



Matthias Neuber\*

# In Praise of Externalism? Spaulding, Dewey, and the Logic of Relations

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**Abstract:** The late nineteenth- and early twentieth-century debate over ‘internal’ and ‘external’ relations is well explored, as far as its course in Britain is concerned. F. H. Bradley’s idealistic internalism, on the one hand, and Bertrand Russell’s realistic externalism, on the other, were at the center of this debate. Less well known, however, is that there was also a discussion about relations in the United States at the time. The central figures in this discussion were Edward Gleason Spaulding and John Dewey. Like Russell, Spaulding advocated a realist-inspired externalism, while Dewey criticized this viewpoint from a pragmatist perspective. The aim of the present paper is to reconstruct the exchange between Spaulding and Dewey and to elaborate the specifics of this exchange. In doing so it will emerge, among other things, (1) that, in contrast to Bradley’s idealist rejection of externalism, Dewey’s pragmatist attempt at a refutation was more in line with common sense and science and (2) that Spaulding’s version of externalism differed markedly from Russell’s in its strong empirical orientation. Overall, an undeservedly forgotten chapter in the history of early twentieth-century American philosophy is revisited and reassessed.

**Keywords:** Spaulding, Dewey, relations, externalism, realism, pragmatism

## 1 Introduction

Talking about the logic of relations was philosophically *en vogue* around 1900. This had primarily to do with simultaneous developments in mathematics and a ‘logico-scientific turn’ within philosophy itself. Authors such as Russell (1900),

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\*Corresponding author: Matthias Neuber, Philosophy, Johannes Gutenberg Universität Mainz, 55099 Mainz, Mainz, Germany, E-mail: maneuber@uni-mainz.de

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Cassirer (1901), and Couturat (1901) focused on Leibnizian relationalism and thus made a lasting contribution to this trend. Moreover, it was particularly Russell who developed a systematic theory of relations in his *The Principles of Mathematics* from 1903. This theory, in turn, can be read as a direct response to the theory of relations put forward by F. H. Bradley in his 1893 *Appearance and Reality*. Whereas Russell advocated an ‘externalist’ position concerning relations, Bradley favored an ‘internalist’ conception. In a nutshell, this meant that Russell argued for the independence of relations from their relata, while Bradley argued for their being dependent on their relata. Furthermore, the Russellian point of view was associated with an ontological pluralism embraced by an encompassing realist outlook, whereas Bradley’s point of view was associated with an ontological monism encompassed by Hegelian inspired idealism. Interestingly, a similar juxtaposition can be observed in the early twentieth-century American philosophical discussion. To be more concrete, it was Edward Gleason Spaulding (1873–1940) and John Dewey (1859–1952) who stood in opposition to each other in that discussion, which took place between 1910 and 1911. Like Russell, Spaulding advocated a realist-inspired externalism, while Dewey criticized this viewpoint from a pragmatist perspective. The aim of the present paper is to reconstruct the exchange between Spaulding and Dewey and to elaborate the specifics of this exchange. In doing so it will emerge, among other things, (1) that, in contrast to Bradley’s idealist rejection of externalism, Dewey’s pragmatist attempt at a refutation was more in line with common sense and science and (2) that Spaulding’s version of externalism differed markedly from Russell’s in its strong empirical orientation. Overall, an undeservedly forgotten chapter in the history of early twentieth-century American philosophy is revisited and reassessed.

The paper is organized as follows. In Section 2, the British debate over internal and external relations will be briefly reconstructed, so that Russell’s and Bradley’s respective accounts can be addressed as a contrastive foil to the American discussion. Section 3 is devoted entirely to the 1910–1911 exchange between Spaulding and Dewey. In Section 4, the perspective will be widened by critically discussing Spaulding’s later, spelled out, theory of external relations and its particular application to the physical concept of motion. Section 5 summarizes the paper and provides some conclusions.

## 2 The Debate over Internal and External Relations

Imagine a breakfast table, where an egg is related to other items on that table: the egg is located left to the coffee mug, it is smaller than the jar of jam and it

gets cold earlier than the coffee.<sup>1</sup> With respect to these other items, the egg can be said to stand in spatiotemporal relations to them (*left to, smaller than, cold earlier than*). Assumed something is modified on the table, for example a salt shaker is added or the coffee mug is removed. Then both the number and the kind of relations of the egg to other items on the table have changed, but not, one might suppose, the egg itself. It remains the same egg no matter whether the salt shaker stands on the table or not, whether the coffee is cold or not, or whether the egg stands left or right to the mug. Accordingly, it seems plausible to assume that the mentioned spatiotemporal relations are in no way constitutive for the egg, i.e. more generally: by changing its relations to other things the respective thing itself will not be changed.

Now, someone arguing along these lines supports the theory of *external* relations or, in short, externalism. Such a person would not only claim that the identity of a thing is independent of the relations in that it stands to other things, but also conversely that the relations themselves – understood as abstract entities – are ontologically independent. However, it could also be argued that externalism, though intuitively plausible, is in fact misguided because on closer inspection it becomes clear that the respective thing's identity is thoroughly determined by its relations to other things. Someone arguing that way supports the theory of *internal* relations or, in short, internalism. Conversely, the internalist would make the further claim that the relations themselves are ontologically dependent on their relata, i.e. the respective things. Current discussion in ontology reveals that both options, externalism and internalism regarding relations, are still alive and kicking (see the overviews in MacBride 2020 and in Heil 2021).

Historically, the roots of the debate over internal and external relations reach back to the late nineteenth and early twentieth century. As a matter of fact, it was Bradley who initiated the debate. Thus in his *Appearance and Reality* he proceeded from the general theoretical assumption that relations are not real. The background of this view was the fundamental metaphysical distinction between appearance and reality. According to Bradley, the former is contradictory, while the latter is consistent. Thus, his was a purely logical criterion of reality. In Bradley's own words: "Ultimate reality is such that it does not contradict itself; here is an absolute criterion." (1897: 136) On the other hand, "[t]he material world is an incorrect, a one-sided, and self-contradictory appearance of the Real" (266) and therefore merely "a partial and imperfect manifestation of the Absolute" (267). Relations, Bradley maintained, belong to this "imperfect" realm of appearance and are therefore "nothing intelligible" (32). Moreover, Bradley provided what

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<sup>1</sup> The example under discussion is a slightly varied version of the one provided in Horstmann (1984: 153–4).

later became known as ‘Bradley’s regress’ (see Leerhoff 2008 and Heil 2021: ch. 6). This was particularly a rejection of *external* relations and essentially implied that in order to relate terms by such relations other relations of that kind are needed to fulfill the relating job as such. Bradley writes: “The links are united by a link, and this bond of union is a link which also has two ends; and these require each a fresh link to connect them with the old.” (1897: 33) And so on *ad infinitum*, one might add.<sup>2</sup> More generally, Bradley came to the conclusion “that a relational way of thought – anyone that moves by the machinery of terms and relations – must give appearance, and not truth” (ibid.). But what, then, about *internal* relations? These are characterized by Bradley as being based on their relata and thus can be ‘absorbed’ by them (see, in this connection, esp. Bradley 1968: 238). Since relations in general pertain to the realm of appearance, internal relations (like external ones) must be considered ontologically unreal. On the other hand, Bradley thought of internal relations as *epistemologically* relevant. Thus at the level of epistemology, he committed himself to internalism, although the way he attempted to support this view remained largely obscure (see Horstmann 1984: 165; but also the more charitable reading in Candlish 2021: sect. 6).

Regarding externalism in the theory of relations, it was primarily Russell who paved the way for further developments in the context of early twentieth century – ‘scientific’ – philosophy. As he emphasizes in his *The Principles of Mathematics*, “the logic of relations has a more immediate bearing on mathematics than that of classes or propositions, and any theoretically correct and adequate expression of mathematical truths is only possible by its means” (1903: 24). In Russell’s view, internalism does not account for this overwhelming importance of relations in mathematics. More to the point, Russell established an *indispensability argument* regarding particularly external relations (see MacBride 2020, sect. 2). Lurking in the background here was Russell’s criticism of traditional (Aristotelian) logic. Thus, for example, in *Our Knowledge of the External World* he pointed out: “Traditional logic, since it holds that all propositions have the subject-predicate form, is unable to admit the reality of relations: all relations, it maintains, must be reduced to properties of the apparently related terms.” (Russell 1914: 56) As Russell further explains in this passage, the insufficiency of internalism becomes obvious as soon as *asymmetrical* relations such as *before*,

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<sup>2</sup> At another place, Bradley puts the issue thus: “while we keep our terms and relation as external, no introduction of a third factor could help us to anything better than an endless renewal of our failure.” (1935: 643) Thus, in order to relate a relation  $R$  to its terms  $a$  and  $b$  we need another relating relation  $R'$  which in turn stands in need for a further relating relation  $R''$ , and so on.

*greater, less, above of, to the right of*, etc., are taken into account. Relations such as these, Russell maintains, are definitely not reducible to subject-predicate form. They are typically used to impose *order* on the objects they relate and thus are not monadic (see Russell 1903: 220). That is, in contrast to monadic predicates, they require at least two terms for their instantiation. Mathematics, understood as the science of pattern and order, is thus a paradigm case for externalism in the theory of relations. For example, to say that  $7 < 9$  obviously resists an internalist reduction. Unlike a symmetrical relation, such as ‘a differs in color from b’, it cannot be decomposed ‘monadistically’ (in the spirit of Leibniz or Lotze) into two independent propositions, such as ‘a is green’ and ‘b is yellow.’ For ‘ $7 <$ ’ and ‘ $9 >$ ’ would not capture the proposition’s mathematical content, namely that  $7 < 9$  and  $9 > 7$ . Thus the allegedly monadic predicates are in fact non-monadic and thus cannot be reduced to properties each predicated of only one relatum. That is, each predicate inevitably refers to the other relatum of which it is not predicated. What is more, also a ‘monistic’ analysis would fail. Such an analysis would be in the spirit of Bradley. To be more precise, a monistic analysis would interpret ‘ $7 < 9$ ’ thus that the ‘intrinsic’ property ‘less-than-9’ is predicated of the (as it were, substantial) entity 7. In more formal terms, we would transform the two-terms relational proposition  $aRb$  into  $(ab)R$ , thereby regarding the relation  $R$  as a property of a *whole* composed of  $a$  and  $b$  (see Russell 1903: 223). As a result, it would become impossible to determine the direction of an asymmetrical relation such as  $7 < 9$ . For in the whole as such there would be neither antecedent nor consequent, so that  $(ab)$  and  $(ba)$  would be on the same footing. Or, as Russell himself puts it:

‘ $a$  is greater than  $b$ ’ and ‘ $b$  is greater than  $a$ ’ are propositions containing precisely the same constituents, and giving rise therefore to precisely the same whole; their difference lies solely in the fact that *greater* is, in the first case, a relation of  $a$  to  $b$ , in the second, a relation of  $b$  to  $a$ . Thus the distinction of sense, i.e. the distinction between an asymmetrical relation and its converse, is one which the monistic theory is wholly unable to explain (Russell 1903: 227).

In contrast, pluralistic externalism à la Russell would decompose the proposition ‘ $7 < 9$ ’ into (1) the relation ‘ $<$ ’ detached from any relata in particular and (2) the terms ‘7’ and ‘9’ both detached from any relation in particular. Consequently, the less-than relation would be external to any of the numbers which stand in it. It could be any other numbers, with the less-than relation itself ‘subsisting’ in the realm of universals, implying, according to Russell, that “relations [. . .] must be placed in a world which is neither mental nor physical” (1912: 10).<sup>3</sup> Thus, with

respect to the asymmetrical relation  $7 < 9$ , it thus would make no difference to  $<$ ,  $7$ , and  $9$  as entities whether  $7 < 9$  is the case or not. A regress as envisaged by Bradley would not even occur since being blocked by the relation's 'stability' as an ontologically autonomous subsisting universal.

In sum, Russell focuses on the *logical form* of relational propositions, thereby intending to unmask metaphysical aberrations such as Bradley's monistic inter-nalism in idealistic garb. Convincing or not, there can be no doubt that Russell's argumentative strategy was instrumental in setting the stage for what later developed into full-fledged analytic philosophy (see Hylton 1990 and Candlish 2007).

### 3 The Spaulding–Dewey Exchange

We are now in a position to turn to the controversy between Spaulding and Dewey. What was the context of this controversy? To answer this question, it is important to know that there was a swing to realism in American philosophy around 1900. Indeed, in the immediate decades before, absolutistic idealism in the vein of Josiah Royce had prevailed in American philosophy (see Werkmeister 1949: ch. 9; further Randall 1969). The realist 'revolt' first culminated in "The Program and First Platform of Six Realists," published in 1910 in *The Journal of Philosophy, Psychology and Scientific Methods* by a collective of authors that, apart from Spaulding, included Edwin B. Holt, Walter T. Marvin, William Pepperell Montague, Ralph Barton Perry, and Walter B. Pitkin.<sup>4</sup> It was in this neo-realist manifesto that Spaulding took an explicit stand in the debate over internal and external relations. More specifically, Spaulding started from the assumption that realism as a philosophical position essentially implies that the object known is *ontologically independent* of the knowing mind (see Spaulding 1910a: 399–400). This meant for him two things, namely (1) that not all entities are mental (or conscious), and (2) that entities are knowable without being known. Based on these preliminary considerations, Spaulding moved on to what he called the "external view" (400) of relations. Having previously rejected the "internal view" (ibid.) as being "self-contradictory" (ibid.; see also Spaulding 1910b), he characterized the external view as a "logical doctrine" (ibid.) according to which relations and their relata each exist for themselves, i.e. are not reducible to one another. Moreover,

<sup>3</sup> For a detailed discussion of Russell's account of the ontological status of subsistence, see Horstmann (1984: 184ff).

<sup>4</sup> As far as I can determine, the first articulate – realistically inspired – criticisms of Roycean idealism were Montague (1902) and Perry (1902). Interestingly, both Perry and Montague had studied with Royce at Harvard. For the broader institutional context, see Kuklick (1977).

Spaulding claimed that “[k]nowing, consciousness, etc., are facts to be investigated only in the same way as are other facts, and are not necessarily more important than are other facts” (401).

Dewey, who had started off as a Hegelian but turned to pragmatism around 1903 (see Misak 2013: 108–110; further Hildebrand 2018: sect. 4.1), responded to Spaulding’s brief remarks on realism and relation in an essay titled “The Short-Cut to Realism Examined,” also published in the *Journal of Philosophy, Psychology, and Scientific Methods* in 1910. Dewey explicitly agreed with Spaulding’s initial assumption of ontological independence. However, at the same time, he quite vehemently rejected the external view of relations. In his own words: “The attempt to derive conclusions regarding existence from analysis and manipulation of a concept seems to me to savor more of old-fashioned rationalism than of realism – unless it be Platonic-medieval realism.” (Dewey 1910: 554) As Dewey further points out, the realist does not distinguish between “the static ideal of possessed knowledge” (555) and “the active process of getting knowledge” (ibid.), thereby entirely ignoring the latter. This, he maintains, proves fatal because it blatantly runs counter to the *practice of science*. Dewey writes:

While I wish to stick as closely as possible to the logical analysis of the concept of external relation, I can not refrain from pointing out that the only sure way of getting knowledge of existence – experiment – proceeds expressly by planning and carrying through a certain alteration in the existences referred to. In other words, denotative reference is of the nature of an act or event, not of self-contained thought (1910: 555, fn. 4).

This ‘experimentalist’ response is a completely different critique of relational externalism than the one put forward by Bradley. Unlike the latter, Dewey does not argue within the framework of metaphysics and conceptual analysis, but rather by reflecting on the scientific method. This fits perfectly well with his approach to pragmatism, which, according to Misak, was for Dewey primarily “an application of the scientific method, properly conceived, to every domain of inquiry or subject matter” (2013: 110). No wonder, then, that he considered relational internalism to be just as flawed as its externalist counterpart (see Dewey 1910: 554, fn. 2). All in all, Dewey’s critique amounted to an emphasis on experimental practices in science and their implications for addressing questions of ontology.<sup>5</sup> In other words, the procedural aspects of doing science were foregrounded in his pragmatist view.

Spaulding’s rejoinder to Dewey’s critical comments appeared in 1911 in *The Journal for Philosophy, Psychology and Scientific Methods*. As Spaulding explicitly remarked, the paper was previously agreed with the other members of the ‘six

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<sup>5</sup> It was primarily in this respect that Dewey exerted influence on W. V. O. Quine’s conception of naturalism and “ontological relativity.” For further details, see Misak (2013: 197–8).

realists group' (see Spaulding 1911a: 63, fn. 1). To Dewey's principal objection he replied that realism and a genetic conception of knowledge are "not incompatible" (Spaulding 1911a: 63). In his view, however, a principled distinction should be made between *judgment* and *proposition*. This, he claims, is implied by "modern analysis" (66). While judgments are "psychological entities" (*ibid.*), propositions are abstract "subsistents" (*ibid.*). Dewey, according to Spaulding, confuses these two. On the other hand, it is Russell who in his *The Principles of Mathematics* – "that most interesting and valuable presentation of advanced logic" (67) – lay the foundation for what Spaulding sees as modern analysis. Dewey, he complains, "does not attribute sufficient importance to this modern logical analysis" (*ibid.*). As it appears, Dewey, according to Spaulding, would resort to instances of *counting*, where subsistents, i.e. abstract entities such as numbers, are actually at issue.

But what about relations? In Dewey's opinion, the external view of relations applies only to static spatial relations, but not to the dynamic processes in physics, biology, and other sciences (see Dewey 1910: 556). To this Spaulding retorts that Dewey is simply wrong because relational externalism is at work in "every case of physical alteration or interaction or genesis" (Spaulding 1911a: 68). We will return to this issue and discuss it in detail in the next section. For now, however, a more general point concerning relations should be addressed, namely the new realists' claim that *cognition itself* is an external relation. In his contribution to the neo-realist manifesto, Spaulding puts this point thus: "By [the] 'external view' it is made logically possible that the knowing process and its object should be qualitatively dissimilar." (1910a: 400). Although Dewey would admit that knowledge and the cognized object are independent and thus "qualitatively dissimilar," he would still insist on the procedural aspect of cognition. Accordingly, he would imply that the *knowing process* Spaulding speaks of in the quote above is indeed a process, and not something static like a spatial relation, such as the egg standing to the left of the coffee cup in our initial illustration. For Spaulding, however, "logic is logically prior to psychology" (1911a: 69), and for him this essentially means that there are invariant elements in cognition, such as concepts (or terms) as opposed to mere words, the former being the building blocks of propositions. "Such parts," he sets out, "can be related and supplemented without thereby being modified, and it is such parts that the realist has in mind when he applies the theory of 'external relations' to *achieved* knowledge" (67; emphasis added). Thus, it is in fact knowledge as a product, rather than the process of acquiring knowledge, that Spaulding ultimately boils down to. The following passage underscores this reading:



The realist recognizes that, wherever the assumption is made, either tacitly or explicitly, that genuine knowledge has been obtained, the tacit assumption is also made that the object known is not modified, altered, or constituted by the knowing. This means that the realist recognizes that in every case of genuine knowledge, whatever the object known may be, the way of 'external relations' is presupposed as valid for the cognitive relation (1911a: 72).

To put it somewhat pointedly: whereas Dewey argues within the 'context of discovery,' Spaulding argues within the 'context of justification.' While the former focuses on the genesis of knowledge and the scientific-experimental treatment – or, better, manipulation – of its objects, the latter raises the question of definite knowledge claims and their ontological presuppositions.

Now the remarkable thing is that Spaulding does not confine himself with methodologically demarcating his own approach from Dewey's. Rather, he goes so far as to dismiss Dewey's critique as self-refuting, since it ultimately presupposes the external view of relations. Spaulding writes:

Professor Dewey hits us only at the cost of putting himself in a very serious predicament. And yet we believe that he will not, indeed, that he can not, accept the consequences of his own criticism. For, by its logic, he would be prevented from studying the genesis of knowledge, provided his own knowing has a genesis – which, of course, it has! Indeed, that it has is implied by the fact that he does study the genesis of knowledge in general, and in so doing he is analyzing a process which necessarily includes the relation of his own knowing to his own theory. By his own study, then, he is doing that which, by the logic which he uses in his criticism of us, invalidates his own efforts, his own study, his own results, and makes him "beg the question to the limit." Either he is guilty with us or we are innocent with him (1911a: 70).

This no doubt is a devastating rejoinder. If one assumes that genuine knowledge for Dewey must concern his own knowledge of his own theory and if one further assumes that this presupposes relational externalism, then Spaulding is indeed correct when he asserts: "if there is one case of this kind, there may be others." (73) At any rate, the realist may allow for the genesis of knowledge while at the same time postulating "certain logical facts" (71), whereas Dewey, in Spaulding's view, commits "the epistemological fallacy" (72) by running into an infinite regress of knowledge claims.

In his brief response to Spaulding's rejoinder, Dewey states laconically that "Dr. Spaulding's article, in spite of many interesting things it contains, is no answer to my criticism" (77). As Dewey goes on to explain, this criticism was not made from a genetic standpoint, but "from a formal standpoint" (*ibid.*). More specifically, Dewey again insists that physical and biological events and "operations" (79) can hardly be equated with static spatial relations. Formal logic in this case would lead to the postulation of "eleatic properties of being" (78) and

would thus be blatantly fallacious in Dewey's view. Dewey does not substantiate this claim, but he is obviously no friend of the Eleatics' (e.g., Parmenides') preference for ('eternal') ontological considerations over ('ephemeral') epistemological considerations. On the other hand, the six realists, including Spaulding, advocated exactly this kind of approach.<sup>6</sup>

Spaulding again responded to Dewey's rejoinder to clarify, among other things, the scope of the theory of external relations (see Spaulding 1911b: 569). Accordingly, relational externalism might apply to (1) the relation of the terms of a proposition, (2) the relation of a proposition to what it refers to, or (3) the relation of propositions to one another. The last case would be the subject of formal logic, the second would focus on cognition as such, and the first case would pertain to material inquiries such as performed in physics. As Spaulding concedes, the word 'term' in (1) might be somewhat "misleading" (566). He thereby refers to the following statement of the external theory of relations given by Marvin in the neo-realist manifesto: "In the proposition 'the term  $a$  is in the relation  $R$  to the term  $b$ ,'  $aR$  in no degree constitutes  $b$ , nor does  $Rb$  constitute  $a$ , nor does  $R$  constitute either  $a$  or  $b$ ." (Marvin 1910: 395) Spaulding comments on this statement as follows:

"Term  $a$ " and "term  $b$ " are used as variables, *i.e.* in such a way that there could be substituted for them any entities in relation for which relation the theory, as stated, is found empirically to apply. Such terms or entities might *a priori* be the terms of propositions, or propositions as wholes, or points, or instants, etc. To which of these the theory applies it to be determined by empirical investigation for each case separately and independently, and not by implication from one another; and the formulation of the theory, indeed the entire platform, allows for just this independent investigation (1911b: 567).

Thus *terms* might be material (physical) *objects* and accordingly subject of empirical investigation. Since many of these entities are not accessible by perception or direct observation, Spaulding postulates an "ideal" observation and explicates: "By 'ideal' observation and experiment the realist finds that the [external] theory applies to the relations between those entities, *such as* intensity-points, space-points, instants, etc., which can not be directly observed physically, but which are implied by certain facts that are so observed." (ibid.) It is this – scientific realist – focus on "implied existential facts" (568) of physics to which we shall turn in the next section.

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<sup>6</sup> Thus, for example, Marvin declared in his contribution to the neo-realist manifesto that "[e]pistemology is not logically fundamental" (1910: 394) and that "[t]here are many existential, as well as non-existential, propositions which are logically prior to epistemology" (395).

As to Dewey's criticism of the external view of relations, it can be said in summary that it amounted to a fundamental doubt about the ontological implications of logical analysis, that logical 'facts' and principles were tacitly dissolved by him into the process of inferential inquiry, and that he explicitly rejected the equation of physical and other material processes with static spatial relations as allegedly claimed by the realists.<sup>7</sup>

## 4 Spaulding's Spelled out Theory

Also in 1911, Russell published a paper titled "The Basis of Realism." In that paper, he expressed his appreciation for the American realists' enterprise, explicitly stating that "I find myself in almost complete agreement with the 'six realists'" (1911: 158). As he further pointed out, the external view of relations figures central in the realist approach, albeit a logical decision in its favor be supplanted by "purely empirical" (160) considerations.<sup>8</sup> A year later, the six realists came up with a book-sized collaborative work titled "The New Realism: Cooperative Studies in Philosophy." In the introduction to that volume it is claimed that "[l]ogic is at the present time in a state of extraordinary activity, and able both to stimulate and to enrich philosophy" (Holt et al. 1912: 25). It is further claimed that "[p]erhaps the most notable feature of a realistic philosophy is the emancipation of metaphysics from epistemology" (32), that "neo-realism rejects all philosophies in which metaphysics is sharply divorced from the special sciences" (33), and that this sort of realism as well "rejects the premise that all relations are internal, because it is believed that it is contrary to the facts of existence, and to the facts of logic" (ibid.).

Now Spaulding's contribution to the *New Realism* volume has the title "A Defense of Analysis." Relations are dealt with extensively in this paper. Interestingly, Spaulding, like Russell, sees the need for a "detailed empirical

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<sup>7</sup> Actually, the exchange between Spaulding and Dewey ended with another, sort of cooperative, paper (resulting from private meetings and published in fact by Spaulding) that had the goal to "bring our discussion to a close" (Spaulding 1911c: 574). Yet, for our concerns, this last contribution is of no further interest. For an extended discussion of Dewey's (earlier) exchange with other American realists, particularly Frederick J. E. Woodbridge and Evander B. McGilvary, see Shook (1995).

<sup>8</sup> In his 1924 "Logical Atomism," Russell puts this point as follows: "If I am right, there is nothing in logic that can help us decide between monism and pluralism, or between the view that there are ultimate relational facts and the view that there are none. My decision in favor of pluralism and relations is taken on empirical grounds, after convincing myself that the *a priori* arguments to the contrary are invalid." (Russell 1956:338–9).

investigation” (Spaulding 1912: 168) regarding the internalism/externalism issue. Unlike Russell, however, he actually provides such an investigation. Thus, in section 4 of part III of his paper, Spaulding focuses on “Motion and its Analysis” (193; emphasis omitted). In a footnote right at the beginning of that section, he confesses his indebtedness to “Mr. Bertrand Russell’s analysis of motion, contained in Chap. LIV of his *Principles*” (1912: 193, fn. 3) but at the same time makes it clear that he departs from Russell’s view “in certain essentials” (ibid.). To better understand this claim, a brief look at chapter 54 of Russell’s *Principles* is in order.

First of all, Russell does *not* – at least not explicitly – apply relational externalism to the concept of motion. What he is really doing is presenting a “rational Dynamics” (Russell 1903: 480) by means of “abstract logical terms” (ibid.). A fundamental consequence of this approach is Russell’s explicit “rejection of velocity and acceleration as physical facts” (ibid.) in conjunction with an ‘anti-causalist’ account of dynamics in general. Thus, with approving reference to the work of Gustav Kirchhoff, Ernst Mach, and Karl Pearson, Russell declares that his rational dynamics is purely descriptive, i.e. it merely registers observational sequences and therefore does not discover any causal connections. Moreover, he emphasizes that the “descriptive school” is quite correct in assuming that “the concept of *force* is one that should not be introduced into the principles of dynamics” (481; emphasis added). That is, force, for Russell (and the “descriptive school”), is *not* the cause of acceleration; the latter being “a mere mathematical fiction, a number, not a physical fact” (ibid.).

To be sure, Spaulding agrees with Russell that motion *as such* can be analyzed without implying causality (see Spaulding 1912: 195). However, this, for him, is merely due to the fact that motion is *logically prior* to cause, velocity, and acceleration or, in other words, that dynamics presupposes kinematics but not conversely (see 1912: 204–5). Motion, initially conceived of as an asymmetrical transitive relation (see 1912: 196) and in “purely kinematical” (197; emphasis omitted) terms, becomes, as it were, ontologically – and thus causally explanatory – significant as soon as *material particles* are recognized as ‘carriers’ of both velocity and acceleration. In explicit opposition to Russell, Spaulding therefore states:

I must disagree, then, with the statement that “there is no such thing as velocity except in the sense of a real number which is the limit for a certain set of ratios” [Russell 1903: 473]. Existential velocity is the magnitude of the existential complex, consisting of the one-one relation between one instant and one point, when this relation is mediated by a material particle. It itself is not time, nor space, nor matter; but it is involved in these; that is, it exists if there is a real material particle moving and so serving to make the continuous series

of correlating relations existential. But there are moving particles. Then velocity exists, although it is a complex, that is, a relation and its terms (1912: 208).

And Spaulding adds: “The case with acceleration is much the same as was with velocity.” (209) Consequently, and again in explicit contrast to Russell, acceleration is considered not to be a “mere number” (212). Rather, it is for Spaulding “a series – of complex terms; it exists if a material particle moves with a velocity which is not constant, otherwise it subsists” (ibid.).

With these considerations on the table, Spaulding is in a position to clearly divorce himself from Russell’s purely numerical – ‘formalist’ – account of velocity and acceleration. Accordingly, causality is taken ontologically seriously and integrated into the framework of dynamics. Spaulding writes:

With the distinction between the object known and the knowing granted, and with it also granted that there is an objective causal determination of the kind just defined, in reality complex, yet capable of a simplifying treatment, it follows that, if the numerical value of the configurations at two times be known, the configuration at another time, be it ever so complex, can also become known – if, as assumed, the change is continuous (1912: 217–8).

Thus, in point of fact, Spaulding’s causal explanatory approach significantly differs from Russell’s numerical descriptivism in that it amounts to an *empirical interpretation* of the concepts of velocity and acceleration. This is exactly where dynamics for Spaulding begins: “In Dynamics, to distinguish it from Kinematics, causation and configurations of entities are taken into consideration.” (218)

Remarkably, Spaulding returned to the question of motion and its realist-relationalist analysis in his magnum opus *The New Rationalism*, published in 1918 and subtitled *The Development of a Constructive Realism Upon the Basis of Modern Logic and Science, and Through the Criticism of Opposed Philosophical Systems*.<sup>9</sup> Among these “opposed philosophical systems” was also pragmatism which, according to Spaulding, belonged to what he called “causation philosophies” (1918: ch. XXXIII). In contrast to his 1912 *New Realism* contribution, Spaulding now argued more cautiously regarding causality. In fact, he now contrasted

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<sup>9</sup> The programmatic label ‘rationalism’ is somewhat misleading since it lets us think of the Cartesian tradition in continental philosophy. Yet, for Spaulding, ‘rationalism’ is (primarily) just another word for ‘realism,’ ‘ontological pluralism,’ or ‘relational view of the universe’ (see Spaulding 1918: 42–3). It is preferably used to indicate that “there are new methods of rational analysis which make it possible to solve problems where old methods fail” (43). Apart from that purely methodological aspect, the commitment to rationalism is intended as a statement against contemporary prevailing *naturalism*, which Spaulding rejects mainly on ethical grounds and with regard to the issue of free will, and which he considers downright counterproductive in the “present world-crisis” (1918: vii).

causality with mere relationality to a certain extent. Already in the preface to his book, he emphasized that the new – symbolic (Russell-Fregean) – logic is “radically different from the logic of the tradition” (xvii), not at least because, in its development, “the concepts of ‘*relation*’ and of ‘*event*’ or ‘*happening*’ have played the dominant role as *philosophical* principles of thinking, rather than the concepts of *substance* and *cause*” (ibid.).<sup>10</sup> Moreover, the new logic, according to Spaulding, “fully recognizes [. . .] the *functional relationship* as opposed to the causal” (ibid.). This in turn sounds like a clear rapprochement to Mach, the “descriptive school” and thus also to Russell.<sup>11</sup> At any rate, as Spaulding points out in the introduction of *The New Rationalism*, the metaphysics developed in that book “is one that *denies the universality* of causation and of substance, and that emphasizes relations” (11).

So the question arises: what happened to relational externalism in the course of Spaulding’s departure from strict causalism? More specifically, how did Spaulding analyze velocity and acceleration in his 1918 account?

To begin with, Spaulding proceeds from the general assumption that relatedness and independence do not contradict each other (see 1918: xvii). He commits himself to the method of *analysis in situ* and explains:

Points and instants are examples of [. . .] ultimate simple terms, which, though they cannot be isolated by *physical* experiment, are nevertheless discovered by an *analysis in situ*. It is also found by the same method that these entities are related, and yet that they do not affect one another [. . .]. The modern analysis of space and time demands, therefore, the theory of external relations, and accordingly the thesis is proved, that at least *some* terms do *not*, as related, affect or modify one another, and are, in this sense, *independent* (1912: 178–9).

Thus by applying the method of *analysis in situ*, points and instants are postulated as *idealized*, causally ineffective, entities to which the theory of external relations can be applied. This seems *prima facie* quite close to Russell’s anti-causalist rational dynamics, but unlike Russell’s, Spaulding’s approach is explicitly linked to relational externalism, which by its application to the issue of motion seems to find an empirical interpretation, whereas Russell himself in the *Principles* had restricted the external theory to the realm of pure mathematics (although he at least, as we have seen, *called for* respective empirical investigations). In view of this rather intricate constellation, the problem now arises whether and, if so, how

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<sup>10</sup> For a very similar assessment, see already Cassirer (1910), to which Spaulding himself refers approvingly at (1918: 30, fn. 5).

<sup>11</sup> For Mach’s replacement of causality (and causal forces) by functional dependence, see Mach (1883) and (1896). Russell (1912–13) explicitly builds on that account.

Spaulding can still defend against Dewey's objection that relational externalism is not applicable to the dynamic processes in physics.<sup>12</sup>

It is in Section 4 of Part II of *The New Rationalism* that Spaulding addresses the issue of acceleration and its connection to velocity and the theory of external relations. The section is titled "Realism" and subtitled "Function Philosophies." As already indicated, Spaulding distinguishes his own approach from what he calls "causation philosophies," to which, in his view, pragmatism (just as Kantian 'phenomenalism') should be counted as well.<sup>13</sup> Moreover, 'function' is his preferred substitute for 'cause' – therefore his characterization of realism as a variant of "function philosophy."

Now Spaulding's (1918) approach to the realm of dynamics reads as follows:

[I]n the case of a specific *acceleration*, which is itself a series of individually distinct velocities, there is for each instant of the time and, also, for each point of the path (of the moving body) one and only one velocity, and not another. Each such specific velocity is gained and then lost – by both the point and the instant to which it is related. In each of these cases we have, therefore, an *external* and *not* a *causal* relation (1918: 383).

This is pure descriptivism à la Kirchhoff, Mach, and Russell: there are definitely no forces in Spaulding's new account of acceleration, and causality is replaced by relational externality. Notice that Spaulding is arguing within a definitely Newtonian framework here. Space and time are considered completely independent of motion and matter, the guiding idea being again a principle of "logical priority" (385; see also 465). Thus Spaulding holds that "time and space would be *facts* were there no material particles either to move or to be at rest" (384).<sup>14</sup> Against this background he raises "the question of purely empirical fact" (401): "*Are there, or are there not, instances of terms that are not related causally?*" (ibid.) His – unsurprising – answer: "To the writer it seems to be undeniable that many such instances are discovered. The relations that motion, acceleration, change in general, and matter bear to space and time are excellent instances." (ibid.) Consequently, relational externalism loses its former (1912) causal explanatory

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<sup>12</sup> MacBride (2020: sect. 3) distinguishes between "thin" relations, such as *identity*, *resemblance* or *greater than*, and "thick" relations, such as *loves*, *kills*, *gives*. While the former are more 'formal,' the latter are more 'material.' Given this distinction, the problem raised by Dewey's objection is whether motion belongs to the class of thin or to the class of thick relations.

<sup>13</sup> This is not at all unwarranted. For example, as is entirely clear from Dewey's later – seminal – *Logic: The Theory of Inquiry* (1938), he thought of causality as *universally valid*. For further details, see Stone (1974).

<sup>14</sup> Tellingly, Spaulding does not even mention Einstein's theory of relativity in his book.

impact. Accelerated motions are externally related series of distinct velocities, and that's it.<sup>15</sup>

So was Dewey right in his criticism after all? Recall that Dewey's central point was that relational externalism is not applicable to the dynamic processes in physics. If it *were* so applied, then processes such as accelerated motions would be indistinguishable from purely (static) spatial relations, which seems highly counterintuitive. Even the egg standing on the breakfast table in our initial illustration is not completely causally unrelated to the other events that take place on the table. For example, if the coffee mug (with the hot coffee in it) is removed, the egg will get a little bit colder. Intuition would tell us that removing the coffee mug is the *cause* of the egg getting colder. However, intuition is not always our best guide, especially when it comes to more abstract questions like those in theoretical physics. Or, to use Russell's words:

The word "cause," in the scientific account of the world, belongs only to the early stages, in which small preliminary, approximate generalizations are being ascertained with a view to subsequent larger and more invariable laws. We may say "Arsenic causes death," so long as we are ignorant of the precise process by which the result is brought about. But in a sufficiently advanced science, the word "cause" will not occur in any statement of invariable laws (Russell 1914: 223).

Understood in this way, causality would belong to what Wilfrid Sellars called the "manifest image" but not to what he called the "scientific image" (see Sellars 1962). For Russell, the content of invariable laws is not any causal connections, but rather "constant relations" (Russell 1914: 230). Consistent with this general assumption, he – in *Our Knowledge of the External World* – posits a "mathematical theory of motion" (147), though again without explicitly drawing on his 1903 theory of *external* relations, let alone explaining how this theory fits with his rational dynamics or what he refers to as "mathematical theory of motion" in his 1914 approach.<sup>16</sup>

Coming back to Spaulding, there are two possible responses to Dewey's objection: either (1) abandon Spaulding's (1918) approach and return to his

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<sup>15</sup> For a highly instructive discussion of Russellian inspired accounts of classical mechanics (like Spaulding's 1918 account), see Lange (2009). Furthermore, it should be noted that Spaulding's particular account seems to be deeply entrenched in his explicitly anti-causalist and at the same time anti-pragmatist conception of the freedom of reason. Thus he states that the claim that *everything*, even in psychology, is causally related "results in Pragmatism and Naturalism" (389); and he critically comments: "The hypothesis of a *universal causation* is [. . .] incompatible with our *freedom* to change from *one* set of assumptions or universe of discourse to *another*, and, if we do so change, it is only because we *must*, and *not because we may*." (392).

<sup>16</sup> For an extended critical discussion of Russell's conception of motion, see Tooley (1988).



1912 account; or (2) bite the bullet and equate dynamic to spatial relations. Let me finally consider these two options in light of the *current* discussion in the philosophy of physics.

Begin with option (1). Intuitively, causal relations are best conceived of as relations among events that are governed by laws. Spaulding, in his 1912 approach, takes this intuition into account by specifying distinct – law-like – “types of causation” (1912: 219). Newtonian mechanics, he maintains, arises if causal relations “are made the attraction and repulsion of material bodies, – attraction in the inverse square of the distance, repulsion in accordance with the ‘laws of motion’” (ibid.). As Keith Campbell has aptly pointed out, it lies in the logic of approaches like this one that causality is transferred to the *atomic level* in the last analysis. Campbell writes: “Analysis, so often called for in refining a causal explanation, identifies simpler and simpler structures as the protagonists in causal transactions, and so gives this inherent pluralism an atomic tendency.” (1990: 124) And indeed Spaulding follows this atomic tendency, explicitly stating that

In the development of science, those entities, such as electrons, atoms, molecules, etc., and the relations between them, which together *exclusively* account for certain existential phenomena, must be accepted as existing in quite the same sense as do the entities which they explain (Spaulding 1912: 230).

This causal-explanatory, atomistic, conception is clearly a commitment to a scientific realist approach to science. But is it also compatible with relational externalism? As it appears, the atomic tendency entails another tendency, namely the invocation of forces (or powers). And this in turn seems to amount to an overt contradiction with relational externalism. John Heil sums up this point quite neatly when he writes:

The discussion of causation illustrates a signature feature of ontologically serious metaphysics: *one thing inevitably leads to another*. Once you are on the bus, you ride it to the end of the line where it comes to rest. You start with a simple billiard ball model of causation. This leads to an appeal to powers, and eventually you arrive at a cosmos of interacting objects that do whatever they do of necessity. In such a cosmos causation is no longer an external relation (if it ever was) (Heil 2021: 42).

Recall that for both Spaulding and Russell, relational externality goes hand in hand with independence. That is, neither are the terms dependent on the relations in which they stand, nor are the relations dependent on their terms. However, as soon as powers (or forces) come into play, there definitely *is* dependence involved, since powers are typically viewed as *intrinsic* causal capacities of the objects *themselves*, and thus as entities that *inherently* dispose toward their effects (see Mumford 2009). Of course, one can escape this anti-externalist consequence

by positing a ‘Humean cosmos’ in the sense of David Lewis (see Lewis 1986). Such a cosmos would be one in which causation holds without implying any powers. Yet, causal relations then would boil down to mere *regularities* and much of the scientific realist impetus in Spaulding’s (1912) account would have to be sacrificed.

Which brings us to option (2). Dewey claimed that acceleration and the other dynamic processes of physics must not be equated with static spatial relations. Intuitively, this seems plausible, because otherwise we would arrive at something like a static theory of change, which seems rather absurd, at least at first glance. But why not put relations “in the driver’s seat” (Heil 2021: 53)? In such an approach, the character of material particles would be *exhausted* in their spatiotemporal relations to other material particles. Such an approach is anticipated by Dipert (1997) and elaborated in full form, among others, by Esfeld and Deckert (2018). According to the latter, the guiding question is: “What is a minimal set of entities that form an ontology that matches today’s well-established physical theories?” (Esfeld and Deckert 2018: 2) Esfeld and Deckert reject any form of “armchair metaphysics” (11) and argue for a moderate form of ontic structural realism according to which “distance relations” (22) form the building blocks of a minimalist ontology of the natural world. In such an account, “parameters or properties like mass and charge are no addition to being” (47), nor are causal interactions between particles, let alone forces. With explicit reference to Mach, the authors thus aim at “building a relationalist physical theory on a relationalist ontology” (64). This is quite close to Spaulding’s (1918) approach: particles are distinguished from each other *only* by their relative locations in time; intrinsic properties and causal capacities are *replaced* by space-time trajectories. However, wouldn’t that mean making a fatal concession to Dewey? It indeed would – and that’s the reason why the second option and thus Spaulding’s (1918) approach is *not* conducive to the praise of relational externalism. To put it more succinctly, equating dynamics with spatiotemporal relations would throw us back to Russellian rational dynamics and thus to a purely mathematical account of physical processes such as acceleration. To be sure, a relational externalism could be coherently argued for in this way. But the cost of this maneuver would be quite enormous, at least for the realist-minded philosopher of science: relationalist ontological minimalism would have no explanatory impact at all, physical theories would be regarded as mere instruments for predictions, and material particles as mere abstractions from an all-encompassing web of relations. I dare say that a realist position in the philosophy of physics must definitely offer more than that. Undoubtedly, ontic structural realism is an attractive approach toward modern physics, especially relativity and quantum mechanics. But as long as the status of causality remains unclear (or radically deflated, if not denied altogether), ontic structural realism

also remains obscure. At any rate, relational externalism alone is not sufficient to ground a structural realist ontology for physics. It is simply not the case that dynamic processes can convincingly be analyzed without allowing for causal dependencies.<sup>17</sup>

## 5 Summary and Conclusions

In this paper I have reconstructed the controversy between Edward Gleason Spaulding and John Dewey over relational externalism. Although the externalist point of view proves as a *prima facie* plausible alternative to Bradleyan idealist metaphysics, it becomes problematic as soon as the realm of pure logic and mathematics is transcended. Thus it cannot be said that relational externalism, as a constructive position, ‘wins out over’ any form of non-externalism. On the other hand, Dewey’s radically procedural conception of logic and science amounts to a form of *instrumentalism* that was rightly criticized by Spaulding and others (see, for example, Morgenbesser 1977).<sup>18</sup> However, the procedural moment in Dewey’s conception might help to improve the ontic structural realist account discussed towards the end of the present paper. Indeed, physicists come into contact with the causal structure of the world through measurement and experimentation. Accounting for this implication of scientific *practice* can lay the foundation for a ‘causally informed’ variety of ontic structural realism that might be labeled ‘metrological structural realism’ (see Neuber 2012 and 2018). In contrast to Spaulding’s (1918) commitment to a purely descriptive view of physics, such a metrological structural realism would be endowed with causal explanatory power and thus closer to Spaulding’s (1912) approach. As for relational externalism, the metrological structural realist accepts its importance for logic and mathematics, but takes a different path when it comes to empirical matters such as accelerated motion. However, it is beyond the scope of the present paper to go into this issue in more detail. Let me just finally reemphasize that the exchange between Spaulding

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<sup>17</sup> Heil, drawing on the phenomenon of quantum entanglement, goes as far as to claim that Bradley’s relational *internalism* is “not obviously at odds with physics” (51). Relations, belonging to the realm of appearances, would be relegated to the ‘manifest image’ and thus would be absent in the ‘scientific image.’ Accordingly, internally interpreted relations (including causal relations) would merely “reflect our limited access to what there is” (2021: 51). This is not the place to discuss Heil’s attempt to rehabilitate Bradley’s metaphysics. Let me just mention that a rejection of externalism does not *per se* imply internalism (not to speak of idealism).

<sup>18</sup> For Dewey’s (later) explicit plea for instrumentalism, see esp. Dewey (1929: ch. 8).

and Dewey deserves more attention as it represents a debate on relational externalism in its own right that cannot be reduced to the debate conducted in Britain. It is therefore to be hoped that further research in this direction will follow.

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