ones (L*+H, L+H*, L+<H*, and H+L*). As opposed to Spanish, L+¡H* is therefore not considered a basic pitch accent of Catalan. Nevertheless, this pitch accent can occur in Catalan as well, given that some of the pitch accents containing a high tonal target can be up- or downstepped: ¡H*, !H*, L+¡H*, L+!H*, and !H+L* (cf. Prieto 2014: 51). As in Spanish, L+<H* and L*+H are restricted to prenuclear positions, whereas the other pitch accents preferably surface in nuclear positions. A further difference to Spanish is that Catalan does not use the same inventory of boundary tones at intermediate and intonational phrase boundaries. Eight boundary tones have been attested at the IP level: four monotonal (L%, H%, !H%, and ¡H%[77]), three bitonal (LH%, L!H%, HL%), and one tritonal one (LHL%). At the ip level, the number of boundary tones is more reduced and apart from four monotonal boundary tones (L-, H-, ¡H-, !H-) there is only bitonal one (LH-). Finally, a high initial boundary tone, i.e. %H, first proposed in Aguilar et al. (2009–2011) and Escudero et al. (2012), seems to be abandoned by Prieto (2014)[78] and Prieto et al. (2015). A schematic representation of the Catalan inventory of pitch accents and boundary tones is given in Table 3.3. Their use will be explained in the following section.

Table 3.3: Schematic representation of the complete inventory of pitch accents and boundary tones proposed for (Central) Catalan (compiled from Prieto 2014, Aguilar et al. 2009–2011, and Prieto et al. 2009).

Pitch accents			
L* 	L*+H 	L+H* 	
H* 	L+<H* 	H+L* 	

[77] Please note that although Prieto (2014) posits eight IP boundary tones, she fails to mention ¡H% in her list of boundary tones, which comprises only seven tones. Since Escudero et al. (2012) also suggest eight boundary tones (including ¡H%), I assume that tone to be the missing one in Prieto's (2014) list. Also note that, similar to Sp_ToBI, and in opposition to Prieto (2014), the first Cat_ToBI proposals still make use of the labels 'M' and 'HH' (see also Fn. 75).

[78] Note however, that, although Prieto (2014) never mentions %H, it is still annotated in some of her examples.

Boundary tones			
L- L% 	!H- !H%[79] 	H- H% 	¡H-[80] ¡H% 
LH- LH% 	HL% 	L!H% 	LHL%[81] 
%H 			

3.1.2.2 Intonational tunes in Castilian Spanish and Central Catalan

This section provides an overview of the prenuclear pitch accents and nuclear configurations[82] attested in different sentence types in CS and CC. The account is based primarily on the works of Estebas-Vilaplana/Prieto (2010) and Prieto (2014), respectively, and it includes all sentence types described in each of these sources. It is for this reason that the inventories of sentence types presented for the two languages in Table 3.4 are not exactly identical. In some cases, further sources, such as, e.g., Hualde/Prieto (2015), have been consulted to complete the inventory or add alternative contours found in other studies. Furthermore, it warrants comment that the authors do not always explicitly state that a given combination of pitch accents and boundary tones is to be considered the only and generally underlying tune in a specific pragmatic context in CS or CC. However, the fact that they appear in the examples used to illustrate the respective accounts of the intonational tunes very much suggest this. The same also holds true for the prenuclear pitch accents, which are only described explicitly for a minor number of utterance types in Estebas-Vilaplana/Prieto (2010) and Prieto (2014). With respect to the remaining pragmatic contexts, the nature of the underlying prenuclear pitch accents thus often needs to be inferred from the concrete analyses presented in the examples. Since such a way of proceeding can be problematic because the phonetic surface realization of an underlying tonal

79 The representation given in Prieto (2014) is the rightmost one, whereas previous Cat_ToBI proposals use either one or both of the other ones. Interestingly, in Prieto et al. (2009), the rightmost representation illustrates an MM% boundary tone, which has been abandoned in later proposals.

80 No representation of this boundary tone is given in Prieto (2014). The representation is therefore based on Aguilar et al. (2009–2011).

81 The left-hand representation is the one given in Prieto (2014). Interestingly, the same representation is used in Sp_ToBI to illustrate HL boundary tones. The right-hand representation, on the other hand, is used in previous Cat_ToBi proposals.

82 The term ‘nuclear configuration’ or ‘nuclear contour’ is used in both languages to refer to the combination of a nuclear pitch accent and a subsequent boundary tone (cf. Estebas-Vilaplana/Prieto 2010; Prieto 2014: 51).

target may vary according to the phonetic context within the utterance, such cases are presented in square brackets in Table 3.4. Finally, note that some of the labels of the original sources were slightly adapted, here, for the sake of uniformity and to increase comparability across the two languages considered (see Fn. 75, above, for details on the adaptations made).

Table 3.4: Intonational tunes in Castilian Spanish and Central Catalan (based on Estebas-Vilaplana 2010 and Prieto 2014 unless indicated otherwise).

Sentence type	**Castilian Spanish**		**Central Catalan**	
	Prenuclear accents[83]	Nuclear configurations[84]	Prenuclear accents	Nuclear configurations
Statements				
Broad-focus statements	L+<H*[85]	L* L%[86]	L+<H*	L* L%[87]
Continuations		L+H* H-		L+H* H- L+H* !H-
Narrow-focus and contrastive-focus statements[88]	[L+<H*]	L+H* L%[89] L* HL%[90]		L+H* L%[91]
Exclamative statements	[L+H*]	L+(¡)H* L%		

83 The realization of prenuclear pitch accents is only described explicitly for some sentence types in Estebas-Vilaplana (2010) and Prieto (2014). When the nature of prenuclear pitch accents can be inferred from the examples given, they are indicated in square brackets.

84 For some sentence types, two alternative configurations are proposed by Estebas-Vilaplana (2010) and Prieto (2014).

85 Estebas-Vilaplana/Prieto (2010) use the label ‘L+>H*’, which is changed to ‘L+<H*’ later on in Hualde/Prieto (2015) and Prieto/Roseano 2018, and in agreement with Catalan ToBI (Prieto 2014). For uniformity’s sake, the latter label is used here to signal delayed peaks.

86 L+!H* L% has been found, too, as a nuclear configuration of broad-focus statements in different varieties of Peninsular Spanish (Bilbao, Alacant, Jaen, Pamplona, and Madrid) by Robles-Puente (2011b). Consequently, Hualde/Prieto (2015) refer to his work when mentioning L+H* L% (sic) as an alternative contour to L* L%. Moreover, they suggest that this pitch accent might simply indicate more emphasis on the prosodic word on which it is realized, since L+H* is said to express narrow focus (and emphasis) across varieties (cf. Fn. 89 and Hualde/Prieto 2015: 364, 369). Moreover, Hualde and Prieto (2015: 365) mention that they observed H+L* L% as a nuclear contour in insistent explanations.

87 Prieto et al. (2015: 17) mention L+H* L%, as well. Nevertheless, they say that it adds an emphatic meaning (cf. narrow-focus statements and Fn. 86 on similar occurrences in Spanish).

88 Unfortunately, most accounts do not distinguish clearly between narrow- and contrastive-focus (or contradiction/categoric) statements.

89 This nuclear configuration is common in all Spanish varieties according to Estebas-Vilaplana/Prieto (2010: 22). It conveys exclamatory force (i.e. focus) on words in phrase-final position. If the given word is not in intonational phrase-final position, an L- intermedial boundary tone may occur at the word edge and all post-focal material is deaccented or pitch-compressed (Hualde/Prieto 2015: 368). Also, the topic or given information may be separated prosodically from the rest of the utterance in an apart intermedial phrase marked with a final rise (cf. Hualde/Prieto 2015: 369).

90 This contour appears to be geographically more restricted and carries a greater emphatic, contradictory force (see also Hualde/Prieto 2015: 369).

91 According to Prieto et al. (2015: 19f.), this contour is used in most Catalan varieties to express contrastive focus. Usually, the focus is shifted to sentence-initial position and post-focal prosodic phrases display a very compressed pitch range. Prieto (2002a: 415 f.) furthermore indicates a ‘H+L* L%’-like contour for categorical statements. In Prieto et al. (2015: 21), H+L* HL% is mentioned for contradiction statements.

Statements of the obvious		L+H* L!H% L+H* L[92]		L* HL% L+H* L!H%[93]
Disapproval statements				L* !H%
Uncertainty or dubitative statements	[L+<!H*, H*]	L+H* !H%		L+H* !H%[94]
Yes–no questions				
Information-seeking yes–no questions	L*+H[95]	L* ¡H%[96]	(%H) H*[97] L*+H	H+L* L%[98] L* H%
Disjunctive questions	[L+<H*]	L+H* ¡H- L* L%		L+H* ¡H- L* L%[99]
Echo yes–no questions	[L+<H*]	L+¡H* L%[100]	[H*][101]	L+¡H* L%[102]

92 Both patterns can occur across dialects, but the first one is more frequent in Castilian Spanish (Estebas-Vilaplana/Prieto 2010: 23).

93 Prieto (2014) describes the second contour as more emphatic. In Prieto et al. (2015), it is the only contour mentioned for Central Catalan.

94 This is the nuclear configuration given by Prieto (2014) for "hesitation statements". It is highly probable that she refers to the same sentence type described as "uncertainty statements" in Estebas-Vilaplana/Prieto (2010).

95 Hualde and Prieto (2015: 377) mention sentence-medial deaccentuation as a frequent feature of questions, both pragmatically marked and unmarked, across varieties.

96 This contour is transcribed as L* H% in Hualde/Prieto (2015: 372) and in Prieto/Roseano (2018: 226–227), who tag it as 'low rise'. They also propose a 'circumflex contour' (L+¡H* L%) in this context but add that it is pragmatically marked and imbued with an 'echoic' meaning in Peninsular (Madrid) Spanish, even if it appears to be by far more frequent in casual conversation (p. 374). It can also be unmarked in northern peninsular varieties (López Bobo/Cuevas Alonso 2010, Robles-Puente 2011a). Finally, Hualde and Prieto (2015: 372) mention a 'high rise' contour, transcribed as (L+)H* H%, used when the speaker knows the answer and is ready to provide it ('quiz question'). Importantly, Estebas-Vilaplana and Prieto (2010: 29) propose a phonological scaling difference between information-seeking (¡H%) and confirmation-seeking yes–no questions (H%), whereas Hualde/Prieto (2015) and some other authors treat both realizations as the same category (see also Armstrong/Cruz 2014).

97 The use of the first pattern is commonly associated with yes–no questions headed by the particle *que.* Prieto (2014: 62) describes its prenuclear part as a high plateau. According to Prieto (2002b: 181), "[p]erceptual impressions of the contour clearly indicate that the contour contains only one accented syllable (a specially prominent syllable) which always falls on the last stressed syllable of the utterance". Consequently, in that paper the only prenuclear element is a %H initial boundary tone on the particle *que*.

98 Prieto (2014: 63) states that in some areas of Central and Northwestern Catalan, as well as in Majorcan Catalan, "the pretonic syllable is significantly higher", thus yielding ¡H+L* instead of H+L*. This has been investigated by Vanrell (2007) for Majorcan Catalan. For this dialect, Vanrell et al. (2013) have found a phonological contrast between ¡H+L* (information-seeking questions) and H+L* (confirmation-seeking questions).

99 Prieto (2002a: 427) describes a "final falling cadence", i.e. 'H+L* L%'-like contours.

100 Estebas-Vilaplana/Prieto (2010: 22) also found L+H* in the nuclear position of echo yes–no questions in their corpus. Besides, Hualde/Prieto (2015: 380) state that the 'low rise' contour from information-seeking yes–no questions (i.e. L* H%) can be used in Madrid Spanish echo questions and that, if the question is "not preceded by *(que) si*, its echoic character may be conveyed by a phonetically expanded range including a higher final boundary."

101 Prieto (2014: 68) notes that this utterance type typically starts with a low pitch that continues until the last stressed syllable in the utterance. Nevertheless, in her examples, prenuclear syllables are marked with an H* pitch accent.

102 Prieto et al. (2015) add L* H% as the most typical configuration for Central Catalan.

Counterexpectational echo yes–no questions[103]	[H*]	L+H* LH% L+H* ¡H%	[H*] [L*+H]	L+H* LH%[104] L+H* LHL%[105] L* (¡)H%[106], L+¡H* L%[107]
Imperative yes–no questions	[L+<H*]	H+L* L%		H+L* L%, L* H%[108]
Invitation yes–no questions (offers)			[L+H*]	L+H* H%
Confirmation-seeking yes–no questions	[L*+H]	H+L* L% L* H% L+(¡)H* L%[109]	[(%H) H*]	H+L* L%[110]
Wh-questions				
Information-seeking wh-questions	H*[111]	L* L%[112] L* ¡H%[113]	H*[114]	H* L%[115] (L* L%[116])

103 Note that, unfortunately, there are not really any AM analyses of counterexpectational yes–no questions without an echo meaning (also called 'exclamative' or 'incredulity' questions). To my best knowledge, merely Crespo-Sendra et al. (2010) annotate L* HH% (i.e. L* ¡H%) in an example of an incredulity question.

104 According to Prieto (2014: 68), this type of echo question conveys a strong meaning of surprise and insistence.

105 Prieto (2014: 70) describes this second tune as conveying a higher degree of insistence, which is expressed through the complex boundary tone.

106 Prieto et al. (2015: 26) note that surprise or incredulity echo questions are produced with a wider pitch range and sometimes with a creaky or whispery voice in opposition to echo questions about understanding. This is also shown by Crespo-Sendra (2011).

107 This nuclear configuration is indicated by Prieto et al. (2015: 54) for Santa Coloma de Farners, a neighbouring municipality of Girona.

108 As no AM accounts are available for this utterance type, these two nuclear configurations were deduced from the descriptions provided in Prieto (2002a, 2013).

109 The circumflex contour is indicated for this question type, e.g., by Hualde/Prieto (2015: 372–377) and Escandell-Vidal (1999, 2002, 2017), among others.

110 For Girona and its surroundings (Banyoles, Santa Coloma de Farners) Prieto et al. (2015: 55) indicate nuclear L* H%.

111 It should be mentioned that emphasis on the question word (cf. Escandell-Vidal 1999: 3934f.) "may produce de-accentuation of following words with drastic drop in pitch after the stressed syllable of the question word" (Hualde/Prieto 2015: 381f., see also Torreira et al. 2014 on phrase-medial deaccentuation).

112 As in yes–no questions (cf. Fn. 96), a rising 'quiz question intonation' (i.e. H* H%) is possible, too, according to Escandell-Vidal (2011). Besides, Henriksen (2010, 2014) describes two different kinds of falling contours for Manchego Spanish in which the pitch rises on the stressed syllable of initial question-word and stays high either until the last pretonic syllable, falling in the last tonic (H+L*), or until the last tonic (¡L+H*), falling on the post-tonic.

113 Estebas-Vilaplana/Prieto (2010: 35) state that the rising contour expresses a nuance of interest and greater speaker involvement in the speech act. This is also affirmed by Sosa (2003b), who proposes that the rising contour may also have a confirmation or reprise function. Henriksen (2010) confirms the more formal character of final rises in a study on Manchego Spanish.

114 Typically, the sentence-initial wh-word is accented with a high tone (H*) and it is followed by a descending pattern until the last pitch accent in the utterance (Prieto 2014: 65).

115 According to Prieto (2014: 67), this pattern is more marked in the sense that it "serves as a way of reactivating an idea that is already part of the listener's background so that it is part of the listener's awareness". Prieto et al. (2015: 31f.) only indicate this pattern (H* L%) for Central Catalan in their general description of the intonation of this sentence type. In Roseano et al. (2016b), too, it is clearly the dominant one.

116 This second pattern is presented in Prieto (2014: 65) in a somewhat contradictory way: she first mentions it as "!H+L* L%" but then describes the contour rather as L* L%, which is also the label used in the example she provides. In Prieto and al. (2015), L* L% was observed in some isolated local varieties (only Western Catalan).

Focused wh-question			[H*][117]	L+¡H* L%
Echo wh-questions	L+<H*	L+¡H* L%[118]	[H*]	L* H%[119]
Counterexpectational echo wh-questions[120]	[H*]	L+(¡)H* ¡H%[121]		
Imperative wh-questions (commands)	L+<H*	H+L* L%		
Invitation wh-questions (offers)		L+¡H* HL%		
Rhetorical wh-questions		H* (!H) !H%[122]		
Imperatives and vocatives				
Imperatives: Commands		L+H* !H%[123]	[H*]	L+(¡)H* L%[124]

[117] Prieto (2014: 67) describes the prenuclear part in this type of questions as being produced with compressed pitch range.

[118] ¡H is the nuclear pitch accent attested in the data examined by Estebas-Vilaplana/Prieto (2010). However, they analyse ¡H as a truncated version of L+¡H*, attested in Escandell-Vidal (1999, 2002). Furthermore, they mention that they also found L+H* in the nuclear position of echo wh-questions in their corpus (p. 22). In Prieto and Hualde (2015: 382), a "low rise contour" L* H% contour is added to the "circumflex contour" L+¡H* L%, but it is said to imply nuances such as surprise or incredulity.

[119] This sentence type is not mentioned by Prieto (2014), but Prieto et al. (2015: 32f.) state that it can be related to echo yes–no questions and that it is predominantly produced with the rising pattern L* H% in Central Catalan. Nevertheless, two circumflex contours (L+¡H* L% and L+H* LH%) can be found sporadically in some parts of Central Catalan, among them Girona (second contour).

[120] This question type is also sometimes referred to as 'exclamative' or 'incredulity echo wh-question'.

[121] This nuclear pitch accent is upstepped in the respective example and its description (Estebas-Vilaplana/Prieto 2010: 35, 37) but not in the general overview they provide (p. 45).

[122] In the example given by Estebas-Vilaplana/Prieto (2010: 38) the nuclear accent H* does not fall on the last word but rather on the verb of the sentence. It is followed by a dislocated constituent pronounced with a !H* tone, followed by a !H% boundary tone.

[123] According to the results of Robles-Puente (2011b), L+<H* L+!H* L% is the most commonly found intonation contour in declarative sentences and commands in the Spanish varieties spoken in Bilbao, Alicante, Jaen, Pamplona, and Madrid (the nuclear pitch may also occur without downstep or even with upstep). These varieties can make use of different strategies in order to explicitly mark imperativity, but this appears not always to be done, as is confirmed in Hualde and Prieto (2015: 384). Furthermore, it needs to be pointed out that he uses sentences containing a verb and another preceding content word (cf. p. 154), whereas Estebas-Vilaplana and Prieto (2010) base their analyses on simple verb phrases (e.g. *¡Venga!* 'Come on', *¡Cállate!* 'Be quiet, *¡Ven aquí!* 'Come here!'). Hualde and Prieto (2015: 384) add that in such one-word imperatives and exhortatives it is possible to shift the rise to the (otherwise unstressed) final syllable to express greater emphasis, whereas "[i]n phrasal commands, the same pragmatic effect appears to be obtained by de-accenting of non-final words".

[124] This contour is used in strong commands. Prieto (2014: 72) distinguishes between early-focus (i.e. focus on the verb) and late-focus commands. In early-focus commands, she posits a post-nuclear L* pitch accent (her analysis is based on the sentence *Demana-ho a la Maria!* 'Ask Mary about it!', consisting of a verb and an object). For soft commands, she suggests an L*+H L* L% contour. As for commands consisting only of a verb, Prieto et al. (2015) give the following two nuclear contours: L+H* L% and L+H* HL%. The second one is described as soft command on p. 35 but illustrated as insistent command on p. 36. The authors furthermore report L* L% as an alternative pattern in sentences longer than one word for some Central Catalan varieties.

Imperatives: Requests		L* HL% L+H* L%[125]		L+H* L!H%[126] L+H* LHL%[127]
Vocatives		L+H* !H% L+H* HL%[128]		L+H* !H% L+H* HL%[129]

[125] This contour is used in non-sentence-final position in Estebas-Vilaplana/Prieto's (2010: 41) example *Va, vente al CIne, hombre* 'Come on, man, come (with us) to the cinema'. Furthermore, Hualde and Prieto (2015: 385) add H+L* L% as an alternative contour for Peninsular Spanish, used in *¡(Venga,) bebe la limoNAda!* '(Come on,) drink the lemonade'.

[126] Both contours are illustrated in the verb-only utterance *Vine!* 'Come!'. The first contour mentioned does not appear in Prieto et al. (2015). Instead, they describe requests as generally being produced with an L* HL% contour in Central Catalan, which is also mentioned by Prieto (2014: 72) later on in the respective section of her paper, when she—in contradiction to her earlier explanations—presents L* HL% (used in requests) as being opposed to L+H* L%, used in commands.

[127] This second contour is used in insistent requests. Prieto (2014: 72) notes that there is a large variety of boundary tones to express different degrees of insistence. Additionally, other prosodic features such as duration can render subtle pragmatic differences in this utterance type.

[128] This second calling contour conveys greater insistence than the typical 'vocative chant' (first contour). All vocatives go along with an extraordinary lengthening of the final syllable (Hualde/Prieto 2015: 386).

[129] According to Prieto et al. (2015: 39), the first contour is used in more insistent (second) calls, while the second one would be used in a 'greeting call'. This is in accordance with Borràs-Comes et al. (2015), whereas in Prieto (2014: 74) things are described the other way round, matching with the distribution in Spanish. Furthermore, a "rising interrogative contour" L* H% has been documented for Catalan (Borràs-Comes et al. 2015: 78; Prieto et al. 2015: 41). It is said to connote questions such as 'Can you hear me?', 'Are you paying attention to me?'.

As can be seen from Table 3.4, CS and CC display many similarities concerning the intonational realization of the sentence types presented, but there are also some differences. In what follows, both will be briefly described.

Concerning **prenuclear accents**, the literature on neither of the two languages under concern here offers clear descriptions for all sentence types. Nevertheless, it is known that a delayed peak (L+<H*) is generally used in broad-focus statements in both languages. It clearly contrasts with L*+H, which is the typical prenuclear pitch accent in CS yes–no questions and can be used in Catalan as well, if the rising pattern for yes–no questions is chosen. In this case, there is a phonological contrast between the two pitch accents (cf. Prieto et al. 2015: 23; Roseano et al. 2016a: 14). In wh-questions, an H* pitch accent on the initial question word is most frequent in both languages. It is usually followed by deaccentuation, typically yielding a high plateau in Catalan and a "drastic drop" in Spanish (Hualde/Prieto 2015: 381f.). However, contrary to Spanish, H* seems to be used in some other Catalan question types, such as echo questions, too, whereas Spanish frequently resorts to delayed peaks in these contexts. It is worth highlighting that to date research has focused primarily on nuclear pitch accents and that little efforts have been made to systematically investigate prenuclear pitch accents in sentences other than broad-focus statements and information-seeking questions (on prenuclear pitch accents in broad-focus statements and information-seeking and biased yes–no questions and their phonetic implementation see Estebas-Vilaplana 2003b, 2006; Gabriel/Kireva 2014; Roseano et al. 2016a and sources therein).

As for the realization of nuclear pitch accents and boundary tones, there has been much more in-depth research and nuclear contours were analysed for a wide range of utterance types. Yet, for some of them, descriptions are only available for either of the two languages considered here. This is the case, e.g., of some pragmatically biased statement and wh-question types. With respect to the utterance types whose nuclear configurations can be compared on the basis of the existing literature, Peninsular Spanish and CC often pattern alike in that both languages use the same or fairly similar nuclear contours. Nevertheless, some important differences remain. Both differences and similarities will be addressed in the following:

1) Statements: In both languages, the most frequently presented contour is L+<H* in prenuclear pitch accents followed by an L* L% nuclear contour. Nevertheless, there has been quite a bit of discussion about the nuclear contour, especially for Spanish. Whereas some authors interpret the low end of this sentence type that does not show any pitch excursion as part of a falling contour (i.e. H+L*, !H+L*, or truncated (H+)L*, cf., e.g., Hualde 2005: 257), others note that it may be better described as a simple case of deaccentuation (i.e. *, Hualde/Prieto 2015: 364). The other possibility is a nuclear circumflex contour, i.e. a rising pitch accent and a low boundary tone, noted as L+H* L% or L+!H* L%. According to Robles-Puente 2011b, this is by far the most frequent pitch accent for broad-focus statements in Peninsular Spanish. It has also been observed in CC (Prieto et al. 2015: 17). However, a rising pitch accent in this context has often been associated with focus and emphasis.

Concerning narrow-focus statements, L+H* L% is thus the most common nuclear configuration in both languages. Yet, a small difference arises concerning contrastive-focus or contradiction statements, which have a greater emphatic, contradictory force: whereas Catalan still displays L+H* L% or uses a falling H+L* L% or falling–rising–falling H+L* HL% contour, in Spanish, a low L* accent followed by a HL% boundary tone can be found.

In statements of the obvious L+H* L!H% is used in both languages. For CS, it is said to be most frequent in this sentence type and the alternative contour given (L+H* L%) may simply represent a phonetic variant of the first one. In Catalan, on the other hand, it is assumed to convey a "more emphatic obviousness meaning" than the alternative contour L* HL% (Prieto 2014: 59). In uncertainty or dubitative statements, both languages use L+H* !H%.

2) Yes–no questions: "Information-seeking yes–no questions is one of the main respects where we find clear differences in intonation among Spanish varieties" (Hualde/Prieto 2015: 371) and, without any doubt, Catalan also presents a rich variety of different dialectal contours in this utterance type. This makes it one of the most interesting areas for cross-linguistic comparison.

The dialects under concern here share one intonational pattern used in this context, which is usually called 'low rise' in Spanish (cf. Hualde/Prieto 2015: 372). The respective sentences differ phonologically from statements already in their beginning because of the use of an L*+H prenuclear accent instead of the delayed peak. Its nuclear contour is described as either L* HH% (i.e. L* ¡H%; in Estebas-Vilaplana/Prieto 2010) or L* H% (in Hualde/Prieto 2015 and Prieto/Roseano 2018) for Spanish and as L* H% for Catalan. The confusion of different boundary tones in Spanish can be put down to distinct notational conventions and the wish to express a phonological contrast in the scaling of the high boundary tone between information-seeking (HH%) and confirmation-seeking yes–no questions (H%) by Estebas-Vilaplana/Prieto (2010: 29). However, it appears that this contrast has been given up in later work (see also Fn. 96). In Catalan, there is no need to make such a difference as confirmation-seeking yes–no questions usually display a falling contour (for exceptions see Fn. 110, above). However, even though the low rise can be used in CC information-seeking yes–no questions, it is usually not presented as the most common contour in this language and there is some discussion about pragmatic implications/differences between this contour and the seemingly more common falling contour (cf. Payrató 2002).

The 'iconic' Catalan 'high–falling' question contour, on the other hand, is said to co-occur usually (but not obligatorily) with the interrogative particle *que*. Intonationally, such questions differ from statements in presenting a high plateau in the prenuclear part of the contour, which may be described in different ways using, e.g., an initial high boundary %H and subsequent phrase-medial deaccentuation (*) or high prenuclear pitch accents (H*). In the last stressed syllable, the pitch falls down to the bottom of the speaker's range and this pitch fall is followed by a low boundary tone (L%). There is some dialectal variation in the phonetic implementation of the falling movement, which allows it to be described as H+L* or ¡H+L* (cf. Prieto et al.

2015: 25; Vanrell 2011, 2013). In CC, the selection of the two extant intonation patterns for information-seeking yes–no questions has been proposed to be sensitive to the pragmatic cost-benefit scale on which the cost or benefit of the proposed action to the hearer is estimated, and which is related to politeness (cf. Prieto 2014: 64; Nadeu/Prieto 2011; Astruc et al. 2016). As neither *que* nor the same type of falling contour occur in CS information-seeking yes–no questions, this is clearly an area where the intonational systems of the two languages differ fundamentally.

Disjunctive questions and echo yes–no questions, on the other hand, generally display the same intonational patterns in both languages: i.e. L+¡H* L% and L+H* ¡H-/L* L% (cf. Table 3.4). In the case of echo yes–no questions, no clear information about prenuclear pitch accents is available in either of the languages, the variation in the given examples reaching from L* over L*+H and L+<H* to H*. In Spanish, L+H* L% and L* H% have also been found in nuclear position in this context (cf. Estebas-Vilaplana/Prieto 2010: 22 and Hualde/Prieto 2015: 380) and, similarly, Prieto et al. (2015) report L* H% as an alternative contour for Catalan in this context.

With regard to counterexpectational (also 'exclamative' or 'incredulity') echo yes–no questions, akin contours can be found in both languages, too. They usually display H* in prenuclear positions and L+H* LH% in nuclear position. Consequently, this question type differs from common echo yes–no questions mainly through the use of a complex boundary tone. Nevertheless, the low–rise contour, L* (¡)H%, is another contour attested in Catalan according to Prieto et al. (2015: 26), even though the authors note that in surprise or incredulity echo questions a wider pitch excursion tends to be used (cf. Fn. 106). This label might thus refer to the same surface contours as the CS alternative contour L+H* ¡H%. As opposed to Spanish, a third nuclear contour can be found in Catalan (L+H* LHL%), which includes a boundary tone with three tonal targets. It conveys an even higher degree of insistence (cf. Prieto 2014: 70). In sum, the range of different tunes used in this context thus seems to be greater in Catalan.

In confirmation-seeking yes–no questions both languages prefer falling nuclear contours (H+L* L%). Nevertheless, the general patterns differ in that Spanish seems to use L*+H prenuclear accents as in information-seeking questions, whereas Catalan resorts to the 'high plateau' contour and usually introduces this type of questions with the particle *que.* Alternatively, the 'low rise' contour (L* H%) may be used in CS, too. In CC, it was sporadically found in some localities (cf. Fn. 110).

Other types of yes–no questions cannot be compared as further descriptions are only available for one language.

3) Wh-questions: In both languages under concern here, information-seeking wh-questions typically exhibit a high pitch level on the initial question word (i.e. H*) and end with a low boundary tone. Also, sentence-medial stressed syllables are generally unaccented, which comes as no surprise given that the focus of the sentence falls on the wh-word (Escandell-Vidal 1991: 3934 and Prieto et al. 2015: 29). Nevertheless, in Spanish, there is a drop in pitch immediately after the question word and the descending pattern continues until the nuclear L* pitch accent. In CC, on the other hand, the pitch contour usually remains high after the initial question-word, forming a high plateau, and falls only after the nuclear syllable, which bears an H* pitch accent. In other Catalan varieties, pitch may fall somewhat earlier, i.e. in the nuclear syllable, which bears an H+L* pitch accent in that case (Valencian, Balearic Catalan, among others, cf. Prieto et al. 2015: 32). Consequently, this falling tune resembles the falling contour used in the yes–no questions headed by *que* but is not identical in CC. The difference resides in the exact alignment of the final fall. In yes–no questions, the syllable immeadiately preceeding the nuclear one is the last high one and the pitch falls during the nuclear syllable. In wh-questions, on the other hand, the nuclear syllable is still high and pitch falls only after it in the post-nuclear strech.

Interestingly, similar tunes to the Catalan ones were also found in Manchego Spanish wh-questions by Henriksen (2010, 2014). However, their exact alignment patterns seem to be different from Catalan H* L%. Furthermore, CS may also present rising patterns in wh-questions, namely L* H%, which are said to be more formal and to express a nuance of interest and greater speaker involvement (cf. Estebas Vilaplana/Prieto 2010: 35; Hualde/Prieto 2015: 381). In Catalan, the only rising pattern found is H+L* H%, which occurs in some Balearic and Southern Valencian varieties. It is equally said to function as a politeness-marker (Prieto et al. 2015: 32). So, in order to summarize, we can say that information-seeking wh-questions do present some similarities across both languages, but their intonation is essentially distinct.

As for echo wh-questions, a comparison of the different sources they are described in yields that the same nuclear contours may occur in both languages: i.e. the ‘circumflex’ contour, L+¡H L%, and the ‘low rise’, L* H%. However, in CC, the low rise seems to be more widespread, while, in CS, it implies nuances such as incredulity and the circumflex contour is said to be more neutral. Besides these differences regarding frequency and pragmatic ‘neutrality’, a third contour is possible in CC, which has not been documented in Spanish: L+H* LH%. This one has also been observed in counterexpectational echo yes–no questions in both languages.

4) Imperatives: Lots of different intonational contours have been described for commands in both languages. Unfortunately, not all available accounts are comparable as they are based on imperatives of different length and constitution (e.g. verb-only imperatives or phrasal imperatives containing objects or adverbs). If we assume that sentences such as *¡Abre el armario!* ‘Open the cupboard!’ in Robles-Puente (2011b) and *Demana-ho a la Maria!* ‘Ask Mary about it’ (with an “early focus”) in Prieto (2014: 72) are comparable, we can conclude that the two languages under concern here use similar imperative patterns, i.e. L+H* L* L% in Catalan and the L+<H* L* L%[130] in Spanish (cf. Hualde/Prieto 2015: 384). If this were right, the two languages would differ concerning the alignment of the prenuclear peak. Nevertheless, Robles-Puente (2011b: 157) also found cases of prenuclear L+H* when the nuance of imperativity

130 Please note that Robles-Puente (2011b) generally uses the label ‘L+!H* L%’ for the Spanish nuclear configuration.

should be reinforced (as opposed to declarative intonation). Those cases probably better correspond to what Prieto (2014: 72) calls “commands with early focus”.

As for shorter commands (such as verb-only *Vine!* or verb + adverb *¡Ven aquí!*), alike though not identical tunes were documented for the two languages: i.e. L+H* !H%, for Spanish, and L+H* L%, for Catalan. There is thus a difference in the scaling of the final boundary tone. However, the intonation of commands seems to be an area that wants further exploration in both languages before we can eventually decide whether there are clear interlingual differences or not.

In the case of requests, too, the descriptions given for the respective intonational contours used in the two varieties are challenging to compare because they at least in part refer to different sentential configurations. In one-word requests, consisting only of a verb in the imperative mood, such as Sp. *¡Va!* or Cat. *Vine!* ‘Come on!’, L* HL% seems to be a contour used in both languages (cf. Estebas-Vilaplana/Prieto 2010: 41; Prieto et al. 2015: 37). In Catalan, L+H* LHL% is mentioned as an alternative tune for more insistent verb-only requests in different sources (Prieto 2014: 72; Prieto et al. 2015: 37) that stress the importance of the utterance-final “insistence tune” conveyed by the complex boundary tone (see also Prieto 2001). This clearly shows that Catalan is not a truncation language for it compresses the whole tonal sequence on the imperative. No such boundary tone has been documented for Spanish, to my knowledge. Furthermore, Prieto (2014: 72) mentions L+H* L!H% for Catalan soft requests.

5) Vocatives: As for vocatives, both languages present the cross-linguistically typical ‘vocative chant’ L+H* !H%, where the last syllable is durationally prolonged and receives a sustained mid boundary tone. Additionally, both languages display L+H* HL% as an alternative contour, with a more drastic final fall and rise, which probably conveys greater insistence. However, it appears that there is some confusion about which of the two tunes serves as greeting call and which as insistent call in the literature on Catalan (cf. Fn. 129, above).

So as to conclude, we can say that CC and CS present quite a lot of similarities in their choices of pitch accents and boundary tones, which comes as no surprise, given that the two languages are closely related within the Romance family. Yet, there are also some clear differences, especially as concerns the intonation of information-seeking yes–no questions, confirmation-seeking yes–no questions, information-seeking wh-questions, and (possibly) commands. Moreover, there are some minor differences to be found in contradiction statements, in the distribution of tunes used in obviousness statements and in counterexpectational echo yes–no questions, in echo wh-questions, and probably in requests.

To cut a long story short, we have seen that in CS and in CC sentence type and pragmatic meaning can be conveyed by both pitch accents and boundary tones. For instance, the difference between all-new statements and narrow-focus statements is conveyed by means of pitch accents, rather than by boundary tones: while the same boundary tone occurs in both statement types (viz. L%), two different nuclear pitch accents are utilized (i.e. L* in broad focus statements and L+H* in narrow focus statements). In the same way, <u>H+L*</u> L% can be employed to distinguish confirmation-seeking yes–no questions from the two sentence types just mentioned. Boundary tones, on the other hand, can—but need not—be used to express, for instance, the difference between neutral statements and yes–no questions (cf. L* <u>L%</u> in broad-focus statements vs L* <u>(¡)H%</u> in information-seeking yes–no questions). In addition, the accounts of the intonation of the two languages suggest that distinctive meaning can also be communicated by upsteps (cf. <u>L+H*</u> L% for narrow-focus statements vs <u>L+¡H*</u> L% for echo yes–no questions), i.e. that the upstep is used in a paradigmatic way (see also the discussion in 3.1.1.1, above.). In some cases, pragmatic differences may be rendered either by pitch accents or boundary tones or by entirely different nuclear contours (cf. <u>L*</u> ¡H% for information-seeking yes–no questions vs <u>L+H*</u> ¡H% and <u>L+H* LH%</u> in counterexpectational echo yes–no questions in CS, and L* <u>H%</u> for information-seeking yes–no questions vs L* <u>¡H%</u> and <u>L+H* LH%</u> in counterexpectational echo yes–no questions in CC). Finally, some utterance types may exhibit the same nuclear contours (e.g. L+H* !H% for both uncertainty statements and vocatives). Since there seems to be no particular intonational marking in such cases, other linguistic means, such as verbal morphology or the lexicon, are used to convey the respective meaning in these cases.

3.2 Prosodic structure and phrasing

3.2.1 Prosodic structure (units and hierarchy)

The view that prosodic structure has a role to play as the organizing framework of speech is well established (cf. Frota 2012: 255). However, different answers have been suggested in the literature to the question of which prosodic units are needed in addition to simple segments to describe its phonetic and phonological regularities (cf. Gabriel et al. 2013: 125). It is generally assumed that prosodic structure consists in dividing up the stream of speech into chunks or phrases, i.e. into prosodic constituents, which are delimited by prosodic boundaries or edges and arranged according to a hierarchy. The most prominent element of each layer of prosodic structure is considered its 'head', and the prosodic strength of both the head and the boundaries are taken to reflect the prosodic hierarchy (cf. Frota 2012: 255).

Although the three major approaches to tackling prosodic structure have emerged from independent research traditions, which were pursuing different goals (i.e. establishing phonological rules and the domains within which they apply vs describing intonation), the prosodic hierarchies proposed from the different angles of phrasal rules, intonation, and prominence phenomena are quite similar to one another. Some scholars have therefore put forward the hypothesis that all of them are actually versions of the same prosodic structure and refer to the same prosodic constituents (Hayes/Lahiri 1991; Frota 2000; Hellmuth 2007; see also Frota 2012:

256).[131] The hierarchies given in Table 3.5 capture the main aspects of the different approaches based on the synthesis provided in Frota (2012: 257).

Table 3.5: Different prosodic hierarchies proposed in the literature and their most common abbreviations (adopted from Frota 2012: 257).

Rule-based approaches[132]	**Intonation-based approaches**	**Prominence-based approaches**
intonational phrase (IP)	intonational phrase (IP)	nuclear accent
phonological phrase (PPh, φ, p) / major phrase (MaP)[133]	intermediate phrase (ip)	
clitic group (C) / minor phrase (MiP) / prosodic word group (PWG)	accentual phrase (AP)	accent
prosodic word (PW, ω)	prosodic word (PW, ω)	stress
foot (F, P, Σ)	foot (F, P, Σ)	full vowel
syllable (σ)	syllable (σ)	syllable
mora (μ)	mora (μ)	

According to the so-called rule-based approach established by Selkirk (1984, 1986, 1996, 2005) and Nespor/Vogel (2007 [[1]1986]), which was taken up, among others, by Truckenbrodt (1999, 2007), all languages pattern together in presenting the same (underlying) inventory of prosodic constituents and prosodic constituency bears a systematic relation to morphosyntax in that it is tightly syntactically grounded, i.e. it mainly results from rule-based syntax-to-phonology mapping. For instance, it has been suggested that Phonological Phrases (PhPs) relate to syntactic phrases (XPs) and Intonational Phrases (IPs) to syntactic clauses (cf., e.g., Truckenbrodt 2007: 436). In this view, the prosodic categories are thus essentially nicknames for syntactic categories and the respective repertoires are seen as a function of one another (cf. Selkirk 2005: 30). However, it is crucially not the case that all syntactic constituents of a certain type must always correspond to a prosodic constituent of a given type and vice versa, i.e. the relation is not necessarily an isomorphic one (Nespor/Vogel 2007: 2). As a case in point, it is well known that boundaries between prosodic phrases often "'come in the wrong place' from the point of view of syntax" (Ladd 2008: 290), especially in spontaneous speech (cf. Martin 2015: 50, 57). In addition, the prosodic hierarchy is assumed to be 'less deep', or 'flatter', than the theoretically

[131] For instance, it has early been suggested that phonological phrases (PPh) and intermediate phrases (ip) fundamentally represent the same type of constituent (cf. Pierrehumbert/Beckman 1988). The same is true for the clitic group (C), the minor phrase, the prosodic word group (PWG), and the accentual phrase (AP) (cf. Selkirk et al. 2004; Vigário 2010)

[132] Please note that some of the constituents included in this overview were not part of the original prosodic hierarchy proposed by Selkirk (1986) which is presented below. Namely, major and minor phrases were introduced by Selkirk/Tateishi (1988), the clitic group by Nespor/Vogel (1986; cf. below), the mora is used in Pierrehumbert/Beckman's analysis of Japanese (1988), and the prosodic word group (PWG) was coined by Vigário (2010).

[133] Please note that although for most authors the major phrase seems to be equivalent to the ip (e.g. Selkirk 2005; see also Elordieta et al. 2005: Fn 2), some scholars equate it with the IP, and instead relate the minor phrase with the ip (e.g. Prieto 2006b).

infinite syntactic hierarchy, since it does not allow for recursive structures.[134] This ban of recursion is a consequence of the proposed properties of prosodic structure that have been dubbed by Selkirk (1984: 26) as the 'Strict Layer Hypothesis' (SLH; see also Selkirk 1996; Nespor/Vogel 1986: 7–17, 121–129). Accordingly, there is a fixed and invariable hierarchy of prosodic domain types so that, in a prosodic tree, any domain at a given level of the hierarchy consists exclusively of domains belonging to the next lower level of the hierarchy. Furthermore, "each sentence is exhaustively parsed into a sequence of such [domains or] categories" and their "hierarchical arrangement forms a well-formed bracketing" (Selkirk 1986: 384). This is illustrated in Figure 3.6. The phonological prosodic categories anchored at the different layers of prosodic structure are utterance (Utt), intonational phrase (IPh), phonological phrase (PPh), prosodic word (PWd), foot (Ft), and syllable (Syl).[135]

```
( ____________________________________________________________ )  Utt
( ____________________________________ ) ( ___________________ )  IPh
( __________ ) ( _______________________ ) ( ___________________ )  PPh
( __________ ) ( ______ ) ( ____________ ) ( __________ ) ( ______ )  PWd
( __ ) ( ______ ) ( ______ ) ( __ ) ( __________ ) ( ______ ) ( __ ) ( ______ )  Ft
( __ ) ( __ ) ( __ ) ( __ ) ( __ ) ( __ ) ( __ ) ( __ ) ( __ ) ( __ ) ( __ ) ( __ ) ( __ ) ( __ )  Syl
```

Figure 3.6: Prosodic hierarchy (adopted from Selkirk 1986: 384).

Besides this so-called rule-based approach, prosodic structure has also been addressed from the angle of intonation (Beckman/Pierrehumbert 1986; Pierrehumbert/Beckman 1988), for whose analysis it is important to know how intonational elements relate to the segmental string and what might be the "structure of intonation" (Frota 2012: 265). In such approaches, prosodic constituents are posited on the basis of the phenomena that characterize them, i.e. phonetic cues observed in empirical experiments are taken as evidence for underlying prosodic constituents and prosodic structure. For instance, the presence of nuclear pitch accents and boundary tones is assumed to indicate, e.g., an intonational phrase (IP, cf. Frota 2012: 257), and, similarly, phonological processes whose domain of application is a particular level of the prosodic hierarchy may equally serve as diagnostic for prosodic constituents (cf. Prieto 2006b: 42). In this manner, experimental work on prosodic phrasing has provided ample phonetic and phonological evidence for levels of constituency and/or levels of phrasing (e.g. Frota 2000; Frota et al. 2007, among many others). Interestingly, the more impressionistic and perception-based approaches taken in many studies, such as D'Imperio et al. (2005: 66), are reflected even in phonological transcription systems for intonation, such as the different ToBIs (cf. Section 3.1),

[134] Work on prosodic phrasing has led to the relaxation of this strong view, which has been heavily criticized, among others, by Ladd (2008: 288–309; see also Truckenbrodt 2007; Frota 2012; Martin 2015: 55–56), and proposals of recursive prosodic constituents (Selkirk 1996; Vigário 2003; Gussenhoven 2004, among others) and of compound structures (Ladd 1996, 2008; Frota 2000; 2014; Cruz 2013) have been made. The model is thus handeld more flexibly today and adapted to individual language conditions (cf. Gabriel et al. 2013: 130).

[135] Later on, Nespor/Vogel (1986: 11) add one more prosodic constituent: the clitic group. They thus assume that the prosodic hierarchy comprises seven units: phonological utterance (U), intonational phrase (I), phonological phrase (φ), clitic group (C), phonological word (ω), foot (Σ), and syllable (σ).

where the definitions of boundaries are expressed clearly in phonetic terms relying on the transcriber's perception.

Finally, a prominence-based view of the prosodic hierarchy is also found in the literature (Beckman/Edwards 1990, 1994). It is similar to the experimental phonetic intonation-based approaches but distinguishes levels of prominence instead of segmental domains (cf. Frota 2012 for a detailed description).

3.2.2 Prosodic phrasing in Castilian Spanish and Central Catalan

The phrasing patterns of both CS and CC have been recently addressed in a series of empirical research studies (Prieto 1997, 2005b, 2006b; Nibert 2000; Elordieta et al. 2003, 2005; Astruc 2005; D'Imperio et al. 2005; Frota et al. 2007; Feldhausen 2010; Benet 2011; Benet et al. 2011, among others). In what follows, I will compare the two languages by briefly outlining the major results of these studies.

The two languages under concern here pattern together in that broad-focus declarative sentences containing a subject, a verb, and an object (i.e. SVO) most commonly exhibit an (S)(VO) phrasing pattern, i.e. the subject is separated from the other constituents of the sentence by means of a prosodic break (Elordieta et al. 2003, 2005; D'Imperio et al. 2005; Frota et al. 2007). Especially in Spanish, this phrasing pattern is pervasive, i.e. it is by far the most frequent one across different conditions of length and syntactic complexity of the subject and object phrase (cf. Elordieta et al. 2003, D'Imperio et al. 2005).[136] When the subject is branching, the phrasing of the sentence as (S)(VO) is even categorical in this language (D'Imperio et al. 2005: 83). On the other hand, non-branching conditions may slightly increase the probability of (SVO) phrasing patterns (cf. Elordieta et al. 2003; D'Imperio et al. 2005: 79, 82).[137] Furthermore, besides the general tendency to separate the subject from the rest of the utterance material regardless of whether the object is long or branching, the authors observe some factors that may somewhat increase the probability of other phrasing patterns such as (S)(V)(O), (SVO), and (SV)(O). Namely, this is the case of prosodically (but not of syntactically) branching objects (Elordieta et al. 2003; D'Imperio et al. 2005: 82f.). Similarly, Prieto (2006b: 55), finds a "strong tendency" for Spanish SVO sentences with long objects to be phrased as (SV)(O) and concludes that this phrasing pattern is possible instead of (S)(VO) when "the weight conditions are 'favourable'", i.e. when the object is 'heavy enough'. In sum, branchingness seems to be a factor of major weight in phrasing decisions in (Castilian) Spanish (cf. Frota et al. 2007: 133).

In contrast to CS, CC displays a much stronger propensity to divide utterances in phrases of similar length in terms of number of syllables, stresses, and/or prosodic words, often producing (SV)(O) patterns (Elordieta et al. 2003; D'Imperio et al. 2005: 71). This later pattern most

[136] Please note, however, that Nibert (2000) concludes that the default phrasing type in Spanish must be (SV)(O).
[137] Please note that several studies report difficulties of trained native listeners to classify non-branching Spanish SVO sentence unambiguously as either (S)(VO) or (SVO) (cf. Elordieta et al. 2003; D'Imperio et al. 2005).

typically occurs with short subjects and/or long objects. When the sentence comprises a long branching object, (SV)(O) is clearly pervasive, no matter whether the branching is syntactic or prosodic. The only condition in which CC exclusively exhibits the (S)(VO) phrasing pattern is with branching subjects.

Table 3.6 provides an overview of the phrasing patterns attested in read neutral declaratives for CS and CC based on the results of D'Imperio et al. (2005).

Table 3.6: Relative frequencies of prosodic phrasing patterns in Castilian Spanish and Central Catalan SVO declaratives according to different syntactic branchingness conditions of the object (averages in per cent, calculated on the basis of D'Imperio et al. 2005)

Condition	Castilian Spanish			Central Catalan		
Non-branching S/O	(S)(VO)	(SV)(O)	(S)(VO)/(SVO)[138]	(S)(VO)	(SV)(O)	(SVO)
short S[139]	79.5	0	20.5	80	16	4
long S	79	0	21	88	8	4
short O	71	0	29	92	8	0
long O	87.5	0	12.5	76	24	0
Short branching O	(S)(VO)	(SV)(O)	other	(S)(VO)	(SV)(O)	
short S	96	0	4	62.5	37.5	
long S	96	0	4	75	25	
Long branching O	(S)(VO)	(SV)(O)	(S)(V)(O)	(S)(VO)	(SV)(O)	
short S	92	4	4	33.5	66.5	
long S	88	4	4	42	58	

CS and CC also behave similarly with respect to the phonetic cues used to mark prosodic boundaries such as those occurring between the subject and the verb phrase in (S)(VO) patterns (cf. below for the nature of these constituents). In the aforementioned studies, it was observed that the breaks in both languages are almost exceptionally cued by continuation rises[140]. Additionally, final lengthening, a relative lower pitch level of the material following the boundary, and pauses are sometimes mentioned as boundary cues (cf., e.g., Prieto 2006b: 42; D'Imperio et al. 2005: 67, 79; see also Elordieta et al. 2005: Fn. 2). The first extensive cross-linguistic study on the phonetic realization of prosodic breaks in the two languages under concern here is Frota et al. (2007), whose most important results are displayed in Table 3.7 (for definitions of the terms, see below).

[138] This group consists of sentences in which it could not be decided unambiguously whether the phrasing pattern at hand was (S)(VO) or (SVO).

[139] In D'Imperio et al. (2005), short constituents have three syllables, while long constituents consist of five syllables.

[140] A continuation rise (CR) is "a rise from/on the last stressed syllable into the boundary syllable" (Frota et al. 2007: 134). Within the AM model and the ToBI framework for Spanish and Catalan, the CR is usually labelled as a high boundary tone, H-.

Table 3.7: Relative frequency of boundary cues in Castilian Spanish and Central Catalan (in per cent; adopted from Frota et. al. 2007: 135).

	continuation rise	sustained pitch	high boundary tone (H)	low boundary tone (L)	pitch reset	drop to base level	pre-boundary lengthening	pause
Spanish	88.4	11.2	99.3	0.7	76	0.7	40.2	28.2
Catalan	100	0	100	0	28	0	100	10.5

First, CS and CC both clearly prefer high boundary tones realized as continuation rises to mark IP-internal boundaries. In Spanish, however, sustained pitches[141] can be found to a minor extent, too. As for Catalan, no sustained pitches could be observed in the read speech data analysed by Frota et al. (2007), but they were found in laboratory speech by Feldhausen (2010) as well as in spontaneous speech by Benet et al. (2011), where they marked 38% of the ip boundaries.[142] Second, pitch reset[143] seems to apply more frequently in Spanish (76% of the cases) than in Catalan (28%). Fourth, the F0 virtually never drops to the speaker's base level at the boundary in neither of the varieties. Fifth, pre-boundary lengthening[144] is pervasive in Catalan but only attains a share of 40.2% in CS. Finally, 28.2% of the IP-internal boundaries were accompanied by a pause in CS, in contrast to CC, in which pauses were attested only in 10.5% of the analysed items.

Besides, Frota et al. (2007) observe that the two languages pattern together in that not phrase length but the pitch level of the first peak of a phrase can have an influence on the scaling of high boundary tones. She also finds that, in Spanish, these boundary tones are consistently higher when the (nuclear) pitch accent preceding the boundary attains its high target in the poststressed syllable[145], which is what happens in 84% of the cases. Frota et al. (2007: 142) interpret this as an upstep of the high boundary tone after accentual H tones. In Catalan, only L+H* pitch accents, which attain the high target within the last stressed syllable before the boundary, were observed, but the high boundary tones equally showed high values in this language.

Although the majority of the above-mentioned studies on phrasing of different Romance varieties does not determine the exact nature of the prosodic constituents involved, recent work adopts the view that, in both Spanish and Catalan, such constituents phonologically correspond to intermediate phrases, which are grouped together in an IP that comprises the whole utterance

[141] A sustained pitch (SP) is "a rise on the last stressed syllable followed by a high plateau up to the boundary" (Frota et al. 2007: 134). Within the AM model and the ToBI frameworks different labels have been suggested for SP, such as 'HL-' (Pierrehumbert 1980), 'M-' (Estebas-Vilaplana/Prieto 2008), and '!H-' (Frota et al. 2007, among others). In the present work, I will use '!H-' to mark SP.

[142] Interestingly, Benet et al.'s (2011) data indirectly confirm the difference between the two languages, since sustained pitches were more frequent in the Catalan speech of speakers stemming from neighbourhoods with a higher presence of Spanish.

[143] In their analysis of Spanish and Catalan, Frota et al. (2007: 135) considered "ratios of 0.90 or higher between the first peaks of the first and second phrases" as cases of reset.

[144] Frota et al. (2007: 135) point out that their "database was not designed to measure lengthening". The results on pre-boundary lengthening should therefore be treated with caution.

[145] Frota et al. (2007: 138) label such pitch accents as L*+H, but today, most scholars would probably use a delayed peak, i.e. L+<H*, instead, following the suggestions made by Prieto et al. (2006) (see also Section 3.1.2.1).

(e.g. Hualde 2003a; Prieto/Roseano 2010: 1–15; Hualde/Prieto 2015; Prieto et al. 2015, among many others). For instance, with reference to the levels of the prosodic structure discussed in Section 3.2.1, an utterance phrased as (S)(VO) can be phonologically analysed $((S)_{ip}(VO)_{ip})_{IP}$. Yet, both the Sp_ToBI and the Cat_ToBI transcription systems for intonation (cf. "How to discriminate between break indices of level 3 and 4" in Aguilar et al. 2009 and Section 3.1.1.2) distinguish between the break indices 3 and 4 (corresponding to the ip and IP, respectively) solely on perceptual grounds, which automatically entails that the same phrases (e.g. vocatives, the phrases constituting disjunctive questions, etc.) can be analysed as either ips or IPs depending on the degree of perceived disjuncture (cf. Kireva 2016a: 44).

3.3 Language contact

The following subchapter is concerned with language contact. Section 3.3.1 provides a general introduction to the topic and explains the key terms of the field. The ensuing section (3.3.2) addresses phonology in language contact, and, in Section 3.3.1, I summarize the findings of various studies on cross-linguistic influence at the intonational level.

3.3.1 Key terms and approaches

The present section is concerned with what happens when two (or more) languages enter in contact with each other as well as with the linguistic outcomes of such contact, i.e. with linguistic change originated by language-external factors. After giving a quick overview of the history of research on language contact and the different approaches taken to it in the past, I shall at some length discuss the central terms of the field, before touching upon several of the more sociolinguistic aspects of the topic, namely, contact situations, sociolinguistic motivations for contact-induced change, and speakers' attitudes.

Since the earliest period of the scientific study of language, "language contact has been a focal point of interest to linguists" (Winford 2003: 6). Already in the 19th century, during the heyday of historical linguistic scholarship, it became an integral part of the field (e.g. Müller 1875; Schuchardt 1884, among many others). However, given that the primary interests of the time were language classification in terms of establishing family-tree models of genetic relationships between languages, on the one hand, and analysing language change by comparative methods, on the other, disagreement arose among historical linguists about the part played by elements from different source languages (such as borrowings), which could make classification decisions difficult. The assumption that every language has only a 'single-parent source', eventually led to the belief—especially common among Neogrammarians and Structuralists—that language change can solely result from language-internal factors like, for instance, regular sound change instigated by universal markedness constraints, or analogy due to pattern pressure (cf. Odlin 1989: 6–10; Winford 2003: 7). Nevertheless, scholarship on language contact increased and especially the study of linguistic areas and mixed languages, among other topics, brought considerable evidence for the importance of cross-linguistic influences (CLI; Odlin 1989: 12).

In 1953, the pioneer works of Weinreich and Haugen set the foundations for modern contact linguistics by showing extensively that change can result from bilingualism in contact situations and thereby identifying the bilingual individual as the true *locus* of CLI (Matras 2013: 66; Weinreich 1953: 1). Their assumption that second-language learners have more learning difficulties and display more 'interference' (see below for a definition), the greater the differences between the native langue and the target language are, further boosted the development of contrastive analyses carried out for the purpose of language teaching (Odlin 1989: 15).

In the 1970s, this so-called Contrastive Analysis Hypothesis (CAH) was heavily attacked and the assumption of L1 transfer in second-language acquisition (henceforth SLA) came into disrepute for a short time for the benefit of the so-called identity or 'L1 = L2' hypothesis, which claims that all language acquisition, be it of a first or a second language, proceeds largely in terms of a fixed set of developmental sequences conditioned by universal cognitive mechanisms (cf. Appel/Muysken 1987: 82–87; Odlin 1989: 17–23; prominent examples of such studies are Dulay/Burt 1974a, 1974b; Hatch 1977). However, as empirical research led to new and ever more persuasive evidence for acquisitional differences between learners with different native languages attributable to CLI, at the beginning of the 1980s, "interference (or negative transfer) was recognized again as a major component of second-language acquisition" (Appel/Muysken 1987: 87; Odlin 1989: 24; for definitions of the terms 'interference' and 'negative transfer' see below).

In 1988, eventually, Thomason and Kaufman presented their seminal large-scale study on a wide variety of contact scenarios and thereby laid "the foundations for both a typology of contact outcomes and an empirical/theoretical framework for analyzing such outcomes" (Winford 2003: 9; see also Hickey 2013: 1–3). Their book clearly was a stimulus for numerous case studies carried out in the 1990s and 2000s, focusing on different contact scenarios, linguistic families and areas (e.g. those in Gilbers et al. 2000 or Clyne 2003), as well as on bi- and multilingualism in a broader sense (Myers-Scotton 2002 may be a representative example), which have provided the empirical background for more general reflections on the nature of language contact and its effects and, in this way, contributed to the maturity of the field (cf. Hickey 2013: 6).

Today, contact-induced language change is viewed as a serious option (Hickey 2013: 21), as it is now known that "multilingualism by far outweighs monolingualism on a historical and global scale" (Kühl/Braunmüller 2014: 16) and that language contact is rather the "rule than exception" (see also Lüdi 1996; Matras 2009): there is a broad consensus that language contact always induces change—to varying degree, needless to say—and that foreign influence must have occurred in the history of most, if not all, languages (cf. Hickey 2013: 7; Thomason/Kaufman 1988: 3). Indeed, it is hard to imagine that this could not be the case since, as Appel and Muysken (1987: 164) point out, "no culture […] has developed entirely from scratch". We thus return to the beginnings of contact linguistics and state with Schuchardt (1884: 5): "Es gibt keine völlig ungemischte Sprache" 'There is no entirely unmixed language'.

In order to describe and analyse language contact and its outcomes, scholars have introduced and made use of a plethora of different terms to the extent that "the field is riddled […] with confusing terminology" (Appel/Muysken 1987: 154). The most neutral labels used to cover all kinds of influence are probably **contact-induced change** (cf. Odlin 1989: 12) and **cross-linguistic influence** (CLI; cf. Sharwood-Smith/Kellermann 1986). They need no further explanation. Further very general terms are (language) transmission and (language) **transfer** (cf., e.g., Van Coetsem 2000: 49). However, it warrants mention that especially the latter term is used by some to cover all types of contact-induced changes, whereas others, mostly SLA researchers, use it "to refer only to L1 influence on an L2" (Winford 2003: 16, see below for other more fine-grained uses of the term, viz. positive and negative transfer).

This is also true for another central and wide-spread term, **interference**, which has been applied in different frameworks and used in several conflicting senses (Winford 2003: 16). Weinreich (1953: 1) defines 'interference phenomena' as "those instances of deviation from the norms of either language which occur in the speech of bilinguals as a result of their familiarity with more than one language, i.e. as a result of language contact". He thus employs it as a cover term for both CLI from an L1 to an L2 and vice versa (cf. Odlin 1989: 12; Winford 2003: 209). Similarly, Mackey (2000: 36) states: "Interference is the use of features belonging to one language while speaking or writing another" and along the same lines Thomason (2001: 267) defines interference as "[c]ontact-induced change that involves the importation of material and/or structures from one language to another […]". Yet, this praxis is not followed by all subsequent authors, many of whom distinguish more thoroughly between the different directions CLI can take. For instance, as we will see below, Thomason and Kaufman (1988), although they still make use of the term 'interference' as a cover term for all kinds of contact-induced change (cf. Winford 2003: 12), prefer to apply it when referring to the effects an L1 can have on an L2, which they call "(substratum) interference" (cf. Thomason/Kaufman 1988: 37–46 and below).

A somewhat different approach is taken by Müller et al. (2011: 18), who propose the following definition: "Die Interferenz wird in der Literatur als ein Performanzphänomen bezeichnet und oft von der Entlehnung („borrowing") abgegrenzt, welche als Kompetenzphänomen beschrieben wird. Als Konsequenz ergibt sich, dass die Interferenz eher individueller Natur ist, die Entlehnung dagegen als kollektiv, also eine Sprachgemeinschaft oder eine Gruppe innerhalb einer Sprachgemeinschaft betreffend, charakterisiert wird. Der Systematik und Stabilität der Entlehnung steht die Variabilität der Interferenz gegenüber."[146] As opposed to the more or less

[146] Translation: In the literature, interference is referred to as a performance phenomenon and it is often distinguished from borrowing, which, in turn, is described as a competence phenomenon. In consequence,

ephemerous phenomenon of interference, Müller et al. (2011: 21) use the term ‘transfer’ or ‘transference’ to refer to CLI on the competence level, especially, when L2 learners take over elements or rules from an L1 (see also Clyne 1967 on ‘transference’).

Convergence is a further term frequently encountered in research dealing with contact-induced language change. However, “this label has been applied to a whole series of phenomena that occur in language contact” (Berruto 2005: 81) and the definitions given, if any, vary widely (cf. Höder 2014: 39). While some scholars use it with the very general meaning of ‘interference’, ‘transfer’ or ‘interlingual element’, in most cases it refers to a process “making languages more similar” (Clyne 2003: 79, see also Kühl/Braunmüller 2014: 14; Höder 2014: 41).[147] Thomason (2001: 262) defines it as “[a] process through which two or more languages in contact change to become more like each other – especially when both or all of the languages change” and, in a similar vein, Winford (2003: 63) states that “two languages can be said to have converged structurally when previous differences in grammar between them are reduced or eliminated either because one adopts structural features from the other as a replacement for its own, or because both adopt an identical compromise between their conflicting structures”.[148] He thus emphasizes that convergence can comprise both ‘bidirectional’ or ‘bilateral’ convergence in a strict sense, implying a certain degree of reciprocity, i.e. the mutual approximation of two language varieties (cf. Berruto 2005: 82), and, in a broader sense, ‘unidirectional advergence’ (cf. Mattheier 1996: 34; see Höder 2014: 41 for further logically possible types of convergence). Thomason (2001: 262) points out that “the term is not usually used to designate unidirectional changes”, such as “ordinary borrowing” (cf. below), “except (sometimes) when one language changes very extensively to become more like another” (see also Winford 2003: 100). Instead, it is frequently applied to changes in (or changes that create) linguistic areas or *Sprachbünde*, which are therefore sometimes also called ‘convergence areas’ (cf. Winford 2003: 70–71; Matras 2011).

According to Appel/Muysken (1989: 154), convergence may occur in situations in which several varieties are spoken in the same geographical area and by the same groups of speakers for a long period of time, i.e. it usually involves (intense) bilingualism (see also Matras 2011). They claim that it is most apparent at the phonetic level, although other linguistic domains can be affected equally (cf. Matras 2009: 243–265, 2013: 68–76, among others). Typically, the sound systems of the contact languages become progressively more similar to one another through the development of intermediate sounds (cf. Flege 1987: 47, 55), i.e. no clear direction of the influence can be determined. In such cases, convergence can imply not only that the

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interference is an individual process, while borrowing occurs in speech communities (or in groups within a speech community). The systemic nature and stability of borrowing is contrasted by the variability of interference.

[147] As Höder (2014: 42–43) indicates, descriptively speaking, language contact must not be a precondition for convergence when such loose definitions are applied, since it is possible for isolated languages to become more similar, too (e.g. as a consequence of typologically motivated internal language change).

[148] Please note that although most authors limit the use of the term convergence to the process (‘convergence leads to change’), it is sometimes also applied to the result (‘two languages show convergence’) (cf. Backus 2004: 180; Bullock/Toribio 2004: 91).

language systems become more alike but also that this is achieved by means of 'mixing' or 'merging' the actual linguistic material of the varieties involved. Moreover, Matras (2011: 153–154) highlights that pragmatic devices are particularly prone to convergence as speakers tend to treat pragmatic organization procedures as universal rather than language-specific, i.e. they may easily be generalized across a bilingual's repertoire. Schmid (2011: 31) defines this notion of convergence as follows: "The process of convergence involves items from both systems, merging or integrating them to create something new that is distinct from both original languages". This is illustrated in Figure 3.7.

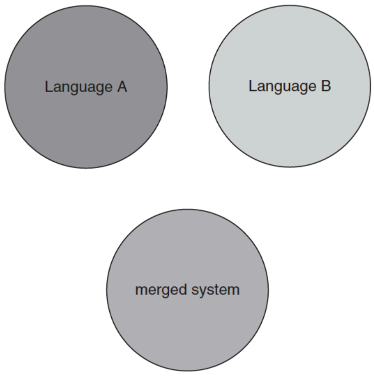

Figure 3.7: A schematic representation of convergence (adopted from Schmid 2011: 32).

As the exact nature of the phenomena referred to as 'convergence' in contact linguistics varies widely, no global motivation or reason for its occurrence can be given, but distinct grounds underly the various cases (for a framework explaining structural convergence see, e.g., Matras 2011). However, an aspect that is worth mentioning is the idea that the convergence, i.e. the collapsing of linguistic features in the multilingual repertoire of a bilingual speaker, which originally belonged to different languages or varieties, may cognitively represent a simplification because it eases the bilingual speaker's "linguistic burden" of having to select context-appropriate, i.e. language-specific, structures (cf. Weinreich 1953: 8; Matras 2009: 151, 235; Kühl/Braunmüller 2014: 18–20; Höder 2014; Bullock/Gerfen 2004; see below for further motivations of contact-induced language change).

Further (and different) uses of the term 'convergence' can be easily found in contact linguistics. For instance, it can also point to a setting in which language change has both internal and external sources simultaneously (cf. Hickey 2013: 19). In Communication Accommodation Theory (CAT, Giles et al. 1991), the terms 'convergence' and 'convergent accommodation' refer to the situational language behaviour of individual persons in verbal interaction, namely, they designate a strategy by which interlocutors accommodate to each other's speech in different ways to achieve the desired social distance, e.g. by adjusting their pronunciation or other linguistic features (Winford 2003: 119; Appel/Muysken 1987: 28; Romera/Elordieta 2013: 132–133). Finally, it can also be applied with more restricted meanings for particular subtypes of transfer phenomena (cf., e.g., Myers-Scotton 2002: 101f.)

Divergence is typically regarded as the "other side of the coin", i.e. the opposite concept to the notion of 'convergence' (Hinskens et al. 2005: 2). In Höder's (2014: 41) terms "convergence and divergence can be said to be types of relational diachronic language change – as opposed to diachronic stability – in which two or more given languages become structurally more similar or dissimilar". Traditionally, divergence has been taken to be rather a "rare element" in language contact (cf. Kaufmann 2010: 481). However, recent research has shown that it is indeed "far more common than normally assumed" (Kühl/Braunmüller 2014: 14). It may occur "sequentially, intertwined or even simultaneously" with convergence within the same variety and it is generally assumed that it is caused primarily by extra-linguistic factors, owing to the fact that in settings characterized by intense language contact and bilingualism "keep[ing] up the divergence and stability of idiosynctratic [i.e. language specific] features" is a cognitively demanding task (Kühl/Braunmüller 2014: 20; see also Matras 2009: 151, 235). For instance, speakers can actively enlarge salient differences or reject foreign elements with the aim of marking societal independence. A frequently cited example in this context is the revival and codification of Catalan (cf. Kühl/Braunmüller 2014: 24; Bossong 2008: 102f.).

As already mentioned, recent studies generally distinguish two basic types of CLI, both of which have been given a wide range of different names (cf. below). Essentially, this distinction refers to whether the influenced language is an already acquired native language (L1), which comes into contact with another language (e.g. an L2), or whether the direction of the influence is from such an already acquired native language (L1) to a language that is learned after the first one, i.e. a target or second language (TL or L2, respectively). Frequently, this distinction is expressed indirectly by referring to contact scenarios in which the influenced language is **maintained** (language **maintenance**, **L2 → L1**) or not (language **shift**, SLA, **L1 → L2**). In the latter case, speakers of an L1 'shift to' or 'acquire' another language which is influenced by their L1 (cf., e.g., Thomason/Kaufman 1988; Appel/Muysken 1987; Winford 2003). Finally, in settings of complete shift, the original L1 can eventually be lost (**language loss**). In the following, we will have a look at these two major types of CLI based mainly on the distinction between "borrowing" (in situations of language maintenance) and "substratum interference" (in situations of language shift) proposed by Thomason and Kaufman (1988), before briefly addressing the topic of language loss.

Borrowing (or borrowing transfer, borrowing interference[149]) is defined as "the incorporation of foreign elements into the speakers' native language" (Thomason/Kaufman 1988: 21). The respective speaker group maintains its native language (L1), often referred to as recipient language in this context (cf. Weinreich 1953: 31 and passim; Van Coetsem 2000: 49), but it is changed by the addition of elements from an external source or donor language with which it

149 Please note that, though well-established in the field, the term 'borrowing' has been criticized for various reasons. First, it lacks accuracy, as Hickey (2013: 20) points out, since "nothing is [actually] 'borrowed from A to B'", which would imply "that the donor language is being 'robbed' of an element that belongs to it" (Matras 2009: 146). Second, it "typically leads to the long-term incorporation of an item into the inventory of the recipient language". Although in some cases, bilinguals may well be aware of the origin of an element in a particular donor language, this awareness may be blurred over time. There is thus not only "no intention to return the 'borrowed' item to its rightful 'owner', but for most speakers its original 'ownership' may not always be traceable". A more accurate term could be "copying" (cf. Johanson 2002: 8) but sticking with 'borrowing' ensures continuity with existent literature.

is in contact (viz. the foreign language or L2) (Thomason/Kaufman 1988: 37; Winford 2003: 11f.). The agents of the change are thus the native speakers of the borrowing language, who perform a transfer that affects their own, linguistically dominant language (cf. Van Coetsem 2000: 53). For this reason, Van Coetsem (1988: 37, 2000: 49–73) in his theoretical model of "transmission or transfer in connection with language contact" refers to the respective process as "recipient language agentivity".

However, many authors distinguish more thoroughly and apply the term 'borrowing' only or primarily to **lexical borrowings**, i.e. when a word is borrowed as a whole, including both its sound and meaning (Appel/Muysken 1987: 164). In such cases, we deal with the incorporation of phonetic substance (Heine/Kuteva 2013: 86) or linguistic matter in the sense of identifiable sound-shapes of words and morphs (Matras 2009: 148; 2013: 68) from a source language into the borrowing language. This type of borrowing is an extremely common form of CLI and "few, if any, languages are impervious to it" (Winford 2003: 29). The process is illustrated by Schmid (2011: 27) in the following way:

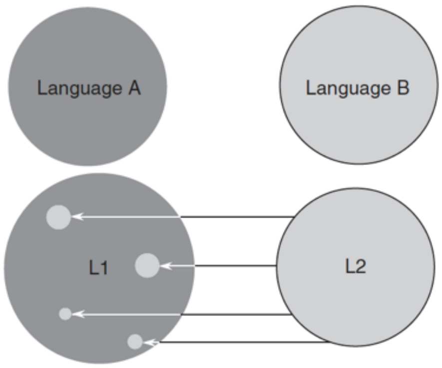

Figure 3.8: A schematic representation of borrowing involving linguistic matter (e.g. words) (adopted from Schmid 2011: 27).

In contrast, CLI from an L2 to an L1 that does not involve the incorporation of new phonetic elements of any kind but instead changes the use of existing elements in the L1 according to patterns present in an L2 such that they gain different values (cf. Schmid 2011: 26f.) has been referred to with terms such as **structural or grammatical borrowing** (e.g. by Appel/Muysken 1987: 162). Other common labels include structural convergence, pattern transfer (both Heath 1984: 367), (grammatical) calque or calquing (Heine/Kuteva 2013: 86), (pattern) replication (e.g. Matras 2013; Heine/Kuteva 2013), item/pattern/category extension (Heine/Kuteva 2013), metatypy (Ross 2001), restructuring, and re-analysis (both Schmid 2011: 27), among many others[150]. Accordingly, the borrowing L1, i.e. the recipient language, is sometimes called 'replica language' as opposed to the source or donor language, referred to as 'model language' (cf.

[150] Some subtypes of structural borrowing are sometimes referred to by different labels, such as 'loan translation' or 'polysemy copying' (Heine/Kuteva 2013: 91). Furthermore, 'grammatical' or 'structural' subtypes are often opposed to those involving lexical changes, e.g. through the use of notions such as 'grammatical' vs 'lexical' replication or calquing. In the present work, I will follow Thomason/Kaufmann (1988) in using 'borrowing' for incorporations of both phonetic matter and structure.

Heine/Kuteva 2013: 86). The graph in Figure 3.9 provides a schematic representation of such structural borrowings.

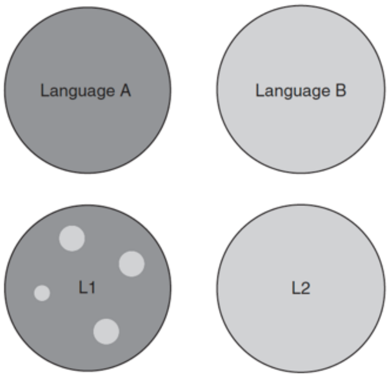

Figure 3.9: A schematic representation of structural borrowing (or restructuring) (adopted from Schmid 2011: 27).

It is usually assumed that linguistic change ensuing from both lexical and structural borrowing starts out with an individual speaker's behaviour in bilingual interaction by the means of which they consciously or unconsciously propagate novel features in the L1 (Heine/Kuteva 2013: 88; Appel/Muysken 1989: 163). Oftentimes such "speaker innovations" (Milroy/Milroy 1985: 15) may be simple *ad hoc* borrowings or "speech errors" and will have no effect on the language concerned; but sometimes, they are accepted by the interlocutor and catch on. They may remain sporadic linguistic acts, occasionally produced by some individuals, but provided that enough speakers ('early adopters') take them up and start using them routinely, they can gradually become established features within the relevant speech community and acquire stability via habitualization and conventionalization (Matras 2009: 147; Kühl/Braunmüller 2014: 18; Höder 2014: 44). When used on a structural basis, e.g. when they are adopted by monolingual speakers, they have become part of the L1 system, and language change has occurred (Matras 2013: 72; Heine/Kuteva 2013: 88f.; Schmid 2011: 21, 26). However, the degree of integration the foreign item or structure attains is a crucial point, since it is possible that such elements keep a special status and are rejected by the language's speakers in the long run (Appel/Muysken 1989: 159, 163).

Moreover, the distinction between lexical and structural borrowing just mentioned already indicates that the elements borrowed in language contact can be diverse in nature. To the general question "What can be adopted by one language from another?", Thomason (2001: 63) replies: "The short answer is, anything". Winford (2003: 63) specifies "There is in principle no limit to what can be transferred across languages, given the right circumstances", to which Kühl/Braunmüller (2014: 17) add (see also Aikhenvald 2007: 2f.):

> "As long as the social conditions (including language attitudes and receptivity to 'foreign' forms) are favourable, no features seem to be impossible to borrow, although, undoubtedly, some forms and patterns are more likely to be borrowed than others in certain contact situations."

It is generally assumed that borrowing begins at the lexical level (Thomason/Kaufmann 1988: 37; Odlin 1989: 13; Van Coetsem 2000: 58f.), considering that the mental lexicon as an open-class system is unstable and able to change rapidly.[151] Foreign words can easily be added to it (Schmid 2011: 18f.) even in settings of 'casual' or 'distant' contact with the external language (Loveday 1996), like, e.g., in the case of 'cultural' borrowings from Latin or Greek in European languages, as "it is quite possible to borrow few words from a language you do not speak at all well" (Thomason 2001: 78). Structural elements, on the other hand, are less likely to be borrowed and higher requirements need to be fulfilled. For instance, Hickey (2013: 8) suggests that "the borrowing of more 'systemic' material – inflections, grammatical forms or sentence structures – can only occur via bilinguals" (see also Thomason/Kaufman 1988: 37; Thomason 2001: 78). A large array of predictors for contact-induced linguistic change have thus been proposed in the literature, including both social and linguistic factors, such as the intensity of the contact and speakers' attitudes, or typological distance between the languages involved, universal markedness constraints, and the degree of integration of the affected linguistic subsystem, respectively (cf., e.g., Thomason 2001; Matras 2011). As a case in point, regarding the last-mentioned factor, it is assumed that words are more easily borrowed than, say, inflectional morphology, owing to the tighter integration of the latter in the language system. Furthermore, different hierarchically ordered 'borrowing scales' representing the 'ease' or susceptibility to borrowing of a particular structure, i.e. its likelihood to be borrowed, have been established based on different measures: (a), the intensity of the language contact, (b), the frequency with which structures or categories are found to be borrowed in a sample of case studies, or, (c), structural factors that facilitate borrowing, such as semantic transparency, a consistent form–meaning relationship, or the aforementioned integration in the system (cf. Matras 2009: 153–165, 2013, for an overview; see Appel/Muysken 1989: 170–172 for different frequency-based hierarchies). In the following, I outline the borrowing scale proposed by Thomason (2001: 70–71), which itself is built on the much renowned scale proposed in the seminal work of Thomason and Kaufman (1988: 74–75), and represents what Winford (2003: 28) calls a "continuum ranging from relatively slight lexical borrowing under casual contact to extreme structural borrowing under very intense contact".

Table 3.8: Lexical and structural borrowings in different language contact situations (based on the borrowing scale presented in Thomason 2001: 70–71).

Contact-situation	Lexicon	Structure
1. Casual contact: few bilinguals and/or borrowers, need not be fluent in source language	only non-basic content words	none

[151] Note, however, that lexical borrowing may also affect the phonological level, as loanwords usually come together with a phonic form (for an overview of loanword phonology in Romance see, e.g., Pustka 2021).

2. Slightly more intense contact: borrowers are fluent bilinguals but can be a minority among borrowing-language speakers	also function words (conjunctions and adverbial particles)	only minor structural borrowing Phonology: new phonemes and phones only in loanwords Syntax: only different uses or frequencies of previously existing structures
3. More intense contact: more bilinguals, social factors favouring borrowing	also basic vocabulary including closed-class items (pronouns, numerals)	moderate structural borrowing; Phonology: addition and loss of phonemes also in native vocabulary, prosodic features and morphophonemic rules Syntax: beginning changes in word order and subordination patterns (not yet categorical) Morphology: derivational and inflectional affixes and categories
4. Intense contact: extensive bilingualism and strong cultural pressure	heavy lexical borrowing in all sections of the lexicon	heavy structural borrowing, major typological changes, "anything goes"

Although this and other scales aim to tell us what is likely to be borrowed in different contact situations, a question that is not answered in this connection is what motivates borrowing in the first place, generally taking for granted that this motivation must be extra-linguistic (cf. Matras 2013: 78).[152] Nevertheless, scholars have suggested various explanations as to why borrowing may occur, adducing many types of factors, some of which have already been mentioned.

First, especially lexical borrowing is often assumed to occur out of 'need', i.e. to fill gaps in the lexicon (cf. Winford 2003: 37–38). For example, when "a community is exposed to new areas of cultural knowledge and experience through contact with others" and lacks terms to refer to new or culture-specific items, or when a variety requires elaboration to meet new demands placed on it, e.g. after declaring its officiality. Whereas lexical borrowing may also occur in situations of 'distant' contact, it has been suggested that borrowing (also of the structural type) in settings of more or less extensive bilingualism is additionally determined by further, typically social factors, such as "cultural pressure from source-language speakers on the borrowing-language speaker group" (Thomason and Kaufman 1988: 37), arising from some kind of dominance of the group exerting the influence, for example, in terms of "larger numbers, greater prestige, and more political power" (Odlin 1989: 13).[153]

Likewise, the degree of bilingualism *per se* is an often-cited factor, considering that bilinguals are known to borrow both intentionally and unintentionally (Schmid 2011: 18–37).

[152] For further critique, see also Winford (2003: 28–29), who—probably justifiably—questions the claim that "there is a clear correspondence between degrees of contact and cultural pressure on the one hand, and degrees of structural borrowing on the other". For instance, as we have seen in Chapter 2, Catalonia is characterized by extensive bilingualism of its population in a situation of intense contact between Spanish and Catalan and yet, the L1 speakers of the two languages seem to borrow considerably less than proposed for level 4 contacts by Thomason's (2001) borrowing scale.

[153] With reference to prestige, it is worth pointing out that this prestige can be overt or covert. "In covert prestige, forms belonging to vernacular dialects are positively valued, emphasizing group solidarity and local identity", whereas in the case of overt prestige, "the forms to be valued are publicly recommended by powerful social institutions" (Crystal 2003: 115, see also Kühl/Braunmüller 2014: 20).

Borrowing can thus be a more or less conscious choice: it may allow for finer distinctions of meaning or provide the speaker with stylistic choices (Winford 2003: 38–39). Additionally, the use of an L2 element may sometimes carry a personal or emotional component (Schmid 2011: 25–26), or the speaker simply wishes to maintain consistent labelling for unique referents such as institutions (Matras 2009: 148). In other cases, the reasons for borrowing may be rather unconscious and associated with the cognitive condition of the bilingual. As Schmid (2011: 19) hypothesizes, "bilingual speakers have to co-ordinate the lexicon of two languages", i.e. two vast repertoires of knowledge, often with substantial overlap in meaning and sometimes in form. It may thus be cognitively challenging to select context-appropriate structures, while inhibiting features that are not appropriate (cf. Kühl/Braunmüller 2014: 18), and it is "almost inevitable that one will sometimes influence the other in various ways" (Schmid 2011: 19). For instance, this may be the case of "automatized routines" such as discourse markers, fillers, tags, hesitation markers, interjections or focus particles, which are often freely borrowed by bilinguals (Matras 2009: 136–145, 193–198), or else when the selection or inhibition mechanisms controlling the retrieval of "language-correct" items from the bilingual repertoire are interfered by external factors that put a strain on the speaker's processing of language: e.g. when talking about "activities that are more likely to be performed in the donor language" (Matras 2013: 80–82). It is generally assumed that this type of convergence through borrowing serves to keep the cognitive cost in language processing low by means of interlingual identifications: bilinguals prefer inter-systematically equivalent forms or patterns to 'ease their linguistic burden' (Weinreich 1953: 8), i.e. the cognitive cost of maintaining two separate language systems (Höder 2014: 46). It therefore represents a 'natural' simplification of the bilinguals' linguistic knowledge (Kühl/Braunmüller 2014: 18–19).

Let us now turn to the second major type of CLI: **substratum interference** or **transfer**.[154] According to Odlin (1989: 12), "*substratum transfer* is the type of cross-linguistic influence investigated in most studies of second language acquisition". It "involves the influence of a source language (typically, the native language of a learner [= L1]) on the acquisition of a target language [(TL)], the 'second' language [(L2)] regardless of how many languages the learner already knows", i.e. the agents of the process are source language speakers, who transfer (or impose) features from the language in which they are dominant or upon the recipient language, in which they are less proficient (cf. Van Coetsem 2000: 60f). Consequently, Van Coetsem's (1988, 2000) model propagates the terms 'imposition' and "source language agentivity" to refer to this type of linguistic "transmission" and underscores its aggressive and penetrating character (p. 59). Thomason and Kaufman (1988: 38) define substratum interference more specifically as

[154] Also in this case a large array of terms and labels has been used to refer to the same (or fairly similar) phenomena. For instance, many scholars drop *substratum* and use simply *transfer* (Odlin 1989) or *interference* (Thomason/Kaufmann 1988), or both interchangeably (Matras 2009) as opposed to *borrowing*. Thomason (2001: 277) remarks that *substratum interference* is actually "flawed as a general label" because it implies that a shifting group is "socially, economically, and/or politically subordinate to the people whose language they are shifting to", which is not the case in all shifting groups. She therefore suggests using the more appropriate term "shift-induced interference" instead.

a “subtype of interference that results from imperfect group learning during a process of language shift”, occurring when a community of speakers acquires or “shifts to” an L2 but fails to learn this target language (TL) perfectly. Since such learning difficulties are most likely to arise with regard to marked features of the TL, the view is commonly held “that substratum interference is largely simplificatory” (Thomason/Kaufmann 1988: 51). The elements transferred from the L1 (“errors”) may then “survive” and spread to the TL as a whole when they are “imitated” by original speakers of the language (Thomason/Kaufman 1988: 39). Odlin (1989: 27), on the other hand, offers a broader interpretation of (substratum) transfer as “the influence resulting from similarities and differences between the target language and any other language that has been previously (and perhaps imperfectly) acquired”. He thus does not restrict the notion to “negative transfer” in the sense of “errors” resulting from imperfect learning (cf. Winford 2003: 210) but moreover includes “positive transfer”, i.e. the facilitating influence of cognate vocabulary and any other similarities between the L1 and TL (Odlin 1989: 26), also described as match between L1 (retentions) and L2 (elements or structures) (cf. Winford 2003: 210). Furthermore, it is worth mentioning that some scholars mainly employ the term ‘transfer’ to refer to the psycholinguistic processes involved in SLA, whereas the results of these processes, i.e. the actual manifestations, are called “L1 influence” or “L1 retentions” (Winford 2003: 210).

A distinction should be made between substratum interference in early consecutive bilingual speakers and in adult second-language learners due to different age of learning as well as the different settings in which SLA takes place, respectively (cf. Matras 2009: 72). For instance, when immigrants need to acquire the dominant language of a host community in ‘natural’ or real-life situations, i.e. without formal instruction, the primary aim may be communication, rather than the acquisition of an optimal TL knowledge, whereas foreign language acquisition in non-migrants typically involves formal instruction at school (Matras 2009: 699, 72–74; Winford 2003: 208–209; Van Coetsem 1988: 19; Mennen 2015).

As opposed to borrowing (transfer), it is widely agreed that substratum transfer (or interference) does not begin at the lexical level but will be most evident in pronunciation (Thomason/Kaufman 1988: 39; Odlin 1989: 14; Van Coetsem 2000: 58f.). Appel/Muysken (1987: 89–90) suggest that “phonic transfer probably occurs more often than on other levels, because it has neurological and physiological causes: it seems difficult to learn new pronunciation habits”, and many researchers assume that “achieving a native-like pronunciation is the hardest component of second language acquisition (SLA) for most L2 learners” (Schmid 2011: 49). In consequence, hearing someone for 30 milliseconds can be enough to determine whether or not they are native speakers, since L2 speakers usually exhibit a ‘foreign accent’ (cf. Flege 1984, 1995). Nevertheless, in the same way as borrowing transfer, substratum transfer may as well affect and has been attested in all linguistic domains and subsystems (cf. Odlin 1989: 23; Schmid 2011: 4). This is illustrated in the following graph (where grammar refers to morphology and syntax).

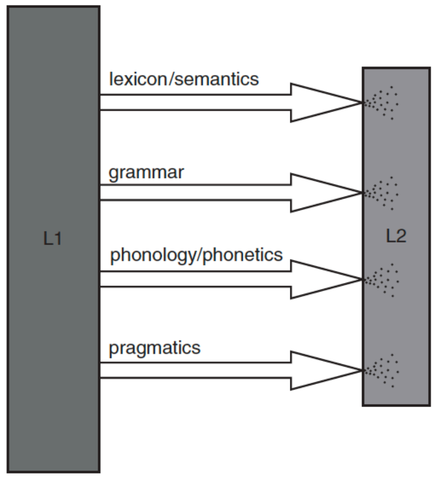

Figure 3.10: A schematic representation of L1 influence on L2 in SLA (adopted from Schmid 2011: 4, based on Schmid/Köpke 2007: 2).

To the question why substratum transfer occurs and how L1 influence on an L2 in SLA can be modelled, different answers have been given in a wide range of theoretical approaches, often depending on the goals of the respective studies (cf. Muysken 2013 for an overview[155]). Many times, a behaviourist view is adopted: i.e. the idea that an old set of habits (from the L1) influences the acquisition of the L2 (e.g. articulatory or motoric habits; cf. Odlin 1989: 15; Van Coetsem 2000: 75–77, 176–178). Other approaches assume that "by a gradual process of trial and error and by hypothesis testing, the learner slowly and tediously succeeds in establishing closer and closer approximations to the system used by native speakers" (Brown 1980: 163; see also Winford 2003: 220).

At this point, a further concept, frequently made reference to in SLA studies, is worth introducing: **interlanguage** (IL, Selinker 1972). Taking the view that SLA constitutes a linear learning process reaching from the L1 as a starting point to the acquisition of full proficiency in the TL or L2, researchers have made use of the term *interlanguage* to refer to points on this continuum. In traditional terms, it thus designates an individual learner's idiosyncratic use of TL structures and can be considered "an incomplete or deficient version of the target language" (Matras 2009: 74) or "an intermediate system characterized by features resulting from language-learning strategies" (Appel/Muysken 1987: 83).[156] However, learners mostly fail to

[155] According to Muysken (2013: 722), four main theories about the respective roles of the L1 and the L2 can be discerned in the research literature on second-language development: the traditional transfer or CLI hypotheses addressing the question of which features can be transferred from the L1 to the L2 variety (e.g. the *Full Transfer/Full Access Model* Schwartz/Sprouse 1996); approaches requiring matching strategies on the part of the learner, i.e. transfer results from learners' perception, whether conscious or not, of some similarity between L1 and L2 patterns (e.g. the *Transfer to Somewhere Principle* (Andersen 1983) and the *Alternation Hypothesis* (Jansen et al. 1982); see also Winford 2003: 248); models focusing the role of UG (Universal Grammar) and of general learning properties in SLA (White 1989, 2003); and, approaches that stress the nature of the input (e.g. Gass 1997).

[156] A slightly different approach is adopted by scholars such as Myers-Scotton and Jake (2000), who define *interlanguage* as combination of three systems: the learner's previously acquired languages, a variety of the target language, and the developing learner variety ("composite matrix language", Matras 2009: 74). Furthermore, uses of the term interlanguage in the sense of intermediate variety or 'interdialect' (Trudgill 1988) as an

achieve the goal of full proficiency in the TL and get stuck in one of the intermediate stages (Appel/Muysken 1987: 92; Matras 2009: 75). This typically happens when they are 'older', have limited contact to the TL, or are satisfied with their own ability to sustain successful and effective communication in it. It is commonly referred to as **fossilization** (Selinker 1972: 215f.) or, less frequently, as *stabilisation* (cf. Matras 2009: 75f.; see Long 2003 for further causes) and "capture[s] the phenomenon of a permanent adoption (regardless of age or amount of instruction) of idiosyncratic interlanguage features in a learner's L2" (Matras 2009: 75). When a certain structure or feature of the IL fossilizes at the same non-target-like end-state in an entire speech community or at least a subgroup of it, a new variety of the TL may develop from the collective IL (cf. Matras 2009: 76, Appel/Muysken 1987: 92).[157]

Finally, the gradual shift from one language (L1) to another (TL or L2) in a community of speakers, but also in individuals, can eventually lead to the abandonment or loss of the original L1, sometimes called ancestral language (AL, cf. Winford 2003: 256). However, as the term **language loss** is "somewhat unspecific", Schmid (2011: 3) suggests distinguishing between the following subtypes shown in Figure 3.11.[158]

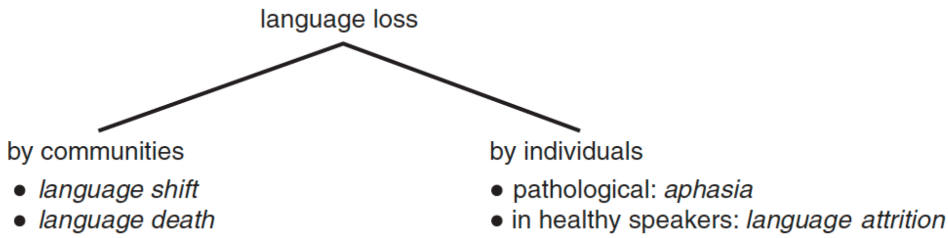

Figure 3.11: The terminology of language loss (adapted from Schmid 2011: 3).

In communities or groups of speakers, language loss can thus refer to either language **shift** from one language to another over several generations, i.e. gradual abandonment of the AL, or to the overall extinction of a particular language, i.e. 'language **death'** (see also Thomason 2001: 223–239). Of course, language death is in the vast majority of cases a sequel of the (more or less deliberate) gradual abandonment of an AL by its speakers. However, in some cases languages become extinct because all their speakers die, are killed quickly, or are subjected to extreme repression (Winford 2003: 257). As Winford (2003: 258, 266) informs us, such language loss by communities occurs in several stages, which overlap to varying degrees:

outcome of dialect levelling can also be encountered in contact linguistics (Kristensen/Thelander 1984; Auer/Hinskens 1996: 6–10).

157 Such 'collective interlanguages' or 'ethnolects' may become markers of identity of the respective speech community (Matras 2009: 76). If the respective speaker group subsequently shifts to the L2 overall, the respective variety may become a native language (L1) in following generations (Note that this is the kind of "imperfect group learning during a process of language shift" Thomason and Kaufmann (1988: 38) refer to in their definition of substratum transfer, cf. above).

158 Please note that this distinction is by no means one of general consent: for instance, authors such as Winford (2003: 258) clearly apply the label 'attrition' to processes of gradual abandonment (language shift) and subsequent death of the ancestral language (AL) in communities of speakers.

beginning with a period of bilingualism during which the L2 assumes dominance, the AL progressively ceases to be learned by new speakers "in the normal way", which leads to a gradual demise of competence and production of the AL in the speaker community. The final state is attained when the L2 has completely replaced the AL.

With reference to language loss in individuals, on the other hand, Schmid (2011: 3) discriminates between **aphasia**, i.e. loss caused by brain injury or some pathological condition (e.g. dementia), and loss of a language by a healthy person ('**language attrition**'). The latter term, attrition, "refers to the (total or partial) forgetting of a language by a healthy speaker" and thus allows for "a more flexible and gradual interpretation of the forgetting process than the starkly dichotomous [term] language loss" (Schmid 2011: 3). Attrition takes place in settings where an L2 has become a speaker's predominant medium of communication in everyday life and the L1 is used only rarely or not at all anymore, e.g. in the case of immigrants who live in a country where only the L2 is spoken (Schmid 2011: 4). Although to varying degrees, such a change in the overall circumstances and the consequent lack of exposure to the L1 can entail that the L1 system is "restructured and shrunk to some degree, and that it will show evidence of traffic from L2 on many linguistic levels" (Schmid 2011: 5). This is illustrated in Figure 3.12.

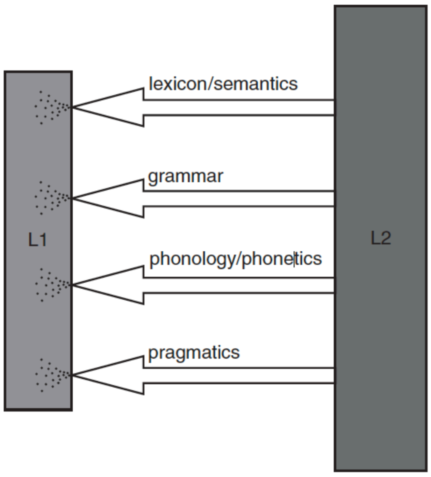

Figure 3.12: A schematic representation of L2 influence on L1 in L1 attrition (adopted from Schmid 2011: 5, based on Schmid/Köpke 2007: 2).

Concerning the phenomena involved in language attrition or its linguistic outcomes, many parallels with other types of CLI have been found, such as lexical or structural borrowing (Winford 2003: 256, 260; see Schmid 2011: 38–68 for an overview[159]). In the framework of the *Activation Threshold Hypothesis* (ATH, Paradis 2007: 125), their occurrence is explained by the assumption that "attrition is the result of long-term lack of stimulation" (Schmid 2011: 16): the less frequently an item stored in memory (i.e. in the human brain) is accessed, the less 'activated' it

[159] Note, however, that the framework of CLI applied by Schmid (2011), namely Pavlenko (2004), uses the terms borrowing, restructuring, convergence, and shift in senses that are (partially) different from the ones proposed in the present work.

is and the more effort is necessary to retrieve it.[160] "A bilingual who speaks his or her second language every day, but has not used the first for a long time, therefore has words and structures that belong to the L2 which are highly active and easy to access, but the corresponding bits of the L1 may have a very high Activation Threshold. This is why the L2 can often get in the way when a speaker attempts to use the L1" (Schmid 2011: 16).

We have now seen and explained the most important key terms of the field of contact linguistics. Couched within different theoretical frameworks and approaches, they typically refer to linguistic processes and the respective outcomes. However, it is evident that language contact is based "on the social interaction among speakers (or writers) using more than one language (or dialect)" (Heine/Kuteva 2013: 100), i.e. language contact and contact-induced change have both a cognitive and a social dimension as both individual speakers and speaker groups are involved (cf. Höder 2014: 44). In consequence, the history of a language, and thus the contact-induced change it underwent, cannot be "thoroughly studied without reference to the social context in which it is embedded" (Thomason/Kaufman 1988: 4). Indeed, already Weinreich highlighted the importance of tackling language contact from both a linguistic and sociocultural perspective and taking an interdisciplinary approach (cf. Odlin 1989: 12; Winford 2003: 8). What is more, "his survey of bilingualism shows that the effects of cross-linguistic influence are not monolithic but instead vary considerably according to the social context of the language contact situation" (Odlin 1989: 12).

Such **contact situations** arise whenever there is a meeting of speakers who do not share the same language and who need to communicate (Odlin 1989: 6). Most often, it involves face-to-face interactions among groups of speakers, at least some of whom have at least some knowledge of more than one of the two or more languages present in the particular geographical locality the contact takes place in (Thomason 2001: 3). Such speaker groups can either be neighbours, who may—but need not—be on friendly terms with each other, or live together in a single community. In the latter case, there may be mutual or asymmetrical bilingualism (or multilingualism) (Thomason 2001: 4). Both kinds of situations can be stable or not, and, in consequence, the languages involved may be maintained or one group (or several) may shift from their language to another (which can ultimately result in language loss). As Thomason (2001: 21) underlines, this solely depends on social factors, while linguistic factors "seem to be totally irrelevant". Giles et al. (1977) subsume these social predictors under the cover term 'ethnolinguistic vitality': high vitality of a variety will lead to maintenance; low vitality will result in shift (cf. Appel/Muysken 1987: 33). The factors contributing to a variety's vitality include status, demographics and institutional support (Appel/Muysken 1987: 33–38; Thomason 2001: 21–25). Concerning status, various subtypes can be distinguished: (1) socioeconomic

[160] An example frequently adduced to illustrate this 'lack of activation' is the so-called 'tip-of-the-tongue state', i.e. "when we simply cannot recall a name or a word, even though we know that we know it" (Schmid 2011: 16).

and political status: speakers of subordinate groups tend to adopt the language of dominant groups, i.e. those with high socioeconomic status, in the hope of thereby raising their own status; (2) sociohistorical status: the remembrance of events in a ethnolinguistic group's history such as a fight for ethnic identity or independence may favour language loyalty; (3) language status: speakers of low status varieties tend to shift to varieties or languages that have a high language status within the community.[161] Furthermore, demographic factors, such as the number and geographical distribution of its speakers can go hand in hand with the respective language's 'usefulness'.[162] For instance, a decrease in numbers of speakers (e.g. through emigration and immigration or mixed and inter-ethnic marriages) can tip the balance against a minority language and this in turn may motivate its speakers to shift to the majority language. Similarly, minority languages generally tend to be preserved longer in areas where their speakers live concentrated and hence represent a (geographically restricted) majority, i.e. typically in rural areas (cf. Appel/Muysken 1987: 36). Finally, institutional support factors may considerably influence language maintenance: the use of the minority language in governmental or administrative services, education, religious institutions, and mass media stimulates its maintenance and thus prevents its loss (Appel/Muysken 1987: 37–38).[163]

Most of the factors for stability or change in contact situations we have just seen involve relationships of dominance and subordination between two groups of speakers. These are doubtlessly a powerful predictor of contact-induced change, but nevertheless, they are not its most potent driving force, since "speakers' attitudes can and […] do produce exceptions to most of the generalizations we have already drawn" (Thomason 2001: 77). Crucially, people's attitudes towards the languages they speak cannot be predicted with absolute confidence and thus as all language-change, contact-induced change, too, is ultimately unpredictable (Thomason 2001: 22). As a case in point, people oftentimes show awareness of CLI and can take different attitudes or stances to it, such that there is, on the one hand, a historical record of people associating language contact and mixing with "contamination" or "corruption" (Odlin 1989: 7), whereas, on the other hand, in some communities it may even "carry a certain cachet" (Schmid 2011: 19; see Appel/Muysken 1987: 11–21; Thomason 2007, 2013: passim, for social aspects of language contact such as attitudes or evaluation). Yet, it is likewise possible that speakers are unaware of "the attitudinal factors that help to shape their linguistic choices" (Thomason 2013: 38). Stating constraints on contact-induced change seems thus a "more promising

[161] The reasons for the high or low status of a particular language or variety within a multilingual community can vary widely, depending on the respective situation. Typically, a correlation with the degree of standardization and elaboration, i.e. with its *Ausbau* (cf. Kloss 1978), can be observed.

[162] Note, however, that there is no general correspondence between numerical strength of a speaker community and language maintenance (cf. Clyne 2003).

[163] If we recall the sociolinguistic situation of Catalonia, described in Chapter 2, we can now say that after crucial changes in the course of the 20th century, there seems to be, at present, a more or less stable situation of extensive societal bilingualism within a single community, and hence, of intense contact between Spanish and Catalan. Both languages display high vitality. The high socioeconomic and (regained) sociocultural status of Catalan as well as the strong institutional support benefit its maintenance in views of the demographic factors, which in many, especially urban areas, tip the balance in favour of Spanish. Also regarding the *Ausbau* of the two languages, Spanish is still in a better position.

enterprise" than trying to predict that any particular change will occur, considering that speakers' attitudes can trump expectations built on sociolinguistic factors (cf. Thomason 2001: 78). But ultimately, this is just as elusive, considering that "speakers' attitudes seem to be able to outdo any linguistic constraint" (Kühl/Braunmüller 2014: 21).

3.3.2 Contact-induced phonological change

As we have seen in the previous section, scholars usually distinguish between borrowing of matter (i.e. typically words and their meaning) and patterns or structure, when analysing contact-induced language change (cf., e.g., Matras 2009: 146–149; Matras 2013: 68). Phonology has a somewhat ambiguous position in between these two types of borrowing as phones and also suprasegmental phenomena "can be produced and perceived", which "gives us the impression that they constitute concrete shapes, or linguistic matter" (Matras 2009: 221). However, sounds (or phonemes) have no meaning of their own and, in a similar vein, prosodic features (e.g. in intonation) take a "peripheral role" in conveying meaning, given that they prototypically operate at the utterance or speech-act level and express, e.g., emotive modes (Matras 2009: 233; Odlin 1989: 118–119; see also Section 3.1.1.1 on the meaning of intonation).

Evidence from a series of case studies shows that virtually every phonological level can be affected by borrowing (cf. Matras 2009: 222): "the articulation of individual phones or phonemes within words, length and gemination, stress and tone, prosody and intonation". Yet, some sub-components of phonology appear to be more susceptible to borrowing, as revealed in various sampling studies (e.g. Matras 2002: 205 and the studies in Matras and Sakel 2007). Whereas "prosody [i.e. intonation] is at the top of the hierarchy of adopted features", stress appears as the next step of the scale and segmental phonology seems to be replicated less frequently in contact situations (Matras 2009: 231–233; see also Mackey 2000: 44; Burridge 2006: 192; for the diffusability of (lexical) tones see Matisoff 2001; for contact-induced change in word prominence see Van der Hulst et al. 2015).[164] Indeed, the tendency towards wholesale convergence of the phonological systems of two contact languages seems to be strongest in the prosodic domain (cf. Bullock 2009: 166–170 for a more critical view). Matras (2009: 232–233) adduces two interconnected factors for the "volatility of prosody": first, the fact that the function and meaning of prosody (and especially of intonation) relates to units above word-level (e.g. to discourse-related phenomena) "allows speakers to mentally disconnect it from the matter or shape or words associated with a particular language, making it prone to change and modification in contact situations".[165] Second, Matras refers to a series of studies which have

[164] Interestingly, Bullock (2009: 166) takes a slightly different view. Namely, she assumes phonological change proceeds linearly following "a path of allophonic change > phonemic change > prosodic change, [which] implies that when prosodic changes are present in a contact variety then, by implication, allophonic and phonemic interference are equally present." However, she also questions whether "prosodic innovations are in any way linked to segmental ones since the two have rarely been examined in tandem".

[165] This might become clearer if we understand intonational patterns as 'constructions' in the sense of Matras (2011: 151f.), i.e. as "viable entities in their own right within a speaker's repertoire of linguistic structures"

demonstrated that prosody is more difficult to control, given that it is neurophysiologically separated from "other aspects of speech production". Interestingly enough, intonation seems to be the first linguistic feature that babies acquire from the language surrounding them (Matisoff 2001: 320–323). In addition, the domain of sound production is known to be generally more "vulnerable to 'interference' phenomena than other areas of structure": for a case in point, it is more difficult to exercise control over the sound-producing apparatus in adulthood than in earlier years and hence to master new sound forms when learning a new language (Matras 2009: 222).

Concerning the segmental domain, there is no reason to assume that some phonemes could be more susceptible to be borrowed than others. However,

> [s]ince the inventory of consonants in any given phonological system is usually larger than the inventory of vowels, two languages in contact are more likely to differ in their consonant systems than in their vowel systems. Loanwords are therefore more likely to introduce more new consonants than new vowels (Matras 2009: 232).

Furthermore, some authors, such as Weinreich (1953: 22) and Winford (2003: 55–56), suggest that phonological borrowing may represent a strategy to fill structural 'gaps' or "holes in the pattern" in the recipient system and it may be facilitated under conditions of close typological fit (Thomason/Kaufman 1988: 97). Yet, it appears to occur more easily with patterns of allophonic distribution, i.e. when it does not affect the basic phonemic inventory (Winford 2003: 56).

Regarding the occurrence of substratum interference in SLA, "there is little doubt that native language phonetics and phonology are powerful influences on second language pronunciation" (Odlin 1989: 112). The difficulty to master new sounds in adulthood has already been mentioned above. As a consequence, differences between the L1 and the L2 phonological systems and allophonic rules are frequently adduced predictors of production difficulties or errors in the L2 speech, in line with the idea that typological distance between the two languages may have a facilitating or hampering effect on the acquisition of the TL pronunciation, respectively (Odlin

that present a conventionalized form–meaning mapping (i.e. if we treat them similar to word-forms). Although Matras (2011) refers to exclusively syntactic constructions and explicitly not to "the level of phonology and articulation", there would be strong parallels between such 'melodic' and 'syntactic' constructions. First, "[syntactic] constructions offer […] derived meanings that are inferred from a particular configuration of word-forms, rather than simply the sum or combination of fixed meanings that are tightly associated with concrete word-forms", i.e. constructions are configurations whose specialized meanings are contextually (i.e. pragmatically) inferred (p. 153). Similarly, the meaning of 'melodic constructions' would be derived from configurations of tones used in a particular pragmatic context. Second, both types of constructions are volatile in situations of language contact because of the tendency to treat the pragmatic organization of discourse as universal or global rather than language-specific, i.e. bilinguals are prone to generalize constructions over their bilingual repertoire and hence to transfer them from the source language to the target language in that they map the pivotal features of the construction onto word-forms of the latter. Interestingly, Torreira and Grice (2018: 28) have recently proposed that 'melodic constructions', whose meanings may include links to syntax and/or discourse, "are stored as intonational elements in a unified lexicon-grammar […] [alongside] syntactic structures, words, morphemes, idioms, and phonemes."

1989: 112–128; see also Winford 2003: 212f.).[166] In the segmental domain, according to Moulton's (1962) taxonomy four types of errors can be recognized: (1) phonemic errors; (2) phonetic errors; (3) allophonic errors; and (4) distributional errors (see Odlin 1989: 115–117 for descriptions of each type). Additionally, substratum interference is also "frequently evident in suprasegmental contrasts involving stress, tone, rhythm, and other factors", so that the ensemble of suprasegmental characteristics certainly figures among "the surest clues to the specific 'foreign accent' of an individual" (Odlin 1989: 117; 119; Jilka 2000; see also Ramus 2002) and L1 prosodic influences can remain present even after many years of learning (Mennen/de Leeuw 2014: 183). Besides, the negative transfer of suprasegmental rules from the L1 to an L2 (e.g. of stress-assignment rules) appears to be much more critical in terms of intelligibility than segmental transfer (cf. Odlin 1989: 117–119; Mennen/de Leeuw 2014: 183–184, 188–189, Levis 2018: 150–182 and sources cited therein). Despite important individual differences between L2 learners, the view is generally held that "only individuals with especially high phonetic sensitivity will be able to overcome most of the inhibiting influence of phonological patterns in the native language" when learning an L2 (in adulthood) and few succeed in sounding like a native (Odlin 1989: 115; 130–136; Selinker 1972: 212f.; Mennen/de Leeuw 2014: 183; Levis 2018: 11).

To summarize the diverse linguistic processes leading to contact-induced phonological change, Matras (2009: 224–226) proposes the following classification based on typical linguistic processes in situations of both borrowing and substratum interference, as well as on the profiles and attitudes of the speakers involved:

Table 3.9: Different types of processes leading to contact-induced phonological change (adapted from Matras 2009: 225).

Type	Description of the process	Speakers/Bilingualism	Language attitudes
A	Borrowed word-forms are adapted to the sound patterns of the recipient language	Semi-bilinguals or monolinguals; superficial contact	Strong loyalty towards, and stability of the recipient language
B	Borrowed and inserted word-forms maintain (fully or partly) the original phonological features of the donor language ('authentication')	Fairly widespread bilingualism	Flexibility in the use of the recipient language, prestigious bilingualism
C	Convergence of systems during second-language acquisition: TL forms are systematically adjusted to match the sound patterns of the native language	Emerging bilingualism; stable minority bilingualism; emergence of ethnolect or language shift	Strong group identity coupled with a need (pressure) to acquire the TL
D	Convergence of systems in stable bilingualism: sound patterns of the native language are adjusted to match those of the second language	Intensive and widespread bilingualism	Second language is 'prestige' language

Whereas type A involves no change to the phonological system but only a change to individual words, types B to D all involve some degree of modification to the system used by the speakers

[166] Namely, this assumption is the basis of, among others, Eckman's (1977) Markedness Differential Hypothesis and Flege's (1987) Speech Learning Model. For an overview of different models focusing on phonology in SLA see Muysken (2013: 721); for a model of L2 acquisition of intonation see Mennen (2015).

of the recipient language on a regular basis. Furthermore, types A and B revolve ‘only’ around lexical borrowings, while C and D include the generalization of one set of sounds and patterns to both languages of a bilingual, i.e., e.g., the convergence of the intonational systems (cf. Matras 2009: 224; for an example of such wholesale convergence see the description of Bulgarian Judaeo-Spanish in the following section).[167]

3.3.3 Transfer and convergence at the intonational level: case studies

In the following tables, I give a synopsis of some recent case studies on intonation in language contact. Most but not all of them address Romance varieties and, among these, particularly Spanish and Catalan, as these are the two languages under concern in the current work (for an overview of intonation in Romance contact varieties see also Gabriel/Reich 2022: 485–490). The main goal of this section is to show the wide range of intonational (and other prosodic) characteristics which can be interpreted as the results of borrowing (borrowing transfer), substratum interference (substratum transfer), convergence, and/or attrition (cf. Section 3.3.1 for definitions of these terms). For a better overview, I shall present research into the prosodic characteristics of L1 and L2 varieties separately—although this distinction might be somewhat artificial in some cases. In the following, Table 3.10 offers a selection of some L1 varieties, whose intonation (or at least features of it) has been interpreted as an outcome of linguistic change induced by contact with other languages or varieties.

Table 3.10: Selected case studies on intonation in language contact: L1 varieties.[168]

Description of the contact situation and intonation of the languages involved	**Linguistic outcomes** (in the intonational domain)	**References**
Cuzco Spanish and Quechua contact[169] between Spanish and Quechua in Cuzco intonation of the Spanish spoken by bilinguals is assumed to be influenced by Quechua (prosodic convergence)	(i) Cuzco Spanish and Quechua display early peak alignment of prenuclear pitch accents in broad-focus statements (although there seems to be more variability in Spanish) → early peak alignment is transferred from Quechua to Spanish	O’Rourke (2004, 2005); Muntendam (2012); Van Rijswijk/

[167] Regarding the contact situation in Catalonia, it has been shown in Chapter 2 that it is characterized by almost generalized bilingualism today, i.e. like in the scenarios B and D, while scenarios A and C may be adequate descriptions of past stages of the language contact. It will be the aim of the present study to determine to what extent the current varieties of Catalan and Spanish spoken in Catalonia have converged at the intonational level.

[168] The terminology used as well as the assumptions made with reference to the emergence of the linguistic features resulting from the respective contact situations are those offered by the authors of the cited studies (e.g. whether a particular phenomenon is interpreted as an outcome of transfer, convergence, attrition, etc.). Some minor adaptions were made in the annotation of some of the pitch accents and boundary tones presented in the table.

[169] The authors make no mention of the duration of the contact between Spanish and Quechua in the concrete contact situations they analyse. However, (intensive) contact might be relatively recent, since, for instance, Van Rijswijk and Muntendam (2014: 618) indicate that “most participants’ parents had Quechua as their first language and some had no or limited knowledge of Spanish”.

	(ii) the contact varieties do not use peak alignment (peak location in the stressed vs in the post-tonic syllable) to distinguish between broad and contrastive focus (although there might be (relics of) alignment differences within the stressed syllable) → prosodic convergence	Muntendam (2014)
Porteño Spanish and Italian intense contact between Spanish and Italian in Buenos Aires due to massive Italian immigration (almost 3 million) between the 1860s and the beginning of the 20th century Porteño Spanish intonation: result of direct and/or indirect transfer from Italian, i.e. convergence of the prosodic system of Spanish with Italian through direct borrowing and/or (i) transfer from Italian to L2 Spanish in SLA by Italian immigrants, and (ii) subsequent convergence of L1 Spanish with this L2 variety	Porteño Spanish and different Italian varieties share: (i) early peak alignment in prenuclear pitch accents (L+H*) (ii) realization of nuclear pitch accents in broad-focus statements as H+L* (iii) use of a tritonal pitch accent to mark emphasis and contrastive focus (L+H*+L) (iv) realization of nuclear contours in information-seeking yes–no questions (L+¡H* HL%) (v) balanced frequency in use of both CR (H-) and SP (!H-) to mark inner ips in neutral SVO declaratives	Colantoni/ Gurlekian (2004); McMahon (2004); Gabriel (2006, 2007); Gabriel et al. (2010); Gabriel et. al. (2011); Colantoni (2011); Feldhausen et al. (2011); Gabriel/Kireva (2012, 2014); Pešková et al. (2012)
Olivenza Spanish and Portuguese long-lasting contact in Olivenza (Extremadura) due to the incorporation of the Portuguese-speaking city into Spain in 1801 Olivenza Spanish intonation: result of (i) transfer from L1 Portuguese to L2 Spanish in SLA by the inhabitants of the city ('fossilized interlanguage') and (ii) convergence with (Standard) Castilian Spanish	(i) (monolingual) Olivenza Spanish and Olivenza Portuguese share the same nuclear configuration in neutral yes–no questions, i.e., (H+)L* !HL%, accompanied by considerable lengthening of the phrase-final syllable (ii) Olivenza Spanish and Castilian Spanish share the same prenuclear pitch accents (i.e. L*+H) and nuclear configuration in yes–no questions, i.e. L* H% (without particularly strong final lengthening)	Kireva (2016a, 2016b); Kireva/Gabriel (2016); Gabriel et al. (2020)
Judaeo-Spanish and Bulgarian secular contact after the expulsion of the Sephardic Jews from Spain in 1492, no monolingual speakers (today) (Bulgarian) Judaeo-Spanish intonation: outcome of convergence with the surrounding language (Bulgarian), which is also the dominant language of the bilinguals (possibly L1 attrition)	(Bulgarian) Judaeo-Spanish and Bulgarian (spoken by both monolinguals and bilinguals) display: (i) the same inventory of pitch accents and boundary tones (ii) (almost) identical use of this inventory (iii) the same stress patterns in comparative structures (i.e. primary stress on the comparative particle instead of the adjective or adverb)	Andreeva et al. (2017, 2019, 2021)

Majorcan Spanish and Catalan long-lasting language contact between Spanish and Catalan in Majorca intonation of Majorcan Spanish: result of asymmetric convergence between Spanish and Catalan through (i) substratum transfer from Catalan to Spanish (in Catalan-dominant bilinguals) and (ii) borrowing from Catalan ('direct borrowing') or (perhaps more likely) from the Spanish variety spoken by Catalan-dominants ('indirect borrowing' or accommodation in dialect contact) to Spanish (by Spanish-dominant bilinguals)[170]	(i) Majorca Spanish (spoken by Catalan-dominant bilinguals and Spanish-dominant young females) and Majorca Catalan share: concave-falling utterance final contours in declaratives (i.e. (H+)L* L%) and falling contours in yes–no questions (i.e. (¡)H+L* L%) (ii) Majorca Spanish (predominantly of older and male Spanish-dominants) and Catalan (spoken by Spanish-dominant males) share: convex-falling utterance-final contours in declaratives ((L+)H* L%) → ongoing process of asymmetrical intonational convergence lead by Spanish-dominant females, mostly unidirectional transfer from Catalan to Spanish (iii) Majorca Spanish (predominantly of older and male Spanish-dominants) and Catalan (spoken by Catalan-dominant older females) share: rising contours in yes–no questions (i.e. L* H%) → borrowing from Spanish to Catalan (although this occurs not very frequently)	Simonet (2008, 2010, 2011); Romera/ Elordieta (2013)
Algherese Catalan and Sardinian Italian over 600 years of contact between Sardinian and Catalan in Alghero, more recent contact with Italian Algherese Catalan intonation: result of (i) substratum transfer from (Logudorese) Sardinian that occurred when L1 speakers of Sardinian massively immigrated into Alghero and imperfectly learned Catalan as an L2, and (ii) subsequent convergence of the Catalan varieties spoken by immigrants and natives; Intonation of the Italian variety of Sardinia: result of substratum transfer from Sardinian that occurred when Sardinians learned Italian as L2 (imperfect learning)	(i) Algherese Catalan, Logudorese Sardinian, and Sardinian Italian use the same prenuclear pitch accents and nuclear configurations for broad-focus SVO declaratives (L+H* L+H* H+L* L% and H*+L L+H* H+L* L%) (ii) the three contact varieties share the same nuclear configurations for information-seeking yes–no questions (¡H+L* L% and H*+L L%) (iii) Algherese Catalan and Sardinian display the same nuclear configurations in orders, contrastive-focus statements, exclamative statements, and (truncated) vocatives	Roseano et al. (2015); Vanrell et al. (2020)
Northern Catalan and French over 300 years of intense contact between Catalan and French (and, in part, with Occitan)	Northern Catalan and French and/or Occitan exhibit: (i) use of the phrase-initial accent (L)Hi (ii) early rising prenuclear accents L+H*	Sichel-Bazin/Roseano (2013); Prieto et al. (2015)

[170] Owing to the high complexity of the linguistic behaviour of the two dominance groups (depending on the language they are using and their age), the description of the linguistic outcomes of this language contact situation is slightly simplified (cf. cited references for more details).

Northern Catalan is seen as a 'transitional dialect' to Occitan	(iii) use of L+H* H% in information-seeking yes–no questions → interferences between the prosody of the languages	
Occitan and (Southern) French long-lasting contact in Southern France Occitan intonation: result of prosodic interference from French as well as of first-language attrition; Southern French intonation: result of transfer from Occitan occurring through SLA of French by Occitanophones; innovative/urban Southern French: gradual convergence with Northern (Standard) French.	(i) basic prosodic unit for accentuation in both languages: AP (Accentual phrase), containing an obligatory pitch accent at its right edge and an optional initial rise (as opposed to Northern (Standard) French, lexically stressed syllables still may show reduced prominence/relics of lexical accents) → adaption of AP in Occitan due to French influence → relics of lexical accents due to Occitan interference (ii) Occitan and conservative Southern French exhibit the same nuclear configuration for statements of the obvious (H*+L L%); innovative (urban) Southern French largely patterns with Northern (Standard) French (H* !H%, H*+L !H%) (iii) Occitan and conservative Southern French show fewer rising contours than innovative Southern French and Northern French in yes–no and wh-questions (partly owing to the use of more conservative syntactic structures which allow for falling contours) → substrate of Occitan in (conservative) Southern French → gradual convergence of (innovative) Southern French with the standard	Meisenburg (2011); Sichel-Bazin et al. (2012a, b, 2015); see also Hualde (2003b)

Some further studies worth mentioning are Elordieta (2003), Elordieta/Calleja (2005), Robles-Puente (2012), Elordieta/Romera (2020), and Romera/Elordieta (2020) on intonation in Spanish-Basque contact (finding, among other things, L+H* prenuclear pitch accents in statements and rising–falling circumflex contours in information-seeking yes–no questions in Basque Spanish) as well as a series of studies on the Spanish (and English) spoken by heritage speakers in the US (i.e. by Spanish-English bilinguals). For instance, Alvord (2006) focuses on (Cuban) Spanish in Miami and evinces convergence with English for at least some bilinguals (e.g. in the use of rising patterns in yes–no interrogatives instead of the otherwise typical Cuban-style falling patterns) and, similarly, Robles-Puente (2014) investigates the varieties of (Mexican) Spanish spoken by heritage speakers and immigrants in Los Angeles, showing, among other things, that early bilinguals exhibit prenuclear and nuclear pitch accents similar to the surrounding language English in their Spanish declaratives. Especially the latter case can be seen as an instance of L1 attrition (i.e. as gradual loss of L1 Spanish features in favour of English ones). Besides, contact-influenced prosodic innovations in heritage speakers were also documented, among others, by Queen (2001) and Kühn (2016) for Turkish in Germany and by Bullock (2009) for French in Pennsylvania.

As announced earlier, the following table presents some selected studies on intonation in SLA, which generally suggest that adults who learn an L2 tend to transfer some of the intonational characteristics of their L1 to that language (for a more general overview of intonation in L2 acquisition see, among others, Chun 2002; Rasier/Hiligsmann 2007; Trouvain/Gut 2007 and therein especially Mennen 2007).

Table 3.11: Selected case studies on intonation in language contact: L2 varieties.[171]

Description of the context of SLA and the varieties involved	**Linguistic outcomes** (in the intonational domain)	**References**
L2 Greek produced by Dutch natives L1 Dutch speakers highly proficient in the L2 (12–35 years of experience); formal instruction (university), age at onset of formal exposure: between 18 and 25	L1 features used by learners in the L2: (i) early alignment of prenuclear rising pitch accents (as opposed delayed peaks in L1 Greek) → transfer of L1 alignment patterns to L2 (intonational interference)	Mennen (2004)
L2 Spanish produced by Italian natives L1 speakers of Italian (from different regions of Italy) living in Madrid (for 1–2 years), level of L2 Spanish: middle-advanced or advanced; formal instruction (school or university)	L1 features used by learners in L2 yes–no questions: (i) early aligned prenuclear pitch accents (i.e. L+H*) (ii) nuclear configurations (e.g. H+L* LH% and H+L* L%) (iii) the tritonal pitch accent L+H*+L (assumed to convey emphasis/focus) → transfer from L1 Italian	Gabriel/Kireva (2014)
L2 Spanish produced by Germans and Czechs L1 speakers for German and Czech, level of L2 Spanish: middle-advanced or advanced; formal instruction (school or university)	Selection of L1 features used by learners in the L2: (i) prenuclear pitch accents (e.g. L*+H) on wh-word in wh-questions (iii) nuclear pitch accents (e.g. L+H*) in neutral statements and imperative wh-questions (iii) boundary tones (L%) in vocatives → negative transfer from L1 German/Czech (besides many cases of positive transfer)	Pešková (2019, 2020, 2021)
L2 French produced by Mexican Spanish natives	L1 features used by learners in L2 yes–no questions: (i) overuse, i.e. exclusive use, of rising final contours	Santiago/Delais-Roussarie (2012, 2015)

[171] The terminology used as well as the assumptions made with reference to the emergence of the linguistic features resulting from the respective contact situations are those offered by the authors of the cited studies (e.g. if a particular phenomenon is interpreted as an outcome of transfer, convergence, attrition, etc.). Some minor adaptions were made in the annotation of some of the pitch accents and boundary tones presented in the table.

L1 speakers of Mexican Spanish, intermediate level (A2–B1), formal instruction (university), onset of learning: after 17 years old	(ii) lack of tonal (or durational) marking of phrase-internal prosodic words (i.e. French accentual phrases) → transfer of L1 contours and (lack of marking of phrase-internal) prosodic structure	
L2 French produced by German monolinguals and German–Turkish bilinguals L1 speakers of German (monolinguals) and German and Turkish (bilinguals), beginner level, 3 years of formal instruction (grammar school), onset of learning: 12–14 years old	L1 features used by learners in the L2: word-based intonation, i.e consistent tonal marking of final syllables in lexical words → both learner groups misinterpret French AP-final rise as word-final stress	Gabriel et al. (2022); Gabriel/ Grünke (2021, 2022)

The studies listed in the two preceding tables have shown that there are many varieties, whose current intonation is considered a result of CLI. This occurs, for the most part, by means of substratum interference or transfer when speakers of an L1 acquire an L2. We have seen several examples of current L2 varieties influenced by the native language of the learners (e.g. L2 Spanish and L2 French; cf. Table 3.11) but also cases in which historic L2 varieties have become native varieties (e.g. Porteño, Olivenza, Cuzco, and Majorcan Spanish; Southern French; Sardinian Italian; and, in part, Algherese Catalan; cf. Table 3.10). Yet, there are also some cases of CLI belonging to the 'borrowing' type, i.e. those involving the integration of intonational features of a foreign language into a native variety or L1 (e.g. Occitan, Northern Catalan, Bulgarian Judaeo-Spanish, or Spanish in the US). Sometimes such cases of 'borrowing' have been attributed to the process of L1 attrition under the pressure of the dominant surrounding language.

The intonational features transferred in the examples we have appreciated include both prenuclear pitch accents (e.g. in Porteño, Cuzco, and Olivenza Spanish; Algherese and Northern Catalan; Occitan and Southern French; L2 Greek and L2 Spanish) and nuclear pitch accents or even entire nuclear configurations (e.g. in Porteño, Olivenza, and Majorca Spanish; Northern, Algherese, and Majorca Catalan; Occitan; Southern French; L2 Spanish). Furthermore, only alignment properties of pitch-accents may be affected (cf. Cuzco Spanish and L2 Greek) or CLI can touch upon a language's phrasing and prominence patterns (e.g. in the case of APs and phrase-initial accents in Occitan and Northern Catalan; relics of lexical stress in Southern French; the adaption of stress patterns in Bulgarian Judaeo-Spanish; the use of CR and SP in Porteño Spanish; the signalling of focus in Cuzco Spanish, or the lack vs overuse of marking of prosodic structure in L2 French by Mexican vs German and German–Turkish learners). From this large gamut of features, we may thus not only conclude that it is possible—and, as we have seen in Section 3.4.2, quite likely—for intonational and other prosodic features to be transferred in situations of language contact but also that probably any feature of prosody may be transferred given the right circumstances.

3.4 Bilingualism and language dominance

Probably the idea that most frequently comes to (lay)people's mind when thinking of a bilingual is that of a person who grew up with two languages from birth and whose mastery of these languages is roughly equivalent (cf. Silva-Corvalán/Treffers-Daller 2016: 1). The view that 'true' bilinguals are only persons with an identical high or native-like linguistic competence has also been held by some scholars, such as Bloomfield (1933: 56) or Macnamara (1967), who, in a nutshell, suggested that bilinguals are two monolinguals in one person. And indeed, if we pretend "to get a better understanding of what makes the bilingual experience unique", it can sometimes be useful to compare bilinguals against monolinguals, and it is a common praxis to do so (Silva-Corvalán/Treffers-Daller 2016: 2). Nevertheless, the compound state of mind with more than one language in bilinguals is a multicompetence (Cook 1991) and setting monolingual norms or benchmarks is often inappropriate when describing bilingual behaviour, processing, or proficiency.[172] Conclusions such as that a bilingual's proficiency is 'deficient' or 'incomplete' in comparison to monolinguals, or that bilinguals have 'failed to reach monolingual norms' or only partially succeeded in acquiring them should be avoided (see also Meisel 2007). In other words, the conception—prevailing during much of the 20th century—that a 'good' bilingual should not speak with an accent in any of their languages (cf. Poch Olivé 2016) is clearly outdated, as we now know that there is not necessarily a connection between the knowledge of a language and having an accent in the pronunciation of sounds and in prosody (Grosjean 2015: 38–39).[173] This is, after several decades of research, it has become plainly clear that the assumption that bilinguals consist of two monolinguals is a misconception and myth (cf. Montrul 2016: 15): completely balanced bilinguals are very rare, if they exist at all, and even the number of individuals who might be considered fully competent or highly proficient in two languages in one or more dimensions is probably quite low (cf. Mackey 2000 [1962]; Grosjean 2008; Montrul 2016; Silva-Corvalán/Treffers-Daller 2016: 2).

As a matter of fact, bilinguals differ widely among each other and it is much more common for them to be dominant in one of their languages (Grosjean 1998, 2008; Treffers-Daller 2016: 235). Grosjean (1997: 165) attributes this to what he calls the **Complementarity Principle**,

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[172] For instance, it is known that some bilingual learners manage to separate their phonological systems, while for many "keeping the two systems separate is too tall an order", so that they use (converged) systems that differ from the ones of monolingual speakers of either language (cf. Treffers-Daller 2016: 246 and studies cited therein). For example, with regard to VOT values, it has been demonstrated that bilinguals often use "compromise values" (cf., e.g., Goldrick et al. 2014). It is for this reason that bilinguals sometimes have an accent in either or both of their languages (Grosjean 2010: 77–84).

[173] Rather, the existence of an 'accent' in bilingual speech might be related with factors such as language use as has been shown, e.g., by Guion et al. (2000) for Spanish–Quechua bilinguals.

defined as follows: "Bilinguals usually acquire and use their languages for different purposes, in different domains of life, with different people. Different aspects of life require different languages" (see also Grosjean 2010, 2016 for an extensive discussion). The origins of this principle go back to observations made by sociolinguists who noted that languages tend to have distinct functions in bilingual communities (e.g. Weinreich 1953; Hoffman 1971; Heye 1979). In consequence, the respective languages also must be distributed (in a complementary way) across the domains of life of the individuals living within these societies. In recent years, as more data and studies have started to appear, it is becoming ever more evident that the Complementarity Principle is pervasive in the life of bilinguals and has major impacts on bilingual language processing, memory, language acquisition, fluency and language dominance, all of which differ fundamentally from their monolingual counterparts (Grosjean 2016: 67–70; Silva-Corvalán 2016: 2). To give an example, the level of fluency attained by a bilingual in a language (or, more precisely, in a particular language skill) will depend on their need for that language: "If reading and writing skills are not needed in a language, they will not be developed" and if "a language is never used for a particular purpose, it will not develop the linguistic properties needed for that purpose (specialized vocabulary, stylistic variety, some linguistic rules, etc.)" (Grosjean 2016: 68).[174] This entails that the knowledge bilinguals develop of their languages is tightly linked to the use they make of each (Silva-Corvalán/Treffers-Daller 2016: 1), which, in turn, depends on their or their environment's needs and requirements for that language. Moreover, it is also logical that not all facets of life in bilinguals require the same language—otherwise they would not be bilingual—and similarly, no society needs two languages for the exact same set of functions (Fishman 1971: 560).

As linguistic knowledge is multidimensional at both the structural and psycholinguistic (i.e. processing and use) levels (cf. Montrul 2016: 15), bilinguals are rarely equally or completely fluent in their two languages, but the levels of fluency will be domain-specific (Grosjean 2016: 84; Mackey 2000).[175] For this reason, most researchers nowadays simply define bilinguals as "those who use two or more languages (or dialects) in their everyday lives" shifting the emphasis from competence or proficiency to communication in or use of two (or more) languages (Grosjean 2010: 4; Silva-Corvalán 2014: 1; see also Haugen 1953; Weinreich 1953; Mackey 1976; Treffers-Daller 2016). Indeed, many phenomena are understood better if bilinguals are studied in terms of their total language repertoire with the respective domains of use and functions of their various languages, i.e. when the Complementarity Principle is taken into account (Grosjean 2016: 68–69).

[174] Note that monolinguals, too, can differ widely from each other in certain respects. For instance, it is known that all language users, i.e. both monolinguals and bilinguals, have merely partial knowledge of words, since "mastering the vocabulary of a language is a mammoth task" and the respective knowledge of an individual is linked to their specific language experience (cf. Treffers-Daller 2016: 245).

[175] Note, however, that these such contrasts in linguistic knowledge reflect rather quantitative differences than the actual nature of a bilingual speaker's underlying knowledge (cf. Meisel 2007; Silva-Corvalán/Treffers-Daller 2016: 3).

A central goal in the study of bilingualism is to get a better grip of the bilinguals that there are in the world and to capture the differences that exist between them. Many researchers seek to achieve this by using notions like language dominance or language proficiency and by distinguishing, for example, *balanced* and *dominant* bilinguals (cf. below). However, since they do not always provide clear definitions of the terms, there is a considerable amount of terminological confusion (cf. Meisel 2007; Silva-Corvalán/Treffers-Daller 2016) and studies on bilinguals have sometimes yielded conflicting results which "could have been lessened, if not avoided, had close attention been paid to methodological and conceptual issues" (Grosjean 1998: 132). In what follows, I will thus first give an overview of the construct of language dominance as well as of other key terms of the field. In the second part, I will address the question of how language dominance in a bilingual can be operationalized or measured.

The term **language dominance** (henceforth abbreviated as LD) can be used in a variety of ways (cf. Treffers-Daller 2016: 236f.). First, *societal language dominance* is used to refer to multilingual societies (or smaller social groups) in which one language is predominant over the other in that it is most frequently employed for official matters outside the home, such as administration or education, and is most likely to be learned as a second language by L1 speakers of other languages. Hence, in such 'diglossic' situations, the two languages have dissimilar functions in the society and often also different status (cf. Ferguson 1959, 1993 on diglossia), but a predominant language can also simply be the "'main language' in country X, community Y, or family Z" or the 'ambient', 'surrounding', or 'majority' language (Silva-Corvalán/Treffers-Daller 2016: 4). Second, it has been shown that the left hemisphere of the brain is generally more involved in language processing than the right hemisphere, which has distinct specializations (Springer et al. 1999). This phenomenon is sometimes referred to as *hemispheric language dominance*. Finally, *language dominance in the (bilingual) individual* is what the remainder of this chapter is about. As we will see, it mainly refers to the differences in proficiency and use of two (or more) languages by individual bilinguals.

In the same way as bilingualism *per se*, also the construct of LD is a complex and inherently multidimensional one (Luk/Bialystok 2013; Silva-Corvalán/Treffers-Daller 2016: 5). According to Montrul (2016: 16), it refers to the relative weight and the relative relationship of control and influence between the two languages in a bilingual. Definitions given in the literature usually make reference to either or both of the two key dimensions of the bilingual experience we have already touched upon above: namely, language competence or proficiency, and communication or use. Fishman, Cooper, and Ma (1971: 484) describe these in a very succinct manner as "what a person *can* do" (language proficiency) and "what a person *typically* does" (language use).

However, oftentimes LD is defined only in relation to **proficiency** (or competence, grammatical ability[176], fluency) in a language or the two concepts are treated as synonyms (Treffers-

[176] Note that for some scholars, such as Bachman/Palmer 2010, language ability is a wider concept than language proficiency: whereas proficiency relates solely to grammatical knowledge, language ability builds on the key

Daller 2016: 239; Montrul 2016: 15–16; Silva-Corvalán, 2014: 21), i.e. to some the dominant language is simply the one in which the bilingual is more proficient (e.g. Van Coetsem 2000: 66; Deuchar/Muntz 2003). As a case in point, bilinguals often "have words in one of their languages for concepts about which they talk in that language, while they may not have translation equivalents for those words in the other language" (Treffers-Daller 2016: 239).[177] In such a scenario, they would thus be considered dominant in the language in which their vocabulary size is bigger. Yet, given the fact that most studies focus on only one language level, we often do not know whether the investigated bilinguals would show the same dominance patterns in other areas of grammar. According to Romaine (1989: 13), there is no "necessary connection between ability in one level and another," although she notes that in practice there can be some interdependencies. That being the case, some authors distinguish more closely between (global) linguistic competence or proficiency, on the one hand, and basic aptitudes or skills (namely, reading, writing, listening, and speaking), on the other (cf. Carroll 1972; Mackey 1976; Romaine 1989; Treffers-Daller 2016: 240–241). Moreover, the view that LD equals proficiency is also strongly criticized by Montrul (2016: 16), who points out that "bilinguals may exhibit similar patterns of language dominance but may differ on the levels of proficiency in each language when compared to each other." For instance, adult heritage speakers of minority languages (early bilinguals) and adult second language learners (late bilinguals) of the same languages may share the same dominant (e.g. English) and weaker language (e.g. Spanish), but typically heritage speakers will be more proficient in the weaker language than second language learners (cf. Montrul 2016: 25–34).

Therefore, many researchers defend that LD cannot be understood without involving further dimensions besides proficiency, in particular, without considering language **use**.[178] For example, Wang (2013: 739), defines LD as "a global measure of relative frequency of use and proficiency in each language" and thus closely relies on the two aforementioned key dimensions of the bilingual experience, which any description of bilinguals should minimally involve (cf. Fishman et al. 1971; Grosjean 2010; Luk/Bialystok 2013; Treffers-Daller 2016, among others). In this respect, LD has occasionally been compared to handedness or manual dominance: humans (and animals having two hands) differ from one another with respect to both the frequency with which they use each of their hands for a given action (e.g. writing or using scissors) and the manual skill with which they perform tasks with each hand (cf. Birdsong 2016; Treffers-Daller 2016: 239).

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notion of communicative competence and hence also includes pragmatic and sociologic components (e.g. the understanding and use of dialects and language varieties). However, to date such aspects have hardly been taken into account in research on LD (cf. Treffers-Daller 2016: 241–242).

177 According to the studies cited in Grosjean (2016: 81), bilingual children have translation equivalents for only 30–37 per cent of their words, i.e. their lexicon is to a major extent language-specific and the number of words they know in each language is related to the domains for which they use that language.

178 Please note that the term language use is habitually used as an umbrella term that covers use in reading, writing, listening, and speaking (i.e. all four basic aptitudes or skills; cf. Treffers-Daller 2016: 240–241).

Nevertheless, several **other factors** have been claimed, too, to have an impact on a bilingual's LD. For instance, Montrul's model (2016) advocates a wider conceptualization of LD, including (quality and quantity of the) input bilinguals receive in each language as a third, external component besides ability and fluency (i.e. proficiency components) and use or context (i.e functional components). Clearly, input is a further key factor for the emergence of individual LD patterns (see also Silva-Corvalán 2014; Yip/Matthews 2006). Nevertheless, "[h]uman beings are not passive recipients of input but active participants in social situations in which they use language for communicative purposes" (Treffers-Daller 2016: 251). Although the Complementarity Principle (CP) lucidly reflects this, how bilinguals distribute their languages over different domains and functions largely depends on micro and macro sociolinguistic, rather than personal factors: i.e. on language predominance within their direct environment and the wider society (cf., e.g., Meisel 2007; Kupisch/Van de Weijer 2016; La Morgia 2016; Schmeißer et al. 2016; Silva-Corvalán 2014). Montrul (2016: 16–17) for this reason underscores that the type and amount of input is determined among other things by "biographical variables like age of acquisition, place of birth and languages of the environment, place of previous and current residence and languages of the environment". Other authors point to further, often psycholinguistic factors such as overall fluency, levels of language activation (Pavlenko 2014), or speed, automaticity, and efficiency (or accuracy) in language processing (Birdsong 2006; Favreau/Segalowitz 1982). In sum, LD is "essentially a psycholinguistic phenomenon closely intermeshed with sociolinguistic parameters" (Lanza 2004: 237).

As we have already seen, the construct of LD is commonly employed to account for differences in the linguistic behaviour of bilinguals by classifying them as belonging to certain groups—most frequently, ***balanced*** bilinguals and those who are ***dominant*** in one of their languages, which can be considered the two "traditionally acknowledged" types of bilinguals (Silva-Corvalán/Treffers-Daller 2016: 1). However, besides being used in various ways by the researchers in the field, these notions, and particularly the notion of **balance** implies a series of problematic issues (see Treffers-Daller 2016: 242–248 for an extensive discussion).

In terms of proficiency, a "balanced bilingual would be one who displays equal proficiency in both languages across a range of different variables (grammar, vocabulary, etc.) or across the four skills (reading, writing, listening, speaking)" (Treffers-Daller 2016: 242–243). In this sense, for instance, Li (2000: 4–5) defines a balanced bilingual as "someone whose mastery of two languages is roughly equivalent". However, in his definition of the counterpart, i.e. the "dominant bilingual", he also includes the dimension of language use: "someone with greater proficiency in one of his or her languages and [who] uses it significantly more than the other language(s)." Hence, if LD is understood as a global phenomenon, affecting the individual as a whole, a balanced bilingual should be one who displays an equilibrium between both of their languages and is dominant in neither language across all aspects of knowledge, skill, preference, and/or use (cf. Birdsong 2016: 95). Yet, at least in a strict sense, this is difficult to conceptionalize as it would be at odds with Grosjean's (1997, 2016) Complementarity Principle (cf. Treffers-Daller 2016: 242–243; De Houwer/Bornstein 2016). It is true that most bilinguals have intuitions as to which language is their overall or 'globally' stronger one and only few state to be 'balanced' (Harris et al. 2006). However, upon closer scrutiny, it generally turns out for both groups that their "dominance varies according to the domains and the functions for which the languages are used" or as a function of the specific instruments used to measure it (Treffers-Daller 2016: 243; Bahrick et al. 1994). That is, even if there is an overall state of equilibrium between the two languages in a bilingual and he or she can be considered as globally balanced, this does not necessarily imply that they are able to use both languages for all functions and all domains in the same way. Instead, which one is their dominant language simply differs across domains (Hamers/Blanc 2000; Treffers-Daller 2011; 2016). In these terms, Birdsong (2016: 102) proposes to make a distinction between two types of consistency in language use based on Bishop et al.'s (1996) observations on handedness: across-domain consistency or preferential use and within-domain consistency. According to the across-domain approach, a balanced bilingual could be defined as someone who uses one language for half of the domains and the other language for the remaining half, whereas in the within-domain approach the bilingual would use both of his or her languages with equal frequency, i.e. each to an extent of 50% within each single domain (cf. Treffers-Daller 2016: 244). Further elaborating this line of thought, an across-domain balanced bilingual would exhibit an exactly complementary distribution of their languages across domains and without any overlap between them, whereas a within-domain balanced bilingual would use their languages to the same extent in all domains of their life. As we have already seen, the latter case is most probably inexistent ('Why would they?—No one needs two languages for the same purpose', cf. Fishman 1971: 560 and above), while the first may be seen as an idealized description of what a balanced bilingual could look like. In reality, though, we know by now that the distribution of languages in the everyday life of bilinguals is usually much more complex than this. As expanded on above (cf. Complementarity Principle), different aspects of life require different languages, which automatically entails that LD is domain-specific. In consequence, bilinguals will be dominant in one language for some domains, dominant in the other language for others, and balanced for some others still (cf. Grosjean 2016: 83).

Besides that, the notion of balance is problematic in that it to a certain extent suggests that being balanced—as opposed to unbalanced or non-balanced—is something positive or normal, i.e. that balanced bilingualism would be the default outcome of bilingual development or at least the most desirable state for a bilingual to achieve (cf. Treffers-Daller 2016: 247–248). Such a preference for symmetry over asymmetry is known from a large variety of fields—however, with reference to the bilingual experience, it is, as we have seen, quite unrealistic. A comparison with handedness might be once more illuminating: while only about 1 percent of the population is truly ambidextrous, i.e. able to do any task to the same level of skill with either hand, no one sees ambidexterity as a goal. Instead, the distribution of labour between both hands works very well for most people and consistent right- or left-handers are not described as 'unbalanced' (cf. Birdsong 2016; Treffers-Daller 2016: 248).

Another aspect worth mentioning is that the notion of balance needs to be kept separate from proficiency, considering that being balanced does not necessarily imply a high level of competence in both languages (cf. Hamers/Blanc 2000; Birdsong 2016; Treffers-Daller 2016: 244). This is all the more important as some authors assume that the cognitive advantages of bilingualism are only found among balanced bilinguals with a high proficiency in both languages (cf. Treffers-Daller 2016: 242; Cummins 1976; Costa et al. 2009; Bialystok 2009; see Antoniou 2019 for an overview of research into the 'bilingual advantage').

A more practical issue concerns the difficulty to establish when an equilibrium or, at least, a 'relative similarity' between the two languages of a bilingual is achieved. As LD is clearly not a categorical variable (Luk/Bialystok 2013; Treffers-Daller 2016: 265), most ways to operationalize it involve gradient scales. In order to draw a line between groups of dominant and balanced bilingual informants, an artificial **cut-off point** needs thus to be chosen. However, there is not yet a consensus as to how this point should best be selected (cf. below for an overview).

In sum, it is certainly possible for bilinguals to be more or less balanced with respect to a specific criterion. Nevertheless, overall balance with regard to both use and proficiency in two languages is an idealized construct and a "fiction that obscures the normal situation" (Treffers-Daller 2016: 248). In this sense, Romaine (1989: 18) concludes: "The search for the true balanced bilingual depicted in some of the literature on bilingualism is elusive. The notion of balanced bilingualism is an ideal one, which is largely an artifact of a theoretical perspective which takes the monolingual as its point of reference".

Concerning the **stability** of LD, there is general agreement in the scientific literature that a bilingual's LD may vary over time. In particular in children, there is much evidence that dominance patterns develop relatively dynamically (Lanza 2004; Ronjat 1913; De Houwer 2011; De Houwer/Bornstein 2016; Schmeißer et al. 2016; Grosjean 2019). In adult bilinguals, on the other hand, language dominance is rather unlikely to shift according to Kupisch/Van de Weijer (2016), who found that childhood environment was the main predictor of language proficiency in the highly proficient German–French bilinguals they studied, even upon changing the place of residence. However, there is a considerable amount of evidence that it is possible for language dominance to undergo changes during adulthood, too. To take one example, in their large-scale study of Cuban and Mexican immigrants in the US, Bahrick et al. (1994) observed that long-term residence in a country where the environmental language is the L2 can affect language dominance in such a way that the L2 becomes the bilingual's dominant language for certain tasks or domains. Besides, the notion of heritage speakers also often implies a dominance shift from an L1 to an L2 that is acquired later in childhood and which is typically the language of the wider society the speaker lives in (cf. Treffers-Daller 2016: 205–251; Benmamoun et al. 2013).

We have now addressed the various dimensions of the construct of LD in bilinguals and discussed a series of factors that contribute to it. In research, LD is typically invoked as an explanatory variable to account for dissimilarities between different categories of bilinguals, such as balanced and dominant ones. Unfortunately, it is not always made clear how such classifications are established, and notions as LD or proficiency are often taken for granted (Hulsteijn 2012: 423). In quite some cases, LD is simply assumed, and classifications are founded on the subjective judgements of the experimenters, who purport to know their informants well enough to be able to simply estimate their LD (Treffers-Daller 2016: 236; Montrul 2016: 21). In other studies, the informants' LD is estimated from one or more of its components (Montrul: 2016: 17). However, if we are to advance our understanding of what it means to be bilingual, we need to find consistent ways to **operationalize** the construct of LD (Silva-Corvalán/Treffers-Daller 2016: 1). Reliable measures are crucial in order to level the "playing field when comparing two populations" or (possibly conflicting) results from different studies (Montrul 2016: 35). Only then can we determine how e.g. experience-related variables such as age of acquisition impinge on LD and use it as an independent predictor variable to explain other phenomena (Treffers-Daller 2016: 237).

Regrettably, there are not yet any commonly agreed standardized methods to assess LD, let alone a gold standard (Montrul 2016: 18). Instead, a wide range of instruments are being used and lots of different measures and indices have been proposed in research on bilingualism (Treffers-Daller 2016: 264). One main difficulty departs from the fact that, as we have seen, "there is no such thing as global language dominance" (Treffers-Daller 2016: 252): which one of a bilingual's languages is structurally stronger than the other usually varies across functions and domains (cf. above), and, in consequence, the attempt to devise a measure of 'global' LD is problematic, as well.

As argued earlier, LD has two key dimensions, i.e. language proficiency and use, which should thus both be taken into account in any index of language dominance (ILD). Yet, there is great inconsistency in operationalizing these two key variables. Very often LD is determined indirectly via biographical or background variables (such as age of acquisition (AoA), amount of input or language use, place of residence) elicited from background questionnaires, in which subjects are asked to self-report their language use and to self-rate their abilities (e.g. reading or speaking) for each of their languages. Such background variables tend to correlate positively with proficiency measures and are for this reason often taken as good indicators in the absence of concrete measures (Montrul 2016: 25). Nevertheless, it is of course more reliable to actually measure proficiency in the two languages (e.g. by using oral or written production and comprehension measures) in addition to administering a language background questionnaire. A problem this involves is that the construct of language proficiency (or ability) itself is highly multidimensional and cannot be captured by a single test covering all of its dimensions

(Bachman/Palmer 2010). Likewise, it is extremely challenging to develop comparable proficiency measures across languages (cf. discussion below).

In any case should measures of LD preferably be gradient as it is not a categorical variable but represents a continuum (cf. Dunn/Fox Tree 2009; Luk/Bialystok 2013; and above). The representation of LD on a continuous interval scale furthermore entails the advantage that it can be used this way as a predictor variable in regression analysis (Birdsong 2016; Treffers-Daller/Korybski 2016), which may, in turn, demonstrate the validity of the respective ILD. Most importantly, any ILD can only perform a meaningful task if it explains more variance in the researcher's chosen dependent variable than other predictor variables, such as age of acquisition (AoA) or length of residence (LOR). Moreover, as opposed to nominal scales, gradient variables avoid the undesirable need to stipulate an arbitrary cut point that separates 'balanced' from 'dominant' bilinguals (Treffers-Daller 2016: 253, 265). At the same time, the use of continuous scale does not impede group classifications should the respective piece of research require them.

The methods used to assess a speaker's LD can generally be classified as belonging to either a generic and subjective (self-ratings and questionnaires) or a specific and objective type (tests of different sorts) (Treffers-Daller 2016). Both types encompass a series of advantages but are also problematic for a variety of reasons, as we shall see in what follows.

Bilinguals' **subjective evaluations** are a popular instrument to obtain **generic** information about their LD. In most cases, subjects are asked to self-rate their language abilities and skills (speaking, writing, listening, and reading) for both of their languages, and the language they feel they know better is considered to be the dominant one. Such minimum self-ratings thus solely rely on the informants' intuitive judgements on their own proficiency. However, most of the time, self-assessments of language skills are part of a more detailed **questionnaire**, containing also questions on other dimensions of LD such as language use and background information. Subjects are then asked to provide quantifying information on the degree of use of their languages in different contexts as well as to self-report, e.g., their language history, so that scores can be calculated and compared afterwards.

The most outstanding advantages of subjective evaluations are certainly that they are easy to administer and permit to calculate scores that provide an overall idea of a bilingual's LD based on a relatively wide range of skills and domains of use. However, as they rely only on estimations instead of actual measures such assessments must be treated with great caution and their validity has been questioned for a series of reasons (cf. Ross 2016). First, self-ratings usually evaluate language competence at a very generic level and are often based on only four skills. They are thus not differentiated enough to capture the complexity of language use and proficiency across a range of tasks (Treffers-Daller 2016: 254). Besides the fact that at least the dimension of language use should be tapped as well, there are also large differences between e.g. written tasks such as an e-mail and an academic essay (Bachman/Palmer 2010). Moreover, many tasks involve various skills at the same time: for example, speaking in a communicative situation also involves listening. On the other hand, too fine-grained self-ratings are not possible either because it is very challenging for non-experts to assess their own language ability in, say, pronunciation, vocabulary, or grammar (Hulstijn 2012).

A further point of criticism concerns the fact that even relatively detailed questionnaires that pretend to tap into the construct of LD itself by enquiring into both proficiency and frequency of use with different people and in different social situations usually fail to demonstrate the complex distribution of labour between the bilinguals' languages in general as well as the overlap of language use within domains. They thus remain rather coarse instruments (Treffers-Daller 2016: 254–255). Nevertheless, in order to describe actual language use at higher level of granularity, Grosjean (2016) has recently proposed a Complementarity Index (CI) that indicates to what extent the topics or activities of a bilingual speaker are language-specific or covered by both languages (cf. below).

In addition, it needs to be pointed out that many questionnaires do not "separate questions that tap into the construct itself from questions that tap into the causes of language dominance" (Treffers-Daller 2016: 254). For instance, this may be the case of questions about the informants' language history or their attitudes to different languages, which probably relate rather to the constructs of language loyalty or identity. It is thus problematic to compute a general dominance score on the basis of questionnaire items that may measure different constructs. Finally, another drawback of self-ratings and self-reports is that they are only possible in research on adult bilinguals and different methods need to be applied in bilingual children. Yet, in some studies, parents have been asked to complete questionnaires as substitutes for their children.

Examples of (standardized) questionnaires that have recently gained some popularity are the Language Experience and Proficiency Questionnaire (LEAP-Q, Marian et al. 2007), the Bilingual Dominance Scale (BDS, Dunn/Fox Tree 2009), the Bilingual Language Profile (BLP, Birdsong et al. 2012; Gertken et al. 2014), and the Language History Questionnaire (LHQ, Li et al. 2014). All of these combine questions covering different dimensions of LD. However, the LEAP-Q is not a dominance assessment per se as it rather elicits descriptive data and can also be used with monolinguals. It furthermore lacks a scoring procedure and is rather lengthy and complex to complete as compared to the other methods. The same is also true of the LHQ, which consists of 22 of the most commonly asked questions in LD assessment questionnaires compiled from 41 studies. The BDS, on the other hand, can be filled in very quickly as it comprises only 12 items. However, avoiding scalar responses, it features some open-ended questions and the assessment is mainly based on biographical and external variables (cf. Montrul 2016: 22). Additionally, the single items are weighed unequally in the scoring procedure, which entails the risk of inflating the significance of any one factor. The BLP, finally, draws on elements from both of these tools (see the feature comparison in Birdsong et al. 2012). Enquiring on the four equally weighted dimensions language history, use, proficiency, and attitudes, it is easy to administer, concise, and comprehensive. Increasingly popular in recent years (cf.

“Publications” in Birdsong et al. 2012), it is also used as the basis for LD assessment in the current study (cf. Section 4.1).

As opposed to subjective and generic estimations of language dominance via self-ratings, operationalizations that rely on performance tests or samples of actual linguistic behaviour have the great advantage to be much more **specific and objective**. As independent measures in experimental research, they can facilitate comparability across studies (Montrul 2016: 19). Yet, they also present some disadvantages, as we shall see below. In the vast majority of cases, performance tests, tasks, or tools are developed to measure specific components of language ability or specific skills in both of the bilingual’s languages separately, so as to allow that the respective scores can be compared afterwards. As a rule, the operationalization of LD via specific tests relies primarily on a measure or quantification of language proficiency. Sometimes solely one specific ability is taken into account but frequently tests use different components in order to cover various skills at the same time. In what follows, I shall present an (non-exhaustive) overview of methods that have been used in research to gauge LD in bilingual speakers in a specific-objective way.

For a range of languages, there exist some standardized written **tests** of language proficiency, which were for the most part developed and used to evaluate the target language in adult SLA, e.g. the DELE (Sp. *Diploma de español como lengua extranjera*) for Spanish or the TOEFL (*Test of English as a foreign language*) for English. Similarly, cloze or C-tests are another fast, efficient, and reliable tool to measure morphosyntactic proficiency (Tremblay 2011), and the Vocabulary Size Test (VST), devised by Nation and Beglar (2007), is widely used to gauge bilinguals’ vocabulary knowledge in English (cf. Bachman/Palmer 2010). Yet, there are also some tests based on oral production and aural comprehension that can be used with preliterate children and illiterate or low literacy adults (cf. Montrul 2016: 19). These were often conceived to assess the progress in the development of the target language in L1 acquisition by infants, and typically consist in picture-naming tasks (PNTs) or assess receptive vocabulary via word–picture matching (e.g. the *Peabody Picture Vocabulary Test–Revised*, PPVT–IV; Dunn/Dunn 2007). Oral translation tasks of words or sentences are equally possible ways of assessment, as is the measurement of reaction times in such tasks (Dunn/Fox Tree 2009). Moreover, oral proficiency interviews (OPIs) can be conducted and evaluated according to pre-established criteria (e.g. following the lines of the ACTFL).

Nevertheless, as the number of languages for which such standardized tasks are available is quite limited, researchers are often bound to rely on the analysis of **speech samples**—particularly when working on less studied languages. Likewise, this is mostly done in studies on bilingual language acquisition because formally testing (small) children is very difficult (Treffers-Daller 2016: 258). Most typically, such extracts involve recordings or transcriptions of spontaneous speech, but written samples (e.g. compositions or written discourse) can equally be evaluated when subjects are literate. In studies on young children, mean utterance length (MLU, usually counted in words or morphemes (cf. Yip/Matthews 2006; Schmeißer et al. 2016, among many others) is a popular measure for global morphosyntactic development, and so are Upper Bound or longest utterance (UB), average sentence duration (Flege et al. 2002), and percentage of multimorphemic utterances (MMUs, cf. Treffers-Daller 2016: 258). However, these measures are no longer able to reliably discriminate linguistic proficiency beyond a certain age, since older children's and adults' language is more complex than that of infants (Montrul 2016: 19). Furthermore, number of unique words and verb types out of 100 utterances can be operationalized as an indicator of vocabulary size (cf. Montrul 2016: 21), and methods to extract lexical diversity from speech samples have been proposed by Treffers-Daller (2011), Treffers-Daller/Korybski (2016), and Klinger et al. (2019), among others. Schwartz (2005) calculates words per minute and number of error-free units as markers of fluency, and several methods of assessing reading skills are proposed by Schneider et al. 2017. Especially in SLA, accent ratings are a popular measure and phonetic measurements (e.g. of VOT) can be used to assess pronunciation. Finally, some studies have used the direction and quantifications of interference or code-switching in bilinguals' speech to determine LD (e.g. Lanza 2004; Paradis/Nicoladis 2007; Montrul/Ionin 2012; see also Arnal 2011).

In summary, there are several written and oral tests and tasks available to gauge LD in both children and adults. Still, a **problem** of many of these measures is certainly that they tend to operationalize LD only along its proficiency dimension tapping merely into rather specific aspects of it. It is thus problematic when informants are divided into groups of (globally) dominant and balanced bilinguals solely on the basis of their performance with regard to a specific criterion (cf. Treffers-Daller 2016: 260). Language proficiency and dominance are task-specific and dynamic, and subjects can perform incongruously across different tests (cf. above). Besides, LD is broader than only language proficiency, which is merely one of its dimensions (cf. Montrul 2016: 17 and above). When choosing a particular measure of dominance, scholars should thus carefully motivate their choice and ideally include a variety of different (linguistic and non-linguistic) measures (cf. Treffers-Daller 2016: 240; Montrul 2016: 34; La Morgia 2016).

The two major issues that arise, though, when researchers aim to compare bilinguals' languages on the basis of some proficiency test concern the difficulties (a) to find equivalent measures across languages and (b) to establish an appropriate cut-off point between different groups of bilinguals. As regards the first aspect, proficiency tests usually assess only one language, while LD implies a relationship between the two languages of a bilingual (Montrul 2016: 16). That said, it is extremely difficult to conceive parallel and **equally difficult versions** of the same test for two languages. Mainly owing to morphological and syntactic differences between languages, it is practically impossible, or at least very challenging to assure that exactly the same kind of linguistic ability is measured in both languages (Montrul 2016: 21; Treffers-Daller 2016: 257; 260). Additionally, pragmatic contrasts between languages, or cultural and conceptual disparities may hamper such enterprises, as well, e.g. even in the simple translation of vocabulary items (cf. Pavlenko 2014). It thus comes as no surprise that only very few such tests exist at all (Treffers-Daller 2016: 245, 264). Likewise, when assessing speech samples, differences in typological complexity can easily be an issue, too. For example, in agglutinative languages, such as Turkish, words typically comprise multiple morphemes and MLU values will thus be notably higher at a comparable level of development than, e.g., in isolating languages, such as Chinese, where words tend to be monomorphemic (cf. Yip/Matthews 2006). Following Jakobovits' (1969) assumptions, even comparing reaction times in two languages may be problematic because a range of non-linguistic factors might influence how fast a person responds (see also Romaine 1989). Similarly, measures of frequency of CLI or code-switching have been severely criticized in consideration of the fact that the occurrence of such phenomena can strongly depend on the norms of a given bilingual community, which can be different from monolingual norms for the use of either language. For example, in many contact situations on the African continent, language mixing is an unmarked choice and also among Hispanic communities in the US it may be considered the norm (cf. the studies cited in Treffers-Daller 2016: 252, 259–260).

As regards the selection of **dividing points**, I have already mentioned above that it is quite demanding to motivate the division of a sample of bilinguals into different categories in a principled manner. While most scholars concur in that the notion of 'balanced bilingual', and hence the operationalization of 'balance', does not imply a zero difference, i.e. that the bilingual obtains a fully identical score for both languages, in one or several tests (which is virtually impossible and ignores the possibility of measurement errors), it is still pretty unclear how a suitable alternative could look like (Treffers-Daller 2016: 258; Birdsong 2016).

Several ways of operationalization have been suggested and tried out in the research literature (cf. Treffer-Daller 2016: 256 for an overview). Among these, most compare the scores bilinguals attain in each of their language and define those subjects as 'balanced bilinguals' whose difference in scores does not exceed a certain margin or a maximum difference, typically a specific percentage value (e.g. 6% and 10% in De Houwer/Bornstein 2016 or 10% in Favreau/Segalowitz 1982). As an alternative, the use of *z*-scores between ±1 and ±0.5 has been tested among others by Treffers-Daller/Korybski (2016), but, as this led to a majority of their informants being classified as balanced, the authors concluded that they were not a suitable measure (for their data, at least). The choice of artificial and arbitrary cut-off points thus entails that the proportions of bilinguals classified as balanced vary widely from study to study (i.e. from 0% in Cutler et al. 1998: 229 to over 70 in Treffers-Daller/Korybski 2016). However, this is not surprising as long as it is unclear what 'balanced' actually means (cf. the discussion above).

Finally, it is worth mentioning that in the calculus of ILD, the straightforward method of subtracting the scores for one language from scores for the other language is not the only possibility to determine the direction and/or the degree of LD as expressed in the size difference between the two scores. An alternative procedure (applied among others by Flege et al. 2002) is based on the calculation of between-languages ratios by dividing the smaller of the two raw dominance scores by the larger. In this way, the resulting ILD represents the degree of dominance in terms of a "proportional relationship of the non-dominant language to the dominant", uncaptured by subtraction methods (Birdsong 2016: 87). The more the index approaches 1, the closer the bilingual is to balanced bilingualism. In order to "represent ratio-based indices along a conventional scale, the ratio can be multiplied by 100 to move the decimal point two places to the right" (Birdsong 2016: 88). A clear advantage of ILDs calculated as ratios is that they are interpretable across studies, no matter what measure was originally used (cf. Birdsong 2016: 90).

Lastly, Birdsong (2016) also proposes to apply a method adapted from the assessment of dominance in handedness: the so-called Edinburgh index. The formula combines both subtraction and division: (scores for language X – scores for language Y) / (scores for language X + scores for language Y) × 100. With this method, results approaching 0 indicate balance, whereas extreme dominance is represented by indices approaching 100 in absolute value. An advantage is that Edinburgh-style indices, as opposed to simple ratios, do not obscure the directionality of increased dominance.

However, independently of the formula used (subtracting, ratio, or Edinburgh), a common issue of composite and global ILDs is the irretrievability of the raw values that are input to the index, which also implies that qualitative differences between bilinguals with the same or very similar overall dominance indices can no longer be recognized (cf. Birdsong 2016: 99–100, 105). For instance, two bilinguals who are substantially different at the local levels of assessment (i.e. dimension-by-dimension, domain-by-domain, item-by-item) and thus quite dissimilar in their underlying performance can obtain similar indices or even be indistinguishable at the global level of dominance. To a certain extent, global measures thus ignore the fact that LD is domain-specific and global LD does not exist (cf. Treffers-Daller 2016: 252; Grosjean 2016: 83 and above).

In order to somewhat mitigate this problem, Birdsong (2016: 102–104) suggests separating "dimension-based" (i.e. performance- or skill-related) and "domain-based" (i.e. preference- or use-related) results. He furthermore considers the possibility of exploring distinct indices for domain-related dominance: one for across-domain language use (i.e. how many domains the LX versus the LY is used for) and one for within-domain language use (i.e. how often LX versus LY is used in each of the identified domains; see also above). Similarly, Grosjean (2016: 83) underscores that domain-specific approaches to LD are "crucial to obtain a better description of the bilingual but also to help understand the data that is obtained in linguistic and psycholinguistic studies". His already mentioned Complementarity Index, which is calculated by summing up the numbers of topics (or activities) that a bilingual carries out predominantly in one language (i.e. to an extent of 61–100%), and dividing this total by the total number of topics (or activities) and multiplying by 100, represents an innovative way to assess the degree to which a bilingual's domains of life are language-specific (cf. Grosjean 2016: 72).

Finally, it is recommendable that the validity of global LDIs be checked and corroborated by running correlations both between the different internal items and modules it is composed of and with independent measures, e.g., of lexical or grammatical proficiency, which were not part of the dominance scale (cf. Birdsong 2016: 104; Montrul 2016; see also Treffers-Daller/Korybski 2016; Montrul/Ionin 2012; Dun/Fox Tree 2009). A good ILD should thus be able to predict a bilingual's performance on other (linguistic) measures.

To bring this section to a close, it can be assumed that future measures of dominance will become more and more sophisticated and will ever better take into account the many underlying phenomena that characterize the bilingual experience (cf. Grosjean 2016: 84).

Chapter 4:
Methodology, speakers, and data

This chapter introduces the methods, participants, and linguistic data used in the current study. In Section 4.1, I describe how I assessed language dominance and calculated dominance scores for the bilinguals whose data were considered for the prosodic and segmental analyses. I then provide detailed background information on all these speakers (Section 4.2), placing special focus on their language dominance as well as their language history, uses, proficiency, and attitudes (in subsections 4.2.1–4.2.4). In the ensuing section (4.3), finally, I shall present the speech material that was recorded from these speakers and explain how it was processed, outlining the criteria for the data segmentation and analysis.

4.1 Assessing language dominance

Since one of the major goals of the present study consists in investigating the effects of language dominance (LD) in Spanish–Catalan bilinguals on their speech production, assessing the participants' LD was one of the major prerequisites for this enterprise. In Section 3.5, it was shown that this can be achieved in a large variety of ways—no standard procedure being established yet—and that indices of language dominance (ILD) should ideally be gradient and take into account at least the two major dimensions language use and proficiency.

To assess their LD, a language background questionnaire (LBQ) was thus administered to the 31 participants of the present study. The LBQ used represented a slightly adapted version of the *Bilingual Language Profile* (BLP, Birdsong et al. 2012)—an open and free assessment tool for LD that is quick and easy to use and has gained increasing popularity in recent years (see also Section 3.5). As the BLP, also the LBQ employed here produced a continuous dominance score and a general bilingual profile on the basis of self-reports. It contained an introductory section for collecting biographical information about the testees in addition to the four modules designed to assess different dimensions of LD. The modules comprise a total of 18 questions, which—with exception of the questions marked by the symbol '^{S}', inspired by Simonet (2008: 88)—are directly taken from the BLP.[179] The following list provides a summary of the questions in the LBQ.

[179] Some BLP questions were dropped as they were judged inadequate for the Catalan situation: e.g., years of schooling in each language (BLP question 3) were not enquired because, due to the bilingual Catalan educational system, participants were bound to have received schooling in both Spanish and Catalan for the same number of years. Similarly, growing up in Catalonia, they had spent the entire (or at least most of the) time of their life in a region where both of their languages are spoken (question 4). Finally, BLP question 17 on identification with Spanish and/or Catalan culture was avoided in view of the tense political situation in autumn 2017, when the data collection took place.

I. Biographical information

- Name(s) and surname(s)
- Year of birth/age
- Place of birth, place of residence, length of residence (LOR), time spent in other places
- Highest level of formal education
- Current occupation
- Foreign languages
- Place of birth, places of residence, occupations and highest level of formal education, native languages of the mother, of the father, and—if they had one—of the partner

II. Module 1: Language history

- 1. Age of acquisition
- 2. Age of comfort (i.e. age at which the testee started feeling comfortable using each language)
- 3. Home language(s) in childhood [S]

III. Module 2: Language use

- 4.–6. Percentage of use in an average week with family, friends, and at school or work
- 7. Percentage of use in an average week while shopping [S]
- 8. Percentage of use in an average week with strangers [S]
- 9. Percentage of use in thinking
- 10. Percentage of use when counting

IV. Module 3: Language proficiency

- 11. Assessment of speaking proficiency in each language
- 12. Assessment of aural comprehension proficiency in each language
- 13. Assessment of reading proficiency in each language
- 14. Assessment of writing proficiency in each language

V. Module 4: Language attitudes

- 15. Degree to which the testees 'feel like themselves' when speaking each language
- 16. Importance of using each language like a native speaker
- 17. Importance of being mistaken for a native speaker
- 18. Language(s) considered as native language(s) [S]

Whereas the bibliographical data needed to be filled in, in the four modules, participants were simply asked to tick boxes to answer the questions. In Module 2, on language use, these were parts of percentage scales (with increments of 10 percent), and in Module 3 and 4, mostly part of 6-point Lickert scales, expressing different degrees of proficiency or consent to a series of attitudinal statements. Figure 4.1 illustrates this with the example of a question taken from Module 2.

En una semana normal, ¿qué porcentaje de tiempo usas las siguientes lenguas **con tu familia**?

Castellano	□	□	□	□	□	□	□	□	□	□	□
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Catalán	□	□	□	□	□	□	□	□	□	□	□
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Otras lenguas	□	□	□	□	□	□	□	□	□	□	□
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

Figure 4.1: Extract from the Spanish-language version of the questionnaire.

The questionnaire took roughly 10 minutes to complete and was administered in the language of the participant's choice. The complete Catalan and Spanish versions are given in Appendix 3 and 4, respectively.

As for the calculation of the dominance scores, all scalar responses from the four modules are associated with a certain point value—in most cases, the numerical value of the response. Exceptions are the first two items (age of acquisition and comfort) that are scored in the reverse: A '20' response is worth 0, a '19' response is worth 1, and so on (cf. "Scoring and interpreting the results" in Birdsong et al. 2012). Furthermore, in the two cases where responses were non-scalar, and instead either or both of the bilingual's languages had to be indicated (i.e. in question 3, home language(s) in childhood, and question 18, language(s) considered as native), 10 points were added to the score of the ticked language(s). Finally, the language chosen by each participant to complete the questionnaire was integrated in module 2 by adding 10 more points to the score of the respective language.[180]

In order to calculate global scores, point totals were tallied for each language separately within each module. These language totals were then multiplied by different factors so as to ensure that each module received equal weighting in the global dominance score. The new module totals were summed up to obtain a global score for each language, total points possible being 100.[181] Then, a total of three different composite dominance indices were calculated on the basis of these language totals. The first and most important one for the present work was obtained according to the method proposed in the BLP: one language total was subtracted from the other one (in this case Catalan from Spanish) yielding a dominance score that ranges from –100 to +100. This score will henceforth be referred to as dominance score A when it is necessary to distinguish it from the scores obtained from other ILDs (cf. below). A type-A score near 0 indicates balanced bilingualism, and more positive or negative values reflect LD in Spanish or Catalan, respectively. A numerical score of 100 theoretically indicates a full monolingual.

180 This choice was interpreted as a proxy for a question like 'Which language do you prefer or use more frequently to fill in forms or, more generally, for reading information boards or flyers, if you have a choice?'.

181 In the BLP, total points possible in the global score for each language (and hence also in the composite dominance index) is 218. As there seems to be no practical reason for this number, a basis of 100 was chosen in the current work, given that this permits for scores to be interpreted as percentages (i.e. 0% dominant meaning 'perfectly balanced' and 100% dominant describing a total monolingual).

In addition to this subtraction-based dominance index, two ratio-based ILDs were calculated. In ILD B, the global score of the weaker language (i.e. the numerically lower total) was divided by the global score of the stronger one and multiplied by 100 (cf. Birdsong 2016 and Section 3.6). This method allows to express the degree of dominance of each participant, i.e. the proportional relationship between their languages, which cannot be captured by subtraction. It describes the performance in the non-dominant language as a percentage of performance in the dominant one. Thus, a type-B score that approaches 100 (percent) indicates that the bilingual approaches balanced bilingualism. Besides, a third score (type C) was calculated using the "Edinburgh subtraction-then-division formula" proposed in Birdsong (2016). In this case, balance is indicated by dominance scores (type C) that approach 0, and extreme dominance is represented by scores that approach 100 in absolute value. The index thus shows the directionality of increased dominance in Catalan (negative values) and Spanish (positive values).

Finally, a Complementarity Index (CI) was computed for each participant, roughly following the method proposed by Grosjean (2016: 72). It assesses the degree to which different domains of a bilinguals' life are language specific. In the present work, it was calculated by counting the number of domains of use enquired in Module 2 of the LBQ (i.e. questions 4 to 10) in which the respective bilingual had indicated to use one language 70% of the time or more. This tally was divided by the total number of domains of use (i.e. by 7) and multiplied by 100. In this case, a CI of 0% means that all domains are covered equally by the bilinguals' two languages, and 100% means that all domains are language-specific and none is covered by both languages.

The results of the language-dominance assessment will be presented and discussed in the following section.

4.2 Speakers

The linguistic analyses performed in this work draw on speech data from a total of 31 subjects recruited at the University of Girona.[182] All of them were bilingual speakers of Spanish and Catalan[183] and had been raised in the province of Girona, most of them within the city itself or in its direct surroundings. Three informants were born in the province of Barcelona, one in Bilbao, one in Honduras, and one in Bolivia, but the six of them had moved to Girona with their

[182] Girona is a city in northern Catalonia, located roughly 100 km northeast of Barcelona. It is the capital of the province of the same name and has a population of 103,000 (IDESCAT 2021a). Catalan is spoken by 87.4% of the province's population and 55.3% use it as most habitual language in their daily life (cf. Generalitat de Catalunya 2021: 15, 21). The locality was chosen for three main reasons: (1) like Catalonia as a whole, Girona has a high proportion of immigrants (approx. 35%, Generalitat de Catalunya 2021: 11), (2) still, the degree of bilingualism is higher and the presence of Catalan is more stable and consistent in the public arena than in the metropolis of Barcelona, where there are also large differences between individual neighbourhoods (cf. e.g. Boix-Fuster 2015: 154f.), i.e. Girona's population is more homogeneous from a sociolinguistic point of view, (3) the presence of the university provided easy access to a fairly homogeneous and representative experimental group.

[183] One speaker had some basic knowledge of the heritage language Quechua.

parents by the age of two (informants born in Spain) or six (informants born in South America). Consequently, all subjects had attended school entirely in Catalonia, which was the only criterion for participation in the recruitment. All were residents of the province of Girona, and no one had passed more than a half year at a stretch outside Catalonia (with the exception of the three informants not born there, of course).

Nevertheless, it is important to point out that almost one third of the subjects' parents were born outside of Catalonia and had moved and settled down there as adults. Table 4.1 gives an overview of the origins of the 31 participants' 62 parents. As can be seen, 69% of the parents are born Catalans, whereas almost a third qualify as immigrants to Catalonia.[184]

Table 4.1: Origins of the participants' parents.

Category	Number	Places of birth
Province of Girona	36	Province of Girona
Catalonia	7	Province of Barcelona
Spain	14	Provinces of Albacete, Badajoz (3), Córdoba (2), Granada (2), Madrid, Málaga, Segovia, Gipuzkoa, Valladolid, Zaragoza
South America	5	Honduras (2), Bolivia (2), Uruguay

The informants' age ranges from 18 to 24, except for one 29-year-old speaker. The mean age of all speakers is 20.0 years (median: 19; SD: 2.1). In the Catalan-dominant (CatD) group ages range from 18 to 23 (mean: 19.6, median: 19), in the Spanish-dominant (SpD) group from 18 to 29 (mean: 20.8, median: 20).[185] Concerning sexes, there is a slightly higher proportion of females (n = 18) as compared to the males (n = 13). In the CatD group, the ratio is 12 females vs 8 males, and in the SpD group it is 6 females vs 5 males.[186]

As said before, all participants were recruited at the University of Girona, more precisely at the Faculty of Arts (Cat. *Facultat de Lletres*) or the Faculty of Tourism (Cat. *Facultat de Turisme*), and they were enrolled students in different courses of study. Table 4.2 gives an overview of their subjects.

[184] Note that these figures correspond pretty well to the to the proportion of foreign-born inhabitants of Catalonia indicated in the population statistics provided by the Generalitat de Catalunya (2019: 9) in the *Informe 2018* (see also Section 2.1).

[185] As shown below, for the purposes of the present study, participants are divided into two groups according to their dominant language (either Catalan or Spanish; cf. Section 4.1, for the assessment of language dominance). The difference between the age group means is not statistically significant as shown by a Wilcoxon test: W = 135, p = 0.274 (performing a t-test was not possible as sample sizes were smaller than 30 and the data in the two samples were not normally distributed either).

[186] A Fisher exact test showed that there is no significant association between gender and language-dominance group among the participants. The proportion of males and females can thus be considered to be the same in both groups.

Table 4.2: Subjects studied by the participants.

Subject	Total number	Number of Catalan-dominants	Number of Spanish-dominants
Spanish Philology	10	2	8
Catalan Philology	7	7	
Advertising and Public Relations	4	2	2
Tourism	5	5	
Spanish and Catalan Philologies	2	2	
Not specified[187]	3	2	1

Concerning the level of education, the group is rather homogenous as all participants had attended school in Catalonia[188], obtained the Catalan baccalaureate (cat. *batxillerat*), taken the *Selectividat* test for admission to university, and were currently students of a bachelor's degree.

Regarding foreign languages, all had learnt English as a foreign language at school. 13 of them also had some knowledge of French, acquired at school or university, and 6 had taken some German courses at university. Whereas regarding English they can be expected to be at least independent users (i.e. B1 or B2 level according to the Common European Framework of Reference for Languages, CEFRL), they self-assessed their levels in French and German to be basic (A1 or A2). Besides, two participants stated to have some basic knowledge of Italian, one of Dutch, and one of Arabic.

As already mentioned, all subjects were Spanish–Catalan bilinguals, considering that they fell into Grosjean's (2010: 4) definition of bilinguals as "those who use two […] languages […] in their everyday lives" (cf. Section 3.5). Nevertheless, there were notable differences between the analysed bilinguals, for example with regard to language use. This is clearly reflected in the participants' global dominance scores as assessed by using the methodology explained in Section 4.1. Figure 4.2 shows the subtraction-derived dominance scores (type A) obtained. They range from –57.8 (i.e. strongly CatD) to 37.8 (SpD).

[187] Unfortunately, a small number of informants only marked that they were university students on the questionnaire without indicating the career they were studying.

[188] This obligatorily implies 6 years of primary education in a *col·legi* and 4 years of ESO (Cat. *Educació Secundària Obligatòria*) in an *institut*. In Catalonia, schools with very few exceptions apply the 'language immersion' technique in their bilingual education, which makes Catalan—at least in theory—the vehicular language of public education (cf. Vila 2020b; see also Woolard 2009; Pujolar 2010; and Section 2.1).

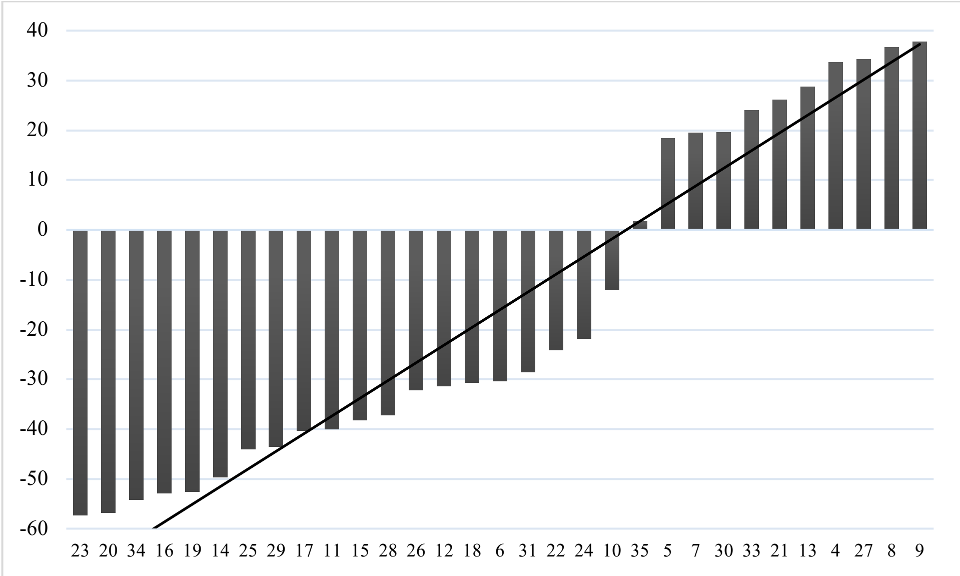

Figure 4.2: Global dominance scores (type A) obtained by the 31 participants (with trendline). Negative values indicate language dominance in Catalan, positive values in Spanish. The numbers on the horizontal axis represent the speaker ID.

The distribution of the scores along a continuum shows that there are dominants in either language as well as some relatively balanced bilinguals (rather few) among the enquired informants and thereby corroborates the view that LD is a gradient phenomenon (cf. Section 3.5). However, as it is problematic to set an arbitrary dividing point within this continuum for categorizing bilinguals either as dominant or balanced bilinguals (cf. Section 3.5), a tripartite division (i.e. Catalan-dominant, Spanish-dominant, and balanced bilinguals) will be avoided in the present work. Instead, only two groups will be distinguished in the presentation of the results: i.e., for the sake of simplicity, all informants having scored numerically negative values of the type A dominance score are labelled as Catalan-dominants (CatD), all informants with positive values are categorized as Spanish-dominant (SpD). This procedure is also supported by the bimodal distribution of the A-type dominance scores, which can be seen in Figure 4.3: in general, participants tend to be dominant in either of their languages and balanced bilingualism is rare in the current sample. Nevertheless, in the interpretation of the results, I shall take into account—whenever it may be necessary—that not all bilinguals within the two dominance groups are equally dominant in the respective language, but that those who have obtained indices in the vicinity of the cusp rather qualify as balanced bilinguals.

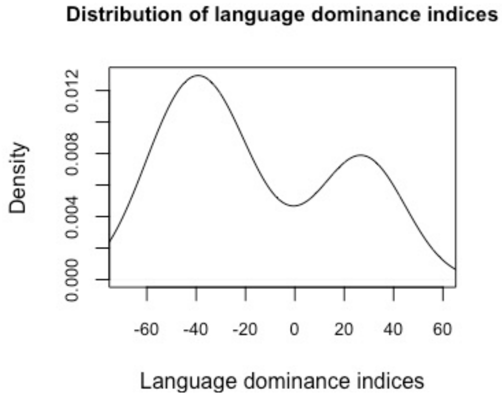

Figure 4.3: Density plot of the distribution of language dominance indices attained by the participants.

According to this classification, the current sample thus encompasses 20 CatD and 11 SpD bilingual informants. The following table provides group-specific key measures of central tendency and dispersion of the three dominance scores and the Complementarity Index as calculated following the methodology described in Section 4.1. The participants' individual results can be found in Appendix 2.

Table 4.3: Comparison of the subjects' dominance indices and Complementarity Index (group means and standard deviation).

		Dominance score A	Dominance score B	Dominance score C	Complementarity Index[189]
CatD (n = 20)	Mean	−38.9	57	−28	87
	Minimum	−57.3	38	−45	43
	Maximum	−11.9	86	−8	100
	SD	12.3	13	11	16
SpD (n = 11)	Mean	25.5	71	18	69
	Minimum	1.7	54	1	43
	Maximum	37.8	98	30	86
	SD	10.1	11	7	12

Interestingly, the CatD are not only more in absolute numbers, but the distribution of their dominance scores (type A) also reveals that their dominance is qualitatively stronger (cf. Figures 4.2 and 4.3): the average dominance value of the CatD group is –38.9, and in the SD group it is 25.5. Also, over half of the CatD (11 out of 20) have attained values that exceed the highest score obtained by a Spanish dominant (37.8) in absolute value. This view is corroborated by dominance index B, which evinces that the SD group is closer to balanced bilingualism than the CatD group. Its distribution in both groups is illustrated in Figure 4.4.

[189] Recall that this index is based on the participants' language use across different domains (viz. speaking with family, friends, or strangers, and when at school/work, shopping, thinking, or counting). The values obtained by the participants will be commented on in Section 4.2.2, on language use.

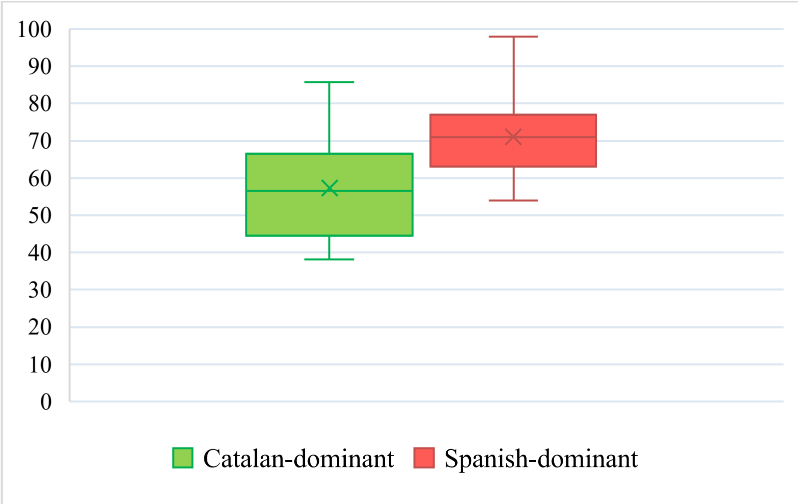

Figure 4.4: Distribution of dominance scores (type B) representing degree of dominance. Values approaching 100 indicate balanced bilingualism. The group means are significantly different ($t_{(23.0)} = 3.1$, $p = 0.005$).

Interestingly, six subjects in the CatD group have scored values (type B) under 50, which could be paraphrased as 'their Spanish is less than half as strong as their Catalan'.

ILD type C, finally, rendered a distribution very similar to that of the type-A ILD and thus corroborates the classification of the participants in groups of dominance in Spanish and Catalan. Digressions from the assessments made with ILD A are discernible in Figure 4.5, where participants are arranged according to the size of their type-A dominance score and the height of the columns represents their type-C score. However, the correlation between the two indices is very strong ($r = 0.997$).

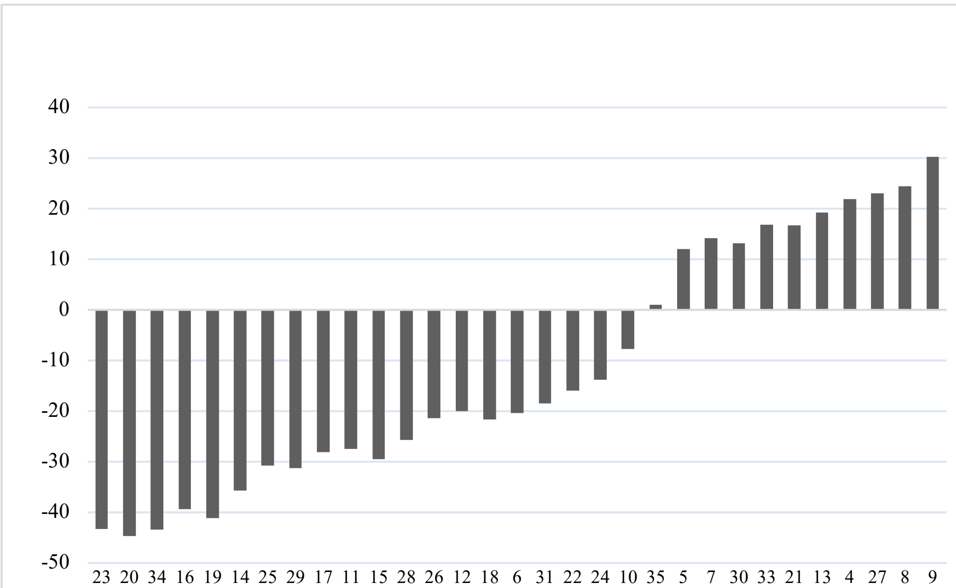

Figure 4.5: Dominance scores (type C) obtained by the 31 participants (arranged by rising type-A dominance scores). Negative values indicate language dominance in Catalan, positive values in Spanish. The numbers on the horizontal axis represent the speaker ID.

In what follows, I will further describe the biographical background data of the 31 subjects analysed in the present study as well as their language history, use, self-assessed proficiency, and attitudes as enquired through the LBQ described in Section 4.1 based on the binary division between CatD and SpD bilinguals coming from the subtraction-based dominance index A.[190]

The mother tongues of the participants' parents are shown in Table 4.4. Viewing that all parents were native speakers of Spanish, the presentation is based on whether they have native knowledge of additional languages or not.[191]

Table 4.4: Mother tongue(s) of the parents in addition to Spanish (by LD groups).

Mother tongue(s) of the parents	Both parents native speakers of Catalan	No parent native speaker of Catalan	Mixed	None native speaker of Catalan, but one or both native speakers of third languages
CatD (n = 20)	15	0	5	0
SpD (n = 11)	1	8	0	2

Interestingly, there is a strong association between the parents' native languages and the participants' LD[192]: Table 4.4 shows that only children whose parents are both native monolingual speakers of Spanish or native bilinguals speaking Spanish and a third language (in this case, Aymara, Basque, or Quechua) are dominant in Spanish (10 out of 11 cases). As soon as at least one parent was a native speaker of Catalan ('mixed family'), this language was also the dominant language of the child (see Woolard 2009: 130; Boix-Fuster/Paradís 2015 for comparable observations).[193] Besides, it is worth to point out already at this point that the percentage of Catalan usage is high in 'mixed families' (between 70 and 90%; cf. below, see also Boix-Fuster/Paradís 2015). Even so, these participants tend to exhibit numerically rather low dominance indices and are, therefore, more balanced than those of two natively Catalan-speaking parents.

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190 The outline of the ensuing part of the current section largely follows the presentation in Grünke (2020), where the results of the questionnaire evaluation were first published and extensively discussed.

191 The formulation of the respective question in the questionnaire was somewhat problematic, since some participants indicated merely Catalan as their parents' mother tongue—something virtually impossible, given that there are no longer any monolingual speakers of Catalan (cf. Section 2.1). For this reason, in Table 4, all parents who were described as native speakers of Catalan by their children were considered to be bilingual with Spanish.

192 This was confirmed by a Fisher's exact test ($p < 0.001$). Note also that the parents' mother tongue(s) were not a variable included in the assessment of the participants' LD. This link thus contributes to corroborating the validity of the ILD.

193 There is one exception: curiously, participant No. 7, who is a child of Catalan-speaking parents, is slightly dominant in Spanish (dominance value 19.5). Although both parents were born in Girona and speak Catalan as their mother tongue, the only language in the family is Spanish. Possibly, in this case, the grandparents could be of non-Catalan origin, as suggested by the two Castilian surnames of the informant, and hence Spanish the stronger language of his parents.

4.2.1 Language history

Concerning age of acquisition (**AoA)**, the participants of the present study almost without exception indicated that they started acquiring their dominant language from birth and the second language somewhat later. Table 4.5 shows the average AoA for the two dominance groups:

Table 4.5: Age of onset of acquisition of Catalan and Spanish (means of the dominance groups in years and SD).

Age of acquisition[194]	Catalan	Spanish
Catalan−dominants	0.1 (0.2)	1.5 (1.9)
Spanish−dominants	2.3 (2.2)	0.1 (0.3)

The apparent difference between the two groups means for the non-dominant language is caused mainly by the fact that the informants born in Latin America started acquiring Catalan only at the age of 6 years: if the two of them are left out, the mean age of acquisition of Catalan in the SpD group drops to 1.3 (SD: 1.9) and is thus very similar to the AoA of Spanish in the CatD group. The same pattern is found with regard to the mean 'distances' between the onset of acquisition of the dominant and the non-dominant language: in the CatD group, the mean size of the gap is 1.4 years (SD: 1.9) and, in the SpD group, it attains 2.2 years (SD: 2.2) when all participants are included and only 1.3 years (SD: 1.4) without the foreign-born subjects. There are thus no notable differences between the two dominance groups for the subjects born in Catalonia, although the SDs show that there is a fair deal of variance among individuals.

In combination with the biographical background data, the informants' AoA furthermore show that they can be qualified—depending on the exact definitions adopted[195]—either as simultaneous or successive bilinguals: for the most part, they have acquired both Spanish and Catalan either at the same time from birth (= simultaneous bilinguals) or the exposure to the second language has started at the latest in the third year of live (= simultaneous or successive according to the respective definitions of the terms). Exceptions, i.e. clearly sequential bilinguals, are merely the two SpD participants born in South America as well as two CatD speakers who indicated that they began to learn Spanish only at the age of 4 and 7, respectively.[196]

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194 The figures represent group averages and therefore display decimals. For instance, most respondents ticked the box "from birth" for the dominant language but some few marked "1 year", hence the respective average values.

195 According to Silva-Corvalán (2014: 1), there exists no agreement with respect to the age at which bilingual development should be considered sequential. Some researchers propose that bilingualism is successive "when the child's exposure to the second language starts sometime between the first and the third birthday", for others it is still to be considered as simultaneous as long as it begins before the age of 3 (see also Montrul 2013b).

196 Some researchers might even consider these cases as examples of early second language acquisition. This particular form of bilingualism occurs when a child already has one established language before starting to hear and learn a second one (De Houwer 2009: 4; Silva-Corvalán 2014: 1). In the cases of the two participants born in South America, it is obvious that they had no contact with Catalan before settling down in Girona with their parents. In the cases of the two Catalan-dominant speakers, on the other hand, it is hard to conceive how the AoA of Spanish could be as late as 7 years (e.g. due to the omnipresence of Spanish-language media in Catalonia). However, this information is congruent with the fact that these two subjects are the least balanced bilinguals of all: their dominance indices are –57.3 and –54.2.

As opposed to AoA, there is a rather clear difference between the two dominance groups concerning age of comfort. In both groups, informants indicated that they started feeling comfortable using their dominant language already in the first years of live, while this goal was attained only much later in the weaker language (cf. Table 4.6). Despite large inter-subject differences, it is interesting to note that it took the CatD speakers on average more than twice as long as the SpD group to reach this point.

Table 4.6: Age of comfort (averages in years and SD).

Age of comfort	Catalan	Spanish
CatD	1.8 (2.8)	10.6 (5.2)
SpD	4.8 (5.3)	0.6 (1.4)

Whereas the SpD bilinguals generally achieved comfort in Catalan still in their childhood (i.e. before the age of 10 and with the exception of the foreign-born informants), half of the CatD participants stated that they only started feeling comfortable using Spanish during puberty, in early adulthood, or even that they still felt uncomfortable when having to use that language.[197] Little surprisingly, age of comfort correlates moderately with LD, such that the stronger the dominance of one language over the other, the longer it takes the bilingual to achieve comfort in the non-dominant language (CatD: $r = -0.685$; SpD: $r = 0.511$[198]).

A similar relation exists also between the informants' LD and the language(s) spoken at home during their childhood (cf. Table 4.3).

Table 4.7: Language(s) spoken at home during childhood (absolute numbers of participants).

Family language(s)	Catalan	Spanish	both
CatD (n = 20)	20	0	0
SpD (n = 11)	0	9	2

While the CatD group uniformly indicated solely Catalan as the home language, among the SpDs, two marked both languages. One of these is speaker 35, who has a dominance index of 1.7 and therefore seems to be a rare case of a perfectly balanced bilingual. His mother is Catalan and his father is from Granada. The second speaker is equally relatively balanced (dominance value[199]: 18.4). However, since her parents stem from the south of the Peninsula, the use of Catalan within the family—which the young woman later in the questionnaire describes by a ratio of 60% to 40% in favour of Spanish—could only be explained if the parents had learned Catalan as a foreign language or if Catalan were used only by the speaker and her siblings.

[197] Possibly, this is—at least in part—a merit of the *immersió lingüística* 'linguistic immersion', which makes Catalan the obligatory vehicular language in the Catalan educational system and thereby facilitates its acquisition by children of Spanish-speaking families. On the other hand, the predominance of Catalan in Girona at the societal level reduces the need of using Spanish for children of Catalan-speaking families (see also Chapter 2).

[198] In the case of the CatD group, this correlation is statistically significant ($t(18) = -3.991$, $p < 0.001$). However, it warrants pointing out that age of comfort was one of the variables used to calculate dominance scores, such that the variables are not totally independent.

[199] Note that unless indicated otherwise dominance values refer to ILD type A (cf. Section 4.1).

4.2.2 Language use

Concerning language use, both dominant groups typically use their dominant language most in the seven domains enquired in the LBQ. However, there are some differences across domains, especially with regard to the proportions of use of the non-dominant languages.

Within the family, the dominant language is used on average 90% of the time. The rest of the time the second or, in one case, a third language (Quechua) is spoken.

Table 4.8: Mean percentages of language use in an average week within the family (with SD).

With family	Catalan	Spanish
CatD	92 (11)	8 (11)
SpD	9 (15)	88 (15)

With friends, these percentages change considerably. The CatD group uses Spanish more often than in familial settings, but still Catalan is clearly the most frequently used language when talking to friends. Notably, the latter is true of the SpD group as well, although in their case, the proportions of the two languages are more balanced. Nevertheless, this corroborates the predominance of Catalan in Girona at the societal level (cf. Chapter 2).

Table 4.9: Mean percentages of language use in an average week with friends (with SD).

With friends	Catalan	Spanish
CatD	82 (17)	18 (19)
SpD	54 (24)	45 (23)

Catalan is also the most important language at university or work. While the difference between the two languages is minimal in the SpD group, it reaches 37 percentage points in the CatD group. Finally, the students also use some other languages, such as German or English, to a minor extent in their language courses (~ 5%).

Table 4.10: Mean percentages of language use in an average week at university or work (with SD).

At university	Catalan	Spanish
CatD	67 (24)	29 (26)
SpD	47 (24)	48 (24)

For shopping, we observe the same trend: the dominants in Catalan prefer their dominant language, and the SpD group use both languages with similar frequencies.

Table 4.11: Mean percentages of language use in an average week when shopping (with SD).

When shopping	Catalan	Spanish
CatD	75 (19)	26 (19)
SpD	48 (27)	52 (27)

To address strangers, the SpD group equally uses both languages in equal measure. In the CatD group, Catalan is somewhat more important, but Spanish has a higher presence in this context than in others. Consequently, although it can be generally assumed that Catalan is understood by everyone in Girona, it seems that this is either not always evident for the students surveyed or that they sometimes might have the feeling that Spanish is more appropriate, for example, for reasons of politeness.[200]

Table 4.12: Mean percentages of language use in an average week with strangers (with SD).

With strangers	Catalan	Spanish
CatD	60 (24)	37 (25)
SpD	50 (19)	49 (19)

Concerning non-communicative language uses, it is not surprising that internal functions such as thinking are usually covered by the informants' dominant language (cf. Mackey 2000: 32). Nonetheless, it is noteworthy that the weaker language is somewhat more important in the SpD group than in the other one.

Table 4.13: Mean percentages of language use in thoughts (with SD).

Reckoning	Catalan	Spanish
CatD	90 (13)	7 (10)
SpD	16 (17)	84 (17)

This difference between the two groups even increases when it comes to counting. While the CatD group tends to do this almost exclusively in Catalan, the SD group prefers Spanish but also makes use of Catalan in over a quarter of the cases.[201]

Table 4.14: Mean percentages of language use in counting (with SD).

Counting	Catalan	Spanish
CatD	96 (8)	4 (8)
SpD	27 (37)	73 (37)

Finally, all the participants (except one who was dominant in Catalan) chose to complete the questionnaire in their dominant language.

With regard to the complementary distribution of the bilinguals' two languages over these seven domains of use, the CIs calculated for each participant (cf. Appendix 2 and Table 4.3,

[200] On the tendency of Catalan-speakers to use Spanish in formal contexts, in public, and with unknown or Spanish-speaking people, see also Sinner/Wieland (2008: 136–138), Boix-Fuster/Woolard (2020), and the studies cited therein. In its extreme form, such behaviour is known in Catalan sociolinguistics as *auto-odi* 'self-hatred' (cf. the discussion in Kabatek 1994; Ninyoles 1969: 74–84).

[201] One possible explanation for this behaviour may be the fact that Catalan schools teach mathematics in Catalan and, consequently, all pupils are well acquainted with Catalan numbers. Moreover, the latter turn out to be more 'practical' as pointed out by some participants, since many have fewer syllables than their Spanish counterparts: *cinc* vs *cinco* 'five', *set* vs *siete* 'seven', *vuit* vs *ocho* 'eight', *nou* vs *nueve* 'nine', *setze* vs *dieciséis* 'sixteen'.

above; for the methodology see Section 4.1) additionally revealed that usually most of the participants' domains are language specific, i.e. they are covered mainly (or totally) by only one language. The Complementarity Principle thus applies well in the present sample (cf. Section 3.6). However, this tendency is stronger among the CatD bilinguals as can be seen from the group means (87% vs 69%, cf. Table 4.3). A closer look into the questionnaires furthermore showed that in the CatD group, language-specific domains were almost exclusively specific to Catalan (97%).[202] Domains that sometimes were Spanish-specific in CatD bilinguals were merely talking to strangers and university (in the CatD students of Spanish philology). In the SpD group, on the other hand, language-specific domains were specific to Spanish to an extent of 72% and to Catalan to an extent of 28%. In their case, when there were Catalan-specific domains these were mostly talking to friends, shopping, and counting.

4.2.3 Language proficiency

As can be seen in Table 4.15, below, the bilinguals generally estimated to be highly proficient in both of their languages. Especially with regard to receptive skills (reading and listening comprehension), most of them hardly appreciated any difference between their two languages. The most pronounced differences in proficiency were observed with regard to oral expression in the CatD group, where the average evaluations of competence in two languages reached a difference of 1.1 points (on a 6-point Lickert scale and as compared to only 0.5 in the SpD group). Whether this subjective assessment is objectively correct or not cannot be determined here, of course. However, if it were incorrect, a possible explanation to the participants' erroneous evaluations might be found either in a latent inferiority complex caused by a supposed 'Catalan accent' that would make them underestimate their proficiency (cf. Montrul 2013a: 54; see also Sinner 2004: 585–588) or in their language ideology forbidding them to be equally proficient in Spanish—yet, for the time being, this is merely surmise and future studies would be necessary to provide any evidence for it.

Table 4.15: Self-assessment of proficiency in productive and receptive language skills (averages on a 6-point Likert scale[203] and SD).

		Catalan	Spanish
Speaking	CatD	5.9 (0.3)	4.8 (0.8)
	SpD	5.3 (0.9)	5.8 (0.4)
Aural comprehension	CatD	6.0 (0)	5.9 (0.4)
	SpD	5.8 (0.4)	5.9 (0.3)
Reading	CatD	6.0 (0.2)	5.4 (0.9)
	SpD	5.4 (1.1)	5.6 (0.9)

[202] The percentages given in this paragraph were calculated taking into account the total number of responses per LD group in the LBQ (i.e. 11 SpD participants × 7 domains = 77 and 20 CatD participants × 7 domains = 140) as well as the numbers of language-specific ones among these.

[203] The Lickert scale ranges from 0 ("not very well at all") to 6 ("very well").

Writing	CatD	5.8 (0.5)	5.3 (0.9)
	SpD	5.2 (0.4)	5.8 (0.4)

4.2.4 Language attitudes

Regarding language attitudes, both dominance groups attach somewhat more importance to their dominant language. They feel more like themselves when speaking their dominant language and less so when speaking the second language. In the CatD group, the average evaluation of 3.05 (i.e. in the middle of the scale) indicates that the members of this group clearly do not feel like themselves to the same extent when speaking Spanish as when speaking Catalan, although there are, of course, notable individual differences.

Table 4.16: Agreement with the statement "I feel like myself when I speak Catalan/Spanish" on a 6-point Likert scale[204] (with SD).

"I feel like myself when I speak …"	Catalan	Spanish
CatD	6.0 (0)	3.05 (2.2)
SpD	4.7 (1.1)	5.9 (0.3)

Similarly, it was also less important for the CatD group to use Spanish like a native speaker and to be perceived as a native speaker of Spanish, whereas they judged both very important with regard to Catalan (cf. the difference of almost 1.5 and 2.4 points in the average evaluations). Among the SpD, the size of these inter-language difference was notably smaller (0.45 points for attaining native competence and 1.27 for being perceived as a native speaker).

Table 4.17: Agreement with the statements "It is important to me to use (or eventually use) Catalan/Spanish like a native speaker" and "I want others to think that I am a native speaker of Catalan/Spanish" on a 6-point Likert scale[205] (with SD).

Attainment of native competence	Catalan	Spanish
CatD	6.0 (0.2)	4.5 (1.8)
SpD	5.0 (1.3)	5.5 (1.2)
Perception as native speaker		
CatD	5.8 (0.8)	3.3 (2.1)
SpD	3.7 (1.9)	4.6 (2)

Finally, most respondents considered solely their dominant language to be their 'mother tongue'. Only 16% indicated both of their languages. The inspection of the respective persons' dominance indices shows that they were rather balanced bilinguals (average 17.3). Consequently, when neither language imposes itself strongly on the other, this seems to favour the

204 The Lickert scale ranges from 0 ("disagree") to 6 ("agree").
205 The Lickert scale ranges from 0 ("disagree") to 6 ("agree").

perception of both languages as mother tongues. A clear dominance, on the other hand, increases the odds of considering only the dominant language as mother tongue.[206]

Table 4.18: Answers to the question “Which language(s) do you consider your mother tongue(s)?”.

Language(s) considered mother tongue(s)	Only Catalan	Only Spanish	Both
CatD (n = 20)	17	0	3
SpD (n = 11)	0	9	2

4.3 Materials and procedure

The collection of the material took place in November 2017 in Girona. The corpus was recorded with a Zoom H5 digital recorder and a XYH-5 shock-mounted X/Y microphone capsule in a sound-proof box at the Phonetics Laboratory (Cat. *Laboratori de Fonètica*) of the Faculty of Arts of the University of Girona. Participants were all naïve to the purpose of the study[207] and interviewed one by one. They were first asked to fill in the language background questionnaire and sign a declaration of consent, before starting the recording session. The whole procedure took roughly 40 minutes per participant, after which they were given some sweets as a reward and had the chance to informally comment on and talk about the experiment, if they wished to.

In what follows, I will first present the material analysed with respect to intonation (Section 4.3.1): for both varieties under consideration (Girona Spanish and Girona Catalan, henceforth GS and GC), these data consisted predominantly of semi-spontaneous speech (cf. Section 4.3.1.1); however, for GS, a small amount of scripted speech data were analysed in addition to the semi-spontaneous data (cf. Section 4.3.1.2). The processing, segmentation, and analysis of the intonation data will be dealt with in section 4.3.1.3. Furthermore, a set of read sentences was recorded to allow for a more in-depth analysis of prosodic phrasing of broad-focus SVO declaratives in the two contact varieties. The respective data set and its analysis will be explained in Section 4.3.2. Finally, in order to investigate segmental features, namely the voicing of intervocalic /s/, an additional corpus of recorded text readings from the same participants was registered (cf. Section 4.3.3). The different tasks designed to elicit the respective data sets needed to be absolved by the participants in the order in which they are presented in this chapter. The only exception to this is the Spanish-language version of the discourse completion task (cf. 4.3.1.1), which was recorded at the end of the recording sessions after all other tasks had been

[206] As Pujolar (2011: 365) explains Catalans have traditionally constructed language as the main emblem of their identity and in consequence “most native speakers of Catalan identify themselves as such and very rarely as ‘bilingual’ despite the fact that they have been proficient in Castilian for generations” (see also Woolard 1989).

[207] I.e., in the recruitment process, which for the most part took place in different classes taught at the University of Girona, the prospective candidates were simply asked to participate in an experiment that involved listening to short descriptions of a series of situations and uttering a sentence that would fit in that situation as well as reading out loud a text. They were first approached in Catalan, as this language was considered the most neutral choice in the given context. However, in the few cases participants switched to Spanish later on during the recording sessions, the experimenter adapted to their language choice (unless for giving instructions, cf. below).

absolved. Instructions were given either in Catalan or Spanish as a function of the language of the following task.

4.3.1 Intonational analysis

The intonational analysis of GS and GC relies for the most part on a corpus of semi-spontaneous speech collected through a discourse completion task (DCT, cf. Subsection 4.3.1.1). In addition, a small corpus of read GS yes–no questions and statements including dislocations was recorded to increase the robustness and validity of the results obtained from the DCT (cf. Subsection 4.3.1.2). The segmentation and analysis of these materials will be explained in section 4.3.1.3

4.3.1.1 Semi-spontaneous data

In order to collect authentic speech data for the investigation of the intonation of Spanish and Catalan as spoken by bilinguals in Girona, a discourse completion task (DCT) was chosen. Originally stemming from research into pragmatics, where it has a long tradition (cf. Blum-Kulka et al. 1989; Kasper/Dahl 1991; Billmyer/Varghese 2000; Félix-Brasdefer 2010), this method has been first applied to Romance prosody by Prieto (2001). By now, i.e. some two decades later, it has become a popular and wide-spread instrument of data collection (cf. Vanrell et al. 2018 for an overview of the DCT in Romance prosody research).[208] In its basic version, it can be defined as a questionnaire that comprises descriptions of different scenarios designed to elicit the desired speech act by an informant (cf. Vanrell et al. 2018: 195–196). The inductive method presents some major advantages in that it permits the collection of large amounts of (semi-)spontaneous data comparable across speakers and varieties or languages within a short period of time. Furthermore, it allows to control tightly for context (i.e. pragmatic structure and degree of presupposition) and—to a great extent—also for other relevant aspects of the target sentence, such as sentence type or type of subject or verb. At the same time speakers still have the freedom to answer in a natural way, i.e. to utter any response as long as it fits the situation evoked by the prompt, while the researcher interference can be regarded as medium (cf. Vanrell et al. 2018: 195, 199). Even though it is evident that spontaneous speech taken from natural settings represents the most ecologically valid data type, the DCT method of data elicitation was preferred in the present study for a variety of reasons. First, detailed background information on the (necessarily bilingual) speakers was crucially needed to assess their LD patterns. Second, a wide variety of utterances appropriate to different (pragmatic) contexts should be analysed. Third, the analysed utterances needed to be comparable across situations, speakers,

[208] Indeed, many—if not most—recent studies tackling Spanish and Catalan intonation have applied it (for an overview, cf. Section 3.1.2.1).

and languages. All of these requisites are probably impossible (or at least extremely difficult) to comply with by using merely corpora of naturalistic speech data.

The semi-spontaneous data used in the present study were thus elicited using a DCT questionnaire compiled by and large from the well-tried intonation surveys proposed for Northern and Central Peninsular Spanish in Prieto and Roseano (2009–2013; 2010) (more precisely, from Estebas-Vilaplana/Prieto 2010, for Castilian Spanish, and López-Bobo/Cuevas-Alonso 2010, for Cantabrian Spanish) and a slightly modified version of Prieto and Cabré's (2007–2012) questionnaire for Central Catalan. These surveys were adapted in order to develop two identical questionnaires in both languages (cf. Appendix 5 for the full questionnaires).[209] They comprise a set of short role-plays based on every-day situations designed to elicit a series of specific speech acts (cf. below). These scenarios were read to the subjects[210], who also saw a PowerPoint slide with an image in some way connected to the situation.[211] After each prompt, the informants were asked to respond verbally to the given stimulus. They were explicitly told to react in the most natural way and to phrase their reaction as they wish. Since almost all situations were of the *open item–verbal response only* type, which requires nothing more than a verbal response (cf. Vanrell et al. 2018: 196), the subjects were largely free in choosing their vocabulary and concerning phrasing of their utterances. However, they were told previously to use complete sentences and to avoid one-word responses. In some cases, the scenarios contained an indirectly formulated interlocutor initiation, such that responses corresponded to a turn of a hypothetical dialogue (e.g. situations No. 1d, 1f, 4a and b). As an illustration, two examples taken from the questionnaire are provided in (1) and (2) with some possible or expected responses:

(1) Situation 1a2: Neutral statements
The interviewer shows a picture to the subject and asks them to react verbally:
Catalan: "Mira el dibuix i digues què fa la Marina. Comença la frase amb 'la Marina'[212], si us plau!"
'Please look at the picture and tell me what Marina is doing. Please start the sentence with "la Marina".'
Possible/Expected responses: La Marina menja mandarines. / La Marina està menjant[213] una mandarina. / La Marina menja un grill de mandarina.
'Marina is eating tangerines. / Marina is eating a tangerine. / Marina eats a slice of tangerine.'
Spanish: "Mira el dibujo y di lo que ves. ¡Empieza la frase con 'Marina', por favor!"
'Please look at the picture and tell me what Marina is doing. Please start the sentence with "Marina".'

[209] The adaptations comprised slight modifications in the phrasing of the instructions, the insertion of a newly conceived situation (No. 15) and the omission of some situations.

[210] The interviews to collect both the GS and GC materials were carried out by the author of the present work.

[211] The images generally showed objects that were part of the described situation. As their primary purpose was not to improve the description of the respective situation by illustrating it but rather to structure of the recording session by reinforcing the delimitation of the single survey items, it was avoided to depict actions. Exceptions to this were situations No. 1a1 and 1a2 (cf. (1)).

[212] With this situation (in both languages), the informants were exceptionally asked to begin their sentence with the subject in order to produce SVO sentences. This was done to assure the presence of an overt subject and thereby enable the analysis of prenuclear pitch accents as well as the comparative analysis of the prosodic phrasing of SVO declaratives in both languages.

[213] In both varieties, the participants could use different tenses in the neutral statements obtained with this situation: e.g. the present (Cat. *menja* 's/he eats'), the present progressive (Sp. *está comiendo* 's/he is eating') or, only in Spanish, the periphrastic future (Sp. *va a comer* 'is going to eat').

Possible/Expected responses: Marina come mandarinas. / Marina está comiendo una mandarina / Marina se va a comer una mandarina.
'Marina eats tangerines. / Marina is eating a tangerine. / Marina is going to eat a tangerine.'

(2) Situation 2a1: Information-seeking yes–no question
The interviewer presents the following situation and picture to the subject and asks them to react verbally:
Catalan: "Entres en una botiga on mai no havies entrat i demanes si tenen mandarines."
'You go into a shop where you've never been before and ask if they have tangerines.'
Possible/Expected responses: Hola, teniu mandarines? / Que teniu mandarines? / Venen mandarines?
'Hello, do you have tangerines? / Have you got tangerines? / Do you sell tangerines?'
Spanish: "Entras en una tienda y le preguntas al vendedor si tiene mandarinas."
'You go into a shop and ask the shop assistant if they have got tangerines.'
Possible/Expected responses: Hola, ¿tenéis mandarinas? / ¿Tienen mandarinas? / ¿Vende mandarinas?
'Hello, have you got tangerines? / Do you have tangerines? / Do you sell tangerines?'

When a situation was not fully clear to the participant after the first reading, its description was repeated and sometimes explained by the researcher. Yet, this was hardly necessary as all scenarios were formulated in a brief and concise manner. Furthermore, it needs to be highlighted that it was strenuously avoided to make participants rephrase their responses when these did not correspond to the desired utterance type, since this in most cases would have implied to make them repeat a sentence pre-phrased by the interviewer, such that their response would no longer represent an instance of (semi-)spontaneous speech. When responses were disfluent, participants were usually asked one time to repeat it, but if they did not succeed by the second go, no third intend was made, as such a repetition would no longer be sure to be authentically spontaneous.[214]

The DCT was carried out in both Catalan (as first task of the recording session) and Spanish (as last task) with each participant. The total number of situations used for the data collection was 30 for each GS and GC. The elicited utterances correspond to four main sentence types: 1. (neutral and biased) statements, 2. (neutral and biased) questions (yes–no questions, disjunctive questions, wh-questions, and echo questions), 3. imperatives, and 4. vocatives. In Table 4.19, below, a detailed overview of all sentence types recorded from the 31 participants is given. It can be seen that in some cases more than one scenario was employed to elicit a specific utterance type. This was done to circumvent the common problems of the DCT that it may not portray the variety of language uses found in real situations: since each scenario can only be used once to elicit a verbal reaction by a participant, in communicative contexts where more than one intonational contour would be felicitous in the variety under concern, respondents are bound to choose merely one among possible variants (cf. Vanrell et al. 2018: 215; Borràs-Comes et al. 2015: 74–75). By providing the speakers with different situations evoking the same communicative context, I thus tried to increase the chances of observing and capturing possible

[214] For example, it would not have been possible to exclude that the repetition may have an effect on the intonation of the sentence. In particular, it would have increased the odds of getting rising contours meaning 'Am I doing it well?' or contours expressing obviousness (cf. Vanrell et al. 2018: 199).

intonational variation in those utterance types for which the academic literature points to the existence of intonational variation (e.g. information-seeking yes–no and wh-questions as well as exclamative statements, cf. Section 3.1.2.2).[215] A full list of all scenarios used for the elicitation can be found in Appendix 5.

From the 1860 responses recorded (i.e. 30 situations × 31 speakers × 2 languages), a total of 1602 IPs suitable for an intonational analysis could be extracted (824 for GS and 778 for GC). Roughly 13% of the responses originally recorded thus needed to be excluded from the analysis. Typically, this was the case when the uttered sentence did not correspond to the desired utterance type or when it contained too strong hesitations or disfluencies which made a robust analysis impossible.[216] Whenever responses contained more than one IP (e.g. when an explanation was added after the direct response to the respective situation), only the IP corresponding to the desired utterance type (i.e. usually the first one) was chosen for analysis. The exact number of IPs analysed for each sentence type is given in Table 4.19, hereunder.

Table 4.19: Sentences analysed with respect to intonation for Girona Spanish and Girona Catalan.

sentence types		number	situations (items)	number of IPs Span	number of IPs Cat
neutral statements	neutral statements (one unit)	1, 2	1a1, 1a2	58	53
	enumerations	3	1b	31	31
	neutral statements with peripheral elements (dislocations, vocatives, parenthetical elements, appositions)	4, 5, 6, 7	1c1, 1c2, 1c3, 1c4	70	68
biased statements	contrastive-focus statements	8	1d	30	28
	exclamative statements	9, 12	1e1, 1e2	63	55
	contradiction statements	10	1f	30	30
	dubitative statements	11	1g	31	26
neutral polar questions	information-seeking yes–no questions	13, 14, 15	2a1, 2a2, 2a3	93	93
	information-seeking yes–no questions with a peripheral element	16, 17	2b1, 2b2	61	59
	disjunctive questions	18	2c	29	28
biased polar questions	exclamative yes–no questions (with counterexpectational meaning)	19	2d	31	25
	confirmation-seeking yes–no questions	20	2e	30	31

215 For this very purpose, a small amount of read data was recorded in addition to the DCT. Furthermore, this also served the goal of multiplying the methods, cf. the next section (4.2.1.2).

216 The exact grounds for the exclusion of a response given to a prompt by a participant are specified in the respective sections of the results of the intonational analysis presented in subchapter 5.1.

neutral wh-questions	information-seeking wh-questions	21, 22	3a1, 3a2	58	57
biased wh-questions	exclamative wh-questions	23	3b	31	28
	imperative wh-questions	24	3c	29	27
echo questions	echo yes−no questions	25	4a	27	27
	echo wh-question	26	4b	31	30
	exclamative echo yes−no questions (with counterexpectational meaning)	27	4c	29	29
imperatives	commands	28	5a	13	9
	requests	29	5b	18	13
vocatives		30	6	31	31
total				824	778

4.3.1.2 Read data

Alongside the semi-spontaneous data (cf. previous section), a short Spanish dialogue was recorded with the objective of collecting the following two GS utterance types by each participant: yes−no questions headed by the complementizer *que* and statements containing dislocations (cf. (3), below, or Appendix 6). According to the academic literature (cf. Section 2.3), these two sentence types do either not occur in monolingual Mainstream Spanish at all (viz. *que*-questions in information-seeking contexts) or their use is clearly more marked and less frequent than in Catalonian Spanish (*que*-questions in other pragmatic contexts and dislocations). Both sentence types thus contain features whose presence in Catalonian Spanish is habitually attributed to the intense language contact with Catalan, where they are common (cf. Section 2.3). However, given that their intonation in CCS has not yet been thoroughly described, the reading task was administered in order to guarantee that the present corpus would contain such items from each participant and to enable an intonational analysis of these utterance types. This could not be achieved with semi-spontaneous data only, for the nature of the discourse completion task (DCT) consists in letting the participants freely chose the phrasing of their sentences and each context allows for only one answer. Considering that the use of *que*-questions and dislocations usually represents only one possible alternative among many other, often more common variants, it could not be guaranteed that the participants would produce them in sufficient numbers in the corpus of (semi-)spontaneous speech to permit a sound analysis. Besides, it is probable that at least some bilinguals are aware of the fact that the use of both *que* in yes–no questions and of (a large number of) dislocations in CCS is a feature that derives from contact with Catalan. Knowing that these are non-standard variants, they might therefore avoid them in recording situations. A secondary aim of the inclusion of read data into the intonational analysis was to complete the results obtained through the DCT through evidence from additional tasks and thereby increasing the robustness and validity of the present study (a technique known as triangulation of methods, cf. Vanrell 2018: 221).

The dialogue used in the recordings is given in (3); a translation is provided in Appendix 6.

(3) *Joan y Mercè están en la oficina trabajando. Son las 12 h.*

Mercè: Joan, voy al bar a tomar un café. ¿Que quieres venir conmigo? (A)
Joan: ¿Que tomas café al mediodía? (B)
Mercè: Sí, claro. Yo bebo muchísimo, de café (D1). Probablemente, demasiado…
Joan: Pues, no lo sabía… Bueno, termino esto y vamos, ¿vale?
Mercè: ¡Que no! Me apetece ir ahora mismo. Ya sabes que tengo muy poca, de paciencia (2).

Salen de la oficina.
Joan: ¿Que llueve? (C)
Mercè: Parece que sí…

Mercè se resbala y se cae al suelo.
Joan: ¡Uy! ¿Que te has hecho daño? (D2)

The dialogue consisted of a total of 62 words of fictional direct speech, embedded in background descriptions of the respective situation (in italics). Catalan person names were used for the fictional characters so as to situate the scene in Catalonia and thereby making its Catalan-tinted phrasing more natural. It contained a total of four yes–no questions (marked with capital letters) and two dislocations (D1 and D2). Among the yes–no questions, two were information–seeking (A and D[217]), one was an exclamative echo yes–no question with a counterexpectational meaning (B[218]), and one was confirmation-seeking (C). Question D was taken from Moll (1961: 472) and Wesch (1997: 301), C is a literal translation of Cat. *Que plou?* (cf. Prieto/Rigau 2007: 33), and A and B were made up by the author of the present study. In A, C, and D, the use of *que* results clearly impossible or unnatural in monolingual varieties of Mainstream Spanish. In B, on the other hand, *que* is natural (and possibly preferred) even in Spanish, since it in this case represents a 'citative' introductory particle that marks the yes–no question as 'attributed', i.e. as a question that (partly) cites words actually or supposedly pronounced by the interlocutor and seeks for a confirmation of the meaning expressed by them (Escandell-Vidal 1999: 3965–3967, 3978). The recordings of this question should permit a comparison of the intonation of authentic Spanish *que*-questions with such that are only possible in CCS as an outcome of transfer from Catalan.

217 Please note that in D a confirmation-seeking interpretation is theoretically possible as well if Joan assumes that Mercè has indeed hurt herself. However, the given context does not favour such an interpretation. In A, an information-seeking interpretation is the only possible interpretation.

218 In theory, this question may also be interpreted either as a simple exclamative yes–no question (with counter-expectational meaning), since *tomas café* 'drink coffee' only partly resumes (i.e. echoes) *tomar un café* 'drink a coffee' from the interlocutor's sentence. However, the presence of *que* as a 'citative' element clearly favours an echo interpretation. Another—but in this context even less probable—interpretation could be one as a simple confirmation-seeking yes–no interrogative.

Concerning the two dislocations, partitive elements were chosen bearing in mind that they would clearly mark the dislocations as representing a CCS speech style. In both cases (sentence 1 and 2), the dislocated element was the complement of a quantifier (Sp. *muchísimo* and *poca* 'lots of' and 'little', respectively) that was part of the main clause of a declarative statement. The corresponding Catalan quantifiers (Cat. *molt/moltíssim* and *poca*) can be followed either directly by the quantified noun—as in Mainstream Spanish—or a 'partitive' *de* can be intercalated between the quantifier and the noun (Brucart/Rigau 2002: 1543–1545). This use is banned today in (Mainstream) Spanish by prescriptive norms, but it is reportedly found in Spanish varieties that are in contact with Catalan (e.g. by Radatz 2008: 123). When the quantified noun phrase is dislocated in Catalan (be it to the right or to the left), it obligatorily needs to be resumed by the adverbial clitic pronoun *en* (Vallduví 2002: 1236). As there is no such pronoun in Modern Spanish, parallel Spanish constructions lack it: *¡No quiero más yo, de vino!* (Radatz 2008: 123). While sentence 2 was adapted from Szigetvári (1994: III, 15), who documented it from a radio broadcast, sentence 1 was constructed in a parallel way by the author of the present work. Catalan equivalents would be *Jo en prenc/bec moltíssim, de cafè* and *En tinc molt poca, de paciència.* Rather than merely to record dislocations that are common in any other Mainstream Spanish variety by Girona bilinguals, the goal of this way of elicitation and the stimuli just described was to observe how Girona bilinguals intonate dislocations that are common and frequent in Catalan, may occur in CCS, but are ungrammatical in Mainstream Spanish. Considering that such uses typically occur in emphatic or even exclamative constructions (Radatz 2008: 124), similar contexts were chosen in the dialogue as well.

Reading the dialogue was the second task in the experiment and, as such, had to be carried out after the Catalan DCT. The text was presented to the participants on a PowerPoint slide after giving them the necessary instructions: they were asked to first have a look at the text in order to prepare for reading it aloud and then, when they felt ready, to do so playing both parts (i.e. Mercè *and* Joan) and pronouncing each stretch of direct speech as if they were in the described situation. In the very few cases participants got stuck while reading, they automatically repeated the respective line.

4.3.1.3 Data segmentation and labelling

All data recorded in the waveform audio file format (WAV) were transferred to a MacBook Air computer and converted from stereo to mono using the software *Audacity* (version 2.3.3). Subsequently, the files were cut with this very same program. All further analyses performed on the data were carried out using the software *Praat* (Version 6.1, Boersma/Weenink 2020). In what follows, I shall introduce the criteria for the data segmentation and clarify the methodological choices made in the intonational analysis.

In a first step, the stretches of speech to be analysed with regard to their intonational properties were extracted from the responses given by the participants in the DCT as well as from the read speech corpus.[219] As shown in the description of the prosodic phrasing properties of (Castilian) Spanish and (Central) Catalan presented in Section 3.1.1.1, 3.1.2, and 3.2.2, it is generally assumed that the IP is the greatest unit relevant for intonation and that the ip is the next hierarchically lower level from the IP (cf. Nibert 2000; Hualde 2002; Estebas-Vilaplana/Prieto 2008, 2010; Hualde/Prieto 2015, among others, for Spanish; Prieto et al. 2015; Benet 2011, Prieto 2014, Prieto et al. 2015 for Catalan). Regarding the varieties studied in this work, neither the grouping patterns of GC nor GS have been described before, but there is no reason to assume that they behave any differently from the respective reference varieties.[220] The speech material collected for the intonational analysis of the two languages was thus segmented into intonational phrases (IPs), intermediate phrases (ips), and (orthographic) words. Furthermore, stressed syllables were delimited and marked in the corresponding Praat TextGrids.

In the present work, I assumed (1) that each IP contains at least one intermediate phrase, (2) that all adjacent intermediate phrases within a root sentence group together within an IP, and (3) that the end of each IP is tonally marked by a nuclear configuration consisting of a combination of a (nuclear) pitch accent (on the last stressed syllable) and an IP boundary tone (i.e. T* T%, where T stands for 'tone'). As for ips, I presupposed that they equally end in a nuclear configuration consisting of a pitch accent and a boundary tone. However, a distinction was made between inner (or non-IP-final) and IP-final ips. In the first case, a (nuclear) pitch accent and an ip boundary tone were labelled (i.e. T* T-). In the latter case, i.e. when the end of the IP-final ip was also the end of the IP, I only labelled the nuclear configuration of the IP (i.e. T* T%).[221]

Concerning the segmentation of utterances into IPs, mainly syntactic criteria were applied. Most importantly, each root sentence of an utterance was assumed to form an IP by its own. Peripheral elements (such as dislocations, parenthetical elements, vocatives, appositions, or tags) were equally analysed as independent IPs in line with, among others, Frota (2014: 11), who explains that they form "string[s] not structurally attached to the sentence tree". The same holds true for interjections and particles or sentence words such as Cat./Sp. *sí* 'yes' or *no* 'no'.

[219] Please note that some of the recorded responses needed to be withdrawn from the intonational analysis for various reasons (cf. specified in the respective result sections).

[220] Since the data recorded for the intonational analysis of GS and GC were not designed to test prosodic constituency and to determine the nature of prosodic units, I thus assumed that the ip is the next hierarchically lower prosodic level below the IP also in both GS and GC.

[221] This practice is in accordance with the overwhelming majority of recent studies on both Spanish and Catalan carried out within the AM-theoretical framework and represents the Spanish and Catalan ToBI labelling conventions (cf., e.g., Estebas-Vilaplana/Prieto 2010; Hualde/Prieto 2015; Prieto et al. 2015, among many others; see also Section 3.1.2.1 for further studies). Although this way of annotation is not conform with the original AM proposal (nor with the conventions of the ToBI annotation systems for many languages such as English, German, or Greek, cf. Beckman/Pierrehumbert 1986; Beckman 1996; Beckman et al. 2005; Frota 2012; Grice et al. 2005; Arvaniti/Baltazani 2005), the issue has to my knowledge only been addressed explicitly very rarely in minor comments such as "beide Töne werden sozusagen 'in einem' realisiert" 'both tones [i.e. the IP and the ip boundary tone] are realized—so to speak—'in one' [i.e. merely as an IP boundary tone]' (Gabriel et al. 2013: 197).

The criteria applied for the further segmentation of IPs into **ips**, in both GS and Catalan, were (1) perceptual and (2) theoretical in nature. From a theoretical point of view, ips are defined by the presence of a nuclear pitch accent and a boundary tone (cf. above and Section 3.1.1.1).[222] With regard to perception, I analysed root sentences in both GS and GC as IPs comprising more than one ip whenever one or more prosodic break(s) were realized within the IP, i.e. when at least one of the following cues was clearly present: a pause, pre-boundary lengthening, continuation rise, sustained pitch, pitch reset, or drop of the F0 to the base level.[223] This procedure was applied to both the semi-spontaneous data elicited through the DCT and to the read data.[224] In this manner, for example neutral SVO declarative statements with a prosodic break after the subject were analysed as compound IPs consisting of two ips: $((S)_{ip}(VO)_{ip})_{IP}$. In addition, I also analysed declarative enumerations (elicited with the DCT situation 1c; cf. Appendix 5) and disjunctive questions (elicited with DCT situation 2c) as complex IPs which consist of more than one ip (cf. Estebas-Vilaplana/Prieto 2010 and Willis 2010 for a similar analysis of enumerations and disjunctive questions in Spanish[225]). In some few cases, utterances containing (minor) disfluencies caused for example by hesitation, breathing, coughing, laughing, or false starts were retained for the intonational analysis when the researcher was sure that this would not influence the results of the analysis. Such phenomena were marked with the label 'X-' in the prosodic boundary tier.

The location of **stress** in prosodic words (non-verbs and verbs) was defined on the basis of the stress-assignment rules presented in Oliva/Serra (2002: 348–359), Wheeler (2005: 276–297), and Prieto (2006a) for Catalan, and in Hualde (2005: 222–233), Kubarth (2009: 180, 183–185), and Gabriel et al. (2013: 154–160) for Spanish (see also Section 3.1.2), as well as by taking into account the speakers' individual productions (cf. below for the annotation of such cases).

The segmentation of stressed **syllables** was done following the criteria for syllabification and resyllabification proposed in Lloret (2002: 207–224, 242–246) and Wheeler (2005: 78–123) for Catalan, and those in Hualde (2014: 56–89) for Spanish, as well as by considering the speakers' individual productions (cf. below for the criteria applied in segmentation of the speech signal).

222 Following Estebas-Vilaplana/Prieto (2008: 275) and Prieto et al. (2009: 299), among many others, I analyse edge tones of ips as boundary tones rather than as phrase accents (cf. Section 3.1.1.1).

223 All unclear cases were consulted with at least one, in most cases two further raters, who were familiar with the analysis of prosodic phrasing. An ip boundary was annotated only when at least two raters (e.g. the author of the present work and a further expert) agreed that it was perceivable.

224 As will be shown in the results (presented in Chapter 5), IPs comprising more than one ip were regularly found in some statements and questions (collected through both the DCT and in the reading task) but not in imperatives or vocatives (DCT situations 5a, 5b, and 6).

225 Please note that some other scholars, such as Vizcaíno Ortega et al. (2008), argue in favour of analysing the first disjunct of alternative questions as intonational phrases ending in a H% boundary tone because of the durational properties of the nuclear and postnuclear syllables.

As for the delimitation of the boundaries between syllables and segments, an acoustic and auditory analysis following standard phonetic criteria was carried out by focusing special attention on the acoustic description of Spanish sounds provided by Hualde (2005: 58–69) and Gabriel et al. (2013: 34–38) and analysing both the oscillogram and the spectrogram. The following criteria were considered: **1)** All boundaries were set at the point of zero crossing of the waveform (Peterson/Lehiste 1960; Lang-Rigal 2014; Kireva 2016a). **2)** The location of the boundaries between segments was determined considering the formant structure, the amplitude and period of the signal, and the distribution of energy visible in the spectrogram (Peterson/Lehiste 1960; Grabe/Low 2002; White/Mattys 2007). For example, the onset of vowels following a voiced fricative consonant was usually set at the beginning of the vowel's second formant. Sequences of sonorants (especially of combinations of vowels and nasals or laterals as well as diphthongs) were separated by observing their formant transitions and the amplitude of the signal (Grabe/Low 2002). If possible, the beginning of the second segment was placed at the narrowest point of the soundwave. If such a point was not observable, i.e. when the two segments (especially identical vowels or nasals) could not be differentiated, the midpoint of the F2 transition was selected as location of boundary (Lang-Rigal 2014; Henriksen 2014: 94).[226] **3)** When a syllable was realized after a silent pause and began with a plosive or an affricate, the beginning of the respective onset consonant was set 0.05 seconds before the burst of the plosive (Mok/Dellwo 2008; Kireva 2016a). **4)** When the end of a syllable was followed by a silent pause, the closing boundary was set considering the formant structure (F1 and F2 for final vowels; F2 for final laterals and nasals), the end of the pitch contour, and the amplitude of the signal (Peterson/Lehiste 1960; Grabe/Low 2002; White/Mattys 2007; Kireva 2016a).

In a next step, all prenuclear pitch accents, nuclear[227] pitch accents, and boundary tones occurring in the data recorded and judged suitable for the intonational analysis of both GS and GC were labelled using the tonal inventory of pitch accents and boundary tones proposed for Castilian Spanish and Central Catalan within the AM model (cf. Section 3.1.2). To offer a detailed description of the tonal shape of each sentence type and to determine the realization of prenuclear pitch accents that occurred in different positions within the sentence, the prenuclear pitch accents were divided into three groups in the presentation of the results whenever the utterances were long enough to yield a substantial number of items for each group:

– IP-initial prenuclear pitch accents: the first prenuclear accent in an IP (if the IP consists of more than one ip, this is the first prenuclear accent of the first ip)
– phrase-internal prenuclear pitch accents: any prenuclear accent that appears between the first prenuclear accent and the nuclear accent of an ip

[226] Due to coarticulation effects, i.e. gestural overlap, segments can "ineinander übergehen und sich kontinuierlich verändern" 'merge into each other and change continuously' (Gabriel et al. 2013: 35; Hualde 2005: 233–234, 244; Browman/Goldenstein 1991).

[227] As mentioned above, each ip, be it IP-final or not, is assumed to have a nuclear pitch accent, which is normally associated with its last underlyingly stressed syllable. In contrast, prenuclear pitch accents are those which, within an ip, precede the nuclear pitch accent (cf. Section 3.1.1.1 for detailed explanations of this terminology).

– ip-initial prenuclear accents of non-IP-initial ips: the prenuclear pitch accent associated with the stressed syllable of the first prosodic word of an ip which does not occur in the initial position within the IP. For instance, the following IP contains three ips: $((\text{ip})_1(\text{ip})_2(\text{ip})_3)_{\text{IP}}$; while $(\text{ip})_1$ is an IP-initial ip, $(\text{ip})_2$ and $(\text{ip})_3$ represent non-IP-initial ips.

Figure 4.7, below, illustrates the intonational analysis by means of an example from GS.[228] The IP *Marina come mandarinas* 'Marina is eating tangerines' consists of two ips. The first ip is composed only of the prosodic word *Marina*[229] 'Marina', which carries an L+H* pitch on its stressed syllable (*-ri-*). Given that it represents the last (and only) pitch accent of the ip, it is referred to as its nuclear pitch accent. It is followed by a high ip boundary tone (H-). The nuclear configuration of the first (or inner) ip is thus L+H* H-. The second (and IP-final) ip comprises two prosodic words, both of which carry a pitch accent. The first one is the prenuclear pitch accent L+<H*, associated with the stressed syllable *co-* of the prosodic word *come* 'eats'. The second one, L*, is the nuclear pitch accent of this IP-final ip. It associates with the stressed syllable *-ri-* of the prosodic word *mandarinas* 'tangerines'. Together with the boundary tone of the IP, L%, which is aligned with the end of the IP, it forms the nuclear contour of this neutral declarative statement (i.e. L* L%).[230] The nuclear configurations of the inner ip and the final contour of the IP do not merely differ regarding the tones they are composed of (i.e. L+H* H- vs L* L%) but also they express a pragmatic difference: while the nuclear contour of the inner ip conveys that the utterance continues, the final contour indicates its sentence type—here, a neutral statement—as well as the end of the sentence. For this reason, I will refer to such final contours, composed of the nuclear pitch accent of the IP-final ip and the boundary tone of the IP, as the nuclear contour or nuclear configuration of the IP.

[228] The figures that illustrate the intonational analysis were made using a Praat script written by Wendy Elvira García (cf. Elvira García 2018), which, in turn, was inspired by a previous script created by Pauline Welby (Aix-Marseille University) in 2003 and subsequently changed by Paolo Roseano (University of Barcelona) in 2011.

[229] Stressed syllables are signalled by underlining them.

[230] As mentioned above (cf. Fn. 221), in the present work, I adopt the view that the end of the ip is tonally marked by a boundary tone. This means that the IP-final ip of an IP and the respective IP will always have the same (monotonal or bitonal) boundary tone, since the end of the IP-final ip is also the end of the IP. For this reason, I will label only IP boundary tones in the figures used to illustrate the intonational analysis of GC and GS.

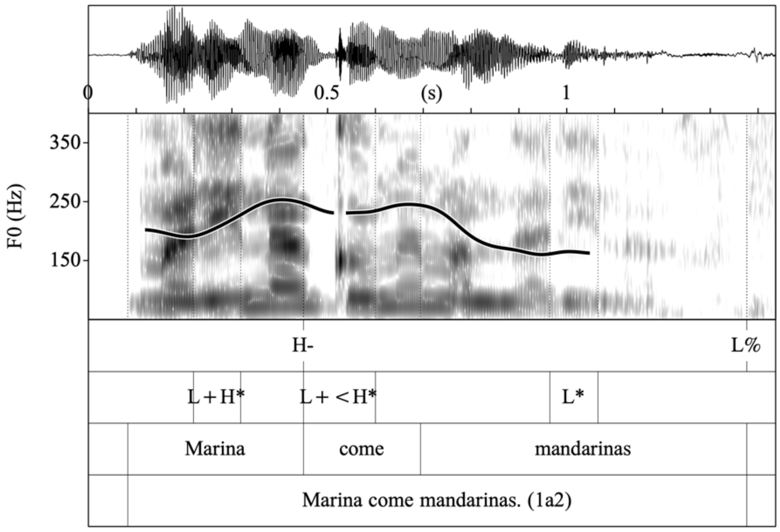

Figure 4.6: Segmentation of a neutral statement for the intonational analysis (Girona Spanish *Marina come mandarinas.* 'Marina eats tangerines.'; 5S2).

The layout of the figures used to illustrate the intonational analysis largely follows the general ToBI conventions (cf. Section 3.3.1.2), i.e. they consist of the waveform or oscillogram, the spectrogram, and the pitch curve of the respective utterance in the upper panel and usually four annotation levels or 'tiers' in the lower level. However, some minor modifications were made with regard to the annotation in the different tiers. In the present study, the lowermost tier provides an orthographic transcription of the whole utterance (usually followed by combination of numbers and/or letters serving to identify the utterance type). Above, a word tier is represented. In the following tier (i.e. No. 3 from below), pitch accents are annotated within the limits of the stressed syllables they associate with. Finally, the uppermost tier, indicates the boundary tones and, if present, disfluencies.[231] The unique ID of the respective utterance is given at the end of the figure caption. It combines the speaker ID, a letter indicating the language ('S' or 'C' for Spanish and Catalan), and the number of the stimulus used for elicitation (cf. Table 4.19).

For reasons of space, no separate break-index tier was included in the representations, in view of the fact that the position of the break indices (BI) 0, 1, 3, and 4, proposed within the ToBI frameworks for Spanish and Catalan (cf. Beckman et al. 2002; Estebas-Vilaplana/Prieto 2008, 2010; Prieto et al. 2009, among others) can be understood from the other tiers included in the representation. BI 0, which marks the separation between orthographic words, is represented by the boundaries in tier 2 (counting from below). BI 1, i.e. the boundaries between prosodic words, can be deduced from tier 2 and 3. Since tier 3 indicates the stressed syllables of each prosodic word, it suffices to take the orthographic word in tier 2 below each stressed syllable in tier 3 and to add the preceding orthographic words which do not have a stressed

[231] As already noted, in some few cases, utterances containing (minor) disfluencies caused e.g. by hesitation, breathing, coughing, laughing, or false starts were still retained for the intonational analysis when the researcher was sure that they would not change the results of the analysis. Such phenomena were marked with 'X-' in the prosodic boundary tier.

syllable (or pitch accent) indicated in tier 3 of their own.[232] Break indices 3 and 4, finally, which correspond to intermediate phrase (BI 3) and intonational phrase ends (BI 4), are indicated by the respective boundary-tone labels annotated in the uppermost tier.

As outlined in Sections 3.1.2 and 3.1.2.2, especially IP-internal words can sometimes be pitch-deaccented in both Central Catalan and Castilian Spanish (see also Hualde/Prieto 2015; Prieto et al. 2015). Regarding the analysis of GC and GS, I counted underlyingly stressed syllables of phrase-internal prosodic words[233] as being pitch-deaccented if a high, mid, or low plateau was realized within the temporal boundaries of these syllables (cf. O'Rourke 2006; Rao 2008b, 2009). However, in view of the fact that such plateaus may be part of a pitch accent such as, e.g., the bitonal L*+H, which is "phonetically realized as an F0 valley on the accented syllable with a subsequent rise on the post-accentual syllable" (Estebas-Vilaplana/Prieto 2010: 19), and can appear in prenuclear position in both Castilian Spanish and Central Catalan (cf. Prieto et al. 2000; Estebas-Vilaplana/Prieto 2010), I also checked the tonal movements of the surrounding syllables (i.e. the respective pretonic and the post-tonic syllable) before labelling an underlyingly stressed syllable as pitch-deaccented. Following, among others, Hualde/Prieto (2015: 364), I used an asterisk ('*') to indicate stressed syllables that show no tonal correlates. For the statement types that were regularly long enough to contain phrase-internal prosodic words, deaccentuation rates were calculated (i.e. for neutral broad-focus declaratives sentences, exclamative and dubitative statements, or information-seeking yes–no questions). When, in individual productions, the underlyingly stressed syllable of a prosodic word was pitch-deaccented but stress was phonetically realized on another syllable of the same prosodic word, the deaccented syllable was equally marked with an asterisk and a pitch accent was labelled on the syllable which actually bore the surface stress.

Concerning further diacritics, the upstep, i.e. the symbol '¡', was annotated when the realization of a pitch accent or boundary tone reached a higher pitch level than that of a preceding high target. The downstep diacritic ('!'), on the other hand, was only used when the high target of a pitch accent was realized at a level that was noticeably lower than it would be expected according to regular declination or final-lowering rules (cf. 3.1.1.1). This is to say, syntagmatic downstep was not indicated in the annotations, since it can be largely considered to be an automatic effect (cf. Hualde/Prieto 2015: 362). As for boundary tones, the label '!H-' was used to annotate sustained pitches (cf. Sections 3.1.2.1 and 3.2.2). Furthermore, a high boundary tone was occasionally transcribed when an ip ended in a stressed syllable showing a low plateau, i.e. an L* pitch accent, and the following ip began with a high tone, i.e. with a pitch reset (see also Section 4.3.2 for the description of different boundary cues and the corresponding labels).

[232] This is possible since in the Spanish and Catalan orthographies proclitics are spelled as orthographic words of their own, whereas enclitics are orthographically attached to their host (either directly, as in Spanish, or using a hyphen or apostrophe, as in Catalan).

[233] Phrase-internal prosodic words are those which occur between the first prosodic word and the last prosodic word within an ip.

In the (relatively few) cases where it was impossible to determine the underlying combination of pitch accent and boundary tone by a mere analysis of the surface pitch contour, i.e. typically when the utterance ended in an ultimate-stress word, I usually used the labels of the nuclear configurations found in other items of the same utterance type, which ended in words stressed on the penultimate or antepenultimate. When this was not possible, usually the simplest, i.e. the most parsimonious combination of a pitch accent and a boundary tone was labelled (e.g. L* H% rather than L+H* H% when the respective syllable showed a continuous rise).

After defining the prosodic phrasing patterns and the tonal realization of all sentence types, an inventory of underlying pitch accents and boundary tones was established for both varieties under investigation.

4.3.2 Analysis of prosodic phrasing

The analysis of prosodic phrasing strategies in GS and GC as spoken by bilinguals with different patterns of LD draws on both read and semi-spontaneous speech. In what follows, I will first describe the task used to elicit read speech and the analysis of the corresponding data set, before briefly commenting on the analysis of the (smaller) semi-spontaneous data taken from the DCT data (cf. Section 4.3.1.1).

As for the recorded reading corpus, a set of 8 broad-focus SVO declaratives was recorded from each participant in their two languages. To ensure maximal comparability of the present results with those obtained in previous studies carried out on other varieties of Spanish and Catalan (cf. Section 3.2), I closely followed the experimental design of Gabriel et al. (2011), who themselves drew on previous work conducted within the scope of two cross-linguistic studies by D'Imperio et al. (2005) and Frota et al. (2007). The Spanish target sentences were thus adapted from Gabriel et al. (2011: 160f.; cf. (5), below); their Catalan counterparts are essentially literal translations (cf. (6), below).

The stimuli used in both languages consisted of two sets of four sentences each. Every set contained a simple SVO declarative as well as three more elaborate versions of the first one showing various degrees of branchingness on the subject and/or the direct object DP. Whereas the syntactically branching constituents used as target phrases in the first set of sentences (utterances 1–4) are composed of a head noun and an adjectival modifier, in the prosodically branching conditions (second set, utterances 5–8), Spanish and Catalan full names, i.e. a first name and two surnames, were used, given that such names consist of three elements that bear no (syntactically) dependent relationship to one another. This difference between the syntactic and prosodic branchingness conditions[234] is illustrated in the examples provided in (4a) (= syntactically branching) and (4b) (= prosodically branching), taken from Gabriel et al. (2011: 157). They represent two branching subject DPs, which were also part of the stimuli of the present

[234] Please note that syntactic branchingness always entails prosodic branchingness (cf. D'Imperio et al. 2005: 78; Gabriel et al. 2011: 158).

study (cf. below). Prosodic words are indicated by round brackets, syntactic structure is signalled by indexed square brackets.

(4) a. (la libélula) (amazónica)
[$_{\text{DP}}$ la [$_{\text{NP}}$ [$_{\text{N'}}$ [$_{\text{N'}}$ [$_{\text{N}}$ libélula]] [$_{\text{AP}}$ amazónica]]]]
'the Amazonian dragonfly'
b. (Bárbara) (Duarte) (Álamo)
[$_{\text{DP}}$ [$_{\text{NP}}$ Bárbara Duarte Álamo]]

Furthermore, all subject constituents appearing in the target SVO constructions ended in proparoxytonic words such as Cat. *libèl·lula* 'dragonfly' or *Fàbrega* (Catalan surname). The maximal distance between the pitch accents associated with the metrically strong syllable and the end of the word should allow for a better detection of additional tonal movements in the posttonic stretch.

The Spanish target sentences are given in (5). They are adapted from Gabriel et al. (2011: 160f.). The branchingness of the subject (s) and direct object (o) DPs is indicated by doubling or tripling the respective lower-case letters in the brackets.

(5) 1. La libélula miraba la belladona. (svo)
2. La libélula miraba la belladona venenosa. (svoo)
3. La libélula amazónica miraba la belladona. (ssvo)
4. La libélula amazónica miraba la belladona venenosa. (ssvoo)
'The (Amazonian) dragonfly used to look at the (poisonous) belladonna'.

5. Bárbara miraba a Verónica. (svo)
6. Bárbara miraba a Verónica del Olmo Solana. (svooo)
7. Bárbara Duarte Álamo miraba a Verónica. (sssvo)
8. Bárbara Duarte Álamo miraba a Verónica del Olmo Solana. (sssvooo)
'Bárbara (Duarte Álamo) used to look at Verónica (del Olmo Solana).'

In the Catalan versions of target sentences, Spanish full names were changed to Catalan ones and personal articles as well as the coordinating conjunction *i* were added. The following sentences were used:

(6) 1. La libèl·lula mirava la belladona. (svo)
2. La libèl·lula mirava la belladona metzinosa. (svoo)
3. La libèl·lula amazònica mirava la belladona. (ssvo)
4. La libèl·lula amazònica mirava la belladona metzinosa. (ssvoo)
'The (Amazonian) dragonfly used to look at the (poisonous) belladonna'.

5. La Bàrbara mirava la Verònica. (svo)
6. La Bàrbara mirava la Verònica Borja i Andrada. (svooo)
7. La Bàrbara Vives i Fàbrega mirava la Verònica. (sssvo)
8. La Bàrbara Vives i Fàbrega mirava la Verònica Borja i Andrada. (sssvooo)
'Bàrbara (Vives i Fàbrega) used to look at Verònica (Borja i Andrada).'

For the recording, the participants were thus presented with each of the 16 target sentences in graphic form on a single PowerPoint slide accompanied by a visual stimulus depicting the situation described. To obtain broad-focus readings, they were asked to produce the target sentences as though they were answering to the general question "What happened?". The speakers were told to read out the target sentences at a normal pace, i.e. using a speech rate they considered to be appropriate, for example, when reading out a text aloud to another adult, i.e. leaving the exact speech rate up to them (cf. Prieto 2006; Rao 2007: 347). They were encouraged to correct, i.e. to re-read, a sentence when they felt that they had not read it out properly the first time. In some cases, when subjects got entangled reading out a sentence, the experimenter explicitly asked them to repeat it. The Spanish sentences were presented first, since the previous task, i.e. reading a dialogue (cf. 4.3.1.2) had been in Spanish as well. By this procedure, a total of 496 tokens (248 per language) were recorded. Nevertheless, a minor number of the recorded sentences needed to be withdrawn from the prosodic analysis due to strong disfluencies or slips of the tongue. The final corpus thus includes data from 31 subjects and consists of 494 tokens (248 Spanish and 246 Catalan ones).

After preparing the data for study (cf. the procedure described in Section 4.3.1.3 for the intonation data), the prosodic analysis of the data set was performed with Praat (Boersma/Weenink 2020). The first step consisted in detecting boundaries in the data on the basis of an auditory analysis, i.e. by carefully listening to the recordings. In cases of doubt, at least one further rater, familiar with the analysis of prosodic phrasing, was consulted. A boundary was annotated only when at least two raters (e.g. the author of the present work and one further expert) agreed that it was perceivable (see also Fn. 223, in Section 4.3.1.3, for the application of the same procedure in the analysis of the semi-spontaneous speech data). In accordance with the methodology applied in Gabriel et al. (2011: 163), I assume that the prosodic boundaries discussed here represent intermediate phrase (ip) boundaries, which are obligatorily marked by an ip boundary tone (cf. Section 3.2).[235] In a second step, I thus investigated the surface reflexes of each boundary on the F0 by inspecting it for the following phonetic tonal cues, compiled from the scientific literature on tonal marking of ip boundaries in Spanish and Catalan (namely, Frota et al. 2007: 134–137 and Gabriel et al. 2011: 163–170; see also Section 3.2.2)[236]:

– Continuation rise (CR): a continuous F0 rise from the last stressed syllable until the break, i.e. the regular downward trend is overridden by the presence a high boundary tone. Possible phonetic label: H-.
– Sustained pitch (SP): the pre-boundary stretch is realized as a rise on the last stressed syllable before the break, followed by a high plateau that continues until the boundary. Possible phonetic label: !H-.

[235] Since it is irrelevant for the division of the utterances into ips, I do not discuss the phonetic realization of the utterance ends, which I consider represent IP boundaries in the present work. Nevertheless, it is worth pointing out that the recorded sentences almost unexceptionally ended with a low tone that could be labelled as 'L%'.

[236] Please note that ip boundaries may be signalled not only by tonal modulations of the F0 but also by non-tonal phonetic cues, such as pauses (i.e. stretches of silence present at the phrasing boundary) or durational cues.

– (Sustained) 'hat contour' (HC): resembles the SP in initially maintaining the pitch height in form of a plateau but differs from it in exhibiting a clear pitch drop before the break. The plateau may spread out over more than one word. Possible phonetic label: HL-.
– Complex boundary tone (CB): the F0 exhibits a small dip between the pre-boundary pitch accent and the high F0 peak signalling the boundary. Possible phonetic label: LH-.
– Pitch reset (PR): regular declination is interrupted either by a pitch reset directly after the boundary at the beginning of the following phrase (cf. Frota et al. 2007: 134; Benet et al. 2011: 109f.), i.e. that phrase begins with a local F0 maximum ('type 1'), or the ip boundary is signalled by the scaling of the first pitch accent past the boundary, which is significantly upstepped ('type 2', cf. Gabriel et al. 2011: 163f.).
– Pre-boundary upstep (PU): significant upstep of the accent preceding the boundary (see also Myers 2004: 147). The respective pitch accent may be labelled with an upstep (¡).
– Drop to the base level or low boundary tone (LB): at the boundary, the F0 drops to the speaker's base level. Possible phonetic label: L-.

As can be seen, the list includes a wide range of possible tonal realizations of ip boundaries, all of which have in common that they somehow interrupt the regular downward trend, i.e. the declination of the F0 contour (Selkirk/Tateishi 1991). Most of them can be straightforwardly interpreted as phonetic surface realizations of an underlying high ip boundary tone, /H-/, that modifies the tonal movements on the pre- or post-boundary stretch, i.e. directly before or after the posited boundary tone (cf. Gabriel et al. 2011: 163–170). This underlying high tone may be realized simply as H- (i.e. CR) or !H (i.e. SP). In the cases of the complex boundary tone (CB) and the hat contour (HC), I assume the insertion of an additional low target to the left or right of H- and represent their surface realizations as LH- and HL, respectively. However, underlying /H-/ may also affect the scaling of the pitch accents located in the close surrounding of the boundary, i.e. directly before or after it. This is the case of PU and of PR 'type 2' (when the reset occurs not directly at the boundary but on the first stressed syllable after it). I thus equally interpret these cues as surface reflexes of one and the same underlying boundary tone, H- (cf. Gabriel et al. 2011: 164). Finally, in the case of drops of the F0 to the speaker's base level (i.e. L- boundary tones), it is less clear which should be the underlying representation. This issue will be further addressed in Section 5.3.3.

Concerning the presentation of the results of the analysis of prosodic phrasing performed on the corpus of scripted speech, I will, in a first step, take into account solely the boundaries that separate the main syntactic constituents of the sentence, i.e. the subject from the verb or the verb from the object. After describing the phrasing patterns found for the different branchingness conditions, I will describe the phonetic realization of the boundaries used to express these patterns. Then, in a second step, I will address prosodic breaks that may separate these constituents internally, e.g. when an adjective is phrased separately from the noun it modifies.

The last part of the analysis of prosodic phrasing in the two Girona varieties concerned in the present work is constituted by the analysis of a small corpus of (semi-)spontaneous utterances. For this, a total of 111 (i.e. 58 GS and 53 GC[237]) broad-focus neutral declarative sentences from the intonational analysis, viz. the items obtained with the situations 1a1 and 1a2 of the DCT (cf. Section 4.3.1.1 and Appendix 5), were subjected to an analogous analysis to the one performed on the read speech data: i.e. the respective phrasing patterns at hand were established based on the phrasal boundaries that had been identified and annotated in Praat TextGrids in the intonational analysis. Along the same lines as in the analysis of the read data set, the following (lower-case) labels were used to indicate the branchingness of the respective constituents: 1) Subjects (which were never branching) were annotated with 's'. 2) Verbs were given the label 'v' if the present tense was used and 'vv' if a compound tense such as the present progressive or the periphrastic future had been chosen. 3) Regarding objects, the label 'o' was used for single non-branching (direct or indirect) objects. Branching objects or two successive objects (i.e. a direct and an indirect one) were annotated as 'oo'. 4) In a few cases, prepositional phrases that were not part of the object were realized: either as complements (e.g. *Està gaudint de la seva beguda de llimona.* 'She is enjoying her lemon drink') or as adjuncts. These were labelled using 'pp' and 'ad'. No separate inspection of the tonal boundary cues was carried out for the (semi-)spontaneous data set, since the boundaries had already been examined in the intonational analysis (cf. Section 5.1.1.1)

4.3.3 Segmental analysis

To investigate the influence of LD on the amount of intervocalic /s/ voicing in the Spanish variety spoken by bilinguals in Girona, a further reading task was administered to the 31 participants of the present study. The instrument of recorded reading was chosen for the following reasons. First, it was judged preferable to elicit a rather formal speech register, since (sporadic) voicing assimilation (i.e. gestural overlap between adjacent segments) as well as non-standard variants in general are known to occur more often in (fast) colloquial speech styles than in more distant registers (cf. Davidson 2015a: 208f., 2015b: 124; Hualde et al. 2011). The more formal speech style used in reading thus better matched with the goal of the present analysis to investigate /s/ sonorization as a systematic process or feature of CCS. Second, as non-standard variants are more likely to be avoided in more conservative speech styles (Moreno Fernández 2009: 101; Tagliamonte 2012: 34; Davidson 2015a: 105)[238], the occurrence of consistent /s/ voicing in reading pronunciation would further underpin its status as a characteristic feature of CCS.

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[237] Some of the 124 utterances originally recorded with the respective DCT situations could not be analysed for a series of reasons (mainly due to strong disfluencies, cf. Section 5.1.1.1 for more details on the exclusion of some of the recorded items).

[238] This might be especially pertinent for features that entail a negative connotation or are stigmatized, such as the velar pronunciation of /l/ in CCS (cf. Davidson 2012, 2015a, 2015b; Simonet 2008).

Finally, reading tasks afford the researcher with better control of the participants' speech production in that they facilitate the production of a balanced number of tokens that can be controlled for different linguistic factors (see also Moreno Fernández 2009: 314; Davidson 2015b: 126).

The reading task consisted of a slightly adapted version of the reading text proposed in the 'investigation protocol' of the corpus phonological research programme *(Inter-)Fonología del Español Contemporáneo* ((I)FEC, Pustka et al. 2018), which offers a series of materials conceived for the collection of different types of speech data and has the aim to document and study the phonic variation found throughout the Spanish-speaking world and in the pronunciation of foreign language learners of Spanish. The text comprised a total of 386 (orthographic) words and took between 2 to 3 minutes to read. It was presented to the participants on a sheet of paper, and it is reproduced in full in Appendix 7. Before reading the text out loud, the participants were given as much time as they wished to familiarize themselves with it. They were asked to read it at a normal pace and to repeat each sentence from its beginning if they got entangled somewhere during their reading.

A total of 20 intervocalic /s/ tokens from the text were chosen to be analysed from each subject with respect to sonorization (i.e. 20 target tokens × 31 subjects = 620 tokens overall). Half of the target items were placed in word-final intervocalic and the other half in word-internal intervocalic position. Regarding the first type of phonic environment, the occurrence of [z] is commonly attributed to Catalan influence in the Spanish varieties that are in contact with this language, given that in Catalan, in opposition to (Mainstream) Spanish, there is a phonological rule requiring that /s/ be sonorized to [z] (cf. Chapter 2.3). In the following, I present the respective target items according to their syntactic position within the sentence:

(7) between determiner and noun: *los insectos*, *las estanterías, los otros*
between adverb and verb: *más aumentan*
between copula and complement: *es un hombre*, *es así*
between subject and copula: *los insectos restantes están*
between noun and adjective: *un caos enorme*, *elefantes amarillos*
within a fixed expression: *Gracias a Dios*

With regard to the word-internal intervocalic position, voiced realizations of underlying /s/ have sometimes been reported to be present in Catalonian Spanish in words that have Catalan cognates exhibit /z/ in the same position, i.e., for instance, Sp./Cat. *presentar* 'to present', pronounced [pɾesenˈtaɾ] in Spanish and [pɾəzənˈta] in (Central) Catalan. According to Costa et al. (2005) and Brown/Harper (2009), cognates can be expected to trigger a parallel lexical activation within the interconnected lexicon of bilingual speakers. In the present case, Catalan cognates featuring /z/ would thus provide a source of direct transfer to CCS (see also Davidson 2015b: 130). For this reason, in the experiment, the Spanish target words featuring /s/ in word-medial intervocalic position were selected in such a fashion that half of them had Catalan cognates with /z/ (cf. 8), while the other half has equivalents with voiceless segments in the respective position (cf. 9).

(8) *causa*, *casa*, *sorpresa*, *suntuosa* (Cat. *sumptuosa*), *mariposa*[239]

(9) *posee* (Cat. *posseeix*), *así* (Cat. *així*), *pasa* (Cat. *passa*), *profesor* (Cat. *professor*), *ese* (Cat. *eixe, aqueixe*)

An important difference between these two positions (i.e. word-final and word-internal) is that the voicing of Spanish /s/ due to contact with Catalan can be seen as transfer of a phonological rule vs transfer of a phoneme, respectively. Whereas word-final sibilant voicing in Catalan is possibly best explained as resulting from increased gestural overlap, i.e. as an assimilation taking place at the phonetic level (Campos-Astorkiza 2014: 19), word-internal voicing may also imply the transfer of a Catalan phoneme and, hence, affect the Spanish phonological system. This fundamental difference thus justifies the separate analysis of /s/ tokens in both phonic environments (see also Hualde/Prieto 2014).

Concerning stress, most target tokens appear in unstressed syllables, since previous studies have shown that intervocalic /s/ voicing is favoured across unstressed syllables (Davidson 2014: 237–239; 2015a: 211; 2015b: 138).[240] However, given that the (I)FEC text only contains five words with intervocalic /s/ that have Catalan cognates with a voiceless fricative in the same position, stressed syllables could not be entirely avoided (cf. (9), above).

After the preparation of the sound files (cf. the procedure described in Section 4.3.1.3 for the intonation data), the intervocalic fricative productions of interest were submitted to a token-by-token detailed phonetic analysis in Praat (Boersma/Weenink 2020), using a combination of manual and automated methods. In a first step, those (relatively few) tokens presenting notable speaker disfluencies (principally short pauses disrupting word-final target items from the following vowel) were discarded from the analysis (cf. Section 5.4 for exact numbers). Then, a manual fricative boundary segmentation was performed by marking the left and right boundary for each segment relying on both the waveform and the spectrogram to find the zero-intercept in the waveform closest to the first and last signs of aperiodic noise, respectively (cf. Campos-Astorkiza 2014: 21; Erker 2012: 56–57; File-Muriel/Brown 2011: 227–228; Rohena-Madrazo 2011: 31–33; Schmidt/Willis 2011: 6; Davidson 2015a: 129–132).

Once the intervocalic fricatives were segmented, a method for analysing their voicing needed to be chosen, as the phonetics and phonology literature offers a wide range of procedures that have been applied in analysing (de)voicing phenomena. These include: the percentage of the fricative segment's duration that is voiced, different measures of the segment's energy properties (e.g. harmonicity, intensity, centre of gravity), and temporal properties such as total segment duration (see Gradoville 2011 for an overview). Following a series of previous studies on

[239] Although the standard Catalan equivalent for Sp. *mariposa* 'butterfly' is *papallona*, the Spanish word appears as a (loan) variant in the DCVB (s.v. *mariposa*) as well as in some lists of barbarisms (cf. "Llista de castellanismes en català", Viquipèdia 2020). Furthermore, it is rather transparent that it is in fact a compound word containing the component Sp. *posar* [poˈsaɾ] 'to sit down (on)', cognate with Cat. *posar* [puˈza] 'to put'.

[240] As explained, e.g., by Campos-Astorkiza (2014: 19), gestural magnitude tends to be greater in stressed positions, i.e. stressed syllables are usually articulated more carefully. In consequence, the probability for gestural overlap to occur between adjacent segments, here between /s/ and the surrounding vowels, is lower when they form part of a stressed syllable. Conversely, /s/ voicing is more likely to surface in less controlled, i.e. unstressed, contexts.

/s/ voicing in different Spanish varieties (among others, Schmidt/Willis 2011, for Mexican Spanish; Hualde/Prieto 2014; Torreira/Ernestus 2012, for Madrid Spanish; Campos-Astorkiza 2014, for North-Central Peninsular Spanish; and Davidson 2014, 2015a, 2015b for Barcelona Spanish; Chappell 2016; Chappell/García 2018 on Costa Rican Spanish; Chappell 2011; García 2020 for Ecuadorian Spanish), it was chosen to measure intervocalic /s/ sonorization in terms of the percentage of each segment's voiced duration for the following reasons: first, this method was corroborated by Gradoville (2011) as a valid measure of fricative voicing. Second, using the same measure should facilitate more transparent comparisons with previous studies. And third, this method yields results along a gradient, non-discrete continuum. Concerning the last point, it is worth mentioning that detailed acoustic analyses are preferable to impressionistic coding by the researcher, since that "removes the problem created when binary classifications are imposed on gradient data", reduces possible experimenter bias, and facilitates comparison and replication by other researchers (cf. Eddington 2011: 2).

Relating to spectral properties of the segment, the percentage of the fricative segment's duration that is voiced (henceforward, '%voiced') can be computed either manually or by using Praat's voice-report function. However, considering that the pulse-based algorithm of this function is known to be error-prone in that it sometimes reports invalid percentages of locally unvoiced frames that do not match the spectral activity shown in the spectrogram (Gradoville 2011: 69–71), exact voicing durations were measured manually. In order to do so, the Praat pitch settings were specified according to speaker gender and the spectrogram viewing window was first adjusted to be exactly twice the size of the /s/ segment and centred on the /s/ segment with the aid of a Praat script, given the fact that the fundamental frequency contour, i.e. the pitch track, in the spectrogram is calculated with respect to visible window length (cf. Davidson 2015a: 131). Then, the portions of each fricative segment that exhibited a F0, a voice bar at the bottom of the spectrogram, glottal pulses, periodicity in the waveform and/or a clearly identifiable formant structure were labelled as voiced (cf. Campos-Astorkiza 2014: 21; Gradoville 2011; Hualde 2014: 48–53; Chappell 2011: 60; Rohena-Madrazo 2011: 31–33; Schmidt/Willis 2011: 6; Torreira/Ernestus 2012; Davidson 2015a: 129–132). An example spectrogram illustrating a more voiced and a less voiced realization of Spanish intervocalic /s/ produced by the same speaker is shown below in Figure 4.6. It can be observed that during the duration of the second token (as opposed to the first one) there is an interruption of the F0, of the formant structure, and of the pulses, and that there is no clearly discernible voice bar.

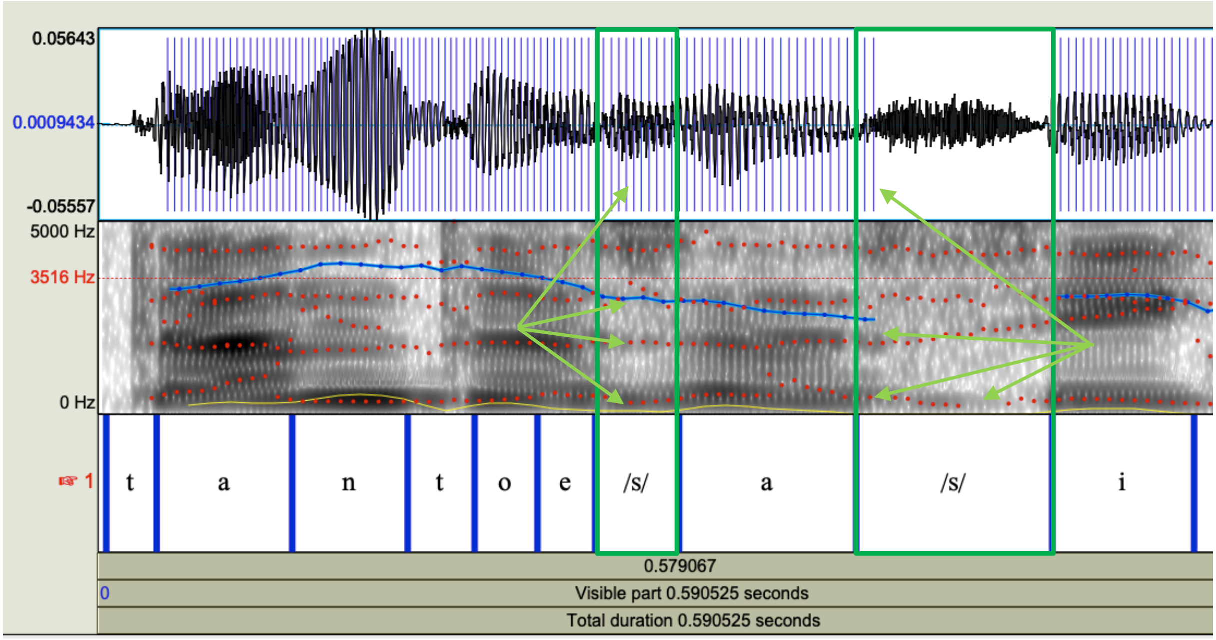

Figure 4.7: Rendition of /s/ tokens 12 and 13 (*tanto es así* 'so much so') by speaker 5 (SpD, f). The proportion of voiced duration is 100% and ca 10%, respectively.

After the labelling of the voiced and unvoiced parts of each target segment, the corresponding durations were extracted by the means of a Praat script and %voiced was calculated for each item. Furthermore, each item was coded for position (including cognate status for word-medial position), stress, and speaker, as well as for gender and LD of the speaker. Finally, the resulting data were submitted to a statistical analysis, whose results will be presented in Section 5.4. When it was necessary to perform a binary categorization of the realizations as (perceptually) voiced (i.e. [z]) or unvoiced (i.e. [s]), a voicing threshold of 60% was adopted following Davidson (2015a: 116; 2015b: 131) and Schmidt/Willis (2011: 6), among others.

Chapter 5: Results

This chapter sets out the results of the intonational and segmental analyses of Girona Spanish and Girona Catalan (GS and GC, respectively). Section 5.1 gives the results of the intonational exploration of the contact varieties made (mainly) on the basis of the semi-spontaneous data and offers an overview of the tunes they typically use in the following sentence types: 1) neutral statements (Section 5.1.1); 2) biased statements (Section 5.1.2), 3) neutral polar questions (Section 5.1.3), 4) biased polar questions (Section 5.1.4), 5) neutral wh-questions (Section 5.1.5), 6) biased wh-questions (Section 5.1.6), 7) echo questions (Section 5.1.7), 8) imperatives (Section 5.1.8), and 9), vocatives (Section 5.1.9). Section 5.1.10, finally, completes the observations made with regard to some GS utterance types in the previous sections by means of an intonational analysis of some additional read speech data.

In Section 5.2, I go into the phonological status of the pitch accents and boundary tones attested in the previous sections and establish the inventory of pitch accents and boundary tones for both GS and GC. Section 5.3 deals with prosodic phrasing, and Section 5.4 is dedicated to the segmental analyses.

5.1 Intonational analysis

5.1.1 Neutral statements

In this section, I present the results of the intonational analysis of neutral declarative statements, enumerations, and four different types of peripheral elements that can be part of a declarative statement (viz. dislocations, vocatives, parenthetical elements, and appositions). In each part, I will describe the tunes employed by the participants by presenting the prenuclear pitch accents and nuclear configurations found in the data. Their phonological status will be discussed in Section 5.2, after the description of the tonal realization of all sentence types considered.

5.1.1.1 Neutral declarative statements

This section lays out the results of the intonational analysis of the neutral declarative statements. I will present the realizations of prenuclear pitch accents, nuclear configurations of inner ips (i.e. the combination of the nuclear pitch accent and the boundary tone of an inner ip), and nuclear configurations of IPs (i.e. the combination of the nuclear pitch accent of the IP-final ip and the boundary tone of the IP; cf. Sections 3.1.1.1 and 4.3.1.3). The phonological status of these tunes will be discussed in Section 5.2. From a total of 123[241] utterances recorded with

[241] One participant's first sentence was not recorded due to a technical problem (No. 15).

situation 1a1 and 1a2 (cf. Appendix 5), 58 GS and 53 GC IPs could be included in the intonational analysis (see also Table 4.19; for a detailed description of the wording and phrasing of these utterances see Section 5.3.4).[242]

The prenuclear pitch accents for neutral declaratives gathered with situation 1a1 and 1a2 amounted to 117 for GS and 93 for GC. They were divided into three different groups according to their position within the ip: IP-initial prenuclear accents[243], ip-initial prenuclear accents of non-IP-initial ips[244], and phrase-internal prenuclear accents[245].

The following **IP-initial prenuclear pitch accents** were found in the data examined for the two languages under consideration: L+<H* and H* (in both GS and GC), and L+H* (only in GS). Of these, the delayed peak, i.e. L+<H*, occurred by far the most commonly (76% in GC, $n = 31/41$, 63% in GS, $n = 25/40$). An example can be seen in Figure 5.1-1, below. The three instances of L+H* that were found in the GS data set (accounting for 7.5% of all pitch accents in this position) most probably represent phonetic realizations of L+<H*, since they always occurred in the context of stress clashes or tonal crowding (i.e. twice on the ultimate-stress word *mujer* 'woman' followed directly by *bebe* 'drinks', stressed on the first syllable, and once on *María* directly followed by *come* 'eats', which bore an L+<H* pitch accent) (see also Section 5.2.1).

As concerns the use of H*, which represented 30% ($n = 12$, GS) and 26% ($n = 10$, GC) of the IP-initial prenuclear pitch accents (cf. Figure 5.1-2), it was checked whether it can be attributed predominantly to either of the two dominance groups: 9 out of 10 Catalan examples stem from Catalan-dominant speakers (CatD), and in Spanish, this share drops moderately (8 out of 12 items stemming from CatD participants). Even though this distribution suggests that there might be a greater probability for this pitch accent to occur in CatD speakers, Fisher exact tests did not show a significant association between the use of either L+<H* or H* and a particular dominance group in neither language (GS: $p = 0.696$; CG: $p = 0.063$, i.e. only marginal significance).[246] However, given that this could be an effect of the small numbers of cases, further research on the topic would be desirable.

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[242] Some few sentences had to be discarded from the intonational analysis for a series of reasons: first, four Spanish and two Catalan utterances could not be considered due to strong disfluencies in the realizations. Furthermore, six Catalan sentences had to be excluded from the intonational analysis because the participants ended them with a high, question-like intonation, i.e. they were implicitly asking the conductor of the experiment if they were doing well (cf. Vanrell et al. 2018: 199 on this problem). The relatively high number of 'failed' productions in Catalan comes as no surprise since the Catalan neutral declarative statements were the first test items of the DCT. A small number of participants thus still felt some insecurities at this point of the data collection despite the previous training.

[243] IP-initial prenuclear accents are the first pitch accents of an IP (i.e., here, of the utterance) provided that they are not part of a nuclear configuration—be it that of an ip or of an IP (see also Fn. 244).

[244] These are the pitch accents associated with the stressed syllable of the first prosodic word of an ip which, in turn, is not the first ip within an IP. For instance, the following example represents an IP which consists of three ips: $[(ip)_1\ (ip)_2\ (ip)_3]_{IP}$; while $(ip)_1$ is an IP-initial ip, $(ip)_2$ and $(ip)_3$ are non-IP-initial ips.

[245] These comprise all pitch accents that occur between the first prenuclear accent and the nuclear configuration of any ip.

[246] Recall that the sizes of the two dominance groups are not equal (20 CatD vs 11 SpD bilinguals).

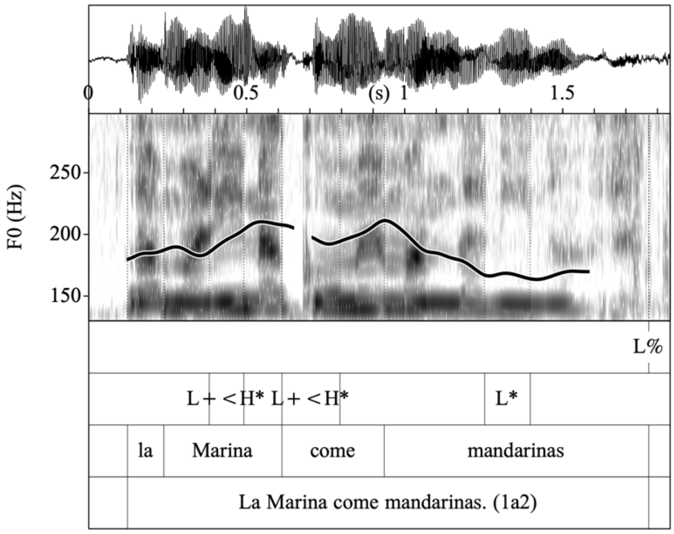

Figure 5.1-1: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral statement *La Marina come mandarinas.* ‘Marina eats tangerines.’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L+<H* prenuclear accent, a phrase-medial L+<H* prenuclear accent, an L* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is L* L% (24S2).

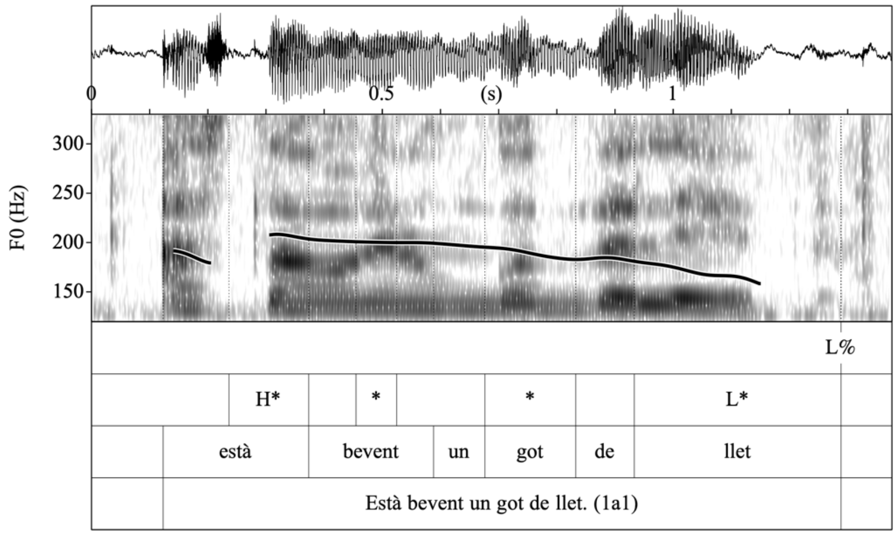

Figure 5.1-2: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral statement *Està bevent un got de llet.* ‘She is drinking a glass of milk.’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an H* prenuclear accent, two pitch-deaccented prosodic words (*bevent* and *got*), an L* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is L* L% (14C1).

As regards ip-initial prenuclear accents of non-IP-initial ips, a somewhat different picture arises. Generally, the pitch accents found in this condition were of the same nature as the ones at the beginning of the first ip of an IP: H* and L+<H* (see Figures 5.1-3 and 5.1-4 for examples). However, H* was more recurrent here than in IP-initial position. In Catalan, this pitch accent accounted for 12 out of 16 items (75%), whereas in Spanish it occurred with the same frequency

as L+<H* (7 items of each). Although in Catalan 9 items (i.e. 75%) stemmed from CatD subjects and 5 (71%), in Spanish, no association between the use of either H* or L+<H* and language dominance (LD) could be found (p = 1.0 for GS and p = 0.242 for GC).

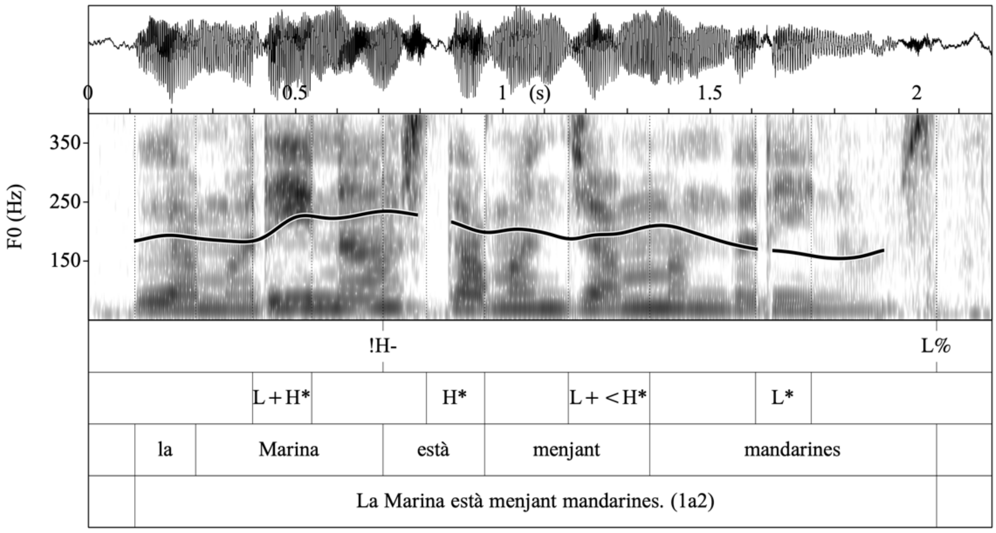

Figure 5.1-3: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral statement *La Marina està menjant mandarines.* 'Marina is eating tangerines' produced by a Spanish-dominant speaker. It represents an IP composed of two ips. The first ip is produced with an L+H* nuclear accent and a !H- boundary tone. The second ip consists of an ip-initial H* prenuclear accent, a phrase-internal L+<H* accent, an L* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is L* L% (8C2).

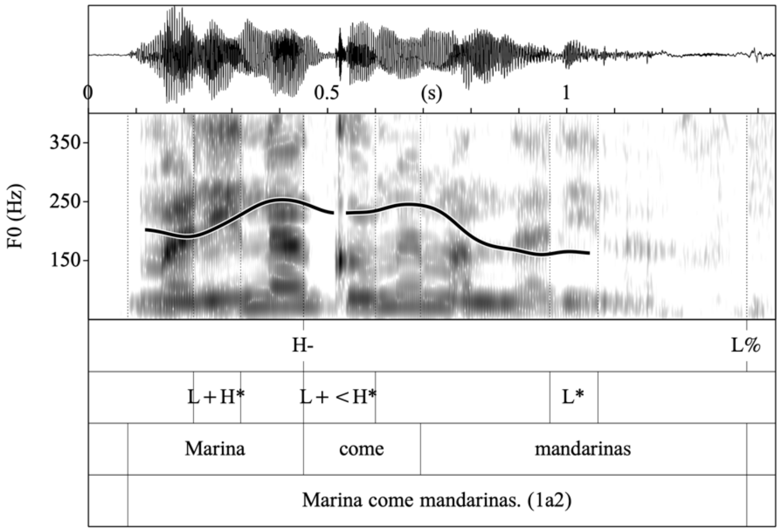

Figure 5.1-4: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral statement *Marina come mandarinas.* 'Marina eats tangerines' produced by a Spanish-dominant speaker. It represents an IP composed of two ips. The first ip consists of an L+H* nuclear accent and an H- boundary tone. The second ip is produced with an ip-initial L+<H* prenuclear accent, an L* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is L* L% (4S2).

Furthermore, it is worth pointing out that the stressed syllable of the first prosodic word of a non-initial ip was sometimes analysed as pitch-deaccented if the fundamental frequency did not show any up- or downwards movement within the limits or in the surroundings of that syllable.

Such plateaus occurred four times in each of the languages studied on the auxiliary verbs Sp. *está* or Cat. *està* ‘is’ which were part of verbs in the present progressive tense. In both varieties, all but one of these instances of deaccentuation were produced by CatD speakers. They were marked with a ‘*’ in both contact varieties (cf. Figure 5.1-5).

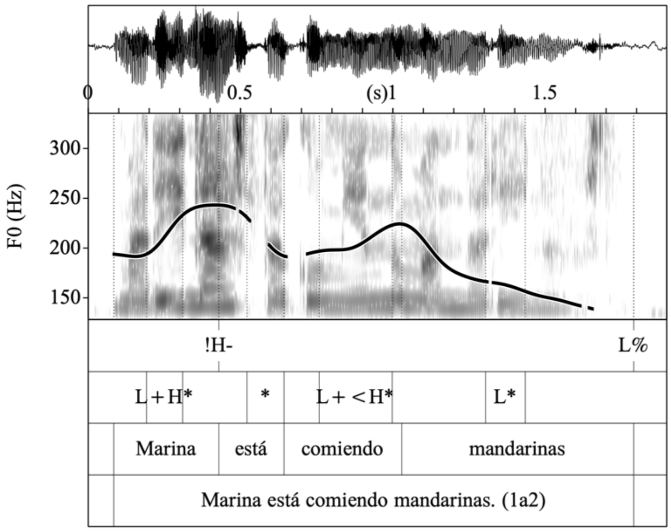

Figure 5.1-5: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral statement *Marina está comiendo mandarinas.* ‘Marina is eating tangerines’ produced by a Spanish-dominant speaker. It represents an IP composed of two ips. The first ip consists of an L+H* nuclear accent and a !H- boundary tone. The second ip is produced with the metrically stressed syllable pitch-deaccented (*), an L+<H* prenuclear accent, an L* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is L* L% (8S2).

Finally, one instance of an H+L* pitch accent was registered in Spanish, produced by a Spanish-dominant (SpD) speaker (cf. Figure 5.1-6). It is quite clearly conditioned by a lack of space: since it occurs directly after the H- boundary tone of the preceding ip, there is not enough segmental material for the realization of a fall whose end could serve as low prefix to a following rising pitch accent, such as L+<H* (for similar cases see phrase-internal prenuclear accents, below, and Kireva 2016a: 104).

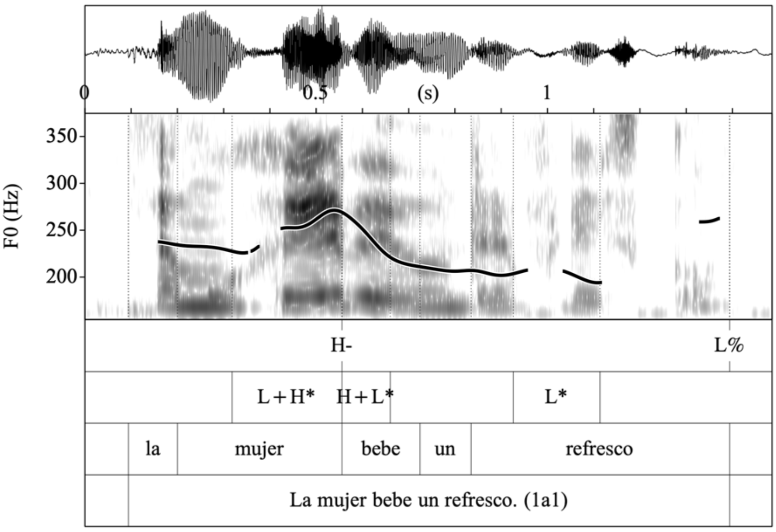

Figure 5.1-6: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral statement *La mujer bebe un refresco*. 'The woman is drinking a refreshment.' produced by a Spanish-dominant speaker. It represents an IP composed of two ips. The first ip consists of an L+H* nuclear accent and an H- boundary tone. The second ip is produced with an ip-initial H+L* prenuclear accent, an L* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is L* L% (5S1).

In **phrase-internal** position, pitch deaccentuation was quite common in both varieties.[247] In the statements collected with situations 1a1 and 1a2, 58% of the Catalan and 52% of the Spanish ip-internal prosodic words did not bear a pitch accent. Figure 5.1-2, above, and Figure 5.1-7, below, illustrate the F0 contours of two neutral declaratives realized in GC in which all phrase-internal prosodic words are pitch-deaccented. In Figure 5.1-2, for instance, the lexically stressed syllables of *bevent* 'drinking' and *got* 'glass' are marked with an asterisk ('*') to signal that the respective words are pitch-deaccented (although the metrically strong syllable may still present other correlates of stress such as a longer duration or higher intensity as opposed to unstressed syllables; cf. Section 3.1.1.1). In Figure 5.1-7, this can be seen in *està* 'is' and *menjant* 'eating'.

[247] As explained in Section 4.3.1.3, I counted a metrically stressed syllable of a phrase-internal prosodic word as being pitch-deaccented if a high, mid, or low plateau was tonally realized within the temporal boundaries of that syllable.

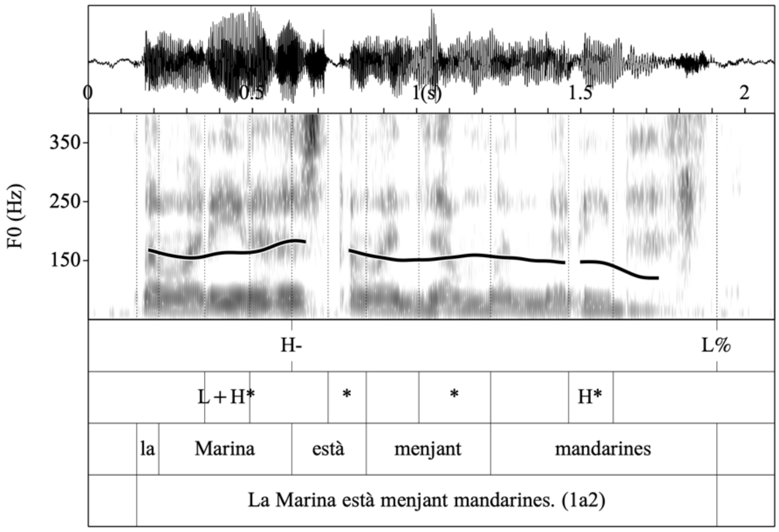

Figure 5.1-7: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral statement *La Marina està menjant mandarines.* 'Marina is eating tangerines' produced by a Catalan-dominant speaker. It represents an IP composed of two ips. The first one is produced with an L+H* nuclear accent and an H- boundary tone. The second one contains two metrically strong syllables that are pitch-deaccented and an H* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is H* L% (12C2).

Yet, it is of course also possible for pitch accents to surface in phrase-internal position in both languages under consideration. If so, a delayed peak (L+<H*) is clearly the favoured option, appearing on 39% and 30% of the metrically stressed syllables in this position in GS and GC, respectively. For instance, Figures 5.1-1, 5.1-3, and 5.1-4 offer examples of neutral SVO declaratives in which each prosodic word is signalled by a pitch accent. In Figure 5.1-1, both the IP-initial (*la Marina*) and the ip-internal (*come* 'eats') prenuclear pitch accents are realized as delayed peaks (i.e. L+<H*). Figure 5.1-3 depicts a GC compound IP in which the ip-initial prenuclear accent of the non-IP-initial ip is high (i.e. H*) and the phrase-internal prenuclear accent is a rising one, with its peak in the following syllable (i.e. L+<H*). Alongside the delayed peaks, the analysed data contained a small number of phrase-medial !H* pitch accents (each 3 per variety) and some single instances of phrase-internal L+H* and H*. Concerning the language dominance (LD) of the participants, there was no significant association with the use of pitch deaccentuation (GS: $\chi^2(1) = 0.415$, $p = 0.519$; GC: $\chi^2(1) = 0.0$, $p = 1$)

In summary, both varieties predominantly deploy the same prenuclear pitch accents in IP-initial, in 'ip- but not IP-initial', and in ip-internal position: namely, L+<H* and H*. However, in phrase medial position pitch-deaccenting is actually the most common option. Neither language nor LD seem to have an influence on the choice of the prenuclear pitch accent or on pitch deaccentuation in the current sample.

In **nuclear** position, all ips were characterized by the presence of a nuclear pitch accent associated with the last stressed syllable of this ip and a following boundary tone associated with the right edge of the ip. We have to distinguish between inner ips, such as the first one in an $[(S)_{ip}\ (VO)_{ip}]_{IP}$ pattern, and IP-final ips, such as the second one in this example. According to the intonational analysis, the inner ips of neutral broad-focus statements showed rising nuclear contours (composed of a rising nuclear pitch accent and a high boundary tone). On the contrary, IP-final nuclear contours were almost exclusively realized as low plateaus.

The nuclear configurations of inner ips attested in the data sets gathered with situations 1a1 and 1a2 are displayed in Table 5.1-1.

Table 5.1-1: Percentages and total numbers of nuclear configurations of inner ips of the neutral declarative sentences in Girona Catalan and Girona Spanish.

	L+H* H- (continuation rises)	L+H* !H- (sustained pitch)	(!)H* !H- (plateau)	others
Girona Catalan	73% (34)	2% (1)	19% (9)	7% (3)
Girona Spanish	51% (17)	36% (12)	6% (2)	6% (2)

In GC, the nuclear configurations of inner ips were predominantly realized as L+H* H- (73%), i.e. as a rise throughout the stressed syllable that continues until the end of the phrase, called continuation rise (cf., e.g., Prieto 2014: 48; Prieto et al. 2015: 13).[248] This is illustrated in Figure 5.1-7, above. In 19% of the instances, a pitch plateau, i.e. a (!)H* !H- nuclear configuration, was found. Figure 5.1-8, below, provides an example. Furthermore, there were also 9% of other nuclear configurations, such as L+H* !H- (cf. Figure 5.1-3, above) or contours ending in L- boundary tones, which I interpret as phonetic surface reflexes of hesitation (cf. 5.2.2 and 5.3.3).

[248] Please note that in ip-final words stressed on the penultimate syllable which display a rising gesture that is followed by a continuation rise up to the prosodic break, it cannot be determined whether the underlying rising pitch accent is L+H* (with the peak in the stressed syllable) or L+<H* (with a delayed peak), as the local maximum is conditioned by the H- boundary tone. Generally, such rising pitch accents of final contours of inner ips whose end is marked with the break index (BI) 3 have been tonally analysed either as L+H* (e.g. Estebas-Vilaplana/Prieto 2010: 31; Gabriel et al. 2010: 292; López-Bobo/Cuevas-Alonso 2010: 55; Ortiz et al. 2010: 267; Willis 2010: 140; Kireva 2016a: 105, among others) or, less frequently, as L+<H* (Gabriel et al. 2013: 208; O'Rourke 2010: 232; Hualde/Prieto 2015). In the present work, I adopt the first view and posit underlying L+H* pitch accents (for some reasons for this decision see Section 5.2.2). Moreover, there has also been some debate about whether these ip-final contours should be analysed as combinations of prenuclear pitch accents and boundary tones (e.g. in O'Rourke 2010: 232; Gabriel et al. 2013: 196–197) or as nuclear configurations of inner ips (cf., e.g., Ortiz et al. 2010: 267; Kireva 2016a: 105).

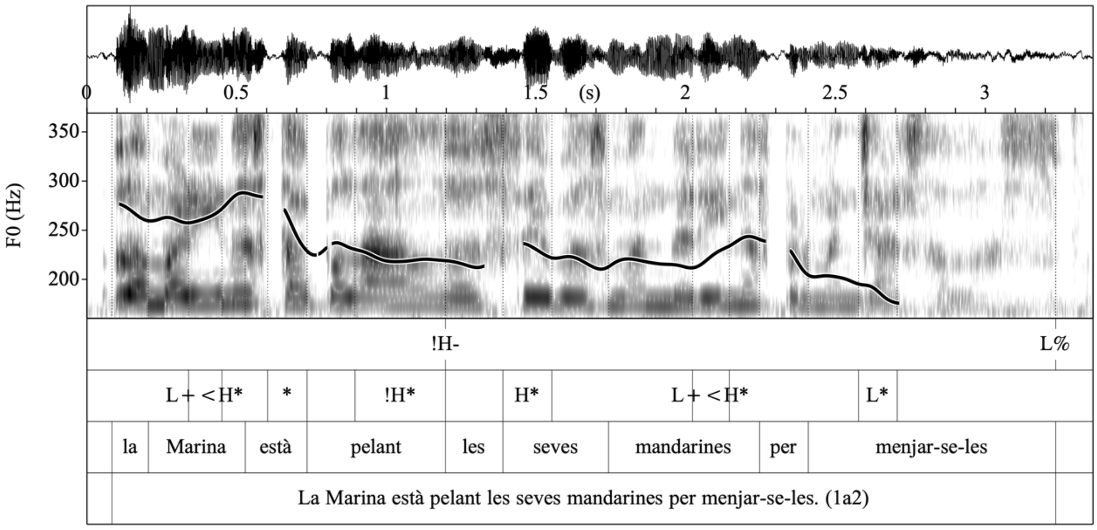

Figure 5.1-8: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral statement *La Marina està pelant les seves mandarines per menjar-se-les.* 'Marina is peeling her tangerines to eat them' produced by a Catalan-dominant speaker. It represents an IP composed of two ips. The first one is produced with an L+<H* prenuclear accent and an !H* !H- nuclear configuration. The second one contains an H* and an L+<H* prenuclear accent, an L* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is L* L% (28C2).

In GS, too, nuclear configurations of inner ips were predominantly realized as L+H* H-, which accounted for 51% of the items (cf. Figure 5.1-6, for an illustration). However, sustained pitches, i.e. the nuclear configuration L+H* !H-, were also observed with a fair degree of regularity, i.e. to an extent of 36% (cf. Figure 5.1-5, above, for an example). Finally, a proportion of 6% of (!)H* !H- nuclear contours, i.e. of pitch plateaus, was found (cf. Figure 5.1-9, below). The remaining 6% represented other contours ending in a low boundary tone, probably induced by hesitation phenomena (see also Sections 5.2.2 and 5.3.3).

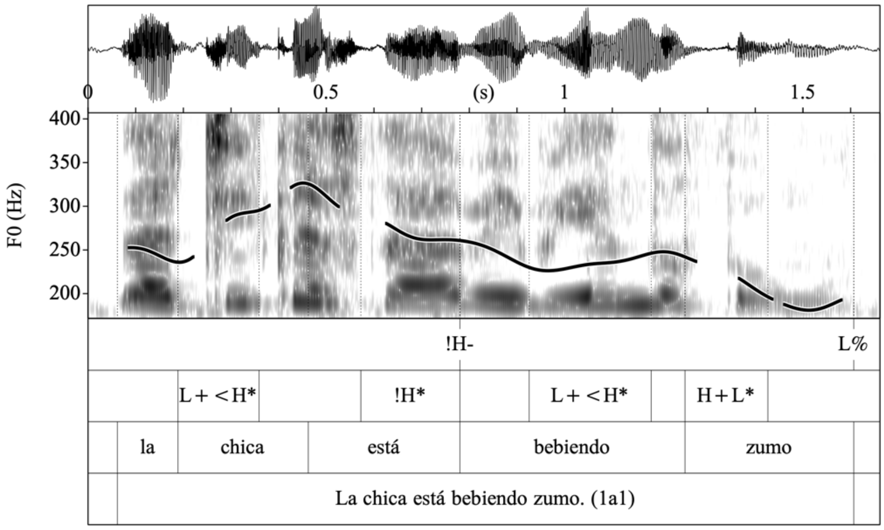

Figure 5.1-9: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral statement *La chica está bebiendo zumo.* 'The girl is drinking juice' produced by a Catalan-dominant speaker. It represents an IP composed of two ips. The first ip consists of an L+<H* prenuclear accent and a !H* !H- nuclear configuration. The second ip is produced with an ip-initial L+<H* prenuclear accent, an H+L* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is H+L* L% (28S1).

In sum, combinations of rising pitch accents and high boundary tones, i.e. continuation rises, were the preferred option for the nuclear configurations of inner ips in both varieties under consideration. Nevertheless, they clearly differed with regard to the use of the sustained pitch (cf. Table 5.1-1, above). A χ^2-test (performed leaving aside the few contours classified as 'other') confirmed that there exists a significant association between language variety and the choice of nuclear contours of IP-internal ips: $\chi^2(2) = 17.708$, $p < 0.001$. The mosaic plot in Figure 5.1-10 visually represents the observed frequencies and the corresponding Pearson residuals. It can be seen that the sustained pitch is overrepresented in GS and underrepresented in GC. The realizations were also checked for the LD of the speakers, but the proportions of use of the single boundary cues were very similar in both dominance groups.

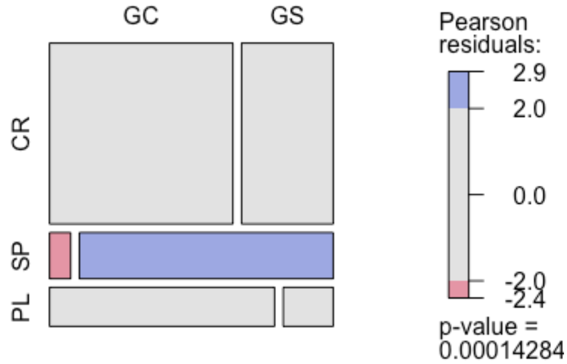

Figure 5.1-10: Mosaic plot of the uses of L+H* H- ('CR'), L+H* !H- ('SP'), and (!)H* !H- ('PL') in Girona Catalan and Girona Spanish broad-focus declarative statements.[249]

[249] This and all following mosaic plots were created with the function `mosaic( )` from the *vcd* package (Zeileis et al. 2007) in R (R Core Team 2020).

Ultimately, the nuclear configurations in the neutral declarative sentences gathered with situation 1a1 and 1a2 need to be taken into account. As expected, in both varieties, the overwhelming majority of the nuclear contours produced in this condition corresponded to the L* L% pattern, i.e. a low pitch tone (L*) followed by a low boundary tone (L%). Its share attained 98% in GC and 91% in GS. Several examples can be seen above in Figures 5.1-1 to 5.1-6 and in 5.1-8. Besides, a minor number of falling nuclear contours were observed: the GS data contained three H+L* L% nuclear contours (5%; see Figure 5.1-9 for an example). However, these H+L* pitch accents might in fact represent surface variants of L* conditioned by preceding high tones, seeing that they appeared when there were not enough unstressed syllables between the high tone and the nuclear stressed syllable that would allow for a falling interpolation. As a consequence, this fall was compressed onto the nuclear syllable, yielding a surface H+L* nuclear pitch accent (see also Section 5.2.3 for a discussion of the phonological status of this pitch accent). Finally, in each variety, one nuclear contour with a high pitch accent was observed, i.e. H* L% (see Figure 5.1-7 for an example), and there was also one L+!H* L% nuclear contour in the GS data (2%), produced by a SpD speaker. Both of these nuclear pitch accents could represent surface variants of the L+H* nuclear accent, which is the accent that typically conveys focus and emphasis (cf. Section 5.2.3). Due to the small numbers of nuclear configurations other than L* L%, no inferences about a possible association between LD and tonal choices could be made.

5.1.1.2 Enumerations

A total of 62 enumeration statements (i.e. 31 per variety) were collected with situation 1b, in which participants were asked to enumerate the days of the week. Therefore, all IPs consisted of 7 ips. Typically, though not exclusively, the last element, i.e. ‘Sunday’, was preceded by Sp. *y* or Cal. *i* ‘and’. In most cases, no pauses were made between the elements, even though some speakers did separate some or sometimes even all elements by a short pause. Usually, if a pause was made, it separated the fifth from the sixth element (i.e. working days from the weekend) or the last element from the preceding ones.

Concerning the intonation of the ips, rising patterns for all but the last element were clearly dominant in both varieties under concern. In GS, this was almost exclusively an L* H- nuclear contour (cf. Figure 5.1-11). In quite some cases, the boundary tone was somewhat higher on the first and on the sixth element than on the remaining ones. Other contours present in the GS data set were L* L- (15%) and, more rarely, L+H* H- or L+H* L- (approx. 2% and 6%, respectively). The first one of these was used throughout the first five ips by some speakers, whereas others used it more sporadically. The resulting acoustic impression was that of a grouping of the enumerated elements in units of two or three, which gave the utterance a specific rhythm (cf. Figure 5.1-12). In an alternative analysis, such groupings might be regarded as single ips.

If that were adequate, the low ip boundary tones could be dispensed with. No associations between the LD of the speaker and the use of a specific tune could be found. The last ip of the IP always showed an L* L% nuclear configuration.

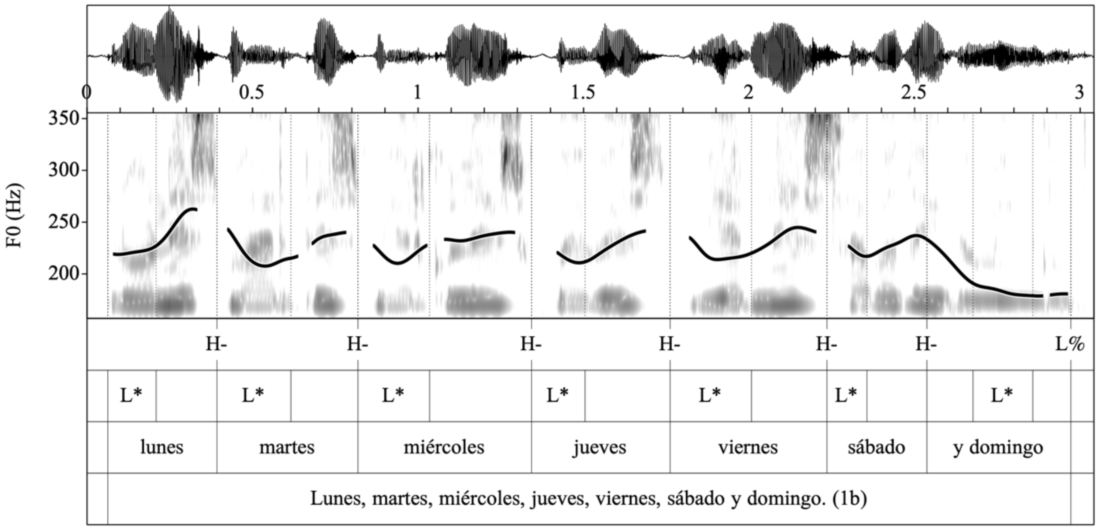

Figure 5.1-11: Girona Spanish: Waveform, spectrogram, and F0 contour for the enumeration of the days of the week produced by a Catalan-dominant speaker. It consists of an IP containing seven ips. The first six ips show L* H- nuclear contours, whereas the last one is produced with an L* L% nuclear contour. The nuclear configuration of the IP is L* L% (16S3).

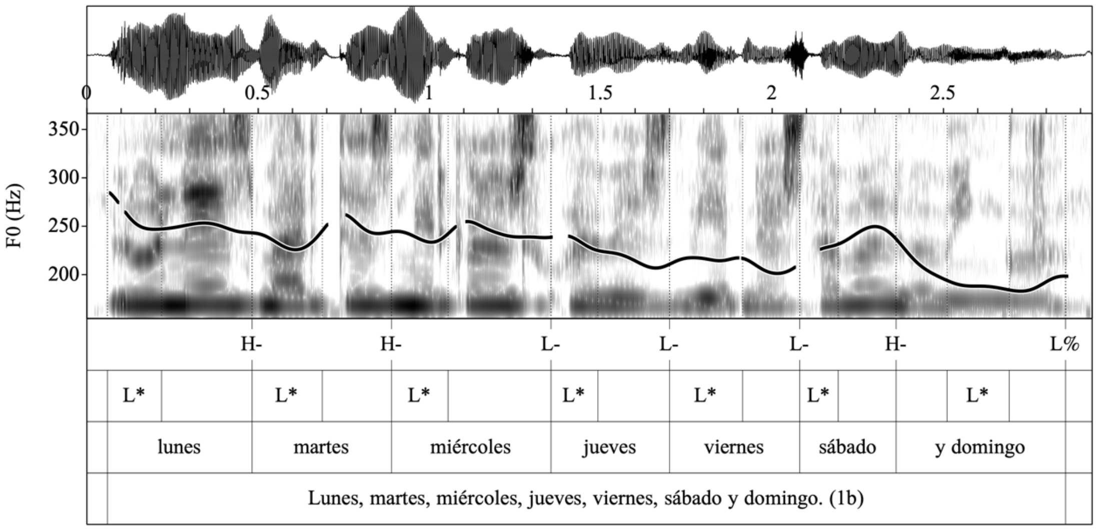

Figure 5.1-12: Girona Spanish: Waveform, spectrogram, and F0 contour for the enumeration of the days of the week produced by a Spanish-dominant speaker. It consists of an IP containing seven ips. The first six ips show either L* H- or L* L- nuclear contours, the last one is produced with an L* L% nuclear contour. The nuclear configuration of the IP is L* L% (13S3).

In GC, the same contours and patterns were found, and to similar extents, but it is of note that in many cases the nature of the pitch accent underlying the final rising gesture—i.e. whether it corresponded to L* or L+H*—was obscured as three weekdays are words with ultimate stress in Catalan (Cat. *dilluns* 'Monday', *dimarts* 'Tuesday', *dijous* 'Thursday'). In those cases, the more parsimonious label 'L* H-' was used. Still, L+H* H- contours seem to be somewhat more frequent in GC than in GS, occurring on 19% of the non-final ips ending in a penultimate-stress word (i.e. *dimecres* ‘Wednesday’, *divendres* ‘Friday’, and *dissabte* ‘Saturday’). Both dominance groups used it to the same degree. An example can be seen in Figure 5.1-13. The last and IP-final ip always showed an L* L% nuclear contour.

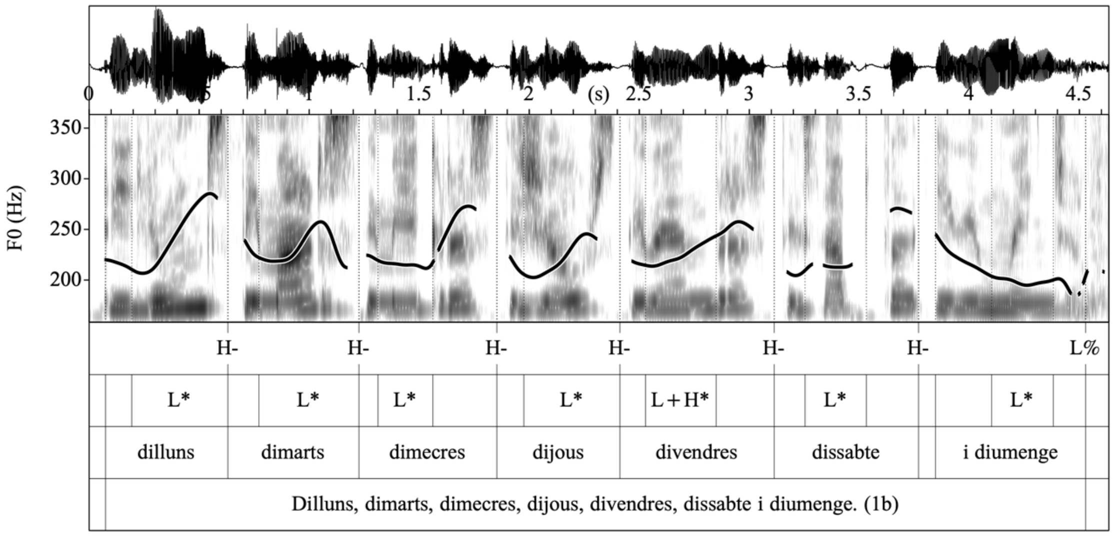

Figure 5.1-13: Girona Catalan: Waveform, spectrogram, and F0 contour for the enumeration of the days of the week produced by a Catalan-dominant speaker. It consists of an IP containing seven ips. The first six ips show either L* H- or L+H* H- nuclear contours, the last one is produced with an L* L% nuclear contour. The nuclear configuration of the IP is L* L% (25C3).

5.1.1.3 Peripheral elements

Peripheral sentence components—such as dislocations, vocatives, appositions, and other parenthetical elements—usually come along with intonational cues that reflect the fact that they are syntactically independent from the main clause. They form a tonal unit of their own and are separated from the main clause by a tonal inflection, sometimes, together with a pause. In this section, I describe the intonation of different peripheral elements in GS and GC. The phonological status of their nuclear contours will be discussed after the presentation of the intonation of all utterance types in section 5.2.3.

5.1.1.3.1 *Dislocations*

Both left and right dislocations are movements of syntactic elements from the main clause to a peripheric position of the sentence for the sake of information structure. Through this procedure, the dislocated elements are typically marked as topics, i.e. information already known to the interlocutor, or as focus, i.e. new information. Usually, a resumptive pronoun appears in the main clause to substitute the dislocated element. In Spanish and Catalan linguistics, this case is known under the name of ‘clitic right/left dislocation’. Even though situation 1c1 of the discourse completion task was originally designed by Prieto and Cabré (2007–2012) for Catalan and by Prieto and Roseano (2009–2013) for Spanish, in the DCT carried out in Girona to collect the linguistic data for the present study, the respondents hardly produced any dislocations. From 62 utterances recorded as responses to situation 1c1 in the two varieties, merely 4 GC sentences contained clear instances of dislocations. However, seeing as all sentences recorded were pragmatically correct responses to the given situation, the interviewer abstained from asking participants to rephrase their answers with a dislocation as this would have implied presenting participants with a prephrased sentence, which is problematical for two reasons: (1) their responses would no longer be spontaneous and (2) their intonation would have been primed through the example. Nevertheless, the intonational implementation of GS dislocations will further be described in Section 5.1.10.2 on the basis of a small corpus of read speech. The respective data set was recorded by the participants in the second task to be carried out for the present experiment, which was included to anticipate that they might not produce enough dislocations in the discourse completion task (owing to the fact that dislocations are clearly less common in Spanish than in Catalan; cf. Section 2.3).

The four GC dislocations recorded as semi-spontaneous responses in the DCT were placed at the right periphery of the sentence. In two cases, a short pause was made between the main clause and the dislocated element. Concerning the intonation of the dislocated element, in all cases, the nuclear contour of the main sentence was repeated on the dislocated element (i.e. L* L% or L+H* L%; cf. Figures 5.1-14 and 5.1-15). In the second example, the use of the L+H* L% nuclear contour might add a nuance of exclamativity (see Section 5.1.2.2 for the use of this nuclear configuration in exclamative statements).

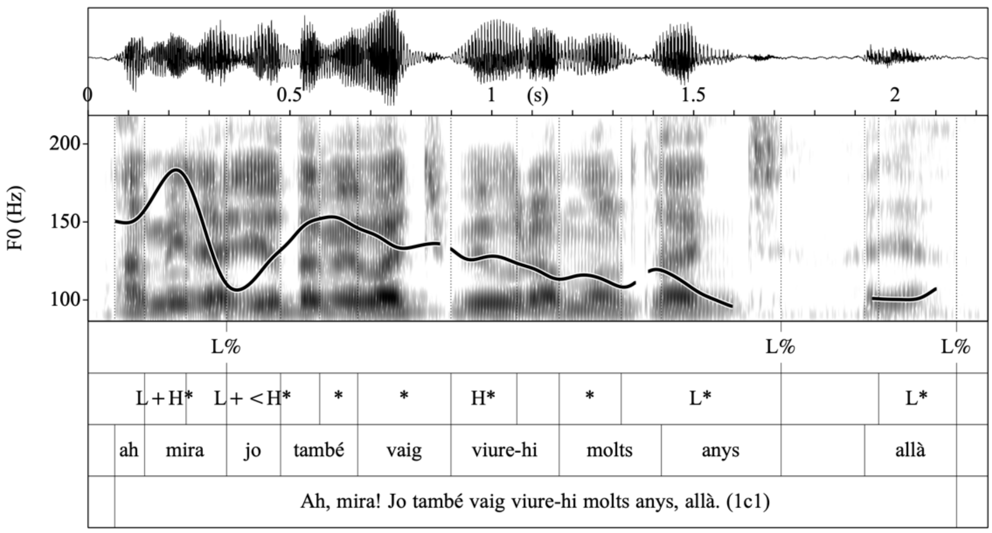

Figure 5.1-14: Girona Catalan: Waveform, spectrogram, and F0 contour for the statement *Jo també vaig viure-hi molts anys, allà!* ‘I have lived there for many years, too’ produced by a Spanish-dominant speaker. The dislocated element *allà* is phrased in a separate IP after the main clause. Its nuclear contour repeats the nuclear contour of the main clause, i.e. L* L% (9C4).

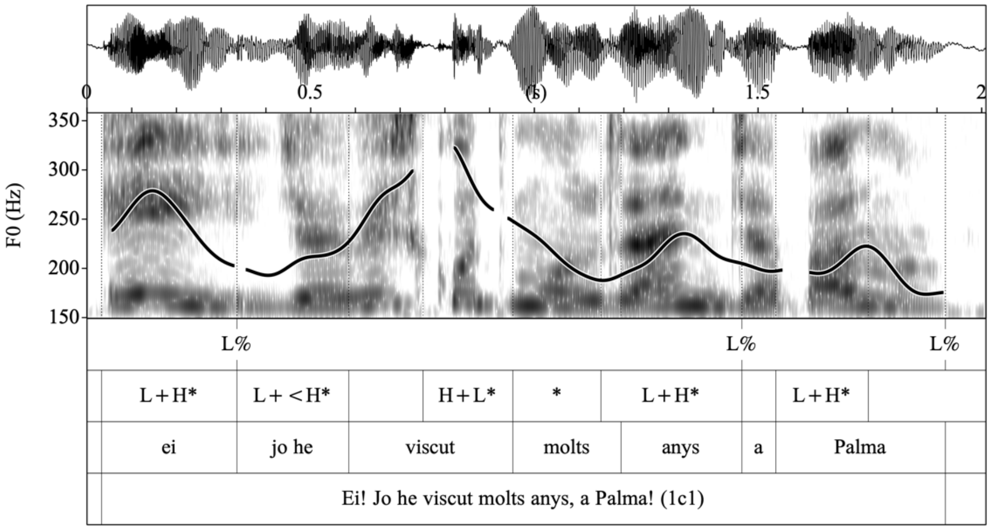

Figure 5.1-15: Girona Catalan: Waveform, spectrogram, and F0 contour for the statement *Jo he viscut molts anys, a Palma!* 'I have lived in Palma for many years!' produced by a Catalan-dominant speaker. The dislocated element *a Palma* is phrased in a separate IP after the main clause. Its nuclear contour repeats the nuclear contour of the main clause, i.e. L+H* L% (15C4).

5.1.1.3.2 *Vocatives*

From a total of 62 utterances obtained with situation 1c2, 31 GC and 29 GS sentences contained a vocative as a peripheral element, which was placed in all but one cases at the beginning of the utterance, i.e. preceding the main clause. In both varieties under concern, the main clauses were either statements (e.g. Sp. *Salgo un momento a merendar.* 'I'm going out for a snack') or, less frequently, imperatives (e.g. Cat. *Queda't aquí!* 'Stay here') followed by such a statement. The intonation of these main clauses corresponded to the ones described for neutral statements (in 5.1.1.1) and imperatives (in 5.1.8), i.e. they showed prenuclear L+<H* pitch accents, followed by nuclear L* L% or H+L* L%, respectively.

The peripheral vocatives were phrased in separate ips but usually no pause was made between the vocative and the main clause. Similar to vocatives in free vocative sentences (cf. Section 5.1.9), none presented prenuclear stressed syllables and almost all carried L+H* nuclear pitch accents. The main difference to free vocatives was the absence of lengthening in the postnuclear, i.e. the phrase-final syllable. This also had an effect on the boundary tones. Whereas in free vocatives HL% is clearly dominant, this boundary tone was only found in roughly a quarter of the peripheral vocatives produced in the two varieties (see Figure 5.1-16 for an example). Instead, the final fall was usually more abrupt: L+H* L% was clearly the most common nuclear contour found in this context. An example is provided in Figure 5.1-17. Finally, some few cases of L+H* H% and of short versions of 'vocative chant' L+H* !H% were found.

Furthermore, it is interesting to note that peripheral vocatives in opposition to dislocations never copied the tune of the main sentence, nor showed a compressed pitch range as compared to the main clause. An exception to this were two GC utterance-initial vocatives as well as the single instance of a phrase-final peripheral vocative (GS), whose nuclear configurations can best be described as L+!H* L%, if not even as L* L%.

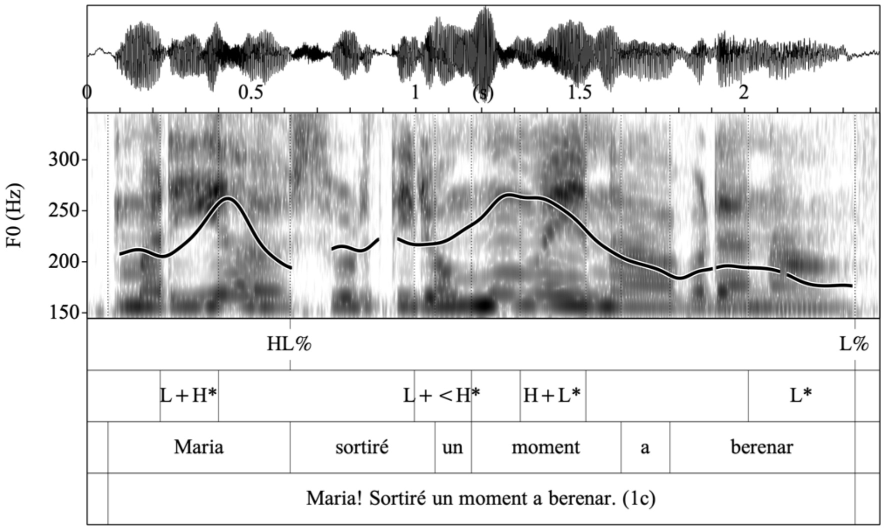

Figure 5.1-16: Girona Catalan: Waveform, spectrogram, and F0 contour for the peripheral vocative *Maria!* 'María!' produced by a Spanish-dominant speaker. It represents an IP consisting of an L+H* nuclear accent, and an HL% boundary tone (8C5).

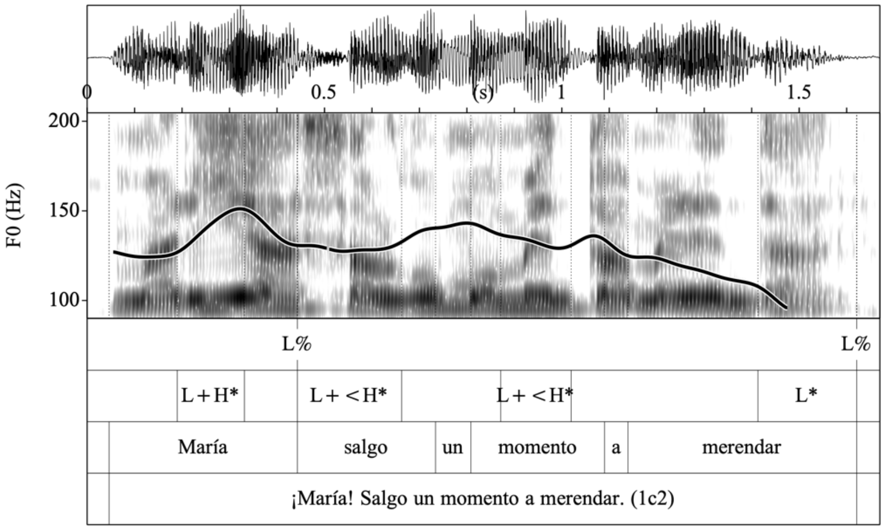

Figure 5.1-17: Girona Spanish: Waveform, spectrogram, and F0 contour for the peripheral vocative *¡María!* 'María!' produced by a Catalan-dominant speaker. It represents an IP consisting of an L+H* nuclear accent, and an L% boundary tone (18S5).

5.1.1.3.3 *Parenthetical elements*

Situation 1c3 of the DCT was originally designed by Prieto and Roseano (2009–2013) for Castilian Spanish (CS) to elicit sentences containing parenthetical elements, i.e. according, among others, to Astruc (2003: 16), constituents that are syntactically independent from the main clause and pronounced in a separate tonal unit, which is detached from the main clause by a pause. The situation is repeated here for convenience (cf. Appendix 5 for the Catalan-language version).

(1) **Situation 1c3: Parenthetical elements**
Spanish: "Estás enfermo y esta mañana tuviste que ir al médico. Di que has ido a pesar de la lluvia."
'You are ill and this morning you had to go to the doctor. Say that you went despite the rain.'
Possible/Expected responses: Esta mañana, a pesar de la lluvia, he ido al médico.
'This morning, despite the rain, I went to the doctor.'

Out of the utterances recorded with this situation, 27 GS and 27 GC utterances contained parenthetical elements and were suitable for an intonational analysis. Among the parenthetical elements found in the corpus, concessive subordinate clauses (e.g. Sp. *aunque estaba lloviendo* 'although it was raining') and (concessive) prepositional phrases (e.g. Cat. *tot i la pluja* 'despite the rain') were the most frequent ones. Even though they fulfilled the criteria described above and many of the utterances produced by the Girona respondents were phrased very similarly to the exemplary response in (1), only one of them, represented in Figure 5.1-18, corresponded to this pattern closely. It was realized with an L+<H* prenuclear pitch accent and an L+H* H- nuclear configuration. The remainder of the recorded utterances did not represent parenthetical elements *strictu sensu*, because they were not inserted into the main clause of the utterance or enclosed by the main clause and another peripheral element as in the example. Rather, they were found to be attached at a peripheral sentence position, i.e. before or after the main clause (each with equal frequency and in both languages considered). Since the position in the sentence has a clear impact on the intonation of parenthetical elements, I shall describe the two cases separately.

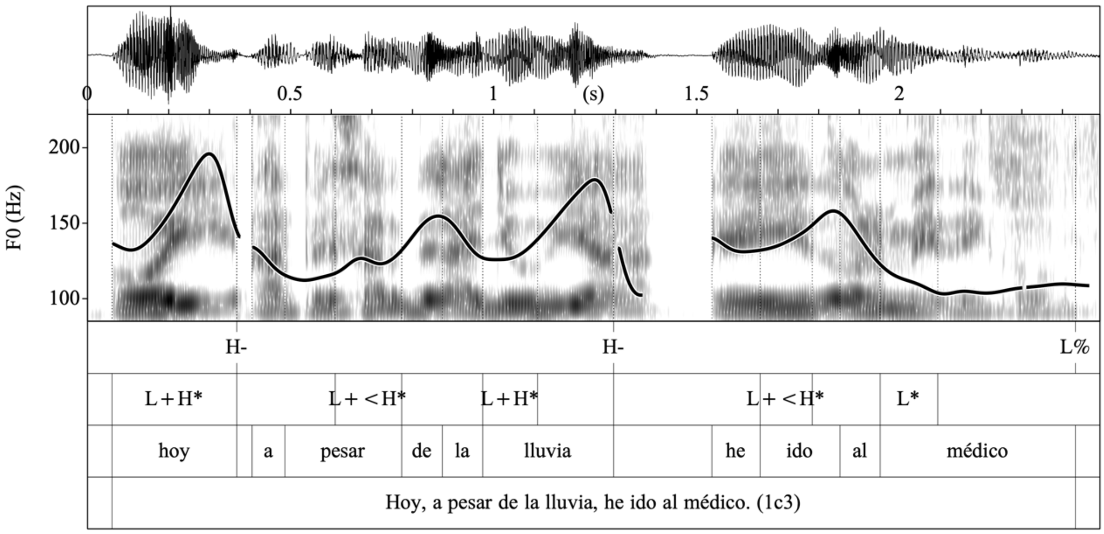

Figure 5.1-18: Girona Spanish: Waveform, spectrogram, and F0 contour for the parenthetic element *a pe<u>sar</u> de la <u>llu</u>via* 'despite the rain' produced by a Catalan-dominant speaker. It represents an ip consisting of an L+<H* prenuclear accent, an L+H* nuclear accent, and an H- boundary tone (17S6).

When placed before the main clause, which was the case in 15 GS and 11 GC utterances, the nucleus of the parenthetical elements usually displayed either L+<H* pitch accents or were pitch-deaccented. Concerning their nuclear configuration, L+H* H-, with a final continuation rise, was the most frequent one in both of the varieties under concern (53% in GS, *n* = 8; 64% in GC, *n* = 7).[250] Figure 5.1-19 provides an example. In some cases, the same pitch accent was also deployed alongside a sustained pitch (i.e. L+H* !H-). Furthermore, L* H- was observed to an extent of 40% in GS (*n* = 6; see Figure 5.1-20 for an example), whereas in GC only two cases were registered (18%). This, however, might be an effect of the presence of some ultimate-stress words in nuclear position in the Catalan data (such as *plovent* 'raining' or *molt* 'a lot'), where it could not be decided whether the underlying nuclear contour is L* H- or L+H* H-, and the latter one was labelled due to its higher overall frequency. The corresponding main clauses typically showed the intonation of declarative statements, i.e. prenuclear L+<H* or pitch deaccentuation and an L* L% nuclear configuration.

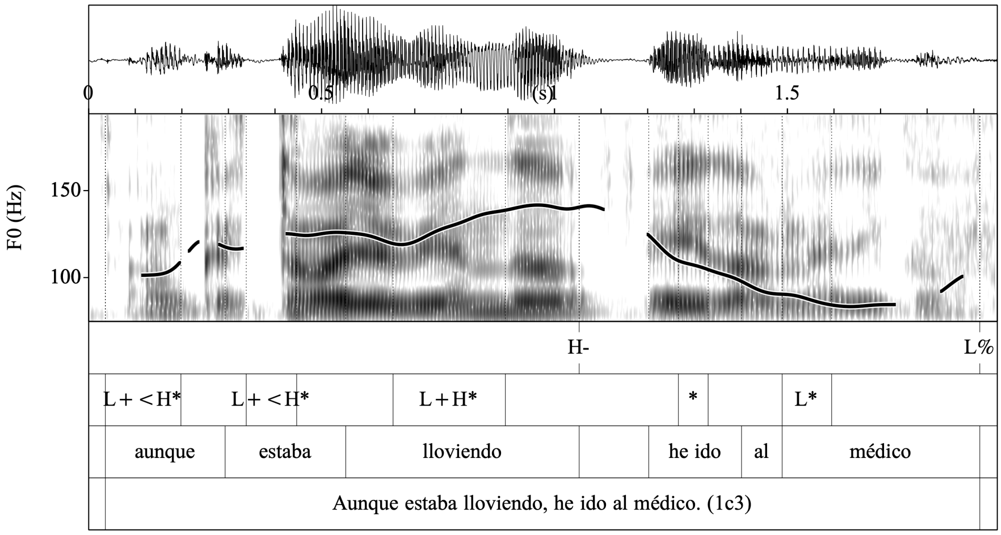

Figure 5.1-19: Girona Spanish: Waveform, spectrogram, and F0 contour for the parenthetic element *aunque estaba lloviendo* 'although it was raining' produced by a Spanish-dominant speaker. It represents an ip consisting of two L+<H* prenuclear accents, an L+H* nuclear accent, and an H- boundary tone (7S6).

250 Cf. Fn. 248 on the choice of the label 'L+H* H-' for this kind of nuclear contour.

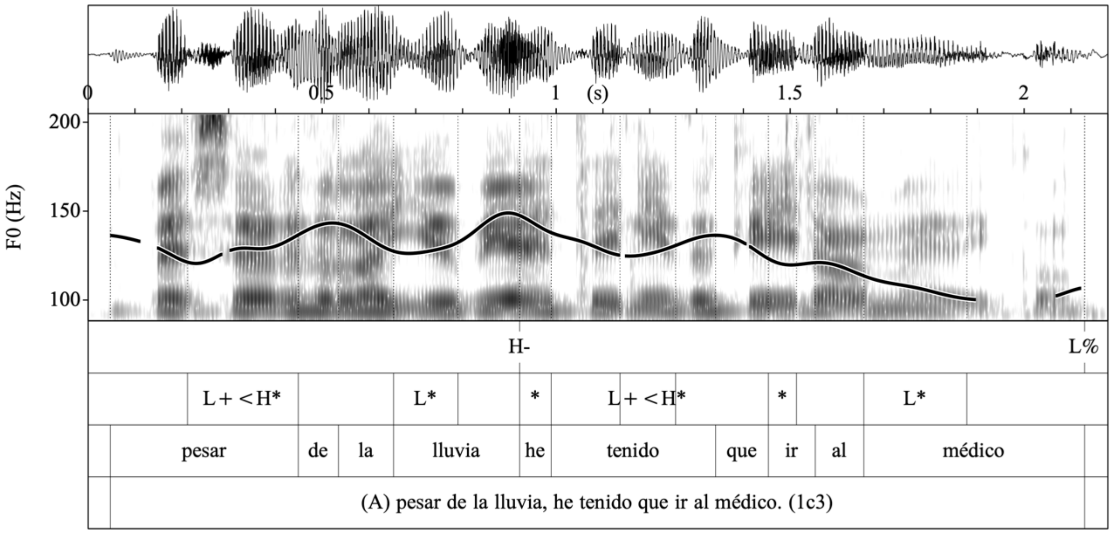

Figure 5.1-20: Girona Spanish: Waveform, spectrogram, and F0 contour for the parenthetic element *a pesar de la lluvia* 'despite the rain' produced by a Spanish-dominant speaker. It represents an ip consisting of an L+<H* prenuclear accent, an L* nuclear accent, and an H- boundary tone (34S6).

When the parenthetic elements were placed after the main clause, which occurred 11 times in GC and 16 times in GS, the registered distribution of intonation patterns was practically inverse to the aforementioned case: i.e. independently of the variety, the main clause typically ended in nuclear configuration with continuation rise or sustained pitch, whereas the peripheral elements presented prenuclear deaccentuation and a final L* L% nuclear contour (see Figure 5.1-21 for an example). Interestingly, here too, the use of the L* pitch accent in the first ip (instead of L+H*) was more common in GS (5 out of 11 instances, i.e. 45%, as opposed to 5 out of 16, i.e. 31%, in GC). In this case, stress patterns had no influence, since all Catalan main clauses ended in the penultimate stress word *metge* 'doctor'.

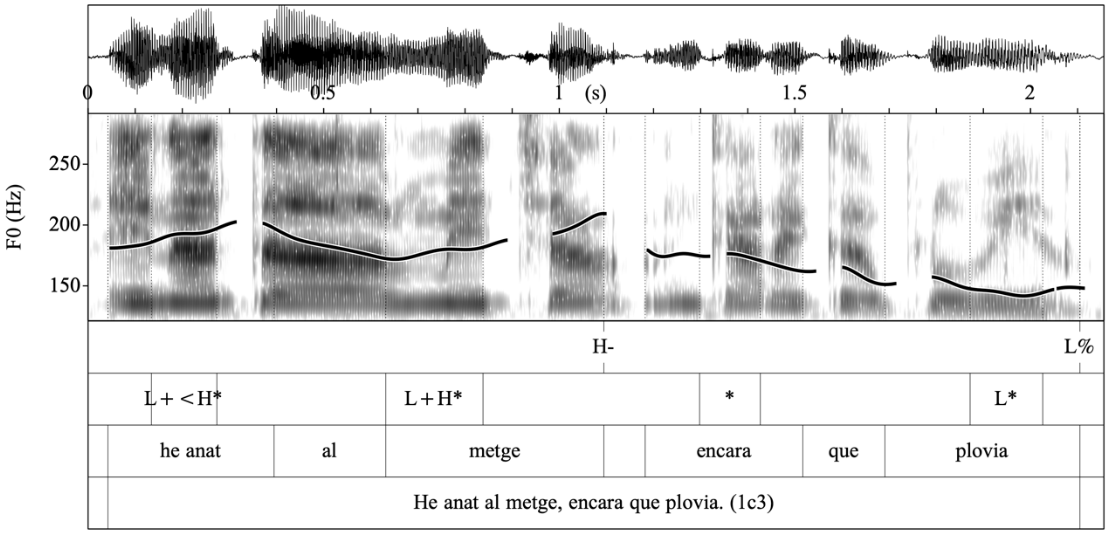

Figure 5.1-21: Girona Catalan: Waveform, spectrogram, and F0 contour for the parenthetic element *encara que plovia* 'although it was raining' produced by a Catalan-dominant speaker. It represents an ip consisting of an L* nuclear accent and an L% boundary tone (10C6).

To sum up, the order of main clause and peripheral elements does not seem to make a big difference for the intonation of the complete utterance. Whereas the first element typically ends in a rising nuclear configuration, the second part always ends in a low nuclear contour. Yet, the chance of encountering pitch deaccentuation in the prenucleus of the second phrase might be higher when it is a peripheral element. Furthermore, the use of L* instead of L+H* as nuclear pitch accent of the first unit seems to be somewhat more common in Spanish (though the difference between the languages does not reach statistical significance: $\chi^2(1) = 0.939$, $p = 0.333$). Finally, the speaker's LD does not seem to have an influence neither on the phrasing of the sentence nor on the choice of pitch accents and boundary tones. All attested types of tunes were produced in very similar proportions by both dominance groups.

5.1.1.3.4 *Appositions*

Similar to the case of dislocations, not all of the 62 utterances elicited with situation 1c4 (31 per variety) contained appositions as was desired (cf. Appendix 5 for the scenario). Even though all responses were pragmatically adequate, many participants used different strategies to convey the intended meaning (e.g. they sometimes simply applied contrastive focus to the adjective in phrases such as *la Marina morena* 'the dark-haired Marina' instead of using an apposition). Eventually, 14 appositions could be analysed for GS and 6 for GC. Whereas 9 and 3 of these, respectively, represented appositions consisting of an article and a specified noun or a (nominalized) adjective (e.g. Sp. *(Marina,) la chica del pelo castaño* '(Marina,) the girl with the brown hair' or Cat. *(Marina,) la morena* 'the dark-haired'), the remainder were appositions in a broader sense, i.e. consisting of the definite article followed directly by a relative clause or a prepositional phrase (e.g. Sp. *(Marina,) la del pelo oscuro* 'the one with dark hair' or Cat. *(Marina,) la que és morena* 'the one who has brown hair'). All appositions were placed at the end of a declarative statement, i.e. at its right periphery.

Concerning their intonation, the appositions replicated the nuclear contour of the main clause of the statement they belonged to, i.e. L* L%, in most cases. An example is shown in Figure 5.1-22. Besides that contour, some sporadic instances of nuclear (L+)H* L% (in GS) and H+L* L% (in GC) were found. These, too, were replications of the nuclear contour of the corresponding main clause. I assume that they express focus, given that these contours typically convey focus in other utterance types (cf., e.g., the contrastive-focus statements in Section 5.1.2.1). In the cases where appositions consisted of more than one underlyingly stressed syllable, prenuclear stressed syllables were either pitch-deaccented or a compressed version of L+<H* was used (cf. Figure 5.1-23). Due to the scarcity of the data and since both languages behave in the same way, no differences related to the LD of the speakers could be established.

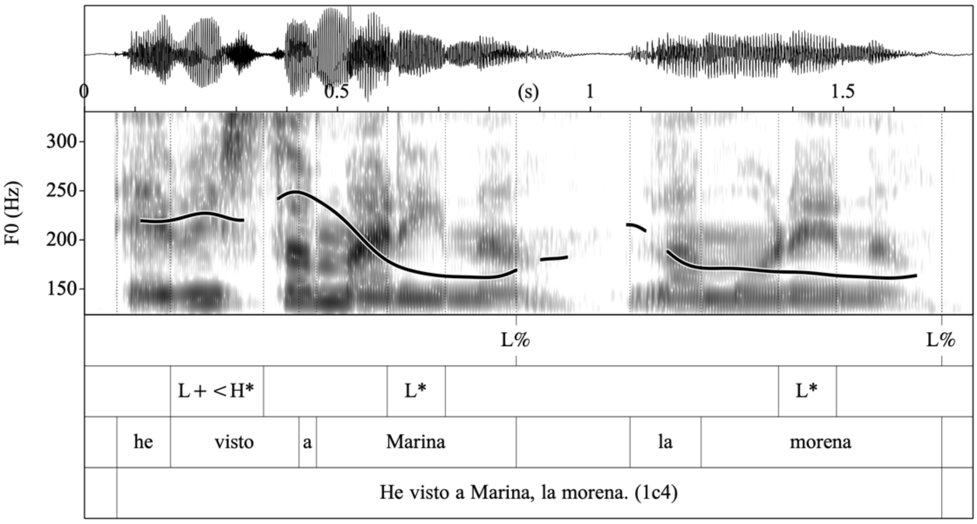

Figure 5.1-22: Girona Spanish: Waveform, spectrogram, and F0 contour for the apposition *la morena* 'the dark-haired' placed at the end of a declarative statement and produced by a Spanish-dominant speaker. It represents an ip consisting of an L* nuclear accent and an L% boundary tone (19S7).

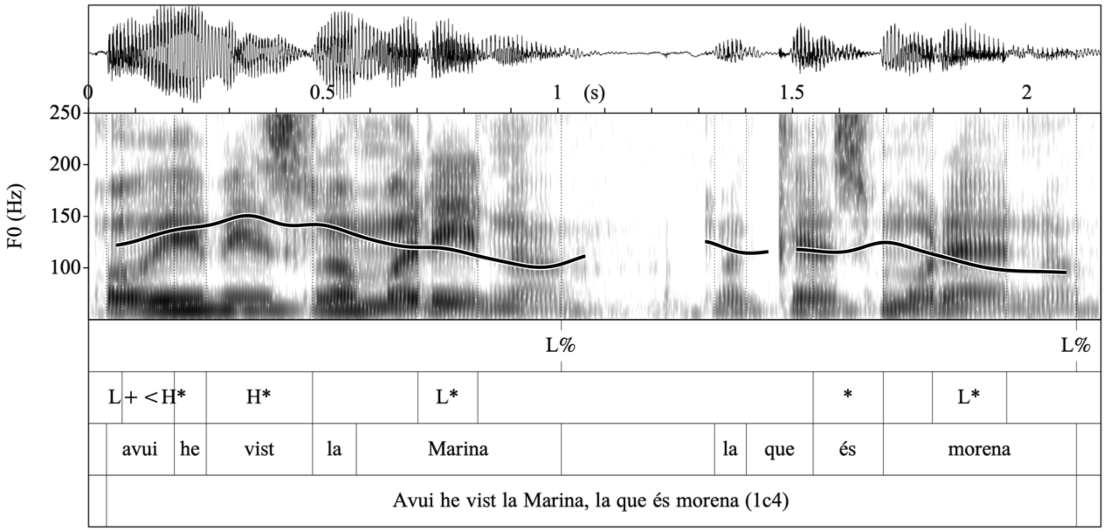

Figure 5.1-23: Girona Catalan: Waveform, spectrogram, and F0 contour for the apposition *la que és morena* 'the one who is dark-haired' placed at the end of a declarative statement and produced by a Catalan-dominant speaker. It represents an ip consisting of an L* nuclear accent and an L% boundary tone (34C7).

5.1.2 Biased statements

In this section, I will describe the intonational properties of the contrastive-focus, exclamative, contradiction, and dubitative statements in my corpus by presenting the phonetic realization of prenuclear pitch accents and nuclear configurations. Their phonological status will be discussed after the description of the tonal realization of all sentence types considered in Sections 5.2.

5.1.2.1 Contrastive-focus statements

From the 62 contrastive-focus statements obtained with situation 1d, 30 GS and 28 GC statements could be retained for tonal analysis (see also Table 4.19). 4 utterances needed, thus, to be excluded due to disfluencies and very strong affection by creaky voice. Concerning their phrasing, most contrastive-focus statements were either of the (S)VO type, such as Sp. *Yo quiero naranjas.* ‘I want oranges’, or formulated as cleft-sentences (e.g. Cat. *El que vull són taronges.* ‘It’s oranges I want’). In many cases, they were preceded or followed by a further IP containing Sp. *no (quiero) limones* or Cat. *no (vull) llimones* ‘not lemons/I don’t want lemons’.

As in neutral SVO declarative statements, the most recurrent prenuclear pitch accent was by far L+<H* in both languages (cf. Figures 5.1-24). It accounts for 75% of the 28 ip-initial prenuclear pitch accents occurring in GS and for 56% of the 16 GC ones. Additionally, the GC data set contained 6 cases of ip-initial deaccentuation (in cleft sentences). In stress clashes such as, e.g., *vull taronges*[251] ‘I want oranges’ L+<H* typically surfaced as L+H* (38%, n = 6, only in GC; cf. Figure 5.1-25). Phrase-medial prenuclear positions equally carried L+<H* pitch accents or were pitch-deaccented (more rarely).

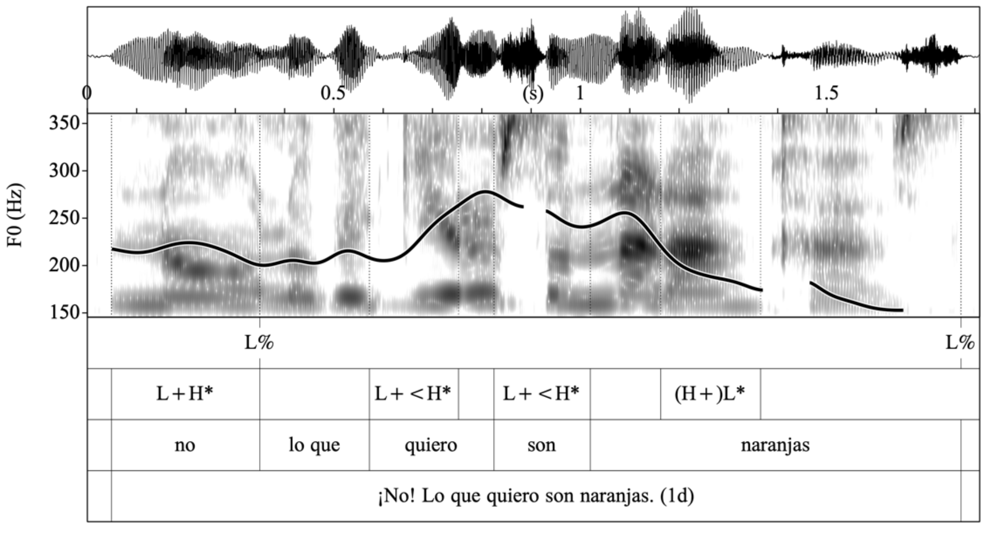

Figure 5.1-24: Girona Spanish: Waveform, spectrogram, and F0 contour for the contrastive-focus statement *Lo que quiero son naranjas.* ‘It is oranges I want.’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with two L+<H* prenuclear accents, an L* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is L* L% (14S8).

[251] Please note that *vull targonges* is usually pronounced as [ˈbuʎ.ˈtɾɔɲ.ʒəs] in Girona, dropping the schwa of what would otherwise be the first syllable of *taronges* (cf. Veny/Massanell 2015: 143).

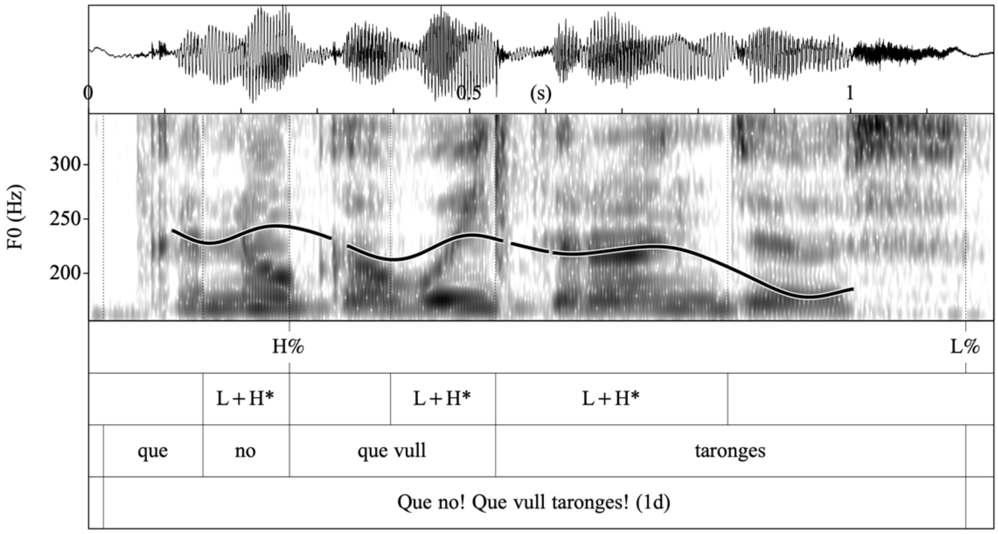

Figure 5.1-25: Girona Catalan: Waveform, spectrogram, and F0 contour for the contrastive-focus statement *Que vull taronges.* 'I want oranges.' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an L+H* prenuclear accent, an L+H* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is L+H* L% (15C8).

Nuclear contours of contrastive-focus statements seem to come in two flavours in the two varieties under consideration: L+H* L% (i.e. rising–falling) and L* L% (i.e. low) (cf. Figures 5.1-24 and 5.1-25, above). Each of these tunes was found in roughly half of the utterances in both languages and presented different surface variants. Whereas L* L% can also surface as a fall (i.e. H+L* L%) when it is preceded by a pitch accent with a high target (cf., e.g., Section 5.1.1 for the same pattern in neutral declarative statements), L+H* L% does not always appear as a clear rise, either. Rather, it often surfaces as a kind of 'step' that interrupts the F0 fall between the high target of a prenuclear pitch accent and the final low boundary tone. This can be seen in Figure 5.1-26, where this nuclear contour is (superficially) labelled as '¡L+H* L%' (following Henriksen/García-Amaya 2012: 122f.; see also Section 5.2.3 for a discussion).

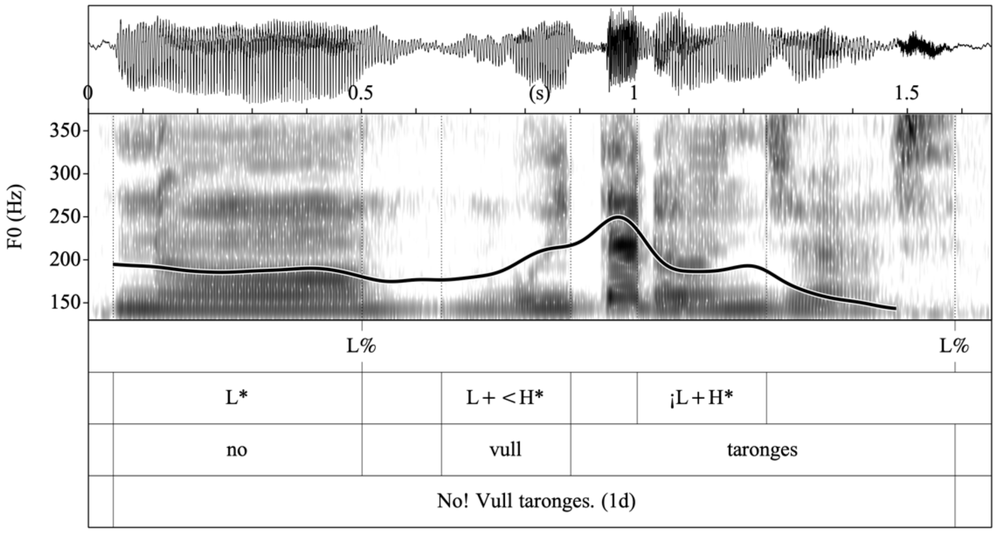

Figure 5.1-26: Girona Catalan: Waveform, spectrogram, and F0 contour for the contrastive-focus statement *Vull taronges.* ‘I want oranges.’ produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with an L+<H* prenuclear accent, an H* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is H* L% (8C8).

While there seems to be no preference for a particular contour by any of the dominance groups, it is likely that the phrasing of the sentence has an influence on pitch accent choice. In GS, for instance, a low nuclear contour is used 16 times, but in 13 of these sentences focus is conveyed morphosyntactically through a cleft structure. As a consequence, there is no need for an additional prosodic marking. Nevertheless, statistical tests did not yield significant associations between the use of cleft structures and pitch-accent choice (GS: $\chi^2(1) = 3.230$, $p = 0.072$; GC: $\chi^2(1) = 0$, $p = 1$). This could, at least in part, be due to the fact that, when rising(–falling) nuclear contours are used, a redundant marking through both syntax and prosody stays perfectly possible: there are 6 GS and 5 GC contrastive-focus statements that contain both a cleft and an (¡)L+H* L% nuclear contour. In total, in 90% of the GS and 71% of the GC contrastive-focus statements, focus is conveyed either through prosodic or syntactic means or both. In the remaining sentences, it needs to be inferred from the contexts. I thus conclude that L+H* L% is the typical prosodic marker of contrastive focus in the varieties of our sample (as opposed to L* L%, which is the typical nuclear contour of neutral declaratives).

5.1.2.2 Exclamative statements

A total of 125 utterances were collected with situations 1e1 and 1e2. From these, 63 GS and 55 GC statements could be retained for the intonational analysis of exclamative statements. The remainder had to be discarded from the analyses mainly due to hesitation phenomena. Similar to other types of statements described above, the main prenuclear pitch accent was L+<H* in both languages (see Figure 5.1-27 for a Spanish example). This accent accounted for 60% of the initial prenuclear accents in GS and for 54% in GC. Two other frequent phrase-initial accents were L*+H and H*, each representing between 13 and 22%. It is worth to point out that

H* was usually found on utterance-initial Sp. *qué* and Cat. *quina* 'what (a)' (see Figure 5.1-28 for an example). Concerning phrase-medial prenuclear positions, again L+<H* was found to be the most common pitch accent, occurring on roughly 40% of the metrically stressed syllables. Pitch deaccentuation was observed to an extent of approximately 22% in GC and 33% in GS. Other pitch accents, such as L+H*, typically occurred in stress-clash situations, which were frequent (consider, e.g., the Catalan sentence *Mhh, aquest pa fa molt bona olor!* 'This bread smells very good!' with five subsequent underlyingly stressed syllables.

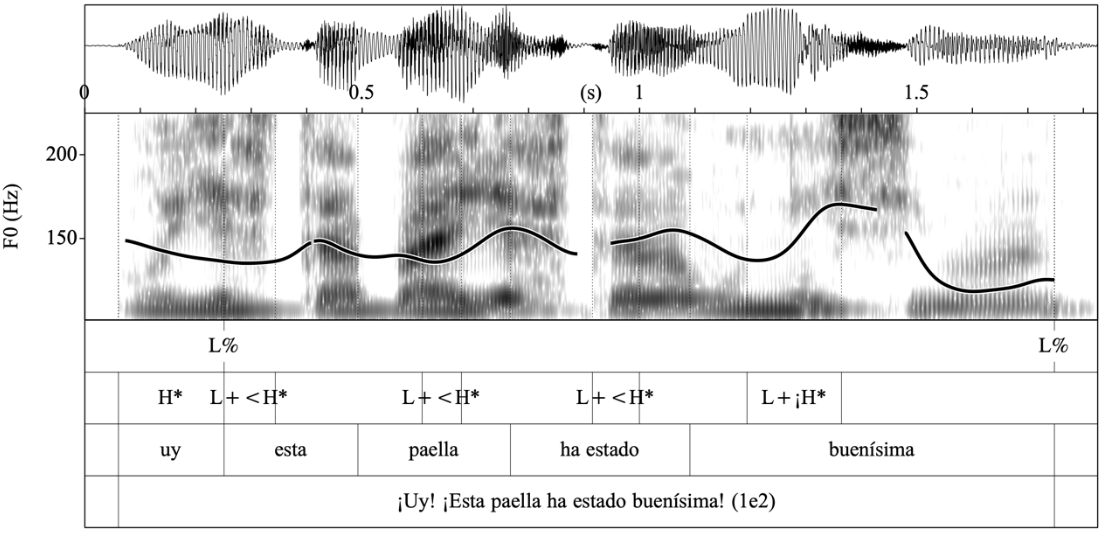

Figure 5.1-27: Girona Spanish: Waveform, spectrogram, and F0 contour for the exclamative statement *Esta paella ha estado buenísima.* 'This paella has been delicious!' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with three L+<H* prenuclear accents, an L+¡H* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is L+¡H* L% (21S12).

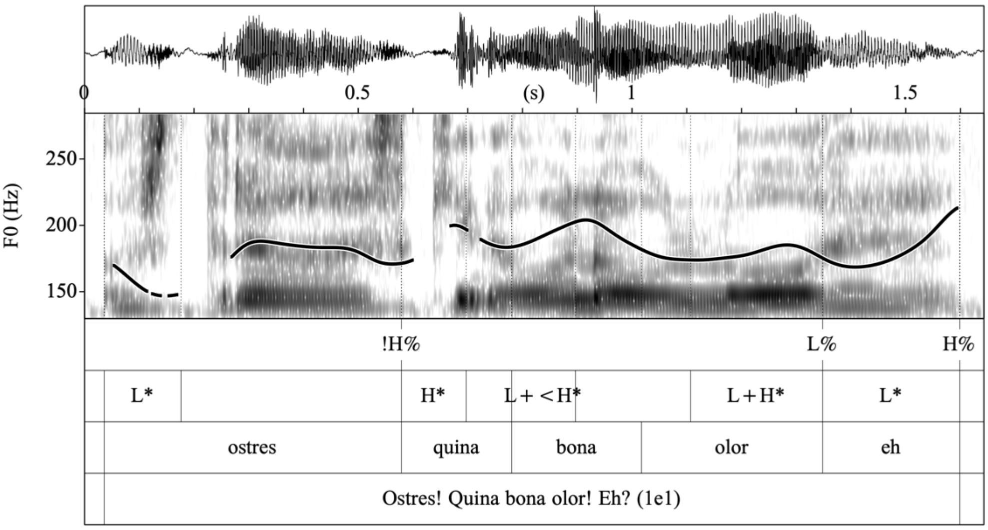

Figure 5.1-28: Girona Catalan: Waveform, spectrogram, and F0 contour for the exclamative statement *Quina bona olor!* 'What a nice smell!' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with an ip-initial H* prenuclear accent, a phrase-medial L+<H* prenuclear accent, an L+H* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is L+H* L% (12C9).

The most typical nuclear configuration for exclamative statements was L+H* L% in both languages, appearing with a proportion of roughly 55%. The pitch accent was occasionally upstepped (yielding L+¡H* L%), which I assume to be a feature reinforcing the exclamatory nature of these sentences. Furthermore, the contour sometimes surfaced as H* L% after preceding high targets. However, the nuclear position of the exclamative statements in the data set evidenced a considerable amount of variation: in 38% of the GC and 28% of the GS utterances an L* L% nuclear contours was used. As this nuclear contour (in combination with prenuclear L+<H*) is also characteristic of neutral declarative statements, it is not immediately clear what additional prosodic cues may be used to distinguish the two pragmatic contexts. One possibility is that a more expanded pitch range in the prenuclear area is utilized for exclamative statements. Examples like the one shown in Figure 5.1-29, where all prenuclear pitch accents encompass rises of around 70 Hz or more, suggest that this could be the case. Future work will help to elucidate this issue.

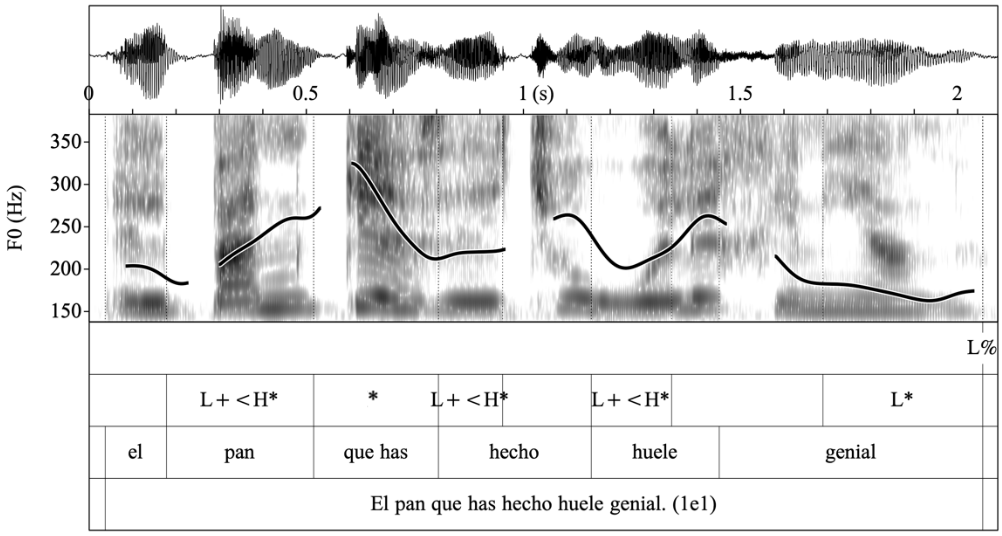

Figure 5.1-29: Girona Spanish: Waveform, spectrogram, and F0 contour for the exclamative statement *El pan que has hecho huele genial.* 'The bread you have made smells great' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with an ip-initial L+<H* prenuclear accent, two phrase-medial L+<H* prenuclear accents, an L* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is L* L% (8S9).

5.1.2.3 Contradiction statements

60 contradiction statements[252] elicited with situation 1f were included into the intonational analysis (i.e. 30 per variety; cf. Table 4.19). Concerning prenuclear pitch accents, the results show that L+<H* is clearly dominant, both in IP-initial and in phrase-medial positions. It accounts for over two thirds of the prenuclear pitch accents in both varieties (46 out of 56 items in GS,

[252] This type of statements is also frequently referred to as 'categorical' or 'contrastive'.

37 out of 53 in GC; for an example see Figure 5.1-30, below). The second most common prenuclear pitch accent was L*+H (7 in GS and 9 in GC). Other pitch accent types, such as L+H*, or pitch deaccentuation usually occurred in stress clashes or when there was too little space for the F0 to fall between the high target of a preceding pitch accent and the next stressed syllable.

The nuclear contours registered in the two varieties under consideration evinced quite a lot of variation, but they can be classified as belonging to the same categories in both languages. First, 20% of the GS and 33% of the GS were realized with the low L* L% nuclear configuration (i.e. the same contour as in neutral broad-focus statements). Given that the contradiction meaning seems to be conveyed only by lexical means in these cases, the respective items will be disregarded in what follows in the calculation of usage rates for the other contours attested. Second, the rising–falling circumflex contour L+H* L%, which occasionally surfaced as H* L% and L+H* HL%, represented 63% of the GS but only 40% of the GC nuclear contours other than L* L% (cf. Figure 5.1-30). In GC, a falling pattern, i.e. H+L* L%, was attested slightly more frequently (45%, cf. Figure 5.1-31 for an example), but in GS its share only reached 21% (and it was exclusively produced by CatD speakers, cf. below). Interestingly, this is in line with the fact that H+L* L% has been documented in Central Catalan (CC) but not in Spanish (cf. Prieto 2002a: 415f., 2013: 22, and Section 3.1.2.2). Last, the pitch accents H+L* and L* could also be followed by an HL% boundary tone: the nuclear configuration H+L* HL% made up 10% of the contours produced in GC, and 8% of the GS ones (cf. Figure 5.1-32 for an example); L* HL% was observed in 5% and 8% of the items, respectively. Although the two pitch accents could theoretically represent different surface variants in a single underlying nuclear configuration (and their appearance conditioned e.g. by preceding tones or by the used pitch range, increased pitch movements expressing stronger degrees of emphasis), I assume that they correspond to different underlying structures, since it was proposed that L* HL% conveys contradictive meaning in CS (cf. Estebas-Vilaplana/Prieto 2010), whereas H+L* HL% was observed in CC (cf. Prieto 2013: 21–22; Prieto et al. 2015: 21–22).

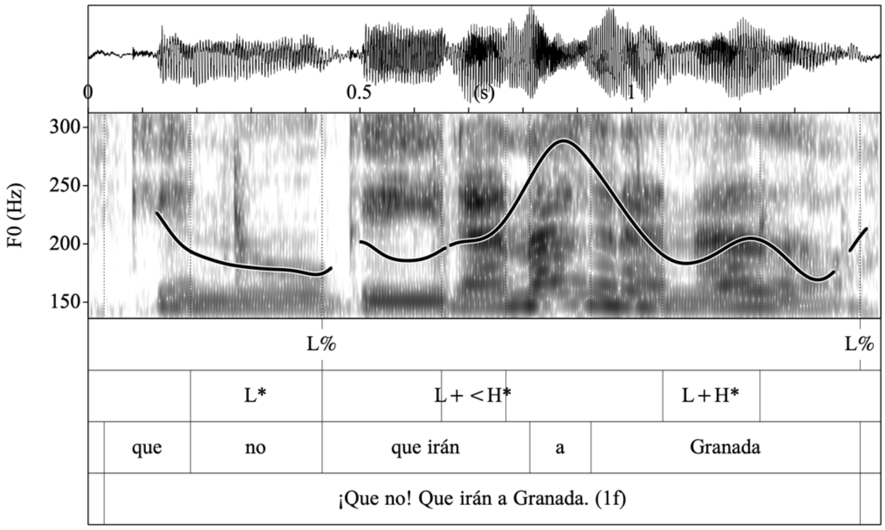

Figure 5.1-30: Girona Spanish: Waveform, spectrogram, and F0 contour for the contradiction statement *Que irán a Granada.* ‘They are going to Granada.’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an L+<H* prenuclear accent, an L+H* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is L+H* L% (15S10).

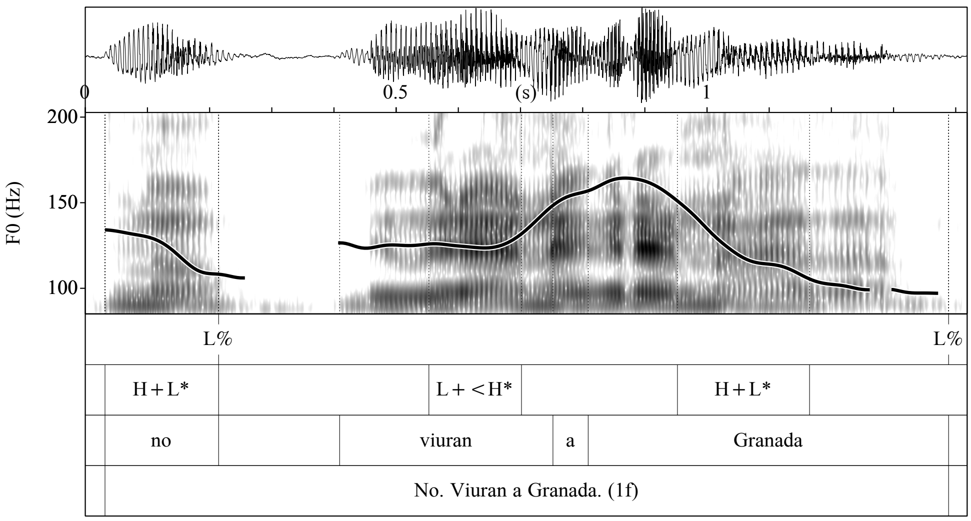

Figure 5.1-31: Girona Catalan: Waveform, spectrogram, and F0 contour for the contradiction statement *Viuran a Granada.* ‘They will be living in Granada.’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an L+<H* prenuclear accent, an H+L* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is H+L* L% (34C10).

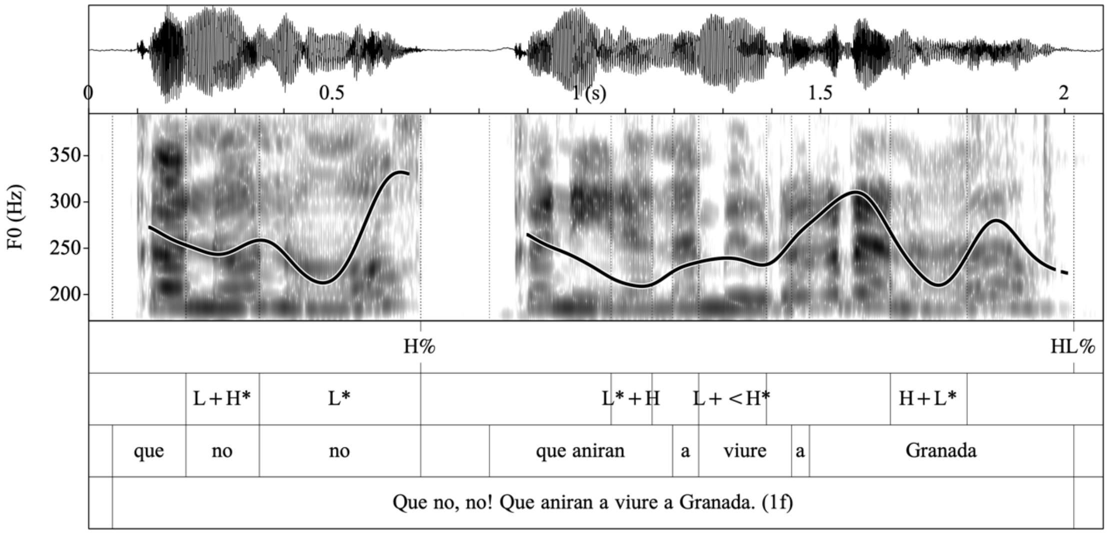

Figure 5.1-32: Girona Catalan: Waveform, spectrogram, and F0 contour for the contradiction statement *Que aniran a viure a Granada.* 'They are going to live in Granada.' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with an L*+H and an L+<H* prenuclear accent, an H+L* nuclear accent, and an HL% boundary tone. The nuclear configuration of the IP is H+L* HL% (5C10).

A look into the LD of the producers of all these different patterns is provided in the following table:

Table 5.1-2: Use of nuclear contours other than L* L% in Girona Spanish and Girona Catalan contrastive statements according to language dominance (percentages and total numbers).

nuclear contour	Girona Spanish			Girona Catalan		
	CatD	SpD	total	CatD	SpD	total
circumflex (L+H* L%)	47% (7)	89% (8)	63% (15)	43% (6)	33% (2)	40% (8)
falling (H+L* L%)	33% (5)	0% (0)	21% (5)	50% (7)	33% (2)	45% (9)
H+L* HL%	13% (2)	0% (0)	8% (2)	7% (1)	17% (1)	10% (2)
L* HL%	7% (1)	11% (1)	8% (2)	0% (0)	17% (1)	5% (1)

It can be seen that the CatD speakers most frequently recurred to the falling pattern in Catalan: H+L* L% accounts for 50% of their productions other than L* L%. As opposed to the SpD speakers, they also used this tune in Spanish (to an extent of 33%). However, in their Spanish production, circumflex contours are somewhat more common, attaining a share of 47%. Furthermore, CatD bilinguals account for 3 out of 4 productions of H+L* HL%. SpD bilinguals, on the other hand, almost exclusively produced circumflex patterns in Spanish (89%) and in Catalan used them with the same frequency as the falling pattern. The other tunes occurred only sporadically in their speech. Although this distribution suggests that falling patterns are more strongly associated with Catalan and/or CatD speakers and that circumflex patterns are more typical of Spanish and/or SpD speakers, statistical tests with respect to this did not reach significance. Even so, considering the fact that shared as well as different tunes were proposed for this utterance type in the literature on Spanish and Catalan intonation (cf. Table 3.4), it might be no surprise that the Girona bilinguals examined in the present study make use of all of these contours in both of their languages, and it is probable that not all of them have the same inventory of underlying nuclear configurations (in both or either language; cf. Sections 5.2.3 and 6.4.2.2 for a more detailed discussion of this topic).

5.1.2.4 Dubitative statements

A total of 63 utterances were recorded with situation 1g, which was designed to elicit dubitative statements. Of these, 1 GS and 5 GC items could not be analysed due to lapsus linguae and hesitation phenomena (cf. Table 4.19). In both varieties under concern, L+<H* was clearly the dominant prenuclear pitch accent—be it in phrase-initial or phrase-medial position. Yet, in phrase-medial positions pitch deaccentuation attained a higher level in GS (ca 55% vs only 10% in GC).

As concerns nuclear pitch accents, the same inventory was found in both languages: L*, L+H*, and H*. These pitch accents were followed by low boundary tones (L%) in all but one cases (see below). In GC, the most common nuclear contour, attested in 65% (17 out of 26) of the utterances, was L* L%. It was less common, however, in GS, where it accounted for only 39% of the items (i.e. 12 out of 31; cf. Figure 5.1-33). Since the use of this configuration makes the intonation patterns of dubitative statements equal to those of neutral statements, I assume that the notion of doubt is not expressed by intonation but by lexical means in these cases. Indeed, most of the obtained utterances contained lexical elements expressing doubt or insecurity such as Sp. *quizá(s)*, *a lo major*, *igual,* Cat. *potser*, *a lo millor*, all 'maybe' or Cat./Sp. *no sé si* 'I don't know if'. Despite this, the use of rising–falling contours (i.e. L+H* L% or H* L%) seems to represent a possibility to differentiate dubitative statements from neutral statements by intonational means (cf. Figures 5.1-34 and 5.1-35). Both pitch accents were equally frequent and might represent variants of one common underlying pitch accent (see Section 5.2.3 for a phonological analysis). It is of note, however, that such contours are not unique to dubitative statements but were also observed in contrastive-focus, exclamative, and contradiction statements.

Interestingly enough, no nuclear contours with complex boundary tones of the L+H* LH% type were present in the corpus, even though this is the typical contour described for this context in Catalan by Prieto (2002a: 416 f.). Furthermore, the only case where a non-low boundary tone was used was a single instance of L+H* HL%, produced in GC.

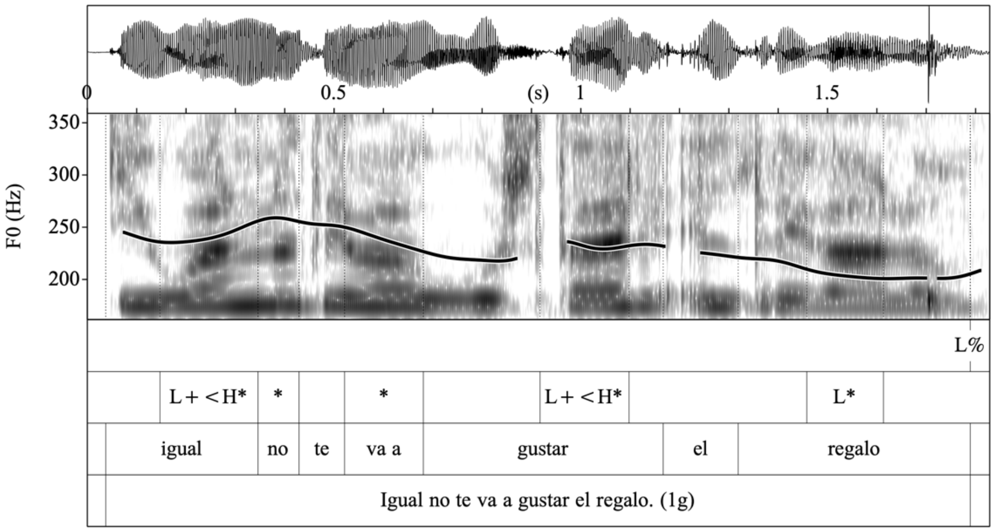

Figure 5.1-33: Girona Spanish: Waveform, spectrogram, and F0 contour for the dubitative statement *Igual no te va a gustar el regalo.* 'Maybe you won't like the present.' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with two L+<H* prenuclear accents, two pitch-deaccented prosodic words, an L* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is L* L% (16S11).

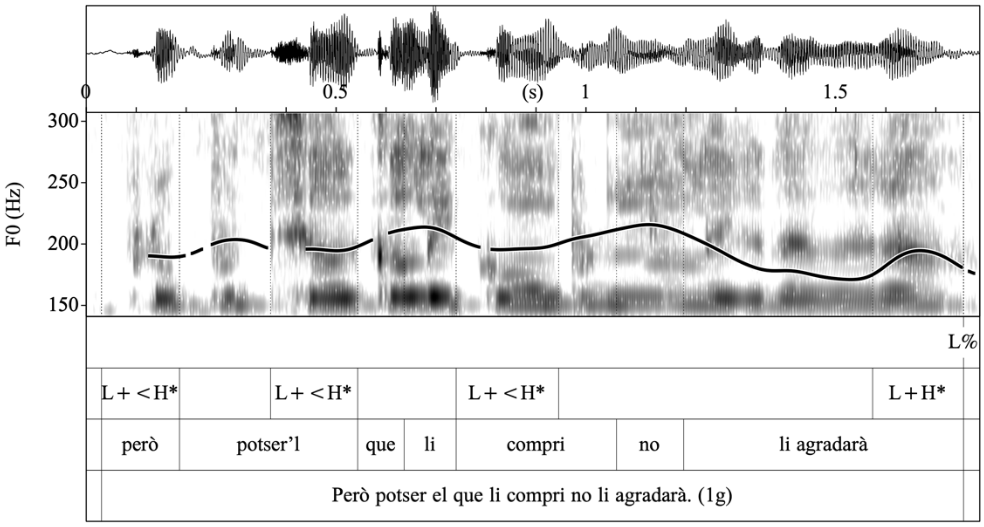

Figure 5.1-34: Girona Catalan: Waveform, spectrogram, and F0 contour for the dubitative *Però potser el que li compri no li agradarà.* 'Maybe he won't like what I'm going to buy for him' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with three L+<H* prenuclear accents, an L+H* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is L+H* L% (24C11).

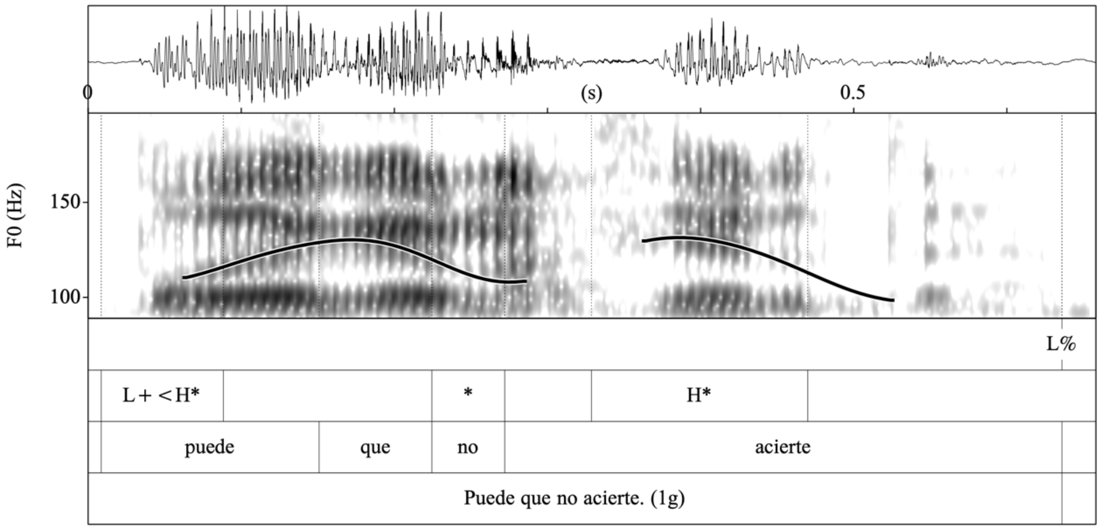

Figure 5.1-35: Girona Spanish: Waveform, spectrogram, and F0 contour for the dubitative statement *Puede que no acierte.* 'I may not get it right.' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with an L+<H* prenuclear accent, an H* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is H* L% (9S11).

5.1.3 Neutral polar questions

The next two sections are devoted to the description of the intonational properties of information-seeking yes–no questions with and without peripheral elements and of neutral disjunctive questions. In each case, I will show the realization of prenuclear pitch accents (in both phrase-initial and phrase-medial position) and of nuclear configurations of IPs (i.e. the combination of the nuclear pitch accent of the IP and the boundary tone). Their phonological status will be discussed after depicting the tonal realization of all sentence types considered for the intonational analysis of GS and GC (cf. Section 5.2).

5.1.3.1 Information-seeking yes–no questions

Given that the literature on information-seeking yes–no questions (henceforth IYNQ) in (Castilian) Spanish and (Central) Catalan suggests major differences between the two languages with regard to their intonation and morphosyntax, this utterance type represents a site where, in a situation of intense language contact such as the one of Girona, CLI is likely to take place. The most pre-eminent aspect of this cross-linguistic variation concerns the use of the sentence-initial interrogative particle *que*. Optional in Catalan, it is excluded in non-contact varieties of Spanish but has been sporadically documented in CCS (cf. Section 2.3). While it is known to appear hand in hand with a high–falling intonation pattern in Catalan, relatively little is known about the intonation of yes–no questions headed by this particle in CCS. Besides, similar to statements, also yes–no questions are known to contain more peripheral elements, namely more dislocations, in Catalan than in Spanish (cf., e.g., Feldhausen/Villalba 2020: 259, and Section

2.3). Therefore, the present subchapter will draw special attention to the presence and intonation of dislocated elements. A further question that to my best knowledge has remained entirely unaddressed to date is whether LD has any influence on the realization of IYNQ in Spanish–Catalan bilinguals (e.g. on the use of the particle *que*, dislocations, or on the choice of intonation patterns). IYNQ are thus of particular interest to the present study. For this reason, it was decided to ground their analysis on a somewhat larger database than that of other utterance types, such that five different DCT scenarios were used for the elicitation of questions of this type. Moreover, the results will be presented in some more detail as usual.

The current subsection is structured as follows: I will first give an overview of the five scenarios of the DCT and the responses that were obtained with them, focusing, in a first step, primarily on their syntax (i.e. on the presence of the sentence-initial interrogative particle *que* and on peripheral elements; 5.1.3.1.1). I will then provide detailed descriptions of the intonational properties of questions with and without *que* (5.1.3.1.2 and 5.1.3.1.3), describing phrase-initial and phrase-medial prenuclear pitch accents as well as nuclear contours, and portray the intonation of peripheral elements in yes–no questions consisting of more than one tonal unit (5.1.3.1.4), before discussing, eventually, possible effects of the LD of the speakers who produced these sentences (5.1.3.1.5). A short résumé will summarize the findings (5.1.3.1.6).

5.1.3.1.1 *Overview of the analysed neutral yes–no questions*

The DCT used in the current study comprised a total of five scenarios designed for the elicitation of IYNQ (2a1–2a3, 2b1, and 2b2, cf. Appendix 5). While situation 2a1 was expected to yield rather short questions, consisting of only two prosodic words (and, in consequence, of only two pitch accents—i.e. one prenuclear and one nuclear), the responses gathered with situations 2a2 and 2a3 should be somewhat longer and contain at least one phrase-internal prenuclear pitch accent. 2a3 was devised furthermore with the aim of generating questions ending in the antepenultimate-stress word Sp. *filóloga*/Cat. *filòloga* ‘philologist’. A greater distance between the last stressed syllable and the end of the phrase allows for a better disentanglement of the nuclear pitch accent and the boundary tone of the respective IP and hence facilitates the concise identification of the underlying tonal representation of the nuclear configurations used in IYNQ.[253] Situations 2b1 and 2b2, finally, should produce IYNQ of more than one tonal unit, i.e. questions containing peripheral elements such as dislocations.

From the 310 IYNQ recorded by means of these DCT situations (i.e. 5 scenarios × 31 speakers × 2 languages), 306 were suitable for an intonational analysis. Although some few of these contained minor disfluency phenomena such as slight lengthenings, it was not necessary to

[253] Lack of space between the points of anchorage of a nuclear pitch accent and the following boundary tone can seriously frustrate the disentanglement of these underlying tonal units. For instance, if a nuclear contour happens to be phonetically realized on an ultimate-stress word, such as Cat. *futbol* ‘football’, both tonal units associate to the same syllable, which obscures which parts of the tonal surface gesture result from the pitch accent and which from the boundary tone.

discard them from the analysis seeing that they nonetheless fit into the picture drawn by the remaining sentences. For this reason, only a very small number of the recorded responses (n = 4, ≈ 1%) had to be excluded. This was the case, for example, when the given responses contained either sentence types different from IYNQ[254] or were affected by too many strong hesitations.

As expected, the five DCT scenarios yielded IYNQ of different length and various syntactic constituency. Whereas situation 2a1, as well as 2b1 and 2b2, typically generated rather short interrogatives, whose main clauses consisted of no more than two prosodic words, the utterances obtained with situations 2a2 and 2a3 were consistently longer and contained a minimum of three prosodic words (cf. below for further information on the exact wording of the responses). As for the syntactic characteristics of the questions, Table 5.1-3 summarizes how many of the responses analysed from each scenario contained the interrogative particle *que* and how many contained peripheral elements. Please note a distinction is made between peripheral elements that must 'obligatorily' be placed outside the root sentence (e.g. appositions and the adverbial adjuncts Sp. *por favor* and Cat. *si us plau* 'please') and those that are 'optionally' placed in a peripheral sentence position such as dislocated subjects, objects, or adverbs. The rationale behind this is that only the number of 'optional' peripheral elements can show whether a particular speaker group, context, or variety is more inclined to divide up the main clause of yes–no questions into more than one tonal unit. By contrast, the use of elements that must (or virtually always do) appear in a separate tonal unit, such as the set phrase Sp. *por favor*, is less telling.

Table 5.1-3: Numbers and proportions of yes–no questions headed by *que* and containing peripheral elements in Girona Spanish and Girona Catalan.

Scenario	Girona Spanish				Girona Catalan			
	total number	headed by *que*	peripheral elements		total number	headed by *que*	peripheral elements	
			optional	obligatory			optional	obligatory
2a1	31	2 (6.5%)	0 (0%)	1 (3%)	31	12 (39%)	3 (10%)	0 (0%)
2a2	32[255]	0 (0%)	1 (3%)	5 (15%)	31	2 (6.5%)	0 (0%)	9 (28%)
2a3	30	0 (0%)	2 (13%)	2 (13%)	30	3 (10%)	4 (13%)	4 (13%)
2b1	30	4 (13%)	1 (3%)	1 (3%)	29	20 (69%)	15 (52%)	1 (3%)
2b2	31	1 (3%)	1 (3%)	0 (0%)	30	8 (26%)	4 (13%)	0 (0%)
total	154	7 (4.5%)	5 (3%)	9 (6%)	152	46 (30%)	26 (17%)	14 (9%)

It can be seen from the table that both *que*-questions and peripheral elements are present only in a minority of the IYNQ in the two contact varieties. Yet, noticeably, both phenomena are

[254] For instance, there were some responses which were pragmatically valid but contained merely an indirect interrogative or consisted of a wh-questions (cf., e.g., 27C16: *Fa una estona que estic trucant i em preguntava si la Maria ja és a casa*. 'I've been calling for a while and I was wondering whether Maria is already back home.'; 23C15: *¿Qué te ha dicho tu vecina filóloga al final con esa duda?* 'What did your philologist friend eventually say to you about that doubt?').

[255] One response (11S14) contained two IYNQ that were both incorporated into the corpus.

clearly more common in GC than in GS, where their occurrence can be considered rather marginal (4.5% for *que*-questions and 3% for optional peripheral elements). Furthermore, neither *que*-questions nor dislocations showed up to the same extent across all scenarios, which indicates that some contexts might favour them while others could repel them. For instance, yes–no questions headed by *que* seem to be preferred with rather short questions (cf. scenarios 1a2, 2b1, 2b2), containing only two lexical-stress words. Still, at least in GC, they are not completely impossible with longer sentences, either (cf. situations 2a2, 2a3).

In what follows, I will describe the wording of the responses obtained with each scenario in some more detail in order to give the reader a better impression of what type of interrogatives we are dealing with, before describing the results of the intonational analysis in the ensuing subsections.

The interrogatives collected with situation **2a1** were often preceded by a greeting (such as Sp. *¡Hola!* 'Hello!') or an excuse (such as Sp. *¡Perdón!* or Cat. *Perdona!* 'Excuse me!') that was considered an apart IP and thus excluded from the intonational analysis of the yes–no question. This was the case of 12 GS and 20 GC utterances. The interrogatives by themselves virtually always combined nothing more than an inflected form of the verb Sp. *tener* or Cat. *tenir* 'to have' and the object Sp. *mandarinas*/Cat. *mandarines* 'tangerines', and hence displayed only two pitch accents: i.e. one IP-initial prenuclear accent and the nuclear accent that was part of the nuclear contour. Only four GS and one GC sentences exhibited a phrase-medial prenuclear accent. Peripheral elements, phrased in a separate IP after the main clause, were found in one GS and three GC sentences (i.e. the politeness formula Sp. *por favor* 'please' and right-dislocated Cat. *aquí* 'here').

The utterances obtained with situation **2a2** were frequently preceded by vocatives, by imperatives such as Sp. *¡Oye!* 'Listen!' or Sp./Cat. *(¡)Perdona!* 'Excuse me!', or different formulas expressing an apology (e.g. Sp. *¡Perdón!* 'Sorry!'). This was the case in roughly half of the responses in both GS and GC. The respective elements were considered as separate IPs and excluded from the intonational analyses of IYNQ. The same holds true for some elements following the interrogative clause, such as the politeness formulae Sp. *por favor* and Cat. *si us plau* 'please', as well as for follow-up sentences giving an explanation for the reason of the question (e.g. *Es que tengo prisa y no puedo.* '[It's just that] I am in a hurry and can't [do it]'). The main interrogatives almost exclusively (i.e. to an extent of 94%) consisted of a conjugated form of the modal verb Sp./Cat *poder* 'can' and an infinitive meaning '(to) take' (i.e. Sp. *llevar* and Cat. *portar* or *dur*). Given that they generally continued with Sp. *a mi hermano al campo de fútbol* and Cat. *el meu germà al camp de futbol* 'my brother to the football pitch', the resulting sentences usually contained at least four prosodic words and largely matched with the expected response provided together with the description of the scenario (cf. Appendix 5).

The questions from **2a3** met with our expectations, too, in the vast majority of cases. They generally began with a verb in the perfect tense, i.e. Sp./Cat *has hablado/parlat* 'have you spoken' or, in some few cases, *has preguntado/preguntat* 'have you asked', accompanied by a following or sometimes preceding *ya/ja* ‘already’. Two thirds of the sentences ended, as desired, with the antepenultimate-stress word *filóloga/filòloga* ‘philologist’. In two cases per variety, this nominal constituted an apposition to *vecina/veïna* ‘neighbour’ and hence was phrased in a separate IP. Furthermore, it twice appeared at the end of a relative clause in the Catalan data set.

The responses gathered with scenario **2b1** again regularly began with a greeting (such as Cat. *Hola!* ‘Hello!’) or an apology (such as Sp. *¡Perdón!* or Cat. *Perdoneu!* ‘Excuse me!’). Here, too, these were considered prosodically independent from the IYNQ. The questions themselves were typically formulated as follows: in Spanish, they for the most part combined the verb form *ha llegado* ‘has arrived’, preceded or followed by the adverb *ya* ‘already’, and the subject *María*. As opposed to that, in Catalan, most interrogatives were introduced by the particle *que* (i.e. 69%, cf. Table 5.1-3, above) and, in a majority of cases, did not use the verb *arribar* ‘(to) arrive’ but *ésser-hi* or, less frequently, *haver-hi*, both loosely translatable as ‘(to) be there’. Similar to Spanish, the subject *la Maria* again used to be postverbal, but it was frequently phrased in a separate prosodic unit, i.e. as is typical in Catalan *que*-questions (cf. Section 3.2), it was dislocated from the main clause of the interrogative to a peripheral position at the end of the sentence. In consequence, 55% of the GC interrogatives collected with 2b1 contained the intended peripheral element, whereas this was only the case in 7% of the GS items.

As for the total interrogatives obtained via situation **2b2**, only very few contained the desired peripheral elements, although the scenarios were originally devised by Cabré/Prieto (2007–2012) for CC and by Prieto/Roseano (2009–2013) for CS with the purpose of eliciting such. Instead, the responses typically consisted of the verb form Sp./Cat. *has visto*/*vist* ‘have you seen’, directly followed by the direct object Sp. *a Maria* and Cat. *(a)*[256] *la Maria*. However, there were four dislocated elements in GC and one in GS. Besides, as in other contexts, many sentences were again preceded by greetings or apologies, and some were succeeded by declaratives explaining the reason of the question.

In what follows, I will first describe the intonation of the most common type of interrogative in the corpus, namely of questions without *que* (5.1.3.1.2), and then, in a second step, turn to the scarcer case of questions with *que* (5.1.3.1.3). In both sections, I will initially focus on the principal intonation pattern(s) found, portraying the typical realizations of (initial and medial) prenuclear and nuclear pitch accents and of boundary tones, and then turn to other, less frequent patterns. Finally, I will depict the intonation of peripheral elements, i.e. mainly of dislocations, in questions consisting of more than one tonal unit (5.1.3.1.4). Possible effects of LD on the syntactic and intonational choices will be discussed in a separate section after the presentation of the intonational analysis (5.1.3.1.5).

[256] Although the differential marking of the direct object with *a* is proscribed by Catalan prescriptive norms in this context (cf., e.g., Fabra 1918: §112; Sancho Cremades 2002: 1737; GEIEC 2018: §14.4.2), it was present in roughly half of the sentences. Interestingly, this was proportionally a bit more often the case in the Spanish-dominant speaker group (5 out of 9 items vs 9 out of 19 in the Catalan-dominant group).

5.1.3.1.2 *Intonation of information-seeking yes–no questions without* que

The vast majority of the IYNQ without *que* that were part of the present corpus show the final rising or 'low–rise' pitch pattern typically described for this question type in much of the literature on (Castilian) Spanish and Catalan intonation (e.g. Hualde/Prieto 2015: 372; Prieto et al. 2015: 23; see also Section 3.1.2.2). In GS, this was the case of 138 out of 147 questions without *que* (i.e. 94%); in GC, 98 out of 106 followed this pattern (i.e. 92%). The present subsection is thus structured in the following way: in a first step, the 'low–rise' intonation pattern will be shortly explained through a few simple examples in (short) yes–no questions. Then, I shall describe the realization of phrase-initial prenuclear pitch accents, phrase-medial pitch accents, and nuclear contours in some more detail. Eventually, I will address some other intonational contours sometimes found in yes–no questions without *que* (representing 6% and 8%, respectively).

The archetypal 'low–rise' pattern consists of an L*+H prenuclear pitch accent and a low–rising nuclear contour. The nuclear pitch accent is L*, i.e. the F0 performs a low plateau during the duration of the nuclear syllable. It is followed by a high boundary tone, for which different labels, such as 'H%', 'HH%', '¡H%', exist in the literature (cf. Section 3.1.2.2). I will portray the phonetic implementation of this rise in more detail below, but already at this point it is worth pointing out that it was labelled either as 'H%' or as '¡H%' in the present work following phonetic criteria. More precisely, the latter solution with the upstep was adopted if the final rise exceeded the hight of a preceding high target present in the prenucleus. The phonological status of the upstep in the nuclear contour of this pattern will be discussed in Section 5.2.3. Figure 5.1-36. and Figure 5.1-37 provide two prototypical examples of the contour in GS and GC, respectively.

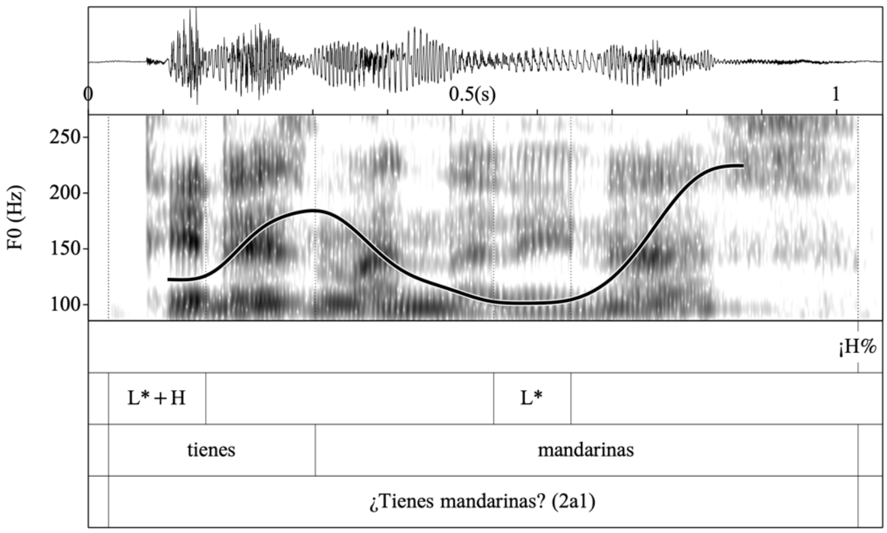

Figure 5.1-36: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿Tienes mandarinas?* 'Do you have tangerines?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, an L* nuclear accent, and an ¡H% boundary tone. The nuclear configuration of the IP is L* ¡H% (17S13).

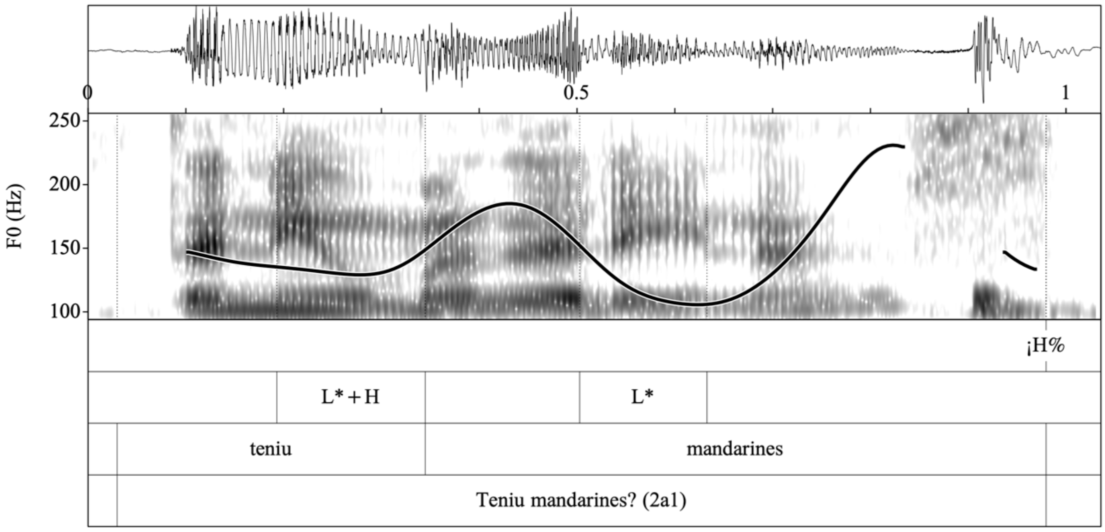

Figure 5.1-37: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *Teniu mandarines?* ‘Do you have tangerines?’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, an L* nuclear accent, and an ¡H% boundary tone. The nuclear configuration of the IP is L* ¡H% (34C13).

In the subsequent paragraphs, I will further elaborate on the different parts of the ‘low–rise’ intonational contours, additionally taking into account longer questions containing one or more phrase-medial prosodic words, before establishing a general model for IYNQ with this contour in the two Girona contact varieties.

As advanced above, the first **prenuclear** pitch accent belonging to the ‘low–rise’ pitch contour in GS and GC IYNQ without *que* uses to be of the L*+H type. According to the schematic representation depicted in Section 3.1.2.1, L*+H pitch accents show a low plateau within the limits of the stressed syllable they are associated with, followed by a pitch rise that sets in at the beginning of the following, unstressed syllable. With regard to the assignation of this label in the present data set, it is worthwhile to point out that it refers primarily to the overall low–rising shape of the pitch contour and does not permit to draw firm conclusions about the absolute surface pitch height. Given that it constitutes the IP-initial pitch accent in the utterance type under concern here, the initial plateau is often situated clearly over the speaker’s baseline and can be considerably higher than the low target of the nuclear L* pitch accent, which is typically the lowest point of the respective IPs. The phrase-initial L*+H pitch accent can thus perfectly take the form of a level tone at a mid or mid-to-low level of the speaker’s range produced within the limits of the lexically stressed syllable and a subsequent rise beginning at the right edge of this syllable. For instance, in the question shown in Figure 5.1-38, the lowest point of the IP-initial L*+H pitch accent is 27 Hz (4.7 semitones) higher than the lowest point of the nuclear L* pitch accent. The starred tone of the phrase-initial L*+H hence represents a local but generally not an overall F0 minimum in this sentence type.

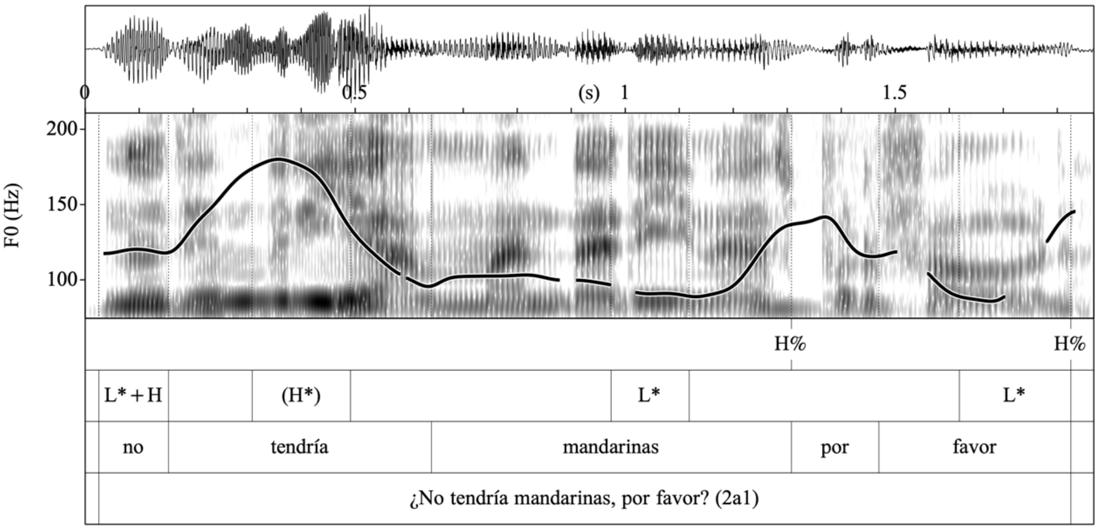

Figure 5.1-38: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿No tendría mandarinas, por favor?* 'Wouldn't you have some tangerines, please?' produced by a Catalan-dominant speaker. It is composed of two IPs. The first one contains an IP-initial prenuclear L*+H accent, an H* phrase-internal prenuclear accent[257], an L* nuclear accent, and an H% boundary tone. The nuclear configuration of the IP is L* H%. This nuclear pattern is repeated on the adverbial in the second IP (23S13).

Furthermore, it warrants mention that the low target of the L*+H prenuclear pitch accent did not always surface in form of a level plateau. In some cases, a gentle fall was observed instead. This was frequently the case when the IP began with various unstressed syllables or was preceded by another IP ending in a high boundary tone (for some examples see, e.g., Figures 5.44, 45, 48, or 52, below).

As for the second part of this pitch accent, i.e. the pitch rise originating from the high trailing tone ('+H'), it generally starts right at the beginning of the syllable following the stressed one. Nevertheless, there is some minor variation as to where it begins exactly. Sometimes it stars off already a bit earlier, i.e. towards the end of the lexically stressed syllable, and sometimes only right at the middle of the following, unstressed syllable. Possibly, this could be influenced (at least in part) by the segments that appear in the coda and/or in the onset of these syllables. Regarding the peak of this pitch accent, most descriptions and schematic representations (cf. Section 3.1.2.1) suggest that it is habitually reached within the unstressed syllable following the stressed one. Interestingly, this was the case only in a minority of the items in the present data set. Table 5.1-4 shows in which of the post-tonic syllables the F0 contour attained the nearest local maximum for all responses from situations 2a1, 2a2, and 2a3 beginning with an L*+H pitch accent.

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[257] Bracketed pitch-accent labels indicate that the F0 contour visible within the limits of a metrically strong syllable is not the surface reflex of an underlying pitch accent carried by that syllable but instead that it results from interpolation between preceding and following tonal targets (and sometimes declination). The bracketed label should therefore be regarded merely as a phonetic description of the surface F0 gesture, while I assume the respective syllable to be underlyingly pitch-deaccented. As will be shown and discussed extensively later on, actually most instances of phrase-medial prenuclear pitch accents are pitch-deaccented in this (and other) utterance types.

Table 5.1-4: Position of the pitch peak of IP-initial L*+H prenuclear pitch accents in information-seeking yes–no questions (percentages and total numbers of items).

Number of post-tonic syllable	1st	2nd	3rd or beyond	total number
Girona Spanish	22% (18)	63% (50)	14% (11)	79
Girona Catalan	38% (27)	55% (39)	7% (5)	71

As can be seen from the table, the peak is most frequently situated in the second post-tonic syllable rather than in the syllable directly following the stressed one (cf., for instance, Figure 5.1-39 or Figure 5.1-43, below). Nevertheless, there is some variation in the sense that it can also be situated in that syllable or, with a lower probability, as far to the right as in the third post-tonic syllable or beyond (cf. Figure 5.1-40, for an example). Sometimes, as e.g. in Figure 5.1-39, the peak coincides with a subsequent metrically strong syllable of the utterance. In such cases, it would intuitively be considered part of the surface realization of the pitch accent associated with that syllable. This problem will be dealt with later on, when the form of the pitch contour in phrase-medial positions is addressed.

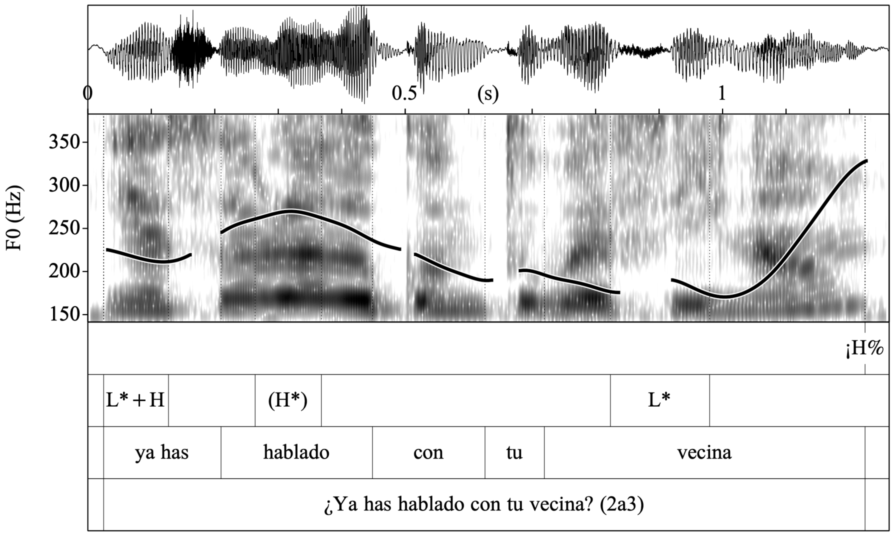

Figure 5.1-39: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿Ya has hablado con tu vecina?* 'Have you already spoken to your neighbour?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, associated to the adverb *ya* 'already' that is merged into one syllable with the following auxiliary (*has* 'you have'), a phrase-medial pitch-deaccented syllable (cf. Fn. 257), an L* nuclear accent, and a high boundary tone (¡H%). The nuclear configuration is L* ¡H% (cf. 14S15).

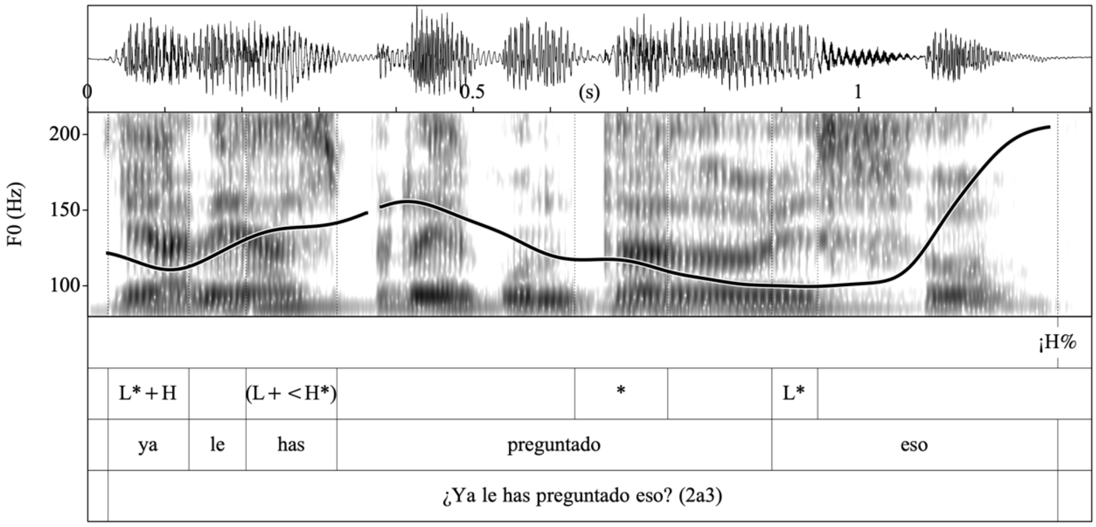

Figure 5.1-40: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿Ya le has preguntado eso?* 'Have you already asked her about that?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, various phrase-medial pitch-deaccented syllables (cf. Fn. 257), an L* nuclear accent, and a high boundary tone (¡H%). The nuclear configuration is L* ¡H% (cf. 18S15).

Aside from the phrase-initial L*+H pitch accents, the data set contained some cases of phrase-initial underlyingly stressed syllables within the limits of which the F0 already began to rise gently before it followed the typical course of the 'low–rising pattern'. These were labelled as delayed peaks (L+<H*). Figure 5.1-41 presents an example. However, I consider these realizations surface variants of an underlying L*+H pitch accent. In addition, there were some isolated cases of phrase-initial high tones (H*) in contours that otherwise corresponded to the 'low–rise' (cf. the example in Figure 5.1-42). I thus equally interpret these as surface realizations or allotones of the L*+H pitch accent.

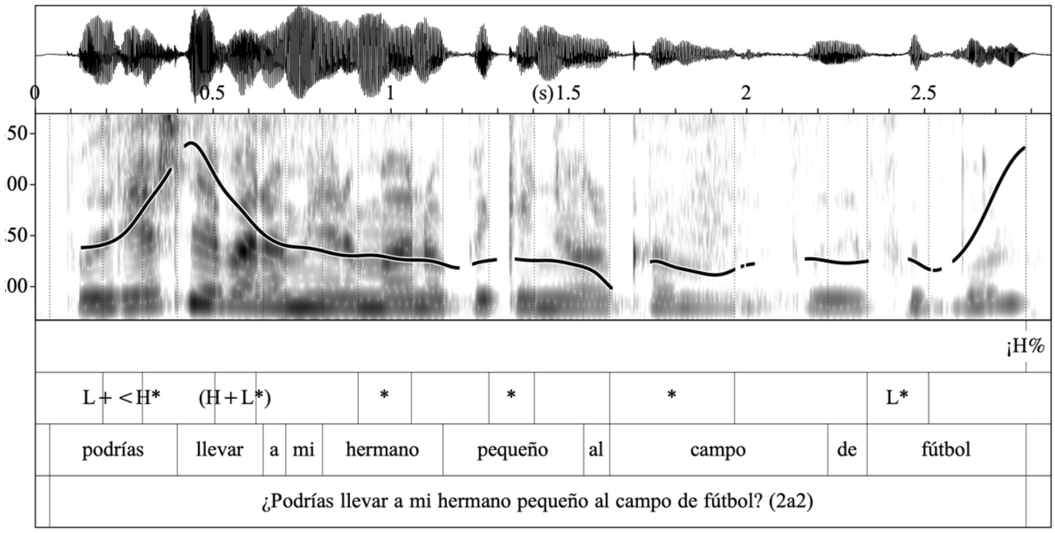

Figure 5.1-41: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿Podrías llevar a mi hermano pequeño al fútbol?* 'Could you take my little brother to the football (training)?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L+<H* prenuclear accent, several instances of phrase-medial pitch deaccentuation (cf. Fn. 257), an L* nuclear accent, and a high boundary tone (¡H%). The nuclear configuration is L* ¡H% (cf. 16S14).

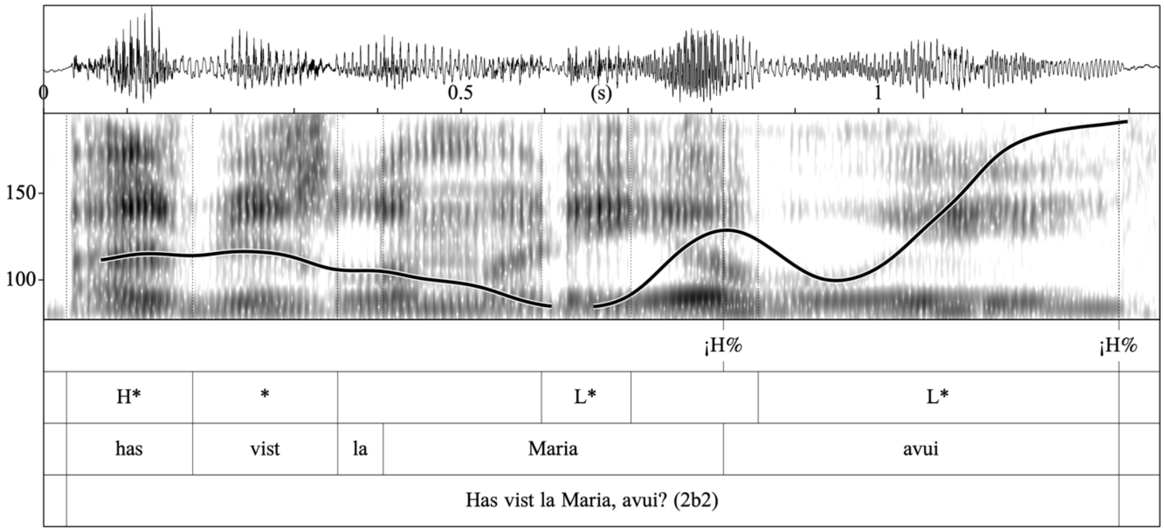

Figure 5.1-42: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *Has vist la Maria, avui?* 'Have you seen Maria today' produced by a Catalan-dominant speaker. It represents an IP composed of two IPs. The first ip consists of an IP-initial prenuclear H* accent, an L* nuclear accent, and a high boundary tone (¡H%). The second IP shows an L* ¡H% nuclear configuration. The nuclear configuration of the main clause of the question is L* ¡H% (cf. 29C17).

As concerns the location of pitch accents, the Autosegmental-Metrical model, which is applied in the current work, posits that they associate to stressed syllables (cf. Section 3.1.1.1). Phrase-initial L*+H prenuclear pitch accents should thus be aligned with the first metrically strong syllable of the ip that contains the yes–no interrogative. Even though this was also true in the present corpus, the first stressed syllable of an utterance was not always the one one might expect at first sight. For instance, while most sentences uttered in context 2a1 and 2a2 began with a simple verb form in the present or conditional tense (typically *tener*/*tenir* ‘have’ and *poder* ‘can’, cf. above), the sentences recorded with the contexts 2a3, 2b1, and 2b2 generally began with a compound verb form in the present perfect. Such complex verb forms, consisting of a monosyllabic auxiliary, such as Sp./Cat. *has* ‘you have’, in conjunction with a past participle (here mostly *hablado*/*parlat* ‘spoken’), usually tend to be realized as one prosodic word. In consequence, they bear only one pitch accent that is associated with the morphologically stressed syllable of the participle, leaving the auxiliary pitch-deaccented. In some (Central) Catalan dialects, the auxiliaries can be even affected by vowel reduction (cf. Bonet 2002: 986; Wheeler 2005: 278; GEIEC 2018: §3.2.2). Interestingly, this was not the case in the present set of IYNQ. In the responses to situation 2a3, the IP-initial prenuclear L*+H accent regularly associated with the auxiliaries Sp./Cat. *has* or Cat. *vas* whenever they appeared in the first position of the sentence (*n* = 20 in GS, *n* = 16 in GC). Figure 5.1-43 illustrates this. The same was observed with the responses to situation 2b1 and 2b2.

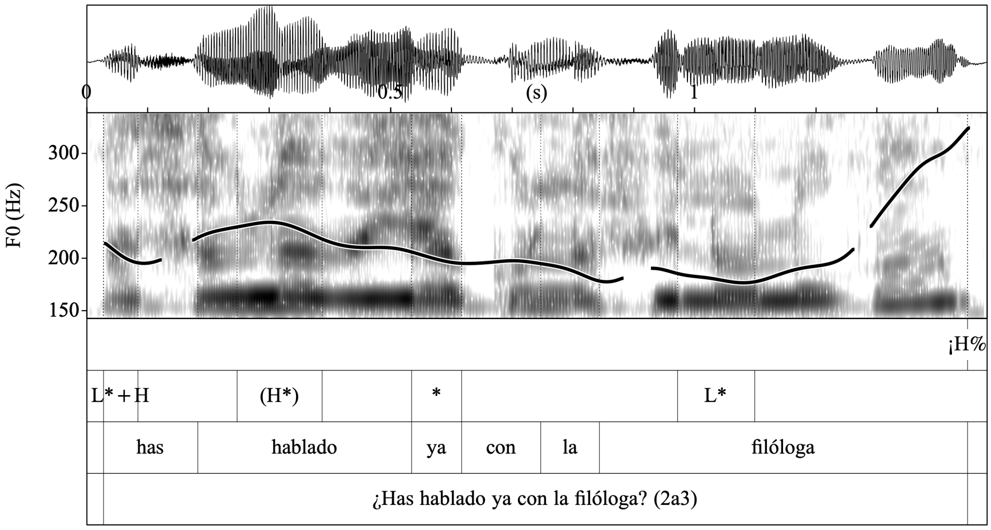

Figure 5.1-43: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿Has hablado ya con la filóloga?* ‘Have you already spoken to the philologist?’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent associated to the auxiliary *has* ‘you have’, various instances of phrase-medial pitch deaccentuation (cf. Fn. 257), an L* nuclear accent, and a high boundary tone (¡H%). The nuclear configuration is L* ¡H% (cf. 24S15).

When the auxiliary was preceded by an adjunct such as the adverb Sp. *ya* or Cat. *ja* ‘already’, it was, of course, the lexically stressed syllable of the adjunct that bore the pitch accent. Yet, in many cases, *ya* or *ja* and the following *has* were merged and pronounced in one single syllable, i.e. [ˈʝas] in Spanish and [ˈʒas] in Catalan, which then carried the pitch accent (8 cases in each variety). This can be seen in Figure 5.1-39, above. Note, however, that the stressed syllable is only [ʝa] in this example since the coda /s/ of *(ya) has* is resyllabified into the onset of the next syllable.

What is more, phrase-initial L*+H was even found on a different auxiliary, viz. on *vas* in *Li vas demanar allò a la teva veïna?* ‘Did you ask your neighbour about that thing?’, which is a form of the auxiliary *anar* (originally ‘to go’) used to build the Catalan periphrastic preterit tense. Likewise, in the example Figure 5.1-38, this pitch accent is anchored on the negation particle Sp. *no*. This element, too, can be unstressed, or rather its underlying stress may not be phonetically realized, when it appears in preverbal position, where it can cliticize to the conjugated verb and, in some Catalan dialects, may even suffer vowel reduction (cf. DCVB, s.v. *no*). As opposed to that, our corpus contains 5 instances (3 in GS, 2 in GC), where it occurs preverbally and bears the phrase-initial L*+H pitch accent. A Catalan example is shown in Figure 5.1-44.

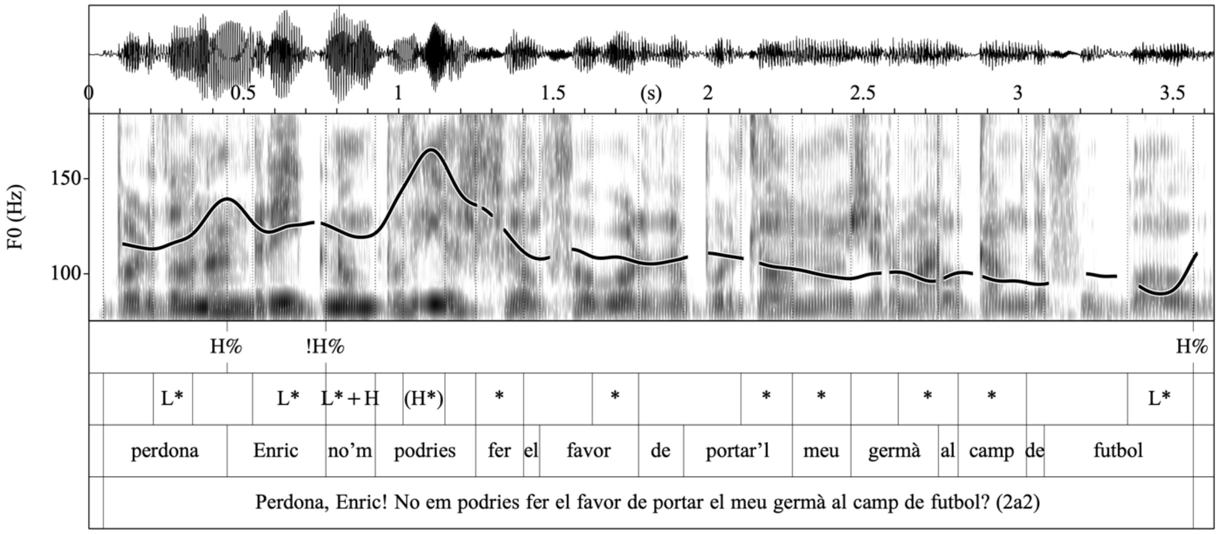

Figure 5.1-44: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *No em podries fer el favor de portar el meu germà al camp de futbol?* ‘Could’t you do me the favour of taking my brother to the football pitch?’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, various instances of phrase-medial pitch deaccentuation (cf. Fn. 257), an L* nuclear accent, and an H% boundary tone. The nuclear configuration of the IP is L* H% (23C14).

Finally, our data contain one case where IP-initial prenuclear L*+H was deployed on a direct object proclitic (13S14). However, this single instance must be treated very carefully since, first, it was produced by a SpD speaker of Honduran origin who—as we shall see—sometimes behaves differently from the rest of the participants and, second, since there are various counterexamples in our corpus where IP-initial proclitics are left pitch-unaccented and the L*+H contour associates with the stressed syllable of the ensuing finite verb.

Be that as it may, the present data very strongly suggest that GS and GC IYNQ (without *que*) typically begin with an L*+H pitch accent that associates with the first stressed syllable of the utterance. More precisely, the pitch gesture is anchored as far to the left as possible, which implies that it cannot solely be borne by metrically strong syllables of lexical words but also by grammatical words such as auxiliaries and negation particles, which may appear unstressed in other contexts (e.g. in declarative statements). As discussed below, in Fn. 261, there may be grammatical reasons for this.

Let us now turn to the **phrase-medial** portion of the prenucleus. According to most of the academic literature, this question type should figure L*+H prenuclear pitch accents on all or most metrically stressed syllables of the prenuclear area, even though the possibility of phrase-internal deaccentuation is sometimes mentioned as an alternative (e.g. by Hualde/Prieto 2015; Kireva 2016a: 121). Yet, the present corpus rather suggests that deaccentuation is actually the default and most recurrent case: consistent phrase-medial pitch deaccentuation appeared even in very long questions, and the few sentence-medial pitch accents observed could possibly be associated with some kind of focus or emphasis (cf. below).

A prototypical realization of the 'long' yes–no questions collected mainly with situations 2a2 and 2a3 is provided in the Spanish example depicted in Figure 5.1-45. It begins with an IP-initial L*+H pitch accent on <u>*pue*</u>*des* 'can you', that attains its peak close to the end of the second post-tonic syllable, i.e. on the first syllable of the following word *lle*<u>*var*</u> 'take'. After that peak, the F0 drops down, showing thus a falling gesture within the limits of the stressed syllable of *lle*<u>*var*</u> (which therefore was given the superficial label 'H+L*', here). Then, the F0 contour stays low and does not show any further excursions until the last syllable of the sentence where it abruptly rises to its highest point. The phrase-medial part of the utterance is thus clearly pitch-deaccented. The nuclear syllable, finally, is pronounced with low and flat pitch (L*), making the nuclear contour L* ¡H%. Some similar Spanish examples can be seen in Figures 5.1-41 and 5.1-43, above.

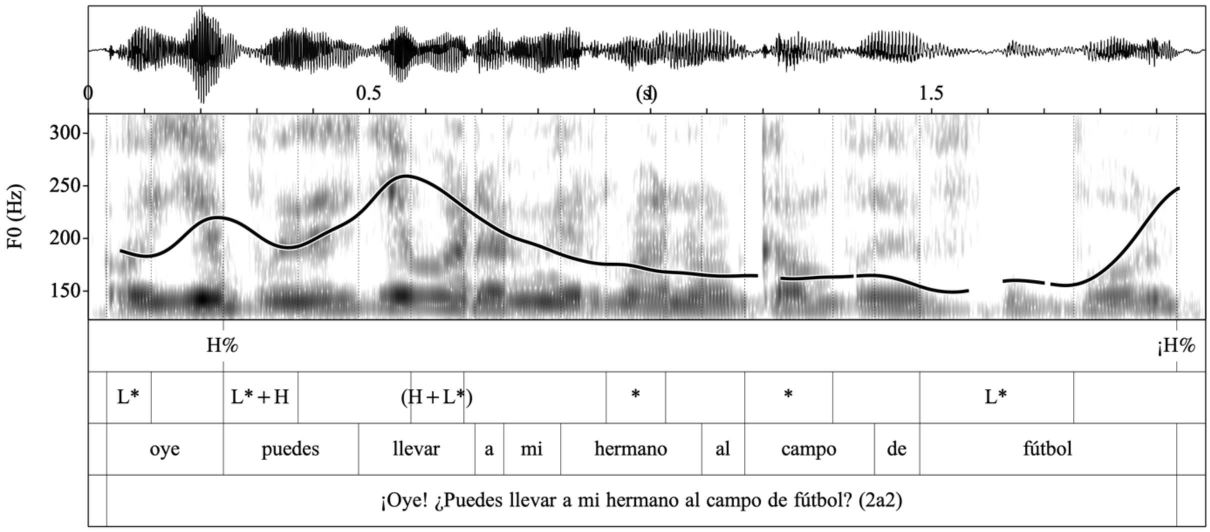

Figure 5.1-45: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿*<u>*Pue*</u>*des lle*<u>*var*</u> *a mi her*<u>*ma*</u>*no al* <u>*cam*</u>*po de* <u>*fút*</u>*bol?* 'Can you take my brother to the football pitch?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, several instances of phrase-medial pitch deaccentuation (cf. Fn. 257), an L* nuclear accent, and an ¡H% boundary tone. The nuclear configuration of the IP is L* ¡H% (12S14).

In the GC data set, too, the phrase-initial prenuclear L*+H pitch accent was usually not repeated on each metrically stressed syllable. Instead, following the one IP-initial L*+H accent, the utterance-internal parts were clearly characterized by pitch deaccentuation in the vast majority of cases. Figure 5.1-46 provides a typical example: the interrogative IP begins with an initial L*+H accent placed on the modal verb *pots* ‘can you’ that attains its peak at the beginning of the second post-tonic syllable, i.e. on the metrically strong syllable of the *portar* ‘take’. In accordance with the pitch movement, that syllable was labelled superficially with an H* pitch accent, but we will later on see that it is actually pitch-deaccented. After that peak, the F0 drops down to the bottom of the speaker’s range, stays low and does not show any further excursions until the last syllable of the sentence where it abruptly rises to its highest point. The nuclear syllable is pronounced with a continuous pitch rise that I interpret as a combination of a low pitch accent (L*) and a high boundary tone, making the nuclear contour L* ¡H%. A similar example can be appreciated in Figure 5.1-44, above.

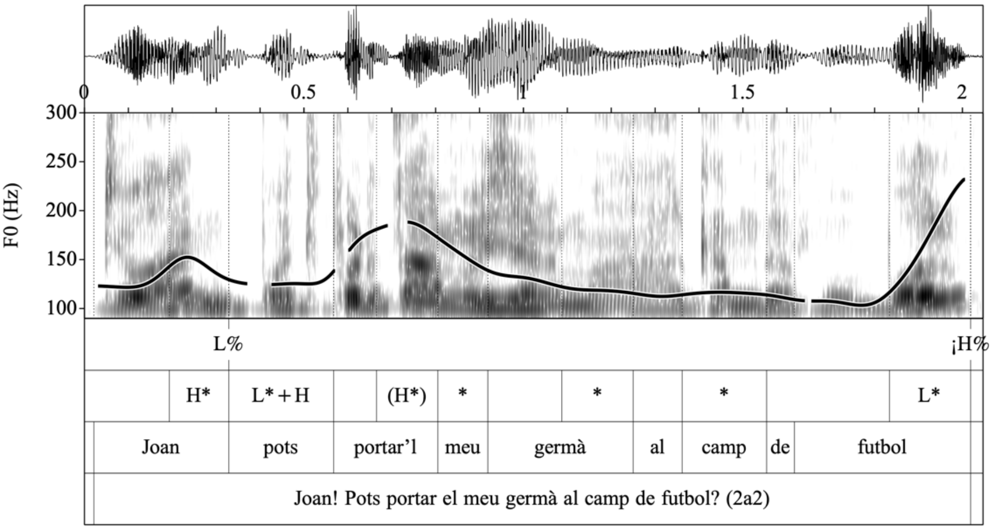

Figure 5.1-46: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *Pots portar el meu germà al camp de futbol?* ‘Can you take my brother to the football pitch?’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, several instances of phrase-medial pitch deaccentuation (cf. Fn. 257), an L* nuclear accent, and an ¡H% boundary tone. The nuclear configuration of the IP is L* ¡H% (17C14).

Although pitch deaccentuation is thus clearly the rule in the prenucleus from the third metrically stressed syllable onwards, it is necessary to have a closer look at the pitch movements that take place within the limits of its **second** metrically stressed syllable, i.e. in the first phrase-internal prenuclear syllable. In the used corpus, such syllables were present mainly in the longer questions collected with situation 2a2 and 2a3. Always being preceded by the same IP-initial L*+H accent, they presented a surprisingly large amount of tonal variation. At first sight, the array of different pitch movements detected in this position encompasses virtually all pitch accents traditionally proposed for the analysis of Spanish and Catalan intonation: i.e. the contours found in the two languages could be (superficially) described as high (H*), falling (H+L*), low (L*), or rising (L+H*). In some cases, even L+<H*, with a delayed peak, might seem to be a possible analysis at first glance. Finally, there were also some instances of L*+H, which, however, are likely to represent a different case (cf. below). The exact numbers and percentages are given in Table 5.1-5:

Table 5.1-5: Shapes of the F0 in the context of the second stressed prenuclear syllable in Girona Spanish and Girona Catalan information-seeking yes–no questions beginning with L*+H.

Shape of the F0	H*	H+L*	L*	L+H*	L+<H*	L*+H	total
Girona Spanish	48% (44)	28% (26)	2% (2)	7% (6)	8% (7)	8% (7)	92
Girona Catalan	37% (22)	40% (24)	2% (1)	7% (4)	7% (4)	8% (5)	60

Despite the fact that the first two categories hold responsible for almost 80% of the instances, there is no clear preference for a particular 'pitch accent' in this position. The nature of the pitch movement that takes place within or in the proximity of the second prenuclear stressed syllable thus seems to depend primarily on the distance between this syllable and the first stressed syllable, carrying the L*+H pitch accent. Seen from the perspective of the rise of this phrase-initial accent, the following cases can be distinguished:

– The IP-initial prenuclear L*+H attains its peak within the limits of the second prenuclear metrically stressed syllable, where the F0 thus takes the form of an H* pitch accent. This is overall the most frequent case (cf. Figure 5.1-39, 44, 46, above, and 5.1-57, below).
– The peak of L*+H is attained already before the beginning of the second prenuclear underlyingly stressed syllable, such that the F0 falls within the limits of this syllable (possibly due to 'common' declination; cf. 3.1.1.1). The pitch contour thus looks like an H+L* pitch accent (cf. Figure 5.1-45, above, and 5.47, below).[258]
– The pitch has already fallen after the peak of the IP-initial L*+H pitch accent and is low during the second prenuclear underlyingly stressed syllable, i.e. it looks as if this syllable bore an L* pitch accent (cf. Figures 5.48 and 5.49, below).
– The peak of L*+H is not yet attained, and pitch is still rising within the limits of the second prenuclear metrically stressed syllable, which hence looks as if it were realized with an L+H* or L+<H* pitch accent (cf. Figure 5.1-50 and 5.1-51[259], below).

[258] Note that similar-looking contours have sometimes been explained in terms of a conditioned surface variant of an underlying rising prenuclear pitch accent. For instance, Kireva (2016a: 121) argues that the occurrence of H+L* in this position (e.g. in her example in Figure 5.21, p. 128) is provoked by the preceding rising pitch accent that has its peak in an adjacent syllable, i.e., by the lack of "sufficient segmental material to realize another rising pitch accent". Although this line of reasoning could also be used to account for the example in Figure 5.1-45, this would not appear very convincing in Figure 5.1-47, where more segmental material is available between the phrase-initial and the first phrase-medial stressed syllables. Furthermore, the pitch fall on the latter is not particularly steep (which would be expected if there were an underlying high and low target).

[259] Although the presence of a stress clash hampers pitch-accent identification in this case, the beginning of the pitch contour in Figure 5.1-51 could also be interpreted as a surface realization of a phrase-initial L* accent followed by a delayed peak (L+<H*). However, the offered interpretation is in line with the remaining examples of this section.

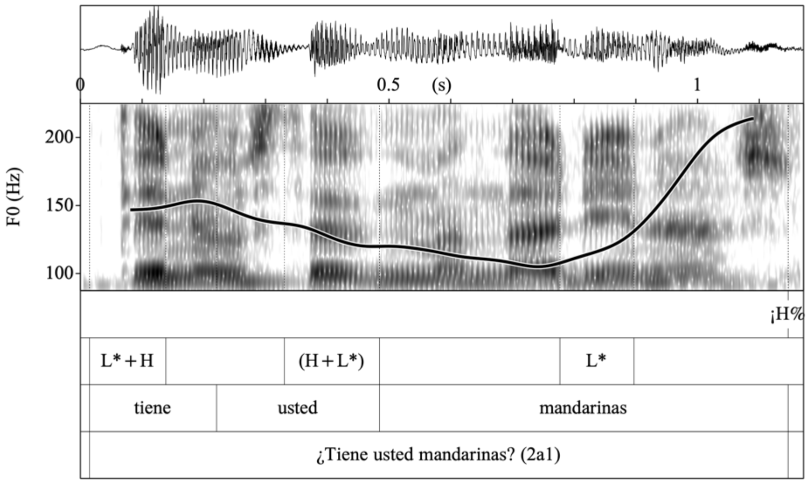

Figure 5.1-47: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿Tiene usted mandarinas?* 'Do you have tangerines?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, a phrase-medial pitch-deaccented syllable (cf. Fn. 257), an L* nuclear accent, and an ¡H% boundary tone. The nuclear configuration of the IP is L* ¡H% (11S13).

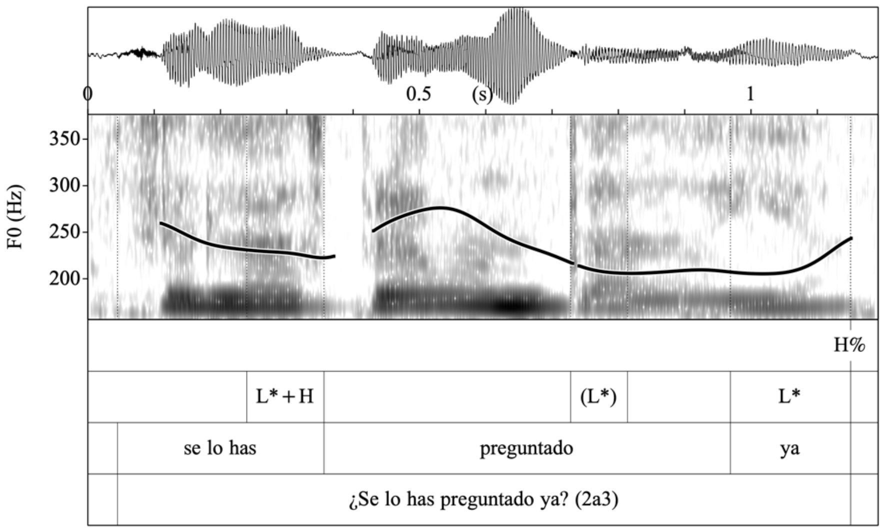

Figure 5.1-48: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿Se lo has preguntado ya?* 'Have you already asked her?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, placed on the auxiliary *has*, a phrase-medial pitch-deaccented syllable (cf. Fn. 257), an L* nuclear accent, and an H% boundary tone. The nuclear configuration of the IP is L* H% (31S14).

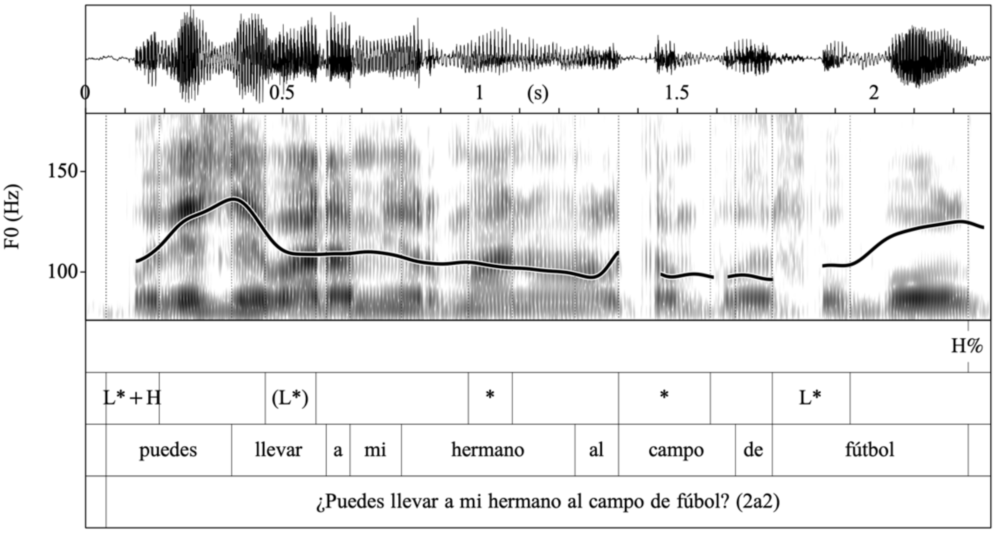

Figure 5.1-49: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿Puedes llevar a mi hermano al campo de fútbol?* 'Can you take my brother to the football pitch?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, several instances of phrase-medial pitch deaccentuation (cf. Fn. 257), an L* nuclear accent, and an H% boundary tone. The nuclear configuration of the IP is L* H% (29S14).

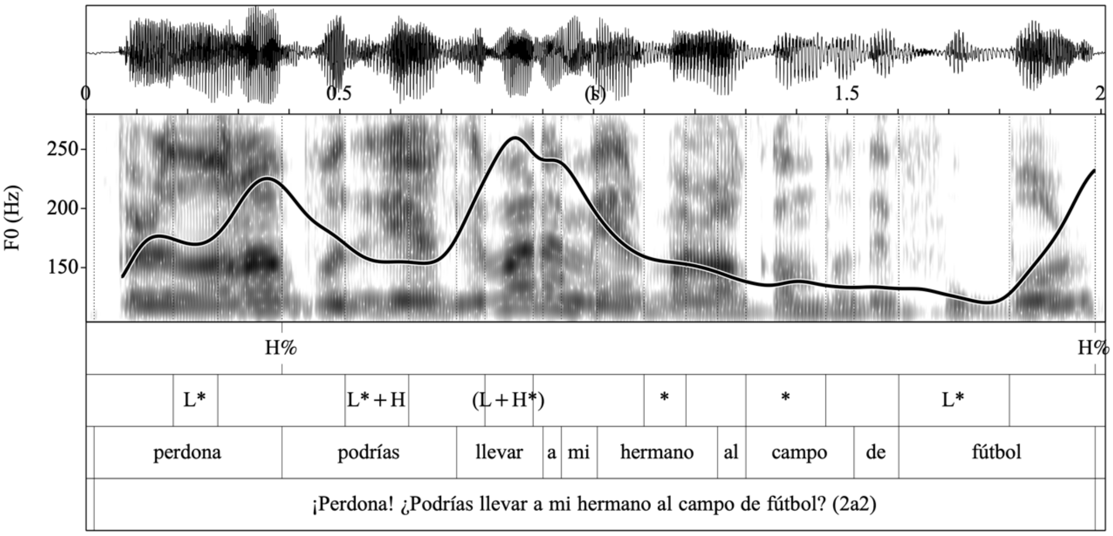

Figure 5.1-50: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿Podrías llevar a mi hermano al campo de fútbol?* 'Could you take my brother to the football pitch?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+ H prenuclear accent, several instances of phrase-medial pitch deaccentuation (cf. Fn. 257), an L* nuclear accent, and a H% boundary tone. The nuclear configuration of the IP is L* H% (6S14).

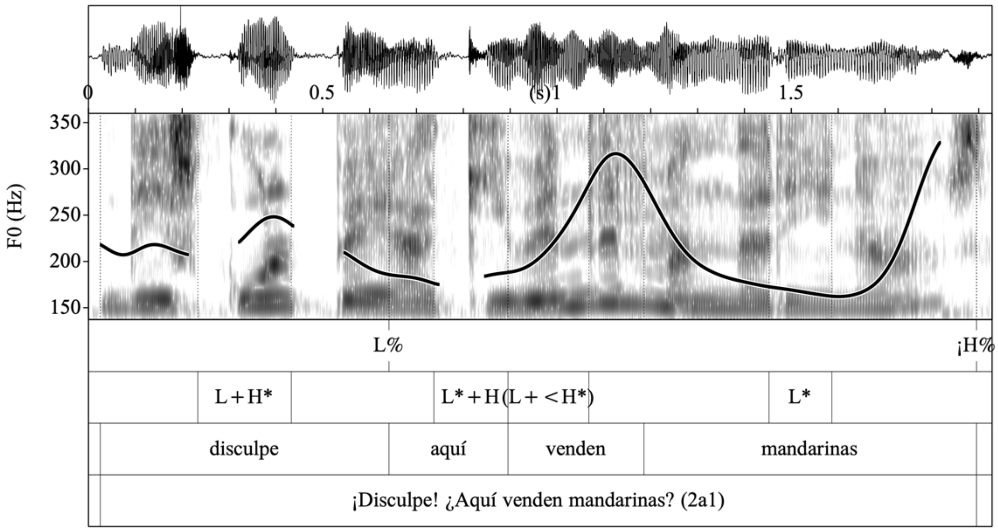

Figure 5.1-51: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿Aquí venden mandarinas?* ‘Do you sell tangerines here?’ produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, a phrase-medial pitch-deaccented syllable (cf. Fn. 257), an L* nuclear accent, and an ¡H% boundary tone. The nuclear configuration of the IP is L* ¡H% (8S13).

As illustrated in the four scenarios above, which pitch movements are realized on the first phrase-internal metrically stressed syllable depends mainly on the position of the peak of the preceding L*+H pitch accents, which can be located within, before, or after this syllable as a function of the distance between the first and the second stressed syllable of the phrase. In consequence, the resulting variety in pitch accent labels for the second stressed syllable of the prenucleus should not be explained by positing one specific underlying pitch accent for this position but rather by assuming the absence of such an underlying category, i.e. by positing deaccentuation. This means that any rising or high pitch gestures found within the limits of this syllable are in reality part of the rise of the IP-initial L*+H pitch accent, whose peak extends to the right and can thus cause pitch movements within the limits of other metrically stressed syllables.

Apart from the fact that this would explain the large amount of variation attested, several other arguments further support this analysis. Most importantly, over 80% of the remaining Spanish and even over 90% of the remaining Catalan phrase-internal prenuclear syllables that appear in the ‘long’ sentences from our corpus gathered with situations 2a2 and 2a3, are also clearly pitch-deaccented. This is to say that, from the third stressed syllable until the nuclear syllable, deaccentuation is unmistakeably the norm in this type of GS and GC IYNQ: as can be seen in numerous examples (e.g. in Figures 5-1.40, 41, 43–46, 49, 50), IP-medial positions are almost invariably realized as low plateaus and do not show any pitch excursions.

Further evidence is given by two examples in which the combination of IP-initial L*+H and the absence of a separate pitch accent on the following stressed syllable make the F0 look (and sound) as if a stress shift had taken place. In Figure 5.1-52, the strong rise in the first syllable of the word *preguntado* ‘asked’ and the rather flat pitch movement in its underlyingly stressed syllable give the impression that stress was shifted to the word's first syllable (*preguntado*) that would then bear an L+<H* with a delayed peak (indicated in square brackets). The same holds true for the question shown in Figure 5.1-48, above. In both cases, however, the pitch contours can be explained more convincingly by assuming not stress shifts but an IP-initial L*+H pitch accent, located on the auxiliary, and subsequent deaccentuation of the following metrically stressed syllable.

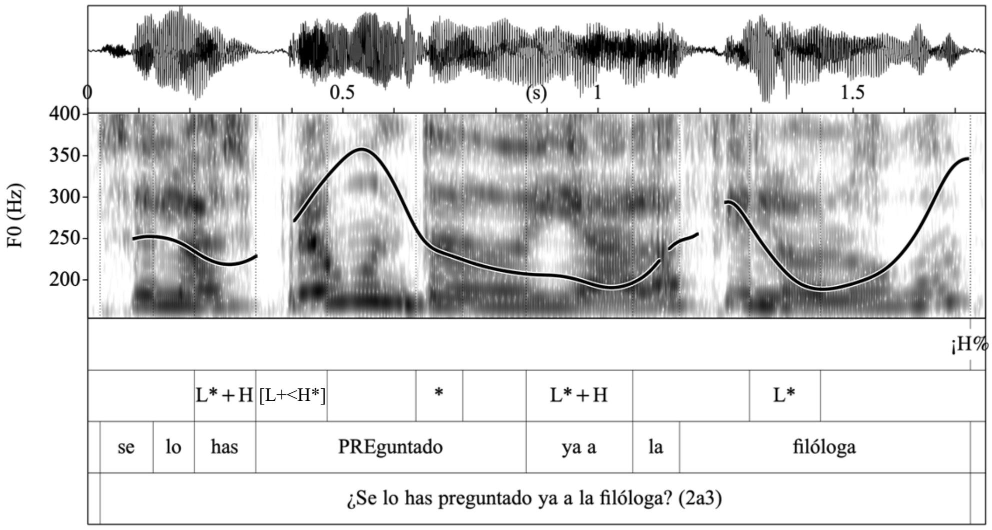

Figure 5.1-52: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿Se lo has preguntado ya a la filóloga?* 'Have you already asked the philologist about it?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent placed on the auxiliary *has*, a pitch-deaccented stressed syllable in *pregun-tado*, an L*+H phrase-internal prenuclear accent, an L* nuclear accent, and an ¡H% boundary tone. The nuclear configuration of the IP is L* ¡H% (15S15).

A further argument is delivered by a sentence containing a hesitational lengthening of the last syllable of the word *importa* '(it) is important (to)', whose metrically strong syllable bears the initial L*+H accent (cf. Figure 5.1-53). In this example, the hesitation causes the pitch drop down almost to the speaker's bottom line. When he goes on with his sentence, no other pitch excursion can be observed until the end of the utterance and all sentence-medial underlyingly stressed syllables are left pitch-deaccented.

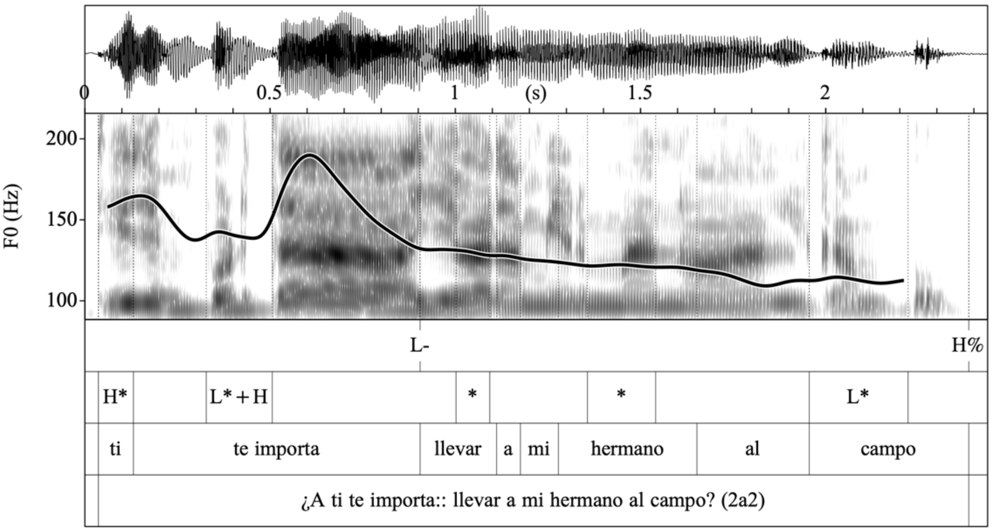

Figure 5.1-53: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿(A) ti te importa llevar a mi hermano al campo?* 'Do you mind taking my brother to the (football) pitch?' produced by a Spanish-dominant speaker. It represents an IP produced with an IP-initial H* prenuclear accent, a prenuclear L*+H accent, two pitch-deaccented metrically stressed syllables (*), an L* nuclear accent, and an H% boundary tone. The nuclear configuration of the IP is L* H% (21S14).[260]

To sum up, the previous paragraphs have revealed that GS and GC IYNQ without *que* typically begin with an IP-initial L*+H pitch accent that is placed on the first 'stressable' syllable of the utterance. As for sentence-medial positions, the data strongly suggest that pitch deaccentuation is the normal case not only from the IP's third stressed syllable onwards but already from its second syllable and that pitch movements within the limits of the latter should be viewed as effects of the phrase-initial pitch accent.

However, before establishing a general model for IYNQ, the few cases in which phrase-internal prenuclear stressed syllables did receive a pitch accent and were not deaccented need to be addressed. In the 'long' questions elicited with situations 2a2 and 2a3, only 9 GC and 17 GS prenuclear pitch accents were found that were associated with syllables other than the first or second stressed syllable of the IP. Interestingly, the majority of the Catalan items ($n = 5$) and a good part of the of the Spanish ones ($n = 7$) represented an L*+H contour. The IP-initial pitch accent was thus repeated phrase-internally in these cases. Some Spanish examples can be appreciated in Figure 5.1-52, above, where L*+H appears on the sentence-medial adverb *ya* 'already', and in Figure 5.1-54, below, where it surfaces on the stressed overt subject pronoun Sp. *tú* 'you'. A Catalan example, where L*+H equally associates to the adverb *ja* 'already' is shown in Figure 5.1-55, below. Since two more among of the seven Spanish occurrences of phrase-medial L*+H appeared on *ya* and another one of the Catalan items on Cat. *tu* 'you', the possibility warrants mention that the appearance of this pitch accent in sentence-medial positions of

260 The L- is merely used here to superficially describe to pitch drop that accompanies the hesitational lengthening of the last syllable of *importa*, i.e. it does not indicate a planned prosodic break (cf. Section 5.2.2). Note furthermore that the high final boundary tone cannot be seen in the graph due to creaky voice.

IYNQ may be favoured by elements such as the time adverbs (*ya*) or post-verbal stressed subject pronouns (Sp. *tú*, Cat. *tu*) in the sense that it adds a notion of focus and/or emphasis to them.[261] Nevertheless, such an approach cannot explain why L*+H was also observed on some nouns and verbs such as Cat. *germà* 'brother' or Sp. *acercar*, since it is rather unlikely that the participants intended to focalize these in their responses. Finally, the remaining pitch accents attested sporadically in this position were mainly (!)H* and H+L*. In most of these cases, the visible F0 contour seemed to be the result of the interaction between the high target of the phrase initial L*+H pitch accent and declination. In accordance with the assumptions made above for phrase-medial positions, they should probably be regarded as pitch-deaccented, too. Having said that, it is evident that the few examples in our data are not enough to make clear inferences about this topic. Therefore, further studies should be carried out in order to investigate the relation between the occurrence of phrase-medial pitch accents and focus in this question type.

[261] It is worth bringing up at this point that the repetition of the pitch accent could render largely the same function as the morphological marking of such elements with question particles in the languages that possess them (building on the idea that "if a tone has a segmental counterpart in another language, we can conclude that the tone is a morpheme"; Wakefield 2020: 47; see also pp. 202–213 on polar interrogatives). Compare, for instance, Bulgarian *ли* in Bulg. *Майка ти вече ли иска да бъде баба?* 'Does your mother *already* want to become a grandmother?', where this particle is attached to *вече* 'already', or Turkish *-mİ* in *Merakımı bağışlayın, Yevgeni'm ile çoktan mı tanışıyorsunuz?* 'Excuse my curiosity. Have you already met with my Yevgeni?', which makes the adverb *çoktan* 'already' the focus of the question (internet sources; for the use of the particle and information structure in Turkish yes–no questions see Kamali/Büring 2011; Kamali 2015; for Bulgarian see Dukova-Zheleva 2010). L*+H could thus not only represent an intonational means to convey interrogativity in general but constitute a more precise marker of the focus of a polarity question, i.e. it could be the phonological correlate of an abstract interrogative focus operator (cf. Escandell-Vidal 2017: 237 for a similar proposal). If so, this would explain why it is found on the auxiliary rather than on the lexical verb when the focus of the yes–no question is on the truth value of the full proposition and why, in other cases, it associates with the negation particle (see Escandell-Vidal 1999, 2017 on focus and other semantic and pragmatic aspects of interrogatives in Spanish). Note that the parallel also works in this case: for example, in the Turkish sentence *Bekâr değil misiniz?* 'Are you not single?' the interrogative morpheme *-mİ* follows the negation adverb *değil* 'not'. The same is true for Bulg. *Не ли ти е жално?* 'Are you not sorry?', where the focus of *ли* is on *не* 'not'.

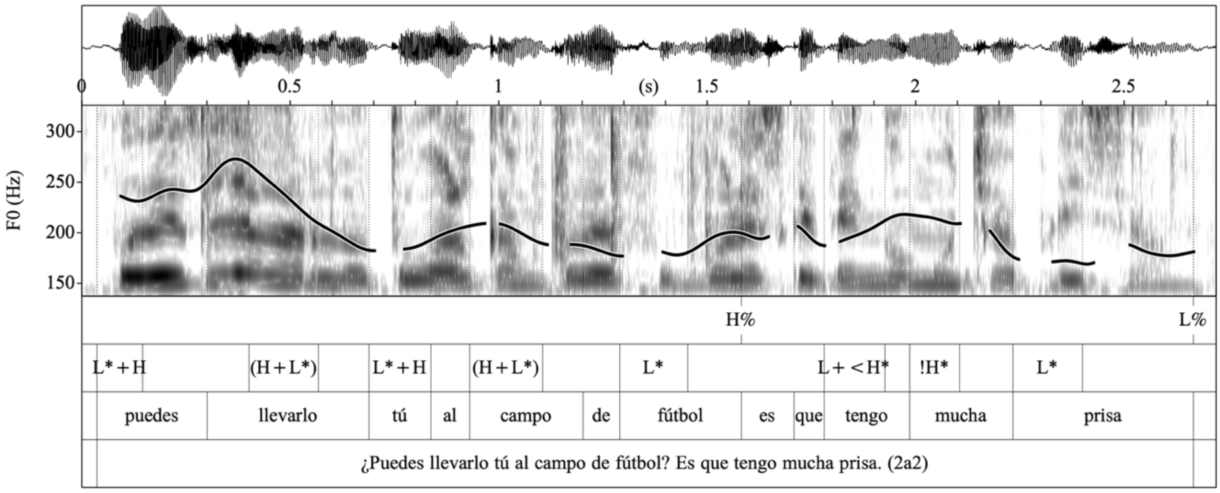

Figure 5.1-54: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿Puedes llevarlo tú al campo de fútbol?* 'Can **you** take him to the football pitch?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, a phrase-medial pitch-deaccented syllable (cf. Fn. 257), a phrase-internal L*+H prenuclear accent, followed by another case of pitch deaccentuation, an L* nuclear accent, and an H% boundary tone. The nuclear configuration of the IP is L* H% (14S14).

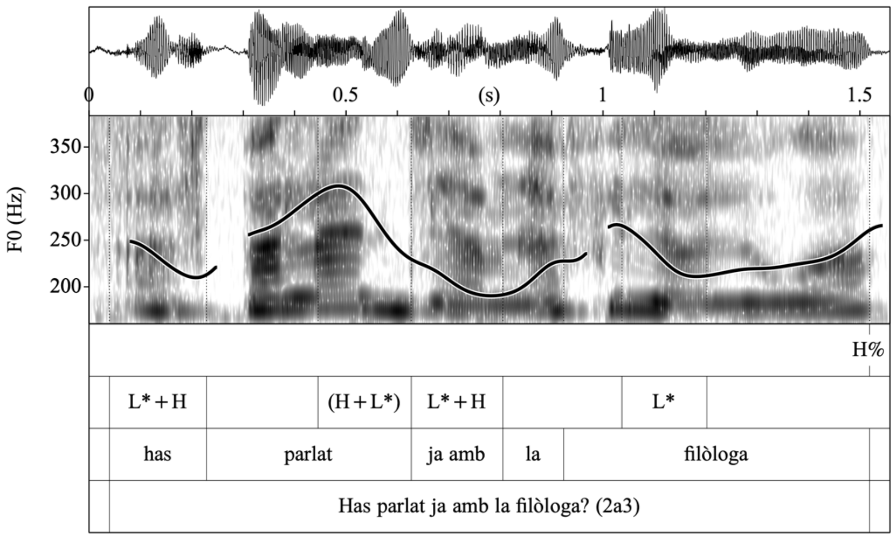

Figure 5.1-55: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *Has parlat ja amb la filòloga?* 'Have you asked her already?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent placed on the auxiliary *has*, an instance of phrase-medial pitch deaccentuation (cf. Fn. 257), an L*+H phrase-internal prenuclear accent on the adverb *ja*, an L* nuclear accent, and an H% boundary tone. The nuclear configuration of the IP is L* H% (31C15).

The **nucleus** of the IYNQ without *que* that were pronounced with the 'low–rise' intonation pattern—i.e., as shown above, the immense majority of the IYNQ in the present corpus—quite consistently exhibited a low plateau within the limits of the nuclear-stress syllable (i.e. an L* pitch accent), followed by a pitch rise until the end of the phrase, evoked by a high boundary tone. However, the phonetic realizations of both the pitch accent and the boundary tones showed some variation.

Instead of a low plateau, the nuclear syllable sometimes contained a gently falling contour. This can be contemplated, e.g., in Figures 5.1-52 and 5.1-55, above, as well as in 5.1-56, below. Since that shape of the nuclear pitch accent solely occurred when the nuclear syllable was located in proximity of a preceding peak (often the one belonging to the initial L*+H pitch accent), it seems to be a conditioned surface variant of L* that is triggered by a preceding high tone and lack of sufficient intervening segmental material in order for the pitch to descend to a lower level before the beginning of the nuclear syllable (see also Section 5.2.3).

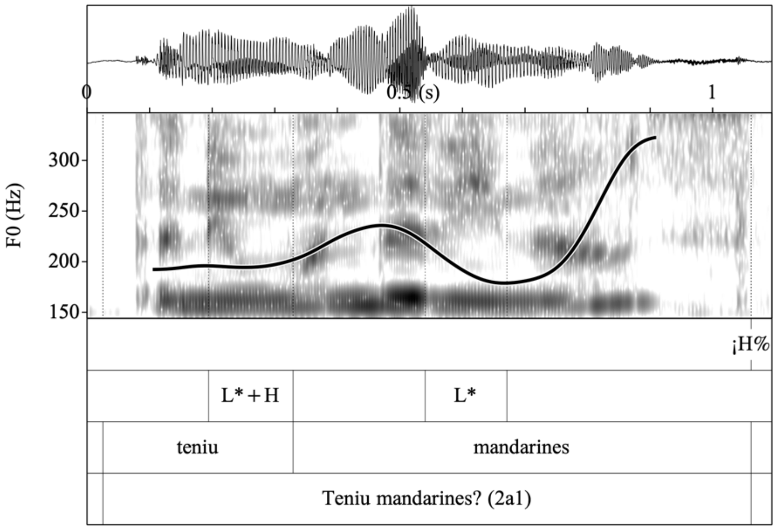

Figure 5.1-56: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *Teniu mandarines?* 'Do you have tangerines?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, an L* nuclear accent, and an ¡H% boundary tone. The nuclear configuration of the IP is L* ¡H% (24C13).

As concerns the nuclear configuration's final boundary tone, quite a lot of variation was observed with regard to its height. The realizations were thus phonetically labelled either as ¡H% (corresponding to the label 'HH%', cf. Section 3.1.2.1) or as H%. Whereas there has been some controversy about the phonological implications of the scaling of this tone in the literature (cf. Section 3.1.2.2), I at this point merely aim to describe the realizations found in the corpus at the surface level and will come back to the phonological status of the upstep later on, in chapter 5.2.3. The upstepped label '¡H%' was used whenever the height of the IP-final boundary tone exceeded the level of any preceding pitch maximum resulting from a high tonal target within the same ip. According to this criterion, ¡H% was slightly more recurrent than H% in GS, appearing in roughly 57% of the items. In GC, on the other hand, ¡H% was observed only in 36% of the items. In the remaining cases, the IP-final high tone was lower than the preceding peaks (i.e. H%).

Several factors may have influenced the height of the final boundary tone, as they can, in part, account for these differences. First, there seems to be a connection between the height of the final rise and the stress pattern of the nuclear-stress word. Unsurprisingly, a higher rise, i.e. ¡H%, is favoured with words stressed on the antepenultimate, such as Sp. *filóloga* and Cat.

filòloga 'philologist', where it can spread over the two post-tonic syllables. In words stressed on the penultimate syllable, such as Sp. *fútbol* 'football', the ascent is generally less acute. Finally, ultimate stress words exhibit the smallest rises, since it needs to be compressed onto the nuclear syllable together with the low L* nuclear pitch accent in that case. In the present data set, this was frequently so with the Catalan ultimate-stress word *fut<u>bol</u>* 'football'[262]. In total, ca 80% of the low–rising nuclear contours on ultimate-stress words in both varieties were labelled as L* H%. In opposition, 75% of the Spanish and 53% of the Catalan antepenultimate-stress words displayed upstepped boundary tones (i.e. ¡H%). In the (most common) case of penultimate stress, both contour types appeared with similar frequencies.

Perhaps even more importantly, the height of the final boundary tone also seems to be influenced by whether the nuclear contour constitutes the end of the utterance or is succeeded by a further IP. The scaling of the final boundary tones in the current sample suggests that the presence of a following phrase with no or a very short intervening pause might represent another factor that encourages rather low phrasal boundaries. Approximately half of the items labelled as 'L* H%' were followed by another IP, whereas 'L* ¡H%' was found virtually always at the end of the utterance. An example of L* H% followed by a further IP can be seen in Figure 5.1-54. In the items shown Figures 5.1-44 and 5.1-49 following IPs were equally present but could not be included in the graphs for reasons of space. When only utterance-final nuclear contours are taken into account, the abovementioned effects of the stress-patterns, too, become more clear-cut. It can thus be concluded that the greater the distance between the low and the high target of the low–rising nuclear contour, the higher the boundary tone.

Finally, the length of the utterance might have an effect on the scaling of the final boundary tone. The longer the IP, the more pitch-deaccented syllables tend to intervene between the IP-initial and the IP-final rise. As the extension of the phrase-medial 'low plateau'—and hence the distance to preceding pitch excursions—grows, the 'need' to produce a high final rise in order to make it perceptually more salient diminishes. Nonetheless, the relatively small number of very long IPs in the present sample only permits tentative explanations. To determine the exact extent to which each of these factors (i.e. metrical structure of the prosodic word in nuclear position, total phrase length, and presence of further IPs) influences on the scaling of the IP-final boundary tone falls beyond the scope of the present dissertation and must rest a topic for further investigation.

Concerning the begin and **form of the final rise** in the data set, it generally starts at the left edge of the first post-nuclear syllable and then rises continuously until the end of the phrase—either in a straight or in a slightly sagging way. In words stressed on the antepenultimate syllable, it can occur that the rise does not yet kick off in the first post-tonic but only in the last syllable, or that the slope steepens at the beginning of the last syllable, i.e. that there is a bend or even a jump of the F0 at the onset of the last syllable (cf. Figure 5.1-57, for an example). I

[262] In three cases, this very word was erroneously mis-stressed and accentuated on the penultimate syllable (like the Spanish cognate *fútbol*). Seeing that these items were produced by Spanish-dominant subjects, this can be interpreted as negative transfer from Spanish.

interpret this finding as an argument in favour of analysing the nuclear contour of this question type underlyingly as a combination of a simple L* nuclear pitch accent followed by a simple high boundary tone and against positing a pitch accent including a high target or a complex boundary tone. If the nuclear pitch accent were, e.g., of the L*+H type, i.e. if it represented a repetition of the pitch accent used in IP-initial position in this sentence type, a steeper rise, beginning immediately after the end of the nuclear syllable, should be expected in words with stress on the penultimate or antepenultimate. Furthermore, the fact that the final rise may start relatively late also speaks against positing a complex boundary tone consisting of two high targets (i.e. HH%), as has been proposed by some authors for CS (cf. Section 3.1.2.1).

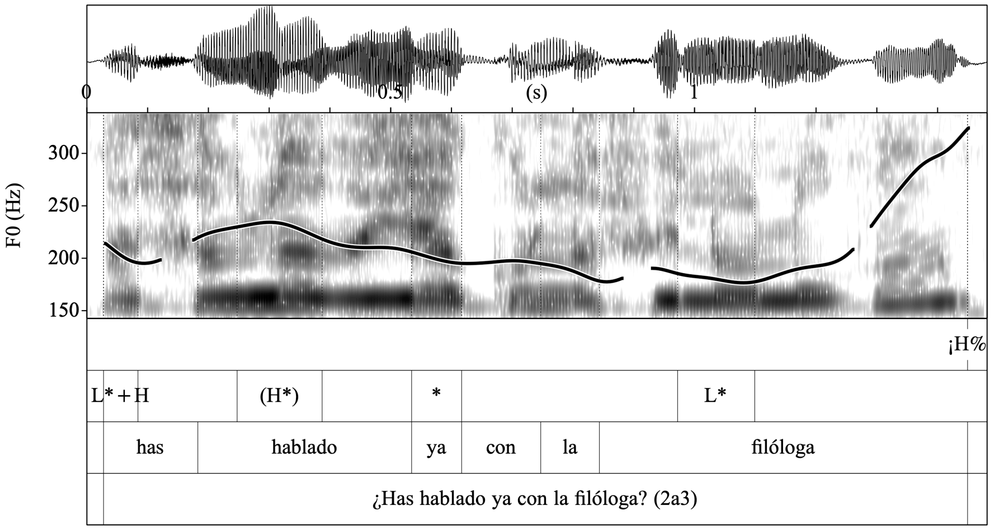

Figure 5.1-57: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿Has hablado ya con la filóloga?* 'Have you already spoken to the philologist?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, various instances of phrase-medial pitch deaccentuation (cf. Fn. 257), an L* nuclear accent, and a high boundary tone (¡H%). The nuclear configuration is L* ¡H% (24S15).

Although the over 90% of the IYNQ without *que* displayed the 'low–rising contour', described extensively above, there were also some deviating intonational patterns. In what follows, these will be briefly addressed before turning to the IYNQ featuring *que*. In total, this concerns 9 GS and 8 GC items, i.e. 6% and 8%, respectively, of all questions without *que*.

Most of the differing items stemmed from the same speaker (No. 13; 4 GS and 2 GC ones). An example is given in Figure 5.1-58. Whereas one might argue that the initial H* prenuclear pitch accent is triggered by the presence of the immediately preceding high boundary tone, leaving no space for a descent to the low target of the initial L*+H accent, the nuclear configuration of this interrogative is fairly different from the low–rising contour, too. The nuclear stressed syllable is pronounced with a clear fall whose end is attained only at the right edge of this syllable. A low plateau follows in the next, and last, utterance-final syllable whose end is characterized by a LH% boundary tone. For two reasons, this tune cannot convincingly be interpreted as an underlying L* H% contour. First, the preceding pitch accent is three syllables far away. It thus seems very unlikely that it could make a nuclear L* surface as H+L*. Furthermore, the local pitch maximum of the contour is attained only at the beginning of the nuclear syllable. Second, the boundary tone clearly must have a low target, because the first part of the utterance-final syllable contains a well discernible low plateau.

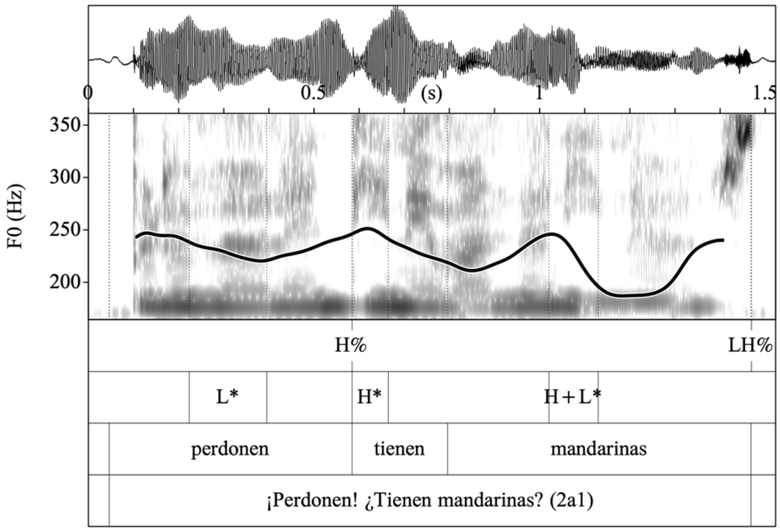

Figure 5.1-58: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿Tienen mandarinas?* 'Do you have tangerines?' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial H* prenuclear accent, an H+L* nuclear accent, and an LH% boundary tone. The nuclear configuration of the IP is H+L* LH% (13S13).

The speaker uses this very same nuclear contour, H+L* LH%, in the five other cases again. She typically accompanies it with H+L* prenuclear pitch accents. Figure 5.1-59 provides a Catalan example.

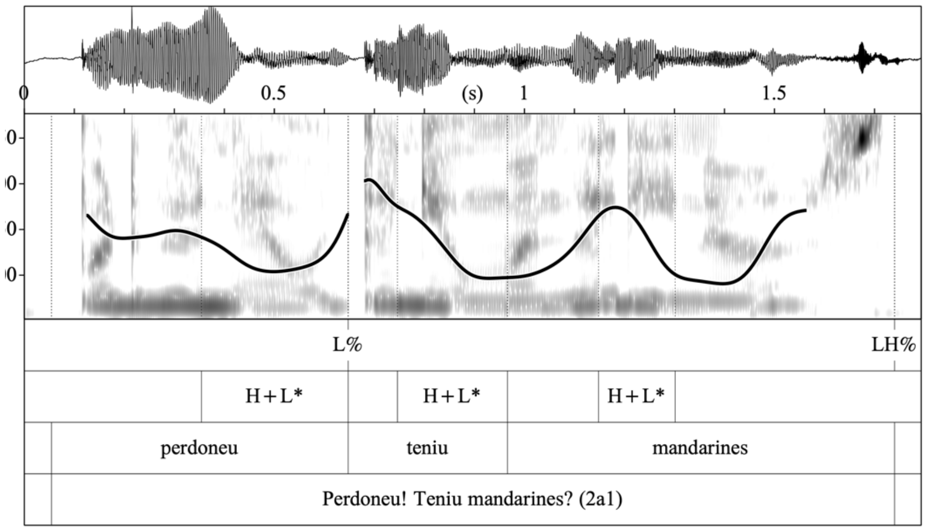

Figure 5.1-59: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *Teniu mandarines?* 'Do you have tangerines?' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial H+L* prenuclear accent, an H+L* nuclear accent, and an LH% boundary tone. The nuclear configuration of the IP is H+L* LH% (13C13).

A possible explanation for the use of this very different contour could be the speaker's origin. Born in Honduras from Honduran parents, she is a clearly SpD speaker and her interrogative intonation might be typical to the variety of Spanish spoken in her country of origin. To my best knowledge, the intonation of Honduran Spanish yes–no questions has not yet been described. However, the same nuclear contour was also observed in other American varieties of Spanish, namely in Paraguayan Spanish (Pešková 2021). Hence, if it were true that it here stems from Honduran Spanish, its use in Catalan would represent a clear case of intonational transfer. Interestingly enough, the speaker employs the same contour again in other types of interrogatives, such as confirmation-seeking and echo yes–no questions, as we shall see further on. Additionally, the same nuclear contour was found two more times in the data set, namely in GC yes–no questions stemming from a slightly CatD speaker (–21.8), whose father comes from Uruguay (cf. the example in Figure 5.1-60).

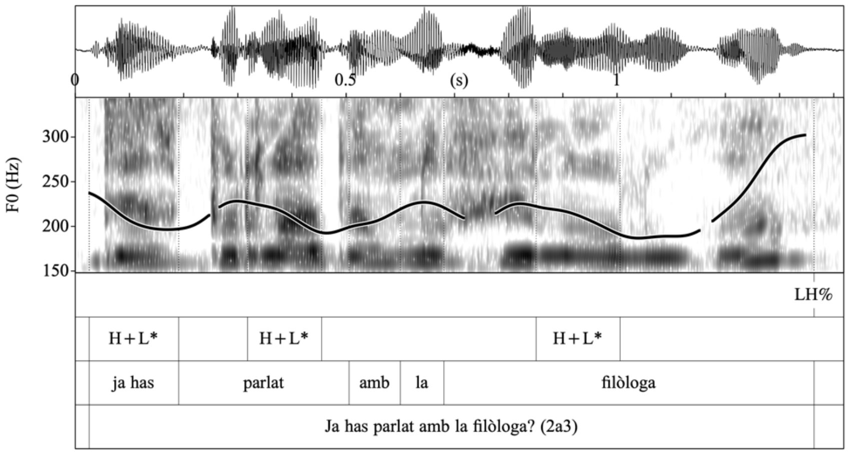

Figure 5.1-60: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *Ja has parlat amb la filòloga?* 'Do you have tangerines?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with two H+L* prenuclear accents, an H+L* nuclear accent, and an LH% boundary tone. The nuclear configuration of the IP is H+L* LH% (24C15).

Another case worth mentioning is that of some items with an L* L% nuclear contour. They pattern with the low–rise contour in showing L*+H in the prenuclear area but lack the utterance-final rise. Since the nuclear contour is identical to the one found in statements, apparently, the use of an L*+H prenuclear pitch accent suffices to mark a sentence as a (yes–no) question. The following figures provide some examples.

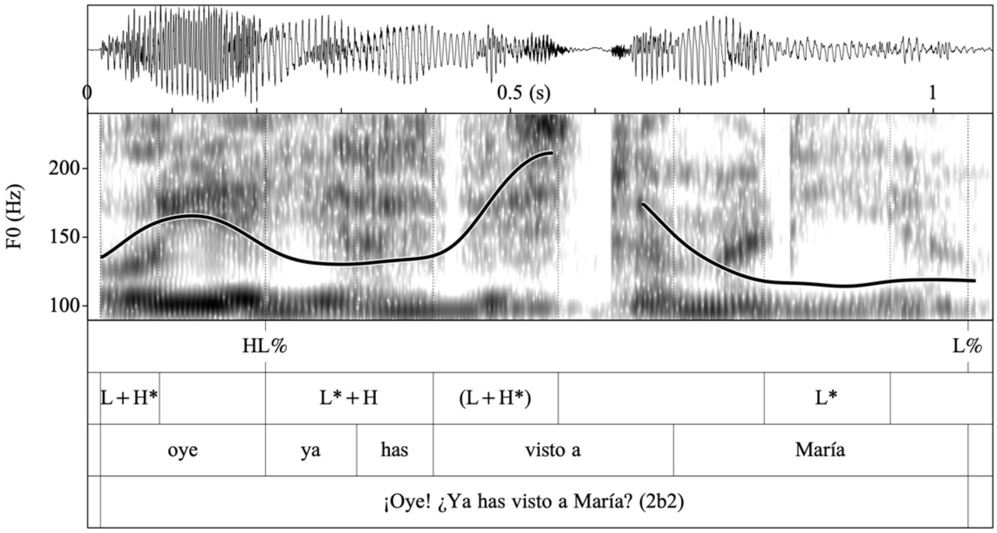

Figure 5.1-61: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿Ya has visto a María?* 'Have you seen María already?' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, a phrase-medial pitch-deaccented syllable (cf. Fn. 257), an L* nuclear accent, and an L% boundary tone. The nuclear configuration is L* L% (cf. 21S17).

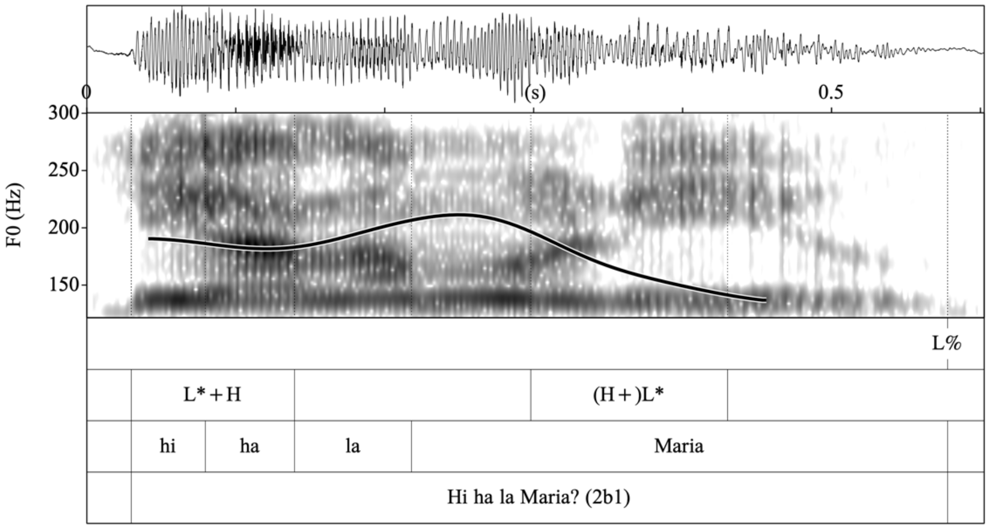

Figure 5.1-62: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *Hi ha la Maria?* 'Is Maria there?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, an L* nuclear accent, and an L% boundary tone. The nuclear configuration is L* L% (cf. 10C16).

Finally, one further deviating pattern is depicted in Figure 5.1-63. Here, the pitch contour continually rises from the beginning of the sentence until the last and nuclear syllable. It thus corresponds to a pattern generally referred to as 'high rise contour' in the literature (cf. Hualde/Prieto 2015: 372 and Fn. 96 in Section 3.1.2.2,), where it is said to be typical to 'quiz questions'.

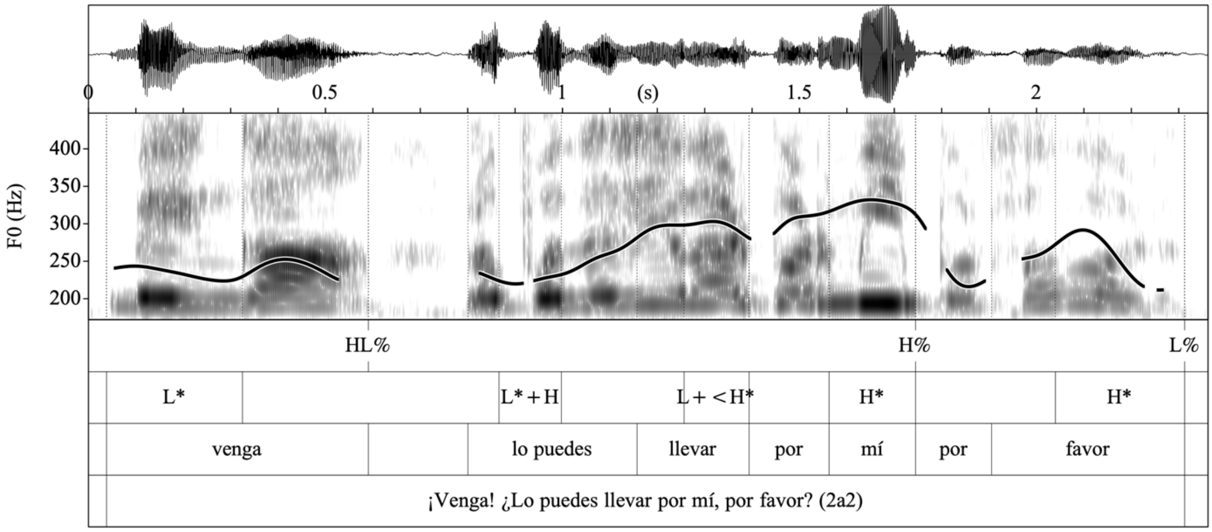

Figure 5.1-63: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿Lo puedes llevar por mí?* 'Can you take him for me?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, an phrase-medial L+<H* prenuclear accent, an H* nuclear accent, and an H% boundary tone. The nuclear configuration of the main interrogative is H* H% (28S14).

5.1.3.1.3 *Information-seeking yes–no questions headed by* que

To date, the intonation of *que*-questions has been studied empirically mainly for Catalan. For CC, various studies have shown that their intonation follows the so-called 'high–falling' pattern, consisting of a high plateau in the prenuclear area succeeded by a nuclear fall. As for CCS, some authors have impressionistically described this question type as showing the same or similar patterns as the Catalan 'original', which was by and large confirmed by Romera et al. (2007, 2008) on the basis of data from a speaker of Barcelona Spanish (cf. Section 2.3).

In the present data set, most of the 45 GC and all 7 GS *que*-questions do indeed display this 'high–falling' pattern (see also the overview in Table 5.1-6, below). However, it is highly interesting that 13 GC questions, i.e. 28% of the recorded *que*-questions in this variety, rather presented the low–rising contour which we observed in the questions without *que*. In what follows, I will therefore treat these two cases apart. Again, the prosodic realization of both patterns will be described and illustrated using some examples from the data set.

In the *que*-questions displaying the iconic 'Catalan' tune, the pitch contour typically began in the highest third of the speakers range and showed a high plateau during the prenucleus. This high and flat contour continued until right before the nuclear syllable within whose limits the pitch fell to the bottom of the speaker's range. Then, the F0 stayed low until the end of the phrase. Two prototypical examples are given in Figure 5.1-64 (for GC) and Figure 5.1-65 (for GS). As can be seen, the prenuclear stressed syllable was labelled with an H* pitch accent in both cases and the nuclear contour was characterized as H+L* L%.

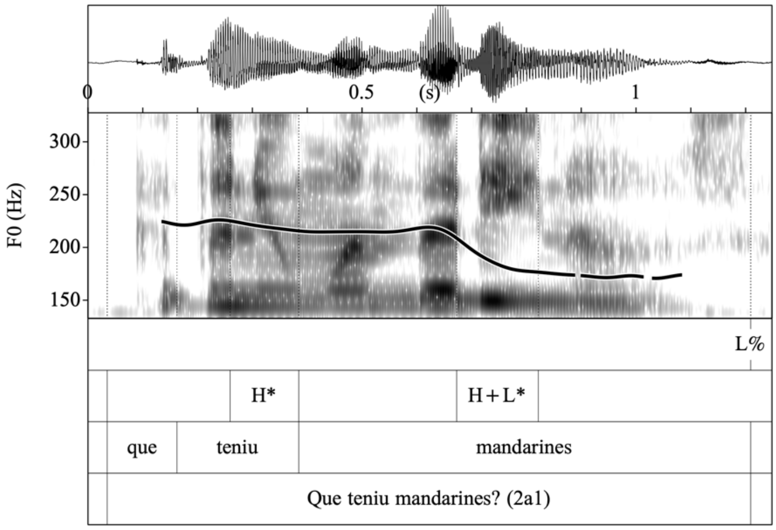

Figure 5.1-64: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *Que teniu mandarines?* ‘Do you have tangerines?’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial H* prenuclear accent, an H+L* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is H+L* L% (26C13).

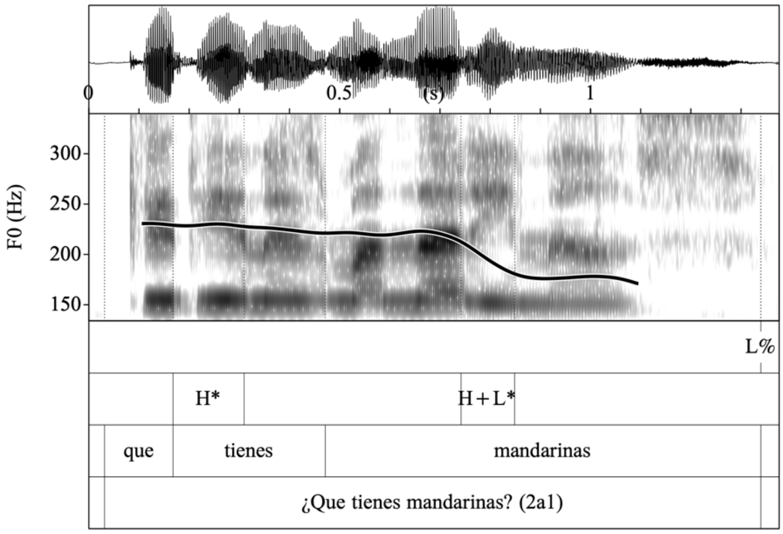

Figure 5.1-65: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿Que tienes mandarinas?* ‘Do you have tangerines?’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial H* prenuclear accent, an H+L* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is H+L* L% (19S13).

With regard to the beginning of the phrase, it is worth pointing out that the phrase-initial *que* sometimes presented a somewhat deeper pitch as compared to the first stressed syllable. This is to say that the ‘high–falling’ *que*-questions sometimes began with a gentle pitch rise from a mid or mid-to-high level of the speakers range up to the first stressed syllable (bearing the high H* accent). An example is shown in Figure 5.1-66. I take this as an argument for analysing the particle *que* as an underlyingly unstressed proclitic that forms a prosodic unit with the following word. Furthermore, it speaks against assuming a phrase-initial high boundary tone, i.e. %H, as was proposed, e.g., by Romera et al. (2007, 2008).

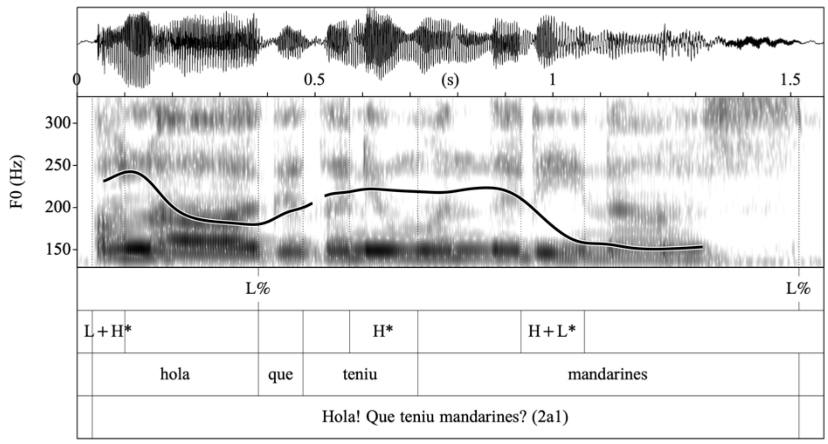

Figure 5.1-66: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *Que teniu mandarines?* ‘Do you have tangerines?’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial H* prenuclear accent, an H+L* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is H+L* L% (12C13).

In ‘longer’ sentences, i.e. when the prenuclear area consisted of more than one prosodic word, the respective stressed syllables that occurred in this part of the utterances were usually altogether labelled with H* pitch accents. The possibility of viewing the absence of any pitch excursions in the phrase-medial part of this question type as an effect of pitch deaccentuation comparable to the one found in questions with the low–rising intonation pattern was discarded: if the respective metrically stressed syllables were indeed pitch-deaccented, there should be an observable effect of regular declination, causing the F0 to display a sagging contour between the phrase-initial prenuclear and the nuclear pitch accent of the IP. Instead, the prenuclear pitch contour used to stay continuously at the same height, such that it seems reasonable to assume underlying high targets in this area. Figures 5.1-67 and 5.68 depicts how this looks like. Note, however, that the sentence in Figure 5.1-68 consists of two ips.

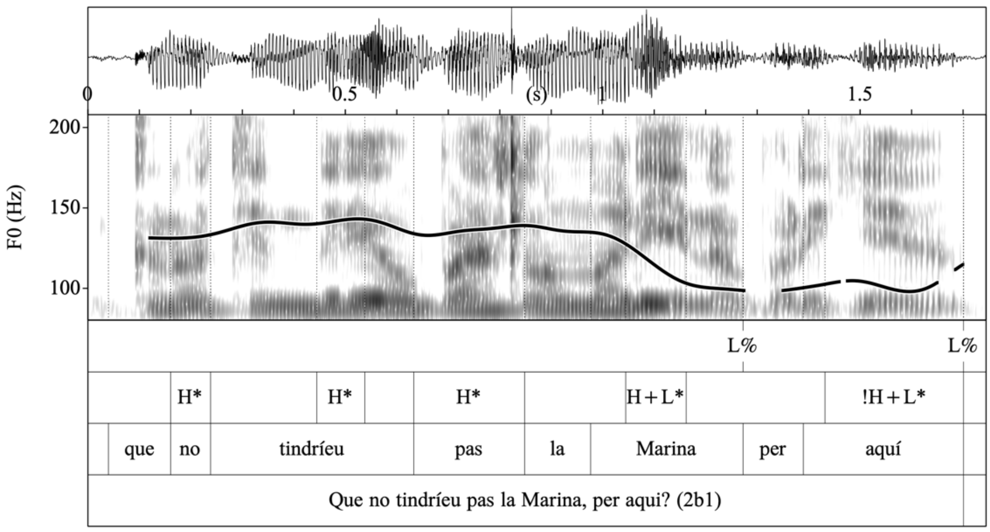

Figure 5.1-67: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *Que no tindríeu pas la Marina, per aquí?* ‘Don’t you have Marina here?’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial H* prenuclear accent, two phrase-internal H* prenuclear accents, an H+L* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is H+L* L% (28C15).

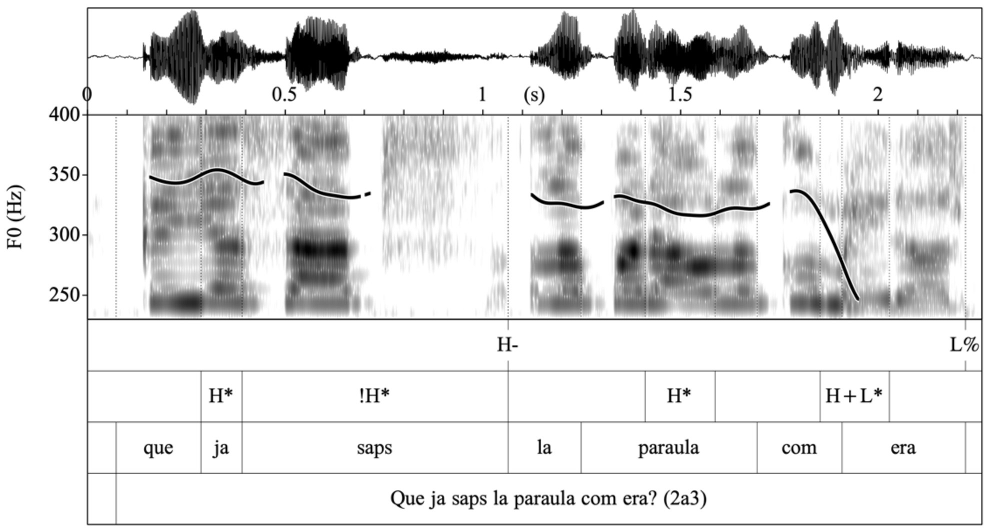

Figure 5.1-68: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *Que ja saps la paraula com era?* ‘Do you already know what the word was?’ produced by a Catalan-dominant speaker. It represents an IP composed of two ips. The first one contains an IP-initial H* prenuclear accent, a !H* nuclear accent, and an H- boundary tone. The second one presents an H* prenuclear accent, an H+L* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is H+L* L% (28C15).

As mentioned above, the GC data set contained 13 more yes–no interrogatives headed by *que*, which were pronounced with an intonational pattern that was plainly different from the ‘high–falling’ tune described for this question type in the literature. Instead, the pattern used in those items clearly corresponded to the one that is typical of yes–no questions without *que*: this is to say, the respective items exhibited the ‘low–rising’ contour described extensively in Section 5.1.3.1.2, above.

The concerned sentences began with a phrase-initial L*+H prenuclear pitch accent and ended with an L* nuclear pitch accent followed by a high boundary tone (i.e. H% or ¡H%). What comes as a surprise, however, is the fairly consistent placement of the initial prenuclear pitch accent on the metrically unstressed interrogative particle *que*. I interpret this as a further argument for the assumption made previously that, in questions realized with the low–rising intonational contour, the phrase-initial prenuclear L*+H pitch accent is associated with the left-most 'stressable' syllable.[263] Figure 5.1-69 provides an example of these 'mixed' questions, displaying both *que* and the low–rising contour.

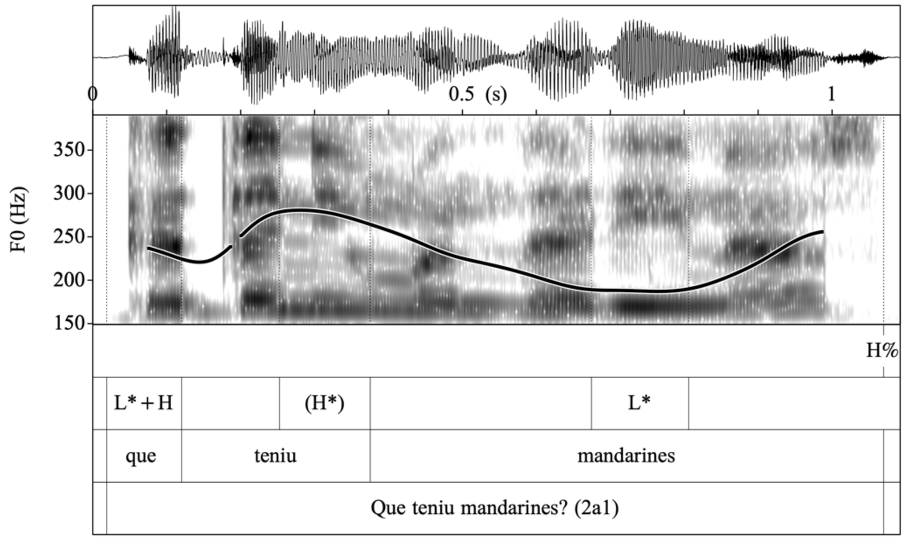

Figure 5.1-69: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *Que teniu mandarines?* 'Do you have tangerines?' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, a phrase-medial pitch-deaccented syllable (cf. Fn. 257), a nuclear L* accent, and an H% boundary tone. The nuclear configuration of the IP is L* H% (4C13).

As can be seen, the anchorage of the ip-initial L*+H pitch accent on *que* entails that the respective interrogatives contain a phrase-medial metrically stressed syllable on the verb (i.e. on a present-tense form of *tenir* 'have' in most cases). Like in the questions without *que* realized with the low–rising tonal pattern, the pitch movements observed within the limits or in the context of these phrase-medial prenuclear syllables are different in each sentence, comprising rising movements (L+<H*, L*+H), high peaks (H*), and falling movements (H+L*). Following the argumentation above, I assume that these syllables are actually pitch-deaccented and interpret the respective pitch movements as surface reflexes of the high tonal target belonging to the preceding phrase-initial L*+H pitch accent (cf. the discussion in Section 5.1.3.1.2, above). In Figure 5.1-69, the 'H*' label of the phrase-medial stressed syllable thus merely phonetically

[263] Following the line of reasoning presented in Fn. 261, it makes perfect sense that L*+H associates with the question-initial interrogative particle, since the focus of these polarity questions covers the whole proposition. In a similar vein, e.g. the Bulgarian interrogative particle *ли* can be attached to *да* (which roughly corresponds to the Sp./Cat. complementizer *que* 'that') yielding the interrogative operator *дали*, which expresses uncertainty, hesitation, and doubt (cf., e.g., *Дали ще я позная?* 'Will I recognize her?').

describes the pitch movement visible on this syllable and is therefore given in brackets (cf. Fn. 257, above). A further example can be seen in Figure 5.1-70, where a pitch fall is observable on the phrase-medial prosodic word Cat. *parlat* 'spoken'.

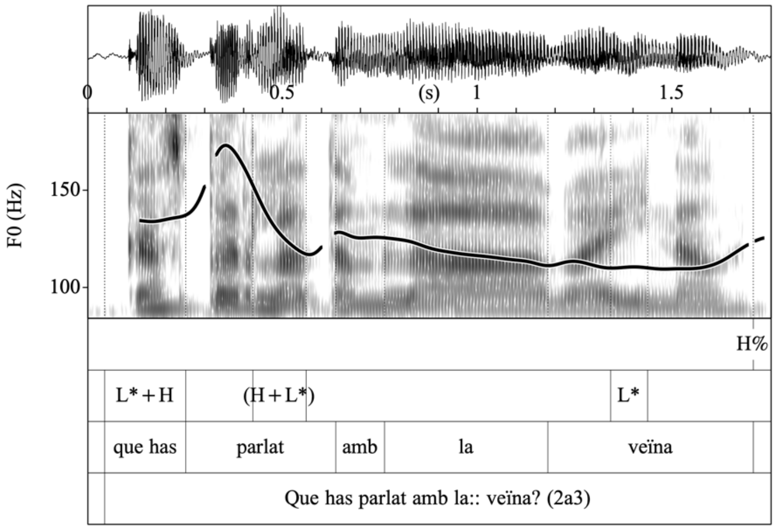

Figure 5.1-70: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *Que has parlat amb la veïna?* 'Have you talked to the neighbour?' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent placed on the auxiliary *has* that is merged with the interrogative particle *que*, an instance of phrase-internal pitch deaccentuation (cf. Fn. 257), an L* nuclear accent, and an H% boundary tone. The nuclear configuration of the IP is L* H% (27C15).

5.1.3.1.4 *Peripheral elements in yes–no question of more than one tonal unit*

As displayed in Table 5.1-2, above, quite some of the IYNQ collected with the DCT contained dislocated elements. Whereas this was actually intended in the responses to the situations 2b1 and 2b2, it was a coincidence in the responses to other scenarios. In most cases, the intonation of the peripheral element in some way reflected the intonational contour of the main clause of the interrogative. I will therefore again treat peripheral elements in questions realized with the low–rising contour and those in questions with the high–falling pattern apart.

The data set contains a total of 35 peripheral elements that were attached to an IP containing the main clause of a yes–no interrogative tonally realized with the low–rising intonational contour (n = 22 in GC and n = 13 in GS). Among them are dislocated objects, adjuncts (e.g. adverbials such as Cat. *(per) aquí* 'here' the politeness formula Sp. *por favor* 'please'), and appositions (e.g. Sp. *mi compañera* 'my friend', *la filóloga* 'the philologist'). In these cases, the nuclear configuration of the main interrogative, i.e. L* H%, was usually repeated on the peripheral element. This is to say, both tonal units of these interrogatives (i.e. the main clause of the interrogative and the peripheral element) were tonally marked as questions. Typically, the high boundary tone was higher in the second ip than in the first one (which again confirms the observation made at the end of Section 5.1.3.1.2, above, that the boundary is higher when no other

IP is following). This can be observed in the example given in Figure 5.1-71, where the nuclear contour on the utterance-final apposition Sp. *la filóloga* 'the philologist' was labelled as L* ¡H%, with an upstepped boundary tone, and the nuclear contour of the main clause of the interrogative, anchored on Sp. *vecina* 'neighbour', as L* H%.

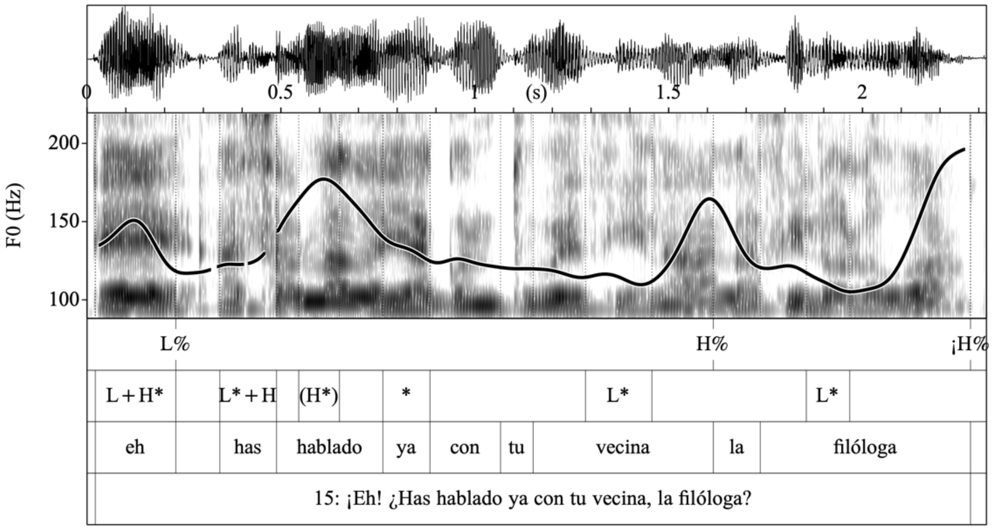

Figure 5.1-71: Girona Spanish: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *¿Has hablado ya con tu vecina, la filóloga?* 'Have you already spoken to your neighbour, the philologist?' produced by a Catalan-dominant speaker. It is composed of two IP. The first one, containing the main clause of the yes–no interrogative, consists of an IP-initial L*+H prenuclear accent, various instances of phrase-medial pitch deaccentuation (cf. Fn. 257), and an L* nuclear accent, followed by an H% boundary tone. The second IP contains an L* nuclear accent followed by an ¡H% boundary tone. The nuclear configuration of the IP containing the main clause of the interrogative is L* H% (17S15).

Some more examples can be seen in Figures 5.1-38 and 5.1-42, above. When the peripheral element was long enough to contain prenuclear metrically stressed syllables, these were typically pitch-deaccented, i.e. the F0 performed a low plateau.

In the cases in which the main clause of the yes–no question was realized with the high–falling intonational contour, utterance-final peripheral elements typically showed either a low plateau or repeated the nuclear fall of the main contour in a compressed manner. The first case can be observed in Figure 5.1-72, where the dislocated adjunct Cat. *aquí* 'here' is pronounced with an entirely flat and low contour. Its nuclear configuration was therefore labelled as L* L%. The second case is illustrated in Figure 5.1-66, above, where, the nuclear contour of the peripheral element was labelled as !H+L* L%.

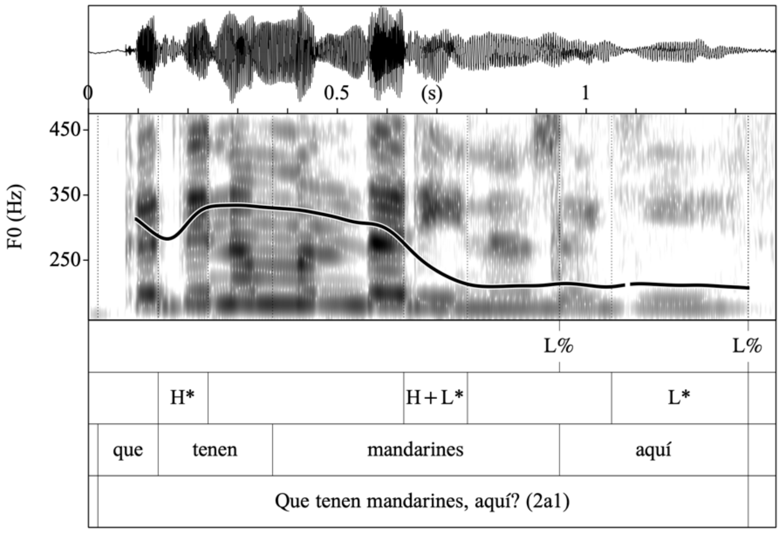

Figure 5.1-72: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *Que tenen mandarines, aquí?* 'Do you have tangerines here?' produced by a Spanish-dominant speaker. It is composed of two IPs. The first IP contains the main interrogative and consists of an IP-initial H* prenuclear accent, an H+L* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is H+L* L%. The second IP shows an L* L% nuclear contour (5C13).

In the case of *que*-questions pronounced with the high–falling contour, the presence of utterance-final peripheral elements was quite common: such elements were found in 17 out 46 GC *que*-questions (37%). They usually comprised dislocated adverbs or the subject of the sentence. The latter case is illustrated in Figure 5.1-73.

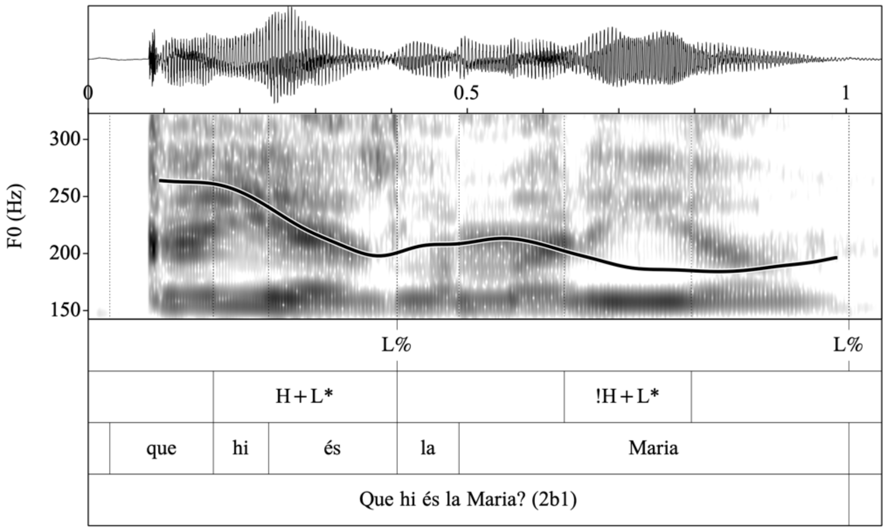

Figure 5.1-73: Girona Catalan: Waveform, spectrogram, and F0 contour for the neutral information-seeking yes–no question *Que hi és, la Maria?* 'Do you have tangerines here?' produced by a Catalan-dominant speaker. It is composed of two IPs. The first IP contains the main interrogative and consists of an H+L* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is H+L* L%. The second IP shows a !H+L* L% nuclear contour (19C16).

5.1.3.1.5 *Effects of speaker origin and language dominance*

In the previous sections, we have seen that the realizations of the GS and GC IYNQ collected for the present study generally present some variation along two parameters: the first one concerns the presence of the morphosyntactic interrogative marker *que*; the second axis of variation regards the intonation of the interrogatives. Above, two main intonational patterns (i.e. the low–rise and the high–falling contour) could be established and described in detail. In this section, I will first provide an overview of the interactions between these two factors and then have a closer look at the speakers who actually produced these utterances, estimating the effects of sociolinguistic factors such as the speakers' LD.

As already shown in Table 5.1-2, above, yes–no questions headed by *que* were clearly more commonplace in GC than in GS but, nevertheless, could be observed in both varieties (30% vs 4.5%). Regarding the intonation of the interrogatives, the 'low–rising' pattern was overall more recurrent than the 'high–falling' one. Table 5.1-6 shows how these two factors are distributed in the data set.

Table 5.1-6: Morphosyntactic form (presence of *que*) and intonation of Girona Spanish and Girona Catalan information-seeking yes–no questions (total numbers and percentages per language).

Language	Girona Spanish			Girona Catalan		
Intonation pattern	[− *que*]	[+ *que*]	total	[− *que*]	[+ *que*]	total
'low–rising'	138 (90%)		138 (90%)	98 (64%)	13 (8.5%)	111 (73%)
'high–falling'		7 (4.5%)	7 (4.5)		33 (22%)	33 (22%)
other	9 (6%)		9 (6%)	8 (5%)		8 (5%)
total	147 (95.5%)	7 (4.5%)	**154 (100%)**	106 (69%)	46 (30%)	**152 (100%)**

For GS, the table reveals that questions without *que* and with a low–rising tune are by far the preferred option, accounting for ca 90% of the items analysed in this language. The (relatively few) questions with *que*, on the other hand, always displayed the high–falling pattern. There is thus a clear correspondence between the morphosyntactic form of the question and the intonation pattern used in its phonetic realization. Interestingly, 6 out of the 7 items stemmed from (five different) clearly CatD bilinguals, whose dominance values are −57.3, −52.6, −37.2, −31.4, and −28.5. The remaining item was produced by a speaker whose dominance value was slightly biased towards Spanish (19.5). However, this value still permits to qualify him as fairly balanced. In sum, *que*-questions were not very common in GS overall and, when they occurred, it was typically in speakers whose dominant language is Catalan.

In GC, too, questions without *que* and realized with the low–rising intonational contour were the most frequently produced combination, accounting for approximately 64% of all items produced in this language. Yet, the presence of *que*-questions was not as marginal as in GS, seeing that 30% of the items were headed by the interrogative particle (i.e. 46 out of 152, cf. Tables 5.1-3 and 6). Of these, 61% (n = 28) stemmed from CatD and 39% from SpD bilinguals (n =

18). However, if the different group sizes or, more precisely, the total number of IYNQ produced by each group is taken into account, the proportion of *que*-questions is of 29% in the CatD and 33% in the SpD group. So, interestingly—and in stark contrast to the GS data set—SpD bilinguals produced roughly the same proportion of *que*-questions in GC as the CatD speakers (the difference is not significant).

Intonationwise, Catalan *que*-questions appeared with two tonal patterns, i.e. on one hand, with the iconic 'high fall' and, on the other, also with the 'low–rising' pattern. While the first case was to be expected (due to the available descriptions of Catalan *que*-questions in the scientific literature), the observation of *que*-questions intonated with the low–rising pattern strongly contrasts with most extant accounts and has, to my best knowledge, only been documented once before (cf. Fernández-Planas et al. 2007; see also the discussion in Section 6.4.2.3). However, accounting for 28% of all Catalan IYNQ with *que* (n = 13), its occurrence was not an exception, even though the high–falling pattern was more typical (n = 33, i.e. 72% of all *que*-questions).

Let us now have a look at the speakers who produced these questions: Table 5.1-7 summarizes how many of the Catalan *que*-questions with each intonation pattern were produced by the two LD groups.

Table 5.1-7: Intonation contours used in Girona Catalan information-seeking yes–no questions with *que* by language-dominance group.

[+ *que*]	total	Catalan-dominant	Spanish-dominant
'low–rising'	13 (100%)	3 (23% – 11%)	10 (77% – 55%)
'high–falling'	33 (100%)	25 (76% – 89%)	8 (24% – 44%)
total		28 (100%)	18 (100%)

It can be clearly understood that the CatD speakers overwhelmingly produced their *que*-questions with the iconic high–falling contour (89%). Spanish–dominants, on the other hand, used the low–rising contour in slightly more than half the items they produced (55%). A chi-squared test showed that there is a statistically highly significant association between the used intonation patterns and the LD of the speaker ($\chi^2(1) = 10.459$, $p = 0.001$). Finally, concerning the few deviating intonational contours, i.e. contours that followed neither the low–rising nor the high–falling pattern, the previous sections have revealed that these can for the most part be attributed to single individuals, who stand out by their Latin American descendance.

Of course, the observations made in this section raise the question of how all this variation came about. For GS, the answer seems to be pretty straightforward: (some) CatD speakers transfer both *que* as well as the high–falling intonation pattern that uses to go together with it from Catalan to Spanish. In GC, the situation is less clear, but the distinct use of intonational tunes in the two dominance groups strongly suggests that the current situation is a result of CLI. Effects of language contact on the intonation of IYNQ will therefore be discussed extensively in Chapter 6 (especially in Section 6.4.2.3).

5.1.3.1.6 *Summary: information-seeking yes–no questions*

In the previous sections, I have shown that IYNQ in GS and GC most commonly come along with rising intonation patterns and are formulated without the particle *que*. Nevertheless, *que* is sometimes used in this question type in both varieties spoken in Girona, which disproves the claims made for Northern CC in the literature saying that the use of *que* is restricted to confirmation-seeking questions there (cf. Prieto/Rigau 2007: 33, 41; 2011: 35). In GS, *que*-questions are rather rare (4.5%). They were produced mainly by CatD and with the 'high–falling' intonation pattern. In GC, on the other hand, they accounted for roughly one third of all IYNQ and were produced by both CatD and SpD participants with a similar rate. Most interestingly, however, the LD has a significant effect on their intonation: SpD speakers typically use the 'low–rise' tune in their Catalan *que*-questions, while CatD bilinguals usually do not. Besides, as expected, dislocations were found to be more frequent in Catalan than in Spanish.

Furthermore, the preceding sections uncovered some novel details about the 'low–rise' pattern. In both contact varieties, the combination of a low plateau during a stressed syllable and a following rise represents the most important prosodic marker of interrogativity: i.e., for the most part, IYNQ begin with a phrase-initial L*+H pitch accent and end with an L* (¡)H% nuclear contour. The initial pitch accent attaches to the first stressed syllable of the utterance and typically reaches its peak in the second post-tonic syllable (although the peak position can variate). All further metrically stressed syllables are pitch-deaccented, i.e. usually all pitch movements found within an IYNQ originate from the phrase-initial prenuclear pitch accent and the nuclear configuration. However, the data suggest that the L*+H pitch accent can also be used to convey the information-structure of the question. This is to say, it can be repeated in phrase-medial positions so as to narrow down the focus of the yes–no question onto the element that bears it. L*+H thus seems to work as some sort of 'interrogative toneme', similar to interrogative morphemes in other languages (cf. Fn. 261, above). This approach would also explain why the phrase-initial accent ordinarily associates with the auxiliary instead of the lexical verb in complex verb forms: the association with the auxiliary indicates that the focus of the yes–no question is on the whole proposition, whereas the position on the lexical verb would narrow it down onto the verb. In the same way, L*+H can be deployed onto the negation particle Sp./Cat. *no* when the focus is on the negative polarity of the proposition. Finally, in the cases in which it was associated with the (otherwise unstressed) interrogative operator *que*, it once more conveys the broad focus of the question.

5.1.3.2 Disjunctive questions

Prosodic phrasing. As shown in Table 4.19, 57 out of the 62 sentences recorded with situation No. 2c (cf. Appendix 5) represented disjunctive questions that could be used for an intonational analysis (i.e. 29 IPs for GS and 28 IPs for GC)[264]. Each of these IPs was made up of two ips, one for each alternative. While the second ip almost exclusively contained only one syllable bearing a pitch accent (i.e. the nuclear one), the first ip could contain up to three stressed syllables (and thus various pitch accents). This is illustrated by means of some GS examples in (2). The GC data presented a very similar picture.

(2) a. ((¿Queréis helado de vainilla)$_{ip}$ (o de avellana)$_{ip}$)$_{IP}$
b. ((¿Helado de vainilla)$_{ip}$ (o de avellana)$_{ip}$)$_{IP}$
c. ((¿De vainilla)$_{ip}$ (o de avellana)$_{ip}$)$_{IP}$
'(Do you want) vanilla (ice cream) or hazelnut [ice cream])?'

The sentences of the type presented in (b) and (c) were usually preceded by a wh-question such as Sp. *¿Qué preferís?* 'What do you prefer?' or Cat. *Què voleu?* 'What do you want?'.

Tonal realization. The same prenuclear pitch accents were found in the first ip of the disjunctive questions in both languages. Since the phrase-initial prenuclear pitch accents differed from phrase-medial ones, they will be treated separately. 25 phrase-initial prenuclear pitch accents were found in GS and 22 in GC. In both languages rising pitch accents were strongly preferred in this position, as is shown in Table 5.1-8.

Table 5.1-8: Percentages and total numbers phrase-initial prenuclear pitch accents in disjunctive questions.

Pitch accent	L+<H*	L*+H	L+H*	other (H*, H+L*)
Girona Spanish	52% (13)	28% (7)	4% (1)	16% (4)
Girona Catalan	36% (8)	23% (5)	2% (4)	23% (5)

As for phrase-medial prenuclear pitch accents, H+L* was clearly the preferred option among the 13 GS and 11 GC instances found, accounting for 62% and 64% of the items, respectively. I assume that this pitch accent surfaces because of the high target of the preceding phrase-initial prenuclear pitch accent when there is too little space for the pitch to fall before the second stressed syllable. Figures 5.1-74 and 5.1-75 contain two examples where the high target of the phrase-initial prenuclear pitch accents L+<H* and L*+H, respectively, is only reached in the syllable directly preceding the phrase-medial metrically stressed syllable.

[264] The remaining five sentences needed to be discarded as they represented simple information-seeking yes–no questions or contained wh-words and thus did not correspond to the disjunctive question type desired.

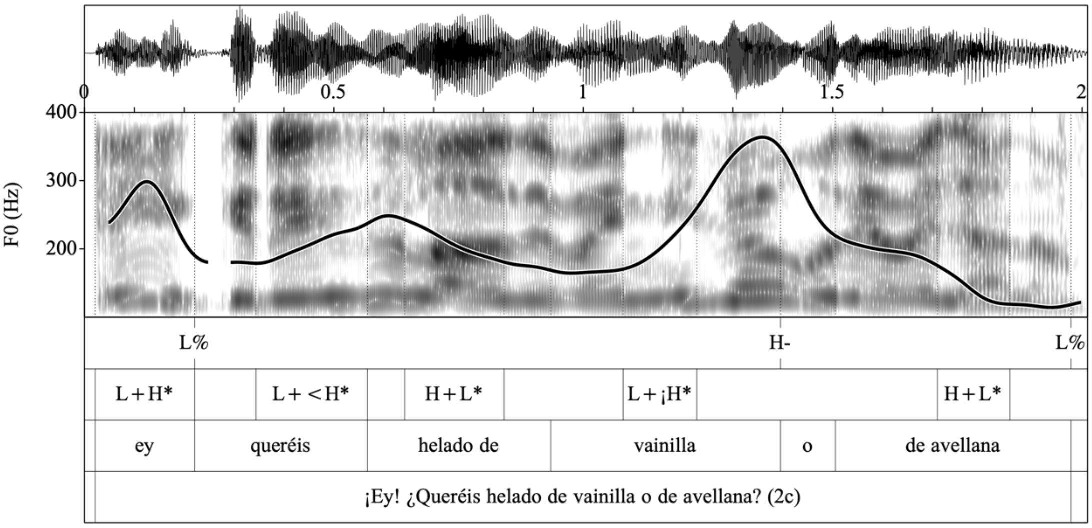

Figure 5.1-74: Girona Spanish: Waveform, spectrogram, and F0 contour for the disjunctive question *¿Queréis helado de vainilla o de avellana?* 'Do you want vanilla or hazelnut ice cream?' produced by a Catalan-dominant speaker. It represents an IP composed of two ips. The first one consists of an IP-initial L+<H* prenuclear accent, a phrase-internal H+L* prenuclear accent, and an L+¡H* nuclear accent followed by an H- boundary tone. The second ip contains a nuclear H+L* pitch accent followed by an L% boundary tone. The nuclear configuration of the IP is H+L* L% (6S18).

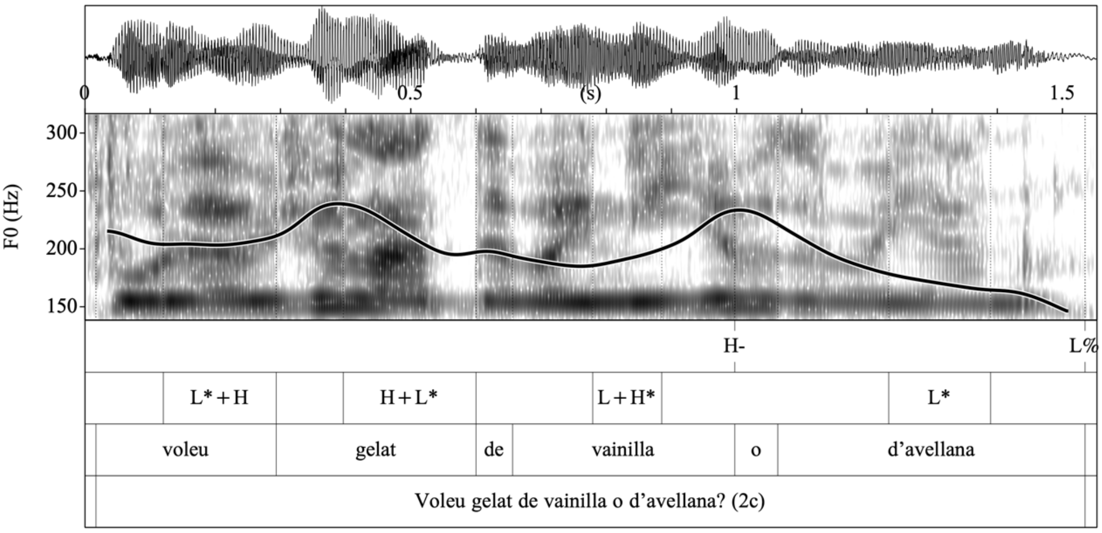

Figure 5.1-75: Girona Catalan: Waveform, spectrogram, and F0 contour for the disjunctive question *Voleu gelat de vainilla o d'avellana?* 'Do you want vanilla or hazelnut ice cream?' produced by a Catalan-dominant speaker. It represents an IP composed of two ips. The first one consists of an IP-initial L*+H prenuclear accent, a phrase-internal H+L* prenuclear accent, and an L+H* nuclear accent followed by an H- boundary tone. The second ip contains a nuclear L* accent followed by an L% boundary tone. The nuclear configuration of the IP is L* L% (10S18).

For nuclear configurations of the inner ips, one clearly dominant pattern was observed in both languages: a rise within the limits of the nuclear syllable (L+H*), followed by a high boundary tone (H-, cf. Figure 5.1-75). When the ip also contained prenuclear pitch accents, the peaks of the nuclear pitch accent were often higher than the preceding ones and therefore labelled with an upstep (i.e. as 'L+¡H*', cf. Figure 5.1-74). However, given that the upstep is assumed to be triggered by the high boundary tone, I view such upstepped pitch accents underlyingly as L+H* (cf. the discussion in 5.2). Concerning the boundary tone, all but two sentences per language displayed a clear continuation rise (i.e. H-) that was usually higher, when a short pause was inserted between the fist and the second ip of the IP. The 4 remaining cases presented sustained pitches (SP, i.e. !H-).

Regarding the second ip, the only two prenuclear pitch accents were H* (found in the GC data). As for the nuclear configurations of the second ip (and hence of the IP), the same two contours were observed in both varieties: H+L* L% and L* L% (cf. Figures 5.1-74 and 5.1-75, above). While both appeared with the same frequency in Catalan (50% each), H+L* only accounted for 24% of the GS nuclear configurations. A closer look suggests that H+L* could be a 'Catalan' feature and L* might be more characteristic of Spanish.[265] First, 6 out of 7 occurrences of H+L* in the Spanish data stemmed from CatD speakers and, second, this accent was also preferred over L* by this group in Catalan (used in 11 out of 19 cases, i.e. 58%). The SpD group, on the other hand, produced only four instances of H+L* in both languages combined, two of which came from the same speaker. It thus only appeared in 21% of their sentences. Although these differences between the groups and languages are not big enough to reach statistical significance, they suggest that language contact could have led to a progressive merger of categories stemming originally from different languages, which has now increased the repertoire of variants in both languages (cf. the discussion in 6.4.2.3).

Finally, one very particular Catalan sentence is worth being presented with some more detail, given it shows a clearly different intonational pattern. The disjunctive question in Figure 5.1-76 is introduced by the interrogative particle *que* and the fist ip displays a sustained high pitch plateau extending from its beginning until the end (!H-). In the second ip, the pitch drops down drastically during the nuclear syllable (H+L*) and then stays low until the end of the utterance (L%). The sentence was produced by a clearly CatD speaker and its fashioning has no parallel in the Spanish disjunctive questions. However, as we have seen in the preceding section, the same or a very similar pattern can occur in GC (and GS) IYNQ. Nevertheless, the use of this pattern and of *que* in a disjunctive question is rather peculiar in CC (as opposed to, e.g., Balearic Catalan; cf. Prieto/Rigau 2007: 42–43).

[265] The differences cannot be accounted for by factors such as metrical structure in this case, given that all utterances ended in the Catalan-Spanish cognate *avellana* 'hazelnut'.

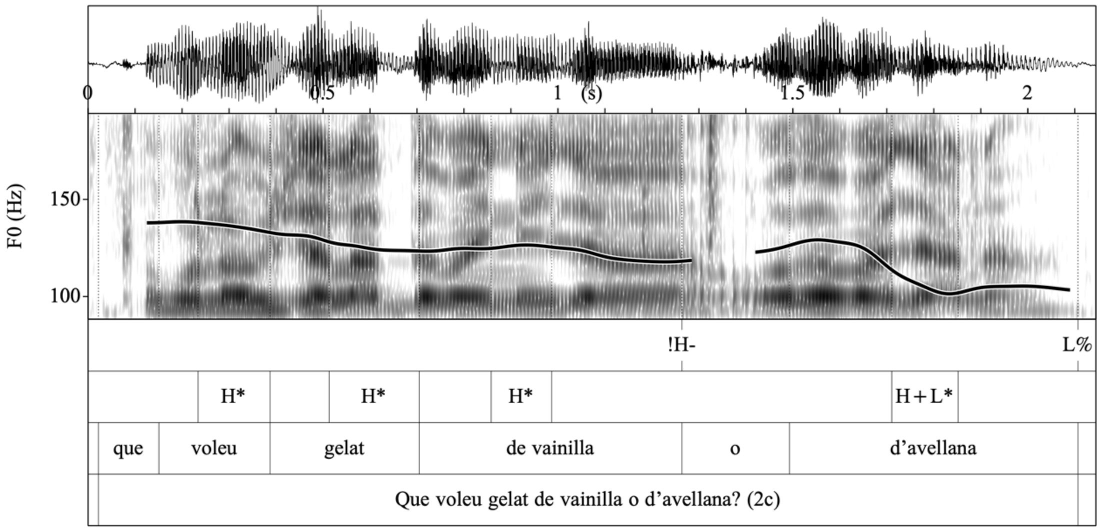

Figure 5.1-76: Girona Catalan: Waveform, spectrogram, and F0 contour for the disjunctive question *Que voleu gelat de vainilla o d'avellana?* 'Do you want vanilla or hazelnut ice cream?' produced by a Catalan-dominant speaker. It represents an IP composed of two ips. The first one consists of continuously high and flat plateau, while the second ip contains a nuclear H+L* accent followed by an L% boundary tone. The nuclear configuration of the IP is H+L* L% (11C18).

5.1.4 Biased polar questions

This section offers a description of the intonational properties of exclamative yes–no questions (with counterexpectational meaning) and confirmation-seeking yes–no questions. I here depict the prenuclear pitch accents and nuclear configurations attested in the GS and GC data sets. Their phonological status will be discussed after the description of the tonal realization of all sentence types considered for the intonational analysis of these two varieties (cf. Section 5.2).

5.1.4.1 Exclamative yes–no questions (with counterexpectational meaning)

From the 61 responses obtained with situation 2d (cf. Appendix 5), six had to be discarded from the intonational analysis, since they—although being pragmatically correct in the foreseen context—either corresponded to other sentence modalities (e.g. wh-questions such as Cat. *Com pots tenir gana si acabem de dinar?* 'How can you be hungry if we have just had dinner.') or because they were so strongly affected by creaky voice that a reliable analysis of the F0 was impossible. As shown in Table 4.19, 25 GC and 31 GS IPs could eventually be analysed in this context.

Regarding their wording, all GC exclamative yes–no questions contained the sequence *tens gana* 'are you hungry' with two adjacent underlyingly stressed syllables, often preceded by adverbs such as *encara* 'still' or *ja* 'already'. The GS data presented a bit more variation but usually included *tienes hambre* 'are you hungry', as well.

Concerning their F0 contours, most but not all exclamative yes–no questions produced displayed patterns that were very similar to those of IYNQ. In both languages, the most common phrase-initial prenuclear accent was L*+H, accounting for slightly more than half of the items. As in the IYNQ, the peak of the high trailing tone was usually attained in one of the three syllables following the stressed one and here again held responsible for most pitch movements on phrase-medial metrically stressed syllables. In the example shown in Figure 5.1-77, for example, L*+H is located on the phrase-initial word *aún* 'still', pronounced in one syllable, and the phrase-medial verb *tienes* '(you) have' can be seen as pitch-deaccented.

Besides, some instances of other phrase-initial prenuclear accents were registered (e.g. L+<H*, L+H*, or L*). In general, they seem to be surface variants of L*+H, evoked either by the use of an extended pitch range (to convey the exclamatory nature of the utterances; cf., e.g., Crespo-Sendra 2011: 111–120) or, in some cases, due to tonal crowding. For instance, in Figure 5.1-78, the F0 contour can be described with an L* on *todavía* and an H* on *tienes.* However, in a different analysis, the underlying phrase-initial prenuclear L*+H accent could be phonetically rendered as 'split', i.e. the first stressed syllable bears a surface L* accent and the second one an H* accent. Interestingly, such combinations appeared 3 times in the GS and 6 times in the GC data set (all of them on Sp. *todavía tienes* and Cat. *encara tens* 'do you already have').[266] In a similar vein, H* seems to be a truncated or compressed variant of underlying L*+H in stress-clash situations such as Cat. *tens gana* 'are you hungry' (cf. Figure 5.1-79).

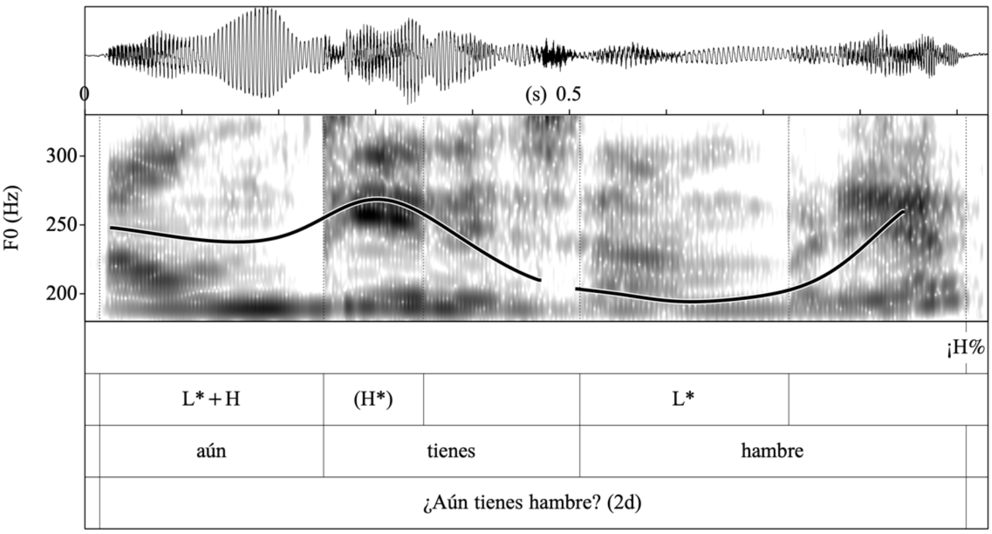

Figure 5.1-77: Girona Spanish: Waveform, spectrogram, and F0 contour for the exclamative yes–no question *¿Aún tienes hambre?* 'Are you still hungry?' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, phrase-medial pitch deaccentuation (cf. Fn. 257), and an L* nuclear accent, followed by an ¡H% boundary tone. The nuclear configuration of the IP is L* ¡H% (5S19).

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266 In one other case, the combination of L* and L+<H* on *todavía tienes* seems to be a similar case and might equally correspond to an underlying L*+H pitch accent.

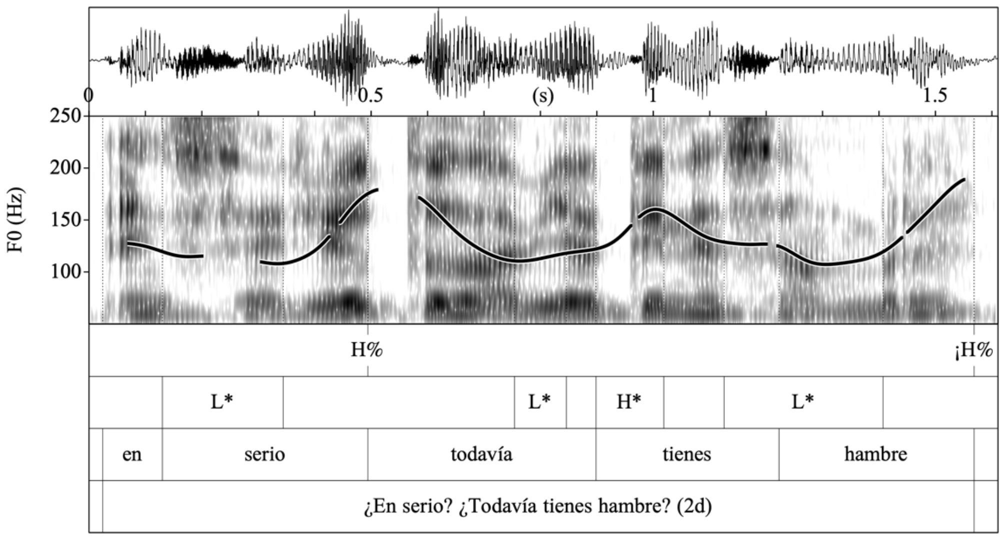


Figure 5.1-78: Girona Spanish: Waveform, spectrogram, and F0 contour for the exclamative yes–no question *¿Todavía tienes hambre?* 'Are you still hungry?' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L* prenuclear accent, a phrase-medial H* accent, and an L* nuclear accent, followed by a ¡H% boundary tone. The nuclear configuration of the IP is L* ¡H% (27S19).

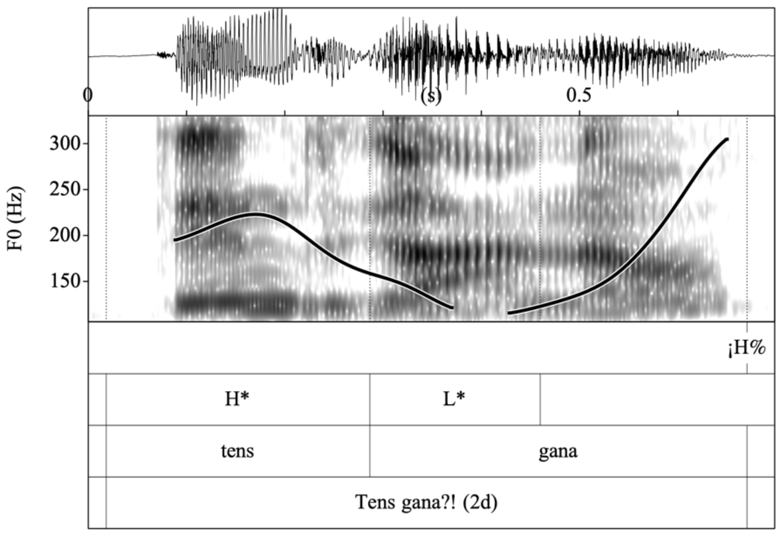


Figure 5.1-79: Girona Catalan: Waveform, spectrogram, and F0 contour for the exclamative yes–no question *Tens gana?* 'Are you hungry?' produced by a Catalan-dominant speaker. It consists of an IP-initial prenuclear H* accent and an L* nuclear accent, followed by an ¡H% boundary tone. The nuclear configuration of the IP is L* ¡H% (6C19).

As for the nuclear configurations, the participants overwhelmingly used combinations of an L* pitch accent followed by a high boundary tone (which was very often the highest point of the phrase, labelled '¡H%' then). Yet, there was some variation in the two data sets: sometimes, H+L* appeared as a variant of the nuclear L* accent (4 items in GS, 3 in GC). Although it probably surfaced due to tonal crowding in some cases (i.e. when the nuclear syllable was closely preceded by the high target of a previous prenuclear accent), its appearance could also be an effect of the extension of the pitch range (due to the exclamative character of the questions and greater speaker involvement; cf., e.g., Crespo-Sendra 2011: 91–93, 111–120; Hirschberg/Ward 1992: 241; Lee et al. 2008 for this cross-linguistic trend; Prieto 2002a: 431–432, 2013: 31–33 for similar observations in CC exclamative questions). Likewise, there were three cases in the GS data in which a slight rise, i.e. an 'L+H*'-like pitch gesture, was observed within the limits of the nuclear syllable instead of L*. I equally interpret this as an effect of the expansion of the pitch range (used to express exclamativity).

Before bringing this section to an end, two further combinations of pitch accents and boundary tones are worth mentioning. The first alternative contour is shown in Figure 5.1-80. It contains two H+L* pitch accents—a prenuclear and a nuclear one—and ends with a high boundary tone. It was observed 4 times in the GS data (13%), produced by three CatD and one SpD speakers.

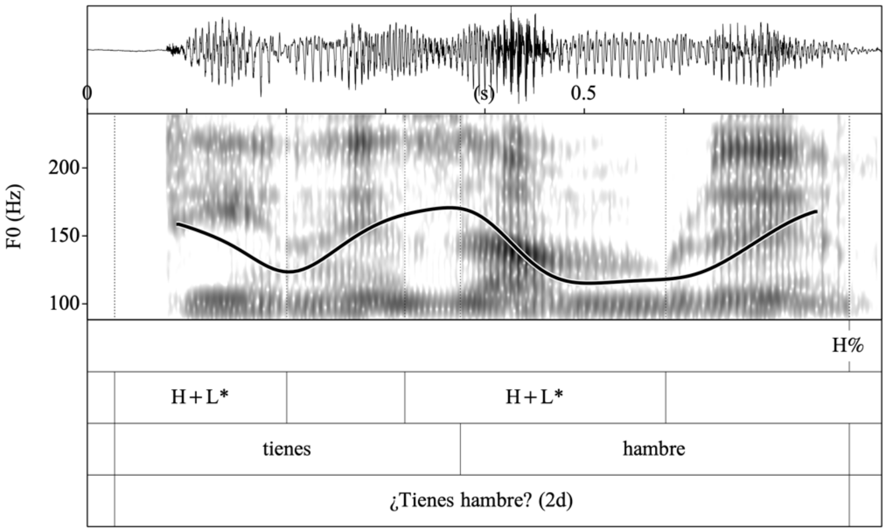


Figure 5.1-80: Girona Spanish: Waveform, spectrogram, and F0 contour for the exclamative yes–no question *¿Tienes hambre?* 'Are you hungry?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial H+L* prenuclear accent and an H+L* nuclear accent, followed by an H% boundary tone. The nuclear configuration of the IP is H+L* H% (6S19).

The other one is, once again, the typically Catalan high–falling pattern that combines with questions introduced by the interrogative particle *que* (cf. Figure 5.1-81). It contains high pitch in the prenucleus (H* or ¡H*) followed by a drastic pitch fall during the nuclear syllable (H+L*) and ends in a low boundary tone (L%). This pattern occurred three times in the GC and once in the GS data (12% and 3%, respectively). Interestingly, the last prenuclear syllable was higher than the beginning of the prenuclear area in all cases, which might be, once again, an effect of the use of an extended pitch range conveying incredulity. Finally, there was one GC exclamative question introduced by the interrogative particle *que* that was pronounced with a nuclear rise (i.e. L* ¡H%). All *que*-questions stemmed from speakers dominant in Catalan.

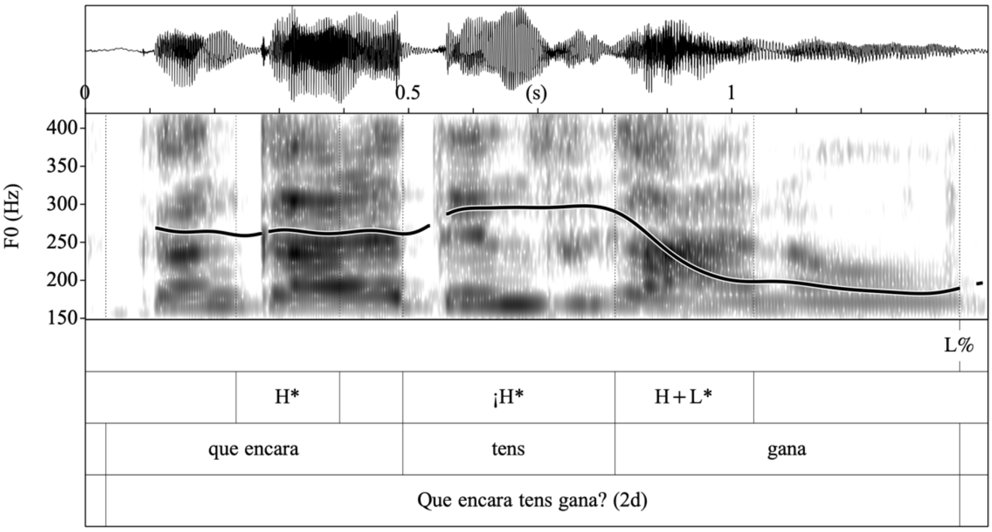


Figure 5.1-81: Girona Catalan: Waveform, spectrogram, and F0 contour for the exclamative yes–no question *Que en<u>ca</u>ra <u>tens</u> <u>ga</u>na?* 'Are you still hungry?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial H* prenuclear accent, a phrase-medial ¡H* prenuclear accent, and an H+L* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is H+L* L% (28C19).

5.1.4.2 Confirmation-seeking yes–no questions

As shown in Table 4.19, 31 GC confirmation-seeking yes–no questions were recorded with situation 2e (cf. Appendix 5) and subsequently subjected to an intonational analysis. For GS, 30 questions of this type were recorded and analysed. Virtually all questions contained Sp. *vas a venir/vendrás a cenar* 'are you going to come (over) for dinner' or Cat. *vindràs a dinar* 'are you going to come (over) for lunch'. In many cases, this verbal complex was preceded by a vocative (e.g. *¡Juan!* or *Jaume!*) and preceded or followed by the adverbial Sp./Cat. *al final* 'in the end, finally'. Furthermore, some questions contained elements like Sp./Cat. *(¿)o no?* 'or not' or Sp. *¿verdad?* 'right'. Finally, some questions were asking explicitly for a confirmation, e.g. Sp. *¿Me puedes confirmar si vienes a cenar?* 'Can you confirm that you're coming over for dinner?' (33S20).

As for intonation, 50 and 64 prenuclear pitch accents were found in the GS and GC data sets, respectively, most of which were IP-initial. Similar to IYNQ, L*+H was by far the most frequent IP-initial prenuclear accent in both languages (84% in GC, 80% in GS). Second most common in this position was L+<H*, which might be a surface variant of the first one (6% and 13%, respectively). The same is likely for three instances of IP-initial prenuclear L+H*. Phrase-medial prenuclear positions showed both parallels and differences with respect to IYNQ. While they were pitch-deaccented in some few cases or displayed falling pitch (i.e. H+L*)—which I

again interpret as an outcome of tonal crowding[267]—in the majority of cases, a second L*+H pitch accent surfaced in this position (cf. Figure 5.1-82). This was also the pitch accent that was typically used when there was a second phrase-internal stressed syllable.

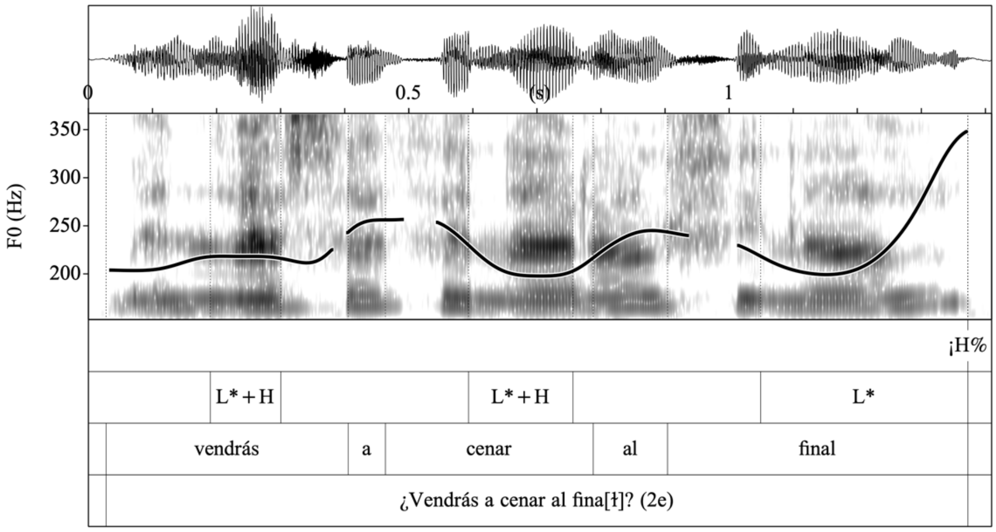


Figure 5.1-82: Girona Spanish: Waveform, spectrogram, and F0 contour for the confirmation-seeking yes–no question *¿Vendrás a cenar al final?* 'Will you come over for dinner in the end?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, a phrase-medial L*+H prenuclear accent, and an L* nuclear accent, followed by an ¡H% boundary tone. The nuclear configuration of the IP is L* ¡H% (19S20).

Regarding the nuclear configurations of confirmation-seeking yes–no questions, the speakers used the same inventory in both varieties. The most recurrent configuration consisted of an L* pitch accent followed by a high boundary tone that usually represented the highest point in the IP (cf. Figure 5.1-82, above). This 'low–rising' pattern appeared in roughly three quarters of the utterances in both languages and is shared with IYNQ. The principal alternative was H+L* L%. However, in most cases, the use of this falling nuclear contour could be related to the wording of the sentence: it usually appeared when the confirmation-seeking question ended with the disjunctive element *o no?* 'or not?' or, in one case, Cat. *o què* 'or what' (5 out of 7 cases in GS; 6 out of 8 in GC; see Figure 5.1-83 for an example).[268] Yet, there were also four cases (2 per language), in which H+L* L% was used by CatD speakers without any disjunctive or tag element and sat on the main verb (cf. Figure 5.1-84). In consequence, despite not being very frequent (ca 25%), the nuclear fall seems to be a generally valid alternative to the low rise for confirmation-seeking questions in both languages. Nevertheless, it is striking that there were no examples without a disjunctive element stemming from SpD speakers (cf. Section 6.4.2.3 for further discussion).

[267] As in statements and other question types, phrase-internal prenuclear H+L* appeared after preceding peaks when there was too little segmental material for the F0 to fall before the syllable onset (cf. Sections 5.1.1.1 and 5.1.3.2).

[268] In one case, *¿O no?* 'Or not?' was used after a short pause in a separate ip. As in disjunctive questions, the nuclear contour of the first ip was L+H* ¡H- and that of the second one L* L%. In all other items, no phonetic boundary cues (such as pre-boundary lengthening) could be observed whatsoever.

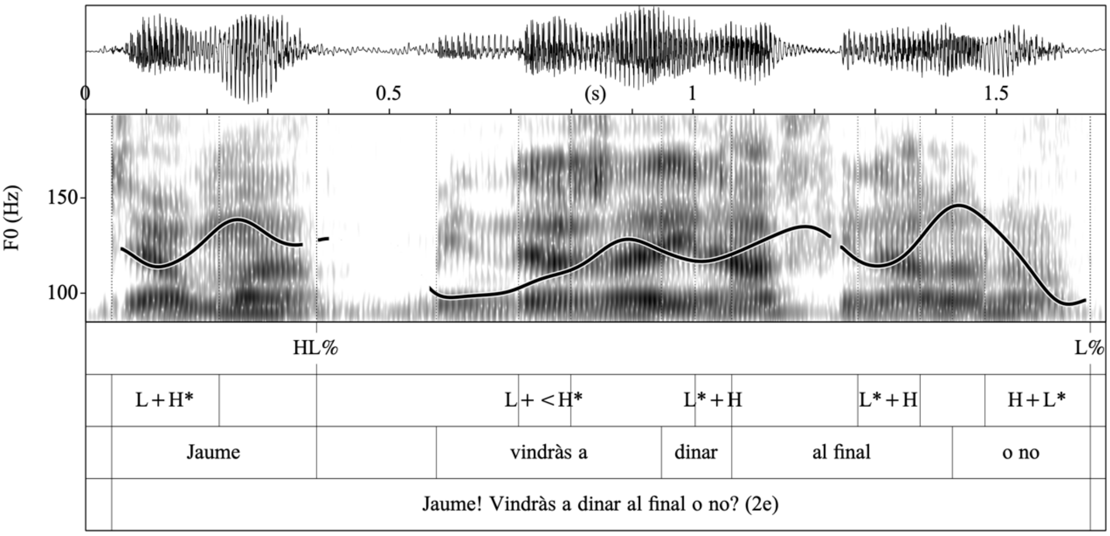


Figure 5.1-83: Girona Spanish: Waveform, spectrogram, and F0 contour for the confirmation-seeking yes–no question *Vin<u>dràs</u> a di<u>nar</u> al fi<u>nal</u> o <u>no</u>?* ‘Will you come over for lunch in the end or not?’ produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L+<H* prenuclear accent, two phrase-medial L*+H prenuclear accents, and an H+L* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is H+L* L% (7C20).

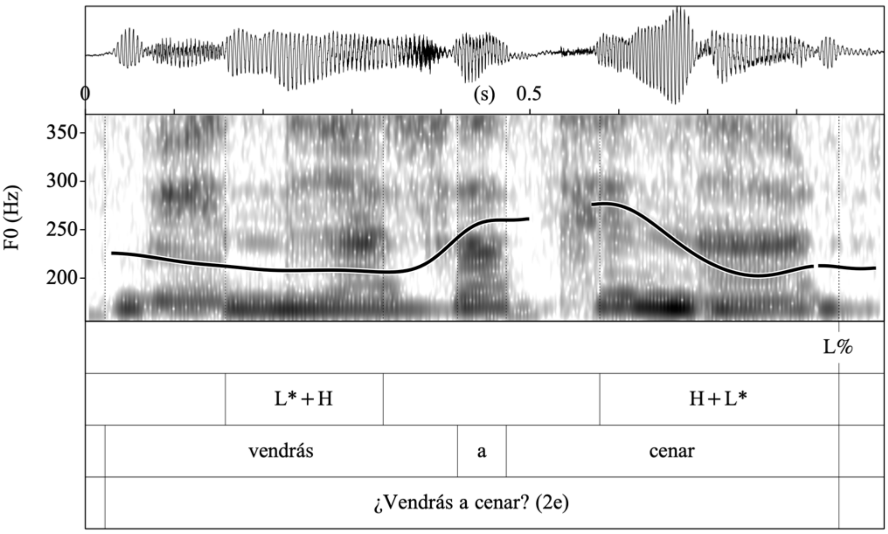


Figure 5.1-84: Girona Spanish: Waveform, spectrogram, and F0 contour for the confirmation-seeking yes–no question *¿Ven<u>drás</u> a ce<u>nar</u>?* ‘Are you coming to dinner?’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent and an H+L* nuclear accent, followed by am L% boundary tone. The nuclear configuration of the IP is H+L* L% (31S20).

While these findings by and large confirm the available descriptions of the intonation of confirmations-seeking questions for CS, according to which both nuclear contours are possible in this pragmatical context and L*+H is the typical prenuclear pitch accent, this is less so for (Central) Catalan, since there were no instances of high plateaus in the prenuclear region as suggested in the literature (cf. Section 3.1.2.2). However, our findings endorse Prieto et al.’s (2015: 55) observation that L* H% can be an alternative to the general CC H+L* L% pattern in GC. Furthermore, it is worth pointing out that there were no instances of confirmation-seeking questions introduced by the interrogative particle *que* in neither of the two languages. This is somewhat surprising given that *que*-questions are claimed to be most iconic in this context in GC (cf. Prieto 2002a: 434–435). However, according to Prieto and Rigau (2007: 43), alternative questions (i.e. questions built as a disjunction of the predicate and the latter negated, e.g. by means of *o no*, forcing the hearer to make a decision) cannot be headed by *que* in Northern CC—which might partly explain the absence of *que* in most questions with the falling contour.

Finally, one particular item is worth mentioning apart. It was produced by speaker No. 13, of Honduran heritage, and presents two H+L* prenuclear accents and nuclear H+L* LH%[269] (cf. Figure 5.1-85). Through the use of this tune, the speaker once more deviates from all others. Yet, her intonation is quite consistent, as she uses the same prenuclear accents and nuclear H+L* LH% also in other question types (e.g. IYNQ, cf. Section 5.1.3.1.2).

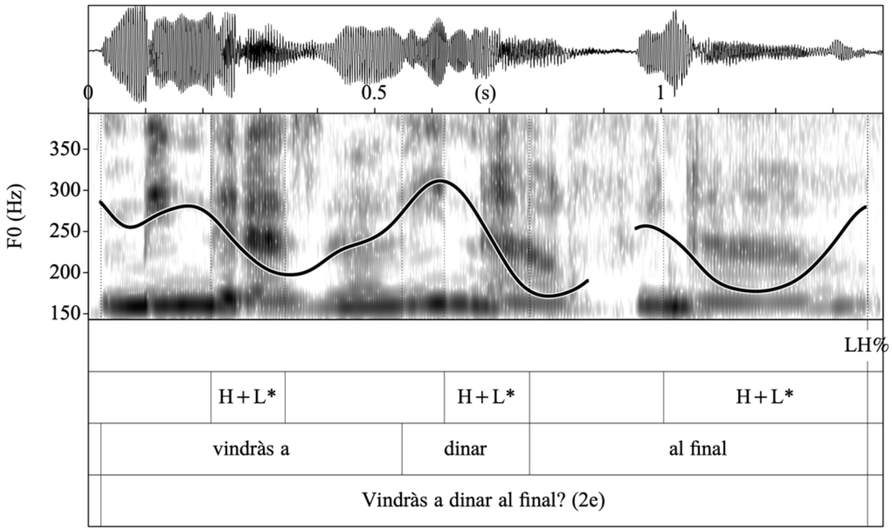


Figure 5.1-85: Girona Catalan: Waveform, spectrogram, and F0 contour for the confirmation-seeking yes–no question *Vindràs a dinar al final?* 'Are you coming to dinner in the end?' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial H+L* prenuclear accent, a phrase-medial H+L* prenuclear accent, an H+L* nuclear accent, and an LH% boundary tone. The nuclear configuration of the IP is H+L* LH% (13S20).

5.1.5 Neutral wh-questions

This section offers a description of the intonational properties of the neutral, i.e. information-seeking, wh-questions in the present sample. A total of 62 questions were recorded with situation 3a1 and 3a2 for each of the varieties under consideration. Analysing their intonation was not an easy task, since this subcorpus presented a fair amount of variation. So as to better understand how neutral wh-questions are intonated by whom, the prenuclear pitch accents and

[269] As the nuclear configuration is realized on an ultimate-stress word, it cannot be decided here whether the underlying boundary tone is actually H% or LH%. The latter representation was chosen in concert with other questions produced by the same speaker.

nuclear configurations found will be presented separately for the two recording situations. Given that the sentences elicited with situation 3a1 nearly always contained at least one stress clash—which substantially complicated the analysis—the results from situation 3a2 will be discussed first. A summary will be provided at the end of the present section.

All but 3 of the 31 sentences gathered for GS with situation 3a2 were direct wh-questions. They always contained the wh-word Sp. *qué* 'what' and usually a finite form of either *llevar* 'bring, take' or *comprar* 'buy'. As for the GC counterparts, 27 out of the 31 recorded utterances contained a wh-word (i.e. either Cat. *què* 'what' or—in two cases—Cat. *quin regal* 'which present'). The remaining utterances had to be discarded from analysis due to the lack of such an element in the main clause, i.e. they represented IYNQ with no or an indirect wh-word in a subordinate clause. Unfortunately, all excluded responses were produced by SpD speakers, which drastically diminished the number of analysable utterances for this group.

When the ip containing the wh-question began directly with the question-word, i.e. Sp./Cat *qué*/*què* 'what' or Cat. *quin (regal)* 'what present' (18 out 27 GC items, 21 out of 28 GS items), the speakers typically used high pitch, i.e. H*, on the stressed syllable of the interrogative element (cf. Figures 5.1-86 and 5.1-87). In some cases, a rise could be observed instead, which was labelled as L+<H* or L*+H[270], respectively. Two examples are shown in Figures 5.1-88 and 5.1-89. Such initial rises occurred 7 times in GC and 4 times in GS and were produced by both CatD and SpD bilinguals.

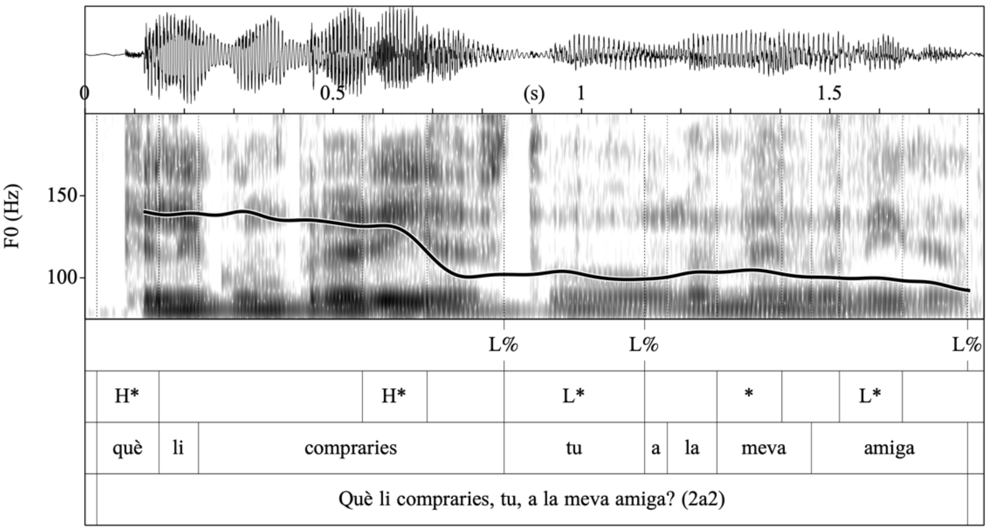


Figure 5.1-86: Girona Catalan: Waveform, spectrogram, and F0 contour for the information-seeking wh-question *Què li compraries, tu, a la meva amiga?* 'What would you buy for my friend?' produced by a Catalan-dominant speaker. It consists of 3 IPs. The first IP contains the main clause and is produced with an IP-initial H* prenuclear accent and an H* nuclear accent, followed by an L% boundary tone. The nuclear configuration of this IP is H+L* L%. The following two IPs show L* L% nuclear configurations (22C22).

270 Note that the contours labelled with initial L*+H began a mid-to-high level of the speaker's range (i.e. '¡L*+H' could be an alternative phonetic label).

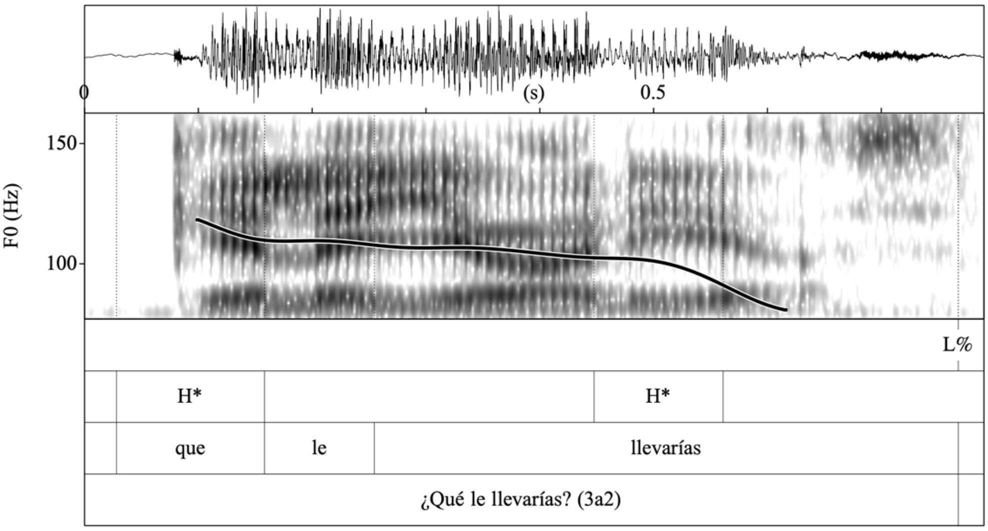


Figure 5.1-87: Girona Spanish: Waveform, spectrogram, and F0 contour for the information-seeking wh-question *¿Qué le llevarías?* 'What would you bring him?' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial H* prenuclear accent and an H* nuclear pitch accent, followed by an L% boundary tone. The nuclear configuration of the IP is H* L% (35C22).

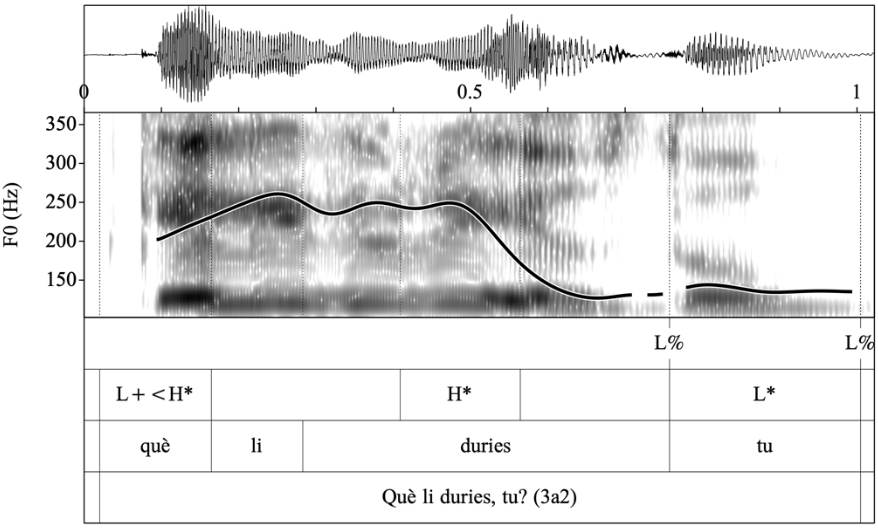


Figure 5.1-88: Girona Catalan: Waveform, spectrogram, and F0 contour for the information-seeking wh-question *Què li duries, tu?* 'What would you bring him?' produced by a Catalan-dominant speaker. It consists of 2 IPs. The first IP contains the main clause and is produced with an IP-initial L+<H prenuclear accent and an H* nuclear accent, followed by an L% boundary tone. The nuclear configuration of this IP is H* L%. The following IP contains an L* L% nuclear configuration (6C22).

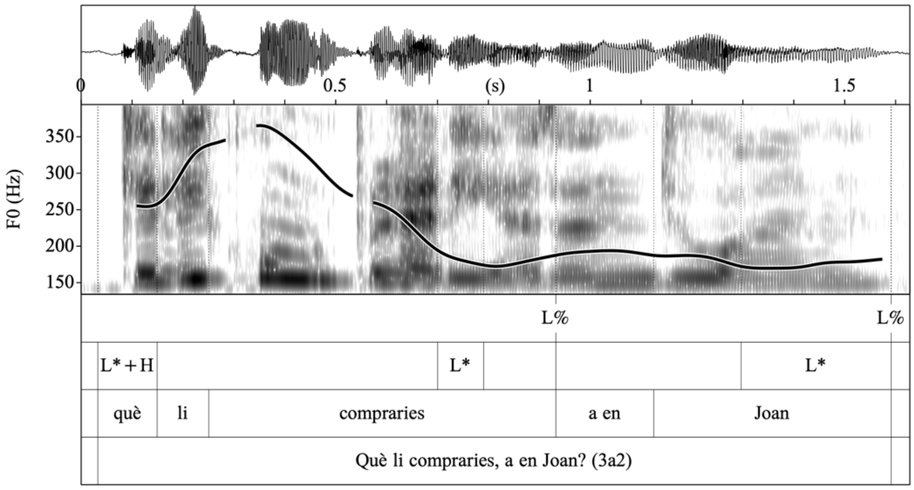


Figure 5.1-89: Girona Catalan: Waveform, spectrogram, and F0 contour for the information-seeking wh-question *Què li compraries, a en Joan?* 'What would you buy for Joan?' produced by a Catalan-dominant speaker. It consists of 2 IPs. The first IP contains the main clause and is produced with an IP-initial L*+H prenuclear accent, an L* nuclear accent, and an L% boundary tone. The nuclear configuration of this IP is L* L%. The following IP contains an L* L% nuclear configuration (22C22).

A different case seems to be the presence of a phrase-initial low tone, occurring when the phrase-initial question-word appeared in a stress clash. For instance, in sequences such as Sp. *qué crees* 'what do you think' or Cat. *què puc* 'what can I', the wh-word itself showed low pitch (L*) while the following syllable presented a high tone (H*; cf. Figure 5.1-90 for an example). L* might thus represent a surface variant of the usual H* accent that appears in stress clashes.[271]

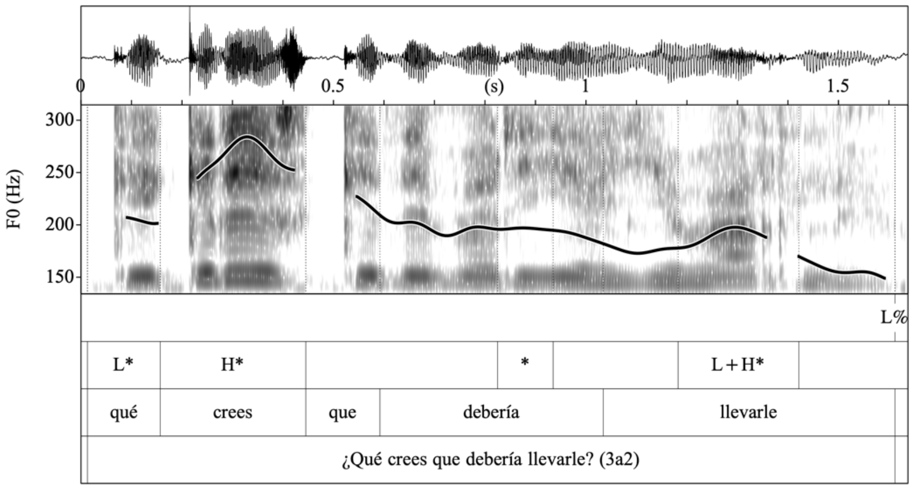


Figure 5.1-90: Girona Spanish: Waveform, spectrogram, and F0 contour for the information-seeking wh-question *¿Qué crees que debería llevarle?* 'What do you think I should bring for her?' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with IP-initial L* prenuclear accent,

[271] In an alternative approach, such sequences could be analysed as instances of phrase-initial L*+H pitch accents on *qué* and a subsequent lack of underlying pitch accents. The 'split-up' appearance of the two partial tones of this pitch accent would then merely be a result of the interruption of the F0 caused by the presence of voiceless plosives. However, this is not in accordance with the acoustical impression of the utterances and would imply pitch-deaccented wh-words in sentences like the one in Figure 5.1-91, below.

an H* prenuclear accent, and an L+H* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is L+H* L% (12C22).

Additionally, 6 GS and 9 GC wh-questions that did not begin with the question-word provide further evidence for the analysis just proposed. In all of these items, a personal pronoun, i.e. Sp. *tú* or Cat. *tu* 'you', immediately preceded the interrogative words in a stress clash.[272] These stress clashes were thus resolved by pronouncing the personal pronoun with a low tone (L*) and the following wh-word with a high tone (H*). Figure 5.1-91 provides an example.

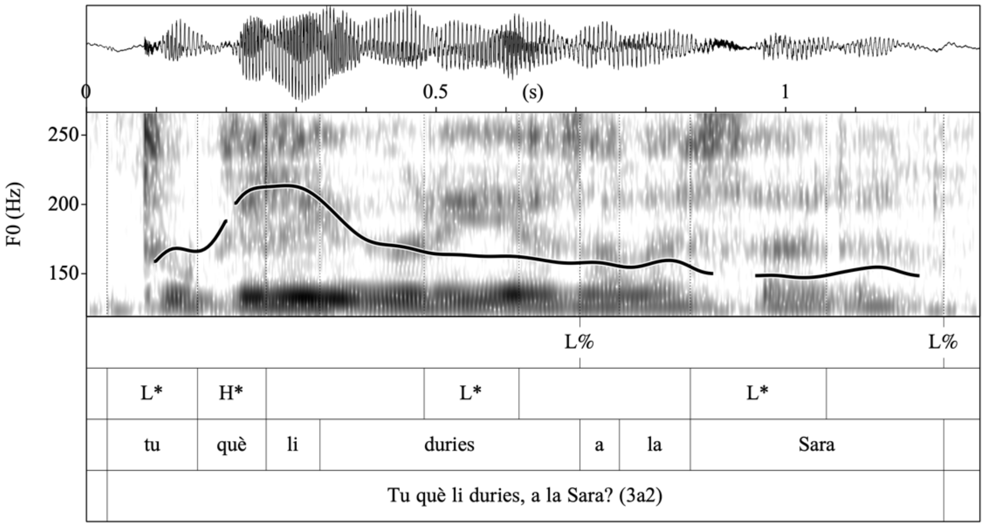


Figure 5.1-91: Girona Catalan: Waveform, spectrogram, and F0 contour for the information-seeking wh-question *¿Tu què li duries, a la Sara?* 'What would you bring for Sara?' produced by a Catalan-dominant speaker. It consists of two IPs. The first one contains an IP-initial L*+H prenuclear accent and an L* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is L* L%. The second IP is made up of an L* nuclear accent and an L% boundary tone (12C22).

In sum, the phrase-initial question-word typically showed a high (or sometimes a rising) pitch accent in the two varieties under concern. When it occurred in a stress clash, the first element was pronounced with a low tone whereas the second one bore a high tone (independently of the position of the wh-word). This implies that the first pitch accent of neutral wh-questions must not necessarily associate with the wh-word. However, the details of this issue are beyond the scope of this dissertation and must rest a topic for further investigation.

Phrase-medial metrically stressed syllables were quite consistently pitch-deaccented. The few pitch movements produced within their limits can be interpreted as repercussions of high tonal targets belonging to phrase-initial pitch accents. It should be mentioned, however, that only few sentences in the current sample presented such positions (only 5 GS and 7 GC sentences contained more than two phrase-medial prenuclear metrically stressed syllables). Deaccentuation could thus be less consequent in longer sentences. Nevertheless, such long main

[272] There was no prosodic boundary between *tú* and *qué*. Both were pronounced within the same ip in the mentioned cases. This view is also supported by two other utterances found in the corpus (a GS and a GC one), where there actually was a boundary between (*y) tú/i tu* and *qué/què*, which was clearly marked by pre-boundary lengthening and a continuation rise (L* H%).

clauses seem to be avoided by the speakers through the use of right-dislocations, especially in Catalan (cf. below and the dislocations in IYNQ in Section 5.1.3.1.4).

In nuclear position, our speakers exhibited a clear preference for falling or low contours. As can be seen from Table 5.1-9, the most common nuclear configuration was H* L% in both languages. Some examples can be seen in Figures 5.1-86–5.1-88, above. Typically, the prenucleus was characterized by a high plateau when this nuclear configuration was used, and the final F0 fall already set in at the end of the nuclear syllable. However, the nuclear syllable still showed a plainly visible high target, and the end of the fall was attained only in the post-nuclear stretch, i.e. after the nuclear syllable. Therefore, the H* pitch accent (and not H+L*) was used to describe these contours.[273] Besides, there were some instances of low, circumflex, and rising nuclear contours. In these cases, the phrase-medial part was usually affected by declination more strongly. This can be seen in Figures 5.1-89–5.1-91.

Table 5.1-9: Nuclear contours in Girona Spanish and Girona Catalan neutral wh-questions gathered with situation 3a2 (percentages and total numbers).

Nuclear contour	H* L%	L* L%	L+H* L%	L* H%
GS (*n* = 28)	64% (18)	11% (3)	11% (3)	14% (4)
GC (*n* = 27)	74% (20)	11% (3)	8% (2)	8% (2)

A screening of the nuclear-contour use according to the speakers' LD did not allow to posit a clear influence of this factor: in both languages, virtually all contours were produced by speakers from both dominance groups, making the number of cases of some patterns used by a specific dominance group quite small in many cases. Nevertheless, the most frequent configuration, H* L%, might represent a 'rather Catalan feature' for the following series of reasons. First, it was slightly more frequent in GC than in GS. Second, CatD speakers used it somewhat more often than SpD bilinguals did (i.e. to an extent of 70% vs 50% in Spanish; and of 75% vs 71% in Catalan). Especially in Spanish, there thus seems to be a relatively high probability for SpD to use different nuclear configurations. Third, H* L% is the configuration typically given for CC in the literature, whereas it does not occur in CS (cf. the overview in Section 3.1.2.2).[274] Yet, this assumption must be treated with great caution owing to the different sampling sizes of the groups and the small numbers of cases.

Finally, it warrants mention that approximately two thirds of the GC (*n* = 18) and over one third of the GS wh-questions (*n* = 10) contained elements dislocated to the right, among them subjects, objects, adjuncts, subordinate clauses. For instance, in Figure 5.1-86, the main clause

[273] As H+L* L% and H* L% can only be distinguished when the phrase ends in an unstressed syllable, falling contours on ultimate-stress words were labelled as H* L% based on the observations made for words stressed on the penultimate. Furthermore, the use of H* L% is also in line with the literature on the intonation of this question type in CC (cf. Section 3.1.2.2), H+L* L% being found primarily in other Catalan varieties such as Valencian (cf. Prieto et al. 2015: 32, 56).

[274] Note that, although the contours Henriksen (2010, 2014) describes for Manchego Spanish are similar to the ones found here, those are not the same. In the variety he studies, the nuclear syllable either contains a clear fall (i.e. H+L*) or a peak whose pitch is higher than that of the preceding prenucleus (transcribed as "¡L+H*" by Henriksen and as "L+¡H*" by Hualde/Prieto 2015: 381).

is followed by the dislocated subject and an indirect object, and in Figures 5.1-89 and 5.1-91, an indirect object is added after the main clause. They were usually pronounced with entirely flat and low contours, i.e. pitch-deaccenting all metrically stressed syllables independently of the length of the dislocated element (up to 18 syllables). Yet, in two GS and one GC responses, the nuclear contour of the dislocated element was L* H%, and there was one instance of H* L% in GC. In these cases, the nuclear configuration thus repeated the respective nuclear contour of the main clause. Given that dislocations can be seen as a rather typical feature of Catalan in general (cf. Section 2.3), and of Catalan wh-questions in particular (cf., e.g., GEIEC 2018: §31.3.2), it is interesting to note that 78% of the Catalan and even 90% of the Spanish items were produced by CatD speakers.

As concerns the neutral wh-questions elicited with scenario 3a1 (cf. Appendix 5), all but one sentence in each language's subcorpus could be considered for the intonational analysis, the two remaining responses lacking a wh-word. All examined utterances were phrased in exactly the same way: Sp. *¿Qué hora es?* and Cat. *Quina hora és?* 'What time is it?'. Yet, unfortunately, this wording entails some difficulties with regard to the intonational analysis. In Spanish, it implies a stress clash between the first two syllables: [ˈke.ˈo.ɾa.ˈes]. Furthermore, many speakers reduced one or both of the two hiatuses in this sentence.[275] In many cases, the result of this contractions was a different syllable structure that, once again, contained a stress clash: e.g. [ˈke̯o.ˈɾes]. Very similarly, in Catalan, no speakers realized *Quina hora és?* as [ˈki.nə.ˈɔ.ɾə.ˈes], with alternating stressed and unstressed syllables. Instead, most of them removed both of the two hiatuses by dropping the schwa vowels, the result being a triple stress clash: [ˈki.ˈnɔ.ˈɾes]. Figure 5.1-92 depicts such an example. Another difficulty springs from the fact that in all sentences the nuclear accent was carried by an ultimate-stress word (i.e. Sp. *es*, Cat. *és* '[it] is'). To perform the intonational analysis of these utterances, I thus first established the syllable structure on hand, then defined the nuclear contour anchored on the last syllable, and subsequently determined whether any of the other stressed syllables carried a (prenuclear) pitch accent.

[275] In the present work, I analysed contiguous vowels as merged into one syllable ('synaloepha') whenever it was impossible to separate them by an auditory and visual inspection of the F0, the oscillogram, and the spectrogram.

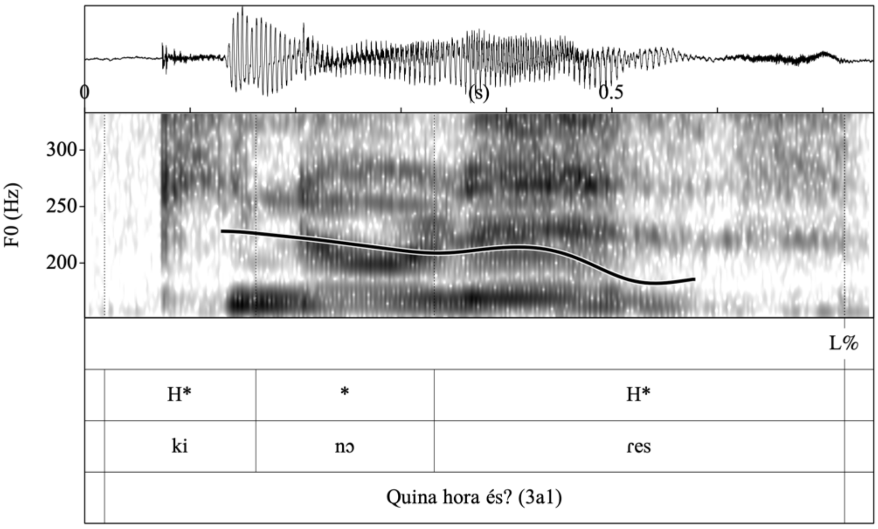


Figure 5.1-92: Girona Catalan: Waveform, spectrogram, and F0 contour for the information-seeking wh-question *¿Quina hora és?* 'What time is it' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial H* prenuclear accent, an H* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is H* L% (24C21).

In both languages, contours ending in a low tone (i.e. L%) were most common (cf. Table 5.1-10, below). However, in GC, H* L%[276] was the most frequent nuclear configuration, while in GS L* L% was found most often. Figures 5.1-92, above, and 5.1-93, below, provide two examples. The association between use of H* or L* in nuclear contours ending in a low boundary tone and Catalan or Spanish, respectively, was statistically significant ($\chi^2(1) = 4.014$, $p = 0.045$). Finally, a rising pattern was registered in roughly one third of the responses in both languages (see Figure 5.1-94 for an example). No significant differences could be detected with regard to the proportions in which the two dominance groups produced the three nuclear configurations.

Table 5.1-10: Nuclear configurations in Girona Spanish and Girona Catalan neutral wh-questions gathered with situation 3a1 (percentages and total numbers).

Nuclear contour	H* L%	L* L%	L* H%
GS (n = 30)	30% (9)	40% (12)	30% (9)
GC (n = 30)	50% (15)	13% (4)	37% (11)

[276] As all sentences collected with situation 3a1 ended in ultimate-stress words (i.e. Cat. *és* and Sp. *es* 'is [it]'), it cannot be decided whether the underlying contour is H* L% or H+L* L%. In accordance with the results of the analysis of the wh-questions collected with situation 3a2, the label H* L% was chosen.

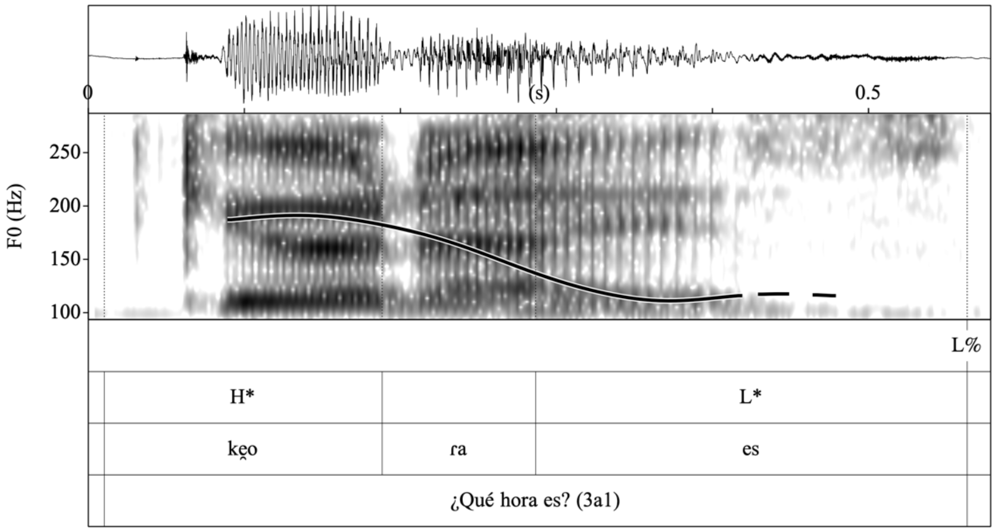


Figure 5.1-93: Girona Spanish: Waveform, spectrogram, and F0 contour for the information-seeking wh-question *¿Qué hora es?* ‘What time is it?’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial H* prenuclear accent and an L* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is L* L% (6S21).

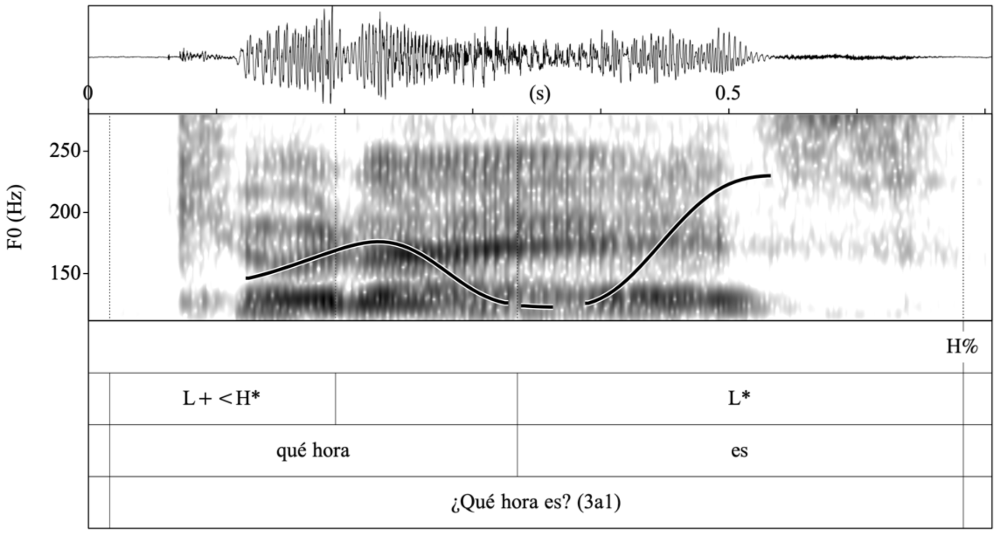


Figure 5.1-94: Girona Spanish: Waveform, spectrogram, and F0 contour for the information-seeking wh-question *¿Qué hora es?* ‘What time is it?’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L+<H* prenuclear accent, an L* nuclear accent, and an H% boundary tone. The nuclear configuration of the IP is L* H% (17S21).

The prenucleus typically contained a high, plateau-like pitch contour in both varieties. Due to the many stress clashes and vowel contractions (i.e. synaloephas), it was not always possible to decide whether the IP-initial prenuclear pitch accent was associated with the first or second syllable of the utterance (i.e. with the wh-word or with Sp./Cat. *hora* ‘hour’), especially when the F0 performed a high and flat contour (i.e. H*) within the limits of both stressed syllables. Nevertheless, it is evident that H* was the preferred phrase-initial accent in both varieties (70% in GC, n = 21; 77% in GS, n = 23). It was produced with a proportion of between 60 and 90% by both dominance groups in both varieties. In the remainder of cases, the utterances began at a middle or low pitch level (on the wh-word), followed by a gentle rise on the first syllable of the following noun. Corresponding pitch accents could be mainly L+<H* or L*+H (cf. Figure 5.1-94, above, and Figure 5.1-95, below). Nonetheless, it should be underlined once more that, due to the many stress clashes and ultimate-stress words in nuclear position, the intonational analysis of these information-seeking wh-questions is very challenging and some details cannot be definitely decided.

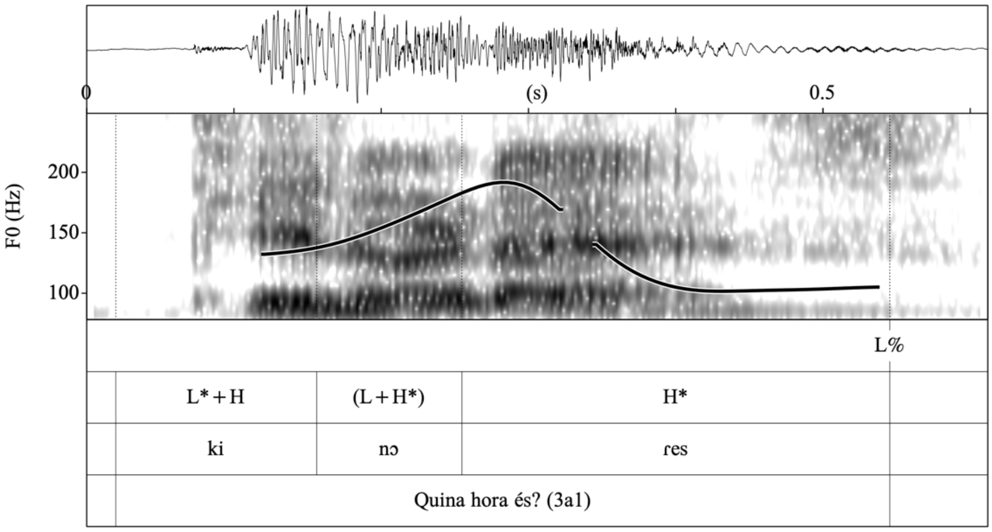


Figure 5.1-95: GC: Waveform, spectrogram, and F0 contour for the information-seeking wh-question *¿Quina hora és?* 'What time is it' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, phrase-medial pitch deaccentuation (cf. Fn. 257), an H* nuclear accent, and an L% boundary tone. The nuclear configuration of the IP is H* L% (17C21).

Summing up, the present analysis has revealed that information-seeking wh-questions in both GC and GS typically begin with a phrase-initial H* pitch accent placed on the wh-word. Alternatively, though less frequent, the utterance may begin at a mid or even low level of the speaker's pitch range (i.e. with L+<H* or L*+H pitch accents). Whereas phrase-medial positions tended to be deaccented in our data set, a huge gamut of contours was attested in nuclear position, including falling, low and rising ones. Table 5.1-11 provides a synopsis of the nuclear configurations found (including the utterances recorded with both 3a1 and 3a2).

Table 5.1-11: Nuclear configurations in Girona Spanish and Girona Catalan neutral wh-questions (percentages and total numbers).

Nuclear contour	H* L%	L* L%	L* H%	other
GS (n = 58)	47% (27)	26% (15)	22% (13)	5% (3)
GC (n = 57)	61% (35)	12% (7)	23% (13)	4% (2)

As can be seen, falling contours (i.e. H* L%) were overall most common in both varieties, although they were somewhat more recurrent in GC. Interestingly, the literature on CC intonation suggests that falling nuclear contours are most typical in neutral wh-questions in that variety, while low contours (i.e. L* L%) are most iconic in CS (cf. Section 3.1.2.2). Besides, the low–rising contour, i.e. L* H%, is considered a (less frequent) alternative in both languages. It is claimed to express a “nuance of interest and greater speaker involvement in the speech act” (Estebas-Vilaplana/Prieto 2010: 35) or a higher degree of politeness (Sosa 2003b) and was observed to the same extent in both Girona varieties. In the contours ending in a low boundary tone, i.e. L%, the association between the frequencies of H* and L* and language was overall only marginally significant ($\chi^2(1) = 3.018$, $p = 0.082$), which could indicate that a previous difference is currently being lost. Moreover, the different frequencies of H* L% and L* L% cannot be put down to the LD either: Table 5.1-12 shows that both dominance groups behave the same.

Table 5.1-12: Use of H* L% and L* L% in Girona Spanish and Girona Catalan neutral wh-questions according to the speakers’ language dominance (percentages and total numbers).

nuclear contour	Girona Spanish			Girona Catalan		
	CatD	SpD	total	CatD	SpD	total
H* L%	67% (20)	58% (7)	47% (27)	83% (24)	85% (11)	61% (35)
L* L%	33% (10)	42% (5)	26% (15)	17% (5)	15% (2)	12% (7)
	100% (30)	100% (12)	100% (42)	100% (29)	100% (13)	100% (42)

Altogether, the results suggest that the bilinguals, independently of their LD and in both languages, make use of contours that probably stem from distinct (i.e. language-specific) repertoires that have now largely converged, yielding a new system that allows for quite a lot of variation (with H* L% being the overall dominant nuclear contour). I therefore assume that the present findings should best interpreted an outcome of bidirectional CLI (cf. Section 6.4.2.4 for a detailed discussion of this topic).

5.1.6 Biased wh-questions

In this section, I describe the intonational patterns found in GS and GC for two types of biased wh-questions. First, I will deal with the realization of exclamative wh-questions (Section 5.1.6.1). Then, imperative wh-questions will be presented in Section 5.1.6.2. The phonological status of the prenuclear pitch accents and nuclear contours found will be discussed in Section 5.2, after the description of all utterance types considered for the intonational analysis of GS and GC.

5.1.6.1 Exclamative wh-questions

A total of 62 exclamative wh-questions (i.e. 31 per variety) were gathered with situation 3b (cf. Appendix 5). Out of these, 31 GS and 28 GC sentences were suitable for an intonational analysis. The remaining utterances had to be excluded due to strong disfluencies. Concerning their wording, most responses began with Sp./Cat. *al final* ‘in the end’, which was pronounced in a separate IP—sometimes detached by means of a short pause. The main clause of the exclamative wh-question, in turn, always began with the wh-phrase (viz. Sp. *cuánto (dinero)* and Cat. *quant* or *quants diners*, respectively, ‘how much (money)’).

Regarding the prenucleus, L*+H and, less frequently, L+<H* were the typical pitch accents found on the phrase-initial prenuclear syllable (i.e. on the wh-element) in both languages (accounting for 79% and 65% of the items in GC and GS, respectively). Figure 5.1-96, below, provides an example. Furthermore, H* was used in phrase-initial position when the main clause of the question was directly preceded by another IP (typically containing Sp./Cat. *al final* ‘in the end’ with ultimate stress and thus leading to a stress clash at the phrasal boundary). I interpret these cases as truncated surface variants of L*+H that appear in this particular context (cf. Figure 5.1-97). Pitch movements in phrase-medial positions can usually be interpreted as effects of the initial high or rising tone. Otherwise, phrase-medial stressed syllables were generally pitch-deaccented (see also following figures).

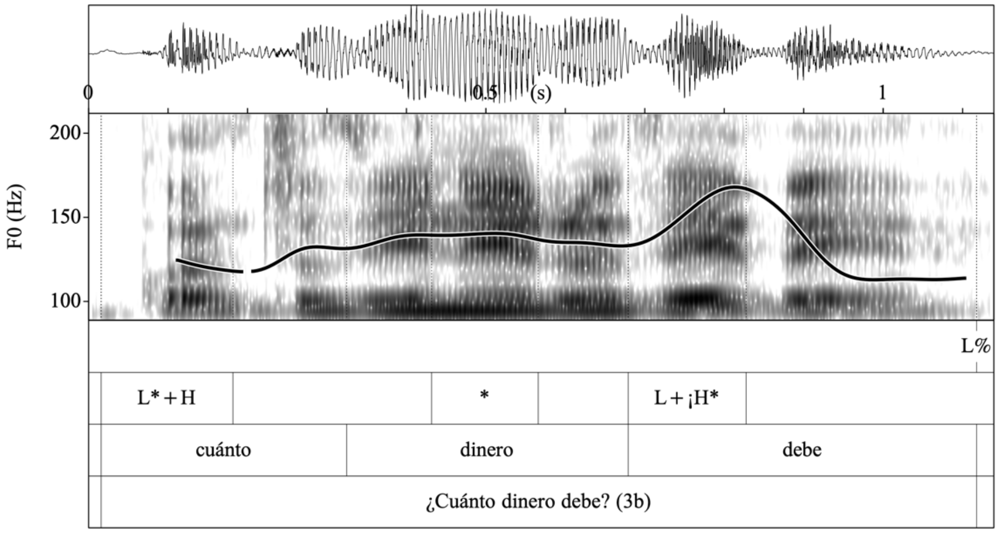


Figure 5.1-96: Girona Spanish: Waveform, spectrogram, and F0 contour for the exclamative wh-question *¿Cuánto dinero debe?* ‘How much money does he owe?’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, a pitch-deaccented phrase-medial syllable, and an L+¡H* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is L+¡H* L% (34S23).

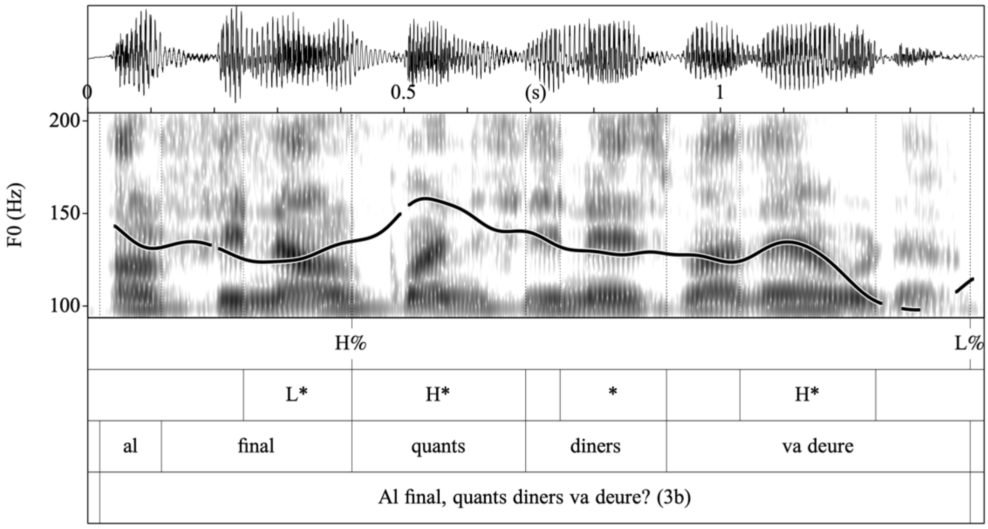


Figure 5.1-97: Girona Catalan: Waveform, spectrogram, and F0 contour for the exclamative wh-question *Al final, quants diners va deure?* 'How much money did he owe in the end?' produced by a Catalan-dominant speaker. It consists of two IPs. The first one contains an L* H% nuclear configuration. The second one represents the main clause and contains an H* prenuclear accent, a pitch-deaccented phrase-medial stressed syllable, and an H* nuclear pitch accent, followed by an L% boundary tone. The nuclear configuration of this IP is H* L% (18C23).

In nuclear position, four types of contours were found. Their distribution in the two languages is shown in Table 5.1-13. It is significantly different across the two varieties ($\chi^2(3) = 10.395$, $p = 0.015$). Concerning LD, all contours were produced by both dominance groups in very similar proportions in both languages, such that no significant differences could be observed (note, however, that this might also—at least in part—be an effect of the small numbers of tokens).

Table 5.1-13: Nuclear contours in Girona Spanish and Girona Catalan exclamative wh-questions (percentages and total numbers).

Nuclear contour	(¡)H* L%	L+(¡)H* L%	L+H* (¡)H%	L* L%[277]
GS (*n* = 31)	42% (13)	26% (8)	26% (8)	6% (2)
GC (*n* = 28)	54% (15)	4% (1)	14% (4)	29% (8)

In both languages, (¡)H* L% was the most commonly used option (see Figure 5.1-97, above, for an example). As opposed to neutral wh-questions, this nuclear pitch accent was often upstepped in the exclamative questions, i.e. its peak noticeably exceeded the pitch level of the high plateau in the prenucleus. Furthermore, it frequently represented an overall pitch maximum. Figure 5.1-98, below, provides an example. Occasionally, a similar contour was observed (for the most part in GS): L+(¡)H* L%.[278] An example can be seen in Figure 5.1-96, above. As opposed to (¡)H* L%, this contour showed a clear rise within the nuclear syllable (ending at the

[277] Please note that these items may also be analysed as instances of (¡)H* L% (cf. below).

[278] The pitch accent was labelled as upstepped (i.e. '¡') when it was higher than all preceding pitch peaks and represented the highest point of the utterance. I interpret the upstep as a means of expression of stronger emphasis.

right edge) and the respective utterances typically presented more declination in the prenuclear area.

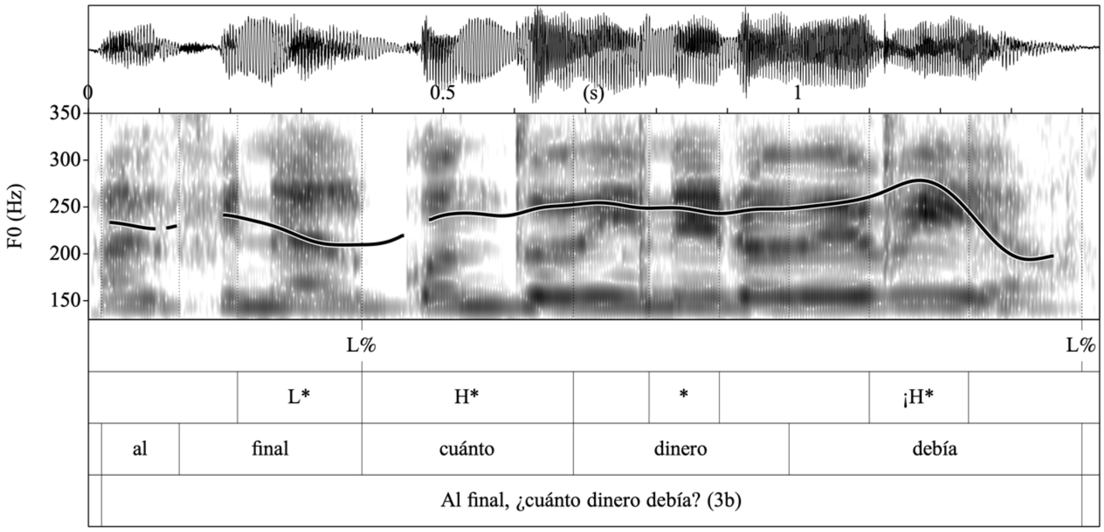


Figure 5.1-98: Girona Spanish: Waveform, spectrogram, and F0 contour for the exclamative wh-question *Al final, ¿cuánto dinero debía?* 'How much money did he owe in the end?' produced by a Spanish-dominant speaker. It consists of two IPs. The first one contains an L* L% nuclear configuration. The second one represents the main clause and contains an H* prenuclear accent, a pitch-deaccented phrase-medial position, and an ¡H* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is ¡H* L% (5S23).

The third nuclear contour, L+H* (¡)H%, seems to be an exclamative variant of the low–rising L* (¡)H% pitch contour used in other question types, such as neutral wh-questions and IYNQ. An example is given in Figure 5.1-99. In accordance with Prieto (2002a: 446), I assume that the notion of exclamativity is conveyed through the use of increased tonal inflections.

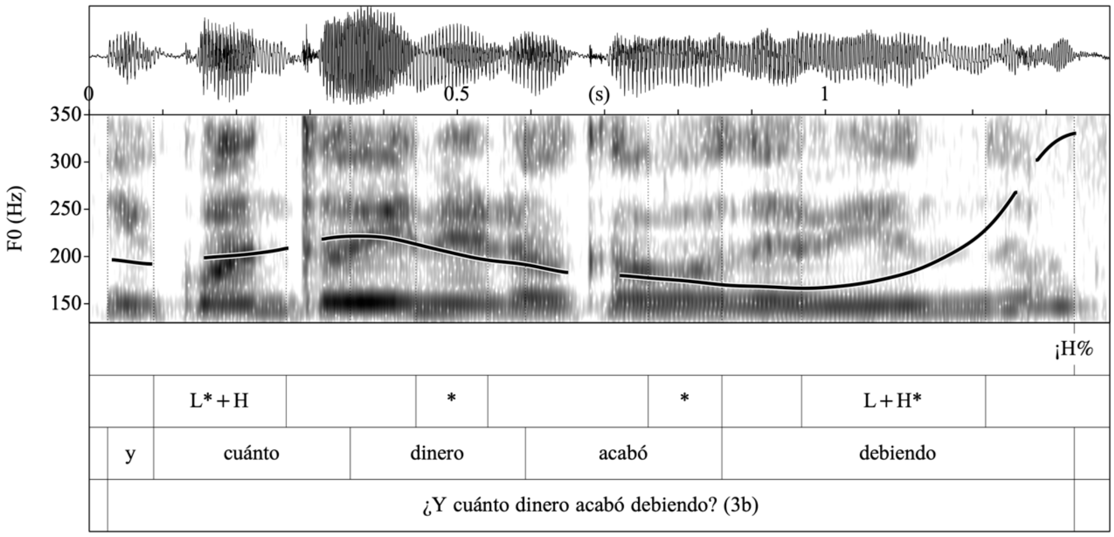


Figure 5.1-99: Girona Spanish: Waveform, spectrogram, and F0 contour for the exclamative wh-question *¿Y cuánto dinero acabó debiendo?* 'How much money did he end up owing?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L*+H prenuclear accent, two instances of phrase-medial pitch deaccentuation, and an L+H* nuclear accent, followed by an ¡H% boundary tone. The nuclear configuration of the IP is L+H* ¡H% (10S23).

Finally, a low L* L% nuclear contour was sometimes observed in the two varieties (although it was more common in GC). The respective exclamative wh-questions differ from neutral statements in displaying an ip-initial L*+H accent (instead of prenuclear L+<H*), followed by a phrase-medial pitch fall, after which the contour keeps low until the end of the utterance. An example is given in Figure 5.1-100.

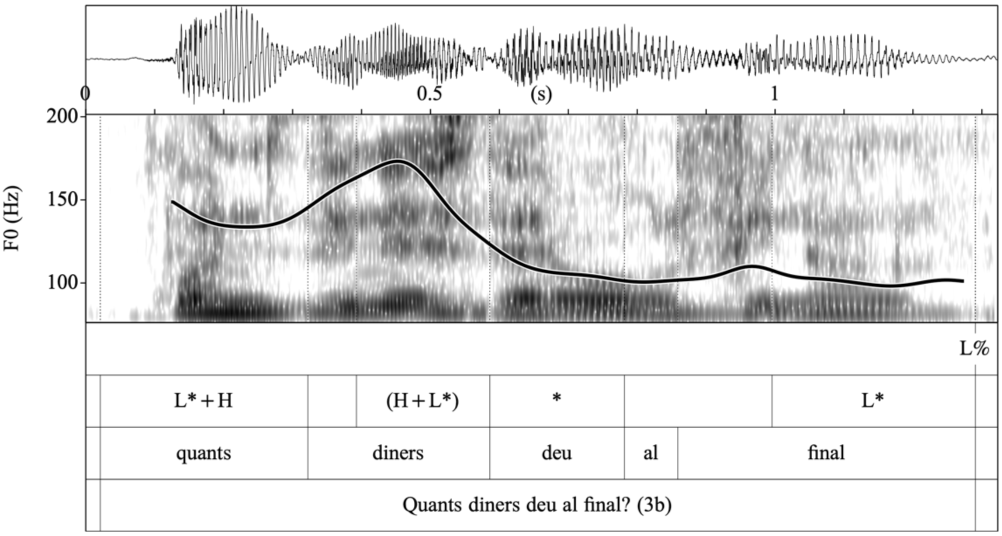


Figure 5.1-100: Girona Catalan: Waveform, spectrogram, and F0 contour for the exclamative wh-question *Quants diners deu al final?* 'How much money does he owe in the end?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an L*+H prenuclear accent, phrase-medial pitch deaccentuation (cf. Fn. 257), and an L* nuclear accent, followed by an L% boundary tone. The nuclear configuration is L* L% (22C23).

In sum, GS and GC exclamative wh-questions present a wide range of intonational contours. They mainly differ from neutral wh-questions through the use of a wider pitch range or, more precisely, though the upstepping of some pitch accents. According to the literature on Spanish and Catalan intonation (cf. Section 3.1.2.2), some of the nuclear configurations used are rather typical for Catalan (e.g. (¡)H* L%), whereas others appear to me more iconic of Spanish (e.g. L+(¡)H* L%). Nevertheless, if the two languages originally presented different nuclear contours for exclamative wh-questions, the studied bilinguals now mix and use them in both of their languages (cf. Section 6.4.2.4 for further discussion).

5.1.6.2 Imperative wh-questions

A total of 62 utterances were recorded with situation 3c to elicit imperative wh-questions. Some few of these had to be discarded due to strong disfluencies or because they did not contain a wh-word, leaving 29 GS and 27 GC items for intonational analysis. The given responses typically began with the question word followed by the verb, which, in turn, was accompanied by an object that could be a clitic, a noun phrase or, in some cases, even a relative clause: for instance, Sp. *¿Cuándo lo harás?* 'When are you going to do it?' or Cat. *Quan em faràs allò que et vaig dir?* 'When are you going to do what I asked you to do?'.

As in other question types, L+<H* and L*+H appeared as phrase-initial prenuclear pitch accents in both varieties. However, L+<H* was the most common of either. Phrase-medial prenuclear positions were—for the most part—analysed as pitch-deaccented, since pitch movements found within their limits could be generally interpreted as effects of the initial rising tone.

Various nuclear configurations were used to express imperative wh-questions. The most recurrent one was H+L* L% (cf. Figure 5.1-101), but it was only found when the last element in the sentence was the lexical verb (i.e. Sp./Cat *harás*/*faràs* or Sp. *vas a hacer* 'you are going to do').[279] Otherwise, i.e. when the verb was followed by further elements (e.g. an object), the stressed syllable of the verb displayed a pitch fall and thereafter the intonation continued on a low level until the utterance end (cf. Figure 5.1-102). This pattern occurred in 15 GC and 8 GS sentences (i.e. in 56% and 28% of the items, respectively). Technically, the nuclear configuration in these utterances (as defined as anchored on the last metrically strong syllable in an IP) was L* L% at first sight. Yet, given that the pitch fall aligned with verb was clearly more prominent, the possibility needs be considered that the stressed syllable of the verb could actually be a nuclear one. In such an analysis—which I adopt here—the respective interrogatives are viewed as split up into various IPs through a phrasal break at the end of the lexical verb, marked by a low boundary tone, and post-verbal constituents are seen as dislocated to the right. Figure 5.1-103 illustrates a further case in which this analysis seems pretty straightforward (now with an adjunct following the lexical verb).

In fact, the analysis just presented is very similar to that of other question types such as IYNQ introduced by the particle *que*, where the subject is pronounced in a separate phrase after the verb (cf. Section 5.1.3.1). Concerning the LD of the speakers, the imperative wh-questions with dislocations attested in the present corpus were produced by speakers of either LD in the same proportion. However, the fact that they occurred with a higher frequency in Catalan once more confirms the stronger propensity of this language to use dislocations.

[279] As the respective contour exclusively occurred on penultimate-stress words, it could not be decided whether the underlying nuclear configuration was actually H+L* L% or H* L%. The label H+L L% was thus chosen in concert with the literature on CC and CS intonation (cf. Section 3.1.2.2)

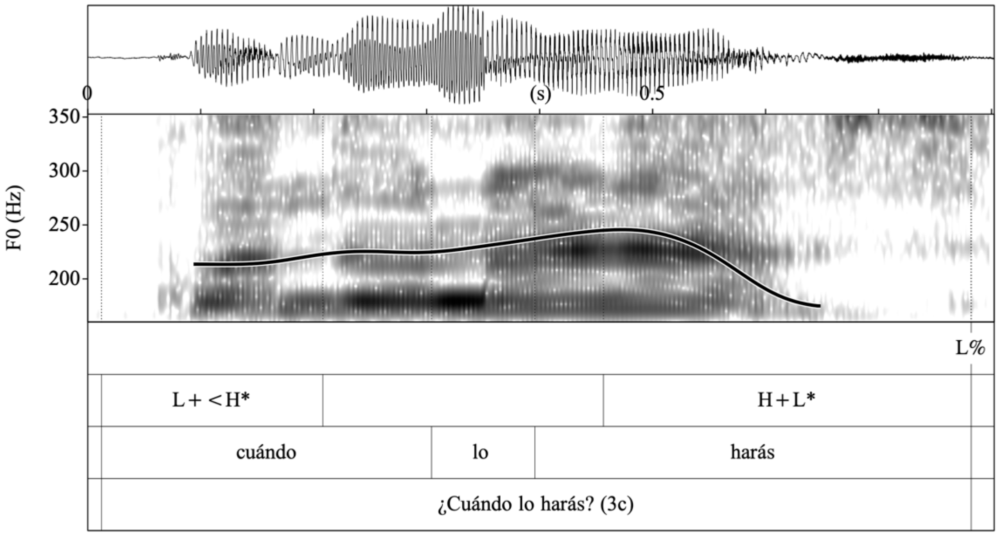


Figure 5.1-101: Girona Spanish: Waveform, spectrogram, and F0 contour for the imperative wh-question *¿Cuándo lo harás?* ‘When are you going to do it?’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L+<H* prenuclear accent, and an H+L* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is H+L* L% (24S24).

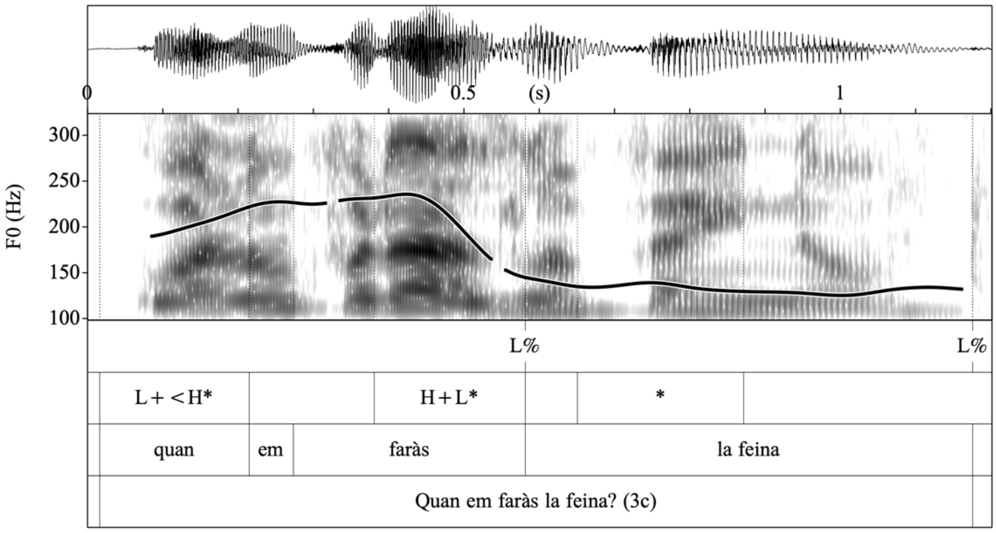


Figure 5.1-102: Girona Catalan: Waveform, spectrogram, and F0 contour for the imperative wh-question *Quan em faràs la feina?* ‘When are you going to do this job for me?’ produced by a Catalan-dominant speaker. It consists of two IPs. The first one contains an IP-initial L+<H* prenuclear accent, an H+L* nuclear accent, and an L% boundary tone. The nuclear configuration of the second one is L* L% (6C24).

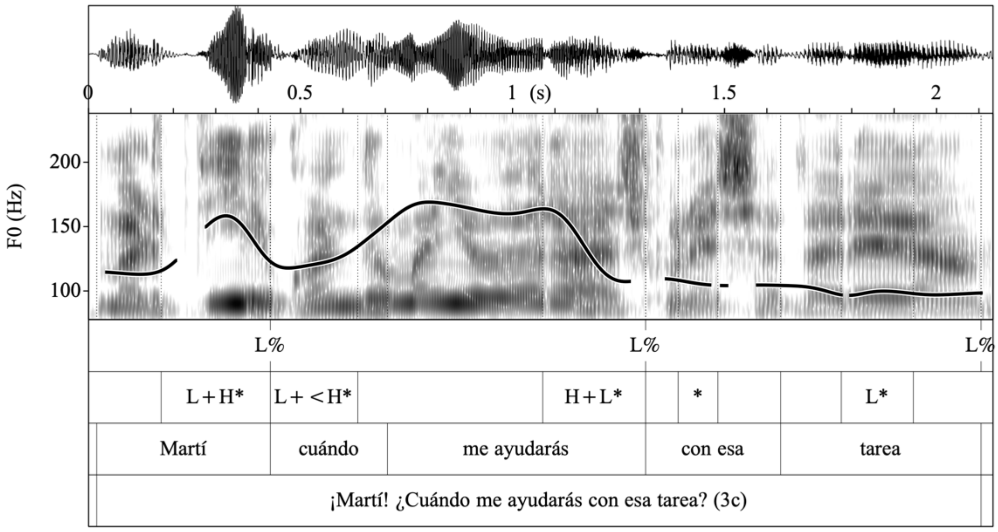


Figure 5.1-103: Girona Spanish: Waveform, spectrogram, and F0 contour for the imperative wh-question *¿Cuándo me ayudarás con esa tarea?* 'When are you going to help me with that task?' produced by a Catalan-dominant speaker. It consists of two IPs. The first one contains an IP-initial L+<H* prenuclear accent and an H+L* nuclear accent, followed by an L% boundary tone. The second one has an L* L% nuclear configuration (23S24).

Besides H+L* L%, some instances of the low–rising L* H% configuration were observed, as well. Interestingly, they were somewhat more common in GS (29%, *n* = 8) than in GC (7%, *n* = 2). In GS, they were produced by speakers of either LD. The GC items stemmed from SpD bilinguals. Bearing in mind that the same contour was also attested in information-seeking yes–no and wh-questions, the questions that arise here are: first, why do some imperative wh-questions show the same nuclear contour? And second, what additional prosodic correlates are used in these cases to convey the imperative meaning?

Finally, the corpus contained 4 GS utterances with a circumflex nuclear configuration, i.e. L+(¡)H* L% (14% of the GS items; cf. Figure 5.1-104). According to Estebas-Vilaplana and Prieto (2010: 38), "L+¡H* HL%" can be used in imperative wh-questions with "a nuance of invitation, that is, [when] the speaker offers his/her interlocutor the possibility of doing something". However, in the two cases in which the nuclear syllable was not the last of the IP, there were no signs of an underlying HL% boundary tone. Neither does the upstep seem to be obligatory, since the nuclear peaks exceeded the level of preceding high tones only twice. Furthermore, the mentioned nuance of invitation would be rather unexpected (or even odd) from a pragmatic point of view in the given context. Last, no link between the use of this tune and the bilinguals' LD could be established.

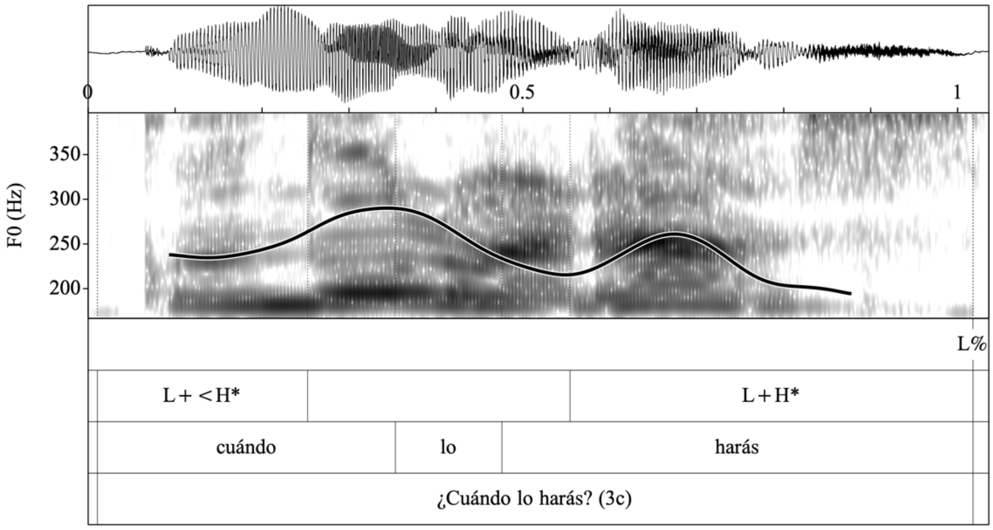


Figure 5.1-104: Girona Spanish: Waveform, spectrogram, and F0 contour for the imperative wh-question *¿Cuándo lo harás?* 'When are you going to do it?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an IP-initial L+<H* prenuclear accent, and an L+H* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is L+H* L% (35S24).

5.1.7 Echo questions

In this section, I describe the intonational patterns attested in three different types of echo questions. First, I will present the realization of echo yes–no questions (Section 5.1.7.1). Then, echo wh-questions will be dealt with in Section 5.1.7.2, and finally, in Section 5.1.7.3, I depict the intonation of echo exclamative yes–no questions (with counterexpectational meaning). The phonological status of the prenuclear pitch accents and nuclear contours found will be discussed in Section 5.2, after the description of all utterance types considered for the intonational analysis of GS and GC.

5.1.7.1 Echo yes–no questions

Each 27 GS and GC IPs collected with situation 4a could be retained for the intonational analysis of echo yes–no questions. 4 utterances per variety had thus to be excluded due to disfluencies or because they did not correspond to the desired sentence type[280]. Most utterances were phrased as Sp. *¿(Has dicho) (que son) las nueve?* or Cat. *(M'has dit) (que eren/són/és) la una?* '(Have you said) (that it is) nine/one o'clock?', containing either one or both of the bracketed elements and with the time indication carrying the nuclear pitch accent.

Similar to the yes–no questions described in the previous section(s), L*+H occurred as the typical ip-initial prenuclear pitch accent in both varieties under concern, accounting for over

[280] This was the case, for instance, when the sentences contained wh-words (e.g. Cat. *Quina hora m'has dit que era?* 'What time did you say it is?') or represented requests rather than echo questions (e.g. Sp. *¿Me puede repetir la hora, por favor?* 'Can you repeat the time for me, please?').

83% of the accents in this position. It habitually associated with the IP-initial auxiliary (i.e. *has*) and reached the peak corresponding to its high target in one of the two following syllables. Phrase-medial prenuclear positions were usually pitch-deaccented (‘*’), i.e. they either showed a plateau or the pitch movements found within their limits were caused by the high targets of preceding rising pitch accents (a surface labelling of the F0 contour is given in brackets).

The predominant nuclear configuration used to express echo yes–no questions was L* H% in both varieties under investigation. In most cases, the overall pitch maximum of the utterance was attained at the end of this contour (label: ‘L* ¡H%’). Figures 5.1-105 and 5.1-106 show typical examples for GC and GS. As in other question types, the nuclear L* accent sometimes surfaced as H+L* (owing to the influence of preceding high targets) or as L+H* (as an effect of the following upstepped high boundary tone).

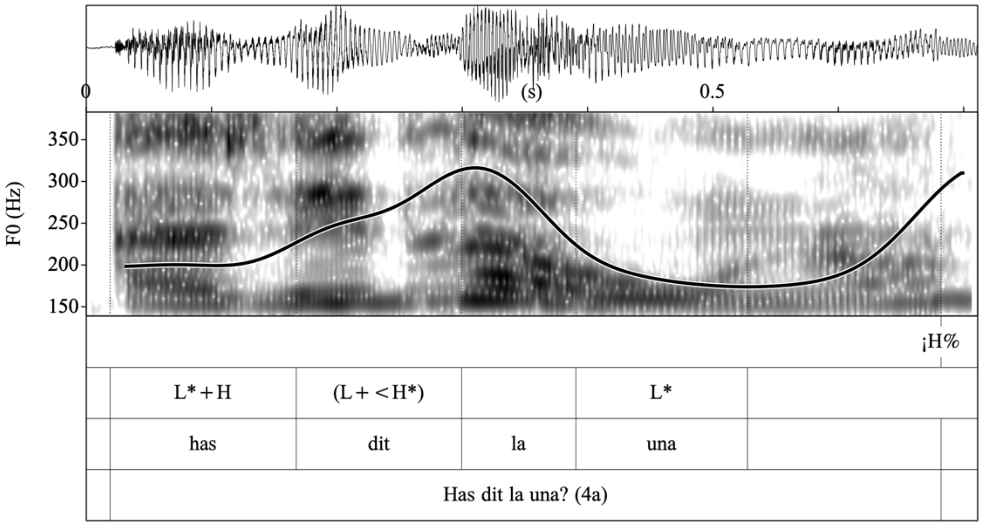


Figure 5.1-105: Girona Catalan: Waveform, spectrogram, and F0 contour for the echo yes–no question *Has dit la una?* ‘Have you said one o’clock?’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an L*+H prenuclear accent, phrase-medial pitch deaccentuation (cf. Fn. 257) and an L* nuclear accent, followed by an ¡H% boundary tone. The nuclear configuration of the IP is L* ¡H% (15C25).

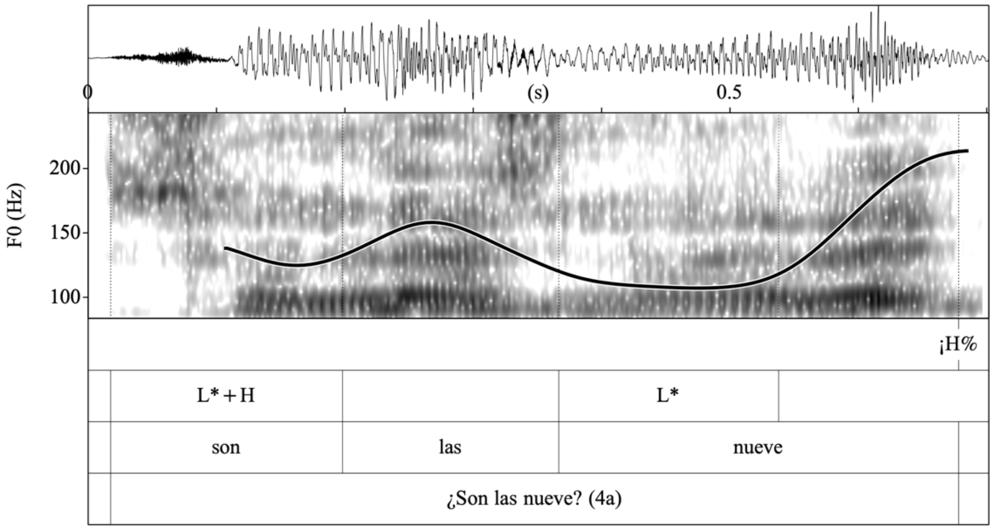


Figure 5.1-106: Girona Spanish: Waveform, spectrogram, and F0 contour for the echo yes–no question *¿Son las nueve?* 'Is it nine o'clock?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an L*+H prenuclear accent and an L* nuclear accent, followed by an ¡H% boundary tone. The nuclear configuration of the IP is L* ¡H% (22S25).

Two other nuclear contours are noteworthy. L+H* L% occurred twice in GC and four times in GS (see Figure 5.1-107 for an example). It was typically used when the echo question consisted only of one prosodic word. Moreover, speaker 13—the one of Honduran origin—again used H+L* LH% in both her Catalan and her Spanish sentence. However, since the participants overall tended to use L* H%, no inferences can be made about the effect of LD on the choice of intonational patterns in echo yes–no questions.

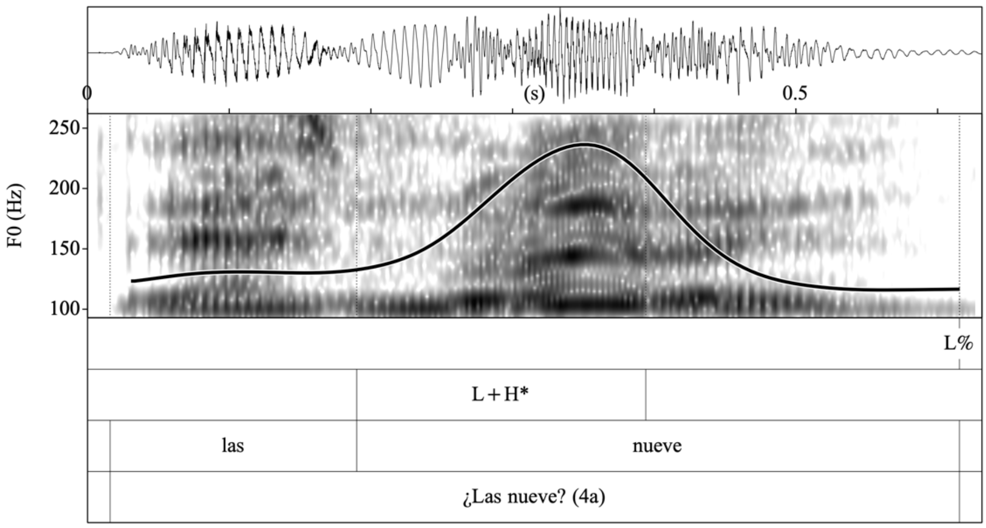


Figure 5.1-107: Girona Spanish: Waveform, spectrogram, and F0 contour for the echo yes–no question *¿Las nueve?* 'Nine o'clock?' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with an L+H* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is L+H* L% (21S25).

The comparison of the echo yes–no questions with the IYNQ described in Section 5.1.3.1 and the exclamative yes–no questions in Section 5.1.4.1 revealed that the bilingual speakers of GC and GC generally use the nuclear configuration L* (¡)H% to mark yes–no questions independently from their pragmatic type. Besides, it showed that L+H* L% appears only in echo yes–no questions, which is interesting, since it is also the typical nuclear contour of biased statements (exclamative, dubitative or with contrastive focus, cf. Section 5.1.2). Considering that L+H* signals focus and emphasis in both varieties (as opposed to L*, which expresses neutral readings), it can be suggested that the bilinguals use it in echo yes–no questions when they produce the last word with narrow focus, whereas they recur to L* H% when this is not the case. However, further research is needed to confirm these assumptions.

5.1.7.2 Echo wh-questions

62 echo wh-questions were collected with situation 4b (cf. Appendix 5). Since two utterances had to be excluded due to disfluencies, each 30 GS and 30 GC questions were studied with regard to their intonation. Similar to echo yes–no questions, most echo wh-questions began with an introductory element such as Sp. *me has/habéis/han preguntado (que)* or Cat. *m'has/heu dit/demanat/preguntat (que)* 'have you asked me' that preceded the 'echoed' part (for instance, Sp. *(a)dónde voy* or Cat. *on vaig* 'where I am going'). Even though echo wh-questions are generally polar questions from a pragmatic point of view—i.e. as opposed to information-seeking wh-questions, they require a 'yes' or 'no' answer—this procedure also makes them 'syntactic' yes–no questions, since the wh-word becomes indirect when heading a subordinate clause instead of the main clause.

It thus comes as no surprise that most of the utterances recorded in this context again display the intonational patterns that are also used in information-seeking and echo yes–no questions. L*+H accounted for roughly 80% of the phrase-initial prenuclear accents in both varieties and was usually placed on the auxiliary. Phrase-medial positions (including phrase-medial indirect wh-words) were typically pitch-deaccented (see also the IYNQ in Section 5.1.3.1.2). In nuclear position, L* followed by a high boundary tone was used in 80% of the GC (n = 24) and 53% of the GS echo questions (n = 16). For the most part, the right boundary was the highest point of the utterance (label: '¡H%'). Figure 5.1-108 provides an example.

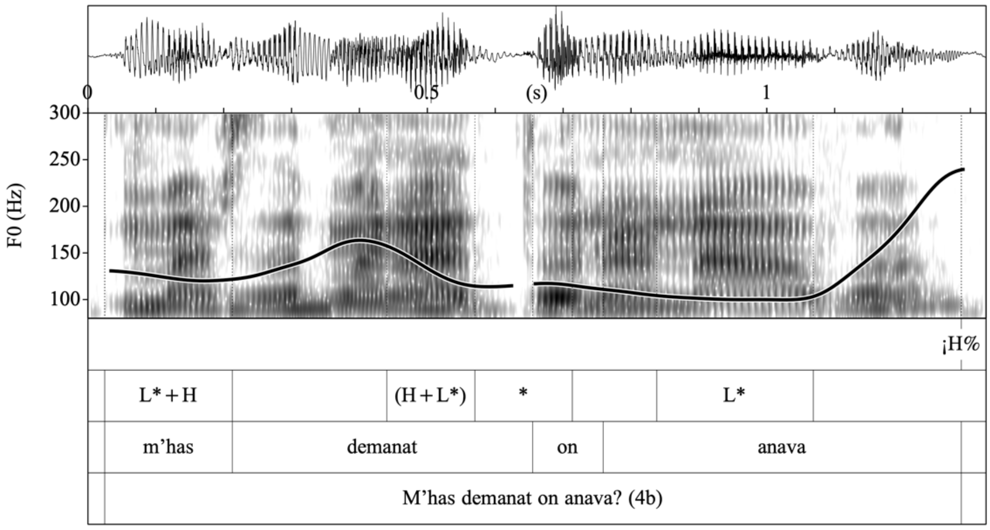


Figure 5.1-108: Girona Catalan: Waveform, spectrogram, and F0 contour for the echo wh-question *M'has demanat on anava?* 'Did you ask me where I was going?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an initial L*+H prenuclear accent, phrase-medial pitch deaccentuation (cf. Fn. 257), and an L* nuclear accent, followed by an ¡H% boundary tone. The nuclear configuration of the IP is L* ¡H% (34C26).

Two further nuclear patterns are worth of note. First, high–falling nuclear contours were registered four times in GC and eleven times in GS (accounting for 13% and 37% of the items, respectively). They were labelled as H* L% but given that the nuclear contour was almost exclusively found on ultimate-stress words (viz. Sp. *voy*, Cat. *vaig*, both 'I go') H+L* L% would have been a possible label, as well. The contour often appeared on rather short questions with only two prosodic words that consisted merely of the 'echo part', such as Sp. *¿Adónde voy?* or Cat. *Que on vaig*? 'Where I am going?'. Figure 5.1-109 provides an example. However, considering the fact that in three GS items a slight rise could be perceived in the nuclear syllable prior to the final fall, some items were labelled as L+H* L%. Interestingly, such a circumflex contour is usually presented as the typical realization of echo wh-questions in much of literature on Peninsular Spanish intonation (cf., e.g., Hualde/Prieto 2015: 382; see Section 3.1.2.2). In CC, it is an alternative to the more common L* H% pattern (Prieto et al. 2015: 32–33, 57). It is thus possible that the H* L% contours mentioned above actually constitute surface variants of an underlying L+H* L% nuclear configuration. This surface variant would then be conditioned by high preceding tones (cf. Section 5.2.3 for such an interpretation).

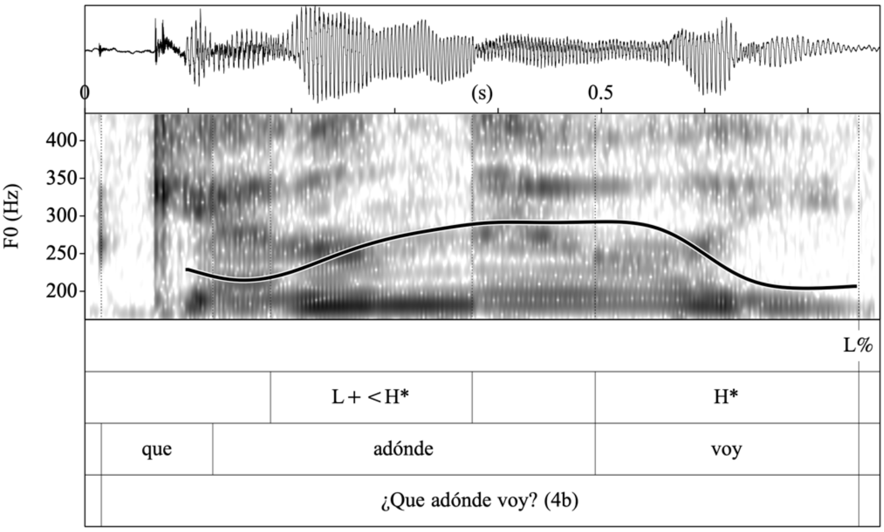


Figure 5.1-109: Girona Spanish: Waveform, spectrogram, and F0 contour for the echo wh-question *¿Que adónde voy?* 'Where I am going?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an initial L+<H* prenuclear accent and an H* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is H* L% (31S26).

Second and last, each two GC and two GS sentences with an (L+)H* LH% nuclear contour were found (cf. Figure 5.1-110). They were produced by CatD speakers. Since Prieto et al. (2015: 57) give L+H* LH% as a possible nuclear configuration of CC echo wh-questions, H* LH% might be a surface realization of this underlying contour that appears after high preceding tonal targets (see also Section 5.2.3).

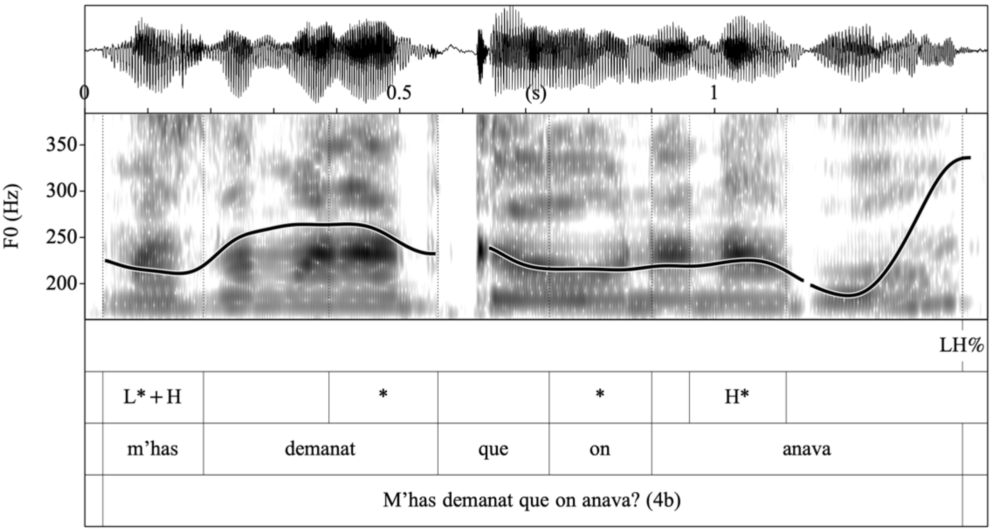


Figure 5.1-110: Girona Catalan: Waveform, spectrogram, and F0 contour for the echo wh-question *M'has demanat que on anava?* 'Did you ask where I was going?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an initial L*+H prenuclear accent, phrase-medial deaccentuation, and an H* nuclear accent, followed by an LH% boundary tone. The nuclear configuration of the IP is H* HL% (14C26).

Taken together, these results suggest that echo wh-questions can be intonated the same way as IYNQ, especially when the question is phrased with a main clause representing a yes–no question and the wh-word heads a subordinate clause to this matrix yes–no question. However, when the echo question consists of the 'echo part' only, that seems to increase its odds for the sentence to be pronounced with a different nuclear contour, such as (L+)H* L% or (L+)H* LH%. Concerning the LD of the speakers, no clear preferences of either group for a particular intonational pattern could be found in the data due to the relatively small numbers of cases of the more specific contours. Nevertheless, it could be observed that patterns other than the low–rising one were somewhat more frequent in Spanish and produced in a higher proportion by SpD bilinguals.

5.1.7.3 Exclamative echo yes–no questions (with counterexpectational meaning)

From the total of 62 utterances obtained with situation 4c (cf. Appendix 5), 29 exclamative echo yes–no questions per variety could be studied with regard to intonation (see also Table 4.19). The remaining utterances did either not correspond to the desired question type or contained too many disfluencies. In respect of their wording, most utterances were formulated as usual yes–no questions, but they generally contained elements expressing surprise such as Cat. *de debò*, *de veritat* 'really', Sp. *en serio (que)* 'seriously', *¿Dices que…* 'Are you saying that …', or were preceded by exclamations such as Sp. *¿¡Cómo!?* 'What!?', *¡No me lo creo!* 'I don't believe this!'.

At the intonational level, the gathered exclamative echo yes–no questions generally followed the pattern established already for information-seeking and echo yes–no questions: i.e. roughly 90% of the phrase-initial prenuclear pitch accents corresponded to the L*+H type and, in nuclear position, approximately 90% of the utterances showed an L* (¡)H%[281] nuclear configuration in both varieties. The few phrase-medial positions contained in the data were usually pitch-deaccented. A GS example is given in Figure 5.1-111.

Nevertheless, the participants often used an extended pitch range and increased pitch movements. It was especially striking that, as opposed to other question types, the syllables preceding the phrase-initial L*+H accent were sometimes noticeably higher than the stressed syllable in exclamative echo yes–no questions. In some cases, even a clear pitch-fall surfaced within the limits of that syllable, as can be seen in Figure 5.1-112. Whether this phenomenon is only an effect of the use of an expanded pitch range or whether it corresponds to an initial boundary tone (%H) or something like an 'H+L*+H' pitch accent cannot be decided here. Besides, the effects of an extended pitch range also showed up in the fact that the nuclear L* pitch accent sometimes surfaced as H+L*. This is particularly evident in the example(s) in Figure 5.1-113. Finally, the closing boundary tone was often especially high (i.e. '¡H%'). For instance, in the

[281] Again, the label '¡H%' was used when the end of the IP represented its highest point, otherwise 'H%' was labelled.

last two examples the rises were of 269 and 178 Hz, respectively, which corresponds to 18.6 and 11.5 semitones. Such high boundary tones sometimes also affected the pitch accent of the nuclear syllable, so that it presented a slight rise (i.e. L+H*) instead of a low plateau.

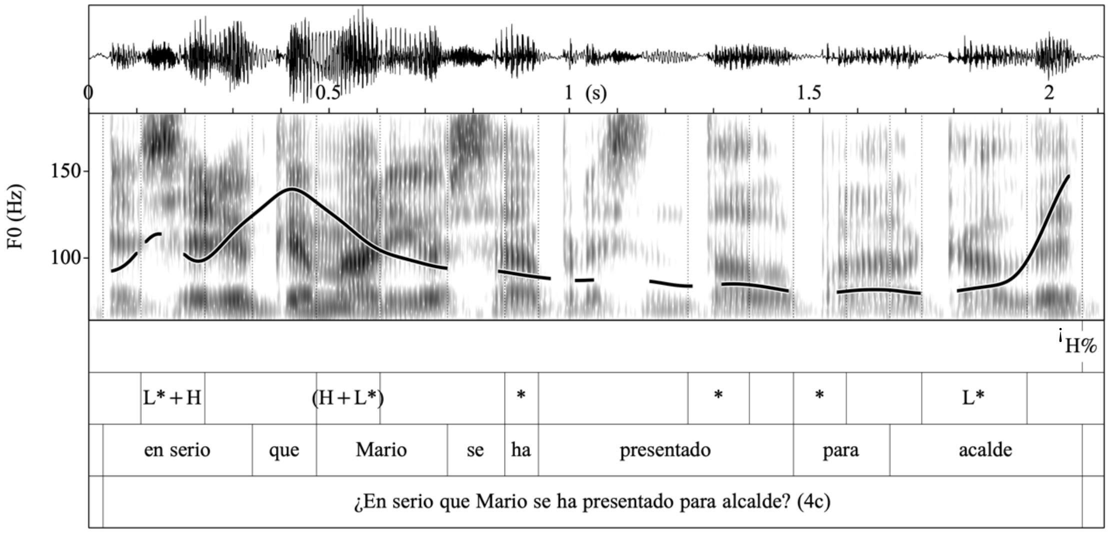


Figure 5.1-111: Girona Spanish: Waveform, spectrogram, and F0 contour for the exclamative echo yes–no question *¿En serio que Mario se ha presentado para alcalde?* 'Is Mario seriously running for mayor?' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with an L*+H prenuclear accent, phrase-medial pitch deaccentuation (cf. Fn. 257), and an L* nuclear accent, followed by an ¡H% boundary tone. The nuclear configuration of the IP is L* ¡H% (35S27).

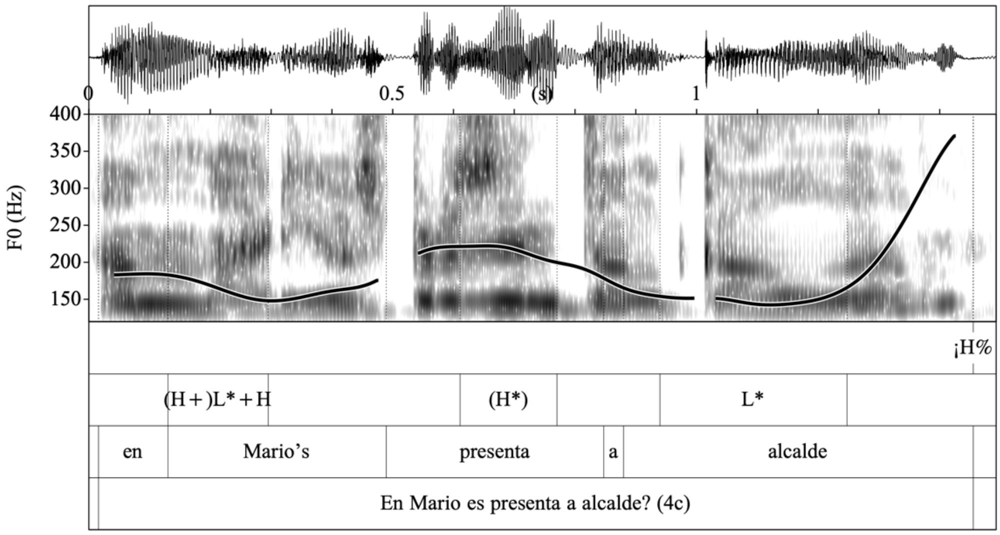


Figure 5.1-112: Girona Catalan: Waveform, spectrogram, and F0 contour for the exclamative echo yes–no question *En Mario es presenta a alcalde?* 'Mario is going to run for mayor?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an initial (H+)L*+H prenuclear accent, phrase-medial pitch deaccentuation (cf. Fn. 257), and an L* nuclear pitch accent, followed by an ¡H% boundary tone. The nuclear configuration of the IP is L* ¡H% (19SC67).

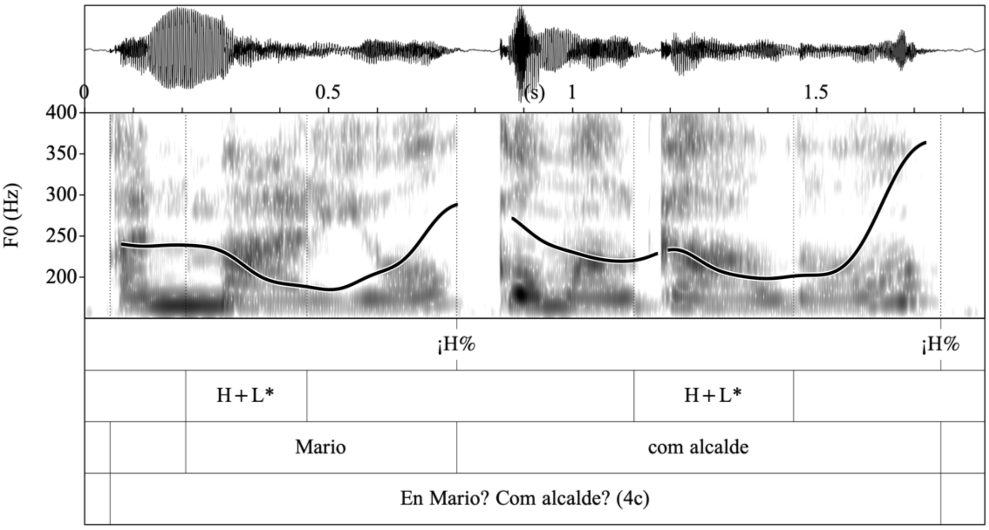


Figure 5.1-113: Girona Catalan: Waveform, spectrogram, and F0 contour for the exclamative echo yes–no question(s) *En Mario? Com alcalde?* 'Mario? As a mayor?' produced by a Catalan-dominant speaker. It is composed of two IPs. Both are produced with an H+L* nuclear accent, followed by a high boundary tone (¡H%). The nuclear configurations of the IPs are H+L* ¡H% (28SC27).

Furthermore, six sentences with clearly different nuclear contours were observed (3 per language, i.e. 10%). Four of these (i.e. 2 per language) had a falling nuclear contour H+L* L% (cf. Figure 5.1-114), and two (both from the same SpD speaker) presented L+H* L%, i.e. the typical contour of contrastive-focus and exclamative statements. Given that all nuclear contours occurred in equal proportion in both varieties, no correlation between the use of a particular nuclear contour and language or the speakers' LD could be established.

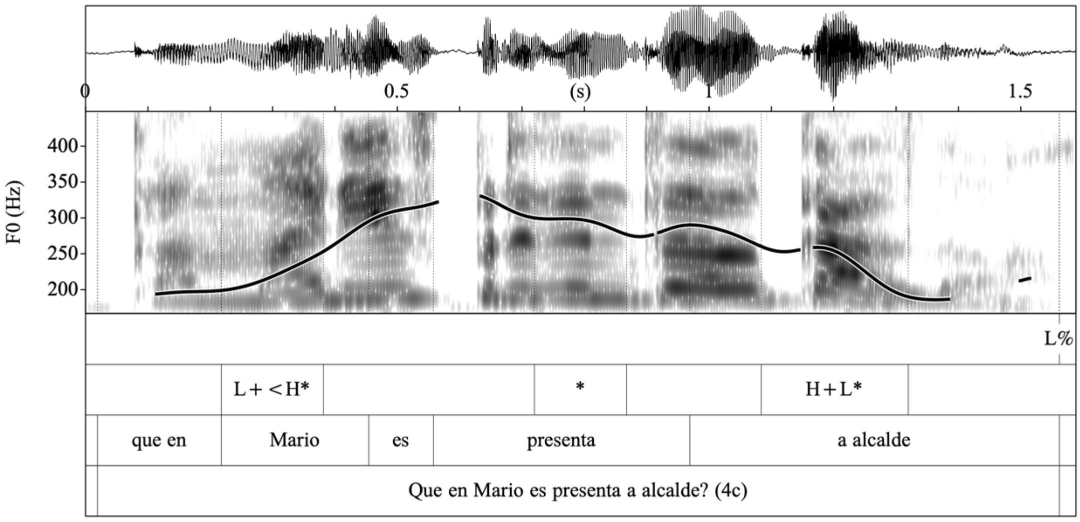


Figure 5.1-114: Girona Catalan: Waveform, spectrogram, and F0 contour for the exclamative echo yes–no question *Que en Mario es presenta a alcalde?* '(You are saying) that Mario is running for mayor?' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with a phrase-initial L+<H* prenuclear accent, phrase-medial pitch deaccentuation, and an H+L* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is H+L* L% (5SC27).

5.1.8 Imperatives

In this section, I describe the intonational patterns used in commands and requests containing imperatives in GS and GC. I here present the prenuclear pitch accents and nuclear configurations found in my corpus. Their phonological status will be discussed in Section 5.2.

5.1.8.1 Commands

The description of the intonation of commands draws on fewer examples than the description of other sentence types. Even though situation 5a was used in many previous studies to elicit commands containing imperatives, most our participants' responses were not formulated as such: although all 62 recorded utterances (31 per variety) represented pragmatically felicitous responses to scenario 5a (cf. Appendix 5), many of them were phrased as interrogatives, such as Sp. *¿Podrían rellenarme este formulario, por favor?* 'Could you fill in this form, please?', or as statements (e.g. Cat. *Heu d'omplir aquest formulari, si us plau.* 'You need to fill in this form, please.'). Unfortunately, it was not possible to ask the participants to reformulate their response during the recording sessions without instructing them explicitly to use an imperative form. I consequently abstained from doing so. Furthermore, presenting them with an exemplary response would have influenced their intonation through priming. Interestingly, this seems to be a common problem: for instance, Brehm et al. (2014) report difficulties to make participants utter imperatives because they are considered very impolite in Mexican Spanish (see also Vanrell et al. 2018: 15; Blum-Kulka et al. 1989).

Eventually, 7 GS and 6 GC commands involving the desired imperative verb forms (of Sp. *rellenar* and Cat. *emplenar/ompir* all 'fill in') could be recorded and analysed. All consisted of the imperative verb in initial position and an object in nuclear position. In a second step, I additionally analysed 8 further (simple) imperative forms (6 GS and 3 GC items) belonging to the verbs Cat./Sp. *perdonar*, *disculpar* '(to) excuse' and *mirar* '(to) look' that were used at the beginning of some of the responses formulated as interrogatives or statements.

As concerns the prenuclear area, most phrase-initial pitch accents were realized as L+<H* or L*+H in both languages (the former being more frequent), and the few phrase-medial prenuclear positions that occurred in the data were pitch-deaccented. The predominant nuclear contour was H+L* L% (5 instances in GS and 3 in GC, see Figure 5.1-115 for an example). The flat L* L% contour might be a surface variant (2 items in GC and 1 in GS; cf. Figure 5.1-116). The remaining two sentences showed an L+H* L% nuclear contour (one sentence per language). Since L+H* conveys focus and emphasis in other sentence types, I suggest that the use of this pitch accent might add emphasis as compared to the other ones.

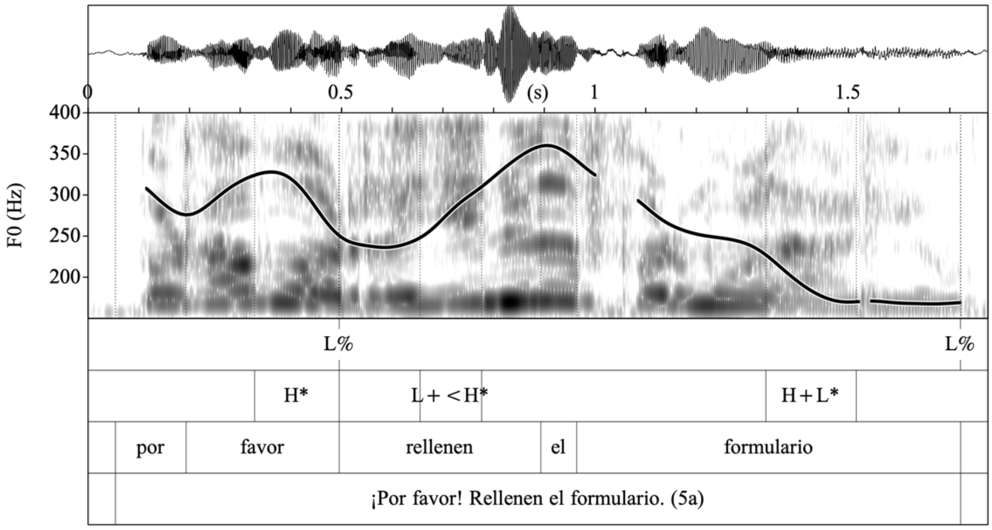


Figure 5.1-115: Girona Spanish: Waveform, spectrogram, and F0 contour for the command *Rellenen el formulario.* 'Fill in the form' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with a phrase-initial L+<H* prenuclear accent and an H+L* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is H+L* L% (28S28).

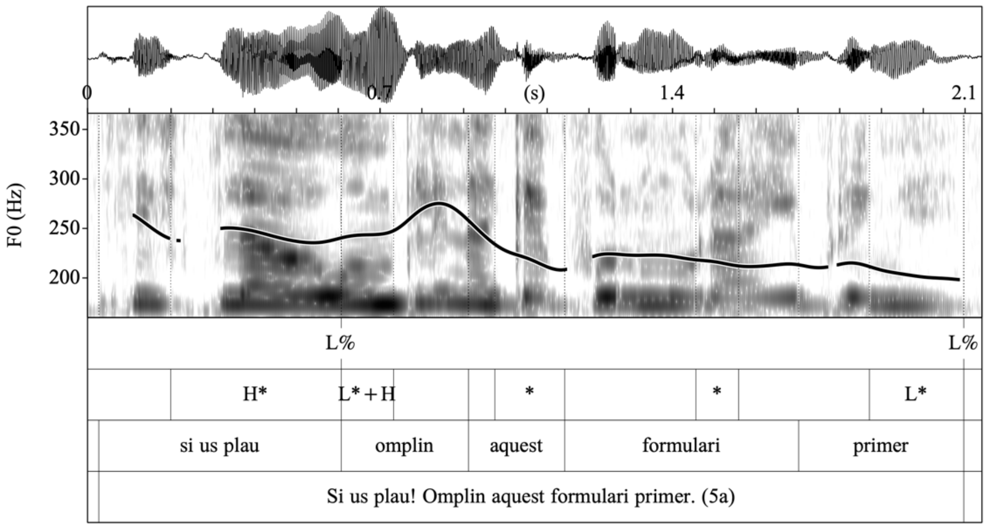


Figure 5.1-116: Girona Catalan: Waveform, spectrogram, and F0 contour for the command *Omplin aquest formulari primer.* 'Fill in this form first' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with a phrase-initial L*+H prenuclear accent, phrase-medial pitch deaccentuation, and an L* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is L* L% (31C28).

In the one-word ips preceding other sentences, L+H* L% was employed in both varieties—sometimes with its pitch peak slightly delayed into the post-nuclear syllable (cf. Figure 5.1-117). However, I assume that imperatives such as *¡Perdona!* 'Excuse me' and *¡Rellenad el formulario!* 'Fill in the form' do not represent fully comparable orders with the same imperative force but that in the former case the imperative is rather used to ask for the listener's attention. This type of utterance-initial imperative may thus rather correspond to the requests described in the next section.

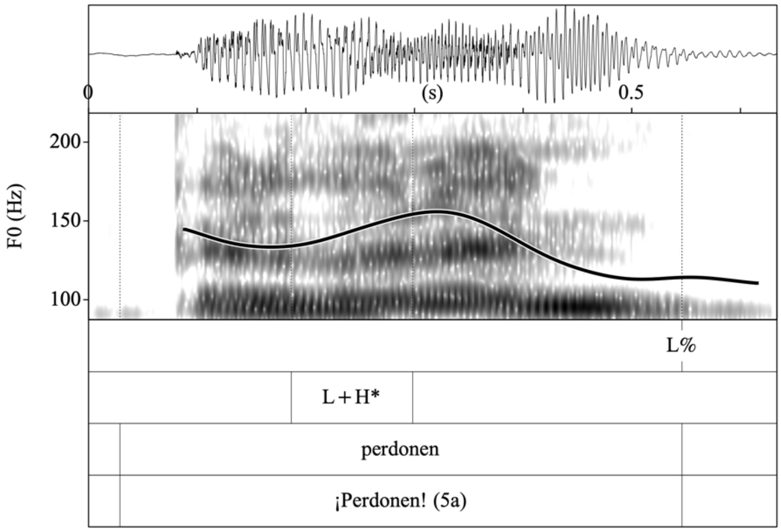


Figure 5.1-117: Girona Spanish: Waveform, spectrogram, and F0 contour for the command *¡Perdonen!* 'Excuse me!' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an L+H* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is L+H* L% (17S28).

5.1.8.2 Requests

Similar to the commands in the previous section, the database underling the intonational description of requests also was somewhat reduced as compared to other utterance types. Again, the reason was that some of the responses to situation 5b were formulated as statements or interrogatives. Although all recorded utterances (i.e. 31 per variety) were pragmatically adequate, only 18 GS and 13 GC sentences represented requests that were formulated as desired in the imperative mood and could thus be retained for the intonational analysis of the present utterance type. Besides, 16 sentences utterances per variety were introduced with elements such as Sp. *va*, *venga*, *vamos* or Cat. *va*, *vinga*, all 'Come on!'), i.e. by expressions that originally represented imperatives but have become more or less grammaticalized as hortative particles or interjections. Their intonation is analysed in a second step.

In phrase-initial position, the same two rising pitch accents were observed in both varieties, viz. L+<H* and L*+H, the first one of these being somewhat more frequent. The few phrase-medial prenuclear positions that occurred in the data were either clearly pitch-deaccented or showed a pitch peak (i.e. H*). However, such peaks could also be effects of preceding rising accents. In nuclear position, H+L* L% was most frequent in both GS and GC, appearing in slightly more than half of the utterances (cf. Figure 5.1-118).

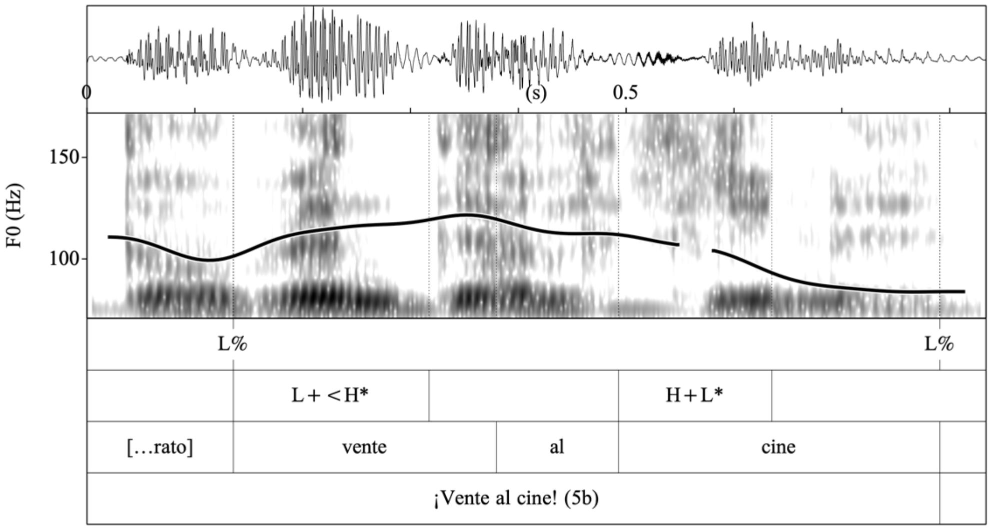


Figure 5.1-118: Girona Spanish: Waveform, spectrogram, and F0 contour for the request *¡Vente al cine!* 'Come [with me] to the cinema' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with a phrase-initial L+<H* prenuclear accent and an H+L* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is H+L* L% (18S29).

The remaining sentences had either L+H* L% or L+H* HL%. However, the length of the utterance and/or the position of the imperative verb seem to have an influence on the intonation of the request (cf. Prieto 2002a: 457–458; Lausecker et al. 2014; Brehm et al. 2015 for similar findings): when it consisted only of a verb in the imperative mood, i.e. when the sentence had only one accented syllable and the imperative verb was in sentence-final position, the nuclear contours used were always L+H* L% or L+H* HL% and never H+L* L% (6 instances in GC, 2 in GS; cf. Figure 5.1-119). Regarding the choice of the boundary tone in the 'short' requests (i.e. L% vs HL%), the data do not allow for reliable inferences, but following the literature on CS and CC intonation I assume that HL% conveys more insistence (cf. Section 3.1.2.2).

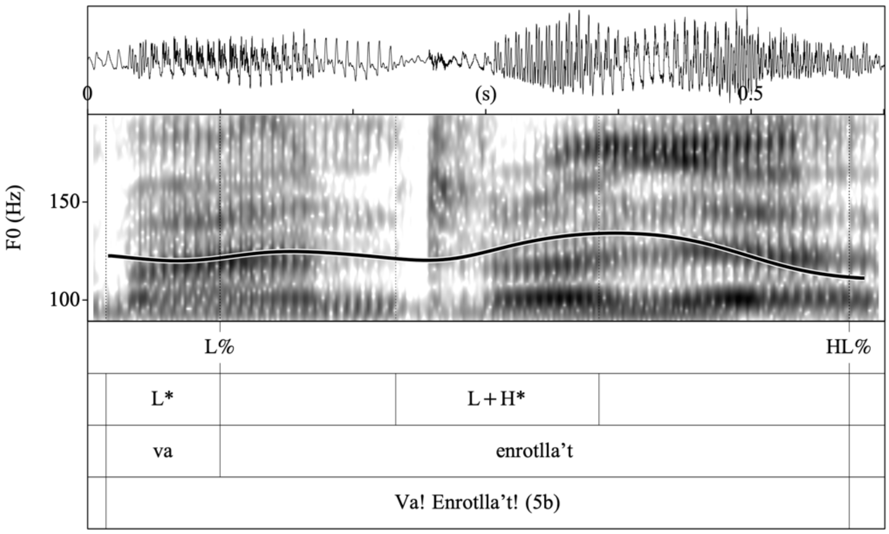


Figure 5.1-119: Girona Catalan: Waveform, spectrogram, and F0 contour for the request *Enrotlla't!* 'Get involved!' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an L+H* nuclear accent, followed by an HL% boundary tone. The nuclear configuration of the IP is L+H* HL% (11C29).

On the other hand, when a request consisted of at least two prosodic words and the imperative verb was in non-final position, H+L* L% was generally used. Whereas no counterexamples to this complementary distribution were found in GC, in GS, L+H* was only less frequent as compared to H+L* in utterances containing a prenucleus (6 vs 9 cases). What conditions the choice of either of these nuclear pitch accents cannot be ultimately answered here. Two lines of thinking could be pursued in further research: first, the length of the utterance and thus the distance between the phrase-initial imperative verb and the nuclear pitch accent could have an impact on pitch-accent choice, viewing that some of the sentences containing nuclear L+H* instead of H+L* were rather long (e.g. Sp. *Deja el trabajo para más adelante.* 'Leave the piece of work for later.'). Second, L+H* could convey emphasis or focus—as in other sentence types—or more insistence (e.g. in Sp. *¡Vente al cine conmigo!* 'Come to the cinema with me!'). This was also suggested by Lausecker et al. (2014). Furthermore, it is worth mentioning that the last syllable was often considerably lengthened independently of the boundary tone used. A check of the speakers' LD did not reveal any correlation with the choice of either nuclear contour.

Concerning the intonation of 'hortative imperative particles' such as Sp./Cat. *va* 'come on!' (cf. above), a large gamut of different pitch contours was attested in both languages. Especially with monosyllables, it could often not be decided which combinations of nuclear pitch accents and boundary tones underlay the realizations. For instance, *va* was found in both languages with low, falling, rising, rising–falling, and falling–rising contours without any clear preference (see Figure 5.1-120 for a 'low' example). The disyllabic *venga, vaya*, both 'come on', and *vamos* 'let's go', however, were pronounced either with H* L% or L+H* L%, which could be different surface variants of one underlying contour.

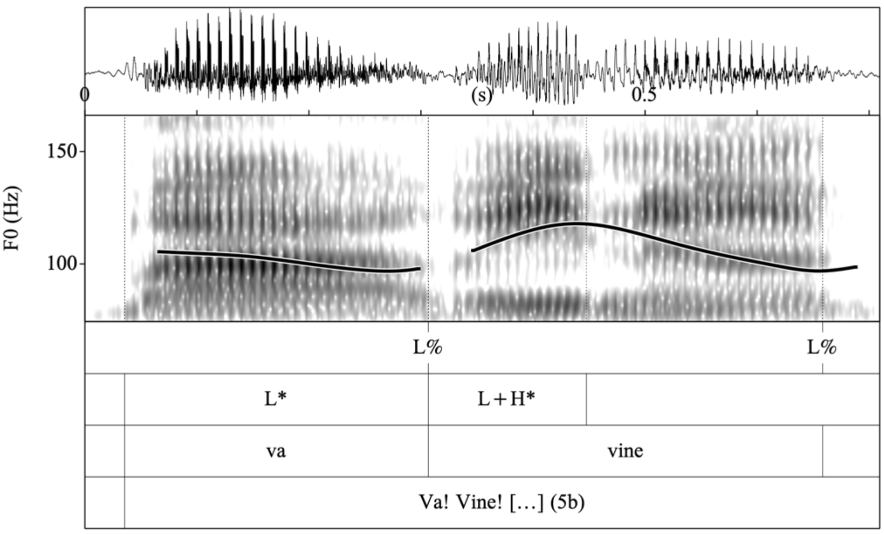


Figure 5.1-120: Girona Catalan: Waveform, spectrogram, and F0 contour for the request *(Va!) Vine!* '(Come on!) Come (with me)!' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an L+H* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is L+H* L% (29C29).

5.1.9 Vocatives

A total of 62 vocatives, i.e. 31 per variety, were recorded with situation 6 (cf. Appendix 5). Roughly half items were followed by a question or an imperative such as Sp. *¿Dónde estás?* 'Where are you?' or Cat. *Vine!* 'Come!', usually with a short pause between the vocative and the following element. Only nuclear contours can be described for these vocatives, since no prenuclear pitch accents were present in the data—as expected.

In both varieties under consideration, L+H* was used as nuclear pitch accent almost without exceptions. The dominant nuclear configuration was L+H* HL%. In many cases, the final (post-nuclear) syllable was lengthened (350 to 500 ms), in some cases considerably (highest value: 767 ms). Figure 5.1-121 offers an example with moderate lengthening of the utterance-final syllable (362 ms).

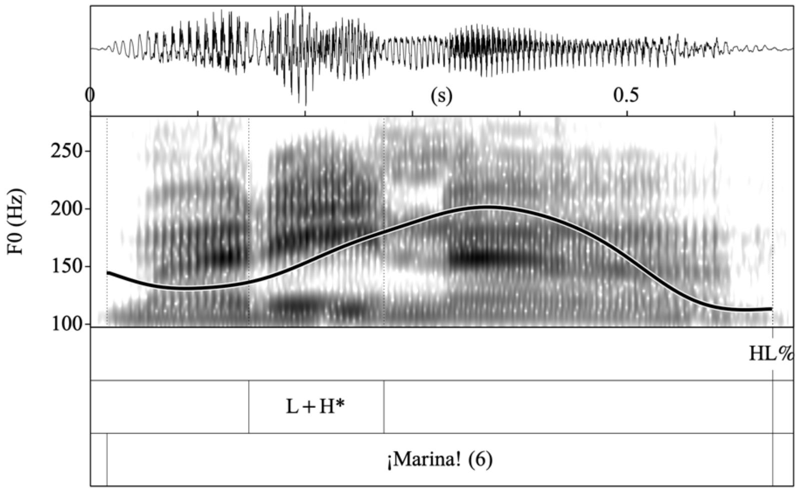


Figure 5.1-121: Girona Spanish: Waveform, spectrogram, and F0 contour for the vocative *¡Marina!* 'Marina!' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an L+H* nuclear accent, followed by an HL% boundary tone. The post-nuclear syllable is moderately lengthened (362 ms). The nuclear configuration of the IP is L+H* HL% (34S30).

Two further nuclear contours were found. L+H* !H%, the typical 'vocative chant' (cf. Section 3.1.2.2), was used to an extent of 13% in both varieties (n = 4 per variety; see Figure 5.1-122 for an example). It is of note that this intonational pattern was clearly less frequent in the present data set, since it is generally described as the most common realization of vocatives in the literature on both languages, whereas L+H* HL% is said to convey more insistence.

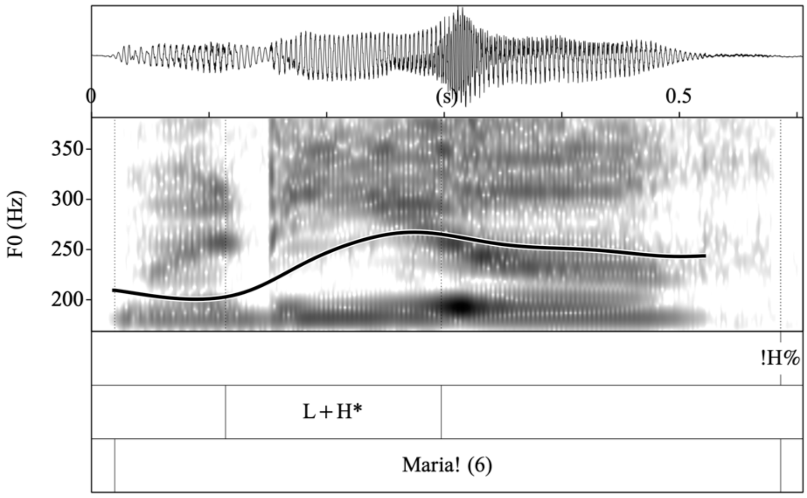


Figure 5.1-122: Girona Catalan: Waveform, spectrogram, and F0 contour for the vocative *Maria!* ‘Maria!’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an L+H* nuclear accent, followed by a !H% boundary tone. The post-nuclear syllable is slightly lengthened (289 ms). The nuclear configuration of the IP is L+H* !HL% (24C30).

Finally, 5 GC (16%) and 6 GS vocatives (19%) were rendered with high boundary tones (i.e. H%). The corresponding nuclear pitch accent were L+H* or, in two cases, L*. An example is given in Figure 5.1-123. As these combinations of nuclear pitch accents and boundary tones resemble questions, I suggest that vocatives intonated in this way pragmatically convey the same meaning as other vocatives followed by a question such as ‘Are you there?’ or ‘Can you hear me?’. As opposed to other vocatives, the speaker does not address an interlocutor whom they already know or assume to be present, but they rather check or intend to make sure whether an interlocutor is actually nearby (see also Huttenlauch et al. 2018 for “confirmation-seeking vocatives”). This very connotation of the “rising interrogative contour” was also proposed by Borràs-Comes et al. (2015: 78), who found it to appear typically “in situations where the speaker had no close relationship with the hearer (i.e. in work situations)”.

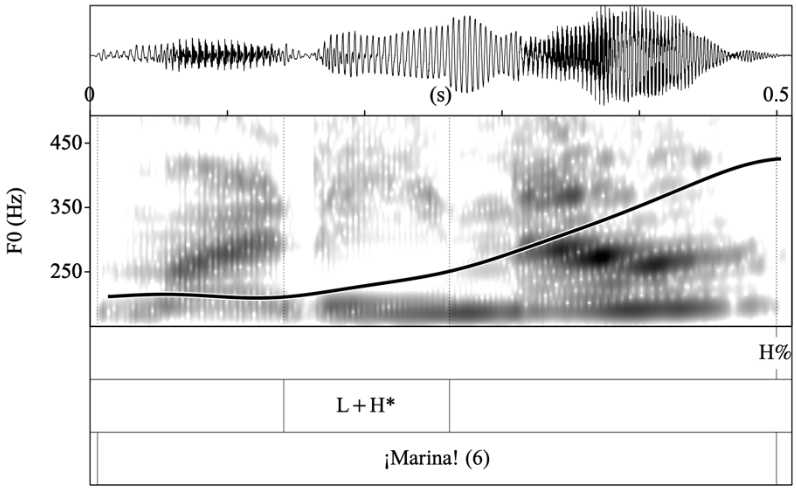


Figure 5.1-123: Girona Spanish: Waveform, spectrogram, and F0 contour for the vocative *¡Marina!* 'Marina!' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an L+H* nuclear accent, followed by an H% boundary tone. The nuclear configuration of the IP is L+H* H% (16S30).

5.1.10 Supplementary analysis of Girona Spanish read speech

In this section, I describe the results of the intonational analysis of the GS *que*-questions (5.1.10.1) and dislocations (5.1.10.2) contained in the dialogue that was read aloud by all participants of the experiment as second task (see Section 4.2.1.2 for a detailed description of the materials and procedure). The phonological status of the pitch accents and boundary tones will be discussed in the following subchapter (Section 5.2).

5.1.10.1 Girona Spanish *que*-questions

All 124 yes–no interrogatives recorded could be analysed with respect to their intonation, although five of them contained some minor disfluencies (see below). I will first give an overview of the attested nuclear configurations, then describe who (in terms of LD) used them in which pragmatic question type and finally do the same thing for prenuclear pitch accents.

All but two nuclear configurations clearly corresponded either to the high–falling type, i.e. H+L* L% (n = 77, 62%), or to the low–rising one, i.e. L* H% (n = 45, 36%) (see Section 5.1.3.1.3 for extensive descriptions of these patterns). However, the distribution of the two contours was not the same in all question types and there were also slight differences in their use between the two dominance groups. As described in Section 4.2.1.2, the dialogue comprised two information-seeking yes–no questions (A and D; henceforth IYNQ), one exclamative echo yes–no question with counterexpectational meaning (B), and one confirmation-seeking question (C), all of them introduced by the complementizer *que*[282].

In the information-seeking yes–no interrogative A (*¿Que quieres venir conmigo?* 'Do you want to come with me?'), the CatD speakers overwhelmingly used the high–falling contour (*n* = 15 out of 20, 75%), which is impossible in this context in other Spanish varieties. Figure 5.1-124 provides an example. In the SpD group, 7 (out of 11) speakers used it (i.e. 64%). As concerns the remaining items, each 4 low–rising contours were found per dominance group (corresponding to 20% in the CatD and 36% in the SpD group, cf. Figure 5.1-125). It is of note, however, that 2 CatD and 1 SpD speakers accidentally dropped *que* when reading out the sentence.

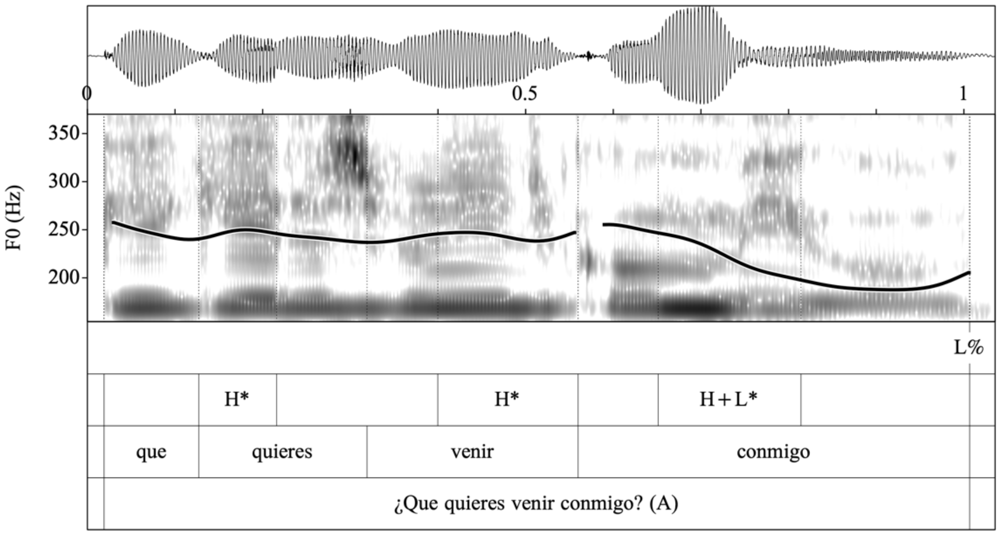


Figure 5.1-124: Girona Spanish: Waveform, spectrogram, and F0 contour for the information-seeking yes–no question *¿Que quieres venir conmigo?* 'Do you want to come with me?' produced by a Catalan-dominant speaker. It consists of two prenuclear H* accents and an H+L* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is H+L* L% (16A).

[282] Recall that in (monolingual) Mainstream Spanish the use of *que* in IYNQ is not grammatical (cf. Section 2.3) and that this question type, at least in CS, typically shows an L* H% nuclear configuration (cf. Section 3.1.2.2). However, the use of *que* is possible in other, 'attributed' question types, such as confirmation-seeking or echo questions. In CC, on the contrary, *que* in combination with the high–falling nuclear configuration is possible (and characteristic) also in IYNQ (cf. Sections 2.3 and 3.1.2.2).

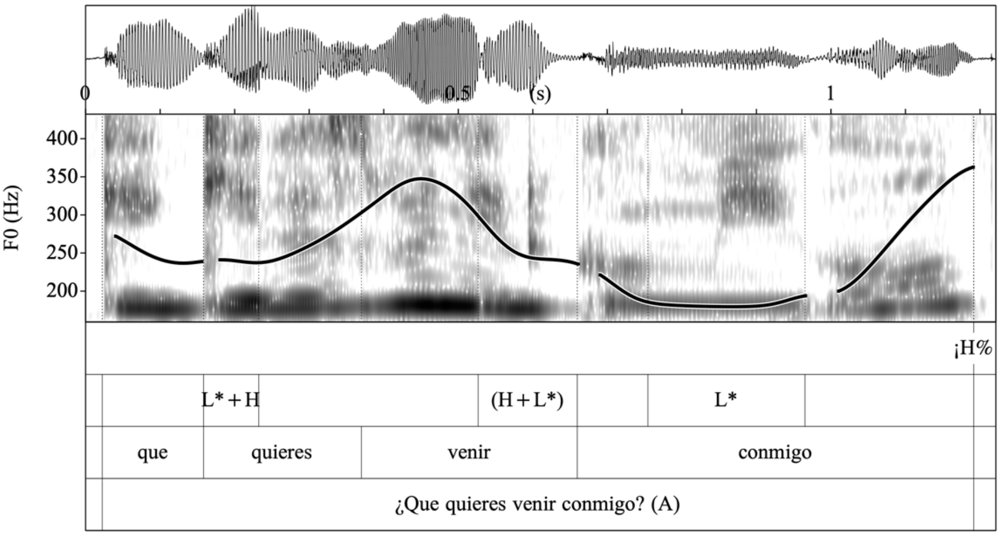


Figure 5.1-125: Girona Spanish: Waveform, spectrogram, and F0 contour for the information-seeking yes–no question *¿Que <u>quie</u>res ve<u>nir</u> con<u>mi</u>go?* 'Do you want to come with me?' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with an L*+H prenuclear accent, a phrase-medial pitch-deaccented syllable (cf. Fn. 257), and an L* nuclear accent, followed by an ¡H% boundary tone. The nuclear configuration of the IP is L* ¡H% (13A).

Finally, one (CatD) speaker used an H* LH% nuclear configuration, which has been described as typical of echo-questions (cf. Section 3.1). This is interesting because the context of the utterance in the dialogue actually does not permit such an interpretation. Nevertheless, the participant might have concluded that this must be the case, interpreting *que* as an 'attributive' complementizer (see also Fn. 282).

In the IYNQ D (*¿Que te has hecho daño?* 'Are you hurt?'), the high–falling nuclear configuration, i.e. H+L* L%, was used by all but two speakers (94%). An example is shown in Figure 5.1-126, below. The other two speakers used the low–rising contour, but one of them, a CatD, dropped *que* when reading the question, so that the use of the low rise in the reading of the question is not surprising. Still, the stronger predominance of the falling nuclear configuration in D as opposed to A requires an explanation. Therefore, the possibility ought to be considered that at least a part of the participants could have interpreted question D as a confirmation-seeking yes–no interrogative because of the presence of the complementizer *que*, which is grammatical in Mainstream Spanish confirmation-seeking questions (as opposed to information-seeking ones). The context of the question in the dialogue rather favours an information-seeking reading: Joan has seen that Mercè has fallen over and wants to know if she is hurt (cf. Section 4.2.1.2). However, even though less probable, a confirmation-seeking interpretation induced by the presence of *que* cannot be excluded: Joan has seen Mercè falling over and hurting herself and is asking for a confirmation of his observation. This could thus be an explanation for the fact that the H+L* L% was employed noticeably more often in D than in A.

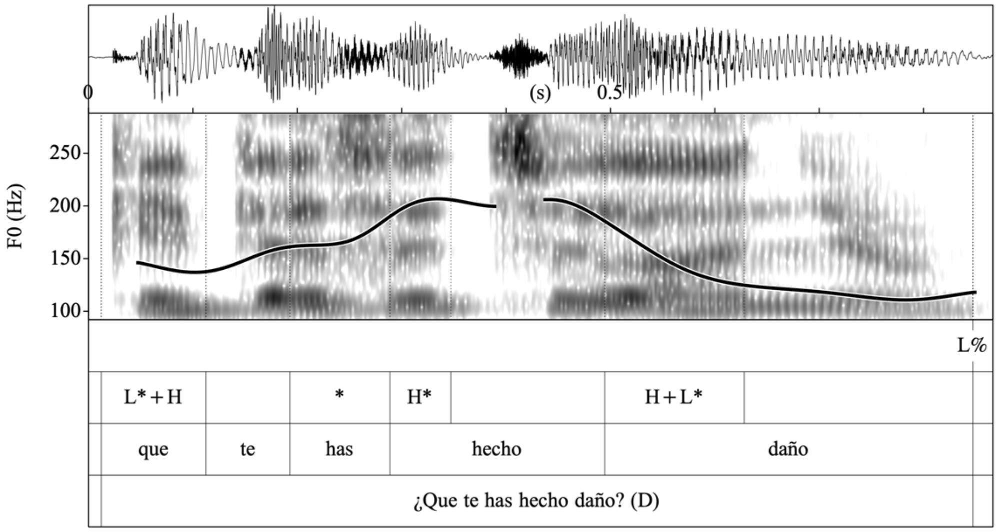


Figure 5.1-126: Girona Spanish: Waveform, spectrogram, and F0 contour for the information-seeking yes–no question *¿Que te has hecho daño?* 'Are you hurt?' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with a phrase-initial L*+H prenuclear accent on the particle *que*, a phrase-medial H* prenuclear accent, and an H+L* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is H+L* L% (27D).

Summing up, I interpret the findings from question A and D as follows: the occurrence of information-seeking *que*-questions intonated with a falling nuclear configuration could indeed be common in GS. Such questions are probably used rather by CatD speakers (cf. the semi-spontaneous data in Section 5.1.3 and 5.1.4), but (most) SpD speakers will produce them (including the corresponding intonation) when there are obliged to (as was the case in this reading task). Nonetheless, a series of additional findings and observations point towards the possibility that not all speakers find such questions completely natural in Spanish, even though they may be quite common (see also the extensive discussion in Section 6.4.2.3):

- four bilinguals dropped *que* when reading out the question, which I interpret as an automatic correction;
- all five occurrences of minor disfluencies were found in these two questions, which shows that they might have irritated some participants;
- some speakers (most of them SpD bilinguals) used the low–rising nuclear configuration besides the presence of *que*. It cannot be proven here whether the falling contour is also available in their phonological systems, but probably it is not;
- two (CatD) participants commented during the task that the use of *que* in sentence A was incorrect in Spanish, classifying it as a Catalanism, which shows that (at least some) speakers have metalinguistic knowledge about this topic.

The intonational realizations of the exclamative echo yes–no question (B) and the confirmation-seeking question (C) are interesting, as well. In these contexts, *que* is possible in Mainstream Spanish and, regarding intonation, previous research (cf. Section 3.1) as well as the findings made on basis of the spontaneous data from the DCT (cf. Section 5.1.4.1 and 5.1.4.2) suggest that both falling and rising nuclear contours can be used in CS and GS, respectively.[283] Interestingly, the participants behaved quite differently in question B and question C.

In interrogative B (*¿Que tomas café al mediodía?* 'You are having coffee at noon?'), all but five (CatD) speakers used the low–rising nuclear configuration, i.e. L* (¡)H%. An example is given in Figure 5.1-127. In some cases, the rise began already before the end of the nuclear syllable (i.e. the label L+H* ¡H% could be phonetically more adequate). I interpret this as an increase in the pitch movements expressing the nuance of surprise and exclamativity and as an effect of the upstepped boundary tone (cf. the semi-spontaneous data in Section 5.1.4.1). Furthermore, the fact that 84% of the speakers preferred the low–rising contour in question B, confirms the findings from the DCT, where L* (¡)H% was equally the most common nuclear configuration in this context. Concerning the remaining, falling realizations, it is striking that in 3 cases (out of 5), the sentence was split into two IPs. In these items, the falling nuclear configuration of the sentence was thus anchored on *café* 'coffee', whereas *al mediodía* 'at noon' was dislocated to the right and pronounced as a low plateau (i.e. L* L%, cf. Sections 5.1.1.3.1, 5.1.3.1.4, and 5.1.10.2 for dislocations in semi-spontaneous and read data). Figure 5.1-128 illustrates this. Moreover, this finding could be a hint that falling contours are preferred in shorter phrases, whereas longer utterances present a bias towards occurring with rising contours.

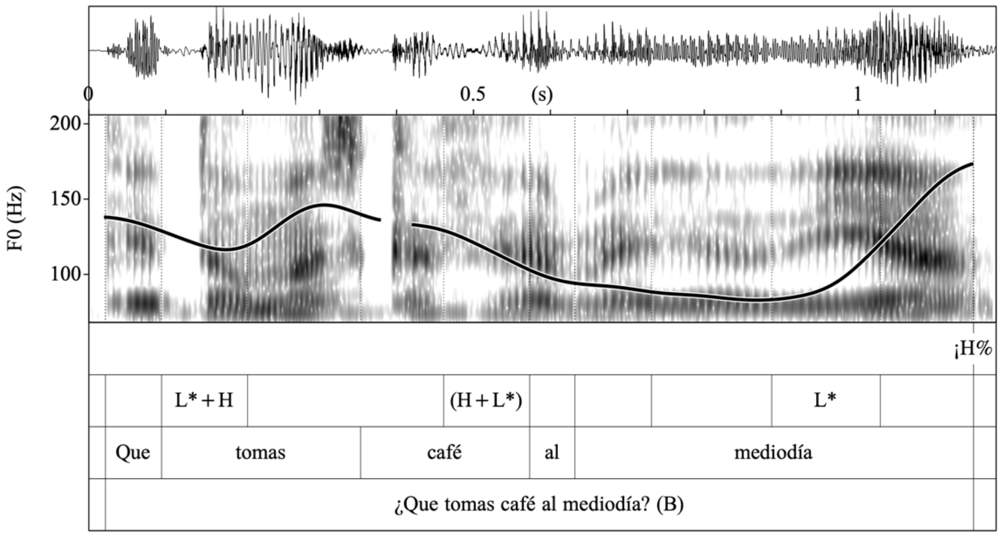


Figure 5.1-127: Girona Spanish: Waveform, spectrogram, and F0 contour for the exclamative echo yes–no question *¿Que <u>to</u>mas ca<u>fé</u> al mediodía?* 'Do you drink coffee at noon?' produced by a Spanish-dominant speaker. It represents an IP composed of one ip and is produced with an L*+H prenuclear accent, a phrase-medial pitch-deaccented syllable (cf. Fn. 257), and an L* nuclear accent, followed by an ¡H% boundary tone. The nuclear configuration of the IP is L* ¡H% (7B).

[283] This is also true for GC, albeit other CC varieties have been claimed to use exclusively or primarily falling contours in confirmation-seeking yes–no questions (cf. Section 3.1).

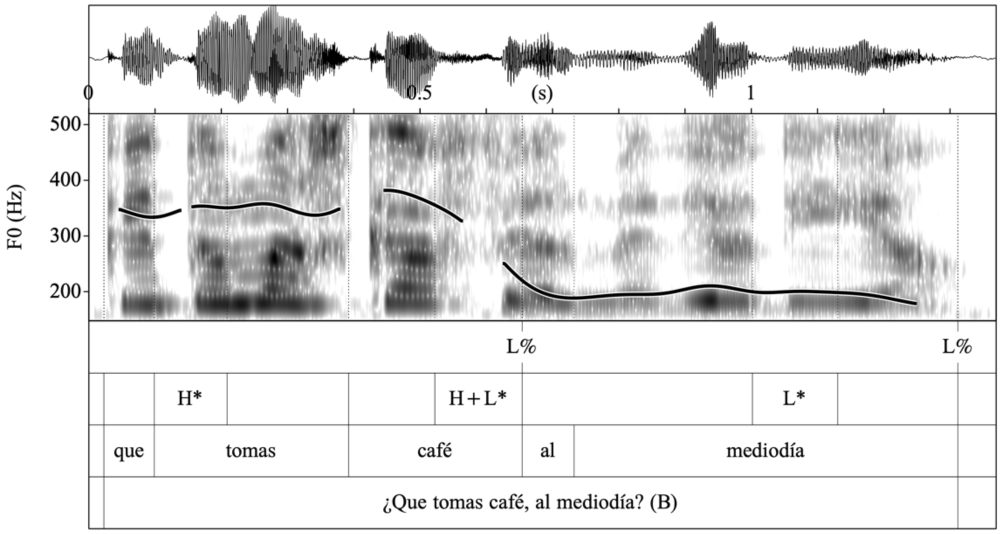


Figure 5.1-128: Girona Spanish: Waveform, spectrogram, and F0 contour for the exclamative echo yes–no question *¿Que tomas café, al mediodía?* 'Do you drink coffee at noon?' produced by a Catalan-dominant speaker. It consists of two IPs. The first one contains a prenuclear H* accent, and an H+L* nuclear accent, followed by an L% boundary tone. The nuclear configuration of this IP is H+L* L%. The second IP is produced with an L* L% nuclear configuration. (7B).

In the confirmation-seeking yes–no interrogative C (*¿Que llueve?* 'Is it raining?'), with a rhetorical nuance, the reverse tendency was observed: the falling contour was the most recurrent overall (20 out of 31 items, 65%; see Figure 5.1-129 for an example). However, a clear difference in the choices was registered between the two dominance groups. The CatD bilinguals employed the falling configuration in 16 out 20 items (i.e. 80%) and the rising one only 4 times (20%). In the SpD group, on the other hand, the falling one represented merely 36% (n = 4), and the rising configuration was used 6 times (i.e. 55%). Adding the realization as H+L* LH% by speaker No. 13, of Honduran descent, rising contours were used to an extent of 64%. Furthermore, it is worth pointing out that the final-rising contours sometimes showed a slight fall in the nuclear syllable, i.e. some nuclear contours were realized phonetically as H+L* H%. In sum, it can be concluded that, in these rather short confirmation-seeking yes–no interrogative introduced by *que*, CatD speakers preferred the falling configuration, whereas SpD speakers rather opted for rising realizations (according to a Fisher exact test, this difference is significant: $p = 0.023$).

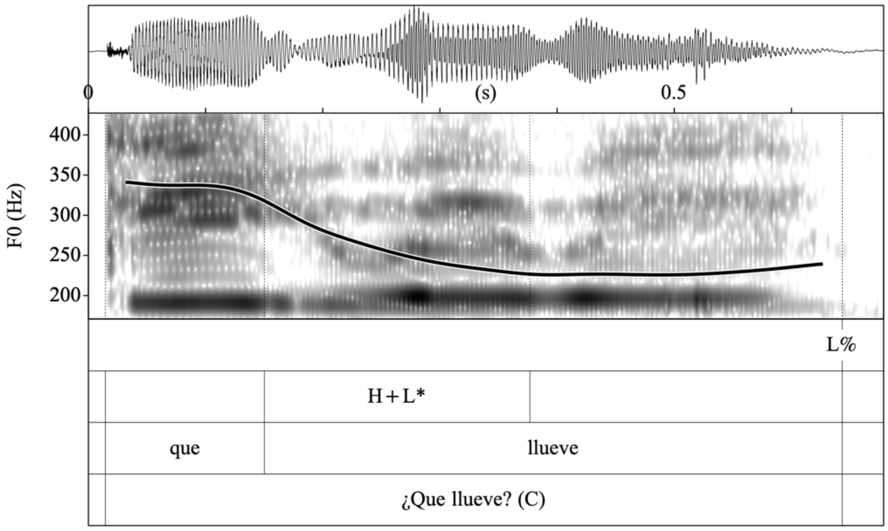


Figure 5.1-129: Girona Spanish: Waveform, spectrogram, and F0 contour for the confirmation-seeking yes–no question *¿Que llueve?* 'Is it raining?' produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an H+L* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is H+L* L% (28C).

Concerning the prenuclei of the interrogatives A–D, we shall have a quick look only at the phrase-initial prenuclear pitch accents, since (1) not all sentences presented phrase-medial prenuclear pitch accents and (2), even if they did, phrase-medial prenuclear accents were typically pitch-deaccented and the F0 curve was the result of interpolation between the phrase-initial prenuclear accent and the nuclear accent (i.e. it usually showed a high plateau or common declination).

With reference to **phrase-initial prenuclear** accents, H* can be generally expected to co-occur with falling nuclear contours and L*+H with rising ones in IYNQ. For other question types, the literature is less explicit, but the tendency seems to be the same. Furthermore, since falling nuclear configurations are said to be more common in (Central) Catalan than in (Castilian) Spanish, prenuclear H* can be considered as being characteristic rather of Catalan and L*+H as more typical of Spanish.

In the IYNQ A, prenuclear H* was used with nuclear H+L* L% and L*+H with nuclear rises without exception. With IYNQ D, the distribution was very similar. However, in the high–falling questions, the pitch level used at the beginning of the sentence (i.e. on *que*) was not always the same: whereas most participants used a high plateau during the whole prenuclear area (i.e. stretching from *que* to the nuclear fall on *daño*), some seemed to deploy an L*+H pitch accent on *que*, i.e. there was a rise from the beginning of the utterance until on the stressed syllable of *hecho* (cf. Figure 5.1-126, above). Interestingly, this occurred 5 times in the SpD group (i.e. 45%) but only twice among the CatD (10%). In the confirmation-seeking yes–no question C, all but two SpD speakers began the sentence with a high pitch on *que*, which entailed that nuclear L* accents in the following syllable were sometimes phonetically realized as H+L*. The use of *que* thus seems to favour a high onset, here, as well.

In the exclamative echo yes–no question B, finally, most nuclear contours were rising and presented a phrase-initial L*+H accent anchored on the stressed syllable of *tomas*. Yet, there were also some different cases. On the one hand, 4 SpD and 1 CatD bilinguals produced a high tone on *tomas* whereas the preceding *que* was pronounced at a somewhat lower pitch level, i.e. the whole pitch movement roughly corresponded to an L*+H pitch accent placed on *que* instead of *tomas*. On the other hand, there were 3 items in which *que* was the highest syllable in the utterance. I believe that the three CatD participants who produced them were irritated by the phrasing of the sentence with *que*, which once more shows that *que*-questions in GS are not totally natural to all bilinguals.

In summary, the read GS *que*-questions present either high–falling intonation patterns (i.e. prenuclear H* and nuclear H+L*) or low–rising ones (i.e. prenuclear L*+H with nuclear L* H%). Generally, the presence of *que* seems to have favoured the use of the falling contour and a high pitch level at the beginning of the interrogative. However, the results also suggest that *que* is not totally natural to a at least a part of the speakers in some GS question types and could therefore be perceived as a feature transferred from Catalan. When they are obliged to use it—as in the present reading task—not all bilinguals adopt what is supposed to be the 'original' Catalan pattern, consisting of a high plateau in the prenucleus and a falling nucleus, in the same way: some adopt the whole pattern, some adopt the nuclear fall but keep the initial rise, and some others simply stick to the 'normal' low–rising Spanish pattern (i.e. L*+H and L* H%). This, to a certain extent, depends on the question type, but also reveals a fair deal of inter-speaker variation (cf. Chapter 6, especially Section 6.4.2.3, for further discussion).

5.1.10.2 Girona Spanish dislocations

All 62 readings of the two target sentences recorded for the analysis of GS dislocations could be analysed with respect to intonation (cf. Section 4.2.1.2 for a detailed description of the materials and procedure). Three items contained minor disfluencies, but these did not impede the analysis. In roughly half of the readings the intended dislocation was actually realized in a prosodically independent IP, i.e. there was a clear L% prosodic boundary tone at the end of the main clause that preceded the IP containing the dislocation (n = 30, 48%). In 56% of these items, there was also a short pause (n = 17, 27% of all sentences). In these realizations, the quantifiers at the end of the main clause, i.e. *muchísimo* and *poca*, bore either an L* or an L+H* pitch accent, which are characteristic nuclear accents of neutral and narrow-focus or exclamative statements, respectively. L+H* was especially common in sentence 1, which comes as no surprise as *muchísimo* was clearly the focus of the sentence, whereas the right-dislocated *de café* represented a topic. The dislocated elements themselves were generally pronounced as low plateaus without any notable pitch excursions (i.e. L* L%, cf. Figure 5.1-130). However, there were 5 cases (8%) in which a slight peak could be observed on the stressed syllable of the dislocated element. That contour, labelled as 'L+!H* L%', here, represents a pitch-compressed resumption of the nuclear L+H* L% configurations used in the preceding main clause (cf. Figure 5.1-131, for an example). These findings pattern with the observations made for GC dislocations in Section 5.1.1.3.

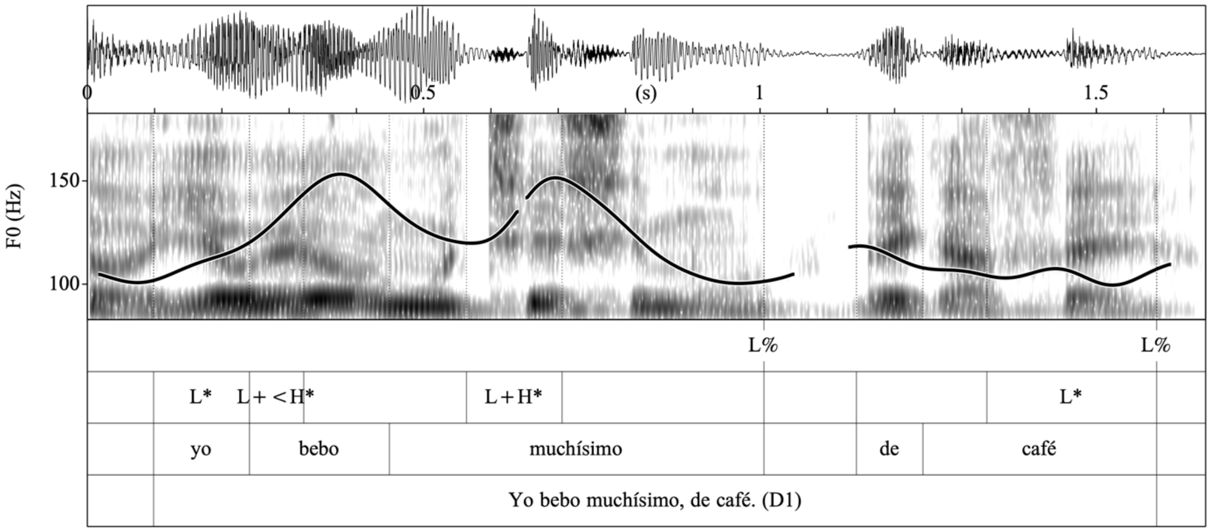


Figure 5.1-130 Girona Spanish: Waveform, spectrogram, and F0 contour for the statement *Yo bebo muchísimo, de café.* 'I drink lots of coffee' produced by a Catalan-dominant speaker and composed of two IPs. The first one is produced with an L* and an L+<H* prenuclear accent, an L+H* nuclear accent, and an L% boundary tone. The second IP has an L* L% nuclear configuration (17D1).

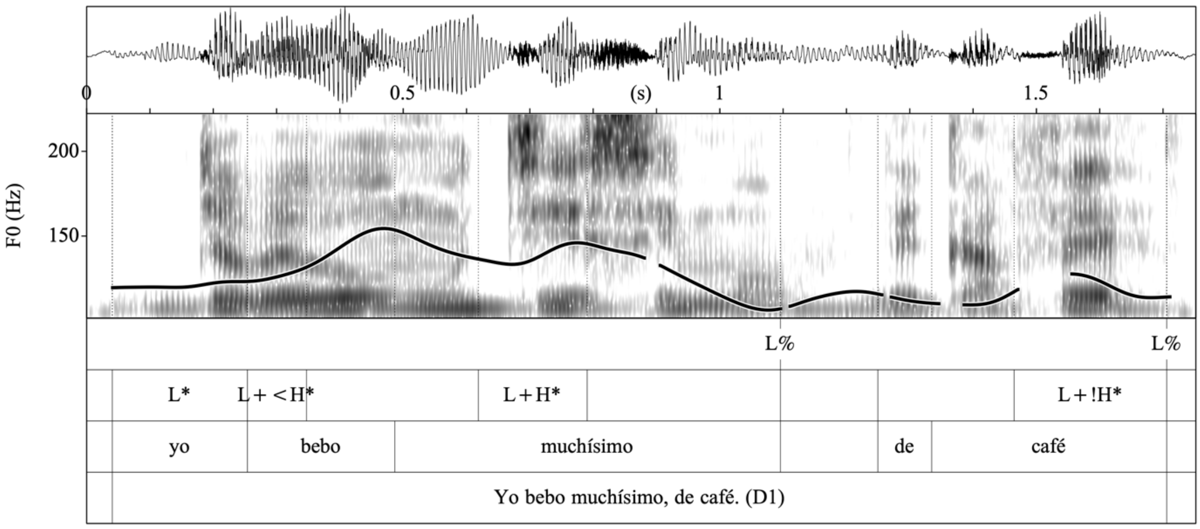


Figure 5.1-131: Girona Spanish: Waveform, spectrogram, and F0 contour for the statement *Yo bebo muchísimo, de café.* 'I drink lots of coffee' produced by a Spanish-dominant speaker and composed of two IPs. The first one is produced with an L* and an L+<H* prenuclear accent, an L+H* nuclear accent, and an L% boundary tone. The second IP repeats this nuclear configuration as L+!H* L% (27D1).

In the remaining sentences, the prepositional phrases *de café* and *de paciencia* were not prosodically independent, i.e. not right-dislocated, but integrated prosodically into the main clause. In these cases, the objects *muchísimo de café* 'lots of coffee' and *poca de paciencia* 'little patience' were syntactically simple complements of the verb, consisting of a noun and its quantifier, equivalent to Mainstream Spanish *muchísimo café* and *poca paciencia*. Intonationwise, this translated in the quantifiers carrying the typical prenuclear pitch accent used in statements (i.e. L+<H* or sometimes its surface realization H+L*; cf. Sections 5.2.1), while the nouns displayed L* L% nuclear configurations. Figures 5.1-132 and 5.1-133 provide two examples. In these cases, the presence of an orthographic comma in the text given to the participants does not seem to have influenced their reading pronunciation. Interestingly enough, there was even one case in which the speaker accidentally dropped *de*, which yielded a Mainstream Spanish quantifier object construction that she pronounced without dislocating the noun.

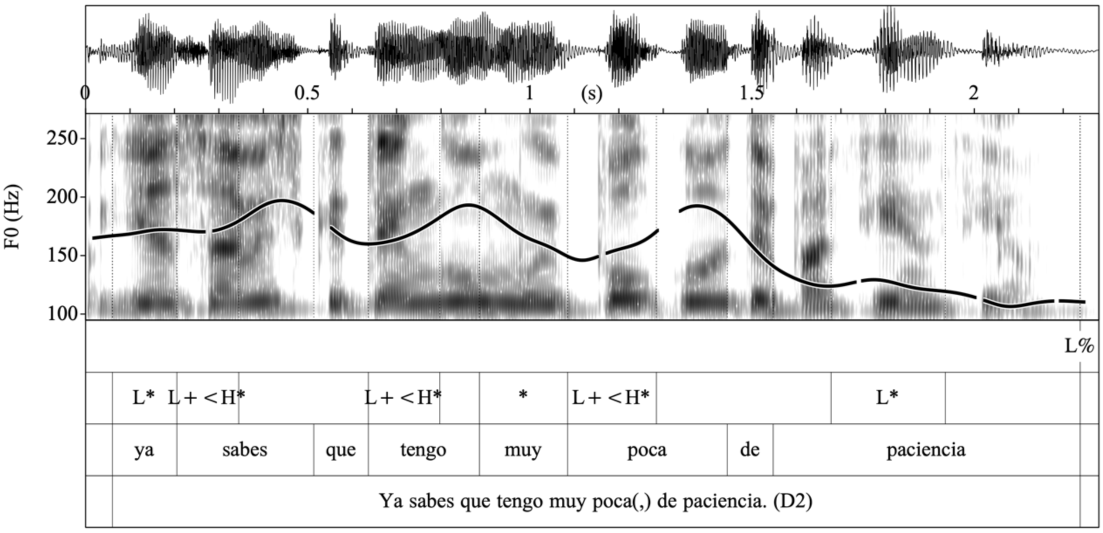


Figure 5.1-132: Girona Spanish: Waveform, spectrogram, and F0 contour for the statement *Ya sabes que tengo muy poca de paciencia.* ‘You know that I have little patience’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an L* prenuclear accent, three L+<H* prenuclear accents, and an L* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is L* L% (6D2).

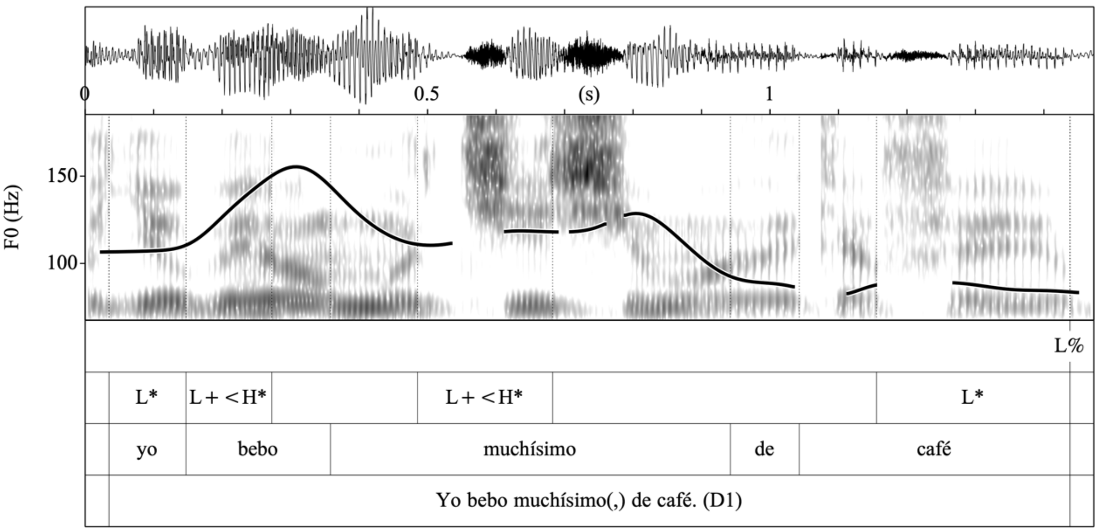


Figure 5.1-133: Girona Spanish: Waveform, spectrogram, and F0 contour for the statement *Yo bebo muchísimo de café.* ‘I drink lots of coffee’ produced by a Catalan-dominant speaker. It represents an IP composed of one ip and is produced with an L* prenuclear accent, two L+<H* prenuclear accents, and an L* nuclear accent, followed by an L% boundary tone. The nuclear configuration of the IP is L* L% (23D1).

With respect to the LD, it is hard to make any inferences about whether any dominance group uses a particular realization more frequently than the other one above chance level. Among the CatD bilinguals, prosodically independent dislocations (as marked by a boundary tone and/or a pause) were equally frequent as undislocated realizations in both sentences. In the SpD group, the two sentences showed different tendencies. In Sentence 1, 9 out of 11 (i.e. 82%) used the 'integrated' version of the object instead of a dislocation. In Sentence 2, the reverse distribution was found.

5.2 Tonal inventory of Girona Spanish and Girona Catalan

In this section, I discuss the phonological status of the pitch accents and boundary tones described in the intonational analysis of the different GS and GC sentence types in the previous section (5.1). I shall consider prenuclear pitch accents (Section 5.2.1), nuclear configurations of inner ips (Section 5.2.2), and establish an inventory of underlying nuclear configurations of IPs (5.2.3). Finally, I will present an inventory of pitch accents and boundary tones for each variety.

5.2.1 Phonological status of the prenuclear pitch accents in Girona Spanish and Girona Catalan

In line with the intonational analysis set forth in Section 5.1, the same three pitch accents were predominantly used to tonally mark prenuclear stressed syllables in both Girona varieties: L+<H*, L*+H, and H*. They were attested in various sentence types as IP-initial prenuclear accents, phrase-internal prenuclear pitch accents, and as ip-initial prenuclear accents of non-IP-initial ips.[284] The intonational analysis reveals that they are typically connected with different utterance types. First, L+<H* is the most common prenuclear pitch accent in all types of statements considered in the present study (i.e. neutral broad-focus statements (with and without peripheral elements), contrastive-focus statements, exclamative statements, contradiction, and dubitative statements. In addition, it was found in imperatives (both in commands and requests) and in the prenucleus of non-final ips in disjunctive questions. In exclamative and imperative wh-questions, L+<H* and L*+H were used with a similar frequency.

Second, L*+H is clearly the most recurrent prenuclear pitch accent in most of the question types examined. It habitually appears in information-seeking yes–no questions (with and without peripheral elements), in exclamative and in confirmation-seeking yes–no questions, and in several types of echo questions (echo yes–no, echo wh-, and exclamative echo yes–no questions). What is more, it may also occur in information-seeking, exclamative, and imperative wh-questions. However, it must be mentioned that this is chiefly true for the phrase-initial position as phrase-medial syllables present a very strong tendency to be pitch-deaccented in questions (see below).

Prenuclear H*, finally, is also registered in primarily in questions. It characterizes information-seeking and exclamative yes–no questions when they are introduced by the complementizer *que* (which happens with a higher frequency in GC than in GS) as well as information-seeking wh-questions. In addition, it is sometimes used in neutral statements—typically at the beginning of the IP or of a non-IP-initial ip (i.e. after a high boundary tone, H- or !H-, of a preceding ip).

[284] See Section 5.1.1.1 (Fn. 243–245) for precise definitions of these terms.

Besides L+<H*, L*+H and H*, some further prenuclear pitch accents were occasionally observed in the two varieties under concern here: mainly H+L* and L+H*. Yet, it is worth pointing out that these two usually appeared only under specific conditions in both statements and questions. Regarding the H+L* prenuclear pitch accent, it was noted that the occurrence of a high preceding peak (e.g. L+<H*, L*+H, L+H* or H-, !H-) and lack of space to produce a rising pitch accent contributed to the presence of this falling pitch accent. In a similar vein, prenuclear L+H* was normally produced due to lack of space when the peak could not be delayed to a following syllable, e.g. in stress clash situations (which, by the way, were more numerous in Catalan, given that oxytone words are more abundant in that language than in Spanish).

As concerns phrase-medial positions, it was recorded that pitch deaccentuation often took place in both varieties. Especially in questions, pitch excursions between the phrase-initial prenuclear and the nuclear pitch accent were fairly rare. Depending on the pitch accents at the beginning and at the end of the phrase, the mid part of questions was generally characterized either by declination or by a high plateau and, in consequence, phrase-internal prosodic words were analysed as pitch-deaccented. For instance, in information-seeking yes–no questions, the proportion of phrase-medial pitch deaccentuation amounted to 87% in GC and 83% in GS. But in statements, too, phrase-internal prenuclear pitch accents were often left unrealized: for instance, in neutral declaratives, the deaccentuation of phrase-internal lexically stressed syllables reached a share of 26% of the items for GS and 29% for GC. In exclamative statements, a proportion of 33% and 22% was attained in GS and GC, respectively.

The question that arises after this summary is: are there underlying prenuclear pitch accents in GS and GC and, if any, what is their meaning? The results of the intonational analysis allow for the assumption that the delayed peak (i.e. L+<H*) is an underlying pitch accent used to mark prenuclear stressed syllables in statements in both contact varieties. If this assumption is correct, the remaining pitch accents that appeared occasionally in the prenucleus of statements (i.e. L+H*, H+L*, and also H*) can be seen as surface variants or realizations of the underlying L+<H* prenuclear accent that emerge when the conditions described above are met.

As for questions, the intonational analysis suggests that an L*+H prenuclear accent is used to signal interrogativity in most question types in both of the varieties under concern. However, even if this pitch accent in some few cases was deployed on phrase-internal syllables, phrase-medial deaccentuation was clearly dominant in questions, such that the use of phrase-internal pitch accents might rather convey information-structural meanings, such as signalling the focus of the question (cf. 5.1.3.1.2). Therefore, L*+H should perhaps not be viewed in questions as a 'common' underlying prenuclear pitch accent in the traditional sense, i.e. as one whose use is fully comparable to that of L+<H* in statements. Instead, it might be better analysed as some sort of single 'phrase-initial tonal movement'.[285] This view is supported, e.g., by the fact that,

[285] Interestingly, some similar suggestions were made by Grice/Vella/Bruggeman (2019) for Maltese, where they observed pitch events (viz. a high peak) that regularly associate to the left edge of question words in direct questions instead of being anchored on the question word's stressed syllable (as is the case in indirect questions).

in the analysed data set, phrase-initial L*+H was almost exclusively anchored on the first 'stressable' syllable of the phrase-initial verbal complex, i.e. typically on auxiliaries or negation particles—if such an element was present—rather than on its lexical part, e.g. the participle or the conjugated verb, which, in turn, went pitch-deaccented (cf. Sections 5.1.3–5.1.7). In statements, on the contrary, such grammatical elements usually formed one single prosodic word in conjunction with the (stressed) lexical part of the verb and they were thus left pitch unaccented. Furthermore, also the implementation of the rising trailing tone of the initial L*+H tonal movement, which typically reached its peak in the second syllable following the one to which it was associated, is quite particular as it oftentimes yields tonal movements that extend over at least three syllables irrespective of the position of the next underlyingly, i.e. lexically stressed syllable (cf. Section 5.1.3.1 for a detailed description of the shape of this pitch movement in information-seeking yes–no questions). However, in order to determine whether L*+H in questions should be analysed as a common prenuclear pitch-accent in the traditional sense or whether it represents a phrase-initial tonal movement similar to phrase-initial boundary tones but anchored on the first 'stressable' syllable goes beyond the scope of this dissertation and requires further investigation.

Regarding the phonetic implementation of phrase-initial L*+H, it is also worth pointing out that it was sometimes realized with a slight pitch fall instead of a low plateau within the limits of the stressed syllable, namely in exclamative yes–no questions and in exclamative echo yes–no questions. Although this pitch movement superficially looks like some sort of 'H+L*+H' pitch accent, I interpret it as an effect of the use of an extended pitch range and of increased tonal movements, as both these features are known to convey exclamativity (cf., e.g., Crespo-Sendra 2011: 111–120 among others and the discussion below). I thus assume that such surface contours underlyingly correspond to L*+H pitch accents and restrain from positing the presence of three tonal targets at an underlying level. Similarly, L*+H may sometimes surface as L+<H* for the same reasons (i.e. typically also in exclamative questions).

Finally, the phonological status of H* warrants some discussion. In statements, its use is widely conditioned, as we have seen above, and I therefore view it as a surface realization of an underlying L+<H* prenuclear accent. In questions, too, H* can be a surface variant: for example, it emerges in stress-clash contexts instead of L*+H when (a) the ip containing the question's main clause begins with a stressed syllable and, at the same time, is preceded by another ip ending in an ultimate stress word, or (b) when the only prenuclear stressed syllable in the ip is directly adjacent to the nuclear syllable of the IP. However, the intonational analysis of different GS and GC question types has revealed that H* prenuclear accents are also common in several distinct types of yes–no questions independently of the phonetic context—namely those headed by the complementizer *que*—as well as in wh-questions, i.e. when the interrogativity of the utterance is already marked by lexical means. I thus assume that H* is also a second

underlying prenuclear pitch accent that can be used to convey interrogativity besides L*+H.[286] Nevertheless, there are some issues surrounding this pitch accent that should be addressed. In yes–no questions (with *que*), H* may 'work' like a 'usual' prenuclear pitch accent, i.e. it is typically repeated on each lexically stressed syllable of the prenucleus, which gives rise to a high plateau spanning from the beginning of the question to the nuclear syllable, i.e. expanding over the whole prenuclear area. This use is clearly more typical of Catalan and CatD bilinguals. Besides that, it can be also found in wh-questions provided that these present a high–falling nuclear contour (which, again, happens more frequently in Catalan and among Catalan dominant speakers; see also the discussion in Section 6.4). Otherwise, in wh-questions with low or rising nuclear contours, H* only occurs once in initial position on the wh-word (similarly to phrase-initial L*+H), whereas phrase-medial positions mostly go pitch-deaccented, i.e. the F0 follows common declination patterns.

Regarding the question of whether prenuclear pitch accents contribute to the identification of a particular sentence type, we can thus expect, based on the suggestions made above, that speakers of GC and GS should in general be able to distinguish neutral statements and information-seeking yes–no questions solely by means of the prenuclear accents[287]. Furthermore, statements produced with L+<H* prenuclear accents and questions produced with initial L*+H followed by deaccentuation or with H* followed by a high plateau should be perceived as more natural than other combinations.

Last, it is worth mentioning that L+<H* and L*+H did only appear as prenuclear pitch accents in the contact varieties, whereas H* was used both in nuclear and prenuclear positions. Yet, this is to a certain extent a corollary of the commonly applied ToBI models for Spanish and Catalan (cf. 3.1.2.1 and 3.1.2.2), in which F0 contours similar to the ones described as L+<H* or L*+H prenuclear pitch accents, are usually classified as combinations of low or rising nuclear pitch accents and high boundary tones when they occur at the right edge of a phrase. For instance, a low plateau that extends within the limits of a stressed syllable and is followed by an F0 rise is ordinarily labelled as L*+H in the prenucleus but as L* H% in nuclear position.

5.2.2 Phonological status of the nuclear configurations of inner ips in Girona Spanish and Girona Catalan

Among the GS and GC utterances of the present (semi-)spontaneous corpus, only some sentence types were phrased in IPs consisting of more than one ip in a proportion that enables

[286] Note that the two pitch accents are complementarily distributed, i.e. they occur in different utterance types and combine with different nuclear configurations.

[287] Note that information-seeking yes–no questions (without the complementizer *que*) and neutral statements usually show the same surface syntactic properties (in both GC and GS). In contrast, other question types or imperatives are normally signalled by syntactic, morphologic, or lexical means in addition to intonation (e.g. the wh-word in wh-questions or the verb form in imperatives).

sound inferences about the nuclear configurations used in inner ips: neutral statements (without and with peripheral elements[288]), enumerations, and disjunctive questions.

The results of the intonational analysis of neutral statements showed that the nuclear configurations of inner ips in both varieties under consideration typically present a rise beginning in the nuclear syllable of this ip that continues until the end of the phrase, i.e. a rising nuclear pitch accent and a continuation rise. The same is generally true for nuclear configurations of the inner ips of neutral disjunctive questions. In these cases, it theoretically cannot be decided whether the underlying nuclear configuration is L+<H* H- or L+H* H-. However, since the corpus also contained some sustained pitches, i.e. L+H* !H-, which better allow to determine the nature of the nuclear pitch accent, I assume that the underlying nuclear pitch accent is L+H* independently of the boundary tone (H- or !H-). This is also in line with the largest part of the scientific literature (cf. Section 5.1.1.1). In disjunctive questions, this pitch accent was occasionally upstepped (i.e. L+¡H*) when another rising prenuclear pitch accent was produced before the nuclear pitch accent of the inner ip. I interpret this upstep as an effect of a preceding high target and the high boundary tone and, consequently, analysed such pitch accents as underlying L+H* in all sentence types.[289] Furthermore, there were some instances of non-final ips in neutral statements that were pronounced as high plateaus, in which the nuclear contour was labelled as (!)H* !H-, as well as some rare cases of low boundary tones (i.e. L-). Due to the low frequency of such contours, I suggest that they can be viewed as flat surface realizations of the usual nuclear configuration (see below for a possible pragmatic interpretation).[290] In enumerations, finally, L* H- was more frequent than L+H* H-. Since L* L% is the typical (IP-final) nuclear contour of statements (see also Section 5.2.3, below), L* H-, i.e. the same pitch accent combined with a high boundary tone, H-, which marks incompleteness of the sentence, might signal a greater independence of the ip as compared to L+H* H-. This might be reflected in the fact that L* H- was not found as a nuclear contour of non-final ips separating main clauses into different ips but only in ips in enumerations, i.e. lists of different independent elements.[291]

[288] Please note that peripheral elements, such as dislocations, vocatives, or imperatives were generally analysed as independent IPs in the current work for the following reasons: (a), they could also be left out without affecting the grammaticality of the sentence, and (b), the nuclear configurations of the main clause were the same in sentences with and without such elements and thus convey completeness of the sentence. Hence, it does not seem reasonable to analyse the main clauses as inner ips and to view the nuclear configurations deployed on the peripheral elements, which are typically intonated with a low plateau, i.e. pitch-deaccented, or repeat the nuclear configuration of the main clause, as the single IP nuclear configuration of the whole utterance.

[289] In a slightly different analysis, the boundary tone could be the upstepped tonal target (i.e. L+H* ¡H-). If that were the case, ¡H- could signal a stronger detachment of the ip than H- (cf. enumerations, in Section 5.1.1.2, for such a use of tonal scaling) as well as interrogativity (cf. Estebas-Vilaplana/Prieto 2010: 27f. for such an interpretation in CS disjunctive questions).

[290] It is worth mentioning that this H* !H- was also found in one GC disjunctive question introduced by the complementizer *que*, produced by a strongly CatD bilingual speaker (cf. Figure 5.1-76). As it is usual in Catalan questions with *que*, the nuclear contour of the IP was H+L* L%. Even though being genuinely Catalan, such disjunctive questions can be considered rare in Central Catalan (Maria del Mar Vanrell, personal communication).

[291] Recall, furthermore, that some enumerations contained elements on which the F0 superficially described L* L- nuclear contours. However, in such cases, the presence of an ip boundary is questionable because it was established mainly on theoretical rather than perceptual grounds. Further investigation will thus help to elucidate this topic.

Concerning the phonological status of the boundary tones, I assume that the sustained pitched (i.e. !H-) is a surface realization of the continuation rise H-, since it was clearly marginal in GC and, in GS, too, occurred with a noticeably lower frequency than the continuation rise (see also the analysis of read speech in 5.3). With reference to the pragmatic meaning of these nuclear configurations or rather of the different boundary tones, I believe that speakers use the H- boundary tone, i.e. a continuation rise, to signal to the hearer that the sentence they are producing is not yet completed, i.e. it expresses (planned) incompleteness of the discourse in both contact varieties. !H-, on the other hand, seems to surface merely as a phonetic realization of H- and, therefore, conveys incompleteness, as well. Yet, it can be suggested, in accordance with Kireva (2016a: 169), that speakers produce it to express a certain degree of uncertainty when they are planning their upcoming thoughts. If so, the pragmatic meaning of the sustained pitch (i.e. !H) would be slightly different from the one of the continuation rise. Furthermore, the whole (!)H* !H- nuclear configuration should be interpreted in this sense then. Similarly, also the very few instances of L- that were observed in the data are most likely to be surface reflexes of hesitation, i.e. they are actually not planned tonal targets, but simply result from the pitch fall that accompanies the hesitational lengthening (see Figure 5.1-53 for an example, see also Section 5.3.3).

5.2.3 Phonological status of the nuclear configurations of IPs in Girona Spanish and Girona Catalan

In this section, I establish an inventory of underlying nuclear configurations of IPs on the basis of the intonational analysis of GS and GC presented in Section 5.1.

For **neutral statements**, I propose L* L% as underlying nuclear contour in both contact varieties. The H+L* nuclear accent, which was sometimes found, too, should be interpreted as a surface realization of L*, since it typically occurred when it was preceded by a high tone at the end of the prenucleus so that there was too little space for the pitch to fall before the nuclear syllable. Similarly, L* L% was also the nuclear configuration used in enumerations and in the main clauses of neutral statements containing extra-sentential elements, such as (preceding) vocatives, or appositions and dislocations (attached in a separate IP after the main clause at the end of the utterance; cf. Fn. 288, above). Moreover, L* L% was typically used in the IPs containing the utterance-final appositions and dislocated elements themselves, too.[292] Vocatives preceding the main clause of statements, generally displayed an L+H* L% nuclear configuration, which might be a 'compressed' variant of the contours found in free vocatives (cf. Section 5.1.9 and below). L* L% furthermore appeared on the last element in neutral statements consisting of a main clause and a subordinate clause or a semantically equivalent element such as

[292] I interpret the few divergent realizations found besides L* L% (cf. Section 5.1.1.3) as realizations of an L+H* nuclear accent that expresses focus and/or emphasis (cf. below).

a gerund clause or a prepositional phrase (in the complex statements gathered with situation 1c3, cf. Section 5.1.1.3).

In contrast to L*, which signals neutral/broad-focus readings in statements, L+H* it the typical pitch accent employed to express focus/emphasis in **biased statements** in both varieties under investigation. The nuclear configuration of IPs established for contrastive-focus statements and exclamative statements, and—albeit with some restrictions—for contradiction and dubitative statements is thus L+H* L% in both varieties.[293] In exclamative statements, this pitch contour can be upstepped (i.e. L+¡H* L%), which I assume to be a means of expressing more emphasis. Furthermore, there is a somewhat 'smoothed' surface realization of this nuclear pitch accent that typically occurs after high tones in the prenucleus when there is little space for the pitch to fall to a lower level before the nuclear syllable. The shape of this surface variant thus often looks like a sort of step interrupting the pitch fall between the last prenuclear pitch accent and the low final boundary tone, i.e. there is no clearly discernible rise from a low target within the nuclear syllable, which is why the phonetic label '¡L+H*' was employed in these cases.[294] However, the fact that the data contain contours that are so to speak 'intermediate' between L* L% and L+H* L%, also shows that the difference between these two categories is actually a gradual one. Following Feldhausen et al. (2011), it can thus be assumed that high scaling of the nuclear accent will entail biased interpretations, whereas low scaling is more likely to lead to a neutral interpretation.

Still, for all of these **(biased) statement** types, L* L% nuclear configurations were attested, too. Usually, the biased meaning was expressed by other linguistic means in those cases: for instance, by cleft structures in contrastive-focus statements or by lexical means in in dubitative statements (using words such as Cat. *potser* or Sp. *a lo mejor*, both 'maybe'). In exclamative statements, I assume the corresponding reading to be expressed by the use of a wider pitch range and by the higher scaling of pitch accents in the prenucleus as opposed to neutral declarative statements, when an L* L% nuclear configuration is used.

In the case of contradiction statements, the underlying nuclear configuration(s) is/are hard to determine, since a large range of contours were attested in the present data set. In GC, falling or low contours, i.e. H+L* L% and L* L%, occurred with the highest frequency. While L* L% has already been established as the underlying nuclear contour of neutral statements (cf. above), the use of H+L* L% is in accordance with Prieto (2002a: 415f.), who underlines the common falling melodic pattern (H+L* L%) of contradiction statements with orders/commands. Besides, circumflex contours, i.e. L+H* L%, were attested with only a slightly inferior frequency. In GS, on the other hand, L+H* L% was clearly more recurrent than H+L* L% and L* L%. I

[293] Although the scientific literature on CS and CC posits distinct nuclear contours for various biased statement types (cf. Section 3.1.2.2), this is in line, e.g., with the Henriksen and García-Amaya (2012: 144), who equally establish L+H* L% as single nuclear contour of all biased statement types in Jerezano Spanish (see also the discussion in 6.4.2.2). Similarly, Gabriel et al. (2010: 313) establish a common L+H*+L L% nuclear configuration for various biased statement types.

[294] The use of this label is inspired by Henriksen and García-Amaya (2012: 122f.), who observed a similar nuclear contour in Jerezano Spanish contradiction statements.

therefore assume both H+L* L% and L+H* L% to be further underlying nuclear configurations in addition to L* L% in contradiction statements. However, the possibility needs to be considered that individual speakers may have different repertoires depending on factors such as their individual LD and the variety of Spanish they are most exposed to, e.g. by their parents (cf. the extensive discussion in Section 6.4.2.2).[295]

A final issue that warrants comment is that in dubitative statements both H* L% and L+H* L% nuclear configurations were observed with the same frequencies. Given that the circumflex contour was used in all biased statement types, I presume that the very similar H* L% is simply a surface variant of this contour.

The following nuclear configurations can be assumed to express **information-seeking yes–no** questions (with and without peripheral elements) in both GS and GC: L* (¡)H% and H+L* L%. The results of the intonational analysis allow us to posit L* H% and additionally, at least for some speakers, H+L* L% and H+L* LH% (the latter only for one speaker) as underlying nuclear configurations for this question type in both varieties. This decision is motivated as follows. First, in the low–rising L* (¡)H% contour, the occurrence of the H% and the ¡H% boundary tone is widely determined by the space available between the nuclear syllable and the phrase edge, in such a way that this boundary tone is usually higher when no other IP is following directly and when the ip ends in a word with penultimate or antepenultimate stress, which is in line with the observations made for GC by Fernández Planas et al. (2007) and Fernández Planas (2009: 34). Although the final boundary tone habitually represents the highest point of the question (i.e. ¡H% is used), the analysed data set does not present any evidence for a phonological contrast between H% and ¡H%. Therefore, I posit L* H% as the underlying nuclear contour. Furthermore, the combination of an H+L* nuclear accent with a high boundary tone seems to be a surface variant of the L* H% nuclear configuration that surfaces due to the lack of space between the peak of a preceding prenuclear accent and the nuclear accent. In total, L* H% (in its respective surface variants) was found with the highest overall frequency in both of the varieties studied (90% in GS and 73% in GC).

Additionally, H+L* L%, i.e. a high–falling nuclear configuration, was also employed by quite some speakers. As described in the literature (cf. Section 2.3, 3.1.2.1, and 3.1.2.2), this configuration is typical of Catalan and usually comes along with the complementizer *que* introducing the respective yes–no question. In the present data set, such questions were occasionally observed in Catalan (22%)—especially when the questions were short—but there were also some instances in GS (4.5%). A look at the users' LD patterns in both varieties leads to the conclusion that some bilinguals have this pattern available in both languages, while others apparently do not have it at all. More precisely, some (rather strongly) CatD bilinguals use this

[295] Furthermore, it is worth noting that a small proportion of different nuclear pitch accents (i.e. L* and H+L*) combined with HL% boundary tones was also registered in contradiction statements in both contact varieties. This is particularly interesting, since L* HL% is one of the typical nuclear contours expressing contradictory force in Castilian Spanish according to the scientific literature (Estebas-Vilaplana/Prieto 2010: 25; Hualde/Prieto 2015: 369), whereas H+L* HL% is given by Prieto (2013: 21–22) and Prieto et al. (2015: 21) for Catalan.

pattern in both GC (where it originally stems from) and in GS (to which they transfer it) (for an extensive discussion of CLI in this utterance type see Section 6.4.2.3). As opposed to that, no SpD bilingual used it in Spanish, but some of them recurred to it in Catalan, i.e. the SpD bilinguals thus seem to be aware of the naturality of this question type in Catalan. Nevertheless, the fact that the corpus equally contains 13 Catalan questions phrased with *que* but intonated with a low–rising L* H% nuclear contour instead of high–falling H+L* L% suggests that some bilinguals most probably do not command this nuclear configuration. Interestingly, such items were produced for the most part by rather unbalanced SpD bilinguals.[296] Although the size of the present corpus does not allow for detailed inferences about the phonological system of every individual bilingual participant, the present data strongly suggest that there are (a) CatD participants who have both L* H% and H+L* L% as alternative nuclear configurations for information-seeking yes–no questions in either of their varieties, (b) bilinguals belonging to either dominance groups who have both nuclear configurations in Catalan but only L* H% in Spanish, and (c) SpD bilinguals who only have L* H% in the two varieties. This view of different individual underlying phonological systems in the bilinguals, in which LD might play an important part, is furthermore underpinned by the observation that one SpD speaker, who is of Honduran origin, quite consistently used an H+L* LH% nuclear configuration for her information-seeking yes–no questions in both varieties (see also the discussion of interspeaker variation in Section 6.2).

As for neutral **disjunctive** questions, the underlying nuclear configurations of IPs established for the studied varieties are L* L% and H+L* L%[297]. The distribution of these two configurations in the present data (cf. 5.1.3.2) gives reason to assume that H+L* L% originally belonged only to the Catalan system while L* L% underlies the Spanish system (cf. Section 6.4.2.3). However, through the intense contact the languages seem to have converged to a considerable extent. As in the case of the information-seeking questions, I therefore assume that not all bilinguals have the same underlying system for nuclear configurations of disjunctive questions in either or both of their languages.

With reference to **exclamative yes–no** questions with counterexpectational meaning, it can be said on the basis of the intonational analysis that the underlying nuclear configurations in this sentence type are essentially the same as in information-seeking yes–no questions: i.e. L* H% and H+L* L%, the latter one appearing when the question is introduced by the particle *que.* Since such questions were only produced six times by CatD bilinguals (twice in GS and four times in GC), I once more assume that not all participants have it available in their underlying

[296] However, 3 cases of Catalan yes–no questions introduced by *que* that were pronounced with an L* H% nuclear configuration and stemmed from CatD bilinguals are attested in the corpus, too. Since this is unexpected and—to my best knowledge—has only been described once before (cf. Fernández Planas et al. 2007), this topic will be addressed extensively in Section 6.4.2.3.

[297] As mentioned before (see Section 5.1.3.2, Figure 5.1-76, and Fn. 290), there was one disjunctive question introduced by the complementizer *que*. I believe that in such (very rare) *que* disjunctive questions the use of the H+L* L% nuclear configuration is obligatory, although it is impossible to provide any evidence for this on the basis of the present data set.

system. However, if there is no difference between the underlying nuclear configurations of neutral and exclamative yes–no questions, how is this semantic difference expressed? I assume that this is achieved by an increase of the pitch movements and an expansion of the pitch range, which, for instance, is apparent from the fact that L* H% frequently surfaced as H+L* H% (both varieties) or L+H* H% (only observed in GS).[298] H+L* and L+H* are thus emphatic realizations of L*, which is in concert with similar findings made for exclamative and other biased statements (as opposed to broad-focus statements), above.

L* H% and H+L* L% are equally the underlying nuclear configurations of **confirmation-seeking yes–no** questions established for the two Girona varieties as a result of the intonational analysis. However, in this case, the falling contour does not come along with a complementizer (*que*) introducing the confirmation-seeking yes–no questions. Rather it most frequently—albeit not exclusively—occurs when the question ends in the disjunctive element Sp./Cat. *o no?*. As opposed to CS and to other CC subdialects, the Girona contact varieties thus employ the same nuclear configurations to mark confirmation-seeking and information-seeking yes–no questions. However, this has also been observed with regard to other varieties, such as Jerezano or Argentinian Spanish (Henriksen/García-Amaya 2012: 144; Gabriel et al. 2010; see also Section 6.4.2.3).

In both varieties, the bilinguals used the same types of nuclear configurations to express **information-seeking wh**-questions: falling (H* L%, H+L* L%), low (L* L%), rising (L* H%), and circumflex (L+H* L%) ones. As opposed to yes–no questions, which typically display the same surface syntactic properties as statements and therefore require an intonational marking of their interrogativity[299], in wh-questions, this feature is expressed in the first place by the presence of a lexical marker, viz. the wh-word. For this reason, information-seeking wh-questions may be produced with the same nuclear configuration as neutral statements (i.e. L* L%). However, in most cases, my Girona respondents utilized additional intonational cues to reinforce the interrogative meaning. It comes as no surprise that this can be done through the use of the same nuclear configurations that serve this goal in yes–no questions: i.e. through a nuclear rise (L* H%) or, much more frequently, here, a nuclear fall. Nevertheless, in the case of falling nuclear configurations, the contour used in wh-questions was rather H* L% than H+L* L% irrespective of the variety, as far as the difference between these two configurations could be established by virtue of the available data set. This is in line with the common descriptions of the intonation of Central Catalan (cf. Section 3.1.2.2), which claim that H* L% is the typical falling nuclear configuration of information-seeking wh-questions. Consequently, the difference between H* L% (in wh-questions) and H+L* L% (in yes–no questions) should be a phonological one (cf., e.g., Prieto 2002a: 440). Interestingly, regarding Spanish, the use of H* L% seems to be a novelty, since falling nuclear contours are usually not part of the Castilian Spanish

[298] Please recall that the same effect was also discernible in the prenucleus in this question type, where initial L*+H often surfaced as a ‘H+L*+H’-like contour, i.e. as a fall on the stressed syllable, followed by a rise in the post-tonic (cf. Section 5.2.1).

[299] The yes–no questions marked by *que* are of course an exception in this regard.

inventory given for information-seeking wh-questions (cf. Section 3.1.2.2)—nor do they appear in other Peninsular Spanish varieties (see also Section 6.4.2.4). Also, the distribution of this nuclear contour in our data set also gives some additional hints that it could be a ‘rather Catalan’ feature: the preference for the falling pattern was stronger in GC across dominance groups (as compared to GS). I thus assume that its presence in the GS inventory could be once more the result of an (ongoing) process of convergence between the intonational systems of the two Girona varieties and that individual speakers might (still) have slightly different systems (cf. Section 6.4.2.4 for an extensive discussion of CLI in this statement type). Finally, the circumflex contour might simply be a surface variant of H* L%, possibly triggered by phrase length (cf. Prieto 2002a: 441), or again convey exclamativity as in statements (cf. above) and in exclamative wh-questions (cf. the following paragraph). I therefore assume that L+H* L% is not an underlying nuclear contour in neutral wh-questions.

According to the intonational analysis, **exclamative wh**-questions can be expressed in different ways. In general, the bilinguals availed themselves of the same nuclear configurations as in information-seeking wh-questions but typically produced them with an extended pitch range and/or upstepped pitch accents. The most common nuclear configuration was thus ¡H* L% (in both varieties), i.e. an upstepped version of H* L%. Similarly, the low–rising L* H% contour was typically realized as L+H* ¡H%. Besides, the circumflex contour, i.e. L+(¡)H* L%, can be used, too, to express the notion of exclamativity in a wh-question. This is largely in line with the literature on Catalan intonation (cf. Prieto 2002a: 446, 2013: 34–36)[300] as well as with the observations made on the basis of the analysis of the biased statements that (a) the L+H* nuclear accent is used to express focus/emphasis and (b) the upstep signals greater emphasis in both GS and GC. Since the distribution of these nuclear contours was significantly different between the two varieties (more falls in Catalan and more circumflex contours in Spanish), it is possible that the intense language contact has led to an (ongoing) merger of two originally different inventories (cf. Section 6.4.2.4). Furthermore, different individuals may (still) present somewhat diverse phonological systems.

The underlying nuclear configurations established for **imperative wh**-questions are H+L* L%, L* H%, and L+H* L% (only GS). Whereas the first one was almost exclusive in GC, it is less dominant in GS. However, all these configurations are shared with other question types, such as information-seeking yes–no and wh-questions or exclamative wh-questions. The question of how the contact varieties express the imperative nuance in imperative wh-question is thus not fully clear: although H+L* L% differs from H* L% (in information-seeking wh-questions) through the earlier alignment of the nuclear fall, no alignment differences could be observed with the two other nuclear configurations. This is thus an issue that for the time being remains for further research.

300 To my best knowledge, no accounts of the intonation of this utterance type are available for CS or any other Peninsular Spanish non-contact variety.

The results of the intonational analysis revealed that **echo questions** (i.e. neutral and exclamative echo yes–no questions as well as echo wh-questions) were expressed for the most part by means of the L* (¡)H%[301] nuclear configuration, i.e. with the same nuclear configuration as most non-echo yes–no questions and, to a lesser degree, non-echo wh-questions. However, in some few cases, other configurations were registered, too. For instance, some occurrences of L+H* L% were attested in all of the studied echo-question types. It comes as no surprise that the pitch accent typically employed to express focus and emphasis (e.g. in statements) is also utilized in echo yes–no questions, since these have the purpose of checking whether one has understood right what an interlocutor just said—which is achieved by repeating and thus by focusing and emphasizing the respective element. Furthermore, some instances of falling H* L% (or possibly H+L* L%) were found in echo wh-questions, which is also the typical nuclear contour of information-seeking wh-questions. However, given that some items presented a slight rise at the beginning of the nuclear syllable, I follow Estebas-Vilaplana and Prieto (2010: 35)[302] and interpret these contours as surface realizations of the circumflex L+H* L% nuclear configuration: i.e. H* L% is a surface variant of L+H* L% that appears on ultimate-stress words after preceding high targets, i.e. when there is too little space for the F0 to drop down between the high target of a prenuclear pitch accent and the nuclear syllable. In exclamative echo yes–no questions, however, there were also some clear examples of H+L* L% on penultimate-stress words (in both GS and GC), which is thus a contour shared with other types of yes–no questions (viz. information-seeking and exclamative ones).

As we have seen, echo questions do thus not generally show a particular intonation which would oppose them to non-echo questions. Yet, it is worth pointing out that, in the case of echo wh-questions, L* H% was used with a higher frequency than in the respective non-echo information-seeking wh-questions.[303] Moreover, an apart intonational marking is also possible: L+H* LH% (or H* LH%), with a complex boundary tone, is a nuclear configuration that was exclusively observed in echo wh-questions (in both varieties but produced solely by CatD speakers). Following the literature on Catalan echo wh-questions and in accordance with the interpretation of H* L% as a surface variant of L+H* L% (cf. above), I suggest that H* LH% is a surface realization of underlying L+H* LH% that appears due to lack of space. However, it is again likely that not all bilinguals have this configuration at their disposal in their phonological systems.[304] Finally, as concerns the difference between neutral and exclamative echo

[301] Please note that as in other question types the boundary tone usually—though not exclusively—represented the highest point in the utterance (i.e. ¡H%).

[302] Estebas-Vilaplana/Prieto (2010: 35) equally observe ¡H* L% contours in their data after preceding high tonal targets but interpret them as surface realizations of L+¡H* L% (in accordance with Escandell-Vidal 1999). A further reason that speaks in favour of such an interpretation is the fact that L+¡H* L% was also attested sporadically in Central Catalan (cf. Prieto et al. 2015: 32–33, 57).

[303] Note that echo wh-questions pragmatically represent yes–no questions despite containing a wh-word because they require a polar answer (i.e. 'yes' or 'no').

[304] Such inter-speaker differences are also evident in the fact that the bilingual of Honduran origin once more (and as the only participant) produced an H+L* LH% nuclear contour, which she had already used in other question types, in her echo yes–no questions in both languages.

yes–no question, the main difference seems to consist in the use of a higher pitch range in the latter, which once again translates in the appearance of H+L* as a surface variant of L* in both the nucleus and the prenucleus and in the use of particularly high boundary tones (i.e. ¡H%).

H+L* L% and L+H* L% are the two nuclear configurations established for **commands** in both GS and GC. With respect to the first one of these, I suggest that L* L% is a surface realization that might convey a less strong or friendlier command, since it camouflages the command as a statement (cf. Henriksen/García-Amaya 2012: 139). The same two nuclear configurations may thus be used to express both orders and neutral statements. This is possible since the orders can be easily recognized by the use of a verb in the imperative mood. However, on the basis of the clearly different frequencies of occurrence, I conclude that the underlying forms are distinct: L* L% in statements and H+L* L% in commands. The L+H* L% nuclear configuration, finally, has already been said various times to express emphasis. I assume that this is also the case in orders.

For **requests**, the following nuclear configurations can be proposed on basis of the intonational analysis: L+H* L% and L+H* HL%, as well as H+L* L%. In this case, length of the utterance seems to play a role, in the sense that H+L* L% appears typically in sentences with a rising pitch accent in the prenucleus, whereas the other two contours are used to express requests in utterances that only consist of the verb in the imperative mood. I assume that the HL% boundary tone expresses more insistence as opposed to L%. This bitonal boundary tone was also found to express contradiction statements and vocatives in the two contact varieties. However, morphological and lexical cues allow to distinguish the sentence modalities (i.e. the verb in the imperative mood, in requests, and the proper name or noun, in vocatives).

As for **vocatives**, L+H* HL% and L+H* !H% were established as nuclear configurations in both GS and GC. I suggest that the two boundary tones convey different degrees of insistence based on their frequency in the data set and in accordance with the literature (cf. Section 3.1.2.2): whereas HL% is assumed to convey a neutral vocative ('first call'), !H%, i.e. the so-called 'vocative chant', marks a more insistent vocative ('second call'). L+H* H% (with the surface variant L* H%), finally, is used in 'interrogative vocatives' or 'vocative questions', i.e. when only the name of a person is used to ask implicitly 'Are you there?' or 'Can you hear me?' (cf., e.g., Prieto 2002a: 460; Prieto 2013: 42–43; Prieto et al. 2015: 41; Borràs-Comes et al. 2015: 78).

The reasons why more than one underlying nuclear configuration were established for various sentence types in the two Girona varieties (for instance, in information-seeking yes–no questions) and how single individuals differ with regard to their phonological repertoires will be addressed more extensively in Section 6.4. It will be shown that, in many cases, CLI is responsible for the variable presence of intonational features in the contact population. However, a larger speaker corpus will be necessary to determine the nature of the variation between competing nuclear configurations in all utterance types.

By way of concluding this section, Table 5.2-1 summarizes the underlying nuclear configurations of IPs established for the different GC and GS sentence types. When more than one configuration is given, they are arranged according to decreasing frequency of occurrence.

Table 5.2-1: Inventory of underlying nuclear configurations of IPs in Girona Spanish and Girona Catalan.

sentence types		Girona Catalan	Girona Spanish
neutral statements	neutral statements	L* L%[305]	same
	enumerations[306]	L* L%	same
	peripheral elements in neutral statements[307]		
	dislocations	L* L%	same
	vocatives	L+H* L%	same
	parenthetical elements	L* L%	same
	appositions	L* L%	same
biased statements	contrastive-focus statements	L+H* L%[308]	same
	exclamative statements	L+H* L%[309]	same
	contradiction statements[310]	H+L* L% L+H* L% L* HL% H+L* HL%	same, but L+H* L% is more frequent
	dubitative statements	L+H* L%[311]	same
neutral polar questions	information-seeking yes–no questions[312]	L* H%[313] H+L* L%[314]	same[315]
	disjunctive questions[316]	H+L* L% L* L%	L* L% H+L* L%

[305] Surface realizations: H+L* L% (after preceding high tone).
[306] NB: This nuclear configuration only refers to the ip containing the last element in enumerations.
[307] The table offers the nuclear configurations of the respective extra-sentential elements, not of the main clause (which behaved like usual neutral statements).
[308] Surface realizations: 'step-like' ¡L+H* L% (after high preceding targets, cf. above). L* L% can be employed when the contrastive focus is signalled by syntactic means (such as cleft structures).
[309] Surface realizations: H* L% and L+¡H* L% (expresses more emphasis). L* L% can be employed when the exclamativity is signalled by increased pitch movements (e.g. higher scaling of pitch accents) in the prenucleus.
[310] I assume that not all bilinguals have the same inventory of nuclear configurations for contradiction statements and that this situation is the result of convergence processes between the originally different systems of GC and GS (cf. Section 6.4.2.2). Please note furthermore that some of the nuclear configurations presented here have different surface realizations (see Section 5.1.2.3 for more details).
[311] Surface realizations: H* L%. L* L% can be employed when the notion of doubt is expressed by lexical means.
[312] I assume that not all bilinguals have the same inventory of nuclear configurations for information-seeking yes–no questions and that this situation is a result of an ongoing but yet uncompleted process of convergence between the originally different systems of GC and Spanish (cf. Section 6.4.2.3 for more details). Please also note that the H+L* LH% nuclear configuration found in only one speaker is not listed here.
[313] This nuclear configuration is usually realized as L* ¡H% in all question types when there is enough post-nuclear material for F0 to rise to the highest point of the utterance.
[314] This contour is only used in yes–no questions headed by the complementizer *que*.
[315] I assume that only some (typically CatD) bilinguals have H+L* L% in their phonological repertoire for GS.
[316] I assume that not all bilinguals have the same inventory of nuclear configurations for disjunctive statements (cf. Section 6.4.2.3).

biased polar questions	exclamative yes–no questions (with counterexpectational meaning)	*nuclear configurations of information-seeking yes–no questions*[317]	
	confirmation-seeking yes–no questions	L* H% H+L* L%[318]	same
neutral wh-questions	information-seeking wh-questions[319]	H* L% L* L% L* H%	same, although H* L% is less dominant
biased wh-questions	exclamative wh-questions[320]	H* L%[321] L+H* L%[322] L* H%[323]	same, although L+H* L% is more frequent
	imperative wh-questions	H+L* L% L* H%	H+L* L% L* H% L+H* L%
echo questions	echo yes–no questions	L* H% L+H* L%[324]	same
	echo wh-question	L* H% L+H* L%[325] L+H* LH%[326]	same (L+H* L% slightly more frequent)
	exclamative echo yes–no questions (with counterexpectational meaning)	L* H%[327] H+L* L% L+H* L%	same
imperatives	commands	H+L* L%[328] L+H* L%[329]	same
	requests	H+L* L% L+H* L%[330] L+H* HL%[331]	same

317 I assume that the notion of exclamativity is expressed by the expansion of the pitch range and an increase of the pitch movements, yielding, e.g., surface realization of L* H% such as H+L* H%.

318 This alternative contour is typically employed on 'disjunctive elements'. Please also note that it does not come along with the complementizer *que* in confirmation-seeking yes–no questions.

319 I assume that not all bilinguals have the same inventory of nuclear configurations for information-seeking wh-questions and that this situation is the result of convergence processes between the originally different systems of GC and Spanish (cf. Section 6.4.2.4).

320 Please note that the nuclear configurations found in exclamative wh-questions are virtually the same as in information-seeking wh-questions. However, L+H* L% is clearly more frequent (especially in GS) and a higher pitch range and more tonal movements are typically used to convey the notion of exclamativity. Also, it is probable that not all bilinguals have the same intonational systems for this utterance type.

321 Typical surface realization (in both varieties): ¡H* L% (expresses more emphasis).

322 Alternative surface realization (in both varieties): L+¡H* L% (expresses more emphasis).

323 Typical surface realization (in both varieties): L+H* (¡)H% (expresses more emphasis).

324 This nuclear contour is usually found in echo yes–no questions without prenucleus.

325 Surface realizations: H* L% (due to lack of space after a preceding high tone).

326 Surface realizations: H* LH% (due to lack of space after preceding high tone).

327 Surface realizations: L* ¡H% and H+L* (¡)H% (effect of the use of an extended pitch range; expresses more emphasis).

328 Surface realizations: L* L% (less strong command).

329 Typically appears in imperatives consisting of only one prosodic word (i.e. the imperative verb form).

330 Usually appears on short commands consisting of only one prosodic word (i.e. the imperative verb form).

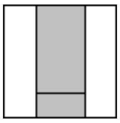
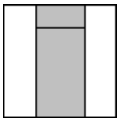
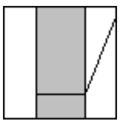
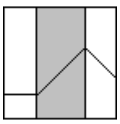
331 I assume that the HL% boundary tone expresses more insistence as opposed to L%.

vocatives		L+H* HL% L+H* !H%[332] L+H* H%[333]	same

5.2.4 Inventory of pitch accents and boundary tones in Girona Spanish and Girona Catalan

The result of the intonational analysis revealed that both GS and GC have an inventory of six pitch accents: L*, H*, L*+H, L+H*, L+<H*, H+L*. Of these, L*+H and L+<H* only occurred in prenuclear position (cf. Section 5.2.1). Table 5.2-2 provides a schematic representation and a phonetic description of each pitch accent. The black line represents the F0, the grey parts illustrate the metrically strong (i.e. stressed) syllable, the white parts correspond to preceding and following unstressed syllables.

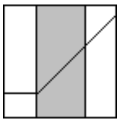
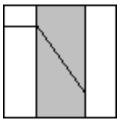
Table 5.2-2: Inventory of pitch accents in Girona Spanish and Girona Catalan.[334]

Pitch accents	Phonetic description
Monotonal pitch accents	
L* 	L* is phonetically realized as a low plateau during the stressed syllable or can be shaped as a gentle trough valley. Its level typically—though not necessarily—correlates with the minimum of the speaker's range.
H* 	H* is phonetically realized as a high plateau during the stressed syllable or as a (rather flat) peak.
Bitonal pitch accents	
L*+H 	L*+H is phonetically realized as a flat valley during the stressed syllable followed by a rise in the post-tonic syllable(s). Its level is usually somewhat higher than the minimum of the speaker's range as it appears in prenuclear positions.
L+H* 	L+H* is phonetically realized as a rise during the stressed syllable with the peak located at the end of that syllable.

332 I assume that the !H% boundary tone expresses more insistence as opposed to HL%. Please also note that the syllables carrying these boundary tones are considerably lengthened.

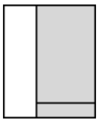
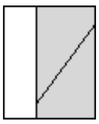
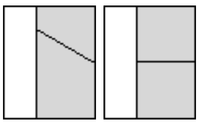
333 Surface realizations: L* H%. These nuclear configurations are used in 'vocative questions' (cf. above).

334 Please note that the pitch accents containing a high target may be upstepped (e.g. H* and L+H* present the surface variants ¡H* and L+¡H*). If so, their peak usually represents the overall F0 maximum of the ip. The illustrations are taken from Aguilar et al. (2009) and (2009–2011).

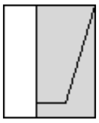
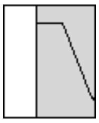
L+<H* 	L+<H* is phonetically realized as a rise during the stressed syllable with the peak located in a post-tonic syllable.
H+L* 	H+L* is phonetically realized as a fall during the stressed syllable.

GS and GC also present the same inventory of boundary tones. It contains three monotonal boundary tones (H-/H%, !H-/!H%, and L-/L%) as well as two bitonal boundary tones (LH% and HL%). Of these, three boundary tones could be found in nuclear configurations of inner ips and in nuclear configurations of IPs (i.e. H-/H%, !H-/!H%, and L-/L%, respectively). The remainder was only attested in nuclear configurations of IPs (L%, LH%, HL%). Table 5.2-3 provides schematic representations and phonetic descriptions of each boundary tone. The black line represents the F0, the grey parts illustrate the phrase-final syllable on which the boundary tone is realized, the white parts correspond to preceding syllables.

Table 5.2-3: Inventory of boundary tones in Girona Spanish and Girona Catalan.

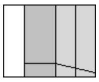
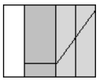
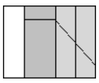
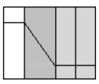
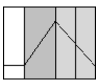
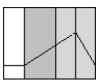
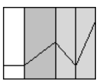
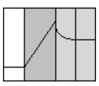
Boundary tones	Phonetic description
Monotonal boundary tones	
L-/L% 	L-/L% is phonetically realized as a sustained low tone or as a falling tone. Its level correlates with the minimum of the speaker's range when it is a sustained low tone. When it is realized as a fall after a preceding high tone it must not attain the minimum of the speaker's range but at least the lower half of it.
H-/H% 	H-/H% is phonetically realized as a rising tone. It can be produced after low or rising pitch accents.[335]
!H-/!H% 	!H-/!H% is phonetically realized as a high sustained tone or as a gentle fall to a mid-tone.[336]

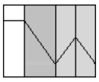
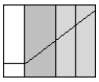
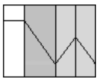
[335] This boundary tone has an upstepped surface variant, i.e. ¡H-/¡H%.
[336] Theoretically, !H-/!H% can also be a rise from a low level to a mid-tone.

Bitonal boundary tones	
LH-/LH% 	LH-/LH% is phonetically realized as a valley to a mid-level of the speaker's range followed by a rise to a high level of their range. It is realized after high or rising pitch accents.
HL-/HL% 	HL-/HL% is phonetically realized as a peak followed by a fall. It occurs after rising and low pitch accents.

The following Table, finally, offers schematic representations of the inventory of nuclear configurations to which the aforementioned pitch accents and boundary tones combined in the GS and GC corpora used for the current study. For convenience, it also repeats the pragmatic utterance types in which each nuclear configuration may appear (cf. Section 5.2.3, above).

Table 5.2-4: Inventory of Girona Spanish and Girona Catalan nuclear configurations, their schematic representation, and their use in several sentence types.

Nuclear configuration		Sentence type where it is used
	L* L%	Neutral broad-focus statements, enumerations, utterance-final peripheral elements in neutral statements (dislocations, parenthetical elements, appositions), disjunctive questions, information-seeking wh-questions
	L* H%	yes–no questions (information-seeking, exclamative, and confirmation-seeking), wh-questions (information-seeking, exclamative, imperative), echo questions (yes–no, wh-, and exclamative yes–no)
	H* L%	information-seeking and exclamative wh-questions
	H+L* L%	contradiction statements, information-seeking and exclamative yes–no question (with *que*), confirmation-seeking yes–no questions, disjunctive questions, exclamative echo yes–no questions, commands, requests
	L+H* L%	biased statements (i.e. contrastive-focus, exclamative, contradiction, and dubitative statements), exclamative wh-questions, imperative wh-questions (only attested in GS), echo questions (yes–no, wh-, and exclamative yes–no), commands, requests
	L+H* HL%	requests, vocatives
	L+H* LH%	echo wh-questions
	L+H* !H%	vocatives

	H+L* HL%	contradiction statements
	L+H* H%	interrogative vocatives
	L* HL%	contradiction statements

5.3 Prosodic phrasing

This subchapter deals with the results of the analysis of prosodic phrasing in GS and GC broad-focus declaratives. As outlined in the methodology (cf. Section 4.3.2), the analysis draws primarily on a corpus of read speech recorded by the 31 Girona bilingual subjects that participated in the present study. The final read corpus consisted of 494 SVO broad-focus declaratives (248 GS and 246 GC ones). Additionally, a (somewhat smaller) corpus of 108 semi-spontaneous declarative statements (56 GS and 52 GC ones), stemming from the DCT carried out by the same participants, was studied as well to complete the analyses.

In what follows, the results of the more extensive analysis of read speech will be presented first. In Section 5.3.1, I will describe the prosodic phrasing of main syntactic constituents, before going into the prosodic boundaries that can sometimes be found within these constituents (Section 5.3.2). In Section 5.3.3, then, I will portray the tonal realization of the prosodic boundaries observed in the read data set. Section 5.3.4., finally, deals with prosodic phrasing in semi-spontaneous speech.

5.3.1 Phrasing patterns of main syntactic constituents in SVO declaratives

Irrespective of any condition of branchingness, language variety, or LD of the speaker, the most common phrasing pattern in the read data set was clearly (S)(VO), reaching a percentage of 76%. It was followed by the pattern (SVO), which occurred in about 13% of all cases. The two remaining possible groupings, (SV)(O) and (S)(V)(O), account together for some 11% of the items, but, as we shall see, they could be even less relevant than it seems at first sight, since these percentage might—in part—reflect an effect of the task design. Table 5.3-1 shows the relevant percentages of all possible phrasing patterns according to the language variety, i.e. GS and GC, respectively. The bar chart in Figure 5.3-1 provides an illustration.

Table 5.3-1: Percentages (and total numbers) of phrasing patterns in Girona Spanish and Girona Catalan.

Language	(SVO)	(S)(VO)	(SV)(O)	(S)(V)(O)	Number of tokens
Girona Spanish	10% (24)	74% (183)	3% (8)	13% (33)	248
Girona Catalan	16% (40)	78% (192)	1% (2)	5% (12)	246

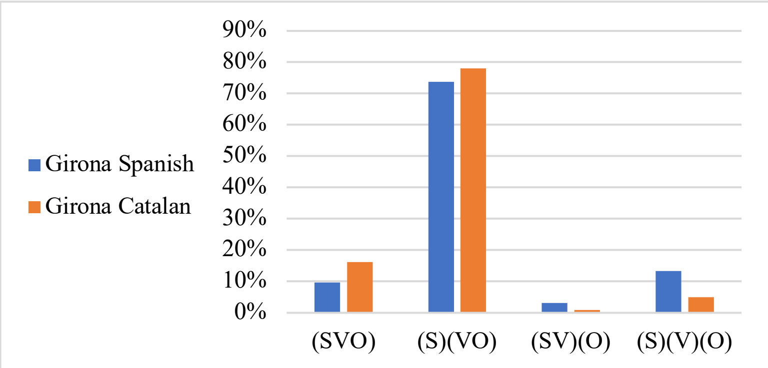


Figure 5.3-1: Percentages of phrasing patterns in Girona Spanish and Girona Catalan.

As can be seen from Table 5.3-1 and the preceding graph (Figure 5.3-1), all possible phrasing patterns occurred to very similar extents in the two language varieties under consideration. Nevertheless, the overall difference between the two varieties reaches statistical significance ($\chi^2(3) = 17.608$, $p < 0.001$). Altogether, (S)(VO) was clearly dominant in both varieties, (SVO) occurred to a minor extent, and (SV)(O), with a separately phrased object, was almost non-existent. The biggest inter-language difference was found with regard to (S)(V)(O), whose use in Spanish exceeded its occurrence in Catalan by 8 percentage points. This, in turn, entails that the most common patterns (SVO) and (S)(VO) are slightly less frequent in Spanish than in Catalan. The visual representation of the observed frequencies and the corresponding Pearson residuals in the mosaic plot in Figure 5.3-2 equally confirm that the difference between the two varieties can be mainly traced back to the unequal use of (S)(V)(O). As we shall see below, the detailed analysis of the single test items (cf. Table 5.3-2) suggests that there are two factors that may encourage the phrasing of the three main syntactic constituents in separate ips in the Spanish data set.

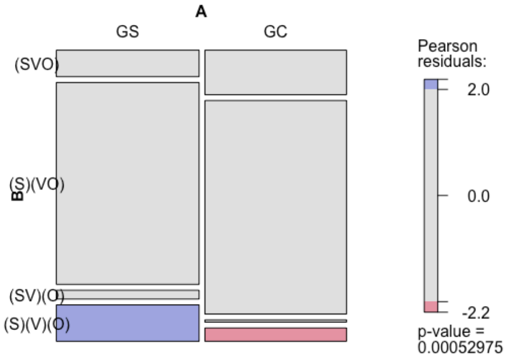


Figure 5.3-2: Mosaic plot of the uses of different phrasing patterns in Girona Spanish and Girona Catalan broad-focus declarative statements. The blue and red shading of the boxes represents the over- and underrepresented phrasing patterns, respectively (cf. Zeileis et al. 2007).

Table 5.3-2 and the corresponding graphs in Figures 5.3-3 and 5.3-4 summarize the attested phrasing patterns according to branchingness. Columns 1 to 4 show the values for the syntactic branching conditions (achieved through adjectival modification of the subject and/or object), while columns 5 to 8 refer to prosodic branchingness (achieved through personal names of different complexity). The numbering of the columns corresponds to the order of the test sentences as presented in the methodology (Section 4.3.2), i.e. column 1 gives the results for the stimulus No. 1 (for GS and GC, respectively), column 2 for stimulus No. 2, etc.

Table 5.3-2: Percentages of phrasing patterns in Girona Spanish and Girona Catalan according to branchingness (syntactic branchingness: columns 1–4; prosodic branchingness: columns 5–8; total number of items in brackets).

Girona Spanish	**1. svo**	**2. svoo**	**3. ssvo**	**4. ssvoo**	**5. svo**	**6. svooo**	**7. sssvo**	**8. sssvooo**
(SVO)	10% (3)	10% (3)	0% (0)	3% (1)	16% (5)	35% (11)	0% (0)	3% (1)
(S)(VO)	55% (17)	52% (16)	94% (29)	90% (28)	55% (17)	55% (17)	97% (30)	94% (29)
(SV)(O)	10% (3)	13% (4)	0% (0)	3% (1)	0% (0)	0% (0)	0% (0)	0% (0)
(S)(V)(O)	26% (8)	26% (8)	6% (2)	3% (1)	29% (9)	10% (3)	3% (1)	3% (1)
Girona Catalan	**1. svo**	**2. svoo**	**3. ssvo**	**4. ssvoo**	**5. svo**	**6. svooo**	**7. sssvo**	**8. sssvooo**
(SVO)	33% (10)	26% (8)	6% (2)	7% (2)	16% (5)	35% (11)	6% (2)	0% (0)
(S)(VO)	53% (16)	68% (21)	90% (28)	87% (26)	71% (22)	61% (19)	94% (29)	100% (31)
(SV)(O)	0% (0)	3% (1)	0% (0)	0% (0)	0% (0)	3% (1)	0% (0)	0% (0)
(S)(V)(O)	13% (4)	3% (1)	3% (1)	7% (2)	13% (4)	0% (0)	0% (0)	0% (0)

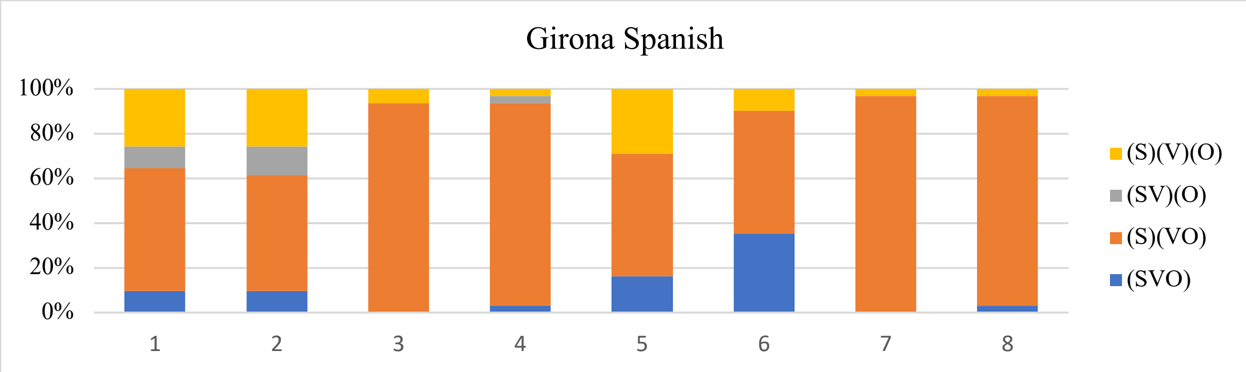


Figure 5.3-3: Percentages of phrasing patterns in Girona Spanish.

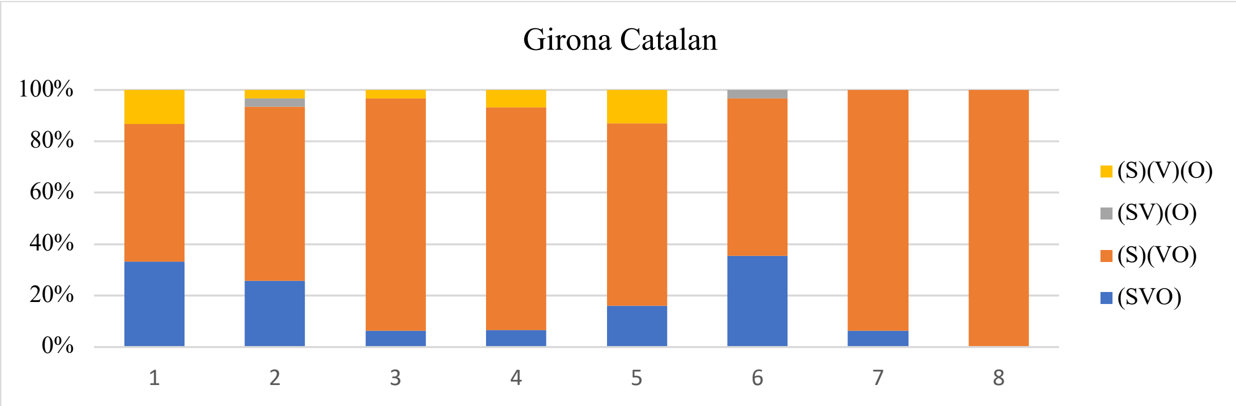


Figure 5.3-4: Percentages of phrasing patterns in Girona Catalan.

Over all conditions of syntactic and prosodic branchingness, (S)(VO) clearly constitutes the predominant grouping in both languages. When the subject is branching—be it syntactically (columns 3 and 4) or prosodically (columns 7 and 8)—it totals between 87 and 100 per cent. With non-branching subjects (columns 1, 2, 5, and 6), it is still the most common pattern, accounting for 52 to 71% of the analysed tokens, but different realizations occur with a higher frequency than in the branching subject conditions: i.e. the sentence may also be pronounced in only one phrase (10 to 35%) or each constituent can be rendered in an own ip, viz. as (S)(V)(O) (see below for an in-depth analysis of the use of this pattern).

For the conditions with branching objects (i.e. column 2 and 6), (S)(VO) interestingly totals only 52 to 68%, which forms a striking parallel to the occurrence of this grouping in the non-branching conditions. Similarly, (SVO) reaches a share of between 10 to 35% with both branching and non-branching objects but hardly occurs when the subject is branching (0 to maximally 7%). Notably, (SV)(O) groupings are almost absent from the present sample. However, when they occur it is usually in sentences with a branching object (cf. columns 2, 4, 6). (S)(V)(O), too, can sometimes be found in the branching object condition (columns 2, 4, 6, and 8). There thus seems to exist a minor tendency to realize branching objects in an own phrase, but nevertheless it is evident that the branchingness of the subject plays much bigger a role in phrasing decisions.

As concerns (S)(V)(O) groupings, over half of the occurrences were found in sentences No. 1 and 5, i.e. in the two sentences with non-branching constituents (51% in GS, n = 17/33; 67% in GC, n = 8/12). The lack of branchingness of both the subject and the object and/or the relative shortness of the test sentences that comes with it thus seem to favour this phrasing pattern. However, in view of the fact that this does not appear very plausible, alternative explanations need to be considered. For instance, a more important factor could be the participants' lack of familiarity with the sentences at the moment of the recording. Although they were given as much time as they needed before reading out each token, sentences 1 and 5 were new to them when they performed the reading task owing to the fact that these were the first items to be read out, respectively, in each set of test sentences (cf. 4.3.2). In opposition to No. 1 and 5, the remaining sentences of each set represented branching variants of these first ones and were thus at least partly known to the participants when presented to them. It is self-evident that readers read unknown contents more slowly and, in consequence, may realize more prosodic breaks in their readings. In the present case, this would explain why the (S)(V)(O) phrasing pattern attains shares as high as 13 to 19 per cent in sentences 1 and 5. This view is further supported by the fact that (a) this phrasing pattern occurred more frequently in the readings of the Spanish test items, which had to be read out before the Catalan ones (that were essentially translations from Spanish) and (b) that Spanish sentence No. 2—i.e. the second item to be read out in the task—also displayed a considerable amount of phrasing patterns of this type (n = 8), accounting for another 25% of its occurrences in Spanish. Taken together, these facts suggest that (S)(V)(O) is a possible phrasing pattern in both GS and GC, but that its 'high' share in the present study might at least in part be an effect of the task used for data collection. It therefore is possible that it might be rather insignificant in general language use.

With regard to the distribution of phrasing patterns according to the type of branchingness, i.e. syntactic (columns 2–4) and prosodic (columns 5–8) branchingness, no noteworthy differences could be observed. In most cases, variance seems to be at chance level, never exceeding a difference of 7 percentage points (mean difference: 1 percentage point). Solely the comparison of sentence 2 (syntactically branching) and 6 (prosodically branching) in GS yielded major differences (cf. columns 2 and 6). These derive from the fact that more (SVO) groupings were used in sentence 6 (with a prosodically branching object), whereas sentence 2 (with a syntactically branching object) exhibits a higher proportion of (S)(V)(O) and (SV)(O) groupings. However, as outlined above, I interpret the comparably high proportion of separately phrased constituents in sentence 2 in the GS data set as a side effect of the task design.

In sum, (S)(VO) was the most frequent grouping over all branchingness conditions. Its occurrence seems to be encouraged by both syntactically and prosodically branching subjects. An absence of branchingness, on the other hand, increases the share of (SVO) phrasings. Furthermore, there appears to exist very slight tendency to phrase branching objects in a separate ip. The use of (S)(V)(O) groupings in the present study, finally, may either be favoured in short sentences with non-branching constituents or reflect extra-linguistic factors, viz. processing difficulties on the part of the speaker.

A direct inter-language comparison of the use of single phrasing patterns in every test item solely yielded noteworthy differences (i.e. of at least 10 percentage points) for sentences 1, 2, 5, and 6. These stem mainly from the fact that more (S)(V)(O) groupings were used in the realizations of the Spanish test items. Furthermore, there were also slightly more (SV)(O) groupings in the realizations of the first two sentences in GS than in Catalan. In Catalan, on the other hand, the corresponding proportions fall to the (S)(VO) and (SVO) patterns. However, in accordance with the analysis of the use of the (S)(V)(O) phrasing pattern, above, I surmise that these apparent differences are caused mainly by the task design. In consequence, the current sample does not present any clear-cut language-specific differences regarding the prosodic phrasing of broad-focus SVO declaratives with different degrees of syntactic and prosodic branchingness (see Section 6.4.1 for a critical discussion of this finding).

The overall picture does not change very much, either, when the participants' **LD** is taken into consideration. Table 5.3-3 represents the phrasing patterns used in GS according to the LD of the speakers (for GC see below).

Table 5.3-3: Percentages of phrasing patterns used in Girona Spanish according to branchingness and participants' language dominance (total numbers of items in brackets).

Catalan-dominants	**1. svo**	**2. svoo**	**3. ssvo**	**4. ssvoo**	**5. svo**	**6. svooo**	**7. sssvo**	**8. sssvooo**
(SVO)	15% (3)	10% (2)	0% (0)	5% (1)	25% (5)	45% (9)	0% (0)	0% (0)
(S)(VO)	50% (10)	50% (10)	95% (19)	95% (19)	55% (11)	50% (10)	95% (19)	95% 19)
(SV)(O)	10% (2)	10% (2)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)
(S)(V)(O)	25% (5)	30% (6)	5% (1)	0% (0)	20% (4)	5% (1)	5% (1)	5% (1)
Spanish-dominants	**1. svo**	**2. svoo**	**3. ssvo**	**4. ssvoo**	**5. svo**	**6. svooo**	**7. sssvo**	**8. sssvooo**
(SVO)	0% (0)	9% (1)	0% (0)	0% (0)	0% (0)	18% (2)	0% (0)	9% (1)
(S)(VO)	64% (7)	55% (6)	91% (10)	82% (9)	55% (6)	64% (7)	100% (11)	91% (10)
(SV)(O)	9% (1)	18% (2)	0% (0)	9% (1)	0% (0)	0% (0)	0% (0)	0% (0)
(S)(V)(O)	27% (3)	18% (2)	9% (1)	9% (1)	45% (5)	18% (2)	0% (0)	0% (0)

In both dominance groups (S)(VO) was the most common pattern over all branchingness conditions. It was especially frequent when the subject was branching (columns 4, 5, 7, and 8), such that the use of phrasing patterns was practically identical between the two groups in the respective sentences. The biggest differences thus arose in the sentences without branching subjects, i.e. in sentences 5 and 6, and—to a somewhat lesser extent—in sentences 1 and 2. Here, CatD speakers showed a higher use of (SVO) patterns, whereas SpD used slightly more (S)(VO) and, primarily in sentences 5 and 6, also more (S)(V)(O) groupings. As I have discussed above, the use of this last-mentioned pattern may in part be favoured by the task design. Nevertheless, it seems to be a bit more frequent among SpD speakers in the present data set independently of the methodology used for data collection. In consequence of the small numbers of cases, however, no reliable statements can be made in this regard.

As for the second variety under concern in the current work, i.e. GC, the phrasing patterns used by the two dominance groups are displayed in Table 5.3-4.

Table 5.3-4: Percentages of phrasing patterns in Girona Catalan according to branchingness and participants' language dominance (total numbers of items in brackets).

Catalan-dominants	**1. svo**	**2. svoo**	**3. ssvo**	**4. ssvoo**	**5. svo**	**6. svooo**	**7. sssvo**	**8. sssvooo**
(SVO)	35% (7)	35% (7)	10% (2)	10% (2)	25% (5)	45% (9)	5% (0)	0% (0)
(S)(VO)	55% (11)	60% (12)	90% (18)	80% (16)	60% (12)	50% (10)	95% (19)	100% (20)
(SV)(O)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	5% (1)	0% (0)	0% (0)
(S)(V)(O)	10% (2)	5% (1)	0% (0)	10% (2)	15% (3)	0% (0)	0% (0)	0% (0)
Spanish-dominants	**1. svo**	**2. svoo**	**3. ssvo**	**4. ssvoo**	**5. svo**	**6. svooo**	**7. sssvo**	**8. sssvooo**
(SVO)	30% (3)	9% (1)	0% (0)	0% (0)	0% (0)	18% (2)	9% (1)	0% (0)
(S)(VO)	50% (5)	82% (9)	91% (10)	100% (10)	91% (10)	82% (9)	91% (10)	100% (11)
(SV)(O)	0% (0)	9% (1)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)	0% (0)
(S)(V)(O)	20% (2)	0% (0)	9% (1)	0% (0)	9% (1)	0% (0)	0% (0)	0% (0)

In this variety, too, variance in usage between the two groups of disparate LD was observed mainly in the sentences without branching subjects, whereas sentences with branching subjects were virtually always phrased as (S)(VO) by the members of both dominance groups. The biggest differences (i.e. those of more than 20 percentage points) concerned sentence No. 5 (without any branching element) as well as the sentences No. 2 and 6 (with branching objects), where CatD speakers presented a stronger trend towards realizations without any prosodic break (i.e. SVO), while SpD subjects produced more (S)(VO) groupings instead. This tendency could also be perceived to a somewhat lesser extent in sentence No. 4, with a syntactically branching subject and object.

A direct across-language comparison of the patterns used by each group further confirms these observations. First, it once more reveals that both groups realized a higher number of

(S)(V)(O) patterns in Spanish than in Catalan (primarily in the sentences without branching subject, i.e. 1, 2, 5, and 6). In Catalan, on the other hand, SpD made more use of (S)(VO) groupings, while CatD speakers employed more (SVO) patterns. Second, it shows that regarding the (non-branching) sentence No. 1, SpD participants availed themselves more often of the (SVO) pattern in Catalan than in Spanish.

In sum, although the (S)(VO) phrasing pattern enjoyed clearly the highest frequency of occurrence across all conditions (i.e. branchingness, language, and LD of the speaker), the present data suggest that CatD speakers were slightly more prone to use (SVO) instead of (S)(VO) patterns in sentences without branching subject than SpD subjects were. Furthermore, (SVO) was also attested more often among SpD when they spoke Catalan than when they used Spanish. Even though the small numbers of cases do not allow for reliable conclusions, these findings speak to the idea that the (SVO) pattern could be somewhat more popular in Catalan than in Spanish—and, in consequence, also among CatD speakers. In Spanish, on the other hand, there would exist, in that case, a stronger tendency to prosodically separate subject and verb, i.e. to produce (S)(VO) whatsoever. Additionally, in sentences without a branching subject, it can be surmised that SpD speakers present a minor tendency to use more (S)(V)(O) groupings than CatD bilinguals, which would be independent of the fact that both groups used this pattern more commonly in Spanish than in Catalan (probably owing to their lacking familiarity with the test sentences at the moment of the data collection). If so, (S)(V)(O) would equally be somewhat more typical of Spanish and, in consequence, also of SpD speakers. However, great caution is required here and future research on the topic is indispensable to corroborate these assumptions (for a discussion of these results in the light of language contact see Section 6.4.1).

5.3.2 Internal phrasing of complex subjects and objects

Whenever a main constituent of a sentence (e.g. the subject or the object) is branching in the sense that it consists of more than one prosodic word, it is possible for speakers to realize prosodic breaks not only between the utterance's main constituents but also between the single prosodic words of which the sentence's main constituents are composed. In the present corpus of read speech, each set of recorded SVO declaratives was made up of one sentence without any branching element and three sentences containing such elements, namely, one with a branching subject, one with a branching object, and one with both (cf. Methodology 4.3.2). In the first set of sentences these branching constituents were composed of a noun and an adjective, i.e. they were syntactically branching, whereas complex personal names (consisting of a first name and two surnames) were used in the second set (prosodic branchingness). In what follows, we will treat these two cases separately.

Table 5.3-5 shows the percentages and total numbers of syntactically complex subjects and objects realized with a phrase-internal prosodic break (cf. test sentences 2–4).

Table 5.3-5: Percentage and total numbers of syntactically branching subjects and objects realized with a phrase-internal prosodic break in Girona Spanish and Girona Catalan.

Test sentence	Syntactically branching subject		Syntactically branching object	
	Sp. *la libélula amazónica*	Cat. *la libèl·lula amazònica*	Sp. *la belladona venenosa*	Cat. *la belladona metzinosa*
sentence 2			32% (10)	58% (18)
sentence 3	42% (13)	23% (7)		
sentence 4	23% (7)	17% (5)	39% (12)	33% (10)

As can be seen, internal breaks between the noun and its modifying adjective were overall more frequent in complex objects than in subjects. With regard to subjects, there was a somewhat stronger tendency towards the realization of an internal prosodic break in the GS data set. Concerning objects, a prosodic break was especially common in sentence 2 of the GC data set. Both of the two latter findings might be traced back—at least in part—to the task design. First, since the Spanish sentences were presented before the Catalan ones, the participants were still less familiar with the task and the concrete sentences (virtually identical in both languages), when they were asked to read out the Spanish target sentences. This could explain why there were generally more constituent-internal prosodic breaks in the Spanish data set. The only item which presented a higher percentage of internal breaks in Catalan than in Spanish is sentence 2. Here, the Catalan word *metzinós* ‘poisonous’ seems to have irritated some of the participants. Although *metzinós* is a fully valid Catalan equivalent of Sp. *venenoso*, it might not usually be used or known by all bilinguals, so that its presence in the target sentences could have made some of the participants hesitate and thus realize a prosodic break before this word. The fact that *veneno* ‘poison’ can be found in Catalan dictionaries (cf. DCVB, s.v. *veneno*) as a loan from Spanish (Cat. *castellanisme*) as well as in some lists of barbarisms (e.g. “Llista de castellanismes en català”, Viquipèdia 2020) supports this view.

However, when the subjects’ LD is taken into account, some interesting phrasing differences can be observed that must be independent of the task design: specifically, the group of speakers dominant in Catalan produced on average 15 percentage points more internal prosodic breaks than the SpD group (in both languages). The biggest between-group difference is found in GS subjects (sentence 3: 35 percentage points more prosodic breaks; sentence 2: 23 percentage points more).

With regard to prosodically branching subjects and objects, phrase-internal prosodic breaks were possible at two positions, since each prosodically branching phrase consisted of three prosodic words (cf. test sentences 6–8). Table 5.3-6 shows the distribution of phrase-internal prosodic breaks observed in the prosodically branching subjects and objects of the current data set (cf. Table 5.3-6). Breaks after the first and after the second prosodic word of these constituents are presented separately (in the left and right column, respectively, corresponding to each constituent).

Table 5.3-6: Percentages and total number of prosodically branching subjects and objects realized with a phrase-internal prosodic break in Girona Spanish and Girona Catalan.

Test sentence	Prosodically branching subject				Prosodically branching object			
	Sp. *Bárbara Duarte Álamo*		Cat. *la Bàrbara Vives i Fàbrega*		Sp. *Verónica del Olmo Solana*		Cat. *la Verònica Borja i Andrada*	
sentence 6					61% (19)	16% (5)	74% (23)	29% (9)
sentence 7	16% (5)	16% (5)	19% (6)	16% (5)				
sentence 8	13% (4)	16% (5)	16% (5)	6% (2)	39% (10)	10% (3)	65% (20)	13% (4)

The table shows that prosodic breaks in prosodically branching constituents are much more frequent when they are in object than in subject position. In both languages, a prosodic break typically separated the first name *Verónica* or *Verònica* from the respective surnames. Interestingly, this trend was slightly stronger in Catalan than in Spanish. This overall picture does not change much when the factor LD is considered. A noteworthy difference between the groups could only be found in one case: namely, in the Catalan version of sentence 7, CatD speakers produced more prosodic breaks after the first name than SpD bilinguals (difference of 40 percentage points).

A comparison of the syntactically and the prosodically branching conditions seems to indicate that the probability of a constituent-internal prosodic break is generally the highest after the first element of prosodically branching objects. Since syntactically and prosodically branching objects had the same length, this might be either an effect of the fact that the latter contained three prosodic words, whereas the former were made up of only two, or indeed of the type of branchingness.

In sum, constituent-internal prosodic breaks seem to be slightly more common in objects than in subjects independently of the language variety spoken, especially when they are of the prosodically branching type. In combination with the results from the analysis of phrasing patterns for the main constituents of SVO sentences, which revealed that (S)(VO) is the most common phrasing pattern over all branchingness conditions, this means that the bilinguals of the present study strongly tend to realize the verb and the first prosodic word of a complex object in one prosodic phrase (i.e., e.g., Sp. '(miraba a Verónica)' and Cat. '(mirava la Verònica)'), whereas the remaining prosodic words of the object may be phrased separately.

Nevertheless, the relatively high number of sentences containing phrase-internal prosodic breaks present in the corpus could again be connected with the task design. Since each set of sentences consisted of one simple sentence and three versions of the same sentence with extended subjects and/or objects, it cannot be excluded that some participants might, in some way, have focused the added elements when reading out the modified sentence versions by phrasing them separately. However, although such an effect cannot be wholly excluded, it is rather improbable, since the design of the present study closely followed the methodology used by Gabriel et al. (2011) and D'Imperio et al. (2005), who did not report such findings whatsoever.

5.3.3 Tonal realization of prosodic boundaries

All prosodic boundaries registered in the current data set were inspected for the seven tonal boundary cues outlined in the methodology (cf. Section 4.3.2): continuation rise (CR), sustained pitch (SP), hat contour (HC), complex boundary tone (CB), low boundary tone (LB), pitch reset (PR), and pre-boundary upstep (PU). In what follows, I will first discuss the tonal realization of the prosodic breaks between syntactic main constituents (cf. Section 5.3.1) and then describe the tonal cues used to mark phrase-internal prosodic breaks (cf. Section 5.3.2).

The pie charts in Figure 5.3-5 summarize the distributions of the tonal surface reflexes of ip boundaries located between main syntactic constituents in GS and GC broad-focus SVO declaratives. A total of 250 GS and 219 GC[337] boundaries were inspected and there was no statistically significant difference between the two distributions.[338]

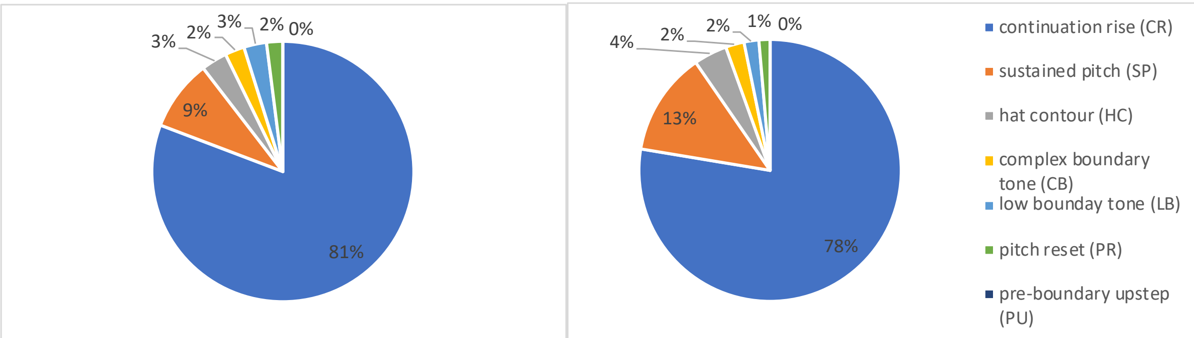


Figure 5.3-5: Frequencies of tonal boundary cues at boundaries between main syntactic constituents in Girona Spanish (left panel) and Girona Catalan (right panel) (in per cent).

As can be seen, most boundaries were realized as CR in both contact varieties (GS: 81%, GC 78%). Two examples from the current data set—a GS and a GC one—are given in Figure 5.3-6 and 5.3-7. In both cases, the pre-boundary rise starts on the metrically strong syllable of a proparoxytonic word (i.e. Sp. *libélula* 'dragonfly' and Cat. *amazònica* 'Amazonian') and reaches its end on the second post-tonic syllable (-*la* and -*ca*, respectively).

337 These numbers include all prosodic boundaries found between main syntactic constituents in the read data set. The distinct size of the numbers in the two varieties arises mainly from the fact that a greater number of (S)(V)(O) phrasing patterns and hence more prosodic boundaries were produced in GS (cf. Section 5.3.1).

338 A Pearson's χ^2 test was carried out on the basis of the count numbers for all categories that appeared at least once in both languages ($\chi^2(5) = 2.904$, $p = 0.715$). The totals can be consulted in Table 5.3-7, below.

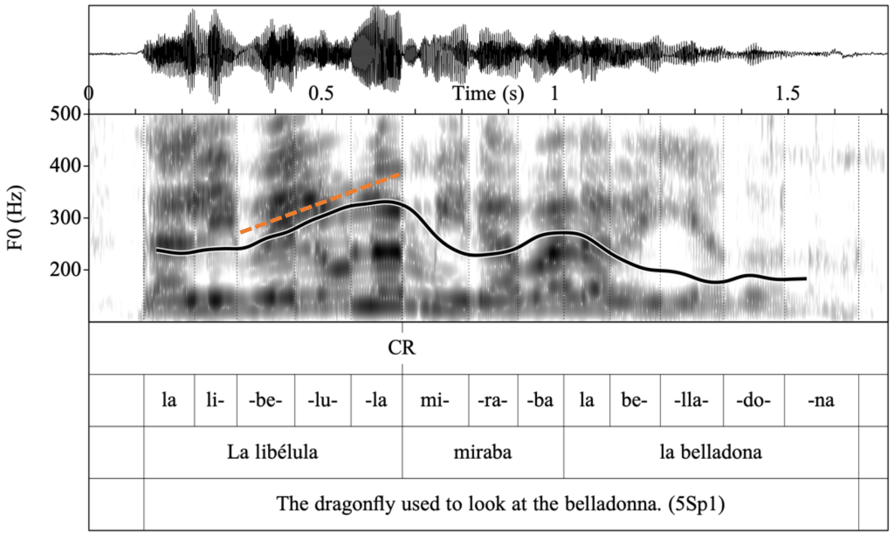


Figure 5.3-6: Waveform and F0 contour of Spanish target sentence No. 1. The ip boundary is signalled through a continuation rise (CR) (5Sp1).

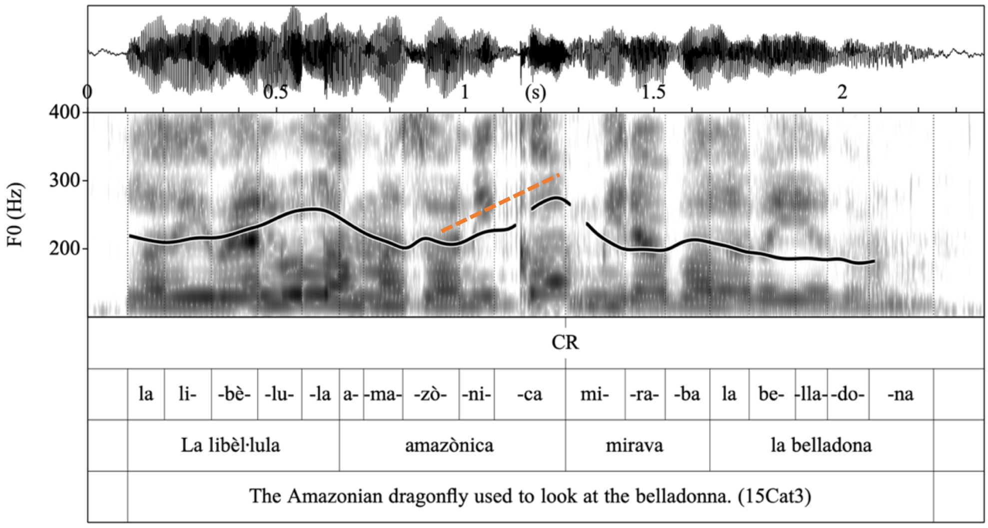


Figure 5.3-7: Waveform and F0 contour of Catalan target sentence No. 3. The ip boundary is signalled through a continuation rise (CR) (15Cat3).[339]

The second most common boundary cue in the corpus was the SP (GS: 9%, GC: 13%). In the example in Figure 5.3-8, the F0 contour rises on the tonic syllable of the name *Bárbara*, and then the height of the pitch is sustained until the end of the word. In the case of Catalan, the use of this boundary cue is somewhat surprising, since it was not reported in the previous literature on phrasal boundary marking in Catalan (cf. Sections 3.2.2; for a discussion of this finding see Section 6.4.1).

[339] Although the orthographic conventions of Catalan require that Cat. *libèl·lula* be syllabized as *li-bèl-lu-la*, since the digraph <l·l> (Cat. *ela geminada*) is supposed to represent a geminate, this practice is only followed in the graphic representations of the examples in this section when a geminate was indeed pronounced by the respective speaker. Otherwise, as is the case in this example, the first <l> was dropped.

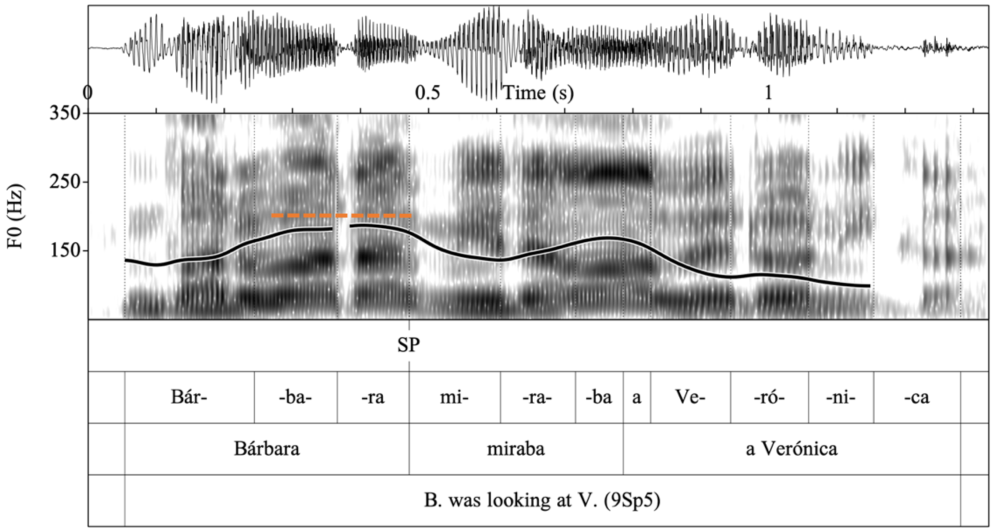


Figure 5.3-8: Waveform and F0 contour of Spanish target sentence No. 5. The ip boundaries are signalled through a sustained pitch (SP) (9Sp5).

The remaining cues (HC, CB, LB, and PR) account together for merely 10% of the boundaries, the most common one among them being the hat contour (HC, reaching each 4% in GC and 3% in GS). These cues thus represent possible, though not very typical cues for signalling boundaries in the two contact varieties. Interestingly, no instances of a PU could be found.

An example of a HC is given in the following realization of the Catalan stimulus No. 8, which displays a break after the subject. The beginning of the HC is located on the stressed syllable of *F<u>à</u>brega*; then, the contour remains high during the post-tonic syllable and the beginning of the pre-boundary syllable, exhibiting a visible drop before the break. For convenience, the hat-shaped part of the contour in Figure 5.3-9 is traced by a dotted line (for a further example see Figure 5.3-16, below).

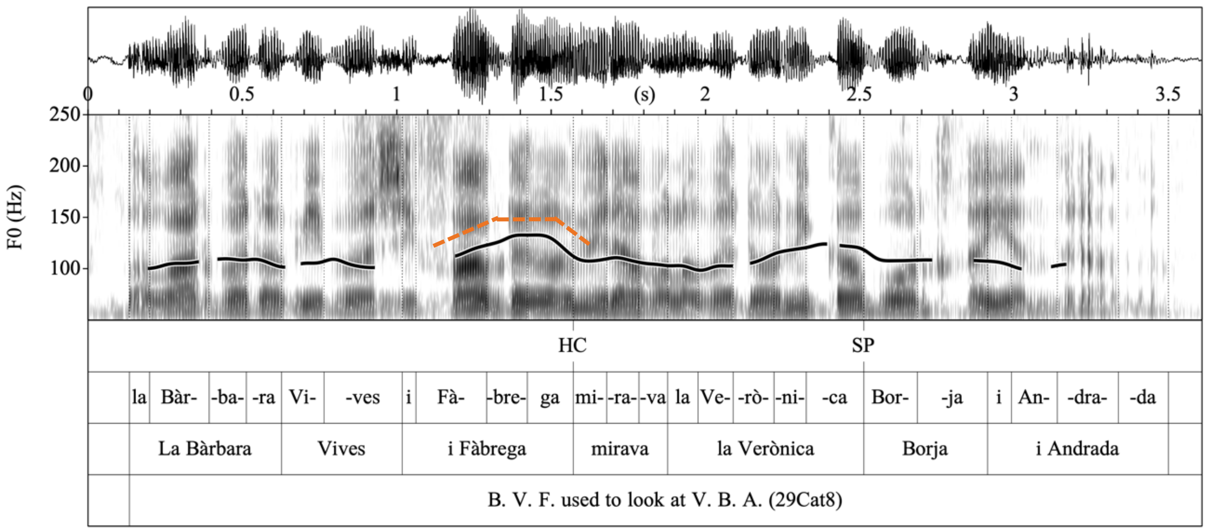


Figure 5.3-9: Waveform and F0 contour of Catalan target sentence No. 8. The ip boundaries are signalled through a hat contour (HC) and a continuation rise (CR) (29Cat8).

A corpus example of a CB is given in Figure 5.3-10. It displays a break after the complex subject which is marked by a small dip located between the pre-boundary pitch accent and the high F0 peak signalling the boundary. More specifically, after reaching a local peak at the end of the metrically strong syllable of *Álamo*, the F0 falls during the post-tonic syllable until the beginning of the pre-boundary syllable *-mo*, where it rises again until the end of the word.

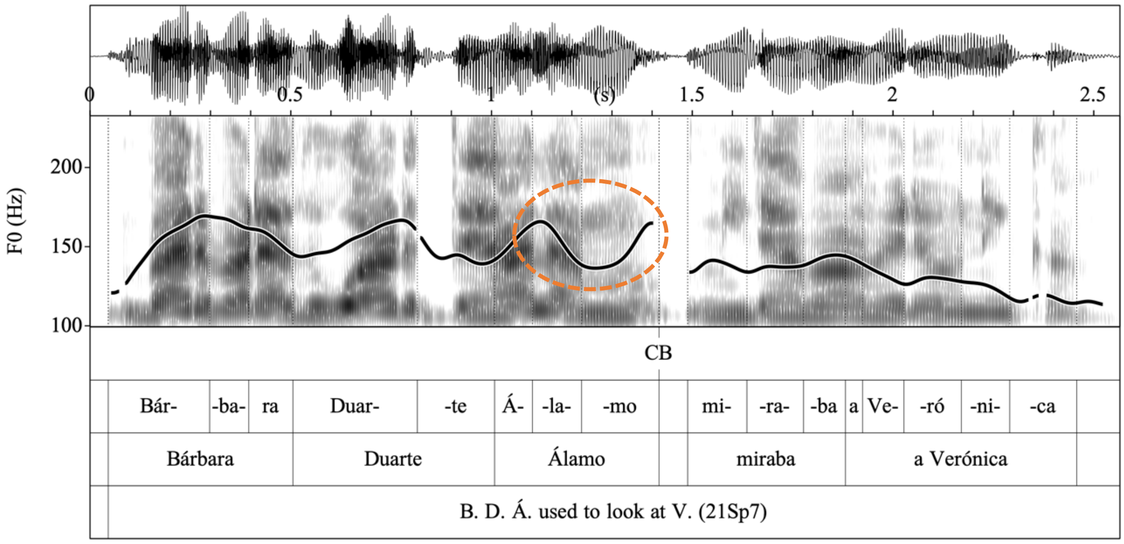


Figure 5.3-10: Waveform and F0 contour of Spanish target sentence No. 7. The ip boundaries is signalled through a complex boundary tone with a dip (CB) (21Sp7).

A low boundary tone (LB) can be seen in the example in Figure 5.3-11. In that example, the F0 rises throughout the stressed and the first post-tonic syllable of the subject *libélula* 'dragonfly', and then displays a visible drop to the base level on the second post-tonic syllable *-la*, before the prosodic break.

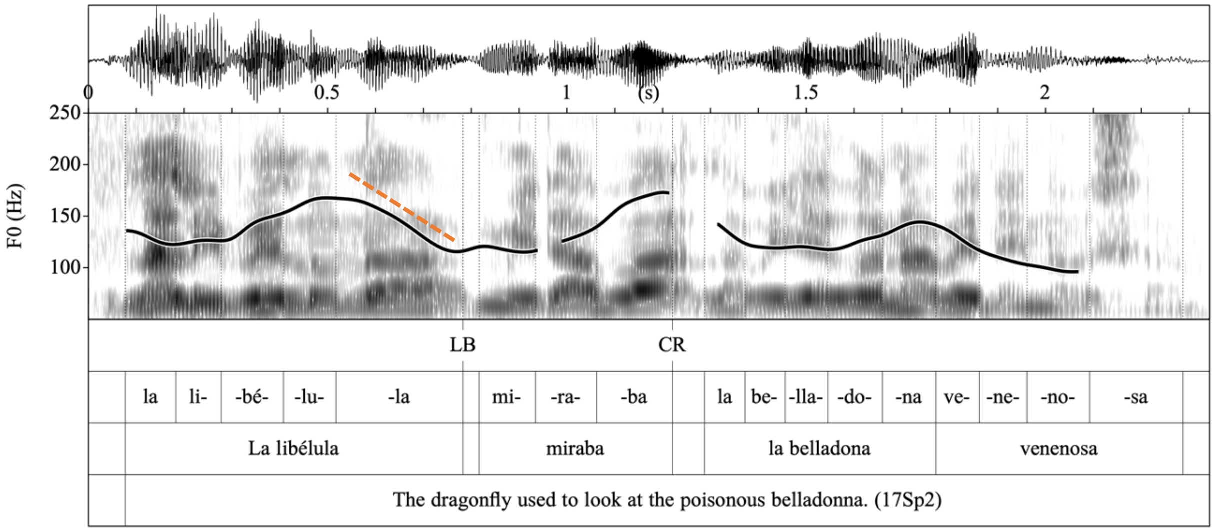


Figure 5.3-11: Waveform and F0 contour of Spanish target sentence No. 2. The ip boundaries are signalled through a hat contour (LB) and a continuation rise (CR) (17Sp2).

As we have seen in the methodology (cf. Section 4.3.2), the term 'pitch reset' can refer to two diverse types of tonal surface realization of prosodic boundaries. In the current study, most of the pitch resets found were of the first type, i.e. the phrase following the boundary began with a local F0 maximum. Figure 5.3-12 provides an example, where the F0 rises from the stressed syllable *Bár-*, belonging to the subject *Bárbara*, until attaining a local maximum at the beginning of the following phrase, i.e. on the phrase-initial syllable *mi-* corresponding to the verb *mi<u>ra</u>ba* 'used to look at'.

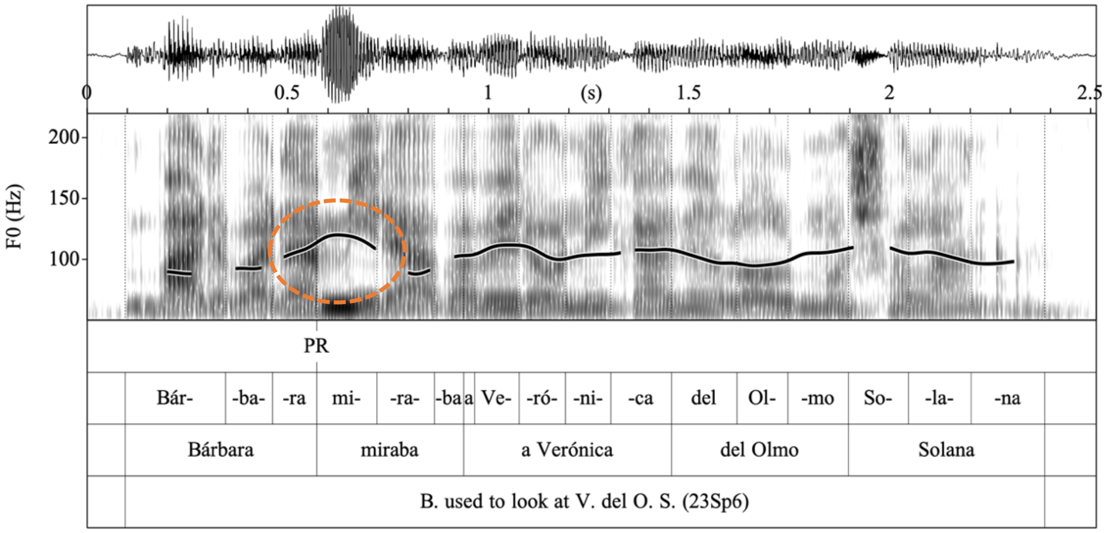


Figure 5.3-12: Waveform and F0 contour of Spanish target sentence No. 6. The ip boundary between the subject and the verb is signalled through pitch reset at the beginning of the verb (PR, type 1) (23Sp6).

However, these local maxima were typically attained already within the onset consonant of the phrase-initial syllable whereas in the following vowel the F0 already began to drop again. It is thus a worthwhile possibility that such peaks are actually only microprosodic, i.e. that they represent perturbations of the F0 caused by certain segments due to aerodynamic and biomechanical factors (cf. Ladd 2008: 25; Kohler 1990), and hence that the respective surface realizations may be perceived rather as CR.

A pitch reset of the second type, i.e. expressed though an upstep of the first pitch accent past the boundary, did only occur once between main syntactic constituents in the present corpus. The respective item is shown in Figure 5.3-13. The peak of the (delayed) pitch accent associated with the stressed syllable of *mi<u>ra</u>va* 'used to look at' is noticeably higher than the last peak of the preceding ip, associated with the stressed syllable of *ama<u>zò</u>nica* (difference of 37 Hz, ~16%).

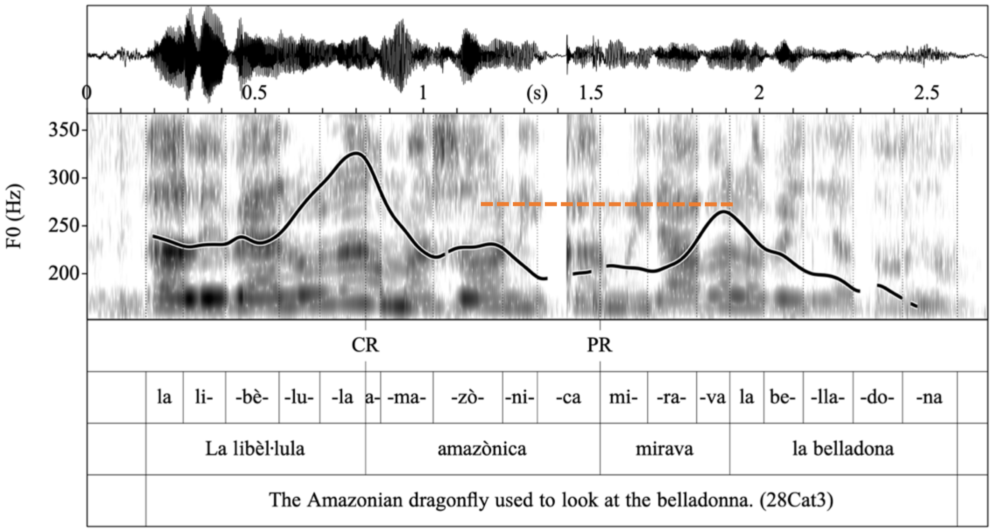


Figure 5.3-13: Waveform and F0 contour of Catalan target sentence No. 3. The ip boundary between the subject and the verb is signalled through pitch reset of the (delayed-peak) pitch accent associated with the first stressed syllable past the boundary (PR, type 2) (28Cat3).

Taking into account the factor LD does not alter this general picture. As shown in Table 5.3-7, below, 4 out of 5 ip boundaries are tonally realized as CR by both dominance groups and in both languages. With regard to other boundary cues, no differences bigger than 3 percentage points could be observed between the two groups of speakers. No significant association between frequency distributions and LD group could be found in either variety.[340] For a discussion of prosodic phrasing and boundary marking in the two contact varieties under concern here in the light of language contact see Section 6.4.1.

Table 5.3-7: Frequencies of tonal boundary realizations in Girona Spanish and Girona Catalan according to the language dominance of the speakers (percentages and total numbers).

Girona Spanish	All participants		Catalan-dominants		Spanish-dominants	
CR	81%	202	82%	126	79%	76
SP	9%	22	8%	13	9%	9
HC	3%	8	3%	4	4%	4
LB	2%	6	3%	5	1%	1
PR	3%	7	3%	4	3%	3
Girona Catalan	All participants		Catalan-dominants		Spanish-dominants	
CR	78%	170	78%	107	78%	63
SP	13%	28	12%	16	15%	12
HC	4%	9	5%	7	2%	2
LB	2%	5	3%	4	1%	1
PR	2%	4	2%	3	1%	1

With regard to boundaries separating the prosodic words of complex subjects and objects (n = 100 in GS, n = 114 in GC, cf. Section 5.3.2), a somewhat different distribution of tonal boundary cues was found. The respective percentages are given in the pie charts in Figure 5.3-14.

[340] Results of the statistical tests: $\chi^2(4) = 1.81$, $p = 0.771$ for GS; $\chi^2(4) = 2.116$, $p = 0.714$ for CG.

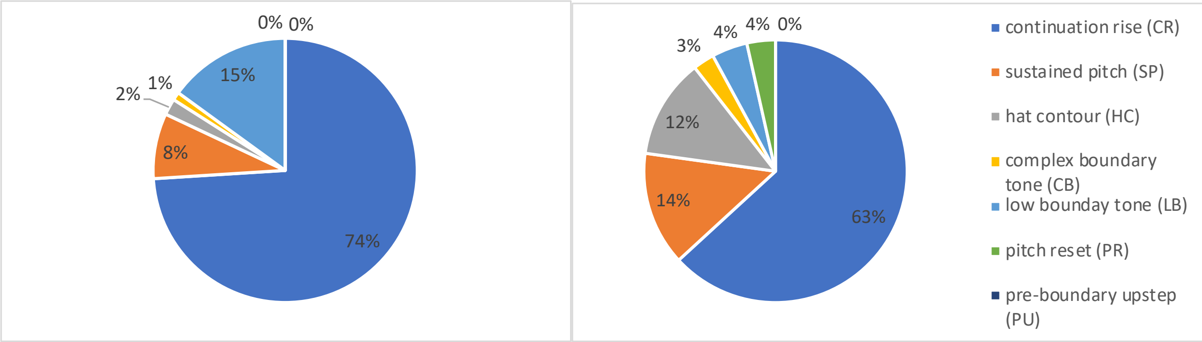


Figure 5.3-14: Frequencies of tonal boundary cues for subject- and object-internal prosodic boundaries in Girona Spanish (left panel) and Girona Catalan (right panel) (in per cent).

Even though the continuation rise (CR) is still clearly the most frequent boundary cue in both languages, other tonal surface reflexes are more common at prosodic boundaries located within syntactic main constituents than at those located between such constituents. Namely, low boundary tones (LB, in GS) and hat contours (HC, in GC) occur noticeably more at such phrase-internal boundaries. Although these two tonal movements are quite similar to one another in that both involve a pitch fall before the prosodic boundary, their different distribution in the two data sets entails a significant difference between the two varieties ($\chi^2(5) = 20.867$, $p < 0.001$). The following figures provide two examples.

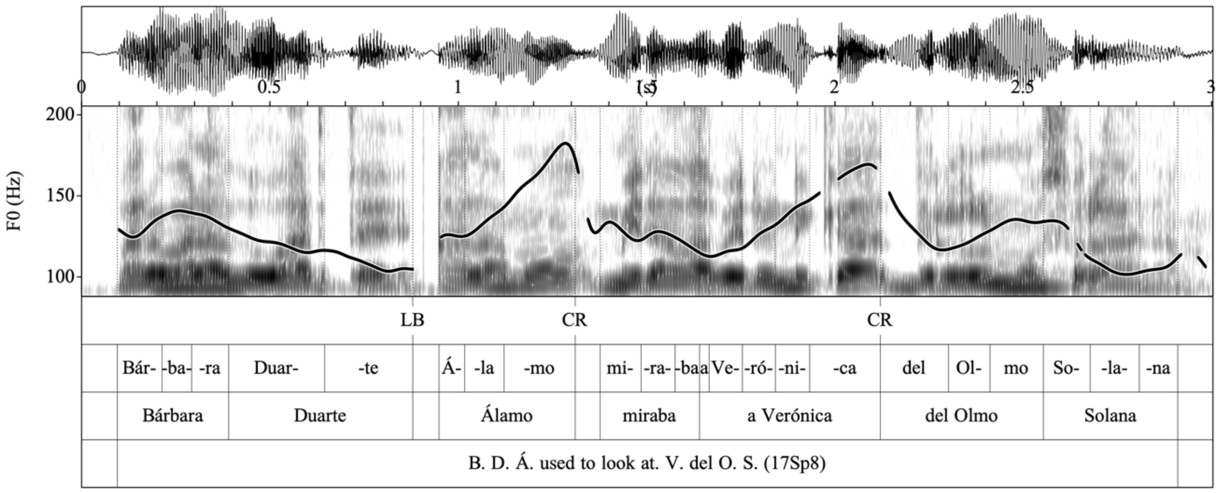


Figure 5.3-15: Waveform and F0 contour of Spanish target sentence No. 8. The first ip boundary is signalled through a low boundary tone (LB), the two following ones though continuation rises (CR; 17Sp8).

The realization of Spanish target sentence 8 represented in Figures 5.3-15 contains a prosodic break between the second (*Duarte*) and third element (*Álamo*) of the name constituting the subject, which is tonally realized through a LB. Furthermore, a prosodic break, realized through a CR, can be seen between the first and second element of the object (i.e. between *Verónica* and *del Olmo*). In the second example (cf. Figure 5.3-16, below), a prosodic break is made after the first (*Verònica*) and after the second (*Borja*) element of the name constituting the prosodically branching object. The first break is realized through a HC, the second one through a CR.

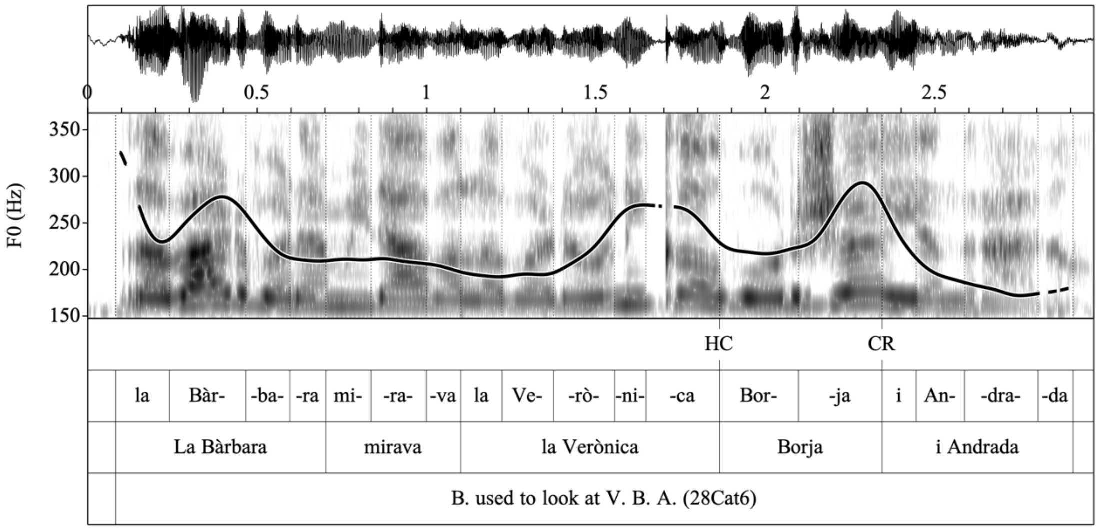


Figure 5.3-16: Waveform and F0 contour of Catalan target sentence No. 6. The first ip boundary is signalled through a low boundary tone (LB), the second one through a continuation rise (CR; 28Cat6).

A closer look into the data reveals that low boundary tones (LB) and hat contours (HC) were produced for the most part in the personal names constituting the prosodically branching subjects or objects of target sentences 6–8, where 79% of the GC and 76% of the GS occurrences of these boundary cues were found. There are two imaginable explanations for this.

First, the personal names included in these sentences consisted of three prosodic words each, i.e. a first name and two surnames. There are, to my knowledge, not yet any studies tackling the prosodic realization of complex names in either of the two varieties concerned. However, given that the single elements which constitute complex names are syntactically independent, i.e. they occupy same-level syntactic positions, prosodic groupings and prominence patterns cannot be based on syntactic grounds. Speakers might thus be 'relatively free' to put names into different groupings with various overall prominence and rhythmic patterns, e.g. on the basis of semantic grounds. As shown in Section 5.3.2, different prosodic groupings of such complex names are possible, although a prosodic break between the first name and the surnames is most common. If this were true, pitch falls in front of prosodic boundaries could serve, e.g., the function of underlining such content-based distinctions or of reinforcing the rhythmic effects created by the phrasing. Interestingly, ip-final pitch falls (i.e. low ip boundary tones) were also attested in enumerations (cf. 5.1.1.2), which are similar to names in that they consist of a series of syntactically equal elements.[341] Yet, for the moment being, we can only surmise that the higher number of pitch drops found before the phrase-internal prosodic boundary could be connected with the prosodic realization of (complex) names.

The second possible explanation for the higher number of pre-boundary pitch falls at breaks located within complex syntactic constituents is much simpler. Since hesitations may cause pitch drops (cf. Section 5.2.2 and Johanna Stahnke, personal communication), it cannot be

[341] In the concrete case studied, viz. enumerations of the days of the week, speakers typically relied on semantic criteria, i.e. on the distinction between working days and the weekend, to group the elements of the enumeration.

excluded that the cases under discussion here in fact represent instances of disfluency. If so, the pitch drops would reflect that at least some participants were struggling with the complex names they had to read out loud. However, it has to be stressed that this was not at all the impression of the author of the current work—otherwise the sentences would have been withdrawn from the analysis. Instead, these breaks seemed to be rather deliberate and planned. Nevertheless, whether their occurrence is merely side effect of the task or if it is indeed a specificity of the prosodic phrasing of (complex) personal names cannot be decided here and needs further investigation.

In sum, the tonal marking of prosodic boundaries in GS and GC read broad-focus SVO declaratives was overwhelmingly carried out through CR and, to a considerably lower extent, also through SP. Interestingly, this is true independently of the language used and of the LD of the speaker (for a discussion of this finding in the light of language contact see Section 6.4.1). Some other tonal boundary cues are possible, as well, but in practice their frequency of occurrence was rather marginal. A possible exception could be the internal phrasing of complex personal names (i.e. of prosodically branching elements), where pre-boundary pitch drops (i.e. HC and LB) seemed to occur with a somewhat higher rate than elsewhere. As laid out in Section 4.3.2., virtually all these phonetic boundary cues can be phonologically interpreted as reflexes of a common underlying high ip boundary tone /H-/ (see also the phonological analysis of the ip boundary tones observed in the intonational analysis in 5.2.2). A possible exception to this could be the LB, whose realizations do not exhibit any clear reflexes of a high target. However, the present data do not contain any evidence that would allow to indisputably attribute it a different function and hence to posit a different underlying category such as /L-/; future work will help to elucidate this issue.

5.3.4 Prosodic phrasing in spontaneous speech

A total of 111 broad-focus neutral declarative sentences obtained with the situations 1a1 and 1a2 of the DCT (cf. Appendix 5) for GS and GC (i.e. 58 for Spanish and 53 for Catalan) were suitable for an analysis of prosodic phrasing (cf. Section 5.1.1.1 on the exclusion of some items). As concerns the wording of the utterances, a vast array of different sentence structures was obtained. The sentences gathered with situation 1a1 for the most part combined a subject, a verb, and an object in the desired SVO order, but there were also three presentational structures (e.g. Cat. *Hi ha una noia que està beguent*[342] *un refresc.* 'There is a girl who is drinking a refreshment.', 1C18; Sp. *Es una chica bebiendo zumo.* 'It's a girl drinking juice.', 1S27). Due

[342] Note that the standard form of the gerund is *bevent*. However, the use of 'velarized' stems in the gerund (as well as in the first and second person plural of present indicative verbs) is quite common in many Catalan varieties (Pérez Saldanya 2013: §4.6).

to their diverging structure, these latter statements were equally discarded from the analysis of prosodic phrasing, leaving a total of 108 sentences for further study.

As concerns the Catalan statements elicited with situation 1a1, roughly one third of the analysed items (7 out of 23) displayed a null subject, so these IPs began directly with the verb. Otherwise, the nominals *dona*[343] 'woman' or *noia* 'girl' were used as subjects. In Spanish, solely 2 out of the 26 items studied from situation 1a1 contained a null subject. The occurring explicit subjects were *mujer* 'woman', *chica* 'girl', and *niña* '(female) child'. All subject nominals were preceded by a definite article, or—in three cases—by a demonstrative. Consequently, the subjects in both languages showed similar length, syllable structures, and stress patterns (with the exception of the Sp. ultimate-stress word *mujer*).

With regard to the verbal complex, there was some variation in length (in terms of number of constituents) and in vocabulary choices, since participants were free to phrase their statements as they wished. By and large, the sentences uttered in both varieties consisted of a verb in the simple present or present progressive[344], and a non-branching object. The exact number of such items amounts to 19 IPs in GS (73%) and 11 IPs in GC (48%). The most common non-branching objects were Sp. *refresco*, Cat. *refresc* 'refreshment', Sp. *limonada*, Cat. *llimonada* 'lemonade', and Sp. *zumo*, Cat. *suc* 'juice'. Regarding the occurrence of branching objects such as, e.g., Cat. *un got de llet* 'a glass of milk' or Sp. *un zumo de limón* 'lemon juice' or of two successive objects (both cases are labelled with 'oo', here), there were 4 s(v)voo patterns in each data set. As for the presence of prepositional phrases that were not part of a branching object, one complement PP was found in the GC material (i.e. *Està gaudint de la seva beguda de llimona.* 'She is enjoying her lemon drink.' (1S28).

In the second set of neutral broad-focus declarative sentences, elicited with situation 1a2, the subjects *la Marina* and *Marina* were given, respectively, for Catalan and Spanish, in order to prevent participants from using null subjects or presentational structures. All sentences thus presented an SV(O) word order. As for the verb, here too, the majority of the Catalan sentences contained present-progressive verbs, whereas in Spanish simple-present verb forms slightly prevailed in this context.[345] The most frequent objects were non-branching, viz. Cat. *mandarines* 'tangerines' or *una mandarina* 'a tangerine' and the Sp. equivalents *mandarinas*, *una mandarina* or *naranjas* 'oranges'. Consequently, most objects presented very similar length, syllable structures and stress patterns. The few occurring branching objects were Sp. *un trozo de naranja* 'a piece of orange', Cat. *trossos de mandarina* 'a piece of tangerine', and (Girona) Catalan *una monja de mandarina* 'a slice of tangerine'. There were no complement PPs but one

343 I indicate stressed syllables by underlining them.

344 As mentioned in Chapter 4 (cf. Fn. 213), participants were free to use different tenses. In both varieties, the use of the present progressive tense (e.g., Cat. *està bevent/beguent* 'is drinking', Sp. *está tomando* 'is having/drinking') prevailed over other options such as the simple present (e.g. Cat. *beu*, Sp. *bebe* 'drinks'): in Catalan, this tense appeared in 14 out of 23 (61%) and in Spanish in 17 out of 26 (65%) of the sentences. I use the labels 'v' and 'vv', respectively, to represent simple and composed (i.e. present progressive) verb forms.

345 In Catalan: 18 present perfects (62%; e.g. *està menjant* 'is eating', *està pelant* 'is peeling') vs 11 simple presents (38%; *menja* 'eats'); in Spanish: 14 present progressives (47%; e.g. *está comiendo* 'is eating', *está pelando* 'is peeling') vs 16 presents (53%; *come* 'eats').

sentence with an adjunct clause (labelled 'ad'): Cat. *La Marina està pelant les seves mandarines per menjar-se-les.* 'Marina is peeling her tangerines in order to eat them' (2S28). To sum up, the sentences elicited with situation 1a2 were fairly more homogeneous regarding their syntax than the sentences from situation 1a1.

The various phrasing patterns for neutral declarative statements attested in the examined data set are presented in Table 5.3-8 for the two contact varieties. For some examples see Section 5.1.1.1.

Table 5.3-8: Phrasing patterns in Girona Spanish and Girona Catalan neutral declarative statements produced by 31 bilingual speakers (listed according to their LD score).

Speaker		Sentence 1a1		Sentence 1a2	
Participant ID	Language dominance	Spanish	Catalan	Spanish	Catalan
23	−57.3	(svoo)	(s)(v)(o)	(svoo)	(s)(vvo)(oo)
20	−56.8	(svv)(o)	(v)(oo)(o)	(s)(vvo)	(svvo)
34	−54.2	(sv)	(sv)	(svo)	(s)(v)(o)
16	−52.9	(vvo)	(vvo)	(s)(vv)(o)	(svvo)
19	−52.6	(svvo)	–	(s)(vo)	(svo)
14	−49.7	(svvoo)	(vvo)	(s)(vvo)	–
25	−44.0	(svvo)	(svv)(o)	(svvo)	(s)(vv)(o)
29	−43.5	(svo)	–	(s)(v)(o)	(svo)
17	−40.3	(svv)(o)(oo)	(s)(vv)(oo)(oo)	(s)(vo)	(s)(vv)(o)
11	−40.1	(svvo)	(svv)(o)	(s)(vvo)	–
15	−38.2	(svv)(o)	–	(s)(vvo)(vv)	(svv)(vo)
28	−37.2	(sv)(vo)	(vv)(pp)	(svv)(o)	(svv)(oad)
26	−32.1	(svvo)	(svvo)	(s)(vo)	(svo)
12	−31.4	(svvo)	(vv)(o)	(s)(vvo)	(s)(vvo)
18	−30.7	–	–	(svo)	(svvo)
6	−30.4	(svv)(oo)	–	(svvo)	(s)(vvo)
31	−28.5	(svvo)	(svvo)	(svvo)	(svvo)
22	−24-2	(svv)(o)	(svv)(o)	(svv)(o)	(sv)(vo)
24	−21.8	(svvo)	(svvo)	(svo)	(sv)(o)
10	−11.9	(s)(vo)	(svo)	(svo)	(svo)
35	1.7	–	–	–	(s)(vv)(o)
5	18.4	(s)(vo)	(sv)(o)	(s)(vo)	(svo)
7	19.5	(svo)	(svo)	(svo)	(svo)
30	19.6	–	(svo)(o)	(s)(vvo)	(s)(vvo)
33	24.1	–	–	(svo)	(sv)(oo)
21	26.1	(svo)	(vo)	(svo)	(s)(vo)
13	28.7	(v)(o)	(s)(v)(o)	(s)(vo)	(sv)(o)
4	33.7	(sv)(o)	(svv)(oo)	(s)(vo)	(svvo)
27	34.3	–	–	(svvo)	(sv)(vo)

8	36.6	(svvo)	(vvo)	(s)(vo)	(s)(vvo)
9	37.8	(svvo)	(svv)(o)(o)	(svvo)	(sv)(v)(o)

As can be seen from Table 5.3-8, interspeaker variation as well as variation within the productions of each participant[346] were high in the results obtained. The following table summarizes the use of different phrasing patterns in all sentences consisting of subject, verb, and complement of the verb (irrespective of branchingness). The remaining sentences are included in the 'other' row; as are SVO sentences showing different phrasing patterns.

Table 5.3-9: Phrasing patters in Girona Spanish and Catalan broad-focus statements (percentages and absolute numbers).

	Girona Spanish			Girona Catalan		
	1a1	1a2	**both together**	1a1	1a2	**both together**
(SVO)	61% (14)	43% (13)	**51% (27)**	33% (5)	39% (11)	**37% (16)**
(S)(VO)	9% (2)	40% (12)	**26% (14)**	0%	18% (5)	**12% (5)**
(SV)(O)	22% (5)	7% (2)	**13% (7)**	33% (5)	0%	**12% (5)**
(S)(V)(O)	0%	7% (2)	**4% (2)**	13% (2)	25% (7)	**21% (9)**
other	9% (2)	3% (1)	**6% (3)**	20% (3)	18% (5)	**19% (8)**
total of SVO sentences	23	30	**53**	15	28	**43**
not SVO	3	0	**3**	8	1	**9**
total	26	30	**56**	23	29	**52**

As can be seen from the chart, the most frequent phrasing pattern attested in GS was (SVO). It occurred in roughly half of the sentences in this variety. With the second situation, (S)(VO), with a sperate ip for the subject, equally attained a relatively high share, accounting for 40% of the SVO statements, but with situation 1a1, it was only found in 9% of the items. Another pattern occurring with some minor regularity in GS was (SV)(O), with a separate ip for the object. It attained 22% of usage with situation 1a1 and 7% with situation 1a2.

For GC, too, the most recurrent phrasing pattern consisted of only one ip: (SVO). It was found in 33% of the sentences obtained from situation 1a1 and to an extent of 39% with situation 1a2. It was followed by (S)(V)(O), with a separate ip for every constituent, which was used in 21% of the GC items.[347] However, with situation 1a1, (SV)(O), with only the object phrased separately, was even more common (33%), although it did not occur in the responses to scenario

[346] There are only two subjects who consistently displayed the same phrasing pattern across sentences and languages (No. 31 (svvo) and No. 7 (svo)).

[347] It is worth pointing out here that the GC statements, in which this pattern occurred with the highest frequency, were the first utterances to be recorded from each participant (scenarios 1a1 and 1a2 in the Catalan DCT). It thus cannot be excluded that some participants might still have felt some insecurity at this point due to lacking familiarity with the task and that this could have had an influence on their phrasing, resulting in more prosodic breaks in Catalan than in Spanish (see also Section 5.3.1 where a similar line of argumentation was pursued to account for the high occurrence of this phrasing pattern in the GS read data set).

1a2. Finally, (S)(VO), with a separated subject ip, was also present in GC in 18% of the items from situation 1a2. Yet, it did not occur with the first situation.

In the following, I briefly discuss the stress patterns of the subject DPs and the weight of prosodic phrases (e.g. the number of constituents per prosodic phrase) so as to determine whether these factors can contribute to explain the distribution of phrasing patterns in the results. As all syntactic subjects present roughly the same weight, differences in phrasing attributable to the constituency of the subject could at best be related to different stress patterns. With the exception of *mujer*, stressed on the ultimate syllable, all other subjects (in both languages) feature penultimate stress. However, even though both (S)(VO) patterns attested in Spanish in situation 1a1 do have *mujer* as a subject, there are also three cases where the very same subject was used in single-ip (SVO)-phrasings, despite the stress clash resulting from direct adjacency to the stressed syllable of the following verb: *La mujer bebe* [object]. The diverse stress of *mujer* pattern thus does not seem to have an influence on the prosodic phrasing of the utterance.

With regard to the prosodic weight of the verb, the use of distinct tenses entailed that the verbs comprised different numbers of syllables. Table 5.3 therefore presents the use of different phrasing patterns in SVO broad-focus statements separately for verbs in the simple present ('v') and for verbs in a compound tense ('vv'). Although neither sentences with branching or those with non-branching verbs showed a uniform phrasing pattern, the percentages in both varieties suggest that the presence of simple verb forms favours (SVO) phrasings, whereas there seems to be a slight tendency to use more prosodic breaks with prosodically heavy verbs. Especially the occurrence of (SV)(O) was more frequent with compound verbs in the present data set. However, due to the small numbers of cases, no firm conclusions can be drawn from these observations and further studies are needed to confirm or refuse them.

Table 5.3-10: Phrasing patters in Girona Spanish and Catalan according to the weight of the verb in SVO sentences with non-branching objects (percentages and absolute numbers).

	Spanish			Catalan		
pattern with V	with v	with vv	together	with v	with vv	together
(SVO)	60% (17)	43% (10)	53% (27)	50% (8)	38% (8)	43% (16)
(S)(VO)	32% (9)	22% (5)	27% (14)	6% (1)	19% (4)	14% (5)
(SV)(O)	4% (1)	26% (6)	14% (7)	6% (1)	19% (4)	14% (5)
(S)(V)(O)	4% (1)	4% (1)	4% (2)	38% (6)	14% (3)	24% (9)
(Sv)(vO)		4% (1)	2% (1)		10% (2)	6% (2)
total	100% (28)	100% (23)	(51)	100% (16)	100% (21)	(37)

Concerning the prosodic weight of the object, the few instances of sentences with prosodically branching objects ($n = 5$ in GS and $n = 6$ in GC) do not allow us to draw conclusions about the relationship between the prosodic weight of the objects and the phrasing patterns attested in the data for the two varieties studied. In any case do SVO broad-focus declaratives with heavy objects not show a uniform phrasing pattern: there were three sentences without prosodic break, i.e. (sv[v]oo), in GS; three sentences with separately phrased objects, viz. (sv[v])(oo), two of which were produced in GC, and finally, five patterns with heavy objects split into more than one ip, e.g. (svv)(o)(o), four of them occurring in the GC data set. Thus, there could be a stronger tendency to phrase heavy objects separately in GC than in GS, but since separate phrasing of the object was equally possible with short objects, this assumption cannot be proven at this point and further data are required for a corroboration.

To sum up, it can be said that both GS and GC present four co-occurring main phrasing patterns in (semi-)spontaneous speech: (a) [(Subject-Verb-Object)$_{ip}$]$_{IP}$, (b) [(Subject)$_{ip}$ (Verb-Object)$_{ip}$]$_{IP}$, (c) [(Subject-Verb)$_{ip}$ (Object)$_{ip}$]$_{IP}$, and (d) [(Subject)$_{ip}$ (Verb)$_{ip}$ (Object)$_{ip}$]$_{IP}$. Whereas (a) is the most recurrent type in both languages, GS seems to prefer (b) over (c). In GC, there was some more variation in that (d) occurred more frequently than in Spanish[348] and (b) and (c) were found to the same extents. Concerning the relation between the weight of prosodic phrases and the phrasing patterns attested in the data, the present findings do not allow us to draw clear-cut conclusions for the varieties studied. We furthermore abstain from attempting to find phrasing preferences related to LD for the following two reasons. First, the literature on both languages does not suggest very much that great differences could exist (cf. Section 3.2.2) and, second, the numbers of cases are too small to draw any robust conclusions about it.

For the tonal realization of the ip boundaries in the (semi-)spontaneous data presented in this section see the intonational analysis offered in Section 5.1.1.1.

5.4 Segmental analysis: intervocalic /s/ voicing

Out of a possible 620 (i.e. 20 items × 31 subjects), the reading task yielded a total of 596 (Girona) Spanish /s/ target tokens suitable for a spectral analysis, i.e. a mean of 19.2 per subject. Thus, only relatively few of the recorded tokens (*n* = 24, 3.9%,) needed to be discarded due to speaker disfluencies (mainly cases of word-final /s/ in which a pause was inserted before the following word so that the target segment no longer appeared in intervocalic position). In what follows, I will first explore the data set by the means of descriptive statistics, before taking an inferential statistical approach and estimating the effects of the relevant variables with other contextual factors such as interspeaker variation being controlled for.

The graph in Figure 5.4-1 shows the distribution of %voiced in the data, i.e. the percentage of the /s/ item's duration that is voiced. It is visible that there are both completely unvoiced realizations of /s/ as well as fully voiced ones. Most instances, however, are partly voiced. If, following, among others, Davidson (2015a: 116, 270, 2015b: 131) and Schmidt/Willis (2011: 6), a voicing threshold of 60% is adopted in order to perform a binary categorization of the realizations as either voiced ([z]) or unvoiced ([s]), 122 tokens classify as voiced realizations (i.e. 20%). The mean %voiced is 37%, the median 24%.

[348] As explained in Fn. 347, above, this might in part be a task effect.

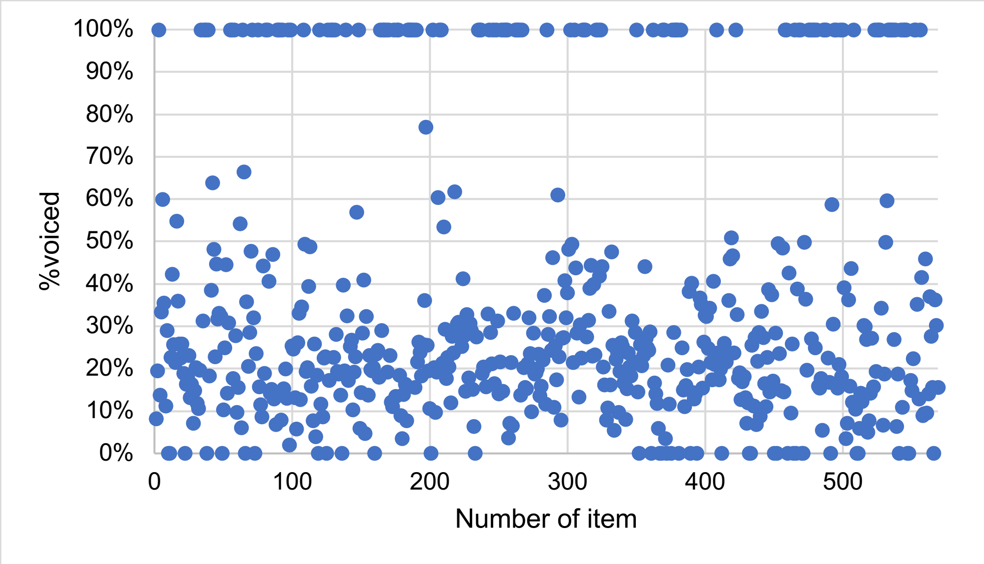


Figure 5.4-1: Distribution of the share of voiced duration (%voiced) in the target items (intervocalic /s/).

Concerning their position, roughly half of the /s/ tokens appeared in word-final intervocalic position ($n = 288$), whereas the other half was word-internal ($n = 308$). Among the word-internal instances, 155 appeared in Spanish words whose Catalan cognates feature /z/ in the same position (labelled 'medial'), and 153 appeared in words whose Catalan cognates have voiceless fricatives in the corresponding position (labelled 'medialC'; cf. Methodology 4.3.3). Table 5.4-1 gives the means of %voiced for each position and the graphs in Figure 5.4-2 show the overall distribution of this variable.

Table 5.4-1: Mean percentage of voicing (%voiced) according to position of the target segment.

position	final	medial	medialC
mean %voiced	56.5	18.9	17.6
SD	37.0	13.2	12.0
median	41	17.7	17.2
IQR[349]	76.3	12.3	16.6

[349] The interquartile range (IQR), which represents the difference between the third and the first quartiles, can be regarded as a more robust measure of dispersion than SD with regard to the impact of outliers and for not normally distributed data (Levshina 2015: 49).

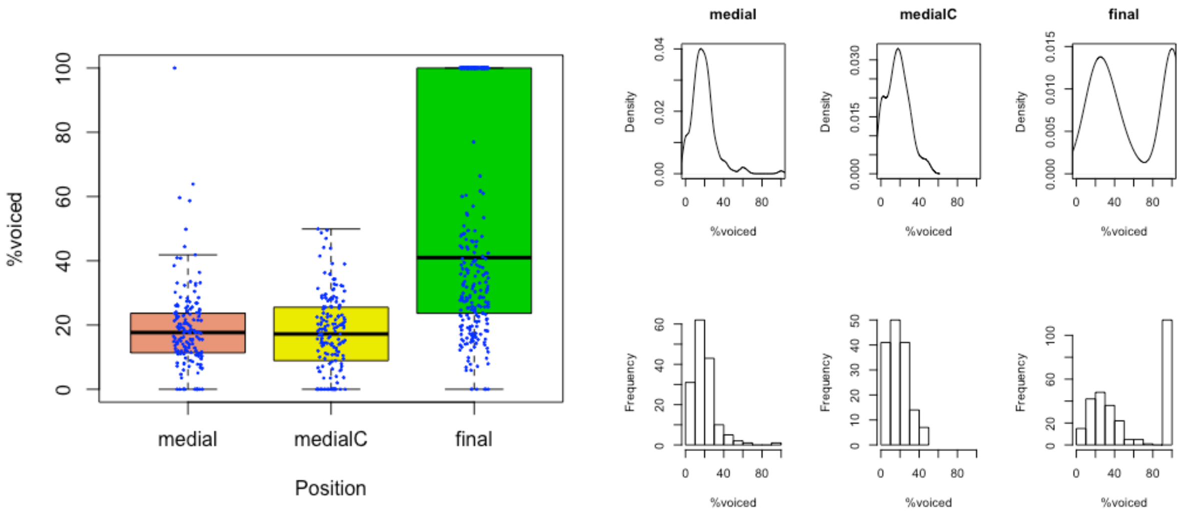


Figure 5.4-2: Boxplots, density plots, and histograms of the distribution of the percentage of voicing (%voiced) according to the position of the target segment.

As can be seen, the extent to which realizations of intervocalic /s/ are voiced depends strongly on the position of the respective segment. In word-internal intervocalic position (i.e. 'medial' and 'medialC'), Girona bilinguals usually sonorize only a minor part of the duration of the segment. Both word-internal samples show very similar measures of central tendency and dispersion (cf. Table 5.4-1) and there is no statistically significant difference between the means of %voiced in the 'medial' and 'medialC' context ($t_{(304.21)} = 0.908$, $p = 0.365$).[350] It does thus not seem to have an influence on the realization of word-internal /s/ whether Catalan cognate words display a voiced fricative, i.e. /z/, in the same position or not. Nevertheless, there are some outliers in the 'medial' position, i.e. in words whose Catalan cognates do feature /z/. Of these, only one is fully voiced: it is an instance of *sorpresa* 'surprise', produced by the female and highly CatD speaker No. 20 (LD score: –56.8). Among the remaining outliers, only three more are voiced to an extent of over 50% of their duration: (1) a realization of /s/ in the item *casa* 'house' by the female and CatD speaker No. 12 (%voiced 64%; LD score: –31.4), (2) a realization of the word-medial /s/ in *suntuosa* 'sumptuous' by the equally female and CatD speaker No. 6 (%voiced: 60%; LD score: –30.4), and (3) the realization of /s/ in the item *sorpresa* by a female but SpD speaker No. 4 (%voiced: 59%; LD score: 33.7). However, adopting the aforementioned voicing threshold of 60%, virtually all word-internal /s/ productions of the present sample can be categorized as [s], i.e. as 'unvoiced' realizations (for a discussion of this finding see Sections 6.4.3 and 6.7).

350 Although the sample sizes are clearly big enough to perform *t*-tests (cf. Levshina 2015: 88), please note that the samples are not fully normally distributed as shown by a series of Shapiro-Wilk tests (medial position: $W = 0.847$, $p < .001$; medialC position: $W = 0.96093$, $p < .001$; final position: $W = 0.797$, $p < .001$). In final position, however, it is interesting to note that %voiced values under 60% (i.e. 'unvoiced' realizations as [s]) do come from a normal distribution ($W = 0.988$, $p = 0.154$).

This is not the case in final position, where the distribution of %voiced is clearly bimodal (cf. the density and frequency plots in Figure 5.4-2). Typically, word-final realizations of /s/ are either fully voiced (i.e. %voiced = 100%) or they show levels of voicing similar to the realizations in word-medial position. If a binary categorical distinction is forced via the threshold of 60% for voiced segment duration, 120 out of the 288 word-final items (i.e. 41.7%) correspond to voiced realizations, i.e. [z], while 168 (58.3%) can be categorized as voiceless [s]. The latter part of the tokens is normally distributed around a mean of 26.7 with a SD of 12.7 (W = 0.988, p = 0.154; median: 25.7; IQR: 18.9). Interestingly, the mean %voiced of these items thus seems to be slightly higher than in the word-internal segments, which is in line the universal tendency to weaken word-final consonants (cf. the discussion in Section 6.4.3).

In sum, the participants tended to realize either 'unvoiced' [s] or clearly voiced [z] in word-final position, whereas in word-internal positions only 'unvoiced' [s] was used. We shall see below which factors condition the choice of either variant in word-final position. First, let us have a look at the different dominance and gender groups across positions. Table 5.4-2 summarizes the mean %voiced of the four groups according to the position of the target segments.

Table 5.4-2: Mean percentages and SD of voicing (%voiced) according to speaker gender, language dominance group, and position of the target segment.

	LD group	CatD			SpD		
position	gender	**both**	m	f	**both**	m	f
all positions	mean	**40.0**	39.2	40.4	**30.8**	34.1	28.0
	SD	*34.6*	*37.4*	*33.1*	*29.8*	*32.7*	*27.0*
medial	mean	**19.7**	15.0	22.3	**17.2**	16.8	17.9
	SD	*14.3*	*9.8*	*15.8*	*10.6*	*9.2*	*11.7*
medial C	mean	**18.6**	17.1	19.4	**15.6**	17.1	14.3
	SD	*11.6*	*11.2*	*11.9*	*12.6*	*13.4*	*11.9*
final	mean	**62.1**	63.7	61.2	**46.3**	52.9	40.7
	SD	*36.7*	*40.0*	*35.0*	*35.3*	*37.7*	*32.6*

It can be seen that the mean %voiced is overall somewhat higher in the CatD group than in the SpD group (40.0 vs 30.8). However, this difference clearly originates from the tokens in final position, where the distance between the group means attains 15.8 percentage points. In word-internal positions, on the other hand, the group means are very similar. Concerning speaker gender, male and female participants of both dominance groups seem to behave very similarly with one exception. In word-final position, the mean %voiced of the SpD males is 12.2 percentage points higher than that of the SpD females and thus much closer to the CatD group's means. In short, the means in Table 5.4-2 seem to indicate that voiced realizations of word-final /s/ are more common among CatD speakers than among SpD and that, among the SpD, males are more prone to exhibit voicing than females. The distribution of %voiced across the four speaker groups depicted in the boxplots in Figure 5.4-3 reveals that the differences in the group means are mainly caused by a higher proportion of fully voiced realizations in CatD and male participants rather than by higher %voiced in all tokens of the respective subsets (see also Figure 5.4-2, above).

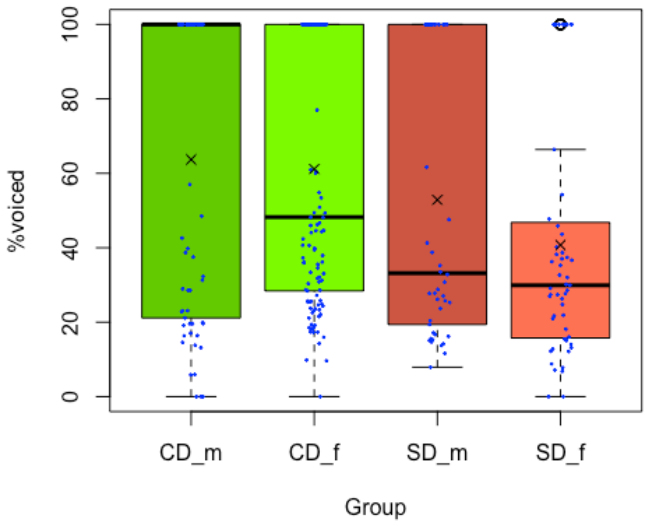


Figure 5.4-3: Boxplots of the percentage of voicing (%voiced) in word-final position according to speaker group.

Table 5.4-3, below, offers the total numbers and proportions of word-final 'voiced' realizations of /s/ as [z] in the four groups (once more adopting the threshold of 60% for a binary classification of the items). Stated briefly, male CatD voice over half of their word-final /s/'s, female CatD and male SpD a fair deal of them, and female SpD only voice sporadically (i.e. about one in every five items). Both LD and gender thus seem to have an influence on intervocalic /s/ voicing.[351]

Table 5.4-3: Total numbers and proportion of voiced realizations of word-final /s/ according to gender and LD group.

group	CD_m	CD_f	SD_m	SD_f
number of [z]	35	55	18	12
total of items	66	121	46	55
proportion (in %)	53%	41%	39%	21%

Since LD is a gradient variable and we have measured it as such (cf. Section 4.2), it is worthwhile to explore the correlation between voicing of word-final intervocalic /s/ and LD suggested by the comparison of the dominance groups, above, in some more detail. The scatter plot in Figure 5.4-4 presents the percentage of voicing for all word-final realizations (on the y axis) by LD of the speaker (according to the LD score (type A); on the x axis[352]). The broken lines indicate the limits between SpD and CatD (the vertical line, set at the 0 LD point) and between

351 Note, however, that the degree of LD is not exactly the same across males and females in both dominance groups: among CatD males are on average somewhat more dominant than females (mean dominance values: –41.5 vs 37.5), while among SpD males are slightly more balanced, i.e. less SpD, than females (mean dominance values: 23.9 vs 26.8).

352 Recall that negative values indicate Catalan LD (here, on the left-hand side of the graph) and positive values indicate Spanish dominance (on the right side).

realizations that can be regarded as voiced or unvoiced, respectively (horizontal line, set at %voiced 60%). Furthermore, a regression line was added.

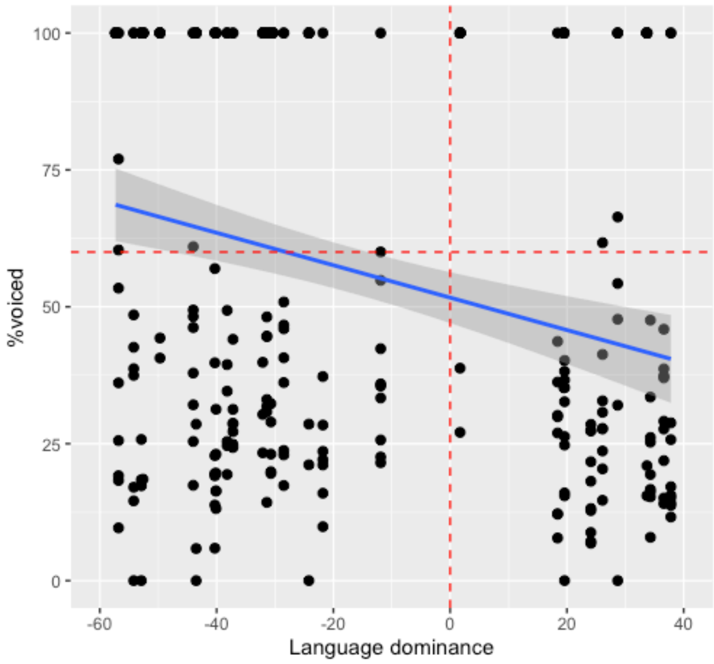


Figure 5.4-4: %voiced of /s/ in word-final position and language dominance of the speaker (positive values = SpD, negative values = CatD).

Although the effect size is not very strong, the correlation between %voiced and LD is highly significant (r = –0.263, df = 286, $p < .001$). The more biased towards Catalan the LD of a speaker is, the greater is the share of voiced duration in their /s/ realizations.

Nevertheless, since the degree of LD cannot account for interspeaker variation (across single items), it is reasonable to take mean %voiced for each subject instead of single items to analyse the relationship between LD and intervocalic /s/ voicing in word-final position. The respective scatter plot is represented in Figure 5.4-5 (left-hand side). The correlation is now moderately strong (r = –0.4, df = 29, p = 0.013). The stronger a participant's LD is inclined towards Catalan, the more their word-final /s/ realizations are voiced on average. Moreover, as shown above, the observed phonetic realizations can almost invariably be classified either as 'unvoiced' (i.e. as [s]) or as (fully) voiced [z]. Therefore, the relationship between LD of the speaker and the percentage of voiced [z] productions in word-final position is displayed in the second plot in Figure 5.4-5 (right-hand side). Again, the correlation is moderately strong (r = –0.37, df = 29, p = 0.039).

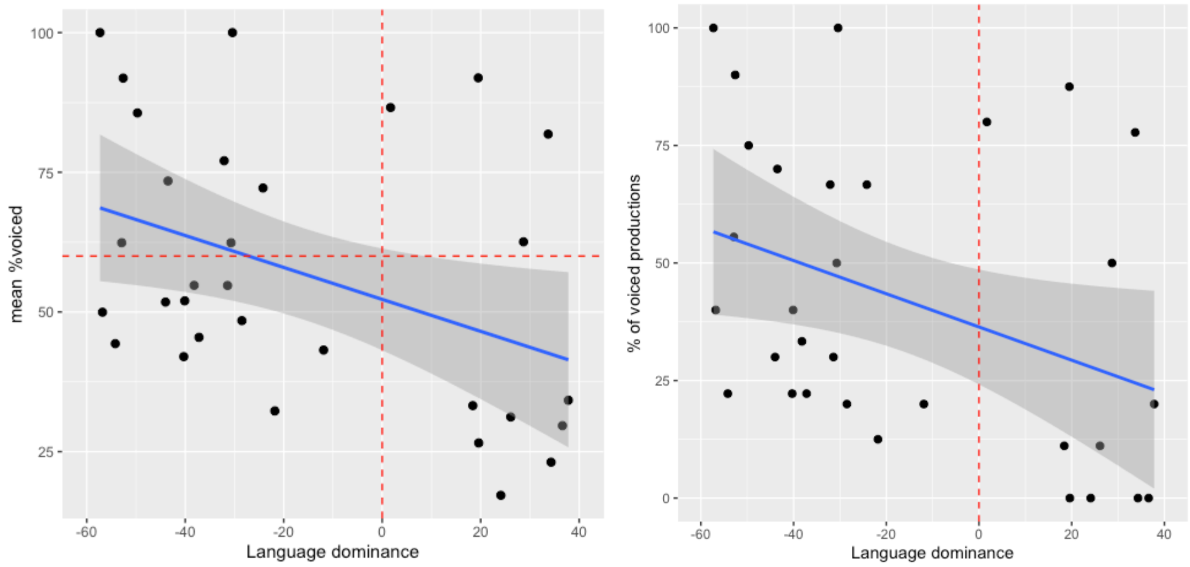


Figure 5.4-5: mean %voiced of /s/ in word-final position and percentage of voiced productions of /s/ as [z] according to language dominance of the speaker (positive values = SpD, negative values = CatD).

It is thus evident that LD does have an influence on the phonetic realization, but still, it can only explain a part of the variance present in the sample. Hence, other factors must equally play a role. Foremost, apart from the influence of LD, the graph in Figure 5.4-5 also reveals a fair deal of inter-speaker variation in both LD groups: even though roughly two thirds of the SpD participants (i.e. 7 out of 11) clearly prefer unvoiced realizations, a minority of SpD speakers rather tends to produce voiced allophones of /s/ in word-final position. Similarly, among the CatD speakers, some few always voice intervocalic word-final /s/, while others do so to a much more limited extent. The relatively high individual variation in the mean amount of voicing in both LD and gender groups can equally be detected in the graphs presented in Figure 5.4-6. In all four groups, some subjects exhibit very high mean voicing rates, whereas others present pretty low ones.

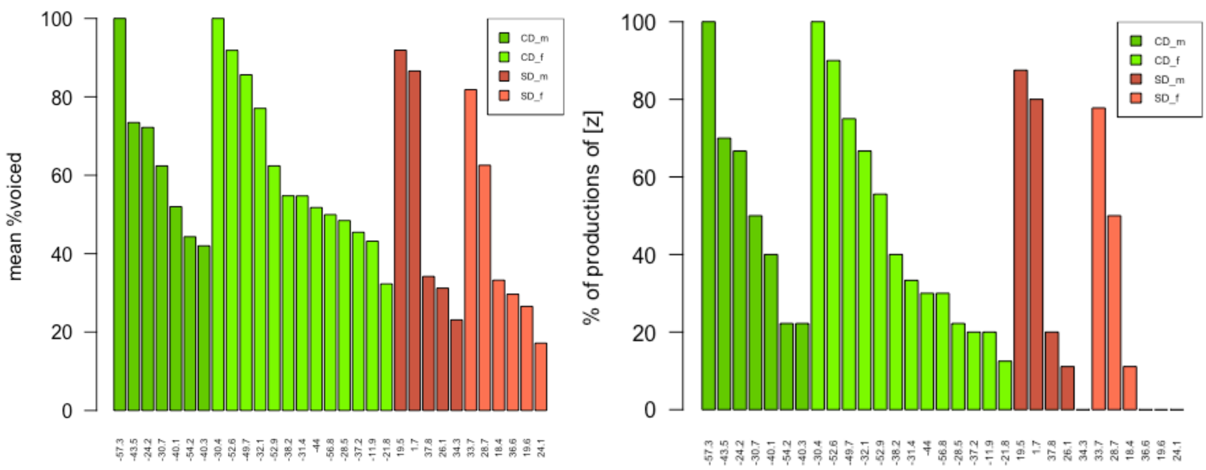


Figure 5.4-6: Average /s/-voicing degree (mean %voiced) and percentage of voiced productions of /s/ as [z] per speaker in word-final position (sorted by speaker groups).

In order to further explore the linguistic and social factors that mediate intervocalic fricative voicing in GS and estimate their influence when other factors are being controlled for, a mixed-effects linear regression model was fitted in R (R Core Team 2020) using the package *lme4* (Bates et al. 2015). For this purpose, voiced segment duration ('%voiced') was set as dependent variable and tested for fixed effects of two linguistic factors (i.e. position ['final' vs 'medial' vs 'medialC'] and stress ['stressed' vs 'unstressed']) as well as two social factors (LD [continuous variable] and gender of the speaker ['male' vs 'female']). Interaction terms between LD and position were included in order to assess whether the effect of position varied significantly according to the LD of the speaker. Individual speaker and segment were included as random effects in the model.

The results of the linear mixed-effects model appear below in Table 5.4-4. Note that the intercept is a female speaker with a LD score of 0 producing word-final /s/ in a stressed syllable and that positive estimates of the coefficients the predictor variables indicate greater voicing degrees compared to the intercept. Likelihood-ratio tests were performed to derive *p*-values using the *afex* package (Sigmann et al. 2020). The ANOVA table generated from the mixed-effects model returned a highly significant main effect of position ($F(2, 17.76) = 41.3$, $p < .001$, ***) and a marginal effect of dominance ($F(1, 29.26) = 3.47$, $p = 0.073$). Additionally, a highly significant interaction between position and dominance was found ($F(544.67, 9.43)$, $p < .001$, ***). The estimated variance of the random effects was 83.43 (SD: 9.13) for individual speaker and 29.96 (SD: 5.47) for segment.

Table 5.4-4: Summary of mixed-effects linear regression model fitted to Girona Spanish intervocalic /s/.

predictor variable	level	estimates	standard error	*t*	*p*-value
(intercept)		49.267	5.495	8.965	< .001 ***
[position]	'final'	reference level			
	'medial'	–34.156	4.055	–8.424	< .001 ***
	'medialC'	–33.630	4.690	–7.171	< .001 ***
[stress]	'stressed'	reference level			
	'unstressed'	2.815	4.838	0.582	0.568
[dominance]	continuous	–0.290	0.066	–4.384	< .001 ***
[speaker gender]	'feminine'	reference level			
	'masculine'	1.142	3.935	0.290	0.774
[position]:[dominance]	'medial'	0.260	0.073	3.552	< .001 ***
	'medialC'	0.265	0.073	3.612	< .001 ***

model evaluation	AIC	5566.6	
	BIC	5614.8	
	marginal R^2	0.377[353]	
	conditional R^2	0.479	
	n	596	

With respect to the aforementioned main effect of word position, pairwise comparisons (with Bonferroni correction) computed using the package *emmeans* (Lenth 2020) revealed that the degree of intervocalic /s/-voicing was significantly greater in word-final than in the two word-internal positions ('final' vs 'medial': $t_{(23.9)} = 8.918$, $p < .001$; 'final' vs 'medialC': $t_{(23.9)} = 7.531$, $p < .001$). There was no statistically significant difference between the two word-internal positions, i.e. the degree of voicing of Spanish word-internal intervocalic /s/ is the same in words whose Catalan cognates feature /z/ in the very same position as in words whose cognates have voiceless segments instead ('medial' vs 'medialC': $t_{(23.7)} = -0.074$, $p = 1$). For a graphic illustration, see Figure 5.4-2, above.

Regarding LD, voicing rates are higher in CatD than in SpD participants. In the light of the significant interaction between LD and word position, however, we can say that the effect of the speaker's LD differs according to 'position', i.e. it has a strong effect in word-final position but less so in the word-internal ones. This is illustrated in Figure 5.4-7.

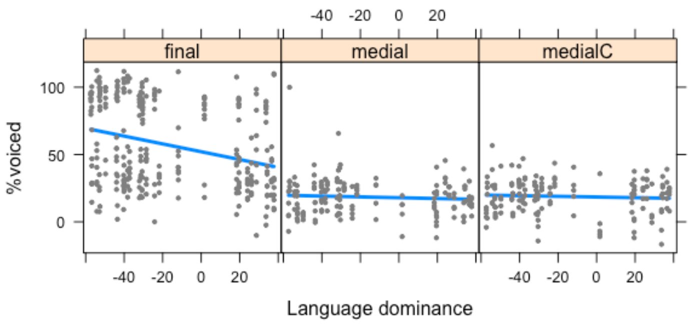


Figure 5.4-7: Effect of language dominance on %voiced of intervocalic /s/ according to position.[354]

Finally, neither gender of the speaker nor stress had a significant effect on /s/-voicing in GS if all other factors are controlled for. The inferential statistical analysis thus suggests that the purported gender differences registered before in the descriptive statistics should be refuted as they are probably a side effect of the unequal degrees of LD across gender groups.

Summarizing the results of the inferential statistical analysis presented for the bilingual speakers of GS, both a linguistic and a social factor have been found to mediate intervocalic /s/-voicing. Regarding linguistic variables, the sonorization of the fricative is favoured in word-

[353] The 'marginal R^2' value characterizes the variance described by the fixed effects; the 'conditional R^2' value characterizes the variance by both fixed and random effects (cf. Winter 2020: 264; Nakagawa/Schielzeth 2013). The values were calculated using the *MuMIn* package (Bartoń 2020) in R (R Core Teams 2020).

[354] This plot was created in R (R Core Team 2020) using the *visreg* package (Breheny/Burchett 2017).

final contexts as opposed to word-medial ones. The existence of Catalan cognate words featuring a voiced segment in the same position does not have any influence. As for social factors, degrees of voicing increased with stronger dominance of Catalan and decreased with stronger dominance of Spanish. Both factors highlight contact with Catalan as a mediating factor in the emergence and usage of this feature (cf. the discussion in 6.4.3).

To bring this section to a close, I briefly recapitulate the main points here: while virtually all realizations of intervocalic /s/ are voiced to a certain (minor) degree, fully voiced realizations merely occur in word-final positions. Individual variation being high, these are overall more common in CatD speakers but can also be found among SpD ones. As will be discussed more extensively in Section 6.4.3 and 6.7, it thus seems that the Catalan influence on GS is more important at the phonetic than at the phonological level, since the bilinguals in my sample regularly use the Catalan word-final voicing rule in GS but virtually never transfer the Catalan phoneme /z/.

Chapter 6: Discussion

The major objective of the present study is to provide a comprehensive description of the intonation and phrasing patterns of Girona Spanish and Girona Catalan spoken by bilingual speakers. A further aim is to tackle the following research questions:

1. How similar is the intonation of Girona Spanish and Girona Catalan?
2. How uniform is the intonation of the two contact varieties spoken in Girona across speaker groups and individual speakers? Can variation be linked to bilingualism factors such as language dominance?
3. What are the differences and similarities between Girona Spanish and Castilian Spanish intonation? What are the differences and similarities between Girona Catalan and other Central Catalan varieties on the intonational level?
4. How can the similarities and differences between Girona Catalan and the Girona Spanish at the prosodic level be explained in terms of language contact, i.e. how did the current intonational systems emerge?
5. Does the prosodic distance to other Spanish varieties and the level of homogeneity of its intonation across speakers justify that Girona Spanish (or Catalonian Spanish in a wider sense) should be viewed as a variety of Spanish in its own right?
6. How does contact-induced intonational change work? And how is it influenced by the extralinguistic conditions of the contact situation?
7. Which kinds of intonational features can be transferred? Are prosodic features more likely to be affected by CLI than segmental ones?

In the course of this chapter, I shall attempt to give answers to these research questions. In Section 6.1, I summarize the similarities and differences between the prosodic systems of Girona Spanish (GS) and Girona Catalan (GC) as spoken by bilinguals. In the next section, I address the variation attested in the analysis of the contact varieties, i.e. I discuss how uniform the contact varieties are on the intonational level and whether the variation observed between individual speakers can be linked to extralinguistic factors such as language dominance (LD, cf. Section 6.2). Section 6.3 is devoted to the comparison between the intonational systems of Girona Spanish and Castilian Spanish (CS) and between GC and other Central Catalan (CC) varieties. In Section 6.4, I strive to uncover the transfer and convergence processes that may have occurred during the development of the two contacting varieties under discussion grounded on the comparisons with the reference varieties. Following next, Section 6.5 examines the status of GS as a distinctive variety within the Spanish diasystem based on the intonational analysis, and Section 6.6 deals with the question of how intonational change works more generally and discusses the role of extralinguistic factors. Finally, Section 6.7 provides the reader with the answers to question 7 presented above, i.e. it approaches the intralinguistic aspects of intonational change from a more theoretical point of view. Besides that, I shall at various points make reference to the results of the segmental analysis of intervocalic /s/ voicing in GS presented in Section 5.4 to complement the findings made on the basis of the prosodic analyses with evidence from other levels of phonology.

6.1 Similarities and differences between the prosodic systems of Girona Spanish and Girona Catalan

The results of the intonational and phrasal analysis have revealed that the current varieties of GS and GC as spoken by bilinguals with different degrees of LD share numerous prosodic features and display few differences. In the ensuing summary, I shall briefly outline these prosodic similarities and differences.

Similarities between the prosodic systems of Girona Catalan and Girona Spanish

- In both varieties, (S)(VO) is clearly the dominant phrasing pattern in read neutral broad-focus SVO declaratives. Short sentences with non-branching subjects seem to favour (SVO) groupings. In semi-spontaneous speech, there is overall somewhat more variation, but (SVO) is most common in both languages.
- Both varieties primarily use continuation rises (CR, i.e. the nuclear configuration L+H* H-) to tonally mark the final boundaries of inner ips in neutral broad-focus SVO declaratives. Sustained pitches (SP, i.e. L+H* !H-) are used to a minor extent (yet, in semi-spontaneous speech, they are more frequent in GS than in GC).
- In both varieties, (L+H*) H- conveys incompleteness of the discourse in declarative statements.
- L+<H*, i.e. the delayed peak, was established as underlying prenuclear pitch accent in statements in both varieties.
- Both prenuclear H+L* and L+H* are surface variants of underlying prenuclear L+<H* in statements in both varieties. Whereas H+L* occurs after preceding high tonal targets, L+H* may surface in stress clashes.
- L*+H was established as underlying phrase-initial prenuclear pitch accent in most question types in both varieties (usually not in *que*-questions and wh-questions).
- Prenuclear H* is the typical prenuclear pitch accent of yes–no questions with *que* and of information-seeking wh-questions in both varieties. However, it can also appear as a surface variant of L+<H* in statements or of L*+H in other question types (e.g. in stress clashes).
- In statements, phrase-internal prosodic words are pitch-deaccented to an extent of roughly 30% in both varieties. In information-seeking yes–no questions this share rises to approximately 80% or more (i.e. the tonal density in this question type questions is very low).

- The nuclear L* pitch accent (attested in numerous IP nuclear configurations) conveys pragmatically neutral broad-focus readings in both varieties, and H+L* is a surface variant that may occur after preceding high tonal targets.
- The nuclear L+(¡)H* pitch accent is used to signal focus and/or emphasis in both varieties (i.e. it is used in biased statements).
- The upstep (¡) as well as an expanded pitch range can be used to indicate emphasis.
- The following shared underlying nuclear configurations were established for both varieties:
  - L* L% for neutral broad-focus statements
  - L+H* L% for contrastive-focus, exclamative, and dubitative statements
  - L+H* L%, H+L* L%, H+L* HL%, and L* HL% for contradiction statements (although with different frequencies and probably not in all speakers)
  - L* H% and H+L* L% in information-seeking, confirmation-seeking, and exclamative yes–no questions
  - H+L* L% and L* L% in disjunctive questions (although with different frequencies)
  - H* L%, L* L%, and L* H% in information-seeking wh-questions (albeit with different frequencies)
  - H* L%, L+H* L%, and L* H% in exclamative wh-questions (although with different frequencies)
  - H+L* L% and L* H% in imperative wh-questions
  - L* H% and L+H* L% in echo yes–no questions
  - L* H%, L+H* L%, L+H* LH% in echo wh-questions
  - L* H%, H+L* L%, and L+H* L%, in exclamative echo yes–no questions (with counter-expectational meaning)
  - H+L* L% and L+H* L% in commands
  - H+L* L%, L+H* L%, L+H* HL% in requests
  - L+H* HL%, L+H* !H%, L+H* H% in vocatives
- In both varieties, L* H% can be used as nuclear contour in all types of yes–no, wh-, and echo questions.

Differences between the prosodic systems of Girona Catalan and Girona Spanish

- In read neutral broad-focus SVO declaratives with non-branching subjects, the (S)(V)(O) phrasing pattern is used more frequently in GS than in GC, where more (SVO) patterns are employed. In (semi-)spontaneous speech, GS is somewhat more prone to show (S)(VO) and (S)(V)(O) is more common in GC (cf. Section 6.4.1 for a critical discussion of these findings).
- In (semi-)spontaneous speech, significantly more sustained pitches are used in GS to mark ip-boundaries than in GC.
- H+L* L% is the preferred nuclear contour in contradiction statements in GC. In GS, it was only attested in CatD speakers.

– L+H* L% is the preferred nuclear contour in contradiction statements in GS.
– In information-seeking yes–no questions, the nuclear contour H+L* L% is quite common in GC but quite rare in GS.
– In information-seeking wh-questions, H* L% is less dominant in GS than in GC.
– In exclamative wh-questions, the general preference for H* L% is stronger in GC, as GS uses L+H* L% more frequently than GC.
– In imperative wh-questions, L+H* L% was only attested in GS.
– In disjunctive questions, GC prefers the H+L* L% nuclear contour, while GS prefers L* L%.
– In echo wh-questions, L+H* L% is somewhat more frequent in GS and among SpD bilinguals.

In sum, together with the phonological analysis made in Section 5.2, the comparison of the prosodic systems of GS and GC offered in this section demonstrates that the two contacting varieties share their tonal inventories, i.e. they use not only the same pitch accents and boundary tones but also the same nuclear configurations to express identical meanings. The (very few) differences that were registered between the varieties almost invariably arise from distinct frequencies of occurrence of some of the items in this shared inventory (cf., e.g., Bulgarian Judaeo-Spanish in Section 3.3.3 for a similar case). The next sections will deal with the question of how this variation can be explained.

6.2 Variation in Girona Spanish and Girona Catalan

The prosodic analysis of GS and GC has revealed that both varieties pattern alike in that they present quite a **lot of variation** at the intonational level. For most sentence types studied, two or even more distinct underlying nuclear configurations could be established—sometimes appearing with different frequencies in the two languages. This was especially the case of contradiction statements, information-seeking yes–no questions, information-seeking, exclamative, and echo wh-questions, imperatives, and vocatives (cf. Sections 5.2 and 6.1, above). In contrast, the available descriptions of Spanish and Catalan intonation carried out within the AM model most commonly posit only one nuclear configuration per utterance type. For example, this is the case of the reference varieties CS and CC, to which the contacting varieties under concern here will be compared in the following section, 6.3. When more than one nuclear contour is offered for a particular type in the literature, these are either assumed to spring from different diatopical varieties or else the authors usually suggest—and occasionally have demonstrated in follow-up/centred studies—that the use of the different variants is conditioned by pragmatic factors such as, e.g., politeness or insistence on part of the speaker (cf., e.g., the descriptions of neutral wh-questions in Estebas-Vilaplana/Prieto 2010: 35 or Prieto 2014: 67; see also Table 3.4). Furthermore, great variation was also observed regarding the realization of Spanish word-final /s/ before a vowel: while some speakers consistently produced fully voiced sibilants in this context (i.e. [z]), others never did so (i.e. they used fully or partially voiceless [s]), and still some others mixed voiced and voiceless realizations. The question must thus be posed how the comparatively large variation attested in the Girona contact varieties can be accounted for.

In some cases, pragmatically rooted proposals were made to account for the intonational variation in the current study, too—though always in accordance with the extant literature on CS and CC intonation, as the size and the composition of the present corpus do not allow to explore such factors in a systematic way. For example, in Section 5.2.3, I propose that the choice between the different nuclear configurations in vocatives depend on the insistence the speaker intends to convey in their call. Yet, such pragmatic approaches were not always possible nor did they always seem appropriate. Also, it is known that the types of pragmatic distinctions that show categorical phonological differences may vary across different varieties of the same language: namely, this has been observed with regard to the intonation of yes–no interrogatives in Spanish, where, e.g., Jerezano and Argentinian Spanish present a smaller number of pragmatically distinctive contours than CS (cf. Gabriel et al. 2010; Henriksen/García-Amaya 2012: 145; Hualde/Prieto 2015). Rather than pragmatic factors, the following two facts seem to be more relevant to account for the variation at hand in the present study: (1) A fair deal of the variance documented in the contact varieties is of the diastratic type, i.e. there is no language-internal systemic meaning attached to it, but it can be linked to sociolinguistic parameters such as the speaker's origin and LD. (2) It is likely that the available descriptions of other varieties only reflect a part of the actually existing variation, such that the variation found in the Girona varieties is actually not so much greater. Before I expand on the effects of the speakers' sociolinguistic backgrounds on their linguistic performance (cf. 1), the following example will illustrate how conclusion (2) was arrived at.

In the present intonational analysis, it is striking that the low–rise nuclear configuration (L* H%) was attested in all interrogative utterance types studied (with the exception of disjunctive questions), i.e. in 10 different, pragmatically neutral or biased question types (cf. Table 5.2-1). This clearly shows that the tune merely expresses interrogativity and cannot be used to distinguish different types of pragmatic bias (e.g. the difference between confirmation-seeking or exclamative yes–no questions). When the speakers use it in biased questions, the bias must thus either be conveyed by other linguistic means such as pitch span or lexical choices or it is not expressed explicitly (i.e. it must be inferred from the context or world knowledge).[355] In contrast, L* H% is only reported for 3 CS question types by Estebas-Vilaplana/Prieto (2010) and Prieto (2014) only reports it for neutral yes–no questions. The question thus arises why L* H% is so much more recurrent across different utterance types in the contact varieties spoken in Girona.

[355] Note, however, that at least theoretically the possibility cannot be excluded that some speakers might occasionally not have understood the pragmatic contexts described in the DCT scenarios right and that they could have erroneously produced neutral questions without the desired biased meaning.

There are two plausible answers: (1) the descriptions offered in the literature on the intonation of CS and CC only provide a partial picture of the true variation because they mainly report the tunes that are unique to and hence distinctive of a particular utterance type. Also, they tend to document only the tunes that appear with the highest frequencies (leaving aside less used ones). If this is true, it would explain why the current analysis registered more variants in many cases (e.g. L* H% in all biased question types in addition to the respective utterance-specific nuclear contours that explicitly convey the biased meaning). Regarding the particular example just given, the fact that 'L* H%'-like contours are mentioned for over 8 (biased and non-biased) question types in Prieto's (2002a) theory-neutral description of CC intonation (in opposition to the available AM descriptions) point towards this assumption being correct. (2) On the other hand, it cannot be excluded that the generalization of L* H% to virtually all GS and GC question types could be the result of a **simplification** process taking place parallelly in both languages due to long-standing language contact (cf. Blas Arroyo 2011: 386). This is to say, (some) bilinguals could have reduced their tonal repertoires as a strategy to cope with their 'bilingual burden' (cf. Section 4.3.1 and sources therein). Instead of keeping apart two separate language-specific systems with many context-specific tunes, they could have chosen the 'simplest variant', i.e. the one which in both languages expresses merely the feature [+ interrogative], and generalized it to all question types. Also, as mentioned before, the varieties of a language may differ with regard to the number of pragmatic distinctions expressed through categorical phonological difference. For instance, Henriksen/García-Amaya (2012: 145) suggest that the contrast between rising–falling and falling–rising contours in CS yes–no questions put forth in Escandell-Vidal (1999, 2002, 2017) and taken up, e.g., by Estebas Vilaplana/Prieto (2010) does not apply to Southern Peninsular varieties of Spanish. The same could be true for GS, as well (and mutatis mutandis also for GC). This is to say, (some) bilinguals could have given up earlier distinctions, but as the simplification process has not yet spread to the entire speaker community, it synchronically leads to an increase in competing variants.

Be that as it may, the more important factors conditioning the intonational variation observed in the Girona contact varieties are clearly sociolinguistic in nature and hence depend on language-external factors. One such parameter, which was taken into account throughout the analysis, was the bilinguals' **language dominance** (LD). In Section 4.2, it was shown that the linguistic uses and competences of roughly two thirds of the participants of the present study were clearly biased towards Catalan, while the rest were moderately dominant in Spanish.[356] Almost invariably, the participants' LD correlated with their ethnolinguistic affiliation, viz. with the background of their parents (cf. Section 4.2). Since it was one of the major purposes of this study to gauge the effect of speakers' LD on both their phonetic production and their phonological systems, this factor was given special emphasis in the presentation of the results inas-

[356] Since Catalan is slightly predominant over Spanish in Girona at an overall societal level (cf. Section 2.1 and Fn. 182 in Section 4.2), this is not surprising and nicely confirms the representativeness of the used sample.

much as Spanish- and Catalan-dominant bilingual speaker groups (SpD and CatD) were considered separately whenever it was possible and beneficial. When it made sense, even further shades of the degree of LD (e.g. more balanced vs strong dominance) were brought into play. In the analysis of the intervocalic /s/ voicing in GS, the participants' dominance scores were used to incorporate LD as continuous predictor variable in the interference-statistical evaluation of the results.

In this way, it was shown that SpD and CatD bilinguals do not always behave alike at the intonational and segmental levels. For instance, in GC information-seeking yes–no questions introduced by *que*, the use of low–rising and high–falling nuclear contours was significantly associated with the speakers' LD (low–rising contours being used almost without exception only by SpD) and, in GS, this question type was almost invariably found in CatD (always coming along with the falling tonal pattern). Clear differences between the two speaker groups were also observed in contradiction statements, exclamative yes–no questions, and, to a minor extent, in echo wh-questions (cf. Sections 5.1.2.2, 5.1.4.1 and 5.1.7.2). Moreover, on the segmental level, the voicing of word-final Sp. /s/ before vowels was found to be significantly more likely, the more the speaker's LD was biased towards Catalan, i.e. LD proved to be a useful predictor variable for a part of the variance in the sample (cf. Davidson 2015a: 201, 205, 229, 2015b for similar findings in Barcelona Spanish). In consequence, it is evident that a substantial amount of the variation we observe in the Girona contact varieties results from CLI between the two languages of their bilingual speakers, i.e. in most cases from the dominant to the non-dominant language (cf. the analysis of the role of language contact in the development of the contact varieties in Section 6.4).

Nevertheless, in many—or actually most—cases **no clear-cut difference** between the dominance groups could be established. Although frequency-based differences in the use of particular tunes were common, statistical tests rarely reached the conventional significance level of $\alpha = 0.5$. As this may at least in part be a corollary of the smaller number of participants in the SpD group ($n = 11$), and hence of the number of sentences analysed in a specific context, it is fair to point out that there were some cases of marginal significance ($p < 0.1$): e.g. regarding the use of H* as prenuclear pitch accent in neutral statements. Still, the recurrent absence of statistically significant differences first and foremost signals that the ways of speaking of the two dominance groups are quite similar at present. Since we can safely assume that the varieties of Spanish and Catalan spoken in Catalonia by (Catalan-speaking) locals and (Spanish-speaking) settlers were once more distinct (cf. Section 2.3), this means that they must have very much approached each other in a process of large-scale convergence (cf. the discussion of the similarities between GS and GC in the light of language contact in Section 6.4). Similarly, LD proved to be a highly relevant factor in the segmental analysis, but at the same time it could only account for a small part of the variance in the data.

Besides LD, there must thus be some additional factors. One of these is clearly **inter-subject variability**. This is most patent in the case of participant No. 13, whose question intonation was quite consistently different from that of the other bilinguals. This SpD bilingual (ILD: 28.7) overwhelmingly used an H+L* LH% nuclear configuration across different types of yes–no questions (typically in connection with H+L* prenuclear pitch accents). In particular, such contours were found in her neutral, confirmation-seeking, and echo yes–no questions gathered with the DCT as well as in her read data. To my best knowledge, H+L* LH% nuclear contours have not been documented for any other variety of CC or Peninsular Spanish. Given that the bilingual concerned grew up in Girona but was born in Honduras from monolingual Spanish-speaking Honduran parents, it can be presumed that her particular nuclear tune originally derives from Honduran Spanish, of which we unfortunately have no descriptions so far. Interestingly enough, the contour was also produced twice by another, now slightly CatD bilingual (–21.8), whose father stems from Uruguay. Since it was also observed in Paraguayan Spanish by Andrea Pešková (p.c.), it can be surmised that what we are dealing with here are in fact characteristics of American Spanish varieties. Crucially, both participants used the contour not only in Spanish but also in Catalan (i.e. there seems to be prosodic transfer from (Latin American) Spanish to Catalan). Furthermore, it is pretty obvious that these two subjects must have a partially different phonological system compared to other participants.

However, although this is the most blatant case of inter-speaker variation (which can be accounted for by the speakers' background), it is certainly not the only one. The phonological analysis presented in Section 5.2 has repeatedly brought up good reasons to believe that not all of the investigated bilinguals share one and the same intonational system in each language—not even those who have the same dominant language. Instead, the distribution of the attested nuclear contours across speakers and languages in many utterance types (among them, e.g., contradiction statements, information-seeking and exclamative yes–no and wh-questions, disjunctive, and echo questions) strongly suggests that there are different repertoires of nuclear contours among the participants and that most of them only dispose of a selection of the variants found overall.

The reason for this might be the fact that individual speakers differ in their ability to acquire a second language in a target-like manner and that some bilinguals may struggle more than others with keeping their language systems separate, i.e. individual speakers contribute to different degrees to the aforementioned convergence processes between the two languages. For instance, in the present case, some bilinguals—typically those with the strongest bias towards one language—seem to use merely the intonational system of their dominant language (i.e. they fail to acquire the one of the second language), while others (typically more balanced bilinguals) are more successful in partially or fully acquiring the respective target system (see also Section 6.4). This, in turn, leads to a situation in which there are large differences between the phonological systems of the single individuals in the bilingual community as well as within the dominance groups that exist in that society. Still, as we have seen, background factors such as LD play an important role in that they help us predict which tunes a particular bilingual will probably use.

Further evidence for these suggestions comes from the analysis of the segmental data, which equally revealed a substantial degree of inter-speaker variation: in comparison, CatD bilinguals were more likely to sonorize word-final Sp. /z/ when it appeared before a vowel than bilinguals with a bias towards Spanish, but at the same time, there were some CatD bilinguals who hardly used /s/ voicing as well as some SpD ones who used it systematically (cf. Figures 5.4-5 and 5.4-6). As in previous studies on intervocalic sibilants in Barcelona Spanish (cf. Davidson 2015a: 201–203, 230–232, 2015b: 133), the within-group variation was thus relatively large.[357] This is to say, the speaker population arranged along a continuum reaching from speakers who never voiced this segment to speakers who did so consistently which correlated with LD to a certain point. However, as this correlation was only moderately strong, personal factors are clearly at play, as well.

In sum, as contact varieties that are virtually always spoken by bilinguals, current GS and GC do present more intonational variation than, e.g., (monolingual) CS does. Yet, this variability can to a substantial degree be linked to the speakers' LD (and hence to their sociolinguistic background) as well as to other bilingualism factors (such as the ability to maintain two separate language systems). In view of the fact that these aspects of bilingualism have traditionally not been paid much attention to when studying this particular but also other language-contact situations involving extensive bilingualism, the results of the present study endorse their weight and encourage the recent trend of giving them more importance when accounting for variation in linguistic data stemming from bilinguals. Another conclusion of this subchapter is that the variation observed in Catalan–Spanish bilinguals in 21st-century Catalonia mainly results from language contact between Catalan and Spanish. In the following two sections, I will thus first compare GS and GC to CS and other CC varieties and then use this comparison to show how the language-contact situation has shaped the two Girona contact varieties, which obviously qualify to a certain extent as mixed varieties that combine both 'Spanish' and 'Catalan' intonational features.

6.3 Prosodic distance between Girona Spanish and Castilian Spanish and between Girona Catalan and other Central Catalan varieties

Before discussing the similarities and differences between the GS and the GC intonational systems in the light of language contact, it is necessary to establish further points of comparison. In this section, I shall therefore contrast the two Girona varieties with the corresponding reference varieties, i.e. with (standard) CS and (standard) CC. This choice will be motivated in the ensuing paragraphs before the actual comparison is made.

As regards GC, this subvariety is actually part of the CC dialect, which—at least in Catalonia—is generally considered the standard (or closest-to-standard) form of Catalan (cf., e.g.,

[357] Davidson (2015b: 133) attributes this heterogeneity to the non-standard character of Catalan-contact Spanish.

Prieto 2014: 44). CC is also the variety which Pompeu Fabra took as point of departure for his standardization work (cf., e.g., Brumme 2020: 498, 502) and the one which dominates in the Catalan media (cf. Camps/Labèrnia 2020, among others). However, this is true especially for the Barcelona variant of CC and less so for other subdialects. In consequence, also most available accounts of (Central) Catalan intonation are based rather on the metropolitan variety than on subdialects such as the one used in Girona, for which only sketchy and fragmentary descriptions are available (cf. Section 3.1.2). In this work, I shall consider the accessible information on both of these subvarieties, but will mainly have to draw on Barcelona-centred CC.

Of course, it is obvious that no CC variety can constitute an ideal reference point for the enterprise of uncovering CLI in the Girona speech data analysed in this work, as it preferably ought to be compared to monolingual non-contact varieties of Catalan. Yet, given the fact that all Catalan varieties have been in more or less intense contact with other languages for many decades (e.g. with Spanish, French, or Sardinian) and that all Catalan speakers are (at least) bilingual today (cf. Section 2.1), such a comparison is no longer possible. Due to its contact with Spanish, CC thus cannot be considered a fully neutral baseline for the comparison with GC in the same way than CS for GS. However, taking it as a landmark is certainly still the best possible practice—as long as this caveat is duly kept in mind.[358]

As pertains GS, a dialectal classification is still outstanding to date. In Section 2.2, it was outlined that Catalonian Spanish and other Spanish varieties in contact with Catalan in a wider sense have largely been ignored in the traditional Spanish dialectology. While it is common and certainly helpful in many cases to compare varieties to neighbouring varieties spoken in contiguous areas, this does not appear to be an appropriate or even feasible option in case of GS. First, as discussed at some length in Section 2.3, there are not yet any full reports on Catalonian Spanish prosody that could be referred to in such an enterprise. Next, a comparison to the geographically closest monolingual non-contact variety, i.e. the Spanish spoken in most parts of Aragon, was decided against, too, for the following series of reasons: first and most importantly, Spanish in Aragon and in Catalonia originated in utterly different ways and at different times.[359]

Second, as the Catalans were becoming bilinguals in their masses, they entered in intense contact with monolingual varieties of Spanish stemming mainly from the South of the Peninsula as well as with the Castilian standard diffused in the mass media (cf. Ruiz Martínez 2004;

[358] Furthermore, it is worth pointing out that even if the authors of the extant works on Catalan intonation usually do not refer to it directly, it can be assumed that they paid some attention, when selecting their Catalan informants, to choose bilinguals who are clearly dominant in that language and thus approach the ideal of monolingualism as closely as possible.

[359] While Aragonese is usually considered a historic or primary dialect of Spanish (cf. Zamora Vicente 1960; Coseriu 1980; García Mouton 2007) and the complete language shift to Castilian Spanish in most parts of Aragon occurred quite rapidly after the union with the Crown of Castile (cf., e.g., Tomás Faci 2020: 217), Catalonian Spanish largely arose within the last two centuries (cf. Section 2.1). Furthermore, Catalonian Spanish first developed as an L2 variety, when native speakers of Catalan began learning (Standard) Castilian Spanish as a foreign language, while the continuous shift from Aragonese to Spanish in Aragon was very probably less conscious (Tomás Faci 2020: 244, 256, 267, and passim).

Cutillas-Espinosa/Hernández-Campoy 2007). As opposed to these varieties, Aragonese Spanish, though neighbouring, does not seem to have had much of an influence in the genesis of Catalonian Spanish.[360] Hence, a comparison of GS with the direct contact varieties just mentioned appears more natural. Third, there are virtually no data-based descriptions of Aragonese Spanish prosody, which makes a sound comparison impossible in practice.[361] Unfortunately, however, this also widely applies to the Spanish varieties spoken in Southern Spain, where the greatest part of immigrants to Catalonia and, in concert with this, also many of the parents of the participants in the present study stemmed from (cf. Sections 2.1 and 4.2). To my best knowledge, there are to date no systematic and comprehensive descriptions of the intonation of the Spanish varieties spoken in regions such as Andalusia or Extremadura presented within the AM framework.[362]

For all these reasons, I chose to compare the Girona variety of Spanish studied in the present work first and foremost to CS, which, besides being generally considered the standard variety of Spanish within the Peninsula, has also been the object of the majority of studies into Spanish intonation carried out within the AM framework. In addition to CS being one of the best-known varieties, it is also well-known that regional varieties often converge towards the standard variety (Labov/Harris 1986; Villena Ponsoda 2005, 2008; Morgenthaler García 2008: 178–180, 291–322; Cutillas-Espinosa/Hernández-Campoy 2007; Hernández-Campoy 2011; Méndez García de Paredes/Amorós Negre 2016, 2019; Kireva 2016a, among others). CS hence serves as a model to both L1 speakers of Catalan as well as to the L1 speakers of Spanish living in Catalonia (cf. e.g. Sinner 2004: 593–617). In this sense, a comparison between GS and CS enables a discussion about a possible convergence of the current variety of GS towards CS (i.e. towards the standard variety). What is more, in the case of the present study, CS is also one of the direct contact varieties for several bilinguals whose speech was investigated in the present study, because some of the participants' parents stemmed from Madrid, Valladolid, and Segovia (cf. Section 4.1). Nevertheless, I shall try to consider Southern Peninsular Spanish and the relevant Latin America varieties whenever it is possible and conducive as I discuss the genesis of the current state of the Girona contact varieties following in the next section (6.4).

360 Although the first immigration wave to Catalonia also encompassed (Spanish-speaking) settlers from Aragon, their numbers stayed comparatively low. In 2020, only about 1% of the inhabitants of Catalonia were born in Aragon (IDESCAT 2021b).

361 The only exception known to me is the work by Castañer et al. (2005), carried out within the AMPER project, who present an overview of the (generally impressionistic) remarks on Aragonese Spanish intonation in the literature and study a little corpus of each 9 declaratives and 9 yes–no interrogatives recorded by a Spanish speaker from Zaragoza. They preliminarily conclude that there exists no fundamental difference between the variety under concern and "Peninsular Standard Spanish".

362 A notable exception is certainly the work of Henriksen/García-Amaya (2012) on Jérez Spanish. Furthermore, the study on Olivenza Spanish prosody by Kireva (2016a) constitutes another exception worth mentioning. However, being itself a contact variety, Olivenza Spanish does not appear to be a suitable variety for Girona Spanish to be compared to. The relatively few other existing studies of Southern Peninsular Spanish varieties for the most part use the AMPER framework (e.g. Congosto Martín et al. 2010; Congosto Martín 2011; Amorós Céspedes 2007, 2011; Pamies Bertrán 2007, 2008, among others). Unfortunately, these studies hardly allow for comparison with the Girona data sets, since the AMPER approach in most cases merely considers two sentence types on the basis of read speech from only one or very few speakers (i.e. neutral declaratives and yes–no questions). What is more, no underlying pitch accents or boundaries are usually established.

The comparison of the results of the intonational analysis of GS with CS has revealed that the two varieties of the same language display a great many similarities but also some differences. Both kinds of features are summarized in the following overview.

Similarities and differences between the prosodic systems of Girona Spanish and Castilian Spanish

– In both varieties, (S)(VO) is the pervasive phrasing pattern in read neutral broad-focus SVO declaratives (for phrasing in CS see Elordieta et al. 2003, 2005; D'Imperio et al. 2005; Frota et al. 2007, and Section 3.2.2). Furthermore, this pattern is almost categorical with branching subjects, whereas non-branching conditions increase the probability of finding (SVO) patterns. In GS semi-spontaneous speech, (SVO) was more common than (S)(VO) but no direct comparison to CS is possible, here, given that the existing studies of prosodic phrasing in CS only refer to read speech.[363]
– Both varieties tonally mark ip boundaries in most cases with a continuation rise, while the sustained pitch is used only to a minor extent (roughly 10% in both varieties; cf. Frota et al. 2007: 135 for CS).
– L+<H*, i.e. the delayed peak, is the underlying prenuclear pitch accent in statements in both varieties.
– Both varieties show similar amounts of phrase-internal pitch deaccenting in neutral statements (i.e. approximately 30% of the prosodic words are pitch-deaccented; cf. Face 2003).[364]
– The nuclear L+(¡)H* pitch accent is used to signal focus and/or emphasis in both varieties (i.e. it is used in biased statements).
– The following underlying nuclear configurations are shared by both varieties:
  • L* L% for neutral broad-focus statements
  • L+H* L% for contrastive-focus and exclamative statements
  • L+H* L% and L* HL% in contradiction statements
  • L* H% in information-seeking and confirmation-seeking yes–no questions[365]
  • H+L* L% in confirmation-seeking yes–no questions (although L* H% is much more frequent in GS than in CS, which represents a parallel with Jerezano Spanish; cf. Henriksen/García-Amaya 2012)

[363] Prosodic phrasing of semi-spontaneous Spanish broad-focus SVO declaratives was investigated by Kireva (2016a: 211), who equally found that (S)(VO) and (SVO) were the most common phrasing patterns. However, since the variety she investigated (i.e. Olivenza Spanish) is a contact variety the occurrence of (SVO) may be amenable to Portuguese influence.

[364] Please note that in the present work a percentage of deaccented phrase-internal prosodic words is calculated. By contrast, in the study of Face (2003: 122), which concludes that "approximately 30% of accentuable words lack a pitch accent" in Castilian Spanish, it is not specified whether this percentage includes only phrase-internal or all prosodic words.

[365] Estebas-Vilaplana and Prieto (2010) distinguish between L* ¡H% in information-seeking and L* H% in confirmation-seeking yes–no questions. However, this difference was not retained in Prieto and Hualde (2015) and was not found in the present work, either, where the height of the boundary tone seems to depend rather on the metrical structure of the nucleus.

  - L* L% in disjunctive questions
  - L* L% and L* H% in information-seeking wh-questions
  - H+L* L% in imperative wh-questions
  - L+H* L% and L* H% in echo yes–no questions and in echo wh-questions
  - H+L* L% and L+H* L% in requests
  - L+H* HL% and L+H* !H% in vocatives
- The following nuclear contours are not shared by the two varieties:
  - In dubitative statements, GS uses L+H* L%, while CS displays L+H* !H%.[366]
  - In contradiction statements, H+L* L% may occur in GS (only attested in CatD bilinguals)
  - H+L* L% can be used in GS information-seeking yes–no questions introduced with the particle *que* (inexistent in CS)
  - H+L* L% in disjunctive questions (only GS)
  - H* L% in information-seeking wh-questions (only in GS, where it is the most frequent nuclear contour in this question type)
  - L+H* L% and L* H% in GS imperative wh-questions
  - L+H* LH% in GS and L+H* ¡H% in CS echo wh-questions
  - In exclamative echo yes–no questions (with counterexpectational meaning), GS displays L* (¡)H%, H+L* L%, and L+H* L%, whereas in CS L+H* LH% or L+H* ¡H% are used.
  - In commands, GS displays H+L* L% and L+H* L%, while only CS uses L+H* !H%.
  - In requests, GS can show L+H* HL%, whereas CS may present L* HL%.
  - L+H* H% can occur in GS vocatives

Little surprisingly, the comparison of the results of the intonational analysis of GC with other CC varieties has equally revealed a lot of similarities. Yet, there are also some differences, which are summed up in the following overview.

<u>Differences between the prosodic systems of Girona Catalan and standard Central Catalan</u>

- Concerning the phrasing of (read) neutral broad-focus SVO declaratives, CC is generally said to show a strong propensity to divide utterances in phrases of similar length, often producing (SV)(O) patterns (Elordieta et al. 2003; D'Imperio et al. 2005: 71). In our GS data set, however, (SV)(O) was absolutely marginal, even with branching objects.
- Whereas only continuation rises are used in CC to mark ip boundaries (cf. Frota et. al. 2007: 135 and Section 3.2.2), GC, in read speech, also makes use of the sustained pitch (although only to a small extent, i.e. 13%). In spontaneous speech, the sustained pitch was virtually inexistent (cf. Section 6.4.1 for a critical discussion of this finding).
- Regarding the use of nuclear contours, the following differences were registered:

[366] Note, however, that other Peninsular varieties of Spanish, such as Cantabrian and Jerezano Spanish, also show L+H* L% in this context (cf. López Bobo/Cuevas Alonso 2010: 60; Henriksen/García-Amaya 2012: 125)

- In contradiction statements, GC may display L+H* L% and L* HL%, whereas these contours are not proposed for CC in the research literature (cf. Section 3.1.2.2).
- In dubitative statements, GC displays L+H* L%, whereas L+H* !H% is the nuclear contour given for CC in the literature (cf. Section 3.1.2.2).
- In disjunctive questions, H+L* L% is used only in GC.
- In intonation-seeking yes–no questions with *que*, an L* H% can be found in GC (usually claimed to be incompatible in other Catalan varieties, cf. Prieto/Rigau 2007: 34f.; Nadeu/Prieto 2011: 845).
- In confirmation-seeking yes–no questions, L* H% rather than H+L* L% is most typical in GC.
- In information-seeking wh-questions, GC as opposed to CC may also display L* H% and L* L%.[367]
- In exclamative echo yes–no questions (with counterexpectational meaning), H+L* L% may be used in GC.
- L+H* LHL% does not seem to be used in GC exclamative echo yes–no questions (with counterexpectational meaning)
- In commands, H+L* L% is usually not indicated for CC but it was attested in GC commands consisting of more than one prosodic word.
- In requests, H+L* L%, L+H* L%, and L+H* HL% were observed in GC, whereas L+H* L!H%, L+H* LHL%, and L* HL% occur in CC.
- 'Interrogative' vocatives are most commonly realized as L+H* H% in GC, whereas CC uses L* H% (cf. Prieto et al. 2015: 41; Borràs-Comes et al. 2015: 78).

In sum, it can be concluded that the intonational systems of both Girona varieties show traces of language contact. Especially as regards GS, it appears fair to state that its intonational system is best characterized as a mixed system that combines intonational patterns from both Spanish and (Girona) Catalan. This is especially patent in the intonational realization of questions: consider for instance the nuclear configurations of information-seeking yes–no questions, which—as opposed to CS—can be formulated with the interrogative particle *que* and are then intuned with a high–falling H+L* L% nuclear configuration, precisely as it is the case in (Girona) Catalan. The finding that this question type is tonally realized in GS according to the Catalan model supports the observations made by Romera et al. (2007, 2008) on the basis of read speech for Barcelona Spanish. Furthermore, GS confirmation-seeking yes–no questions are most recurrently pronounced with a low–rising L* H% nuclear configuration (which is equally in accord with GC but represents a contrast to CS and also to other CC varieties). In information-seeking wh-questions, the high–falling H* L% contour—which is not found in CS in this context—is the most common nuclear configuration in GS, and also in different types of echo questions the

[367] It is not fully clear in the available research literature whether these two nuclear configurations can also occasionally occur in CC (cf. the discussion in 6.4.2.4).

variety shares some of its nuclear contours with GC rather than with CS (e.g. L* (¡)H% and L+(¡)H* L% in exclamative echo yes–no questions with counterexpectational meaning or L+H* LH% in echo wh-questions). Moreover, although the most striking differences concern the intonation of questions, GS may show pitch patterns that exist in Catalan but not so in CS not exclusively in questions but also in other utterance types (e.g. L+(¡)H* L% in commands). Additional evidence for the 'mixed' character of GS comes from other phonological domains: even if GS patterns with other Spanish varieties in that it does not have a voiced sibilant phoneme (i.e. /z/), many of its speakers (both CatD and SpD ones, by the way) realize word-final /s/ as voiced [z] when it precedes a vowel, i.e. they apply a phonological rule that originally belongs to Catalan.[368]

In the case of GC, on the other hand, the Spanish influence is less apparent. Yet, there do exist some features which this variety has in common with Castilian (and Girona) Spanish rather than with other CC varieties. For example, the present study has revealed that GC sometimes makes use of the sustained pitch to mark ip boundaries, especially in read speech. Furthermore, the use of the nuclear configurations L* H% and L* L% in information-seeking wh-questions seems to be rather marginal in other Catalan varieties (cf. Prieto 2014; Prieto et al. 2015). The same applies to the use of the circumflex pitch pattern (L+H* L%) in requests, which is documented in Estebas-Vilaplana (2010: 41) for CS, but in Catalan only appears in the Northern dialect spoken in France. However, the most blatant and conspicuous trait that sets GC apart from other CC varieties—or, more accurately, from the available descriptions of CC intonation—is certainly the use of the low–rising L* H% nuclear configuration in information-seeking yes–no questions introduced by the particle *que*. In Section 5.1.3.1.5, we have seen that this pitch contour is mostly used by SpD speakers, which suggests that it could be transferred to GC from Spanish. Despite that, the fact that it was also found in some CatD speakers suggests that it has begun to spread across the whole speaker community, without having become (yet) a normative or fully adopted speech variant (cf. further discussion in 6.4.2.3).

Whether the two contact-varieties spoken in Girona display overall more CS or more Catalan prosodic features is not an easy question to answer: first, both varieties and, more generally speaking, even both languages are prosodically fairly close to one another. Second, the present study has revealed that the two Girona varieties present a lot of variation at the intonational level. Yet, in sum, there seem to be somewhat more prosodic features that were carried over from (Girona) Catalan to (Girona) Spanish than vice versa. The next subchapter will address the CLI that has taken place between the two contact varieties in more detail.

[368] Whether GS should be seen as an independent variety or a self-standing dialect of Peninsular Spanish will be discussed in Section 6.5, below, i.e. after the discussion of the role of language contact in its emergence.

6.4 How can the similarities and differences between the GS and GC intonational systems be explained in terms of language contact?

The preceding sections have made plain that the current varieties of GS and GC display a great many common features on the prosodic level. It was also demonstrated that both varieties can be characterized to a certain degree as 'mixed varieties', given that they combine a number of prosodic features which most likely stem from only one of either language. On balance, GS seems to present overall more 'Catalan' prosodic features than GC has 'Spanish' ones. In the next subsections, I shall endeavour to uncover the kinds of mechanisms which are responsible for this present state, drawing mainly on the comparison between the contact varieties and the respective standard or reference varieties of Catalan and Spanish offered in the previous section (6.3), on the mechanisms underlying contact-induced language change outlined in Section 3.3, as well as on the social-historical background of the Catalan-Spanish contact situation (cf. Section 2.1). First, I will discuss the prosodic phrasing of neutral SVO declaratives (Section 6.4.1), before I extensively address the use of prenuclear pitch accents and nuclear configurations in the sentence types studied in the present work (Section 6.4.2).[369] In Section 6.4.3, I shall make a short digression and discuss the contact-related language influence observed at the segmental level, and finally, in Section 6.4.4, I will summarize the findings made in the previous subsections and propose a schematic model, which represents the linguistic processes involved in the emergence of the current states of the intonational systems of the two Girona contact varieties under changing sociolinguistic conditions.

6.4.1 Prosodic phrasing of neutral SVO declaratives and tonal boundary marking

As stated in the results of the analysis of prosodic phrasing of neutral broad-focus SVO declaratives presented in Section 5.3, the following four patterns were attested in both GS and GC: (SVO), (S)(VO), (SV)(O), and (S)(V)(O).[370] Among these, (S)(VO) was clearly dominant in the read data set independently of the branchingness condition of the subject and the object (i.e. it was found to an extent of 52 to 100% all across conditions, mean: ~ 75%). As outlined in Section 3.2.2, this one is also the most common prosodic phrasing pattern for this utterance type in both CS and CC (Elordieta et al. 2003, 2005; D'Imperio et al. 2005; Frota et al. 2007; Prieto 2006c). It thus comes as no surprise that the same tendency is equally observed in the two contact varieties. However, according to the extant literature, the two standard or reference varieties differ in that CC has a much stronger propensity than CS to balance the length of the

[369] Note that I shall except some sentence types whose intonation does not give reason to assume any CLI (e.g. because the contact varieties and the reference varieties show the same intonation) or where possible CLI cannot be established because the sentence types have not been (sufficiently) described yet for the reference varieties (e.g. in the case of enumerations).

[370] Please note that (Sv)(vO) occurred as a further phrasing pattern in some few cases in the semi-spontaneous data set, when the two components of verbs in the present progressive tense, i.e. the auxiliary and the gerund, were phrased separately (cf. Section 5.3.4).

ips an IP is composed of, so that it presents a greater number of (SV)(O) phrasing patterns. With long branching objects, it is even the most typical phrasing pattern in this variety according to D'Imperio et al. (2005: 70f.). In CS, on the other hand, (SV)(O) patterns are much rarer.

Now, as regards the two contact varieties spoken in Girona, (SV)(O) is clearly marginal in both, occurring in merely 1% (GC) and 3% (GS) of the utterances examined for read speech (cf. below for the (semi-)spontaneous data). Furthermore, it was discovered that the contact varieties also pattern with CS in that shortness of the utterance, i.e. non-branching subjects and objects, seems to trigger more phrasings as (SVO). In CC, conversely, this latter phrasing pattern was attested only sporadically (D'Imperio et al. 2005: 68). Regarding (S)(V)(O), finally, that pattern has not been documented for CC, but in CS it can appear with prosodically branching objects. In the GS and GC read data sets (13% and 5%), it was most recurrent in non-branching sentences, but as such sentences were elicited at the beginning of the respective tasks used for data collection this could be a side effect of the method (cf. Sections 5.3.1 and below).

Concerning the phrasing of neutral broad-focus SVO declaratives in the (semi-)spontaneous data set, a much higher degree of variation was registered. In view of the fact that planning effects (e.g. searching for appropriate words) may have had some influence on the prosodic grouping of the IPs into ips, this is not astonishing (cf. Kireva 2016a: 215). Nevertheless, it is interesting to note that (SVO), instead of (S)(VO), was actually the phrasing pattern attested with the highest frequency of occurrence in the semi-spontaneous sentences examined for prosodic phrasing: it accounted for 53% of the GS and for 43% of GC items, whereas (S)(VO) was only registered in 27% and 14% of the cases, respectively. Nonetheless, it should be pointed out that the (semi-)spontaneous utterances were usually shorter and presented less branching constituents than the read sentences. In addition, the separate phrasing of the object was somewhat more common in unscripted speech but still quite infrequent altogether (14% in both varieties). The strong tendency of CC to use (SV)(O) patterns posited in the literature was not observed in GC spontaneous speech, either.[371] Finally, as regards the presence of (S)(V)(O) in the semi-spontaneous data, this grouping was comparatively common in GC (24%)—against previous findings made on the basis of read speech here and in the scientific literature—but marginal in GS. As was argued in Section 5.3.4., this again could be a side effect of the data collection, given that the Catalan items were the first to be recorded; i.e. it is possible that some participants felt not yet very familiar with the task at that point despite the previous training.[372]

371 Interestingly, the (SV)(O) pattern was registered mainly in the (semi-)spontaneous utterances elicited with DCT scenario 1a1, which requires participants to describe a picture of a girl having a drink (cf. Appendix 5). A possible reason for this finding could be that some participants could have hesitated before eventually deciding which drink the girl was having when describing the picture and therefore realized a prosodic boundary between the verb and the object in their response.

372 Especially the fact that (S)(V)(O) was more frequent in GS than in GC in the read data set and vice versa in the (semi-)spontaneous data directly speaks to such an interpretation, as the order of the languages was reversed in the two tasks.

To cut a long story short: based on the comparison between the contact varieties and the respective standard varieties, it can be concluded that the distribution of phrasing patterns attested in GS and GC read speech is overall slightly closer to the one reported for CS than to the one attested in the Barcelona variety of CC (mainly due to the lack of (SV)(O) phrasings and the strong tendency to categorically use (S)(VO) in read speech). Two lines of thinking provide imaginable explanations for this finding. First, it is possible that GC, as opposed to Barcelona Catalan, never showed a tendency to use (SV)(O) groupings. If that were true, the varieties of Catalan and of Spanish entering in contact in Girona would have exhibited essentially the same distribution of phrasing patterns from the very beginning of the contact. Conversely, if GC and Barcelona Spanish once were more alike regarding prosodic phrasing, that would imply a change in current GC. Along these lines, it can be hypothesized that, in a first step, the Spanish spoken by Catalan natives in Girona initially did display a certain tendency towards using (SV)(O) phrasing patterns, especially in sentences with long or branching objects (due to substratum transfer from GC). In a further step, the Spanish spoken by these bilinguals would have converged with the Spanish spoken by the monolingual immigrants, so that the presence of (SV)(O) groupings decreased and (SVO) patterns became more commonplace (in short statements). Additionally, this trend could have been reinforced (in all speaker groups) through the indirect contact with CS via the Spanish mass media, where this variety is predominant (Ruiz Martínez 2004; Cutillas-Espinosa/Hernández-Campoy 2007). In a following stage, the bilingual speakers would have abandoned (SV)(O) in Catalan, too, under the strong pressure of Spanish, which during the Franquist regime was the only language allowed in public use and in the educational system (cf. Section 2.1). Given that the vast majority of Catalonia's inhabitants were only literate in Spanish at that time[373], it can furthermore be expected that reading habits from Spanish were to a certain degree transferred to Catalan after the advent of democracy due to its higher degree of entrenchment, i.e. as a consequence of lacking own patterns Catalan readers may have borrowed Spanish ones. Moreover, even in speakers who were literate in Catalan, some degree of attrition would be unsurprising, as there were few opportunities to read Catalan under Franco. The almost categorical use of (S)(VO) phrasing patterns that is characteristic of CS could therefore have survived also in modern-day GS and GC reading pronunciation.[374] Finally, a third plausible explanation for the similarities between GS and GC warrants mention: as the participants performed the GS reading task right before the GC one and given the similarity of the test sentences—recall that they were almost literal translations—it is theoretically conceivable that influence of the Spanish patterns on Catalan phrasing suggested here could have taken place primarily at the level of performance rather than at the competence level, i.e.

[373] In the first systematic surveys, carried out in 1986, i.e. already eight years after the instauration of democracy, still only 31.5% of the Catalans indicated that they could write in Catalan (cf. Generalitat 2019: 11).

[374] A caveat of this approach is that it cannot explain why such a change would have occurred only in GC but not in Barcelona Catalan—especially seeing that the pressure from Spanish is clearly stronger in the metropolitan area. The first hypothesis, presented above, might thus be more appropriate. However, future research should anew dig into Barcelona Catalan, as the current results are based on data from merely two speakers.

the results might be somewhat different had the two languages been tested independently (e.g. on different days).

As regards (semi-)spontaneous speech, however, we have seen that (SVO) groupings prevail in both contact varieties. Since this is not the case in the read data from neither of the standard varieties (cf. Section 3.2.2), and spontaneous speech has not yet been thoroughly examined, we can merely assume here that this is an effect of the speech style. Given that spontaneous speech is less planned in nature, this speech style seems to lead to fewer planned prosodic breaks, on the one hand (i.e. more (SVO) groupings), and to more unplanned prosodic breaks, on the other, resulting in a greater number of (S)(V)(O) and (SV)(O) patterns.

With respect to the tonal marking of prosodic boundaries of inner ips in neutral broad-focus declaratives, the comparison of the two contact varieties with the respective reference varieties has revealed that all varieties pattern alike in preferring continuation rises (i.e. H- boundary tones, henceforth CR). Yet, as opposed to Barcelona Catalan, but in accordance with CS (cf. Frota et. al. 2007: 135 and Section 3.2.2), GC and GS also make use of sustained pitches (i.e. of !H- boundary tones, henceforth SP) in a minority of cases (approx. 10%). In (semi-)spontaneous speech, however, this distribution changes a little: in GC, the occurrence of the SP was rather marginal, whereas this tonal cue accounted for roughly a third of the GS items.

In terms of language contact, we can thus conclude that the GC reading pronunciation has to some extent been influenced by Spanish regarding the use of the SP.[375] As before, it is likely also in this case that the Spanish spoken by Catalan L1 speakers did not present any use of the SP in the first place, i.e. initial speakers of Catalan at the start preserved their articulatory habits and overused the CR when speaking Spanish before eventually acquiring the SP, especially as they first learned Spanish as a formal written language (cf. Bernat et al. 2020: 107–108). Such a simplification of the target system is known to be common in early stages of second language acquisition and can be interpreted as a type of imperfect learning in connection with substratum transfer (cf., e.g., Winford 2003: 217–225). However, in the course of the bilingualization of the L1 Catalan speakers during the last century and through the intensifying contact with the monolingual varieties of Spanish spoken by the immigrants from other areas of the Peninsula (cf. Bernat et al. 2019, 2020), the (former) learner variety spoken by the Spanish–Catalan bilinguals gradually converged with other varieties of Spanish as well as with the standard variety diffused e.g. in the media (Ruiz Martínez 2004; Cutillas-Espinosa/Hernández-Campoy 2007; Méndez García de Paredes/Amorós Negre 2016). The presence of the SP in GS can thus be regarded as an outcome of this process of convergence.

As concerns its occurrence in the GC data, it can be presumed that the SP was integrated into this register of GC, when Catalan anew began to be used as written (and, hence, read)

[375] The following suggestions are based on the assumption that the situation registered in the two contact varieties results from CLI but is more or less stable at present. However, it is worthwhile to point out that a more immediate or ‘ephemerous' interference of the Spanish reading habits in the Catalan performance in the sense of Müller et al. (2011: 21) is another conceivable option considering that the participants read the Catalan sentences after the Spanish ones and that the sentences were very similar across languages.

language after it became co-official in 1979. As most speakers of Catalan were at that moment only literate in Spanish—recall that Spanish used to be the sole official language in all of Spain during the greatest part of the 20th century and hence for the longest time the only language of the mass media and in the educational system—it can be suggested that the SP was transferred from (Girona) Spanish to GC formal registers because of its great entrenchment in that language. Moreover, in the probably few Catalans who were literate in that language some degree of attrition can be expected given the lack of opportunities to read Catalan. Furthermore, it can be surmised that initial speakers of Spanish overused the SP in Catalan when they first started acquiring Catalan as a second language after the restauration of democracy (due to substratum transfer) and in this way contributed to its entrenchment because they increased its presence on the linguistic marketplace. However, it could not be found that SpD speakers used the SP substantially more than CatD ones in neither speech style. Supposing that the varieties of GC spoken by the different dominance groups were once different, they must have converged now.[376] Nonetheless, the Spanish influence does not seem to have affected more colloquial registers of spoken GC.

In sum, the findings of this section suggest that the current varieties of GS and GC largely pattern alike with CS regarding the placement and tonal marking of IP-internal ip-boundaries in read speech as a consequence of transfer and convergence processes in the course of the development of the two contact varieties. In (semi-)spontaneous speech, however, the two varieties differ regarding the use of the SP.

6.4.2 Use of prenuclear pitch accents and nuclear configurations

6.4.2.1 Neutral statements

The results of the intonational analysis allowed us to determine L+<H* as the underlying prenuclear pitch accent in neutral broad-focus statements in both contact varieties spoken in Girona. H+L* and L+H* were analysed as surface realizations of the underlying L+<H* prenuclear accent that typically appear in certain tonally or metrically defined contexts (cf. Sections 5.1.1.1 and Section 5.2.1). Regarding tonal density, it was shown that roughly 30% of the phrase-internal prosodic words tend to be pitch-deaccented in the Girona varieties, i.e. they bear no pitch accent of their own. Finally, L* L% was established as the underlying nuclear configuration of neutral broad-focus statements and it was proposed that H+L* L% is a surface variant of this nuclear configuration. As far as the scientific literature permits to say, all this equally applies to the two reference varieties, CS and CC (cf. the comparison in Section 6.2). In consequence,

376 Unfortunately, it again remains unclear why such a convergence with Spanish would not have occurred in the CC varieties reported on in the literature (cf. Frota et al. 2007). A first step to clarify this would certainly be to corroborate the findings on Barcelona Catalan on the basis of a larger data set, since the current one only comprises two speakers.

there is no need to assume that (recent) contact-induced language change has taken place regarding the intonation of neutral statements in either of the two Girona contact varieties. Whether the major similarities between neutral-statement intonation in (Central) Catalan and (Castilian) Spanish could be due to historic language contact is a question that cannot be answered here (on the diachronic reconstruction of intonation patterns in Romance, see, e.g., Hualde 2003b).

6.4.2.2 Biased statements

Both contact varieties pattern together in marking focus and emphasis first and foremost by means of the rising L+H* pitch accent. The circumflex contour, L+H* L%, is thus the typical nuclear configuration in contrastive-focus and exclamative statements. The use of an upstep (¡) in this contour was assumed to express a higher degree of emphasis (cf. Section 5.2.3). The same nuclear tune furthermore occurs in other biased statement types, such as contradiction and dubitative statements. In contradiction statements, the nuclear configurations H+L* L%, H+L* HL, and L* HL% were attested in addition to the circumflex contour, albeit with different frequencies in the two contact varieties. I therefore assume that not all bilinguals have the same underlying intonational grammar with regard to this utterance type (cf. Section 5.2.3 and the discussion below).

The reference varieties CS and CC also use L+(¡)H* to convey focus and emphasis. As shown in Table 3.4 and in Section 6.2, above, L+(¡)H* L% is the nuclear configuration proposed for both contrastive-focus statements (also sometimes referred to as narrow-focus statements) and exclamative statements in these two varieties (cf. Estebas-Vilaplana/Prieto 2010; Prieto 2014; Prieto et al. 2015).[377] As regards contradiction statements, the nuclear configurations put forward in the literature are mainly L* HL% (for CS[378]) and H+L* L% and H+L* HL% (for CC) (cf. Hualde/Prieto 2015; Prieto 2002a, 2013; Prieto et al. 2015). A dubitative meaning, finally, is conveyed by the L+H* !H% nuclear configuration in both varieties. Regarding the prenuclear area, the extant literature by and large suggests that L+<H* is the typical prenuclear pitch accent used in all types of biased statements and the same was found in the Girona contact varieties.

The comparison between the contact and the reference varieties reveals that: first, all varieties pattern together in using the circumflex contour (i.e. L+H* L%) to express focus and emphasis in contrastive-focus and exclamative statements. Second, the contact varieties make use of both 'Spanish' and 'Catalan' nuclear configurations to express contradiction statements.

[377] The available descriptions of exclamative (or emphatic) statements in Central Catalan do not offer any ToBI descriptions of the nuclear contour, but it can safely be understood that the circumflex contour is meant to be the underlying nuclear configuration in this utterance type (cf. Prieto 2002, 2013).

[378] According to Hualde and Prieto (2015: 369), the Spanish dialects which do not have L* HL% use the circumflex contour L+H* L%. In dialects, where both contours are found, L* HL is assumed to carry "a greater emphatic, contradictory force". For the Andalusian variety spoken in Jérez, Henriksen/García-Amaya (2012) give ¡L+H* L%.

Third, the contact varieties seem to differ from CS and standard CC with regard to the boundary tone used in dubitative statements (i.e. the contact varieties exhibit L%, whereas the reference varieties show !H%). In what follows, I shall thus strive to show how the intonational patterns used in GS and GC contradiction and dubitative statements can be explained in terms of language contact.

Taking into account the distribution of nuclear configurations in **contradiction statements** across languages and language-dominance groups (cf. Table 5.1-2), it can be hypothesized that in a first stage, i.e. before the intensive contact between Catalan and Spanish, H+L* L% and H+L* HL% were the nuclear configurations used to express a strong contradictive meaning in GC statements (i.e. the same as in CC). It is likely that the L1 speakers of Catalan subsequently transferred these combinations of nuclear pitch accents and boundary tones to Spanish in the course of L2 acquisition (substratum transfer). Their presence in modern-day GS can thus be interpreted as an instance of fossilization of a pattern originally belonging to the learning continuum, i.e. to the learners' interlanguage, which took place during the bilingualization of L1 speakers of Catalan. However, the fact that these two configurations were only observed in the Spanish data produced by CatD bilinguals and not among SpD speakers leaves open the possibility that such a fossilization could not yet have taken place and that instead we are dealing here with a case of ongoing substratum transfer from the bilinguals' stronger language (i.e. the L1 Catalan) to the weaker one (the L2 Spanish) that only takes place at the performance level, i.e. with an 'ephemerous' interference in the sense of Müller et al. (2011: 18; see also Section 3.3.1). On the other hand, the fact that current GS contradiction statements most frequently exhibit circumflex nuclear contours (among both CatD and SpD speakers) and sporadically also the typically 'Spanish' L* HL% nuclear configuration suggests that, in a second stage, the Spanish (learner) variety spoken by those who had by then become CatD bilinguals has converged with its monolingual Spanish contact varieties, i.e. with (a) the Spanish varieties spoken by immigrants from other areas of the Spanish state and their descendants, and (b) with the standard variety used in the media (cf. Ruiz Martínez 2004; Cutillas-Espinosa/Hernández-Campoy 2007; Méndez García de Paredes/Amorós Negre 2016, among others). The result of these convergence processes is thus a variety that presents a mixed system containing both 'Spanish' and 'Catalan' nuclear configurations.

Nonetheless, in consideration of the distribution of the different nuclear tunes across individual subjects and LD groups, it can be presumed that different intonational grammars continue to exist among the speakers of current GS. While some speakers (i.e. the SpD speakers) only have the 'Spanish' L+H* L% and L* HL% as underlying nuclear contours of contradiction statements, the intonational grammar of some other GS speakers also contains 'Catalan' nuclear contours (i.e. the falling H+L* L% and/or H+L* HL%). Besides, it is possible that the intonational grammar of still some other bilinguals (viz. some CatD speakers) exclusively contains these 'Catalan' nuclear configurations. The examined data set strongly suggests that these inter-speaker differences are correlated with LD, as both H+L* L% and H+L* HL% were typically employed in Spanish by bilinguals who showed a rather strong dominance of Catalan (mean LD score: –42), whereas those who employed the 'Spanish' contours tended to be more balanced bilinguals (mean LD score: –27).

As regards GC contradiction statements, a certain degree of CLI was observed, too. Besides the typically 'Catalan' nuclear configurations, the more 'Spanish' L+H* L% was also attested quite frequently, and there was even one item produced with the typically 'Castilian Spanish' L* HL% nuclear tune. While the latter finding can be interpreted as an instance of substratum transfer from Spanish to Catalan by a SpD bilingual, it is more challenging to explain the use of L+H* L%, given that it was quite common among both SpD and CatD bilinguals. However, the CatD speakers who used it in Catalan tended to be somewhat more balanced regarding their LD (mean LD score: –30) than the bilinguals who used the more 'Catalan' contours (mean LD score: –43). Considering this, the following assumptions can be made: (1) as outlined above, H+L* L% and H+L* HL% were presumably the nuclear configurations used originally in GC to express strong contradictory force before the intensive contact with Spanish and the subsequent bilingualization of Catalan natives. (2) In a later stage, i.e. after the recent changes in the composition of Catalonia's population due to massive immigration and the restauration of democracy in 1978, when the L1 speakers of Spanish residing in Catalonia (i.e. almost exceptionally new settlers and their offspring) started to learn Catalan as an L2 in greater numbers[379], it is likely that they transferred the circumflex contour (as well as L* HL% if their Spanish variety had it) from their L1 Spanish to the TL (substratum transfer). In this way, the circumflex contour increased its presence on the linguistic market: besides serving the purpose of marking emphasis and focus in both Catalan and Spanish, it was now also present in contradiction statements in (a) the Spanish spoken by Spanish- and probably also by CatD bilinguals and (b) in the Catalan of SpD bilinguals. (3) Due to this change in the degree of entrenchment of the tune, it can be assumed that CatD speakers, especially those with a higher (active and passive) use of Spanish, progressively started adopting (or borrowing) the nuclear contour into their Catalan contradiction statements. This is to say, the (Girona) Catalan varieties of speakers of either LD converged. Furthermore, the generalization of the L+H* L% nuclear contour to a larger number of biased statement types (i.e. the same in both languages) can be motivated as a simplification of the bilinguals' intonational system(s) (cf. López Bobo/Cuevas Alonso 2010 and Henriksen/García-Amaya 2012 for similar findings in two other Peninsular varieties of Spanish).

In consequence, GC, too, can be seen to a certain extent as a mixed variety, considering that it presents some intonational features coming from the contact language Spanish. However, here again, the scrutiny of the bilinguals' production and their LD patterns suggests that different intonational grammars currently exist among the bilingual speakers of GC: while some

379 According to the first systematic surveys, carried out in 1986, i.e. roughly a decade after the end of the Francoist dictatorship, only 64% of the inhabitants of Catalonia (older than two) were able to speak Catalan at that time (cf. Generalitat 2019: 11). For the province of Barcelona, the 1975 census shows that only 10% of those who did not have Catalan as their mother tongue could speak it (cf. Arnal 2011: 14 and sources therein). Although it is still incomplete today, the bilingualization of initial speakers of Spanish thus largely took place in the '80s and '90s.

speakers only have the 'more Catalan' H+L* L% and/or H+L* HL% as underlying nuclear configurations for contradiction statements (probably those with stronger dominance in Catalan), others might additionally or exclusively have the originally 'more Spanish' circumflex contour L+H* L% (the more balanced or SpD bilinguals).

Be that as it may, as a result of the diverse processes of transfer and convergence, both current contact varieties are characterized by the presence of various competing items, which are used to express the same meaning (here: contradictive force). In a further step, it would be expected that the competitors with a lower frequency (i.e. L* HL% and H+L* HL%) disappear over the course of time from the converged intonational system(s) of the two contact varieties for the benefit of the more entrenched variants (i.e. L+H* L% and H+L* L%) or that the different nuclear configurations would receive a different pragmatic meaning.

Before closing this section, the nuclear configurations of a further biased statement type, viz. **dubitative statements**, are briefly worth being addressed. The comparisons made above have revealed that the two contact varieties do not pattern with the respective reference varieties regarding the use of the final boundary tone in this utterance type (L% vs !H%). However, L+H* L% is also attested in other Peninsular varieties of Spanish (e.g. Cantabrian and Jerezano Spanish; cf. López Bobo/Cuevas Alonso 2010: 60; Henriksen/García-Amaya 2012: 125). Different scenarios are theoretically conceivable to account for this situation. The following two variants seem to be most probable: (1) L+H* L% was the original underlying nuclear contour of dubitative statements in GC (as opposed to L+H* !H% in Barcelona Catalan), from where it spread to GS. Furthermore, its use would probably have been reinforced through its presence in some of the monolingual varieties of Spanish spoken by migrants. (2) GC originally patterned with Barcelona Catalan and CS in using the L+H* !H nuclear configuration as underlying contour in dubitative statements. In this case, it is likely that the complex language contact situation and the resulting CLI between L1 and learner varieties of both Catalan and Spanish lead to a simplification of the prosodic systems of the two contact varieties. In that case, the use of the circumflex contour, L+H* L%, which was already recurrent in other biased statement types, would have been extended to cover dubitative statements, as well. Of course, its presence in some of the Spanish migrant varieties would have encouraged this development. Nevertheless, given that the data sets examined in the present study did not contain any occurrences of the L+H* !H nuclear configuration in dubitative statements whatsoever, we can only surmise about the exact provenance of the L+H* L% configuration in this utterance type.

6.4.2.3 Polar questions

Information-seeking yes–no questions. Two underlying nuclear configurations of IPs were established for information-seeking yes–no questions (henceforth, **IYNQ**) in the two contact varieties: the 'low–rising' L* H% and the 'high–falling' H+L* L% contours.[380] As regards the first (and clearly more frequent) one of these, it was shown that the underlying L* nuclear pitch accent can be phonetically realized as L* or H+L* (after a preceding high target) and that the height of the final boundary tone correlates with the distance between the nuclear syllable and the phrase edge, i.e. the boundary tone tends to be higher (¡H%) the farther away it is from the low nuclear pitch accent. Furthermore, the low–rising nuclear contour usually comes together with (1) an L*+H prenuclear pitch accent, located on the first metrically strong syllable of the ip containing the root clause of the question, and (2) with pitch deaccentuation of phrase-medial prosodic words (deaccentuation rate: ~ 80%). In GC, this contour was deployed on both IYNQ with and without the initial interrogative particle *que*; in GS, it occurred only in those without *que.* The high–falling nuclear configuration, on the other hand, was realized exclusively on questions that did begin with *que* and most commonly co-occurred with a high tonal plateau in the prenucleus (i.e. it surfaced in combination with prenuclear H* pitch accents). Interestingly, in GS, this combination was almost exclusively produced by CatD.

With regard to the reference varieties, the sole nuclear configuration used to express IYNQ in CS is L* H%[381] (cf. Estebas-Vilaplana/Prieto 2010; Hualde/Prieto 2015, and Section 3.1.2.1). In CC, both L* H% (in questions without *que*) and H+L* L% (typically in questions with *que*) can be employed (cf. Prieto 2014; Prieto et al. 2015, and Section 3.1.2.1). Regarding the prenuclear area, low–rising nuclear contours are said to co-occur with prenuclear L*+H and phrase-medial pitch deaccentuation, while high–falling nuclear contours are preceded by a high plateau. In some CC subdialects such as Barcelona Catalan, the use of *que*-questions (realized with the high–falling intonation pattern) has been related to the marking of pragmatic differences corresponding to politeness and proximity relations in discourse: i.e. the selection is sensitive to the pragmatic cost–benefit scale on which the cost or benefit of the proposed action to the hearer is estimated (cf. Prieto/Rigau 2007, 2011; Prieto 2014: 63; Prieto et al. 2015: 22–23; Astruc et al. 2016). For the Northern CC subdialect, which includes GC, however, these works generally claim that the presence of the interrogative particle *que* is restricted to counterexpectational or confirmatory meanings (Prieto et al. 2015: 22–23), i.e. that *que* (and thus the high–falling nuclear configuration) cannot occur in IYNQ. As opposed to that, Fernández Planas et al. (2007) report having found such questions also in pragmatically neutral contexts in a small

[380] L+H* LH% was another contour attested in this question type, but it will not be discussed here any further, since it only occurred in two speakers (cf. 5.2.3) and was already addressed in Section 6.2.

[381] Although Estebas-Vilaplana and Prieto (2010: 29) proposed a phonological scaling difference between information-seeking (¡H%, there labelled as 'HH%') and confirmation-seeking yes–no questions (H%) in Castilian Spanish, later works such as, among others, Armstrong/Cruz (2014), Hualde/Prieto (2015), or Prieto/Roseano (2018) treat both realizations as belonging to the same underlying category. As explained before, this also seems to be appropriate with regard to the two contact varieties considered in the present work.

corpus of read data recorded from one speaker of GC (see also the cross-dialectal overview of intonation patterns used in Catalan *que*-questions offered by Fernández Planas 2009: 43). Furthermore, it is interesting to note that the GC *que*-questions in their data set were predominantly produced with low–rising nuclear contours, which accounted for roughly 80–90% of the examined items.

Considering the findings presented in this section, it can be concluded that: (1) the low–rising nuclear configuration L* H% can be utilized to mark IYNQ in all varieties under concern here.[382] (2) IYNQ introduced by the interrogative particle *que* and intonated with the high–falling nuclear configuration are used in GS, GC, and 'standard' CC (i.e. in Barcelona Catalan) but not in CS (or any other monolingual variety of Spanish). (3) As opposed to the claim made in great part of the literature that *que*-questions would be restricted to biased question types in Northern CC, the present study confirms the findings made by Fernández Planas et al. (2007), namely that *que*-questions can appear in pragmatically neutral, i.e. information-seeking contexts in GC. Still, contrarily to Barcelona Catalan (cf. Prieto 2013: 27), IYNQ without *que* and pronounced with the low–rise nuclear configuration were quite clearly the preferred option in the samples examined for GC (73%) and GS (90%) in the present study. (4) GC *que*-questions may sometimes be produced with the low–rising nuclear configuration (i.e. with a prenuclear L*+H pitch accent on the first stressable syllable of the IP and an L* H% nuclear configuration). As mentioned above, this combination has been documented before for GC by Fernández Planas et al. (2007), who even found it to be dominant in *que*-questions (accounting for ca 90% of the items in their data). However, in the present study, the low rise accounted for merely 28% of the GC IYNQ featuring *que* (cf. Section 5.1.3.1.5). Furthermore, the combination was produced for the most part by SpD bilinguals (viz. to an extent of 77%).

Now, how can the distribution of the intonational patterns observed in the IYNQ in the two contact varieties be explained in terms of language contact? Let us first have a look at **GS**, where the situation appears to be somewhat less complex. On the basis of the findings described above, the rather sporadic presence of the high–falling H+L* L% nuclear contour (used in combination with the 'Catalan' interrogative particle *que*) in the prosodic system of current GS can be quite straightforwardly interpreted as a result of CLI from GC. It can be assumed that, for a start, L1 speakers of (Girona) Catalan transferred this particular question type to Spanish (via substratum transfer), when they acquired it as a foreign language (L2) during the large-scale

[382] Regarding the final boundary tone of this nuclear configuration, CC, GC, and GS pattern together in that the hight of the boundary tone seems to depend chiefly on the metrical structure of the nucleus. Thus, if (some of) the monolingual varieties of Spanish brought to Catalonia through immigration originally presented the phonological difference between ¡H% (in information-seeking) and H% (in confirmation-seeking yes–no questions) proposed by some authors for Castilian Spanish (cf. Estebas-Vilaplana and Prieto 2010: 29, and Fn. 381), this difference must have been lost in current Girona Spanish. Possible explanations for such a loss in terms of language contact could be that (1) the L1 speakers of Catalan never acquired this difference when they learned Spanish as an L2 (imperfect learning) and (2) that, subsequently, the Spanish varieties spoken by the immigrants converged with the Spanish spoken by the CatD bilinguals (i.e. the distinguishing speakers gave up the opposition under the pressure of the non-distinguishing majority and/or their progeny failed to acquire it for the benefit of the majority variant).

bilingualization of Catalan speakers during the first decades of the 20th century (cf. Vila 2016; Bernat et al. 2019, 2020).

Following that, it is difficult to decide what happened next, since the current situation can be motivated in (at least) two ways: in one scenario, the interlanguage structure could have fossilized after some time as the learner variety step by step became a native variety, i.e. following generations directly acquired this question type through its presence in the GS input they received. In this way, its steadily increasing entrenchment could have made it a 'stable' feature of this variety. At the same time, it must not be forgotten that the Catalan–Spanish bilinguals were increasingly exposed to (and probably influenced by) other varieties of Spanish, i.e. by the monolingual Spanish of the immigrants as well as by the CS standard variety diffused in broadcasting (Ruiz Martínez 2004; Cutillas-Espinosa/Hernández-Campoy 2007; Méndez García de Paredes/Amorós Negre 2016). The increasing presence of such monolingual models, of course, should have hampered the diffusion of the phenomenon.[383] Furthermore, it can be expected that the construction was also (and probably continues to be) sanctioned in school education, where the (Castilian-based) standard language as set by instances such as the Royal Spanish Academy is propagated (cf. Sinner 2004: 602–605, 610–613). In any case, its users do seem to have some metalinguistic awareness about it: e.g., referring to Barcelona Spanish, Sinner (2004: 287) notes that it is "al parecer [un fenómeno] bastante conocido y muy fácil de detectar para los hablantes" ('apparently a well-known phenomenon and very easy for speakers to detect'), and Wesch (1997: 301) emphasizes that the construction has a clear diaphasic mark, i.e. that speakers are cognizant of its status as 'phenomenon of the communicative immediacy' and as 'colloquial'. However, in Hawkey (2014) only a minority of speakers recognized it as a non-normative element. As a consequence, even if *que*-questions had become a fully adopted and hence 'authentic' feature of GS by now, they are certainly not a completely 'neutral' one, given that their diaphasic status is influenced by extra-linguistic factors.

Nevertheless, a slightly different view of the current status of the structure should be considered as well: namely, the presence of *que*-questions in current GS could still today be an outcome of ongoing CLI occurring in CatD bilinguals. In that case, it would not be a 'stable' feature of the variety, but instead its appearance would result from continuing substratum transfer occurring during the acquisition and in the use of the non-dominant language Spanish by bilinguals with the initial language Catalan. This point of view would also explain why the construction was much rarer in GS as compared to GC and why it was hardly observed among SpD bilinguals. A further reason why SpD bilinguals do not make use of *que*-questions could

[383] It is also very interesting to note that the SpD speakers (with the exception of one rather balanced one) did not produce any GS questions with the high–falling nuclear contour (and *que*), since Simonet (2008, 2011) and Romera/Elordieta (2013) observed that SpD bilinguals and Spanish-speaking monolinguals in Majorca often did adopt falling nuclear contours into their Spanish IYNQ, i.e. they either borrowed directly from Majorcan Catalan (bilinguals) or accommodated to the Majorcan Spanish spoken by bilinguals (monolinguals). However, an important difference between Majorcan and Central Catalan is that Majorcan Catalan unchangingly uses falling nuclear contours in IYNQ irrespective of the presence of *que*, whose presence is rare in that dialect (cf. Prieto et al. 2015: 22–25).

be that they typically acquired the L1 Spanish from their immigrant parents and use it mainly in familial settings (cf. Section 4.2). Outside their home, Catalan is the majority language that they tend to use themselves in most public contexts. It might thus not happen very often that they actually hear CatD speakers using Spanish (and thus producing *que*-questions).

Everything included, the distribution in the data set collected for this study as well as the extant literature on the phenomenon suggest that both hypotheses could be accurate to some degree. For one thing, the literature on *que*-questions in CCS describes them as a frequent and very characteristic phenomenon of that variety, such that a certain level of fossilization and following entrenchment can be expected. The fact that the combination was also used once by a slightly SpD bilingual in the semi-spontaneous data set examined here additionally speaks in favour of such an interpretation as it insinuates that the varieties of GS spoken by CatD and SpD bilinguals are converging. In that case, the structure would be part of the intonational grammars of some bilingual speakers of GS (mostly CatD ones) but not of the intonational grammars of some others. On the other hand, the structure was quite rare in the GS data altogether (being used in only 4.5% of the 154 items analysed), and it was almost exclusively produced by (rather strongly) CatD bilinguals. This makes it appear more likely that we are actually witnessing instances of in-progress interference (cf. Müller et al. 2011: 18). However, diaphasic factors could be responsible of the low incidence, too. In sum, the investigated sample does not allow for any more secured conclusions to be drawn. An unequivocal definition of the status of IYNQ headed by *que* and realized with a high plateau in the prenuclear area and an H+L* L% nuclear configuration in current GS must thus remain for the time being a project for future research.

As regards **GC**, how we can explain the current distribution of the two different intonational tunes, L* H% and H+L* L%, in the IYNQ produced in this variety crucially depends on what we assume to be the initial state of its intonational system before the intensive contact with Spanish. Three explanatory scenarios are theoretically conceivable:

(1) <u>Initial state:</u> Both L* H% and H+L* L% are underlying nuclear configurations[384] in GC IYNQ, used respectively in questions without and with the interrogative particle *que*. Possibly, the choice between either type depended on pragmatic criteria (cf. Barcelona Catalan). <u>Emergence of current state:</u> In the course of their bilingualization, initial speakers of Spanish acquired the GC *que*-questions only partially, i.e. some learners picked up the (fairly salient and hence easy-to-learn) interrogative particle *que* but failed to grasp the link it presents with the corresponding high–falling intonation pattern and so to reproduce this question type in a target-like manner (imperfect learning).[385] Instead, in the interlanguage of these learners, *que*

[384] Recall that these nuclear configurations appear in combination with different prenuclear tunes (i.e. with a phrase-initial L*+H prenuclear pitch accent and phrase-medial pitch deaccentuation or with H* pitch accents forming a high plateau). Given that these association is very consistent in the data, the prenuclear area will not be discussed separately, here.

[385] Note also that the combination of a high plateau (H*) in the prenucleus with an H+L* L% nuclear configuration is a melodic construction that usually does not occur in Spanish, i.e. this combination of tones might be 'new' for Spanish-speaking learners.

is combined with the low–rising nuclear configuration and an L*+H prenuclear pitch accent (e.g. via substratum transfer from Spanish), i.e. they preserve their Spanish pronunciation habits in that they deploy a 'melodic construction' from their dominant language onto TL word-forms. Such a course of events is actually not unlikely from a cross-linguistic point of view: as Dixon (1997: 24) points out speakers tend to think of their languages solely in terms of their lexicon but are usually less aware of functional or grammatical categories. In the case of language-contact situations as the Spanish–Catalan one, this identification means that the principal perceived difference between the two languages is in the form of the words (cf. Arnal 2011: 21), i.e., here, in the absence vs presence of *que* in yes–no questions. Suprasegmental aspects such as intonation or stress, on the other hand, seem to go unnoticed by many. The fact that SpD bilinguals sometimes stressed this otherwise unstressed particle in their Catalan IYNQ further endorses this assumption. Along the same lines, Van Coetsem's (2000: 61, 73f.) model equally suggests that in the learning process of the recipient language (RL), source-language (SL) speakers acquire RL material (i.e. primarily vocabulary, here *que*) but at the same time impose part of the more stable components of their own language upon the RL (e.g. part of the SL phonology, i.e. here intonation).

Building on ideas from Matras's (2011: 150) model of convergence and Torreira and Grice's (2018) 'melodic construction' (see also the considerations made in Section 3.3.2, Fn. 165), this can be interpreted in the following way: unable to deactivate the second language as a wholesale system, the bilingual speakers scan throughout their full (multilingual) repertoire of linguistic structures and identify the *que*-structure as a task-effective morphosyntactic construction. In a next step, the construction is vetted context-appropriate because it belongs to the Catalan subsystem. It can thus be matched with a candidate expression that is licensed in the present interaction context. However, before it comes to phonetically realizing the sentence, a 'melodic construction' needs to be selected.[386] As the only available 'melodic construction' for the task 'IYNQ' in the speaker's multilingual repertoire is the low–rising one, which is 'anchored' in both Spanish and Catalan, it fulfils in the bilingual's view the criterion of being context-appropriate and can be matched with the morphosyntactic construction. Hence, the constraints on the language-specific selection of context-appropriate word-forms appear to be more powerful and adhered to more consistently than the constraints that regulate the selection of constructions. The less secure or less experienced bilingual (but arguably also the fluent bilingual who is more prone to follow a path of convenience than adhere to monolingual norms) will continue to respect the constraints on word-form selection but generalize the abstract outline of the construction (Matras 2011: 151).

[386] Recall that I view 'melodic constructions' as viable tonal entities in their own right within a speaker's unified repertoire of lexical-grammatical structures. They offer derived meanings that are inferred from a particular combination of tones and are prone to be generalized by bilinguals over their multilingual repertoire owing to the tendency to treat the pragmatic organization of discourse as universal or global rather than language-specific (cf. Section 3.3.2).

Next, this amalgam created by the initial speakers of Spanish was also adopted by some initial speakers of Catalan via borrowing or convergence between their variety of GC with the interlanguage spoken by SpD. This later development can be motivated by the fact that the innovative blend must have received some entrenchment in GC: in the present study, it accounted for 55% of the SpD bilinguals' *que*-questions, which they produced with a similar frequency as the CatD group (cf. 5.1.3.1.5). Recall also that the SpD bilinguals in Girona often speak Catalan in extra-familial settings, e.g. when talking to CatD friends (cf. Section 4.2; see also Woolard 1992: 240; Pujolar/Gonzàlez 2013) and that the group of Catalan-speakers with the first language Spanish also includes, e.g., teachers, politicians, radio and television announcers, actors, and people interviewed in the media (Arnal 2011: 16). In consequence, besides being perfectly acquainted with the L* H% tune from other contexts in both of their languages, CatD bilinguals also have it in the *que*-questions they are exposed to in the Catalan input they receive. Indeed, as highlighted, e.g., by Arnal (2011) it is normal and common to hear Spanish-accented Catalan now and, as a result, especially younger, urban bilinguals are no longer able "to distinguish between native and non-native speaking styles", i.e. in the light of generalized bilingualism and the genetic proximity of the two languages, new mixed forms are not necessarily perceived as deviant or ill-formed (cf. Argenter et al. 1998; Arnal 2011; Pujolar/Gonzàlez 2013). Furthermore, language mixing can hardly difficult comprehension in this case and is generally unlikely to cause misunderstandings in the Catalan context. Besides that, the generalization of the 'low rise' contour to *que*-questions among initial speakers of Catalan also represents a simplification of their prosodic systems, which eases their 'bilingual burden' of having to keep different language-specific systems separate (Weinreich 1953: 8; Matras 2009: 151, 235; Kühl/Braunmüller 2014: 18–20).

In a nutshell, these considerations allow for the following suggestions: in the intonational grammar of some GC speakers (mostly CatD bilinguals), H+L* L% is the only underlying nuclear configuration in *que*-questions, while in the intonational grammar of some others, both H+L* L% and L* H% are available. Finally, in the intonational grammar of still some others (SpD bilinguals), L* H% is the only underlying nuclear configuration for information-seeking yes–no questions independently of the presence of *que.*

(2) <u>Initial state:</u> Both L* H% and H+L* L% are underlying nuclear configurations in GC IYNQ. In questions with *que*, both nuclear configurations can be used; without *que*, only L* H% is admissible (i.e. the initial state roughly corresponds to the current state; see also Fernández Planas et al. 2007).

<u>Emergence of current state:</u> (Some) initial speakers of Spanish did either not acquire H+L* L% in GC *que*-questions at all (imperfect learning) or they simply prefer the L* H% nuclear configuration in that context because they are more commonly confronted with it in daily life and know it better from both of their languages (due to its higher degree of entrench-

ment). Furthermore, the exclusive use of L* H% can be seen as a simplification of the bilinguals' prosodic system(s) (cf., e.g., Winford 2003: 217–219 on simplification in SLA). CatD bilinguals, on the other hand, display a very strong tendency to functionally separate the two nuclear contours, i.e. they use them complementarily (H+L* L% in *que*-questions and L* H% in questions without the particle). On the one hand, this makes the initial state of scenario (2) appear less probable, but, on the other, the functional separation of competing variants is a cross-linguistically common procedure. Besides, it is also possible that the use of the high–falling contour may have increased due to pressure from and, hence, convergence with Barcelona Catalan, which is (a) the variety on which the Catalan standard or reference variety is built on (cf., e.g., Veny 2001; Brumme 2020; Bladas Martí 2020: 540; Camps/Labèrnia 2020: 687)[387] and (b) the predominant variety in media (cf. Casals/Faura 2010; Ulldemolins-Subirats 2019; Ferrando/Nicolás 2011: 519, 526f.; Camps/Labèrnia 2020) and in school (Ulldemolins-Subirats 2018).[388]

Ultimately, some extralinguistic factors could play a role, as well, in such a development: considering the fact that *que* and H+L* L% are not licit in CS INYQ, not only the particle but also the tune can be viewed as 'Catalan' features. As I have discussed before, it is likely that many bilinguals are aware of this (see also Section 2.3). In consequence, some bilinguals could consciously choose to use this tune to sound 'more Catalan'—either with the objective of marking their identity as Catalans (rather than Spaniards) or to show that they are able to speak 'good' Catalan (which was important to them as they indicated in the language-background questionnaire, cf. Section 4.2).

(3) Initial state: GC does not allow for the presence of the interrogative particle *que* in IYNQ, i.e. L* H% is the only underlying nuclear configuration in this question type (cf. Prieto/Rigau 2007, 2011; Prieto 2014: 63; Prieto et al. 2015: 22–23).[389]
Emergence of current state: The introduction of *que* and of the high–falling nuclear contour H+L* L% in GC in IYNQ can be motivated either as an internal development or through contact with other varieties. If the language change were endogenous to the GC system, that would imply an extension of the use of the particle in combination with the corresponding tune from confirmation-seeking to information-seeking yes–no questions, i.e. the intonational grammar would have been simplified by eliminating the distinctive tonal marking of

[387] On the general tendency of non-standard or regional varieties to converge with the standard variety see, e.g., Labov/Harris (1986); Villena Ponsoda (2005, 2008); Morgenthaler García (2008: 291–322); Cutillas-Espinosa/Hernández-Campoy (2007); Hernández-Campoy (2011); Méndez García de Paredes/Amorós Negre (2016, 2019), among others.

[388] It is likely that the influence of the media is less strong in SpD bilinguals, who probably tend to consume more Spanish-language media. They would thus be less exposed to the H+L* L% nuclear tune and, in consequence, use it less than CatD bilinguals.

[389] In a slightly different scenario, the particle *que* was already possible in GC IYNQ, but these questions were intonationally realized with the low–rising nuclear configuration L* H%. In that case, the subsequent developments described in scenario (3) would only refer to the introduction of the high–falling intonational contour (and not to the use of the particle *que*).

these two pragmatic utterance types.[390] A possible cause contributing to such a development could be a relatively higher frequency of confirmation-seeking questions in conversational speech (cf., e.g., Torreira/Floyd 2012; Hualde/Prieto 2015: 374, who report this for CS). As regards external sources, the change that must have taken place in the intonational grammar of GC can be related to contact with Barcelona Spanish, i.e. it can be hypothesized that GC converged with the 'standard' variety of Catalan due to normative pressure and the predominant status of this variety in mass media (cf. Casals/Faura 2010; Ferrando/Nicolás 2011: 519, 526f.; Ulldemolins-Subirats 2019; Camps/Labèrnia 2020; see also Fn. 387).[391] In that case, the H+L* L% nuclear contour in GC IYNQ as well as *que* would be borrowings from Barcelona Catalan. Of course, multiple causation, i.e. the combination of both factors, would be possible (and likely), as well.

Either way, the outcome of such developments would be what I have described as the initial stage of scenario 1, above. The further course of evolution would thus be the same as in that scenario, i.e., stated briefly, that the presence of L* H% in present-day GC *que*-questions would be largely attributable to imperfect learning and substratum transfer by initial speakers of Spanish and subsequent convergence between the GC varieties spoken by bilinguals with different dominant languages.

As we have seen in the different scenarios proposed, it is not an easy task to explain how the current distribution of intonational patterns in IYNQ in the two contact varieties came about. The main reason for this is that we do not know which was the initial state of GC before the onset of the intensive contact with Spanish. Nevertheless, it is plainly evident that some CLI must have taken place since the establishment of the contact and in the course of mass bilingualization of the inhabitants of Catalonia, or else we could not explain why bilinguals with unlike dominant languages behave in distinct ways. Despite the discrepancies between the proposed scenarios, all involve the same mechanisms of (contact-induced) language change: namely, imperfect learning or substratum transfer (either in SLA or from a dominant to a non-dominant language in bilinguals) as well as convergence (either between the 'bilingual' varieties of speaker groups with different LD or with the standard varieties of the respective languages). As a result, it is highly probably that diverse intonational grammars exist among the bilinguals in the present sample with regard to the prosodic realization of IYNQ in the two contact varieties.

390 Note that several Catalan and Spanish varieties employ the same intonational contour to express IYNQ and confirmation-seeking yes–no questions, among them, Argentinian (Gabriel et al. 2010), Canarian (Cabrera Abreu/Vizcaino Ortega 2010), Ecuadorian (O'Rourke 2010), and Jerezano Spanish (Henriksen/García-Amaya 2012) as well as Valencian Catalan (Crespo-Sendra 2013). Furthermore, the dialectal maps in Prieto/Cabré (2013) and Prieto et al. (2015) suggest that mainly L* H% is used in both question types in Girona and surroundings.

391 After some 40 years of interruption of the standardization process of Catalan during Franquism, it was incumbent upon the newly emerging Catalan-language media to take part in the creation and diffusion of new language norms (cf. Casals/Faura 2010: 32, 65).

To shed more light on the question, future studies should first of all set out to further explore the realization of IYNQ in prior stages of GC, e.g. by analysing historic speech data (if available) or else data from older speaker groups and speakers who are less influenced by Spanish (i.e. close-to-monolingual speakers). In addition, perception experiments ought to be carried out to tap deeper into the bilinguals' underlying intonational grammars.

Disjunctive questions. The underlying nuclear configurations of IPs established for the two contact varieties on the basis of the analysis of the neutral **disjunctive questions** were H+L* L% and L* L%. Whereas both nuclear configurations occurred with the same frequency in GC, L* L% prevailed in GS.

In CS, L* L% is the IP nuclear configuration proposed for disjunctive questions (Estebas-Vilaplana/Prieto 2010; see also Table 3.4). To my knowledge, this sentence type has not been described within the AM model for CC. However, there is a textual description by Prieto (2002a: 427), in which she mentions a "cadència descendent final". Although the description is not fully unambiguous, the given contours may be interpreted as H+L* L%. Consequently, the comparison between the contact varieties and the reference varieties reveals that the two contact varieties share nuclear contours of IPs with both CS (i.e. L* L%) and other CC varieties (i.e. H+L* L%).

On this basis, it can be hypothesized that the H+L* L% contour, when attested in GS, is an outcome of substratum transfer that occurred when the Catalan L1 speakers learned Spanish as an L2. It can be suggested that in a first step, the Spanish spoken by this group showed H+L* L% as a typical nuclear configuration of disjunctive questions. However, the fact that the CatD group most often produced L* L% in GS allows the assumption that the Spanish spoken by initial speakers of Catalan has by now converged with the Spanish spoken by the new settlers who came to Catalonia from the middle of the 20th century onwards. The outcome of this convergence is a mixed system containing the 'Catalan' nuclear configuration H+L* L% in addition to the Spanish L* L%. In turn, regarding GC, it can be presumed that the presence of the L* L% nuclear configuration is the result of (1) substratum transfer that occurred when initial speakers of Spanish learned Catalan as an L2 and (2) convergence between the GC spoken by SpD and CatD bilinguals.[392]

These scenarios lead to the following suggestions: in the intonational grammars of some bilinguals, H+L* L% is the underlying nuclear contour of disjunctive questions and L* L% its surface realization, while in the intonational grammars of other bilinguals, this distribution is

[392] However, given the somewhat unclear baseline and due to the similarity between the two nuclear configurations the possibility should be considered that L* L% actually could have been a surface realization of underlying H+L* L% in GC from the beginning. Furthermore, H+L* L% could have been a surface realization of underlying L* L% in its Spanish contact varieties. If so, the contact between the two languages would only have changed the frequency distributions in the two languages.

inversed, and in the intonational grammars of still some other bilinguals only one nuclear contour is available to convey disjunctive questions (e.g. some SpD bilinguals may only have L* L%).

Exclamative yes–no questions. The underlying nuclear configurations established on the basis of the intonational analysis of **exclamative yes–no questions** (with counterexpectational meaning) for the two contact varieties were the same as those specified for pragmatically neutral, i.e. information-seeking yes–no questions (viz. L* H% and H+L* L%; the latter only in questions headed by the interrogative particle *que*). The notion of exclamativity was expressed through the use of a higher pitch range and more accented pitch movements, which sometimes yielded surface realizations of L* H% such as H+L* ¡H% or L+H* ¡H%. As regards the reference varieties CC and CS, to my knowledge, no accounts of the intonation of this utterance type are available within the AM framework besides one 'L* HH%' label Crespo-Sendra et al. (2010) give in an example of a CC 'incredulity question'.[393] However, the descriptions provided for CC by Prieto (2002a: 431–432, 2013: 31–33) coincide with observations made here. Furthermore, although we do not really know how this question type is tonally realized in CS, what we do know is that phrase-initial *que* is a "citative discourse marker of indirect speech" in Mainstream Spanish questions (cf. Escandell Vidal 1991: 3965) and, hence, that its use should be restricted to echo questions.

Considering this, it can be concluded that the use of *que* and presumably also of the corresponding nuclear contour H+L* L% observed in GS must be an interference from GC. Since only one item of this type was found and given that it was produced by a CatD bilingual, I suggest that substratum transfer is the responsible mechanism for this. Moreover, in consideration of the fact that in GC, too, the combination of particle and high–falling nuclear contour was exclusively produced by CatD bilinguals, I hold the view that SpD bilinguals have either failed to acquire H+L* L% in Catalan or, at minimum, do not put it to use with the due frequency (imperfect learning). In sum, it can be concluded that in the intonational grammars of some bilinguals, L* H% is the only underlying nuclear contour used to express exclamative yes–no questions (SpD bilinguals), whereas the intonational grammars of other bilinguals also contain H+L* L% for Catalan exclamative questions realized with *que* (CatD bilinguals). With regard to future developments, it can be expected that either of these two grammars will impose itself upon the other, i.e. that the varieties spoken by the different groups of bilinguals will converge.

Confirmation-seeking yes–no questions. The underlying nuclear configurations of IPs proposed for the **confirmation-seeking yes–no** questions (henceforth CYNQ) in the two contact varieties were equally L* H% and H+L* L% (i.e. the same contours as in IYNQ). Yet, the latter one of

[393] NB: Exclamative yes–no questions (with counterexpectational meaning) should not be confounded with exclamative *echo* yes–no questions (with counterexpectational meaning), of which AM descriptions exist for many varieties.

these was clearly less common than the former and typically appeared when the question was formulated as an alternative polar question built with a disjunction of the predicate (i.e. containing, e.g., Sp./Cat. *o no?*; cf. Prieto/Rigau 2007: 14–15). The underlying prenuclear pitch accent was L*+H in both languages.

As regards CS, the same two nuclear configurations were proposed for this sentence type by Estebas-Vilaplana/Prieto (2010)[394], whereas Hualde/Prieto (2015), in accordance with Escandell-Vidal (1999) and Pérez et al. (2011), rather suggest the circumflex L+¡H* L% contour (see also Table 3.4). Furthermore, it is worth pointing out that other Peninsular Spanish varieties, such as Jerezano Spanish do not tonally distinguish CYNQ from IYNQ and exclusively use L* H% for both (cf. Henriksen/García-Amaya 2012; see also Fn. 390). With respect to Catalan CYNQ, most dialects "typically" exhibit the high–falling H+L* L%[395] contour and introduce them with the interrogative particle *que* (Prieto 2014: 68; Prieto et al. 2015: 28). Partly opposed to that, Vanrell et al. (2010: 87) found that, although the falling nuclear contours are more prone to appear in confirmation- than in information-seeking questions in CC, rising ones were still clearly more common in this context (75%). Furthermore, it is worth pointing out that Prieto (2002a: 423, 2013: 27) and Prieto/Rigau (2011: 35) claim that, in GC, the use of the interrogative particle *que* (in combination with the falling H+L* L% nuclear contour) is restricted to CYNQ (i.e. that it cannot appear in GC IYNQ). In stark contrast to this, Prieto (2013: 28–27) and Prieto et al. (2015: 55) report that they exclusively (or at least overwhelmingly) observed the low–rising nuclear configuration L* H% in CYNQ produced by speakers from Girona and its direct surroundings, which is also in opposition to all other CC subdialects.

The comparison between the different varieties under discussion here thus shows that: (1) all varieties pattern together in exhibiting L* H% as one possible nuclear configuration for CYNQ (albeit with different frequencies of occurrence). (2) With regard to falling patterns, the two Girona varieties pattern with CS (as described by Estebas-Vilaplana/Prieto 2010) in using L*+H prenuclear pitch accents. (3) No CYNQ with *que* were attested in the contact varieties (≠ CC and literature on GC). (4) No circumflex nuclear configurations were attested (≠ CS according to Hualde/Prieto 2015). (5) The contact varieties do not make a prosodic distinction between IYNQ and CYNQ (≠ CC and CS but in accordance with various other Spanish and Catalan varieties, cf. Fn. 390, above).

Based on these observations, it can be inferred that the clear predominance of L* H% characterizes not only the current but also the initial stage of the GC intonational system and that it has had a significant influence in the genesis of the GS system: i.e., more specifically, it can be

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[394] Recall that Estebas-Vilaplana/Prieto (2010) originally claimed that the hight of the final boundary tone in the low–rising nuclear configuration is phonological (viz. ¡H% in IYNQ and H% in CYNQ), while posterior accounts of CS intonation seem to have given up this distinction (e.g. Hualde/Prieto 2015; Prieto/Roseano 2018). No such distribution could be observed in the two contact varieties under concern here, either.

[395] As far as the extant descriptions allow to make conclusions regarding the tonal realization of the prenuclear area, this nuclear contour appears in combination with a high plateau (i.e. with H* prenuclear pitch accents) in CC (cf. Prieto 2002a, 2013, 2014).

assumed that CYNQ were predominantly realized with the L* H% nuclear contour in the Spanish spoken by initial speakers of GC when they started to acquire that language, although, as in GC, falling H+L* L% nuclear contours were not completely excluded (substratum transfer). As regards initial speakers of Spanish, it can be suggested that their migrant or heritage varieties, respectively, converged with the GS spoken by CatD bilinguals and, if they did not already use L* H% in the first place, they now borrowed it. Either way, they, too, first and foremost employed the rising contour (no productions of the 'Castilian' nuclear configurations H+L* L% and L+¡H* L% were attested in their data).

Nevertheless, the status of the falling H+L* L% nuclear configuration in the two Girona contact varieties is not yet fully clear, for a series of reasons: (1) although Prieto (2002a: 423, 2013: 27) and Prieto/Rigau (2011: 35) suggest that the use of the interrogative particle *que* in combination with the falling H+L* L% nuclear contour is only possible in GC in CYNQ and not in neutral yes–no questions, our corpus did not contain any instances of CYNQ headed by *que* whatsoever (instead quite a lot of IYNQ with *que* were found, cf. previous section). (2) Confirming the observations made for GC CYNQ in Prieto (2013: 28–27) and Prieto et al. (2015: 55), H+L* L% was marginal in the present data set (only 2 cases in non-disjunctive CYNQ). (3) Furthermore, the respective items were produced by two CatD bilinguals in combination with L*+H prenuclear accents, which rather matches the tunes attested for CS in Estebas-Vilaplana/Prieto (2010: 29, 34) than the ones described in the literature on CC intonation. (4) The same combination was also produced twice in GS (albeit by CatD bilinguals). All that being said, it is evident that for the time being the conflicting reports in the extant literature and the few items in the present data set do not allow to determine in how far the (limited) use of the H+L* L% nuclear contour in CYNQ in the two Girona contact varieties is a result of CLI. Furthermore, future research will be also needed to elucidate the status of the interrogative marker *que* in the different types of GC yes–no questions.

6.4.2.4 Wh-questions

Three underlying nuclear configurations of IPs were proposed for information-seeking wh-questions in the contact varieties under concern: H* L% (dominant in both varieties), L* L%, and L* H%. Among these, H* L% is shared with CC, only, where it seems to be the most recurrent nuclear configuration for this utterance type. L* L% and L* H%, in turn, are both very common in CS and have a somewhat unclear status in CC[396] (cf. Estebas-Vilaplana/Prieto 2010; Hualde/Prieto 2015; Prieto 2002a, 2014, 2014, Prieto et al. 2015). However, the different contours are usually presumed to convey slightly different pragmatic nuances: while L* L%

[396] While all sources on CC intonation present H* L% as the main nuclear contour for neutral wh-questions, 'L* H%'-like contours are mentioned merely by Prieto (2002a: 439) and in some older works cited therein. More recently, Prieto (2014) brought up L* L% (or ¡H+L* L%—the account is not fully clear), instead. In Prieto et al. (2015), L* L% was registered only sporadically in some Western Catalan varieties. In Roseano et al. (2016b), it occurred to an extent of merely 3% in CC neutral wh-questions. I therefore assume here that only H* L% and L* H% are the nuclear configurations typically used to convey wh-questions in CC.

(CS) and H* L% (CC) are considered the more neutral ones, the low–rising tune (L* H%) typically expresses “a nuance of interest and greater speaker involvement in the speech act” (Estebas-Vilaplana/Prieto 2010: 34) and a “higher degree of curiosity and interest” (Prieto 2002a: 439, translation is mine).[397]

Based on these observations, it can be inferred that prior to the intensive contact with Spanish GC displayed the ‘CC tonal marking’, i.e. either H* L% or L* H%, for information-seeking wh-questions. Furthermore, it can be hypothesized that L* L% (i.e. the third underlying nuclear configuration proposed for this sentence type) was adopted into GC via convergence with Spanish or with the Catalan spoken by initial speakers of Spanish. More specifically, it can be suggested that L* L% was transferred into GC by this latter speaker group via substratum transfer during the acquisition process and that CatD bilinguals later on adopted it to some extent through convergence. It is thus likely that, at present, the intonational grammar of some bilingual speakers of GC merely contains H* L%, whereas the intonational grammar of some others solely contains L* L%, and that, thirdly, the two could be surface variants of one another in the intonational grammar of still some other bilinguals.

As for GS, it is probable that the predominant use of H* L% is primarily the outcome of imperfect learning of Spanish by the Catalan monolinguals (i.e. substratum transfer). In other words, this contour was transferred from Catalan to Spanish in the course of the acquisition of Spanish as an L2. If so, it can be expected that it gradually became a steady feature of the Spanish spoken by Catalan–Spanish bilinguals due to fossilization. In a further step, the Spanish of monolingual immigrants—or at least the Spanish spoken by their bilingual descendants—seems to have converged with the Spanish spoken by initial speakers of Catalan.[398] The result of this convergence is an intonational system, in which the ‘Catalan’ nuclear configuration H* L% has become dominant (even among SpD bilinguals), although the ‘Spanish’ L* L% contour continues to exist. Yet, it is possible that not all bilinguals have identical intonational grammars and that some bilinguals only have one of these two nuclear configurations at their disposal, whereas others may have both (possibly as surface variants of one another).

[397] Regarding the prenucleus, all varieties under concern here widely seem to pattern together in that they most commonly use H* pitch accents on the phrase-initial question word, even though rising pitch accents (L*+H, L+<H*) may also occur and are probably favoured in some specific metrical contexts. The results of the intonational analysis thus do not give reason to assume that (recent) contact-induced change has taken place regarding prenuclear pitch accents in wh-questions. However, more exploration in future studies should be carried out to further elucidate this topic.

[398] These observations are consistent with very similar findings by Romera/Elordieta (2013) and Simonet (2008, 2011), who equally observed convergence and accommodation of monolingual Spanish-speakers and SpD bilinguals to the L2-Spanish spoken by CatD bilinguals regarding question intonation in Majorca. It is furthermore worth pointing out at this point that, in opposition to CS, some other varieties of Peninsular Spanish equally use falling nuclear configurations in information-seeking wh-questions: e.g. H+L* L% (Cantabrian, Manchego, and Jerezano) or ¡L+H* L% (Manchego) (cf. López Bobo/Cuevas Alonso 2010; Henriksen 2010, 2014; Henriksen/García-Amaya 2012). However, these are not identical to the ‘Catalan’ H* L% contour, since the alignment of the pitch peak is different. Still, this implies the possibility that at least some of the speakers of migrant or heritage varieties of monolingual Spanish only needed adapt the alignment of the pitch peak and not learn a wholly new tune in order for their varieties to converge with the Spanish spoken by CatD.

Exclamative wh-questions. The underlying nuclear contours used to convey **exclamative wh-**questions in the two contact varieties are largely the same as the ones used in neutral wh-questions. The notion of exclamativity is thus mainly expressed by means of an increased pitch range. More precisely, H* L% usually surfaces as ¡H* L%, and L* H% is typically realized as L+H* ¡H%. Additionally, circumflex contours can be used (i.e. L+(¡)H* L%, attested more often in GS). As concerns CC, the main difference between the contours used in information-seeking and exclamative wh-questions is the "intensified tonicity" in the latter (cf. Prieto 2002a: 446, 2013: 34–36), i.e. the increased hight of the peak of the nuclear pitch accent in high–falling contours (~ ¡H* L%, L+H* L%) and the "amplified tonal inflections" in rising patterns (i.e. L(+H)* (¡)H%; the translations are mine). To my knowledge, there are no further studies which have systematically examined the intonational properties of this utterance type in CC or CS. For this reason, no sound conclusions can be made about the role of language contact in the development of the current intonation of this utterance type in the contact varieties. Nevertheless, the attested distribution (cf. Section 5.1.6.1) suggests that the circumflex contour could be a 'more Spanish' feature, while the H* L%—as in neutral wh-questions—would originally be rather a 'Catalan feature'. If so, initial speakers of Catalan would have transferred H* L% from GC to GS via substratum transfer and, in a further step, the Spanish varieties spoken by CatD and SpD would have converged.

Imperative wh-questions. Regarding **imperative wh**-questions, the underlying nuclear contours for IPs proposed for the two contact varieties are H+L* L%, L* H%. In GS, L+H* L% adds to these. Given that the sparse available accounts of the intonation of this utterance type in both CS and CC mainly give H+L* L% (cf. Estebas-Vilaplana/Prieto 2010; Prieto 2002a, 2013) and that the low–rise (L* H%) can appear in virtually all question types in the contact and the reference varieties, no sound inferences about contact-induced changes can be made in this case. At best, it can be surmised that the circumflex contour found in some (relatively few) cases in our Spanish data set is not exclusive to GS, but that it could be shared with other Spanish varieties as Estebas-Villapana and Prieto (2010: 38) bring up a circumflex nuclear configuration (L+¡H* HL%), which can be used in CS with "a nuance of invitation", whereas the sources on Catalan never mention circumflex nuclear tunes.

6.4.2.5 Echo questions

Due to the strong variation attested with regard to echo questions in all of the varieties concerned here, uncovering CLI in this utterance type is not an easy task.

First, regarding simple **echo yes–no** questions, the two Girona contact varieties probably share the nuclear configurations L* H% and L+H* L%[399] with both reference varieties. However, L* H% seems to be more characteristic and predominant in CC (cf. Prieto 2013; Prieto et al. 2015; Prieto/Borràs-Comes 2018)[400], whereas sources on CS primarily indicate the circumflex L+¡H* L% nuclear configuration (e.g. Estebas Villapana/Prieto 2010; Escandell-Vidal 1999, 2017). L* H% is merely mentioned as an alternative for CS by Hualde/Prieto (2015: 380). If it were true that L* H% is originally 'more Catalan' and L+H* L% 'more Spanish', that would imply that GS has been strongly influenced by GC, since both contact varieties overwhelmingly showed L* H% in the analysed data sets. More specifically, I should like to suggest then that initial speakers of GC overuse the low–rise contour when speaking Spanish due to substratum transfer and that initial speakers of Spanish have adopted this use via convergence with Catalan and/or the Spanish spoken by CatD.

Second, in the case of **exclamative echo yes–no questions** (with counterexpectational meaning), the Girona contact varieties display the same two nuclear configurations as in neutral echo yes–no questions (albeit often with a wider pitch range), i.e. L* (¡)H% and L+H* L%. Additionally, they showed H+L* L% in some few cases. Quite similarly, the available accounts on this utterance type in CC equally suggest L* (¡)H%—with a wider pitch range than in neutral echo questions—and L+¡H* L% (as a little frequent alternative attested in the vicinity of Girona).[401] As concerns CS, the only descriptions known to me propose L+H* LH% and L+H* ¡H% as a less frequent variant (cf. Estebas-Vilaplana/Prieto 2010: 28; Hualde/Prieto: 2015). H+L* L% has thus not been proposed for any of the standard varieties. The comparison of the

399 The sources on CS and CC usually transcribe this nuclear contour with an upstep, i.e. as L+¡H* L% (cf. e.g., Estebas-Vilaplana/Prieto 2010; Escandell-Vidal 2017; Borràs-Comes et al. 2010; Prieto et al. 2015; Prieto/Borràs-Comes 2018). However, the few examples in our GS and GC data sets do not allow to postulate such an upstep.

400 In fact, the accounts on the intonation of this utterance type in Central Catalan are somewhat inconsistent and in part contradictory: Prieto (2002a: 450–451) mainly describes a 'H* L%'-like nuclear contour but equally mentions L* H% as an alternative. Prieto (2013) only gives L* H%. Prieto (2014: 68–70) highlights L+¡H* L% as typical nuclear contour of CC echo questions but mentions L* (¡)H% as a variant which conveys incredulity. Prieto et al. (2015) again describe L* H% as the most common contour in CC echo yes–no questions. In Prieto and Borràs-Comes's (2018) perception study, finally, L+H* LH%, L+¡H* L%, and L* H% resulted as valid contours for "understanding echo questions" (i.e. questions in which there is high agreement of the speaker with the addressee).

401 Note, however, that the extant accounts are not uniform: while Prieto (2002a: 454–455) stresses the wider tonal range but solely gives '¡H* L%'-like contours, Prieto (2013) and Prieto et al. (2015) underscore that CC uses mainly the low rising L* H% nuclear tune (albeit with an especially extended tonal range) and mention L+¡H* L% as an alternative (attested in the municipality of Santa Coloma de Farners, a town bordering on Girona). Prieto (2014: 68–70), on the other hand, does not express herself clearly but seems to suggest that L+¡H* L% is most common in CC and that L+H* LH% and L+H* LHL% can be used to express a stronger meaning of surprise and insistence. In a perception study conducted by Prieto/Borràs-Comes (2018), L* H% and L+H* LH% were found to be most felicitous in CC disbelief/incredulity questions (i.e. questions with low agreement between the speaker and the addressee).

four varieties suggests that the two contact varieties spoken in Girona mainly display the typically 'Catalan' L* (¡)H% contour in exclamative echo yes–no questions. If it were true that this nuclear configuration is not used in CS (as claimed in the literature), this would point to an interpretation involving CLI. Namely, initial speakers of Catalan would have transferred the L* (¡)H% nuclear contour from GC to GS during acquisition (via substratum transfer) and the varieties of Spanish spoken by initial speakers of Spanish would have converged with their Spanish (and/or with Catalan). However, it cannot be excluded that some of the 'heritage varieties' spoken by the SpD of our sample may already have had it.[402] The origin of the use of H+L* L%, finally, cannot be determined on basis of the available data, but it is likely to stem from GC, as well, where this nuclear contour is common in many question types (e.g. in information-seeking yes–no questions).

Third, the nuclear configurations established for GS and GC **echo wh-**questions are L* H% (most common, especially in GC) as well as L+H* L% (more frequent in GS) and L+H* LH%. The respective reference varieties, too, display various different nuclear configurations for this sentence type (cf. Table 3.4). In CC, L* H% is overall most usual, but in Girona and surroundings L+¡H* L% and L+H* LH% may be found as well (cf. Prieto et al. 2015: 57).[403] For CS, L+¡H* L% is claimed to be more natural than L* H% in this context, as the latter "may imply surprise, incredulity, or similar nuances" (Hualde/Prieto 2015: 282).[404] The comparison of the four varieties reveals that: first, both Girona contact varieties pattern with CC in preferring L* H% as underlying nuclear configuration in echo wh-questions and in exhibiting L+H* LH% as a (less frequent) alternative. Second, GS is somewhat closer to CS than GC is, given that it makes more use of the circumflex nuclear configuration, L+H* L%. Based on these observations, it can be suggested that CatD bilinguals (1) overuse L* H% in Spanish and (2) sometimes transfer L+H* LH% from GC to GS (substratum transfer). Furthermore, the fact that L+H* L% occurred more frequently in Spanish and among SpD bilinguals speaks to the presence of different intonational grammars in the two dominance groups. More specifically, it is likely that (a) SpD speakers do not have L+H* LH% as underlying nuclear configuration in their intonational grammar and that (b) both L+H* L% and L* H% can be either underlying configuration or surface realization as a function of the speaker's LD. However, it is evident that many opportunities for future research remain with regard to the intonation of echo wh-questions in both Spanish and Catalan.

[402] Although L* ¡H% has not been documented in exclamative echo yes–no questions in other peninsular varieties of Spanish (Jerezano Spanish mainly uses H* ¡H%, Cantabrian displays L+H* HL%), it appears, e.g., in Canarian Spanish (cf. Henriksen/García-Amaya 2012: 147; Cabrera Abreu/Vizcaino Ortega 2010).

[403] Note that also the contours described in Prieto (2002a: 451–452), which are based on the Northern CC variety spoken in Figueres, rather correspond to H* L% or L+H* L% and L+H* LH%, too.

[404] Estebas-Vilaplana/Prieto (2010: 35) find ¡H* L% and L+H* ¡H% in their data but interpret the former as a surface realization of L+¡H* L% (in accordance with Escandell-Vidal 1999). L+H* ¡H% is also the most typical nuclear configuration used in Jerezano Spanish (cf. Henriksen/García-Amaya 2012). It is interesting to note that this tune was not attested in the Girona varieties, at all.

6.4.2.6 Imperatives

Commands. The underlying nuclear configurations of IPs established on the basis of the intonational analysis of commands were H+L* L% and L+H* L% for both GS and GC. While the first one was attested in IPs containing more than one prosodic word and could surface as L* L%, the second one mainly occurred in short imperatives (consisting of one prosodic word, viz. a verb in the imperative form). Two different nuclear contours for commands are proposed in the literature for CS: L+H* !H% (cf. Estebas-Vilaplana/Prieto 2010: 38) and L+(!)H* L% (cf. Hualde/Prieto 2015: 384; Robles-Puente 2011b; Prieto/Roseano 2018: 230; see also Table 3.4). While the former seems to occur only in short imperatives comprising one prosodic word, the latter is (also) used in longer imperatives. In CC, mainly L+H* L% is used, but L+H* HL% is attested in more insistent calls (cf. Prieto et al. 2015: 35 and Table 3.4). For target sentences "longer than one word", Prieto et al. (2015: 35) registered L* L%, whereas Prieto (2002a: 456–457) describes a falling, 'H+L* L%'-like nuclear contour.

Taking into account the findings outlined in this section, it can be said that the contact varieties show similarities and dissimilarities in relation to the respective standard varieties: in the longer imperatives, they tend to use H+L* L% (like CC) but sometimes also show L* L% (like CC) or L+H* L% (like CS). In short imperatives, they usually display L+H* L% (thus patterning rather alike with CC). In sum, it can be suggested that tonal marking of commands in GS and GC can be interpreted as the result of transfer and convergence processes between Catalan and Spanish which took place in the course of the development of these two contact varieties. However, there seem to be more similarities with CC, which is consistent with the slight societal predominance of Catalan in Girona. It can thus be suggested that initial speakers of Catalan transferred tonal patterns from Catalan to Spanish when acquiring that language (due to substratum transfer) and that, in a further step, the Spanish spoken by initial speakers of Spanish converged with the variety spoken by the CatD bilinguals.

Requests. The underlying nuclear configurations of IPs proposed for requests were H+L* L% and, in requests consisting of only one prosodic word, L+H* L% and L+H* HL% (the latter one conveying more insistence). L* HL% is said to be the nuclear contour used to express requests in CS (cf. Table 3.4), but L+H* L% is used, e.g., in Jerezano Spanish (cf. Henriksen/García-Amaya 2012). For IPs encompassing more than one prosodic word, Estebas-Vilaplana/Prieto (2010) equally give L+H* L% and Hualde/Prieto (2015: 385) add H+L* L%. In standard CC, the nuclear configuration which is most commonly proposed for this sentence type is again L* HL% (Prieto et al. 2015: 37), but L+H* LHL% can be utilized to "express a higher degree of insistence on part of the speaker".[405] For larger sequences consisting of "more

[405] In opposition to all other available studies, Prieto (2014: 72) also mentions L+H* L!H for soft requests (i.e. the same contour as in statements of the obvious).

than two accents", Prieto (2002a: 458) describes contours ending in low nuclear configurations (i.e. L* L%).

Considering this, it can be concluded that: first, GC and GS pattern with CS in showing the H+L* L% nuclear configuration in 'long' requests. Second, regarding 'short' requests, the contact varieties are equally closer to CS, since L+H* L% has also been attested in requests in this language but does not seem to appear in CC. The comparison of the varieties thus allows for the assumption that GC has adopted some 'Spanish' features via convergence with GS.

Still and all, it is necessary to point out that the data sets analysed for both orders and requests in the contact varieties were too small and present too strong variation to make safe conclusions about the intonation of these imperative types. Also, the available descriptions for the reference varieties are still too unclear and too little comparable as they are (partially) based on different imperative-sentence types. Further investigation into all four varieties is thus needed to enable researchers to uncover the type and direction of CLI affecting this sort of utterance in a more structured and principled manner.

6.4.2.7 Vocatives

The nuclear configurations suggested for vocatives on basis of the intonational analysis of GC and GS are L+H* HL%, the so-called 'vocative chant' L+H* !H%, and L+H* H%. While the two former were proposed to convey vocatives with different degrees of insistence, the last appears in 'interrogative vocatives' or 'vocative questions' (cf. Section 5.1.9 and 5.2.3). L+H* !H% and L+H* HL% are also the nuclear configurations offered in intonational descriptions of CS and CC (cf. Table 3.4). While the boundary tone HL% is claimed to convey more insistence in CS, the studies on CC are not unanimous and some diatopic variation is reported (cf. Prieto 2014; Prieto et al. 2015). However, it seems that the vocative chant with the !H% boundary tone is altogether more common in second or more insistent calls in CC (i.e. the other way round as in CS). Furthermore, 'interrogative rising contours' (mainly L* H%) have been sporadically observed in CC (Prieto 2002a: 460; Prieto 2013: 42–43; Prieto et al. 2015: 41), while they are not mentioned in the accounts on CS (but see, e.g., Huttenlauch et al. 2018 for rising contours in Columbian Spanish "confirmation-seeking vocatives"). From this, it can be concluded that the findings for the two Girona contact varieties rather pattern with the descriptions of CC. Nevertheless, only further and more detailed investigation into all four varieties would allow to determine for sure whether CLI has played any role in the genesis of vocative intonation in the contact varieties.

6.4.3 Contact-induced cross-linguistic influence at the segmental level

The analysis of intervocalic /s/ voicing in GS, presented in Section 5.4, revealed that 42% of the word-final tokens were realized as fully voiced sibilants (i.e. as [z]). Such sonorizations were altogether the more frequent the more the bilinguals' LD was biased towards Catalan, but the data set was characterized by great interspeaker variation (see also Section 6.2, above). In word-medial intervocalic positions, on the other hand, GS /s/ was never fully voiced, i.e. the percentage of the sound duration that acoustically presented signs of voicing ('%voiced') was always low enough for the productions to qualify (perceptually) as 'voiceless' (i.e. as [s]).[406] The only exception to this was one realization of Sp. *presentar* as [pɾezenˈtaɾ] by a strongly CatD bilingual, which contained a fully voiced [z] (cf. below for an analysis of this case in the light of language contact).[407] On the whole, these results thus largely correspond to the findings made by Davidson (2015a, 2015b) for Barcelona Spanish.

Now, regarding the reference or standard varieties of (Peninsular) Spanish and Catalan, the situation is as follows[408]: according to Hualde/Prieto (2014: 116–117), fully voiced realizations of intervocalic /s/ occur to an extent of ca 8% in CS (11% in word-initial, 6% in word-medial, and 12.5% in word-final position) and to an extent of 4% in CC[409]. Torreira/Ernestus (2012: 136–138) even report a rate as high as 34% for CS.[410] The fact that the voicing rates are greater in Spanish than in Catalan has been attributed, among other factors, to the lack of a phonological voicing contrast in Spanish sibilants (which entails that voicing assimilations cannot affect phonology) and a greater general tendency to 'weaken' or 'reduce' all voiceless obstruents (cf. Hualde et al. 2010, Hualde/Prieto 2014: 121f.).

The comparison of GS with CC and CS thus reveals that, in word-internal position, GS rather patterns with Catalan regarding the realization of /s/ as there were virtually no fully voiced items, whereas, in word-final contexts, it occupies an intermediate position between CS and CC (i.e. 8–34% of fully voiced realizations in CS < 42% in GS < 60–100% in CC), which mainly

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406 As explained in Sections 4.3.3 and 5.4, a threshold of 60% of voiced segment duration was selected to make this binary classification following Davidson (2015a: 116, 2015b: 131) and Schmidt/Willis (2011: 6).

407 Note, however, that there were three more phrase-medial items that exhibited relatively high %voiced values (approx. 60%; cf. Section 5.4). Although these in part exceed the threshold of 60% adapted for the binary classification of the productions as 'voiced' or 'unvoiced', they should probably still be viewed as intendedly voiceless realizations of underlying /s/ that show partial assimilation to the surrounding vowels (cf. below), rather than as deliberately voiced productions.

408 Recall that in CS (and most other monolingual varieties of Spanish), intervocalic /s/ should theoretically always be realized as unvoiced [s] in both word-internal and word-final position. In CC (and most other Catalan varieties), on the other hand, /s/ is mandatorily rendered as voiced [z] in word-final intervocalic position as a consequence of a voicing rule but stays unvoiced (i.e. [s]) in word-medial contexts, where it contrasts with /z/ (realized as voiced [z]; see also Sections 2.3 and 4.3.3).

409 The figure for Catalan includes only word-initial (3%) and word-medial positions (6%), since the word-final position always requires fully voiced realizations as [z] by virtue of the aforementioned voicing rule. However, Hualde/Prieto (2014: 118) report that intervocalic word-final Catalan /S/ exhibited partially devoiced realizations in 40% of the items they analysed.

410 The strong variation regarding the voicing rates in Spanish is probably a side effect of the use of different speech styles (i.e. "directed conversational speech" in Hualde/Prieto 2014 and "casual conversations with friends" in Torreira/Ernestus 2012). Voicing rates thus seem to be much higher in more casual speech (see also Davidson 2015a: 218f., 2015b: 138).

results from the fact that its speakers behave very differently regarding the voicing of /s/ in that context. However, before discussing this finding in the light of language contact, it is worth pointing out that also most productions of GS intervocalic /s/ that were presumably intended to be voiceless, i.e. the ones classed as 'voiceless', here, generally exhibited some minor degree of voicing. I interpret this as a result of (incomplete) voicing assimilation through the surrounding vowels. More specifically, I assume that the underlyingly voiceless /s/ target is usually undershot to some extent due to a lack of vocal-fold abduction during parts of the segment duration, i.e. due to gestural blending which results from an overlap of the conflicting laryngeal gestures for the consonant and the adjacent vowels (cf. Davidson 2015a: 76, 2015b: 124; Campos-Astorkiza 2014: 19). In this sense, /s/ voicing in Spanish can be understood as a lenition or weakening phenomenon, analogous to other forms of /s/-reduction such as aspiration or deletion (cf. Davidson 2015a: 76, 69, 2015b: 124; Torreira/Ernestus 2012; Hualde/Prieto 2014).

Interestingly, such 'voiceless' productions were on average more voiced in word-final than in word-medial position (%voiced: 26.7% vs ca 18%). This is in line with similar findings made for example by Torreira and Ernestus (2011: 139, 144) and Hualde and Prieto (2014: 123–125) for Madrid Spanish who note that reduction phenomena are more common in prosodically weaker positions such as, e.g., the word end. The slightly different means found in the current analysis may thus reflect these universal tendencies. Nevertheless, even though the mean %voiced value was somewhat greater in word-final position, these categorically 'voiceless' realizations were still clearly distinct from the fully voiced ones, and it is evident that the substantial presence of voiced productions in word-final position cannot be merely "a product of purely language-internal mechanisms of lenition" (cf. Davidson 2015b: 138). The main reasons for this are (1) the sheer number of fully voiced [z] productions in the word-final context in the light of the categorical absence in word-medial position, (2) the fact that they occurred in formal (i.e. read) speech data, i.e. in a speech style that generally disfavours lenition effects and non-standard variants (cf. Moreno Fernández 2009: 101; Tagliamonte 2012: 34; Davidson 2015a: 105–107; see also Section 4.3.3), and (3), the fact that they were the more frequent the greater the speaker's use and knowledge of Catalan. In consequence, these observations most directly speak to Catalan acting as the source language in a case of phonetic transfer to Spanish (cf. Davidson 2015a: 258).

Based on these observations, it can be suggested that in a first step, monolingual speakers of Catalan transferred the word-final voicing rule from Catalan to Spanish, when they first acquired it as an L2, i.e. they simply preserved their Catalan pronunciation habits. Given that the acquisition of the 'state language' by Catalan monolinguals typically took place at school, where Spanish was usually taught by teachers who were themselves native speakers of Catalan, and that the contact with Spanish natives was still scarce when this happened, it is little surprising that they acquired the L2 deficiently (cf. Moll 1961: 473; Bernat et al. 2019, 2020: 105; Enrique-Arias 2021: 199; see also Section 2.1). Furthermore, given that there is no categorical distinction between /s/ and /z/ in Spanish, 'pronunciation errors' of this type cannot lead to misunderstandings (although the speaker may, of course, be recognized as a Catalan-speaker by monolinguals).

In a next step, at least a part of the Catalan–Spanish bilinguals must have corrected their pronunciation, as they were forced to use Spanish on a regular basis. It can be assumed that this happened through gradual convergence with the monolingual varieties of Spanish spoken by the ever more numerous immigrants and with the standard variety diffused in the media—possibly also through explicit instruction at school.[411] However, the voiced realization must have maintained a substantial degree of entrenchment, since, in a third step, as was shown here, some initial speakers of Spanish have adopted it, i.e. their varieties of Spanish have converged with the Spanish spoken by CatD bilinguals. With the Catalan language and CatD bilinguals being socially predominant in Girona, this is actually not so surprising—especially when keeping in mind that virtually the entire population of the town are bilingual today and the voicing rule receives its entrenchment from both Spanish and Catalan. Furthermore, the status of intervocalic [z] in Catalonian Spanish as a non-stigmatized variant and the fact that it generally passes below the level of the bilinguals' overt awareness are certainly conducive to its diffusion and propagation from CatD to SpD bilinguals (cf. Davidson 2015a: 257f.; see also Section 2.3). In fact, it has even been demonstrated that /s/ voicing is positively associated with solidarity traits and linked to a feeling of closeness and shared Catalan identity (cf. Davidson 2015a: 256f.).

The result of these processes of substratum transfer and convergence is a situation in which there is a continuum reaching from bilinguals who never voice word-final intervocalic /s/ to bilinguals who do so consistently. The variable occurrence of this contact-induced feature in the target population can partially be explained by the speakers' LD (cf. Section 6.2), but still the individual variation is significant.

Last but not least, it is interesting to note that the Catalan phoneme /z/ was never transferred to GS in our data except maybe for the one case, mentioned above, in which a strongly CatD bilingual pronounced GS *pre*[z]*entar*. Although this item may indeed be interpreted as an instance of substratum transfer at the phonological level (see also Section 6.7), the fact that only one such case was observed in the respective bilingual suggests that /z/ is not a steadily integrated phoneme of her Spanish phonological system, but rather that this was merely a single instance of an 'ephemerous' interference at the performance level in the sense of Müller et al. (2011: 18). Furthermore, seeing that several studies on monolingual Spanish have reported occasional fully voiced productions of intervocalic /s/ in this position, too, a strong case could be made that this instance is actually just another case of assimilation or weakening rather than a witness of CLI.

In sum, the segmental analysis thus supports the suggestions made on basis of the prosodic data, viz. that substratum transfer and convergence are the mechanisms of CLI that are primarily responsible for the emergence of the 'mixed' phonological systems of GS and GC.

[411] If not among school teachers, at least among linguists, there seems to have been increasing awareness of the phenomenon in the late years of the Francoist dictatorship (Moll 1961; Colón 1967; Badia i Margarit 1979). Somewhat later, Marsá (1986: 101) even refers to it as "pecado fonético capital" 'capital phonetic sin'.

6.4.4 Summary: The prosodic systems of current GS and current GC

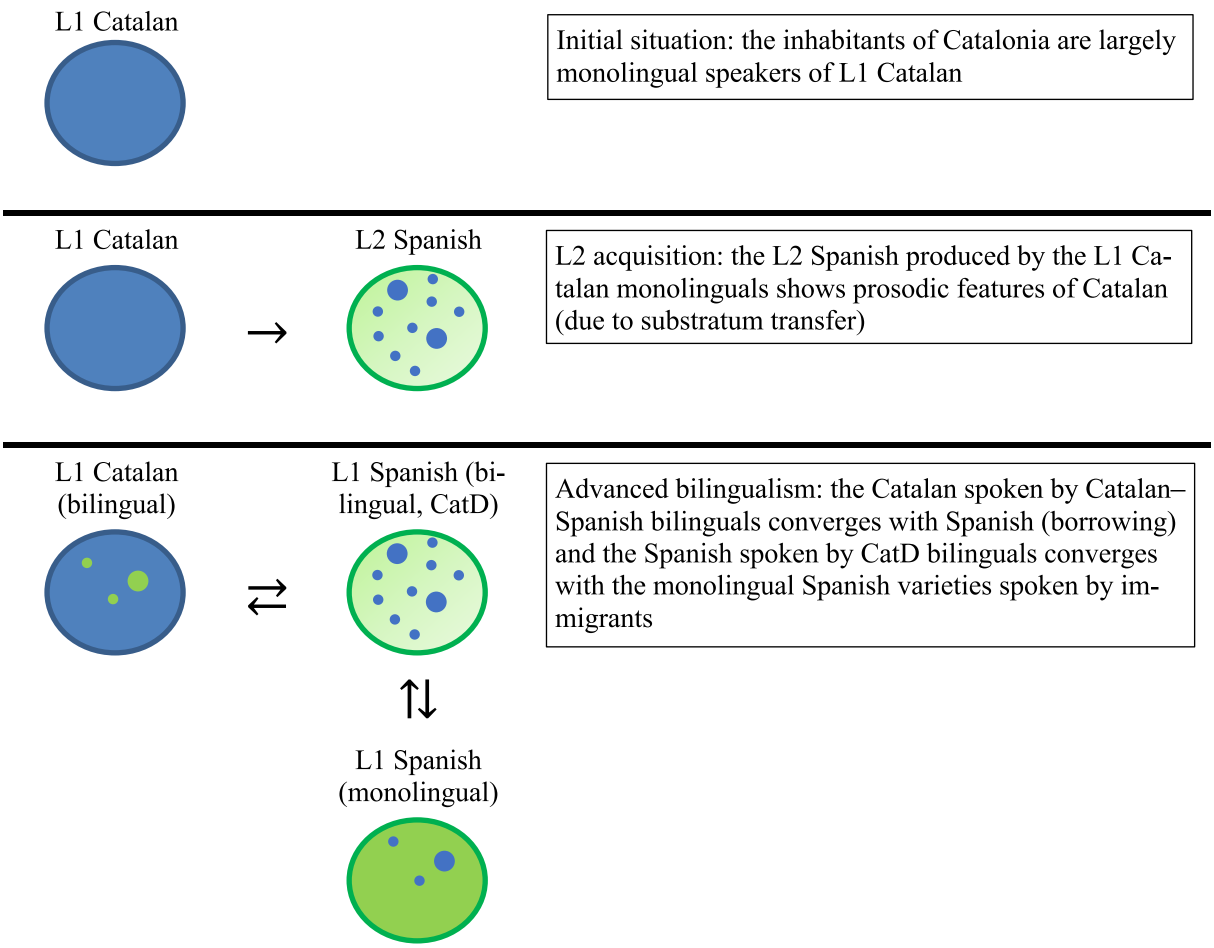
Considering the findings of the prosodic analysis of intonation and phrasing and the discussion presented in this subchapter (6.4), it can be inferred that:

1. The prosody of the current variety of GS can be interpreted as the result of substratum transfer (that occurred when the monolingual speakers of GC learned Spanish as an L2) and wholesale convergence (cf. Matras 2009: 232) or at least of strong converging tendencies between the Spanish spoken by CatD bilinguals and the Spanish spoken by the hispanophone settlers who came to Catalonia during the 20th century and at the beginning of the 21st and their descendants, as well as with the standard variety of CS propagated in the media and at school. In the SpD bilinguals, these convergence processes may be attributed at least in part to first language attrition and accommodation under the pressure of the predominant surrounding language Catalan and of the Spanish variety spoken by CatD bilinguals. As a result of these different processes, numerous 'Spanish' prosodic features have been replaced by (Girona) Catalan ones in current GS. However, on the individual level, some differences—for the most part concerning frequencies of use—continue to exist between speakers as a function of their LD. GS is thus not (yet) a particularly uniform or homogeneous variety (see also Section 6.2 on interspeaker variation).
2. The prosody of the current variety of GC can be equally interpreted as the result of both convergence processes (first only with Spanish and later on also between the varieties of Catalan spoken by CatD and SpD bilinguals) and substratum transfer (occurring when the monolingual speakers of Spanish learned Catalan as an L2). However, in this case, too, some minor differences (mostly referring to different usage frequencies) continue to persist between individual speakers with different initial languages (see also Section 6.2).

The scheme in Figure 6.1 illustrates the assumptions made in 1 and 2. In a first step, the (Girona) Catalan monolinguals (who form the initial stage) learn Spanish as an L2 (because it has become the only official state and educational language and intermittently—i.e. under the Franco regime—even the only language allowed to be used in public).[412] The next generations step by step become consecutive (or sometimes simultaneous) bilinguals. Later on, the Spanish (and indirectly also the Catalan) spoken by the Catalan–Spanish bilinguals begins to converge with the Spanish spoken by the ever more numerous Spanish-speaking immigrants (arriving from the 1930s) and by their descendants as well as with the close-to-standard varieties of Spanish

[412] As shown in Section 2.1, this process of SLA was rather slow: although Spanish had been more or less the only official language from the 15th century (cf. Section 2.1), until the turn of the 20th century only very limited sectors of Catalan society had any knowledge of Spanish (as a foreign language) (cf., e.g., Bernat et al. 2019, 2020). In this context, it is worth pointing out that the acquisition of Spanish largely took place in educational settings, i.e. at school, before the arrival of Spanish-speaking immigrants which enabled SLA also in natural and unstructured contexts. Crucially, however, there were no foreign-language classes in the common sense of the word but rather Spanish was simply used as the medium of education.

diffused in the media. After the restauration of democracy in 1978 and the recovery of (partial) Catalonian self-government in 1979, adult monolingual speakers of Spanish increasingly start learning Catalan as an L2 and their children and subsequent generations grow up as consecutive (or simultaneous) bilinguals (primarily due to the Catalan-medium educational system). In recent years, significant converging tendencies can be observed between the varieties of Catalan spoken by CatD and SpD bilinguals (see also Argenter et al. 1998; Arnal 2011, among others). In sum, there seems to be a strong tendency towards wholesale prosodic convergence between the two contact varieties in Girona, although they display altogether more 'Catalan' than 'Spanish' prosodic features. This latter finding again is in line with the observation that in today's Catalonia Catalan has high social prestige and that, in Girona, Catalan is slightly predominant at the societal level (i.e. there is a greater number of CatD bilinguals and its public use is greater than that of Spanish[413]; cf. Sections 2.1 and 4.2).



[413] As Arnal (2011: 16) points out the relative sizes of the speaker groups in contact, e.g. the number of natives and learners, crucially determines which results of contact-induced changes become fixed in a recipient language: "[i]f the group promoting the change is relatively numerous compared to […] [the other one], it is much more likely that any innovations introduced become fixed."

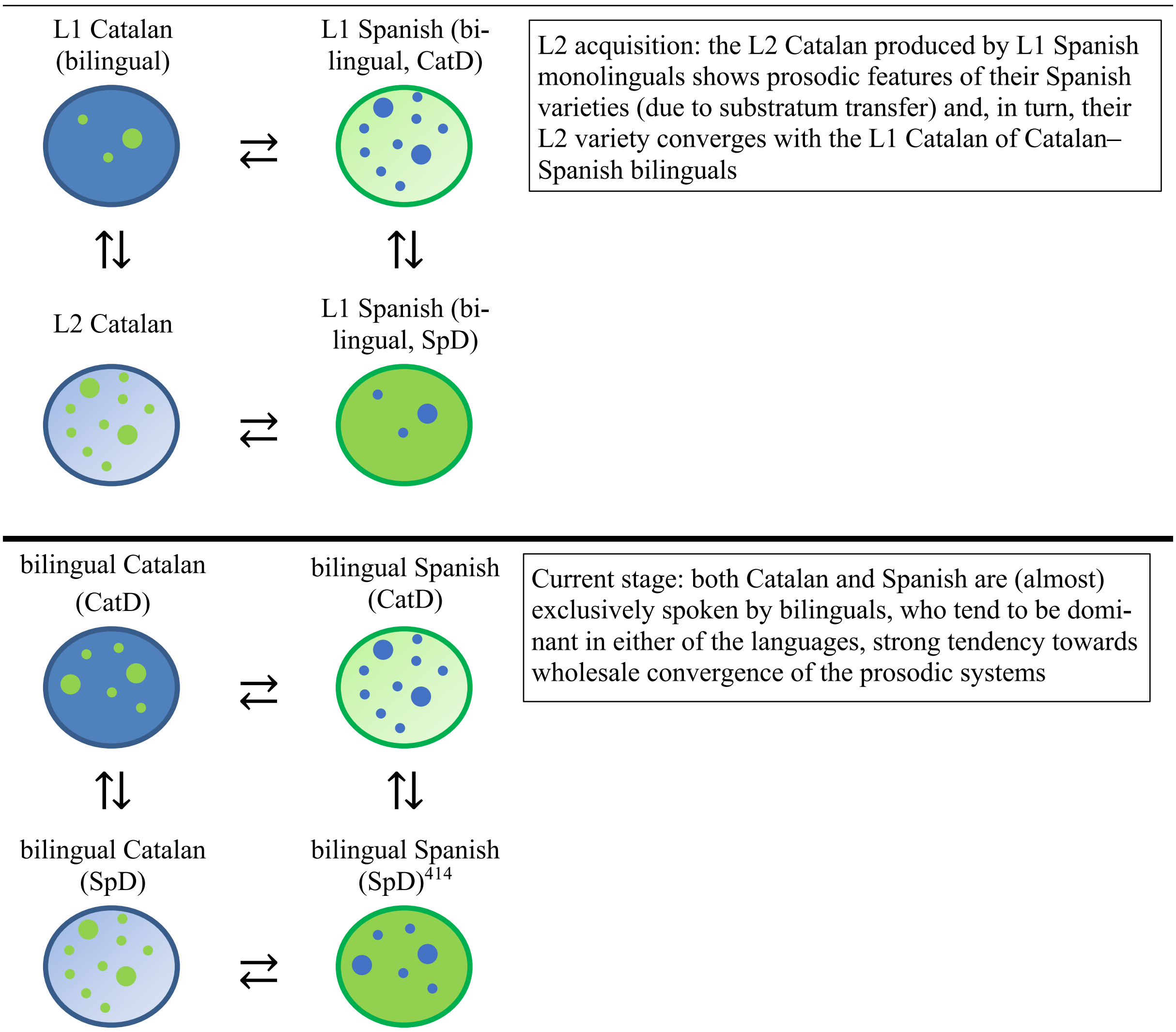


Figure 6.1: Schematic representation of the development of (current) Girona Catalan and Girona Spanish.[415]

6.5 The status of Girona Spanish (and Catalonian Spanish) as a distinctive variety within the Spanish diasystem

The present study has revealed that the intonation of GS as a subvariety of CCS considerably differs from that of other, monolingual Peninsular varieties of Spanish. It thus provides further evidence from the prosodic level for the observations made by many authors based on other linguistic domains (cf. Section 2.3). Furthermore, clear differences were also attested on the segmental level (viz. regarding word-final sibilant voicing but also the degree of /s/ voicing in word-medial position). The question must thus be asked whether GS, or Catalonian Spanish in

414 Note that, contrary to monolingual Catalan, monolingual Spanish has not yet fully disappeared in Catalonia as roughly one in five residents is still unable to speak Catalan (cf. Section 2.1).

415 NB: The model is originally inspired by Kireva (2016a: 243). It does not show the continuing influence exerted on the contact situation during all stages by Standard Spanish (e.g. via the media or the educational system) nor are migrant languages incorporated.

a wider sense, should be regarded as a distinctive variety or dialect of Peninsular Spanish in its own right.

As explained in Chapter 2, the traditional Hispanic dialectology has denied this—often implicitly in that it simply ignored Spanish spoken in Catalan-speaking territories. If addressed at all, CCS was typically treated from a puristic point of view and branded as 'accent' or sometimes as an 'adstrate variety' (cf. Section 2.2). Only sporadically was it qualified as a tertiary dialect in the sense of Coseriu (1980) (e.g. by Kailuweit 1996). In more recent years, it has increasingly been referred to as 'contact variety', as is also done here. Apart from the sociolinguistic situation in which GS finds itself, the main reason for this is that the features that set it apart from other Spanish varieties are first of all a result of the intense language contact with Catalan, or more precisely of substratum transfer during SLA and of convergence processes between the varieties of Catalan and Spanish spoken by different social groups (cf. Sections 6.1–6.3, and especially 6.4). However, while it may be true that GS first developed as a learner variety or interlanguage of Catalan natives, characterized by strong interference from Catalan, this is no longer the case today. Rather the bilingualization of initial speakers of Catalan was completed in the second half of the last century and heavily Catalan-accented speech has become socially secondary (Vila 2016: 152) or has even fully disappeared in the youngest, fully bilingual generations (Arnal 2011: 16). Instead, 'Catalan' features are also observed in SpD speakers who have grown up in Catalonia (i.e. typically descendants of Spanish-speaking immigrants). The varieties of Spanish spoken by locals and immigrants and their offspring have thus converged. This clearly supports the findings of Simonet (2008, 2011) and Romera/Elordieta (2013) for Majorca, who observed comparable converging tendencies regarding the intonation of SpD locals and monolingual hispanophone immigrants, respectively. The results furthermore sustain Matras's (2009: 232–233) argument that prosody (and specifically intonation) is 'volatile' and that prosodic systems are therefore susceptible to undergo convergence processes in language contact. From a more sociolinguistic angle, the present work shows that a certain degree of linguistic levelling has taken place across different collectives of Spanish speakers in Catalonia (cf. Moyer 1991; Corona et al. 2013; Vila 2016: 152).

On the other hand, while the aforementioned findings point to the emergence of a 'new', 'independent' variety of Spanish, the present study has also revealed that GS displays a great deal of intonational variation. In Section 6.2 I have argued that this variation partly correlates with LD and that individual bilinguals may not have the same intonational systems (see also Section 6.4). Even though levelling tendencies between speaker groups of diverse ethnolinguistic or dialectal origins are doubtlessly perceivable, this process is not yet completed, such that, for the time being, GS cannot (yet) be viewed as a fairly clear-cut or uniform variety. As righteously pointed out by Vila (2016: 152), it is not clear neither that such a distinctive variety of 'Catalonian Spanish' is currently developing or that CCS is moving towards a single form. Consider, for instance, the fact that there are wide geographical discrepancies with regard to the sociolinguistic situation across Catalonia (cf. Section 2.1) and that the present study is based exclusively on the Spanish spoken in Girona by a sample of young university students raised there. It is thus quite likely that (somewhat) different results would have been obtained using speech data from other areas of Catalonia (e.g. Barcelona) or from other speaker types (e.g. older[416] or less educated bilinguals).

In sum, the further development of GS can be expected to depend on the future sociolinguistic conditions of the contact situation in the same way as did the development of its current state. Extralinguistic factors, like the demographic and political developments or subjective psycho-social factors (e.g. language attitudes or prestige) will thus continue to be pivotal. For instance, a continuing influx of Spanish-speaking migrants would contribute to enhance variation, whereas its cease would rather advance uniformization, as the locals' gradual loss of the possibility of contrasting their bilingual Catalonian Spanish with the monolingual Spanish spoken by immigrants or relatives from other regions would necessarily lead to a loss of notions like, for example, that certain phenomena could be 'more Catalan', 'more Castilian', or 'more typical of southern Spain' (cf. Sinner 2004: 595). Furthermore, future language policies or political upheavals such as the possible independence of Catalonia could of course anew bring along significant changes regarding the language status of Catalan and Spanish, which, in turn, would have indirect repercussions on the way the two languages influence each other. The direction of future evolutions thus remains to be seen.

6.6 How does contact-induced intonational change work?

The results of the present study suggest that contact-induced prosodic change is crucially conditioned by extralinguistic factors such as the pressure resulting from the social and political status of the languages involved (e.g. in terms of prestige or demographics). In the case of the Spanish–Catalan contact in Catalonia in general and in Girona in particular, these factors have pushed into opposite directions over the course of time[417], but they eventually led to a sociolinguistic situation characterized by extensive individual and societal bilingualism (recall that roughly 87% of the inhabitants of the Girona region are at least bilingual; cf. Section 2.2). The traces of the long-standing intense and course-changing language contact can clearly be seen in

[416] As Helms (2021: 160) underscores, age is a particularly important factor in the Catalan context due to the "generational divide […] between those who have and have not had access to prescriptive Catalan norms through schooling".

[417] By this, I mean that the prestige status as well as the proportional ratio of speakers of Catalan and Spanish practically reversed over time: i.e. during centuries Catalan used to be the 'low variety' in a diglossic situation although it was spoken the only spoken language of the lion's share of society. Then, the social history of the 20th century successively led to the bilingualization of all Catalan speakers, the end of diglossia, and the bilingualization of (most) Spanish-speakers, in such a way that, today, both languages have a similar legal status and Catalan tends to have slightly more social prestige, although Spanish is more widely spoken (see also Section 2.1). Spanish has thus equally become an *agent* language in the present language-contact situation (i.e. initial Spanish speakers now ever more frequently impose features of their L1 onto the recipient language Catalan in the sense of Van Coetsem 2000: 49), whereas in the past this part used to be largely reserved to Catalan (see also Arnal 2011: 18).

both current GC and GS. In the development of both varieties, the present work has identified interacting processes of convergence and substratum transfer. In what follows, I shall thus depict the different steps I assume the two contacting varieties to have gone through and attempt, in doing so, to describe how contact-induced prosodic change resulting from these mechanisms generally works and how it is determined by language-external factors.[418]

In GS, where substratum transfer precedes convergence processes, the following developmental steps can be proposed:

1. A monolingual speaker group with variety A as a first language is required to learn variety B as a foreign language (e.g. because language B has become the variety used in administration, education, and church and hence holds a high (overt) social prestige, while variety A is increasingly banned from public life, i.e. there is a diglossic situation).
2. In a first stage, the L2 variety of variety B, i.e. the learners' interlanguage, will show prosodic features typical of variety A due to substratum transfer (i.e. imperfect learning in the course of SLA). By way of example: the speakers of the L2 variety use a prosodic feature X (e.g. a pitch accent, a nuclear configuration, a whole melodic construction, a phrasing pattern, etc.) which has been transferred from their L1 (i.e. from variety A), whereas the native speakers of variety B use another prosodic feature Y to express the same thing.
3. Next, the children of these L2 speakers, who may already be consecutive bilinguals, will also use feature X instead of feature Y, when communicating in variety B.
4. In a following step, it can be expected that the variety B spoken by the bilinguals will converge with the variety B spoken by monolinguals (especially when the direct contact with monolinguals is strong or increases, e.g. due to the immigration of large numbers of monolingual speakers of variety B). The result of this convergence process may be the following: in the grammar of some speakers of variety B, Y is a surface realization of the underlying feature X, while in the grammar of other speakers of variety B, Y is the underlying feature and X its surface realization, and in the grammar of still some other speakers of variety B, Y is the underlying feature and the realization of Y remains unchanged by external influences.
5. In a subsequent phase, the degree of entrenchment of X and Y (which results from the frequency with which these features appear on the linguistic market, i.e. in variety A and B[419]) will determine their further development in variety B. Besides overt prestige of variety B, also demographic factors (i.e. the size of the different speaker groups involved) and the (possibly existing) covert prestige of variety A can be expected to affect the entrenchment of X and Y significantly. The same holds true for changes in the extralinguistic conditions shaping

[418] The present account is strongly inspired by Kireva's (2016a: 243–245) model of transfer and convergence in Olivenza Spanish and Olivenza Portuguese and the presentation largely follows her example. Note furthermore that it merely refers to contact-induced language change and does not include other possible causes of change.

[419] It is worth pointing out that variety A is assumed to be influenced to some degree by the high-prestige variety B, too, i.e. to have adopted features of variety B (among these possibly feature Y; see also below).

the contact situation such as, e.g., a break-up or a reversal of the diglossic situation in consequence of political transformations. Depending on these external factors, it is likely that either X or Y will be realized less and less frequently due to the higher degree of entrenchment the other variant receives under the given sociolinguistic circumstances.[420]

6. Last, the recessive variant will be replaced by the predominant one entirely and disappear from the prosodic system of variety B.

Similar, though not identical steps can be outlined for the complementary variety, i.e. the second language involved in the same contact situation. While the overall sociolinguistic situation is of course identical, the opposite status of the contacting varieties entails that convergence and transfer processes affect their development in a different chronological order. In the following, I present the steps which I assume GC to have gone through and thereby endeavour to shed a light on the mechanisms that generally underlie contact-induced prosodic change, in this case resulting mainly from convergence (under changing external conditions) and only intermittently from substratum transfer.

1. Two varieties A and B enter into intensive contact (e.g. through political transformations). A diglossic situation emerges in which B is the prestige or 'high' variety (and at some point the only one allowed in public life and education). Speakers of A are thus required to learn B as a second language (cf. above). Bilingualism is widespread (especially among initial speakers of A), but there are also monolingual speakers of B.
2. Variety A adopts a prosodic feature Y from variety B via borrowing (e.g. a pitch accent, a nuclear configuration, a whole melodic construction, a phrasing pattern, etc.). As a consequence, two competing features, Y (the adopted one) and X (the one belonging to the system of A before the incorporation of Y), are found in variety A, both used to express the same function or meaning. In this first stage, it can be supposed that Y will only be a surface realization of the underlying feature X in variety A.[421]
3. In a second stage, the degree of entrenchment of Y (which is defined by the frequency with which Y appears on the linguistic marketplace, i.e. in variety A and variety B) will determine its further development in variety A. Since Y is the feature which receives its degree of entrenchment from its use in both variety A and variety B (the prestige variety), it can be assumed that it will receive a high degree of entrenchment and that, in consequence, in the grammar of some speakers of variety A, Y will become the underlying feature and X its surface realization. This stage can be seen as an intermediate stage of the ongoing change.
4. If all extralinguistic conditions determining the contact situation were to stay stable, it should be expected that over the course of time, Y would become the underlying feature and X its

[420] Note that this may imply processes of language attrition.

[421] It merits emphasizing that, as Bullock (2009: 168) points out, borrowing, i.e. the recruitment of prosodic resources from a contact language (or from an L2-variety of the own language) into the native language has a minimal functional effect on the linguistic system as a whole, since it does not—at least not initially or immediately—supplant native resources, which equally remain accessible to the borrowing speakers. Instead, the borrowed items should better be viewed as additional resources available to the bilinguals.

surface realization in the grammar of all speakers of variety A, and possibly, that the predominant variant Y would eventually end up replacing the receding variant X entirely. In that case the two languages would have converged. — However, changes of the extralinguistic conditions (e.g. political or social transformations) may accelerate, stop, or reverse such evolutions, since they can have a significant impact on the entrenchment of the two competing variants. By way of example: the arrival of large numbers of monolingual speakers of variety B could shift demolinguistic factors and additionally increase the presence of Y in the linguistic market. By contrast, a break-up or a reversal of the diglossic situation may come along with a change in the degrees of (overt and covert) prestige allocated to variety A and B. While this, on the one hand, can already be expected to favour the stronger entrenchment of X, it could, on the other, also incite monolingual speakers of B to engage in acquiring A as a foreign language. That, in turn, would be likely to cause transfer of Y from B to A (via substratum transfer in SLA). Depending on the socio- and demolinguistic circumstances at hand, it can thus be expected that either X or Y will be realized less and less frequently due to the higher degree of entrenchment conferred to the competing variant.
5. Last, the recessive variant will be replaced by the predominant one entirely and disappear from the prosodic system of variety A.

To cut a long story short, the cases of the two contact varieties spoken in Girona clearly show that contact-induced change, i.e. the linguistic outcome of the different mechanisms observed above, crucially depends on the external factors that shape the sociolinguistic situation in which the contact takes place. Due to several reasons (e.g. the demographic pressure of the CatD majority in Girona, the regained overt prestige of Catalan after the restauration of democracy, the relatively lower prestige allocated to Spanish as the language of the poor immigrants today; cf. Section 2.1), 'Catalan' variants seem to be overall somewhat more successful on the present-day linguistic market. It can thus be expected that they will also prevail on the long term in Girona, such that a more uniform and relatively stable variety of (Girona) Spanish will eventually emerge unless the sociolinguistic situation changes again (e.g. due to more migration or political changes in the future). Still, one caveat of this study is, of course, that it is based only on the phonological convergence documented in the Catalan–Spanish contact situation in Girona. However, the present findings largely pattern with what has been observed in some other intense language-contact situations: as shown in Section 3.3.3, for instance, the intonation of Bulgarian Judaeo-Spanish has almost completely converged with the intonation of the surrounding language Bulgarian (Andreeva et al. 2017, 2019, 2021) and Algherese Catalan intonation largely patterns with Sardinian (Roseano et al. 2015; Vanrell et al. 2020). Nevertheless, a more extensive cross-linguistic comparison and further studies will be necessary to confirm or reject the mechanisms proposed here.

6.7 Which intonational features are likely to be transferred?

The results of the intonational analysis of GS and GC have revealed that these two contact varieties do not only present the same inventory of underlying tonal units (i.e. pitch accents and boundary tones) but also that they strongly tend to use them in the same combinations and contexts. The same holds for phrasing patterns. Some (minor) differences between the two languages were attested merely with regard to the frequencies with which these intonational features appear in a particular context (cf., e.g., Andreeva et al. 2017, 2019, 2021 virtually identical findings regarding Bulgarian Judaeo-Spanish). The results of the study thus strongly support Matras's (2009: 323) assumption that prosody is highly susceptible to "wholesale convergence" in situations of intense language contact. Indeed, this is what seems to have occurred in the case of the two contact varieties spoken in Girona, since current GS and GC taken as a whole display now virtually identical intonational systems. On the other hand, the systems still allow for plenty of variation and there are clear individual differences among single speakers. These observations as well as the summary of the studies presented in Chapter 3 (cf. Section 3.3.3 and the references therein) allow us to suggest that all kinds of intonational features may be transferred when two languages are in contact. In other words, any intonational feature can result from transfer and/or convergence processes between two (or more) languages. The considerations made here thus confirm Thomason's (2001: 63) assumption that "anything" can be adopted by one language from another, at least with regard to the intonational level.

The following prosodic features were claimed to be subject to substratum transfer and/or borrowing and convergence processes in the present study: 1. phrasing patterns (in neutral declarative statements); 2. prenuclear pitch accents (e.g. in information-seeking yes–no questions); 3. boundary tones (in neutral declarative statements); 4. nuclear configurations of IPs (e.g. in information-seeking yes–no and wh-questions, commands, etc.). In some cases, it can be even presumed that whole melodic constructions, i.e. combinations of prenuclear pitch accents and nuclear configurations, were the object of CLI (e.g. in information-seeking yes–no questions). It is likely that some prosodic features are more sensitive to change in language contact than others (as has been suggested e.g. by Matras 2009: 231–233; Kireva 2016a: 246–247, among others). In the present work, most of the cases of CLI were observed with regard to nuclear configurations. However, the main reason for this is that Catalan and Spanish largely pattern alike regarding prosodic phrasing and prenuclear pitch accents in most utterance types—at least as far as the varieties spoken in Spain are concerned. It cannot be excluded that there once were more prosodic differences between Catalan and Spanish at some point in the past, but since inferences about CLI in the Girona contact varieties can only be made on the basis of the comparison with other varieties (i.e., here, with the reference or standard varieties of CC and Peninsular Spanish, cf. the discussion in Section 6.3), this kind of research strongly depends on the knowledge available about the intonation of these (cf. Sections 3.1.2 and 3.2.2). It is thus no wonder that nuclear configurations proved to be the most fruitful locus of CLI in the present study, whilst it is possible that, e.g., prenuclear pitch accents could be cross-linguistically more susceptible than nuclear configurations to change in language contact. With regard to the present contact situation, it cannot be excluded that contact-induced changes in prenuclear intonation could have occurred long ago, leaving no traces in contemporary prosody. In consequence, the intonation used in historic recordings of Catalan and Spanish would definitely be an issue worth exploring for future analysis.

Besides that, the question may be asked whether, e.g., certain nuclear configurations are transferred more readily than others and, if so, why. In the present study, the intonation of virtually all of the studied utterance types presented some degree of CLI (as far as could be determined). One reason for this could be that Catalan-speakers originally learned Spanish as a foreign language and usually without a native model, i.e it can be presumed that they largely used Catalan intonation to pronounce Spanish in the first place. However, one might wonder what conditioned the selection of the nuclear contours they would borrow later on, when there was more contact with Spanish natives. Similarly, it may be asked why certain tunes were picked and borrowed from Catalan by L1 speakers of Spanish and not others. It is of note in this respect that those borrowings took place in an already largely bilingual community. One part of the answer could thus be that speakers may simply accommodate to what hear most frequently, i.e. they are most likely to adopt majority variants. Another important aspect, however, is most probably the saliency of the tune itself. A particular nuclear configuration, for instance, can only be borrowed if it is salient enough for the borrower to (consciously or unconsciously) perceive it.[422] In turn, transfer of a nuclear configuration from the L1 into an L2 may happen most readily when the nuclear configuration used in the TL flies under the radar, i.e. when it is not salient enough for the learner to realize that it is actually different from their L1 patterns (cf. 'similar sounds' in Flege's 1987 Speech Learning Model for the acquisition of segmental phonology). A nuclear contour may thus be either inherently salient (e.g. because it encompasses drastic pitch movements) or salient in opposition to another one that is part of the L1 (i.e. different enough). To give an example, the use of H* L% in wh-questions could be rather salient for Spanish natives as this nuclear configuration does not occur in (Peninsular) Spanish at all. Since they hear it a lot due to its strong entrenchment in the bilingual community, they eventually adopt it (cf. Section 6.4.2.4).The use of H+L* L% in IYNQ, on the other hand, would be less salient given that this nuclear configuration is present, e.g., in Spanish imperative and confirmation-seeking yes–no questions, i.e., besides occurring in another context, it is not perceived as 'new' or 'different' because it is already known by the speakers from their L1. In this sense, it can be suggested that whether a nuclear contour is transferred or not in language contact crucially depends on its (relative) saliency.

As regards other areas of the phonological system, I have laid out in Section 3.3.2, along the lines of Matras 2009: 231–233, that segmental features are generally less susceptible to wholesale convergence than prosody. The main reason for this appears to be the neurophysiological

[422] Of course, this presupposes that the learner receives (sufficient) native input.

separation between prosody and other aspects of speech production as well as the fact that prosody has a somewhat peripheral role in conveying meaning as "it is prototypically a form of expression of emotive modes, operating at the level of the speech act and the utterance, rather than at word level" (Matras 2009: 233), i.e. tonal elements such as melodic constructions can easily be transferred by bilinguals from one language to another or generalized over their multilingual repertoire, as speakers tend to treat pragmatic organisation as universal rather than language-specific (cf. Matras 2011: 154).

In order to compare the CLI attested in the intonation of the Catalan–Spanish bilinguals studied in the present work with other phonological subsystems, intervocalic sibilants in GS read speech were investigated as a segmental phenomenon (cf. Section 5.4). It was found that the bilinguals—independently of their LD—virtually never voiced Sp. /s/ in word-medial positions, even if there are Catalan cognate words which present /z/ in the same position. This is to say, the Catalan voiced phoneme /z/, which is alien to the Spanish system, was not transferred to that language in our data (see Section 6.4.3 for one possible exception). In opposition to the underlying nuclear configurations, there was thus no borrowing or transfer of core phonological features on the segmental level. Nevertheless, Spanish /s/ was regularly voiced in word-final intervocalic position in the analysed speech samples. In this position, the opposition between /s/ and /z/ is (widely[423]) neutralized in Catalan, and the 'voiced' surface realization [z] is used, i.e. underlying /s/ assimilates to the surrounding vowels regarding its voice feature as the result of a phonological rule operating at morpheme or word boundaries. Although there were large differences between individual speakers, many CatD and also some SpD bilinguals were found to apply the Catalan pronunciation rule quite consistently in their Spanish. In Section 6.4.3, I have interpreted this as substratum transfer and convergence, respectively. These observations, which are fully in line with Davidson's (2015a: 254, 261; 2015b: 139), hence suggest that any transfer from Catalan to Spanish with respect to alveolar fricatives is strictly phonetic, rather than phonemic.[424]

Stated briefly, the findings of the segmental analysis provide a further piece of evidence for the hypothesis that segmental phonology is less susceptible to CLI in general and in particular to wholesale convergence than prosody (cf. Section 3.3.2), as no changes of the phoneme system were observed in GS (as compared to CS). This is clearly in line with Matras (2009) but goes against Bullock (2009: 166), who makes a case for a "path of allophonic change > phonemic change > prosodic change", which implies that when prosodic changes are present in a contact variety, allophonic and phonemic changes are, by implication, present, too. However,

[423] Despite the word-final neutralization of the voicing contrast, some surface-form minimal pairs can arise with words beginning with /s/, e.g. *el*[z] *avis* 'the grandparents' vs *els* [s]*avis* 'the wise men', *le*[z] *eleccions* 'the elections' vs *les* [s]*eleccions* 'the selections', *le*[z] *oques* 'the geese' vs *les* [s]*oques* 'the logs' (cf. Palmada 2002: 260; Arnal 2011: 19).

[424] Regarding the opposite direction, Arnal (2011: 18–19) points out that L1 speakers of Spanish often make a conscious effort to distinguish the Cat. phonemes /s/ and /z/ in word-medial position but fail to apply the Cat. sibilant voicing in word-final contexts, where the two phonemes are neutralized in most but not all cases (see also previous footnote)

contact-induced change was attested at phonetics–phonology interface inasmuch as a phonological rule originally stemming from Catalan was also applied to GS by many bilinguals. At the segmental level, phonetics thus seems to be more prone to be affected by CLI than phonology. Even though this assumption is in conformity with Bullock's (2009) path, it is based merely on the convergence documented regarding /s/ voicing in GS (and in Barcelona Spanish; cf. Davidson 2015a, 2015b). Consequently, research on other segmental aspects as well as a cross-linguistic comparison are needed to confirm or reject it. Also, there is little empirical evidence that prosodic innovations are in any way linked to segmental ones as the two have rarely been examined in tandem (cf. Bullock 2009: 166). Future studies of contact-induced phonological change should thus ideally endeavour to tap into the different levels of phonology simultaneously in a much more extensive and consistent way than it could be done here.

Chapter 7: Conclusion

The present study investigated and described the intonation of the Spanish and Catalan spoken by Catalan–Spanish bilinguals in Girona. Drawing on a corpus of semi-spontaneous and read speech data specifically compiled for this purpose, it has provided useful information on the intonation of a previously undocumented variety, i.e. Girona Spanish (GS), and first addressed Girona Catalan (GC) intonation under the angle of its speakers' bilingualism. As one of the very few studies considering intonational data from bilinguals in both of their languages, the current work adds knowledge not only to the sphere of intonational dialectology, but also to the growing fields of intonation in language contact and multilingualism. The selected speakers, while being either dominant in Catalan or in Spanish—as is customary in the Catalan context—otherwise formed a fairly homogeneous sample. The results of the intonational analysis revealed that the contact varieties under consideration share numerous prosodic features and exhibit only very few differences. It was shown that GS and GC use the same inventories of pitch accents and boundary tones and that they largely pattern alike with regard to the realization of the nuclear configurations in the analysed utterance types (i.e. neutral declarative statements, enumerations, contrastive-focus statements, exclamative statements, contradiction statements, dubitative statements, information-seeking yes–no questions, disjunctive questions, exclamative yes–no questions (with counterexpectational meaning), confirmation-seeking yes–no questions, information-seeking wh-questions, exclamative wh-questions, imperative wh-questions, echo yes–no questions, echo wh-questions, exclamative echo yes–no questions (with counterexpectational meaning), commands, requests, and vocatives; cf. Table 5.2-1). The few differences observed between the two varieties related almost without exception to the frequency with which particular nuclear configurations appeared in a specific context in each variety, not to distinct inventories.

However, it was also found that both varieties, as a result of CLI, display a relatively large deal of variability. This is evident, e.g., from the fact that many utterance types allow for various competing tunes. Yet, the bilingual's differential use of these tunes could to a great deal be accounted for by extralinguistic factors such as their backgrounds and language dominance, stressing the importance of such factors (cf. Sections 6.2 and 6.4). As a case in point, one of the peculiarities of GC and GS lies in the use of information-seeking yes–no questions introduced by the complementizer *que*: while this type of interrogative sentences appeared exclusively with high–falling nuclear contours in GS (and was produced for the most part by Catalan-dominant bilinguals), both high–falling and low–rising contours were attested the GC realizations. Whereas Catalan-dominants overwhelmingly used the high–falling patterns in their strong language, too, Spanish-dominant bilinguals tended to prefer low–rising nuclear configurations. A similar impact of the factor language dominance was also observed in the participants' segmental production: i.e. Catalan-dominants were significantly more likely to voice word-final intervocalic Spanish /s/ and, hence, to apply a Catalan phonological rule in Spanish (cf. Sections 5.4 and 6.4.3).

The cross-dialectal comparison between the intonational properties of Girona Catalan and Girona Spanish with the 'reference' or 'standard' varieties of Catalan and (Peninsular) Spanish, i.e with Central Catalan (of which Girona Catalan is a part) and Castilian Spanish, revealed that the contact varieties exhibit, on the one hand, many features that they share either with Castilian Spanish or with other Central Catalan varieties and, on the other, only relatively few properties which are not found in either standard variety. They thus qualify to a certain extent as 'mixed' varieties, which originate from bidirectional influence between Spanish and Catalan. Considering the fact that Spanish and Catalan are closely related languages within the Romance family and that their intonational systems are quite similar, such an amalgamation in an intense contact situation comes as no big surprise. Nevertheless, it is worth underscoring that the contact varieties spoken in Girona show overall more 'Catalan' than 'Spanish' prosodic features (cf. Section 6.3), which is consistent with the slightly predominant position Catalan enjoys at the societal level in that area. In addition to that, the comparison evinced that substantial dialectal differences between CCS and the closest documented monolingual non-contact varieties of Spanish exist not only at the segmental level and in other linguistic domains, but also at the prosodic or intonational level. Until now, however, there had been little empirical evidence on which to base such a claim.

Relying on the comparison made in Section 6.4, it was suggested that: first, the intonation of current GS can be interpreted as an outcome of both substratum transfer (that occurred when the formerly monolingual inhabitants of Girona learned Spanish as an L2 on a mass scale) and (ongoing) convergence processes (between the Spanish spoken by the Catalan–Spanish bilinguals and the Spanish spoken by the immigrants, who came to Catalonia mainly in the second half of 20th century, as well as with the Spanish used by their descendants and in the mass media). This wholesale convergence, in turn, can partly be seen as an instance of first language attrition, since numerous '(Girona) Catalan' prosodic features seem to have replaced the 'Spanish' ones not merely in the GS spoken by Catalan-dominant bilinguals but also in the Girona Spanish spoken by the (bilingual) Catalonia-born descendants of monolingual Spanish-speaking immigrants (i.e., so to speak, by heritage speakers of exogenous varieties of Spanish). The Spanish spoken in Catalonia by initial speakers of Catalan and by initial speakers of Spanish have thus widely converged today and GS has become more, though not yet fully, homogeneous (cf. Section 6.5).

Second, the intonation of current GC can be viewed as an outcome of (ongoing) convergence between GC and the Spanish prosodic system(s) it has been in contact with during the last centuries as well as—more recently, i.e. after the return to democracy—ever more often with the (L2) GC spoken by L1 speakers of Spanish or by Spanish-dominant bilinguals. As these latter varieties, in turn, are characterized by substratum transfer from Spanish, this mechanism can be taken to have influenced contemporary GC, too—albeit only to a minor extent until now.

Based on the inferences made about the intonational systems of Girona Spanish and Girona Catalan in Section 6.4, I depicted the steps which varieties resulting from language contact or, more specifically, from bidirectional processes of substratum transfer and convergence appear to go through in Section 6.6. Thereby, it was also shown that whether contact-induced language change occurs crucially depends on the extralinguistic conditions of the contact situation. Additionally, the linguistic outcomes of the contact observed in the phonological systems of the two Girona contact varieties allowed for the assumption that prosody, or namely intonation, is more sensitive to change than segmental aspects and that phonetics is more vulnerable than phonology (cf. Section 6.7).

Finally, the results of this initial attempt to characterize the intonation of 'bilingual' GS and GC, together with the discussion presented in Chapter 6, allowed to identify some issues that go beyond the scope of this dissertation but may be worth pursuing in future research. Regarding the intonation of current GS and GC, namely the following questions provide interesting opportunities for further in-depth study:[425]

1. To what extent can the scaling of prenuclear pitch accents and/or of nuclear configurations (viz. the use of an extended pitch range and intensified tonal movements) be used as the sole prosodic cue to convey notions such as exclamativity in both statements and different question types (i.e. instead of a particular nuclear configuration)?
2. Which factors condition the use of the particle *que* in GC and GS IYNQ (cf. Sections 5.2.3 and 6.4.2.3) and how is focus expressed in that question type? Can prenuclear L*+H pitch accents work as interrogative focus markers?
3. Must the initial prenuclear pitch accent (i.e. usually H*) in information-seeking wh-questions always occur on the wh-element? What conditions the occurrence of other prenuclear pitch accents (cf. Section 6.4.2.4)?
4. How do utterance length and the position of the imperative verb influence the choice of a particular nuclear contour in orders and requests (cf. Section 5.1.8)?
5. Why were so few complex boundary tones observed in the contact varieties? (Note that in most (though not all) other Catalan and Peninsular Spanish varieties complex boundary tones are more recurrent; cf., e.g., Estebas-Vilaplana 2010; Prieto et al. 2015; Henriksen/García-Amaya 2012).

[425] Note that some of these questions were partially answered based on the observations made in the intonational analysis. Yet, more detailed studies based on larger data samples are needed to confirm the sighted trends.

6. How are specific tonal configurations produced under varied degrees of tonal pressure and in different metrical contexts (cf., e.g., Prieto 2005; Arvaniti/Ladd 2009; Henriksen 2014)?[426]

In addition, perception studies ought to be conducted to make clear (1) whether the proposed phonological contrasts are borne out in the mind of the listeners and (2) how conscious speakers of GC and GS are about the blend of 'Spanish' and 'Catalan' prosodic features in their varieties. As a case in point, it would be interesting to find out whether the use L* H% in GC IYNQ with the particle *que* is perceived as natural by Catalan-dominant bilinguals or whether they recognize it as a 'Spanish element'. Likewise, the influence of linguistic attitudes and of their political or identitarian stances on the bilinguals' linguistic production and perception would be worth further exploration (cf., e.g., Romera/Elordieta 2013, 2020; Elordieta/Romera 2020).

Besides that, comparisons with the 'bilingual' Catalan and Spanish spoken in other areas of the Spanish state would be valuable, as the present study has revealed a firm link between the sociolinguistic situation at hand and the direction and amount of CLI. For instance, given the substantially greater use of Spanish as well as the numerical predominance of Spanish-dominant bilinguals in Barcelona and its metropolitan area or in València, different outcomes could be expected regarding the intonation of 'bilingual' Spanish and Catalan spoken in those regions.[427] Also, Catalan dialects are known to differ widely on all linguistic levels, such that the concrete features Spanish enters in contact with are diatopically very diverse.

Finally, we may wonder about the future of the two Girona contact varieties: will any of the various competing nuclear configurations proposed for many utterance types end up replacing the other(s) in the varieties of GS and GC spoken by the next generation(s)? Or will some of the competing variants adopt new, different pragmatic meanings? Will GS (and CCS in general) become more homogeneous and, eventually, emerge as a clear-cut independent dialect of Spanish? Will it converge towards the Castilian standard or 'stay closer' to Catalan, i.e. preserve its 'Catalan' features (e.g. to mark local identity)? How will GC evolve in view of the fact that a significant part of its speakers are now L2 speakers or Spanish-dominant bilinguals and that there is no longer any monolingual reference model? Will it converge towards the Barcelona-based standard variety of Catalan? It is clear that these questions will depend, to a substantial

[426] This issue could—to a limited extent—be discussed in some cases (e.g. regarding prenuclear pitch accents or L* H%, cf. Section 5.2). Still, the analysis of new data sets deliberately designed for that purpose would certainly help to further elucidate that topic (especially in view of the fact that the use of semi-spontaneous speech data only allowed to provide preliminary labels in a number of cases).

[427] As a case in point, comparing segmental data from Barcelona and València, Davidson (2020) showed that the social context plays an essential role in the dynamics and directionality of linguistic variation and change in the Spanish–Catalan context. Recall also, in this context, that already some 30 years ago many young Catalans in urban areas were unable to distinguish between native and non-native speaking styles of Catalan (cf. Woolard 1992: 240; see also Arnal 2011).

extent, on the future of Catalonia's sociolinguistic situation, i.e., above all, on whether the influx of monolingual Spanish speakers stops or continues and how the political situation (and the language policies connected therewith) develops in days to come.[428]

[428] While the arrival of new Spanish-speaking immigration "puts in doubt whether the Catalan language will have a sufficient demographic base to maintain itself" on the long term at all (cf. Subirats 2002: 187 cited from Boix-Fuster 2015: 156), the political independence of Catalonia (which would probably deprive Spanish of its official status) would work in the opposite direction.

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Appendix

1. Maps

Figure A1: Map of the Autonomous Community of Catalonia, showing its four provinces and their capitals (adapted from The Financial Times 2017, https://ig.ft.com/catalonia-poll-tracker/)

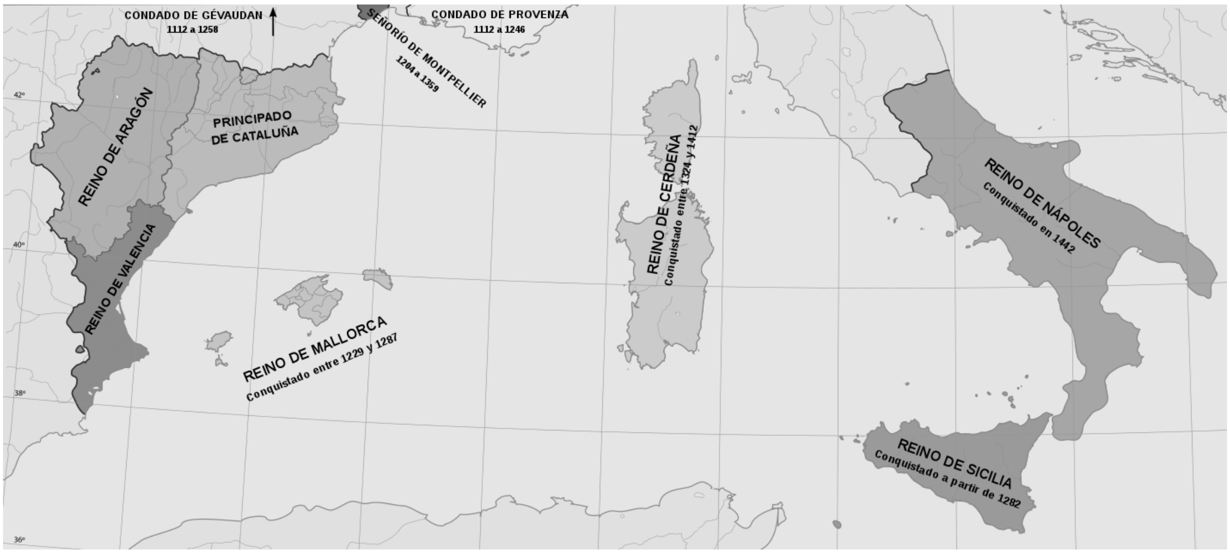

Figure A2: Diachronic map of the most important territories subject to the Crown of Aragon (adopted from Wikimedia Commons, https://commons.wikimedia.org/wiki/File:Mapa_de_la_Corona_de_Aragón.svg)

Figure A3: Dialect map of the Catalan language (excluding Algherese, the dialect spoken in Sardinia; Wikimedia Commons, https://commons.wikimedia.org/wiki/File:Mapa_dialectal_del_català-valencià.png)

2. Participants' dominance scores and Complementarity Index

Participant ID	Dominance score A (subtraction-derived)	Dominance score B (ratio-derived)	Dominance score C (Edinburgh formula)	Complementarity index
23	−57.3	40	−43	100
20	−56.8	38	−45	86
34	−54.2	39	−43	100
16	−52.9	44	−39	86
19	−52.6	42	−41	100
14	−49.7	47	−36	86
25	−44.0	53	−31	86
29	−43.5	52	−31	71
17	−40.3	56	−28	100
11	−40.1	57	−27	100
15	−38.2	54	−29	57
28	−37.2	59	−26	86
26	−32.1	65	−21	100
12	−31.4	67	−20	100
18	−30.7	64	−22	86
6	−30.4	66	−20	100
31	−28.5	69	−18	71
22	−24.2	72	−16	100
24	−21.8	76	−14	43

10	−11.9	86	−8	86
35	1.7	98	1	57
5	18.4	79	12	71
7	19.5	75	14	86
30	19.6	77	13	57
33	24.1	71	17	71
21	26.1	71	17	71
13	28.7	68	19	43
4	33.7	64	22	86
27	34.3	63	23	71
8	36.6	61	24	71
9	37.8	54	30	71

3. Language Background Questionnaire (Catalan version)

Perfil lingüístic català–castellà

Ens agradaria demanar-te ajuda per respondre les següents preguntes sobre el teu historial lingüístic, ús, actitud i competència. Aquesta enquesta conté 18 preguntes i et portarà menys de 10 minuts completar-la. No es tracta d'una prova, per tant, no hi ha respostes correctes ni incorrectes. Si us plau, contesta cada pregunta i respon amb sinceritat, ja que només així es podrà garantir l'èxit d'aquesta investigació. Moltes gràcies per la teva ajuda!

I. Informació biogràfica

Nom i cognoms ____

Any de naixement ____________ Lloc de naixement ______________________________

Resident a ______________________________ des de ________________

Temps passat fora de Catalunya ______________________

Nivell superior d'estudis ______________________

Professió ______________________________

Correu electrònic ______________________________

Llengües estrangeres ______________________________

Lloc de naixement de la mare ______________________________________

Lloc de residència principal ______________________________________

Professió/estudis ______________________________________

Llengües maternes ______________________________________

Lloc de naixement del pare ______________________________________

Lloc de residència principal ______________________________________

Professió/estudis ______________________________________

Llengües maternes ______________________________________

Lloc de naixement de la parella ______________________________________

Lloc de residència principal ______________________________________

Professió/estudis ______________________________________

Llengües maternes ______________________________________

Declaració de conformitat

Expresso que estic d'acord que l'enregistrament i la seva transcripció respectiva, així com les dades que he posat a disposició siguin arxivats, analitzats i publicats de manera anònima i sense ànims de lucre per fins científics.

Aquesta declaració pot ésser revocada enviant un correu a la següent direcció: jgruenke@uni-mainz.de.

(lloc, data) ____________________ (signatura) ______________________________

II. Historial lingüístic

En aquesta secció, ens agradaria que contestessis algunes preguntes sobre el teu historial lingüístic marcant la casella corresponent.

1. A quina edat **vas començar a aprendre** les següents llengües?

Castellà

☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Des del naixement	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+

Català

☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Des del naixement	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+

2. A quina edat **vas començar a sentir-te còmode/a** emprant les següents llengües?

Castellà

☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Des que recordo	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+	encara no

Català

☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Des que recordo	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+	encara no

3. Quina llengua empràveu a la teva **família** quan eres petit(a)?

☐ castellà ☐ català

III. Ús de llengües

En aquesta secció, ens agradaria que contestessis algunes preguntes sobre el teu ús de llengües marcant la casella corresponent. L'ús total de totes les llengües a cada pregunta ha d'arribar al 100 %.

4. En una setmana normal, quin percentatge de temps fas servir les següents llengües amb **la teva família**?

Castellà	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Català	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Altres llengües	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

5. En una setmana normal, quin percentatge de temps fas servir les següents llengües amb **els teus amics**?

Castellà	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Català	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Altres llengües	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

6. En una setmana normal, quin percentatge de temps fas servir les següents llengües a **la universitat/la feina**?

Castellà	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Català	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Altres llengües	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

7. En una setmana normal, quin percentatge de temps fas servir les següents llengües en **anar de compres**?

Castellà	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Català	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Altres llengües	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%

8. En una setmana normal, quin percentatge de temps fas servir les següents llengües amb **desconeguts**?

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Castellà	□	□	□	□	□	□	□	□	□	□	□
Català	□	□	□	□	□	□	□	□	□	□	□
Altres llengües	□	□	□	□	□	□	□	□	□	□	□

9. Quan estàs a soles, amb quina freqüència **penses** en les següents llengües?

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Castellà	□	□	□	□	□	□	□	□	□	□	□
Català	□	□	□	□	□	□	□	□	□	□	□
Altres llengües	□	□	□	□	□	□	□	□	□	□	□

10. Quan fas càlculs, amb quina freqüència **comptes** en les següents llengües?

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Castellà	□	□	□	□	□	□	□	□	□	□	□
Català	□	□	□	□	□	□	□	□	□	□	□
Altres llengües	□	□	□	□	□	□	□	□	□	□	□

IV. Competència

En esta secció, ens agradaria que consideressis la teva competència de llengua marcant la casella de 0 (= no massa bé) a 6 (= molt bé).

11. a. Com parles **castellà**? □0 □1 □2 □3 □4 □5 □6
    b. Com parles **català**? □0 □1 □2 □3 □4 □5 □6

12. a. Com entens el **castellà**? □0 □1 □2 □3 □4 □5 □6
    b. Com entens el **català**? □0 □1 □2 □3 □4 □5 □6

13. a. Com llegeixes en **castellà**? □0 □1 □2 □3 □4 □5 □6
    b. Com llegeixes en **català**? □0 □1 □2 □3 □4 □5 □6

14. a. Com escrius en **castellà**? □0 □1 □2 □3 □4 □5 □6
    b. Com escrius en **català**? □0 □1 □2 □3 □4 □5 □6

V. Actituds

En esta secció, ens agradaria que contestessis a les següents afirmacions sobre actituds lingüístiques marcant les caselles de 0 (= no hi estic d'acord) a 6 (= estic d'acord).

15. a. Em sento "jo mateix(a)" quan parlo en **castellà**. □0 □1 □2 □3 □4 □5 □6
    b. Em sento "jo mateix(a)" quan parlo en **català**. □0 □1 □2 □3 □4 □5 □6

16. a. Per a mi és important usar/arribar a usar el **castellà** com un(a) parlant natiu/va.
    □0 □1 □2 □3 □4 □5 □6
    b. Per a mi és important usar/arribar a usar el **català** com un(a) parlant natiu/va.
    □0 □1 □2 □3 □4 □5 □6

17. a. Vull que els altres pensin que sóc un(a) parlant nadiu(a) del **castellà**.
    □0 □1 □2 □3 □4 □5 □6
    a. Vull que els altres pensin que sóc un(a) parlant nadiu(a) del **català**.
    □0 □1 □2 □3 □4 □5 □6

18. Quina llengua/Quines llengües consideres la teva **llengua nativa**?
    □ castellà □ català □ una altra: ______________

4. Language Background Questionnaire (Spanish version)

Perfil lingüístico español–catalán

Nos gustaría pedirte ayuda para contestar las siguientes preguntas sobre tu historial lingüístico, uso, actitudes y competencia. La encuesta contiene 18 preguntas y te llevará menos de 10 minutos completarla. No se trata de una prueba, por tanto, no hay respuestas correctas ni incorrectas. Por favor, contesta cada pregunta y responde con sinceridad, ya que solamente así se podrá garantizar el éxito de esta investigación. ¡Muchas gracias por tu ayuda!

I. Información biográfica

Nombre y apellidos ______________________________

Año de nacimiento ______________ Lugar de nacimiento______________________________

Residente en ______________________________ desde ______________

Tiempo pasado fuera de Cataluña ______________________________

Nivel superior estudios ______________________________

Profesión ______________________________

Correo electrónico ______________________________

Lenguas extranjeras ______________________________

Lugar de nacimiento de la madre ______________________________

Lugar de residencia principal ______________________________

Profesión/estudios ______________________________

Lenguas maternas ______________________________

Lugar de nacimiento del padre ______________________________

Lugar de residencia principal ______________________________

Profesión/estudios ______________________________

Lenguas maternas ______________________________

Lugar de nacimiento de la pareja ______________________________

Lugar de residencia principal ______________________________

Profesión/estudios ______________________________

Lenguas maternas ______________________________

Declaración de conformidad

Por la presente, expreso que estoy de acuerdo con que la grabación y su respectiva transcripción, así como los datos que he puesto a disposición sean archivados, analizados y publicados de manera anónima y sin ánimos de lucro para fines científicos.

Esta declaración puede ser revocada enviando un correo a la siguiente dirección: jgruenke@uni-mainz.de.

(lugar, fecha) ______________________ (firma) ______________________________

II. Historial lingüístico

En esta sección, nos gustaría que contestaras algunas preguntas sobre tu historial lingüístico marcando la casilla correspondiente.

1. ¿A qué edad **empezaste a aprender** las siguientes lenguas?

Español

□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
Desde el nacimiento	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+

Catalán

□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
Desde el nacimiento	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+

2. ¿A qué edad **empezaste a sentirte cómodo** usando las siguientes lenguas?

Español

□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
Tan prono como recuerdo	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+	aún no

Catalán

□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□
Tan pronto como recuerdo	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20+	aún no

3. ¿Qué lengua utilizabais en tu **familia** cuando eras pequeño/a?

□ español □ catalán

III. Uso de lenguas

En esta sección, nos gustaría que contestaras algunas preguntas sobre tu uso de lenguas marcando la casilla apropiada. El uso total de todas las lenguas en cada pregunta debe llegar al 100 %.

4. En una semana normal, ¿qué porcentaje de tiempo usas las siguientes lenguas con **tu familia**?

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Español	□	□	□	□	□	□	□	□	□	□	□
Catalán	□	□	□	□	□	□	□	□	□	□	□
Otras lenguas	□	□	□	□	□	□	□	□	□	□	□

5. En una semana normal, ¿qué porcentaje de tiempo usas las siguientes lenguas con **tus amigos**?

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Español	□	□	□	□	□	□	□	□	□	□	□
Catalán	□	□	□	□	□	□	□	□	□	□	□
Otras lenguas	□	□	□	□	□	□	□	□	□	□	□

6. En una semana normal, ¿qué porcentaje de tiempo usas las siguientes lenguas en **la universidad/el trabajo**?

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Español	□	□	□	□	□	□	□	□	□	□	□
Catalán	□	□	□	□	□	□	□	□	□	□	□
Otras lenguas	□	□	□	□	□	□	□	□	□	□	□

7. En una semana normal, ¿qué porcentaje de tiempo usas las siguientes lenguas al **ir de compras**?

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Español	□	□	□	□	□	□	□	□	□	□	□
Catalán	□	□	□	□	□	□	□	□	□	□	□
Otras lenguas	□	□	□	□	□	□	□	□	□	□	□

8. En una semana normal, ¿qué porcentaje de tiempo usas las siguientes lenguas con **desconocidos**?

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Español	□	□	□	□	□	□	□	□	□	□	□
Catalán	□	□	□	□	□	□	□	□	□	□	□
Otras lenguas	□	□	□	□	□	□	□	□	□	□	□

9. Cuando estás solo/a, ¿con qué frecuencia **piensas** en las siguientes lenguas?

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Español	□	□	□	□	□	□	□	□	□	□	□
Catalán	□	□	□	□	□	□	□	□	□	□	□
Otras lenguas	□	□	□	□	□	□	□	□	□	□	□

10. Cuando haces cálculos, ¿con qué frecuencia **cuentas** en las siguientes lenguas?

	0%	10%	20%	30%	40%	50%	60%	70%	80%	90%	100%
Español	□	□	□	□	□	□	□	□	□	□	□
Catalán	□	□	□	□	□	□	□	□	□	□	□
Otras lenguas	□	□	□	□	□	□	□	□	□	□	□

IV. Competencia

En esta sección, nos gustaría que consideraras tu competencia lingüística marcando la casilla de 0 (= no muy bien) a 6 (= muy bien).

11. a. ¿Cómo hablas en **español**? □0 □1 □2 □3 □4 □5 □6
    b. ¿Cómo hablas en **catalán**? □0 □1 □2 □3 □4 □5 □6

12. a. ¿Cómo entiendes el **español**? □0 □1 □2 □3 □4 □5 □6
    b. ¿Cómo entiende el **catalán**? □0 □1 □2 □3 □4 □5 □6

13. a. ¿Cómo lees en **español**? □0 □1 □2 □3 □4 □5 □6
    b. ¿Cómo lees en **catalán**? □0 □1 □2 □3 □4 □5 □6

14. a. ¿Cómo escribes en **español**? □0 □1 □2 □3 □4 □5 □6
    b. ¿Cómo escribes en **catalán**? □0 □1 □2 □3 □4 □5 □6

V. Actitudes

En esta sección, nos gustaría que contestara a las siguientes afirmaciones sobre actitudes lingüísticas marcando las casillas de 0 (= no estoy de acuerdo) a 6 (= estoy de acuerdo).

15. a. Me siento "yo mismo/a" cuando hablo en **español**. □0 □1 □2 □3 □4 □5 □6
    b. Me siento "yo mismo/a" cuando hablo en **catalán**. □0 □1 □2 □3 □4 □5 □6

16. a. Para mí es importante usar/llegar a usar el **español** como un(a) hablante nativo/a.
    □0 □1 □2 □3 □4 □5 □6
    b. Para mí es importante usar/llegar a usar el **catalán** como un(a) hablante nativo/a.
    □0 □1 □2 □3 □4 □5 □6

17. a. Quiero que los demás piensen que soy un(a) hablante nativo(a) del **español**.
    □0 □1 □2 □3 □4 □5 □6
    a. Quiero que los demás piensen que soy un(a) hablante nativo(a) del **catalán**.
    □0 □1 □2 □3 □4 □5 □6

18. ¿Qué lengua(s) consideras tu **lengua materna**?
    □ español □ catalán □ otra: ______________

5. Intonation surveys (Spanish and Catalan)

Note: Colum 1 gives the identifier of each scenario, column 3 indicates the order in which the scenarios were presented to the participants in the Spanish and Catalan DCT.

	Utterance type		Spanish	Catalan
1	**Neutral statements**			
1a1	Neutral broad-focus statements (one unit)	1	Mira el dibujo y di lo que hace la mujer. *—Bebe una limonada.*	Mira el dibuix i digues què fa la dona. *—Beu una llimonada.*
1a2		2	Mira el dibujo y di lo que ves. ¡Empieza la frase con «Marina», por favor! *—Marina come mandarinas.*	Mira el dibuix i digues què fa la Marina. Comença la frase amb «la Marina», si us plau! *—La Marina menja mandarines.*
1b	Enumerations	3	Di los días de la semana. *—Lunes, martes, miércoles, jueves, viernes, sábado y domingo.*	Digues els dies de la setmana. *—Dilluns, dimarts, dimecres, dijous, divendres, dissabte i diumenge.*
	Neutral statements with peripheral elements (more than one unit)			
1c1	Dislocations	4	Imagínate que acabas de conocer a alguien de Palma y resulta que tú habías vivido allí muchos años. ¿Cómo se lo dirías? *—Yo viví muchos años allí, en Palma.*	Imagina't que acabes de conèixer algú de Palma i resulta que tu hi havies viscut molts anys. Com li ho diries? *—Jo també hi havia viscut molts anys, a Palma.*
1c2	Vocatives	5	Estás en casa con tu hija, María, que está viendo la tele. Dile que sales un momento a merendar. *—María, salgo un momento a merendar.* *—Salgo un momento a merendar, María.*	Estàs a casa amb teva filla, la Maria, que està mirant la tele. Digues-li que surts un moment a berenar. *—Maria, surto un moment a berenar.*
1c3	Parenthetical elements	6	Estás enfermo/a y esta mañana has tenido que ir al médico. Di que has ido a pesar de la lluvia. *—Esta mañana, a pesar de la lluvia, he ido al médico.*	Estàs malalt(a) i aquest matí has hagut d'anar al metge. Digues que hi has anat malgrat la pluja.
1c4	Appositions	7	Conoces a dos chicas que se llaman Marina, una rubia y otra morena. Di que hoy has visto a la morena. *—He visto a Marina, la morena.*	Coneixes dues noies que es diuen Marina, una rossa i l'altra morena. Digues que avui has vist la (Marina) morena. *—Avui he vist la Marina, la morena.*
	Biased statements			
1d	Contrastive-focus statements	8	Entras en una frutería y resulta que la vendedora es un poco sorda. No te oye bien, y, después de decirle que querías naranjas, ella te pregunta si son limones lo que quieres. Dile que no, que lo	Entres en una botiga on hi ha una dona que és una mica sorda. No t'ha sentit bé, i, després de dir-li que et posi un parell de taronges, et pregunta si són llimones, el que vols.

			que quieres son naranjas. *—¡Señora, no quiero limones, quiero naranjas!*	Digues-li que no, que allò que vols són taronges. *—No! TARONGES, vull.*
1e1	Exclamative statements	9	Entras en una panadería y huele muy bien a pan. Díselo a la panadera. *—¡Qué olor a pan tan bueno! ¡Qué bien huele a pan!*	Entres en un forn i sents una oloreta de pa molt bona. Digues-li-ho, a la fornera. *—Quina oloreta més bona!*
1e2		12	Te invitan a una paella y es la más buena que te has comido en tu vida, estás encantado/a. ¿Qué dices? *—¡Está buenísimo! ¡Está divino!*	Et conviden a paella i és la més bona que has menjat mai, quedes encantat/da. Què dius? *—Que n'és, de bona! Que bona que és!*
1f	Contradiction statements	10	Una amiga y tú estáis hablando de unos amigos que se van de viaje. Tú sabes seguro/a que irán a Granada, pero tu amiga piensa, también bastante segura, que irán a Córdoba. Dile, convencido/a, que no, que irán a Granada. *—¡Que no, que se van a Granada!*	Tu i una amiga esteu parlant d'uns amics que volen comprar un pis i no saben segur on aniran a viure. Tu saps que viuran a Granada. La teva amiga et diu que no, que viuran a Còrdova.. Digues-li, convençuda, que no, que viuran a Granada. *—Que no, que viuran a Granada!*
1e	Dubitative statements	11	Te han encargado comprar un regalo para alguien que no conoces mucho y te da un poco de apuro no acertar. Dile a la persona que te lo ha encargado que igual no le gusta el regalo que le compres. *—Puede que no le guste el regalo que le compre.*	Un amic teu t'encarrega de comprar un regal per a algú que no coneixes gaire i et fa por de no triar-lo bé. Digues-li que potser no li agradarà el que li puguis comprar. *—Potser no li agradarà…*
2	**Neutral polar questions**			
2a1	Information-seeking yes–no questions	13	Entras en una tienda y le preguntas al vendedor si tiene mandarinas. *—¿Tiene mandarinas?*	Entres en una botiga on mai no havies entrat i demanes si tenen mandarines. *—(Que) teniu mandarines?*
2a2		14	Tienes que llevar a tu hermano pequeño al campo de fútbol, pero tienes mucha prisa. Pregúntale a un amigo tuyo si lo puede llevar. *—¿Lo llevarías? ¿Puedes llevarlo?*	Havies de portar el teu germà petit al camp de futbol, però tens molta pressa. Demana a un amic teu si l'hi duria. *—Que l'hi duries?*
2a3		15	Una amiga y tu habéis tenido una duda lingüística y te ha prometido preguntárselo a su vecina, que es filóloga. Pregúntale si ha hablado ya con la filóloga. *—¿Has hablado ya con la filóloga?*	Una amiga i tu heu tingut un dubte lingüístic i t'ha promès preguntar-li-ho a la seva veïna, que és filòloga. Demana-li si ja ha parlat amb la filòloga. *—(Que) Ja has parlat amb la filòloga?*

2b1	Information-seeking yes–no questions (with a peripheral element)	16	Llamas por teléfono a casa de una amiga que se llama María, pero no está. Más tarde llamas de nuevo, pero ella no coge el teléfono. ¿Cómo preguntas si ya ha llegado? *—¿Ha llegado ya, María? ¿María, ha llegado ya?*	Truques per telèfon a casa d'una companya que es diu Maria i no hi és. Més tard hi tornes a trucar. Demana als seus pares si hi és. *—(Que) ja hi és, la Maria?*
2b2		17	Estás buscando a María, pero no la encuentras. Ves a alguien que la conoce y, después de hablar un poco sobre ella, le preguntas si la ha visto. *—¿La has visto, a María?*	Busques la Maria i no la trobes. Veus algú que saps que la coneix i li demanes si l'ha vista. *—(Que) l'has vist, la Maria?*
2c	Disjunctive questions	18	De postre hay helado de vainilla o de avellana. Pregúntales a los invitados si quieren helado de vainilla o de avellana. *—¿Quieren helado de vainilla o de avellana?*	Has comprat gelat de vainilla i d'avellana pel teu sant. Demana als convidats si volen gelat de vainilla o d'avellana. *—(Que) voleu gelat de vainilla o d'avellana?*
	Biased polar questions			
2d	Exclamative yes–no questions	19	Acabas de cenar con un amigo y ves que él se para delante de una pastelería. Como acabáis de cenar, pregúntale, muy sorprendida/a, si tiene hambre. *—¿¡Todavía tienes hambre!?*	Acabes de dinar amb un amic i veus que s'atura davant una pastisseria. Pregunta-li (tota estranyat/da, perquè acabeu de dinar) si té gana. *—Tens gana?!*
2e	Confirmation-seeking yes–no questions	20	Juan dijo que venía a cenar. Le pides que te lo confirme. *—(Juan), ¿vienes a cenar (conmigo)?*	En Jaume ha dit que vindria a dinar. Li demanes que t'ho confirmi. *—Vindràs a dinar, no?*
3	**Neutral wh-questions**			
3a1	Information-seeking wh-questions	21	Pregunta qué hora es. *—¿Qué hora es?*	Pregunta quina hora és. *—Quina hora és?*
3a2		22	Tienes que hacer un viaje a Lisboa y quieres comprar un regalo a la persona que te va a acoger, a la que apenas conoces y con la que quieres quedar bien. Quieres que un amigo te aconseje y le preguntas qué le llevaría. *—¿Qué le comprarías?*	Has de viatjar a París i vols comprar un regal a una persona que no coneixes gaire i amb qui vols quedar bé. Vols que un amic teu t'aconselli i li demanes què li duria. *—Què li duries?*
	Biased wh-questions			
3b	Exclamative wh-questions (with counterexpectational meaning)	23	Un amigo tuyo te habla de un conocido que debía mucho dinero al banco y seguía tomando préstamos. Pregunta (sorprendido/a, porque ya sabías que debía mucho dinero) cuánto dinero acabó debiendo.	Un amic teu et parla d'un conegut que devia molts diners al banc i encara demanava més préstecs. Pregunta (sorprès(a), perquè ja ho sabies, que en devia molts) quants diners va acabar devent. *—Quants diners va acabar devent?!*

			—*¿¡Cuánto acabó debiendo!?*	
3c	Imperative wh-question	24	Le pides a tu hijo que te haga arreglos en la casa y no estás seguro/a de que lo vaya a hacer, ya que no es la primera vez que se lo pides. Pregúntale, medio enfadado, cuándo lo hará. —*¿Cuándo lo harás?*	Demanes a un germà que et faci una feina i no estàs gaire segur(a) que la faci, perquè ja li ho has demanat altres vegades i mai no t'ha ajudat. Demana-li, mig enfadat/da, quan t'ho farà. —*Quan m'ho faràs?!*
4	**Echo questions**			
4ª	Echo yes–no questions	25	Te dan la hora, pero no acabas de entenderla. Piensas que te han dicho que son las nueve. Vuelve a preguntar. —*¿(Qué has dicho que) son las nueve?*	Et diuen l'hora, però no l'has acabat d'entendre. Et penses que t'han dit la una. Torna a demanar si és la una. —*(Què has dit que) és la una?*
4b	Echo wh-questions-questions	26	Te han preguntado adónde vas, pero no sabes si lo has entendido bien. Pregunta qué te han preguntado. —*¿(Qué me has pedido) dónde voy?*	T'han demanat on anaves, però no saps si ho has entès bé. Demana si és això el que t'han demanat. —*(Què m'has demanat) a on anava?*
4c	Exclamative echo yes–no questions (with counterexpectational meaning)	27	Te dicen que un compañero tuyo, Mario, se presenta a alcalde. No te lo crees y lo vuelves a preguntar (muy extrañado/a). —*¿¡(Qué dices que) Mario se presenta a alcalde!?*	Et diuen que un company teu, en Mario, es presenta a alcalde. No t'ho acabes de creure i ho tornes a preguntar (molt estranyat/da). —*Què dius que en Mario es presenta a alcalde!?*
5	**Imperatives**			
5a	Commands	28	Estás en la recepción de un hotel y entra una pareja que quiere una habitación. Diles que rellenen un formulario. —*Rellenen este formulario.*	Imagina't que ets recepcionista en un hotel i entra una parella que vol una habitació. Digues-los que omplin un formulari. —*Ompliu aquest formulari.*
5b	Requests	29	Quieres ir al cine con un amigo. Te dice que tiene trabajo, pero tú sabes que el trabajo lo puede dejar. ¿Cómo lo convencerías? —*Va, vente al cine ...* *¡Venga, hombre!*	Vols anar al cinema amb un amic. Et diu que té feina, però tu saps que la pot deixar per a més endavant. Com ho faràs per convèncer-lo? —*Va, vine!*
6	**Vocatives**			
6	Vocative	30	Entras en la casa de una amiga tuya, Marina, pero al entrar no la ves. Llámala. —*¡Marina!*	Entres a casa d'una amiga teva, la Maria, però quan ets a dins no la veus. Penses que deu ser a la seva habitació. Crida-la. —*Maria!*

6. Dialogue (with free translation)

Joan y Mercè están en la oficina trabajando. Son las 12 h.
'Joan and Mercè are working in the office. It's 12 o'clock.'

Mercè:	Joan, voy al bar a tomar un café. ¿Que quieres venir conmigo? (A) 'Joan, I'm going to the bar for a coffee. Would you like to come with me?'
Joan:	¿Que tomas café al mediodía? (B) 'Do you drink coffee at noon?'
Mercè:	Sí, claro. Yo bebo muchísimo, de café (D1). Probablemente, demasiado… 'Yes, of course. I drink a lot of coffee. Probably too much …'
Joan:	Pues, no lo sabía… Bueno, termino esto y vamos, ¿vale? 'Well, I didn't know that … Fine, I'll just finish this and we can go, okay?'
Mercè:	¡Que no! Me apetece ir ahora mismo. Ya sabes que tengo muy poca, de paciencia (D2). 'No! I feel like going right now. You know that I have very little pacience, don't you?'

Salen de la oficina.
'They leave the office.'

Joan:	¿Que llueve? (C) 'Is it raining?'
Mercè:	Parece que sí… 'It seems so…'

Mercè se resbala y se cae al suelo.
'Mercè slips and falls to the ground.'

Joan:	¡Uy! ¿Que te has hecho daño? (D) 'Oops, did you hurt yourself?'

7. Reading text

The text is adapted with some minor modifications from Pustka et al. (2018: 10). The segments analysed in the present study are underlined.

Un sueño bastante animal

Normalmente, nunca me acuerdo de mis sueños. Pero el de anoche me causa una gran incógnita: parece un día como otro y voy caminando hacia mi trabajo. De repente, escucho el fuerte ladrido de un perro, que viene de la casa de un vecino. Es un hombre bastante raro, de quien se dice que posee un gran número de animales: además de algunos perros, gatos y pollos, como cualquiera en el barrio, también tiene una admirable colección de insectos. Mientras más me acerco a la casa, más aumentan los ladridos y veo que causan un caos enorme; tanto es así que los demás vecinos salen de sus casas para ver qué es lo que pasa.

La situación se agrava aún más cuando la viuda del doctor Numeró, un profesor de Matemáticas ya jubilado, llama a la perrera, que llega de inmediato al lugar de los hechos para inspeccionar. ¡Qué sorpresa cuando entran en la casa! Tan suntuosa por fuera, y por dentro parece un zoológico obtenido por la caza nocturna en selvas y pantanos. Todo se sale completamente de control cuando el primero de los perreros entra a la casa y cae al suelo. En seguida comienza a gritar que algo lo está picando: es un ciempiés. ¡Gracias a Dios, el resto de su familia ya se encuentra en el estómago de un bulldog! Cuando los otros perreros entran ahí adentro, el perro finalmente se calla. Todos los insectos restantes están esparcidos por el suelo y causan pánico entre los gatos y los pollos, que tratan de subirse a las estanterías.

Al final, el jefe de los perreros, preocupado por hacer una investigación perfecta, cuenta a cada uno de los animales, y se sorprende de que además de los perros, gatos y pollos se encuentran cinco tipos diferentes de insectos, o no, tal vez diez, o quince, o veinte: mariposas, abejas, libélulas, saltamontes y, además, cerdos, ranas y elefantes, ranas rojas y elefantes amarillos, que empiezan a hablar, sí, discuten sobre el peinado de los perreros y los planes de renovación de la casa… y entonces me encuentro yo allí, entre todos, tratando de entender las diferentes discusiones. En ese momento suena el despertador. ¿Qué diablos trata de decirme el subconsciente con semejante sueño sobre mis traumas de niño y deseos ocultos?