Writing habits as identity marker: on sign formation in Papyrus Gardiner II

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Abstract

Identifying individual scribes on the basis of handwriting has proven to be more difficult than often assumed. Since the surface, the brush, and even the mood of the scribe can influence personal handwriting, palaeographic idiosyncrasies can often be explained by changes in those conditions or the scribe's environment, even in the course of writing a single text. The current article will refine palaeographic observations with notes on sign structure and composition, i. e. the individual brush strokes that constitute the building blocks of a hieroglyph, to address levels of standardisation when composing signs and sign groups within a single document. Papyrus Gardiner II (London BM EA 10676) offers numerous opportunities to detect changes in handwriting because of its considerable length. The papyrus' handwriting will briefly be compared with Papyrus Berlin P. 10480–82 and a small sample of material from across the range of hieratic documents in the papyrus collection of the British Museum.

Introduction

Several scholars have addressed the difficulty of identifying individual scribes on the basis of (their) handwriting.[1] Since the surface, the brush, and even the mood of the scribe can influence personal handwriting, palaeographic idiosyncrasies can often be explained by changes in those conditions or the scribe's environment, even in the course of writing a single text. The longer the text, the more variations of form can occur. Much of the research presented in „Binsen"-Weisheiten I–II experimented with systematic approaches to interpret, present and publish palaeographic variation in hieratic texts. As a case-study of the same attempt, the current article will focus on the writing process of Papyrus Gardiner II (London BM EA 10676). The roll offers sufficient opportunities to detect changes in handwriting within a single document because of its length; the almost 10m long papyrus is almost completely covered with 73 ritual spells, otherwise known as Coffin Texts.

A large part of the current presentation will focus on sign structure and composition, i. e. the individual brush strokes that constitute the building blocks of the hieratic forms of hieroglyphs. One of the most typical features of hieratic is the joining of one or more hieroglyphs into a single sign; the so-called ligatures.

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1   See, for example, most recently Dorn, in: Verhoeven (ed.), „Binsen"-Weisheiten I–II, 175–218.

The phenomenon exists in many languages and scripts, but for ancient Egyptian an increasing presence of ligatures in a text has often been related to abbreviation or hasty handwriting; hence, the personal involvement of the scribe. Querying this perception, the current article addresses the possibility of standardisation when joining signs. The question is if and to what extent scribal freedom influenced the composition of more complex hieroglyphic signs and sign groups and eventually led to more consistency in shaping these signs.[2]

In an attempt to trace the emergence and development of ligatures within Papyrus Gardiner II, two sign groups will be discussed in more detail; the *ḥr*-group and the *wr*-group, both consisting of a main sign (the face-sign D2 and the fork-tailed swallow G36) and a phonetic complement *r* (D21).[3] The results of these observations will be considered against a more general discussion of palaeography and the scribal labour involved in creating this papyrus roll.

Papyrus Gardiner II in context

The papyrus was acquired by Sir Alan H. Gardiner in the winter of 1929–1930 in Cairo, and later donated to the British Museum. Similar documents purchased as part of the same batch were transferred to Chicago (OIM 14059–87 = Papyrus Gardiner III) and Paris (Papyrus Louvre E 14703 = Papyrus Gardiner IV).[4] The so-called Gardiner papyri (II–IV) contain ritual spells that otherwise appear mainly on wooden box-shaped coffins from the First Intermediate Period onwards (ca. 2205 BC). This state of preservation led to the designation Coffin Texts (CT), but these spells could also be written on tomb walls, stelae, canopic chests, papyri and mummy masks. Examples of Coffin Texts on papyri rarely survived, however. The Gardiner papyri constitute the most extensive known corpus.[5] Apart from incorpo-

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2   Similar investigations for neo-Assyrian cuneiform by colleagues in the British Museum have revealed a surprising continuity of sign composition along geographic and diachronic axes; Taylor, in: Devecchi, Müller & Mynářová (edd.), *Current Research in Cuneiform Palaeography*, 1–30. The standardised Mesopotamian wedge order that was implemented in the mid-second millennium BC was followed routinely by scribes until the last days of cuneiform. Such (chronological) lack of variation cannot be expected for Egyptian Hieratic as writing with brush and ink inevitably lead to considerable scribal freedom.

3   The signs are indicated following Gardiner's *Sign-list* in Gardiner, *Egyptian Grammar*, 442–548.

4   Lesko, *Index*, 73–75; Jürgens, *Grundlinien*, 190; Gestermann, in: Hawass & Pinch Brock (edd.), *Egyptology at the dawn of the twenty-first century*, 202–208.

5   Three other groups are known: (1) Papyrus Paris Louvre E. 15594; only briefly mentioned by Weill, in: *RdÉ* 6, 1951, 232; (2) Papyrus Golenishev, rediscovered in the Pushkin State Muse-

ration in Adriaan de Buck's seven-volume edition of the Coffin Texts (1935–1961),[6] and subsequent general translations of the CT corpus, the papyri remain unpublished.[7]

In his notes in the British Museum, Gardiner suggested Saqqara as their place of origin, although it is unclear on what basis he made this assumption.[8] Others have suggested an Asyut provenance by comparison with the Berlin papyri P. 10480–82, which can be attributed to this site,[9] or on the (more solid) basis of the consistent spelling of the personal pronoun 1s with a flowering reed (M17 𓇌) followed by the seated man (A1 𓀀).[10] The latter spelling would be the standard writing for the pronoun in Asyut. Only detailed study of the Gardiner papyri can clarify such metadata related questions.

Proposed dates range from the 6th dynasty[11] and the First Intermediate Period[12] to the (early) Middle Kingdom.[13] These differences are significant for appreciating the character of the script: the earliest date would define Papyrus Gardiner II as one of the earliest lengthy papyrus rolls with non-administrative hieratic texts, whereas the later date would situate the papyrus in an era when the hieratic script is used to its full potential in a large variety of text genres. Either level of script maturity

um of Fine Arts in Moscow; BORGHOUTS, in: SCHOSKE (ed.), *Akten des Vierten Internationalen Ägyptologen-Kongresses München 1985*, 131–139; EGBERTS, in: *GM* 60, 1982, 10, and (3) the religious leather roll now kept in the Cairo Museum; SHERBINY, in: *International Congress of Egyptologists XI*, 140–141.

6   DE BUCK, *The Egyptian Coffin Texts*, 1–7, will be abbreviated as *CT* in what follows.

7   The most extensive introduction to Papyrus Gardiner II is GESTERMANN, in: HAWASS & PINCH BROCK (edd.), *Egyptology at the dawn of the twenty-first century*, 202–208. Papyrus Gardiner III is under study by Foy Scalf from the Oriental Institute in Chicago.

8   This is followed by ROCCATI, in: ANONYMOUS (ed.), *Mélanges Adolphe Gutbub*, 208, n. 3; GESTERMANN, in: HAWASS & PINCH BROCK (edd.), *Egyptology at the dawn of the twenty-first century*, 202–208.

9   Cf. JÜRGENS, *Grundlinien*, 81; REGULSKI, *Repurposing Ritual*, in print.

10 SCHENKEL, in: WILLEMS (ed.), *The World of the Coffin Texts* 125.

11 ALLEN, *Occurrences of Pyramid Texts*, 31, 42; ROCCATI, *La littérature historique sous l'Ancien Empire égyptien*, 18; cf. KEES, *Totenglauben*², 160–164; BARGUET, *Les textes des sarcophages*, 10, with n. 7; VALLOGGIA, *Le mastaba de Medou-Nefer*, 75, makes a palaeographic comparison between the Gardiner papyri and the inscriptions on the coffin of Medou-nefer. A 6th dynasty date was also accepted for the religious leather roll currently kept in the Cairo museum; SHERBINY, in: *International Congress of Egyptologists XI,* 594–596.

12 GOEDICKE, *Paleography*, ix. GARDINER, in: *British Museum Quarterly* 8, no. 2, 1933, 74, states that the papyrus 'dates from the period intermediate between the Sixth and Eleventh Dynasties'; GESTERMANN, in: HAWASS & PINCH BROCK (edd.), *Egyptology at the dawn of the twenty-first century*, 202–208, follows Gardiner in suggesting that the texts were composed at the end of the 6th dynasty but copied onto the papyrus in the First Intermediate Period.

13 BOURRIAU, *Pharaohs and Mortals*, 81–83.

must have had an impact on handwriting, and, focussing on the topic of the current presentation, on the formation of ligatures. If so, can we perceive the presence of ligatures as a chronological indicator?

The composition of Papyrus Gardiner II

The entire papyrus roll is almost 10 meters and is composed of 13 papyrus sheets with an average length of more than 60 cm each. The height must have been 21 cm on average. The raw material used for Gardiner II is of high quality; the dense papyrus structure makes it difficult to recognise sheet joins.[14] The current display into 32 glass frames is the result of a modern partition aimed at creating pieces of similar length to facilitate storage. The beginning of the text; the parts preserved in frames 1, 2, and 3, is the most damaged and must have been on the outside of the roll.[15]

The sheet joins do mostly not correspond with the beginning of the CT spells; text lines can be written over joins. For the most part, several papyrus sheets were thus attached into larger units before the texts were applied. Only in two cases does the beginning of the spell match up with a join. Both appear on the recto, the side that was inscribed first (with the papyrus fibres running horizontally). In the first case (the join between sheets 1 and 2), the verso (the side with the fibres running from top to bottom, or vertically) was not inscribed; in the second case (the join between sheets 6 and 7), *CT* spell 1020 covers the join on the verso. The matching of spell beginning with join on the recto could thus be a coincidence, or reflects different phases in the construction of the roll (in the second case only if the verso was inscribed later).

The first sheet join can easily be identified in the middle of frame 4 (fig. 1).[16] On the recto, the join is immediately followed by a vertical register line, which separates the last spell of sheet 1 (*CT* 288) from the following (*CT* 989), which starts on sheet 2. The verso of this part is blank. This first sheet could thus have been inscribed separately and only later attached to the following part. Differences in handwriting support this (cf. *infra*). Their joining must have been planned from the outset, however, given the continuation of the spell sequence and the consequent absence of a buffer space in the beginning of sheet 2. If sheet 2 was originally conceived as the beginning of the roll, the scribe would not have started the text so close to the edge of the sheet. In addition, sheets 1 and 2 are similar in content.

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14 I would like to thank Helen Sharp, the British Museum's papyrus conservator, for her useful comments on the papyrus' material aspects.

15 Gardiner, in: *British Museum Quarterly* 8, no. 2, 1933, 74.

16 The poorly preserved fragments in the first three frames were also part of sheet 1.

Fig. 1: Papyrus London BM EA 10676, 4 rto with sheet join and register line in the middle of the sheet.

The first two spells are fragmentary, but in *CT* spells 988 and 288 (end of sheet 1) the deceased describes a series of actions "to become air". Even though the larger sequence is not attested anywhere else, this is immediately followed on sheet 2 by more transformation spells.

For the remaining part of the recto, it is clear that the blank sheets were merged before the spells were added as text lines cover the sheet joins.

The recto was consistently outlined with register lines in black ink. The best pre-served fragments indicate that a double horizontal line could frame the top and the bottom of the text (clearly visible from sheet 7 in frame 14 onwards). Single vertical lines were used to separate spells and, increasingly throughout the papyrus, also for smaller units, sometimes even single text lines within the same spell. The vertical lines can also be seen on the verso. The hieratic text is written in vertical lines and reads from right to left. Contrary to many final copies of the Coffin Texts, the hie-roglyphs thus correctly face the beginning of the text.[17] At first glance, we sense a

17 This is also the case for the parallel Asyut corpus P. 10480–82, kept in the Berlin papyrus collection.

progressive cursiveness and sign density throughout the papyrus and increasingly limited spacing between the text lines. This translates in a different number of signs on the recto (8583) and the verso (10225) (fig. 2).[18] The increasing number of signs corresponds with the distribution of ligatures.
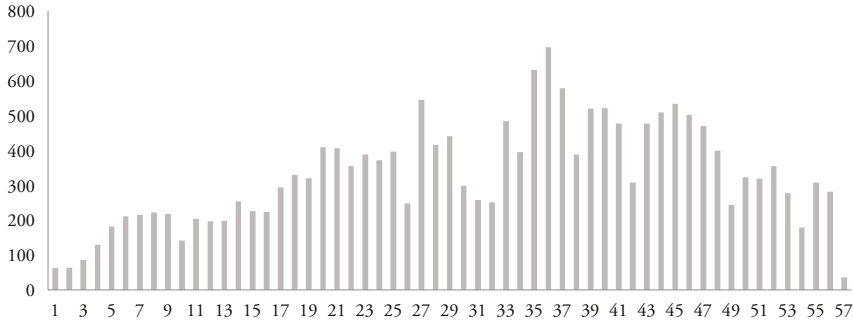
Fig. 2: Chart showing number of signs (the verso starts with no. 33).

Fig. 3: Chart showing number of ligatures and the number of signs comprising the ligatures (the verso starts between nos. 31).

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18 For convenience and clear presentation, the individual bars represent the separate frames (rather than the numerous individual text lines). Although this arrangement may be artificial and not sufficiently detailed, the numbers can be considered representative as the frames are presented according to writing direction. Note that the last frame inscribed on the verso (frame 7) contains only two text lines.

Fig. 3 displays the number of ligatures in Papyrus Gardiner II and the number of signs comprising the ligatures. Out of a total of 18808 hieroglyphs[19], the number of 711 ligatures is low (3.78 %). The difference between the recto and the verso is remarkable. The recto yields 139 ligatures, whereas the verso displays 572. These considerable differences amount to 1.61 % and 5.59 % for the recto and the verso respectively. The verso not only displays four times more ligatures than the recto, but the increase happens suddenly. The number of signs the ligatures consist of rises only subtly with more three-sign ligatures, but only one four-sign ligature appearing on the verso. Ligatures consisting of five signs, attested, for example, in the Berlin parallel P. 10482 rto[20], cannot be seen. Most of the ligatures consist of two signs.

The abrupt change on the verso corresponds to a decrease of space between text lines and the abandonment of horizontal register lines (fig. 4). Two explanations come to mind: the verso was inscribed by another scribe with different writing habits and perhaps more developed hieratic skills, or the turning of the papyrus coincided with a change in the scribe's writing behaviour and/or writing equipment. Palaeographic differences support the involvement of more than one scribe. A closer look at some of the ligatures particularly designates several script clusters, even within the verso.

Fig. 4: View of the recto (left) and verso (right) of papyrus London BM EA 10676, 28.

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19 Ligatures have been counted as one sign.
20 REGULSKI, in: VERHOEVEN (ed.), „Binsen“-Weisheiten I–II, 315–316, fig. 3.

Ligatures on Papyrus Gardiner II

The selected ligatures discussed below represent sign combinations in which a main logogram can represent the word by itself or is followed by a phonetic complement, which can, but does not have to, be attached to the main sign. For example, if the bi-literal sign *ḥr* (D2) is followed by a phonetic complement *r* (D21), the latter can follow the *ḥr*-sign as a separate sign, or can be connected to it in a ligature. The same can be said for the *wr*-group. The surveys discussed below trace the *ḥr* and *wr* combination(s) in Papyrus Gardiner II and indicate for each attestation whether the hieroglyphs are attached or simply follow each other (table 1 and 2).

Table 1: Attestation of the *ḥr*-sign/the D2+D21 group on Papyrus Gardiner II.

Frame, line	Sign (combi)	Ligature?	Function
2 rto, 5	D2		preposition
2 rto, 8	D2		preposition
3 rto, 1	D2		preposition
4 rto, 4	D2+D21	no	noun
4 rto, 7	D2+D21	no	noun (from prepos. nisbe)
4 rto, 7	D2		preposition
4 rto, 9	D2		preposition
6 rto, 1	D2+D21	no	preposition
6 rto, 8	D2		preposition
6 rto, 9	D2		preposition
7 rto, 5	D2		preposition
8 rto, 3	D2		preposition
8 rto, 4	D2		preposition in verb constr.
8 rto, 9	D2+D21	no	preposition?
9 rto, 4	D2+D21	no	Horus
9 rto, 8	D2+D21	no	Horus
9 rto, 11	D2		noun
9 rto, 11	D2+D21	no	Horus
9 rto, 11	D2+D21	no	Horus
10 rto, 1	D2		noun
10 rto, 1	D2+D21	no	Horus
			Continued on next page

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Frame, line	Sign (combi)	Ligature?	Function
11 rto, 2	D2+D21	no	preposition
11 rto, 8	D2+D21	no	Horus
11 rto, 10	D2+D21	no	Horus
12 rto, 3	D2		preposition
12 rto, 7	D2		preposition
13 rto, 8	D2		preposition
14 rto, 2	D2		preposition
14 rto, 6	D2		nisbe-adj.
14 rto, 7	D2		noun
14 rto, 7	D2		preposition
14 rto, 7	D2+D21	no	noun
14 rto, 10	D2		noun
14 rto, 10	D2		noun
15 rto, 2	D2+D21	?	Horus
15 rto, 3	D2		noun
15 rto, 7	D2		preposition
16 rto, 3	D2		noun
16 rto, 4	D2		preposition
17 rto, 1	D2		nisbe adj
17 rto, 2	D2		nisbe adj
17 rto, 4	D2		noun
17 rto, 4	D2		nisbe-adj.
17 rto, 10	D2		preposition
18 rto, 1	D2+D21	no	Horus
18 rto, 3	D2		preposition
18 rto, 5	D2		noun ("face")
18 rto, 5	D2		preposition
19 rto, 2	D2+D21	no	Horus
19 rto, 10	D2+D21	no	Horus
19 rto, 11	D2		preposition
20 rto, 1	D2+D21	no	Horus
20 rto, 7	D2+D21	no	noun (from prepos. nisbe)
20 rto, 8?	D2		preposition
			Continued on next page

Frame, line	Sign (combi)	Ligature?	Function
20 rto, 9	D2		noun
21 rto, 2	D2		proposition
21 rto, 3	D2+D21	no	proposition
21 rto, 4	D2+D21	no	proposition
21 rto, 5	D2		proposition
21 rto, 6	D2		proposition
21 rto, 9	D2		verbal construction
21 rto, 9	D2+D21	no	verb
21 rto, 10	D2		preposition
21 rto, 10	D2		noun
22 rto, 1	D2		preposition
22 rto, 2	D2+D21	no	Horus
22 rto, 4	D2		nisbe-adj.
22 rto, 8	D2		noun (from prepos. nisbe)
22 rto, 8	D2		noun (from prepos. nisbe)
22 rto, 8	D2		noun (from prepos. nisbe)
23 rto, 3	D2		preposition
23 rto, 4	D2		preposition
24 rto, 6	D2+D21	?	Horus
24 rto, 7	D2+D21	no	Horus
24 rto, 8	D2+D21	no	Horus
25 rto, 2	D2		preposition
25 rto, 3	D2		noun
25 rto, 3	D2		noun
26 rto, 5	D2+D21	no	Horus
26 rto, 6	D2+D21		Horus
26 rto, 6	D2+D21	no?	Horus
26 rto, 7	D2+D21	yes	Horus
26 rto, 9	D2+D21	no	Horus
26 rto, 10	D2+D21	no	Horus
27 rto, 2	D2+D21	?	Horus
27 rto, 3	D2+D21	no	noun (from prepos. nisbe)
27 rto, 7	D2		preposition
			Continued on next page

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Frame, line	Sign (combi)	Ligature?	Function
27 rto, 8	D2		preposition
27 rto, 10	D2+D21	no	Horus
28 rto, 1	D2+D21	no	preposition
28 rto, 4	D2	no	preposition
28 rto, 4	D2	no	preposition
28 rto, 9	D2+D21	no	Horus
29 rto, 10	D2+D21	no	noun (from prepos. nisbe)
29 rto, 10	D2		nisbe-adj.
29 rto, 12	D2	no	nisbe-adj.
30 rto, 2	D2		preposition
30 rto, 3	D2		nisbe-adj.
30 rto, 9	D2		preposition
30 rto, 10	D2+D21	no	noun (from prepos. nisbe)
31 rto, 2	D2		preposition
31 rto, 4	D2+D21	no	Horus
31 rto, 6	D2		Hathor
31 rto, 10	D2		Hathor
31 vso, 12	D2+D21	yes	preposition
30 vso, 1	D2+D21	yes	Horus
30 vso, 1	D2+D21	yes	preposition
30 vso, 3	D2+D21	yes	Horus
30 vso, 4	D2+D21	yes	Horus
30 vso, 4	D2		preposition
29 vso, 11	D2+D21	yes	preposition
29 vso, 14	D2+D21	yes	preposition
28 vso, 1	D2+D21+I9	yes	preposition
28 vso, 1	D2+D21	yes	Horus
28 vso, 3	D2+D21+I9	yes	preposition
28 vso, 3	D2		preposition
30 vso, 13	D2		preposition
29 vso, 32	D2		preposition
29 vso, 33	D2+D21	yes	Horus
28 vso, 6	D2+D21	no!	preposition

Frame, line	Sign (combi)	Ligature?	Function
28 vso, 13	D2+D21	yes	preposition
28 vso, 14	D2+D21	yes	preposition
28 vso, 16	D2		noun (from prepos. nisbe)
28 vso, 16	D2+D21	yes	Horus
28 vso, 18	D2+D21	yes	Horus
27 vso, 13	D2+D21	yes	Horus
27 vso, 20	D2+D21	yes	preposition
27 vso, 21	D2+D21	yes	preposition
27 vso, 22	D2+D21	yes	preposition
26 vso, 6	D2+D21	yes	preposition
25 vso, 4	D2+D21	yes	Horus
25 vso, 5	D2		preposition
24 vso, 9	D2+D21	yes	preposition
24 vso, 12	D2+D21	yes	noun "face"
23 vso, 1	D2+D21	yes	preposition
23 vso, 2	D2+D21	yes	preposition
23 vso, 2	D2+D21	yes	preposition
23 vso, 7	D2+D21	yes	noun
23 vso, 11	D2+D21	yes	preposition
23 vso, 12	D2+D21	yes	Horus
23 vso, 15	D2+D21	yes	preposition
23 vso, 15	D2+D21	yes	Horus
22 vso, 1	D2+D21	yes	preposition
21 vso, 1	D2		preposition
21 vso, 2	D2		noun
21 vso, 7	D2		preposition
21 vso, 10	D2+D21	yes	Vb., 3ae inf.
21 vso, 14	D2+D21	yes	Vb., 3ae inf.
20 vso, 2	D2		noun
20 vso, 2	D2		noun
20 vso, 2	D2 (2x)		noun
20 vso, 4	D2		noun
20 vso, 7	D2		noun
			Continued on next page

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Frame, line	Sign (combi)	Ligature?	Function
20 vso, 8	D2		noun
20 vso, 8	D2		preposition
20 vso, 9	D2+D21	yes	preposition
20 vso, 16	D2		noun
19 vso, 2	D2		noun
19 vso, 4	D2+D21	?	Horus
18 vso, 3	D2+D21	yes	Horus
18 vso, 10	D2		preposition
18 vso, 14	D2+D21	yes	preposition
17 vso, 13	D2		preposition
16 vso, 3	D2		preposition
16 vso, 9	D2		preposition
16 vso, 13	D2+D21	yes	preposition
16 vso, 14	D2+V31	yes	noun (from prepos. nisbe)
15 vso, 16	D2		nisbe-adj.
14 vso, 1	D2		preposition
14 vso, 2	D2+D21	yes	Horus
14 vso, 3	D2		preposition
13 vso, 9	D2		preposition
11 vso, 1	D2		preposition
11 vso, 3	D2		preposition
11 vso, 8	D2		preposition
11 vso, 13	D2		nisbe-adj.
10 vso, 1	D2?	?	
10 vso, 3	D2		preposition
9 vso, 4	D2		nisbe-adj.
9 vso, 7	D2		preposition
9 vso, 9	D2+D21+I9	yes	preposition
9 vso, 11	D2		preposition
9 vso, 12	D2		preposition
9 vso, 14	D2		preposition
8 vso, 1	D2	?	damaged
8 vso, 9	D2		noun
			Continued on next page

Frame, line	Sign (combi)	Ligature?	Function
8 vso, 15	D2+D21	no!	Horus-Ra
7 vso, 1	D2		nisbe-adj.
7 vso, 2	D2		preposition

The surveys not only focus on the shapes of the signs, but also on their structure and composition, i. e. the sequence of brush stokes that form the building blocks of a sign. Such detail is not always recognisable; good quality (liquid) ink obscures the superimposition of lines as the ink flows from one brush stroke into the other. In those cases, only the (different) angles of the strokes are the determining factor in detecting whether a scribe lifted his brush or wrote the lines in a single brush movement.

The ḥr-sign group (D2+D21)

In total, 191 examples of the bi-literal sign *ḥr* (D2 ☝) could be recognised in the papyrus (table 1). Less than half of those (85) are followed by the phonetic compliment *r* (D21 ⌒). The choice for either spelling does not correspond with the function of *ḥr* in the sentence. Only the name of Horus (*Ḥr.w*) is consistently written with the combination D2+D21. Divided over the two papyrus sides, the 85 complemented spellings correspond to 39 % on the recto and 50 % on the verso. As the recto was inscribed first, this suggests a slight increase in the full phonetic spelling of *ḥr* on the verso, but a closer look at table 1 reveals an interesting difference between the first and the second half of the verso. After finishing the recto and flipping the papyrus horizontally (around its vertical axe), the scribe almost always used the combination D2+D21 until sheet 8. In the course of CT spell 1013 on the sheet 8 (frame 21 vso, l. 1), *ḥr* starts to be written with D2 ☝ alone. Certainly from *CT* spell 1022 on sheet 6 (frame 14 vso, l. 3)[21] onwards, until the end of the text, a single D2 is almost exclusively used for *ḥr*. This observation is interesting when combined with palaeography.

Of the 85 D21+D2 combinations, 41 appear as a ligature (table 1). In 39 cases, the mouth sign D21 follows D2 as a separate sign.[22] The separated writings include examples in which both signs partly overlap, but are not written in a single brush movement. In the mind-set of the scribe, these were still two separate signs. For

21 Note that the sheets are numbered in writing direction, i. e. starting on the recto. When describing the verso, the numbers are therefore in descending order.

22 Four cases are uncertain.

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Fig. 5: Palaeographic table showing examples of the ḥr-group on Papyrus Gardiner II and other sources.

the sake of comparison, these pseudo-ligatures have been included in fig. 5. When hieroglyphs are combined into a ligature, the brush strokes do not correspond with individual hieroglyphs anymore. It is this abstraction that defines the ligature as a new sign creation. A doubtful example can be seen in 31 rto, l. 4: although the signs are not actually attached, it is easy to imagine that the scribe wrote both signs in a single movement while lifting his brush only slightly between the two signs. The sheet is poorly preserved, hence the signs could not be incorporated into the tables. The scribe finishes D21 with a longer stroke on the right-hand side.

The building structure of the ligature D2+D21 is consistent. As is the case for the single appearance of D2 (including the pseudo-ligatures), the face is written with two half-circle outlines. The right line continues down into the neck. This suggests that the left stroke is written first, although the superimpositions are not always clear.[23] The choice for breaking up the face into two parts, rather than drawing a circle for example, is interesting in itself. In the ligature D2+D21, the scribe extends the right stroke of the neck down into D21 without lifting the brush. The entire mouth-sign can be drawn in one movement (fig. 5, type I), or the scribe uses another short stroke to finish the sign on the right side (fig. 5, type II). Both types show various ways of finishing of the oval shape of the mouth in a more or less pronounced way: by bringing the stroke up again in type I[24], or enlarging the separate stroke in type II.[25] This structure is preserved when D2+D21 is combined with a third sign in a three-sign ligature (fig. 5). A third type shows a different structure by adding an extra dot in the face. The last two examples represented in fig. 5 are unclear as the distinction between the two strokes of the face is invisible. Type II, consisting of three strokes, is the most common way of writing the ligature.

In the Gardiner papyri, the ligatures are exclusively attested on the verso, apart from one, or perhaps, two exception(s).[26] All appear in the first half of the verso (table 1). The separate combination of D2+D21 is preferred on the recto. On the verso, the scribe thus either connects the two signs in a ligature or uses the short spelling with D2 only. One exception can be seen in P. Gardiner II, 8 vso, l. 15, where the combination D2+D21 is not written as a ligature. An almost exclusive appearance of ligatures in the first half of the verso followed by a sudden preference

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23 This stroke order also means that the scribe starts the sign on its left side, despite general writing direction from right to left.

24 Papyrus Gardiner II, 30 vso, l. 4 is an unclear example of the two stroke-version as the final stroke at the end of the mouth sign extends up in an unusual way.

25 The best example is probably Papyrus Gardiner II, 23 vso, l. 7, where the stroke is large in comparison with the entire sign.

26 The sole example of Horus-Ra in the text, *CT* VII, 251y (spell 1028), and the earlier mentioned Papyrus Gardiner II, 31 rto, l. 4.

for a short spelling with D2 suggests an urge to abbreviate in the course of writing the text. Problematic here is the sudden change. Rather than a product of increased writing speed or abbreviation, the ḥr-ligatures appear as soon as the scribe flipped the papyrus. The single potential example of a ligature (the earlier discussed 31 rto, l. 4) is not sufficient to speak of a gradual increase in writing speed.

The abrupt change corresponds to a general increase of ligatures and signs on the verso (figs. 2–3) and a different palaeography of the ḥr-sign. In general, the face-sign is more angular on the verso, and the r becomes narrower and the final stroke shorter and more straight in the ligature. A less detailed glance at some of the other ligatures in Papyrus Gardiner II confirms the differences between recto and verso (fig. 7). It has to be noted, however, that the main deviations consist of size, stroke angle and density; the structure of the signs (including the ḥr-group) is similar. The few examples shown in fig. 5 illustrate this. Type III deviates from that structure by adding an extra dot in the face. Both examples appear in *CT* spell 1013, which starts on 23 vso with a rubric in text line 5 and continues until line 7 in 21 vso.

Comparing spelling with palaeography, several observations should be highlighted:

1. The almost sudden appearance of the ḥr-ligature on the verso.
2. *CT* spell 1013 or P. Gardiner II, 23 vso, l. 5 – 21 vso, l. 7 is characterised by the distinct type III ḥr-ligatures. Although perhaps speculative, this deviation coincides with the different shape of other type II ḥr-ligatures in this spell/ cluster of text (indicated in grey in fig. 5) and the *wr*-group discussed below.
3. A change from the ligature to the spelling with only D2 in *CT* spell 1022 in P. Gardiner II, 14 vso, l. 3 (sheet 6). This may have started in *CT* spell 1013 in sheet 8 (21 vso, l. 1).

The structural resemblance with the examples of the ḥr-group on the Berlin papyri P. 10481 and 10482 is striking (fig. 5). Even though the shape of the line differs, the position and flow of the strokes is the same. Both types I and II are represented. When combined with I9 ⌇ , the Berlin scribe lifts his brush before starting the mouth-sign and adding the viper. The Heqanakht papyri show a larger variety. In a slightly different palaeography, structural types I and II are attested. In other more abbreviated versions of the same ligature, the head is reduced to an oval form, or even a stroke. This becomes the more standard form in later papyri (grouped as "other" in fig. 5). It is unclear whether the increased abbreviation, especially visible in the face-part of the ligature, is a chronological development or a regional particularity as the sample is, admittedly, too small. Note, however, that, except for the Berlin papyri, all parallels come from Thebes. Chronologically, the transition to a more

abbreviated form seems to be particularly clear in the Heqanakht documents.[27] The Berlin papyri and the Heqanakht papyri are of similar date. The Gardiner papyri could be roughly contemporary with the previous two groups if we accept a First Intermediate Period – early Middle Kingdom date. Papyrus BM EA 10567 is the so-called Gardiner's letter, which has been dated to the 12th dynasty. The highly abbreviated version comes from the Papyrus Butler (Papyrus BM EA 10274), which dates to the late 12th dynasty.

The wr-sign group (G36+D21)

The second ligature shows a different development. In total, the *wr*-combination G36+D21 ( ) appears 72 times on the papyrus (table 2).[28] The number includes attestations in *wr.t*, *wr.w* and *wrr*. The combination of the swallow (G36) with the phonetic compliment *r* (D21) was the common spelling of *wr* (or derivatives) in whatever grammatical or syntactic function. The spelling with only G36 is used in only seven cases; five times on the recto, twice on the verso.[29] In the majority of cases, and from sheet 2 onwards, *wr* is written as a ligature. Only ten spellings display the two hieroglyphs as separate signs; eight on the recto and two on the verso.

Table 2: Attestation of the *wr*-sign/the G36+D21 group on Papyrus Gardiner II.

Frame, line	Sign (combi)	Ligature?	Function
2 rto, 7	G36		adjective
4 rto, 9	G36+D21	yes	adjective
8 rto, 9	G36		adjective
8 rto, 10	G36		adjective
9 rto, 2	G36+D21	no	verb
9 rto, 16	?	?	noun
12 rto, 9	G36+D21	no	noun
13 rto, 8	G36+D21	yes	verb
14 rto, 2	G36+D21	no	noun
15 rto, 2	G36+D21	probably	verb
			Continued on next page

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27 Allen, *The Heqanakht Papyri*, 217.

28 The number includes ligatures with G36+D21 with a third sign.

29 Two cases are unclear because of damages in the papyrus.

Writing habits as identity marker: on sign formation in Papyrus Gardiner II

Frame, line	Sign (combi)	Ligature?	Function
15 rto, 4	G36		noun
15 rto, 5	G36+D21		noun
15 rto, 8	?	?	noun
17 rto, 6	G36+D21	yes	verb
17 rto, 10	G36+D21	yes	noun
18 rto, 4	G36+D21	no	noun
18 rto, 4	G36+D21	yes	noun
18 rto, 6	G36+D21	yes	noun
19 rto, 5	G36+D21	yes	noun
19 rto, 5	G36+D21	yes	noun
20 rto, 8	G36+D21	yes	verb
21 rto, 1	G36		noun
21 rto, 8	G36+D21	yes	noun
21 rto, 12	G36+D21	yes	noun
22 rto, 1	G36+D21	yes	noun
22 rto, 2	G36+D21	yes	adjective
25 rto, 5	G36+D21	yes	verb
25 rto, 6	G36+D21	yes	noun
25 rto, 6	G36+D21	yes	noun
26 rto, 7	G36+D21	yes	verb
28 rto, 6	G36+D21	yes	verb
28 rto, 9	G36+D21	no	?
30 rto, 5	G36+D21	yes	adjective
32 rto, 7	G36+D21	yes	adjective
32 rto, 8	G36+D21	no	adjective
30 vso, 3	G36+D21	yes	adjective
29 vso, 2	G36+D21	yes	adjective
29 vso, 6	G36+D21	?	noun
29 vso, 15	G36+D21	yes	name
29 vso, 16	G36+D21	yes	noun
29 vso, 17	G36+D21	yes	name
29 vso, 18	G36+D21	yes	noun
28 vso, 1	G36+D21	yes	adverb

Frame, line	Sign (combi)	Ligature?	Function
28 vso, 3	G36+D21	yes	adjective
27 vso, 18	G36+D21	yes	noun
25 vso, 1	G36+D21+X1	yes	noun
25 vso, 6	G36+D21	yes	verb
24 vso, 2	G36+D21	yes	verb
24 vso, 3	G36+D21	yes	adjective
24 vso, 4	G36+D21	yes	verb
24 vso, 4	G36+D21	yes	verb
24 vso, 14	G36+D21	yes	adverb
22 vso, 4	G36+D21+D21	yes	noun
22 vso, 6	G36+D21+D21	no	noun
22 vso, 10	G36+D21	yes	verb
22 vso, 13	G36+D21+D43	yes	noun
21 vso, 4	G36+D21	yes	verb
21 vso, 6	G36+D21+X1	yes	adverb
21 vso, 9	G36+D21	yes	name
21 vso, 11	G36+D21+X1	yes	adverb
21 vso, 13	G36+D21	yes	name
21 vso, 14	G36+D21+X1	yes	adverb
20 vso, 7	G36+D21	yes	noun
20 vso, 9	G36		?
20 vso, 15	G36+D21	yes	noun
19 vso, 2	G36		noun
17 vso, 6	G36+D21	yes	noun
17 vso, 7	G36+D21	yes	noun
16 vso, 10	G36+D21	yes	noun
15 vso, 4	G36+D21	yes	?
15 vso, 12	G36+D21	yes	noun
14 vso, 5	G36+D21+X1	yes	adjective
14 vso, 6	G36+D21	yes	adjective
13 vso, 7	G36+D21	yes	adjective
13 vso, 12	G36+D21	yes	noun
12 vso, 11	G36+D21	yes	noun

Frame, line	Sign (combi)	Ligature?	Function
9 vso, 1	G36+D21+X1	yes	?
9 vso, 2	G36+D21	yes	?
9 vso, 7	G36+D21	no	noun
9 vso, 9	G36+D21+X1	yes	adjective
8 vso, 6	G36+D21	yes	noun

The phenomenon of pseudo-ligatures in which the signs overlap, but are not written in the same brush flow, is less well attested for the *wr*-group, possibly because of the preference for writing this group as a ('true') ligature. The sign combinations in 18 rto, l. 4 (first example) and 22 vso, l. 6 are examples (fig. 6, indicated on a grey background). In 18 rto, l. 4, only a subtle drop of ink connects both signs, but the angle of the swallow's leg and the mouth-sign do not align. The two attestations on the verso differ in handwriting from all previous examples; the legs of the swallow are separately drawn from the body (fig. 6). In 22 vso, l. 6, the right leg of the swallow touches the *r*-sign, but the scribe clearly lifted his brush to write the latter.

The compositional structure of the ligatures is more complicated than was the case for the *ḥr*-group; the superimposition of the lines is irregular and less clear. For this reason, fig. 6 is not organised according to type, but illustrates the structural development of the sign in the course of writing the text. In general, the legs of the swallow are reduced to one stroke, which is extended into the *r*-sign in a single movement. As was the case for the *ḥr*-group, the latter can be finished on the right-hand side with a short stroke. These two- and three-stroke-versions are the most common. Good examples are 29 vso, l. 6, 27 vso, l. 16 and 13 vso, l. 16. The stroke order of the upper part of the sign, the body of the swallow, is more difficult to distinguish. On the recto, the upper line of the bird can be drawn separately. This is only occasionally visible on the verso, where the body is more often drawn in a single movement. The separate upper line results in a three- or four-stroke sign, depending on the finishing of the *r*-sign. An example of the four-stroke version is 13 vso, l. 6. In an abbreviated version, the scribe wrote the lower line of the body of the swallow (G36), its legs and most of the mouth-sign (D21) in a single movement starting from the top right. The best example on the recto is 32 rto, l. 7.

A few unusual shapes stand out. In 29 vso, l. 15 and 16, the sign consists of two strokes with an oval indicating the front body of the swallow underlaying a second stroke, which starts from the tail, continues with the legs and adds the mouth sign. In another example (21 vso, l. 14), an extra short stroke emphasises the right-hand side of the mouth-sign. In this case, the left part of the line indicating the lower

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Fig. 6: Palaeographic table showing examples of the *wr*-group on P. Gardiner II and other sources.

Fig. 7: Palaeographic table comparing ligatures on the rto and vso of P. Gardiner II.

part of the swallow's body is thicker. Very distinct is 25 vso, l. 6 where the tail and the legs are emphasised by two lines. The double line for the tail can also be seen in 22 vso, l. 10 and 6. Both 25 vso, l. 6 and 22 vso, l. 10 and 6, clearly represent a different handwriting.

Summarising the above observations in comparison with the ḥr-group, the most striking difference is the immediate appearance of the wr-ligatures from sheet 2 (rto) onwards and the larger variety in the structural composition of the ligature. The latter may partly be caused by our inabilities to distinguish the individual strokes.

Some important similarities regarding spelling and peculiarities in handwriting can also be highlighted, however.

Palaeographic peculiarities confirm differences in handwriting between the recto and the verso, although in a less pronounced way than was the case for the ḥr-group.

The earlier discussed general increase of ligatures on the verso is confirmed by the extension of the wr-ligature with a third sign. Nine cases can be identified and all appear on the verso. It mostly concerns the addition of a t (X1) in wr.t (7), a second r-sign (D21) in wrr (1)[30] and a quail (G43) for w in wr.w (1).

The distinct handwriting in 23 vso, l. 5 – 21 vso, l. 7 characterised by the type III ḥr-ligatures includes the deviant shapes of wr-ligatures with the indication of the tail by a double line: in 22 vso, l. 10 and 6 (fig. 6).

The structural composition of the wr-ligature on Papyrus Gardiner II resembles the parallels from the Heqanakht papyri, but differs considerably from the Berlin papyri where both feet of the swallow are consistently indicated (fig. 6). This is in contrast with the ḥr-ligature for which the Berlin papyri were the closest palaeographic parallel. The Heqanakht papyri are more standardised in consistently separating the lines of the upper body from the lower part of the ligature: the feet of the swallow and the mouth-sign. The body of the bird is more upright than on Papyrus Gardiner II, however. Papyrus London BM EA 10435, from the 12th dynasty, follows the Berlin version in emphasising the bird's feet.

Conclusion

Attempting to translate the previous observations into general terms of palaeographic development is a perilous undertaking as individual ligatures do not seem to develop in the same way. Is the scribe still experimenting with ligatures? The remarkable differences in appearance and variety between the ḥr-group and the wr-group could perhaps also depend on the complexity of the individual signs and

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30 One attestation of wrr is not written with a ligature: 22 vso, l. 6 is *CT* VII, 231d (spell 1013).

the potential of writing them as non-ligatures. The ḥr-group consists of two signs that are frequently written as two separate signs. There may be underlying reasons for choosing either spelling (connected or separately) that we cannot retrieve anymore, but the scribe may have been more conscious and consistent when combining signs that appear frequently as separate signs. The wr-group is an example of a sign-combination that is almost always written in a ligature and the latter becomes the standard way of writing the word wr (and derivatives). More variation in the stroke building is perhaps expected in such a case.

Nonetheless, although individual ligatures do not develop in a similar direction, the changes they display can often be seen to occur in the same text passages, and thereby designate distinct manufacture phases.

A joined effort

This first introduction to the handwriting on Papyrus Gardiner II raises interesting questions concerning the different phases in the creation of a lengthy papyrus roll. Further and more extensive comparisons following on the ones illustrated above will clarify and refine ideas about its production process. For now, the discussed formal and structural peculiarities of two ligatures in combination with general observations on handwriting and peculiarities in layout indicate that the roll was outlined and inscribed in different phases.

Phase 1

The identification of a separate first phase relates to the construction process of the papyrus, more specifically to the question whether all sheets were mended together into a roll at once or whether sheet 1 was outlined and/or inscribed first and then merged into the larger roll. The suggestion that sheet 1 was inscribed separately is supported by differences in writing style and layout; the text displays larger signs in denser black ink when compared with what follows on sheet 2. The contrast becomes clear from glancing at frame 4 (the transition of *CT* Spell 288 to 989, see fig. 1). Furthermore, the only visible rubric on sheet 1, above the first text line of spell 988, is written in black ink. From sheet 2 onwards, rubra are consistently written in red ink, which is generally more common.[31] This coincides with the appearance of a double horizontal register line to provide designated space for the rubra. Even

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31   From *CT* Spell 993 onwards (in sheet 5), other parts of the text start to be written in red ink.

though the merging of sheets 1 and 2 was probably anticipated from the outset (see above), it is at least safe to consider a (short) time lapse between the outlining and writing of these sheets; both could have been assembled after they were inscribed.

Phase 2

From sheet 2 onwards, the handwriting on the recto is consistent and most likely reflects a single hand. This remaining part of the recto is characterised by a dense layout pattern of register lines in black ink.

Phase 3

After inscribing the recto, the papyrus was turned horizontally (along its vertical axe); the texts on the recto and verso are oriented the same way up. After leaving a buffer, the scribe thus continues on the sheet that was last inscribed (sheet 14, first text visible in frame 31). The handwriting on the verso is characterised by an increase of signs and ligatures and an absence of horizontal register lines; the texts were applied directly to the papyrus without the guidance of a grid.

Phase 4?

The clearest deviations in the ligatures discussed above were visible in a text cluster that roughly corresponds with *CT* spell 1013 (23 vso, l. 11 and 22 vso, l. 1). Both the distinct type III ẖr-ligature and the deviant shapes of the *wr*-ligature with the indication of the tail by a double line (22 vso, l. 6 and 22 vso, l. 10) define a handwriting starting with the rubric in text line 5 on 23 vso and continuing until line 7 in 21 vso. *CT* spell 1013 covers a sheet join in the left-hand side of frame 22. The addition of the dot in the type III ẖr-ligature is so unusual that another scribe may have entered the scene here. With the start of *CT* spell 1013, the spacing of the text lines suddenly decreases especially in the beginning of the spell (23 vso, l. 1-4), and the signs decrease in size somewhat. In the course of the text, this hand gets more confident about spacing to an extent that it becomes unclear whether he continued or was relieved by another scribe and if so, at what point. However, glancing at the handwriting in frame 21, we are faced with a palaeography that is again similar to the handwriting in the beginning of the verso and is more consistent.

Phase 5

A final change of handwriting can be detected with the start of *CT* spell 1028 or the last four lines of frame 11 vso. This hand is characterised by slightly larger signs in which the horizontal lines are considerably thinner than the vertical ones. The palaeographic change is accompanied by the absence of rubra and register lines. This hand continued until the end of the text. At this point, it is worth repeating that these variations in handwriting do not match with sheet joins, confirming earlier statements about the construction of (most of) the roll prior to inscribing.

Whether these phases should rigorously be designated to individual scribes needs more study, but it is not far-fetched to assume that a roll of such importance was the result of a joined effort. The exact function of Papyrus Gardiner II could not be discussed in detail here, but whether the roll was a template, a secondary copy, or a composition book,[32] the collection, copying and transmitting of such religious and magical knowledge must have been an intellectualy process that developed over time and consequently involved different scribes. Such activity must have been a core task of a designated scribal community, library or archive and possibly led to intensive and repeated discussion and consultation.

Setting a standard?

Embedded in local craft and written culture, members of scribal communities would have followed an established structure when composing hieroglyphs and building more complex sign groups, even if this was done unconsciously, while at the same time maintaining their individual handwriting. Most of the above-discussed deviations consist of size and stroke angle and density, while the structure of the signs and the placement of the brush strokes remain mostly identical. Differences in handwriting can thus coincide with consistency in sign structure.

In *„Binsen"-Weisheiten I–II,* Andreas Dorn addressed similar differences between shape and structure when discussing developments in Amunnakht's handwriting.[33] He interpreted striking differences in palaeography between the front and the back of Ostracon Gardiner 25, for example, as inferior to the similar structure of the signs, which he took as primary evidence that both sides were inscribed by the same scribe. The written material Dorn discussed is from a different period and genre, but, in principle, his conclusion would entail that sign structure can be a scribal

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32 For a discussion of such functions, see Haring, in: Verhoeven (ed.), *„Binsen"-Weisheiten I–II,* 67–80.

33 Dorn, in: Verhoeven (ed.), *„Binsen"-Weisheiten I–II,* 189–192, pl. I.

idiosyncrasy and that (only) changes in such structure are valid enough to assume the involvement of different scribes. If this were the case, wouldn't we expect much more variation in sign structure? To the contrary, the above-presented overview in combination with the same ligatures on other papyri displays considerable consistency in sign structure amongst papyri that were certainly written by different scribes, and even over time. Figs. 5 and 6 show that sign structure is not a scribal preference, but is determined by time and place.

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