

## From the *Philosophical remarks* to *The Unity of Science*

### ABSTRACT

In the summer of 1932, Wittgenstein alleged that a recently published paper of Carnap's, "Physicalistic Language as the Universal Language of Science" made extensive and unacknowledged use of Wittgenstein's own ideas. In a letter to Schlick he complained that he would "soon be in a situation where my own work shall be considered merely as a reheated version or plagiarism of Carnap's." In this paper, I look at the relationship between Carnap's paper, subsequently reprinted as *The Unity of Science*, and Wittgenstein's discussion of related topics in the first seven chapters of the *Philosophical Remarks* and other writing from 1929-1932.

**Keywords:** Ludwig Wittgenstein; Rudolf Carnap; Friedrich Waismann; physicalism; history of analytic philosophy.

### RESUMO

No verão de 1932, Wittgenstein alegou que o recém publicado artigo de Carnap, "Linguagem fisicalista como uma linguagem universal da ciência", fez extensivo e não-reconhecido uso de suas próprias idéias. Em uma carta para Schlick reclamou que ele "estaria, em breve, em uma situação em que o meu próprio trabalho será considerado uma versão requentada ou plágio do trabalho de Carnap". Neste artigo, examino a relação entre o artigo de Carnap, posteriormente reimpresso como "A unidade da Ciência", e a discussão de Wittgenstein sobre tópicos relacionados nos primeiros sete capítulos das "Observações Filosóficas" e outros escritos de 1929 a 1932.

**Palavras-chave:** Ludwig Wittgenstein; Rudolf Carnap; Friedrich Waismann; fisicalismo; história da filosofia analítica.

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## 1 Introduction: the “standard account” and its limitations<sup>1</sup>

The *Philosophical Remarks*, assembled in the spring of 1930, is the first synoptic collection and arrangement of material that Wittgenstein made from his manuscript volumes during the 1930s. While it is likely that it was only assembled in order to provide Russell with material that he could review in order to write a fellowship report, it does provide a convenient review of the work that Wittgenstein had done during the first year or so of post-*Tractatus* writing. One can trace a path that leads from the opening chapters of the *Philosophical Remarks*, via the treatment of those topics in the *Big Typescript*, the *Blue Book* and the *Brown Book*, leading up to the material we now know as the *Early Investigations*, written circa 1937.

While one can argue about the extent, and significance, of the similarities and dissimilarities between any two of these items, there can be no doubt that the *Philosophical Remarks* addresses many of the themes that would preoccupy Wittgenstein throughout the following decade. In retrospect, we can see it as the first step in a process of revision and rearrangement that would ultimately result in the production of Part I of the *Philosophical Investigations*. Yet, at the same time, there is a considerable distance that separates the two. Part of the difficulty in assessing the nature of this distance is that the *Philosophical Remarks*, like the *Big Typescript*, is a transitional work, in which a wide variety of different ideas are explored in a highly provisional way. Seen in hindsight, it is easy for us to read it as setting out a much more well worked out and coherent position than the text in question actually supports, for we can hardly help reading it as anticipating, or outlining, positions that have since become familiar. It is only too easy to read those books as anticipating the familiar positions that are usually attributed to the *Philosophical Investigations*. For this reason, we need to interpret the *Philosophical Remarks* not only by means of the standard philosophical strategy of identifying the first formulation of views we recognize from the later work, but also by identifying the conflicting and often contradictory impulses at work in Wittgenstein’s writing from the early 1930s.

In particular, in addition to the standard lineage of subsequent typescripts from this period outlined above, we should also consider texts where Wittgenstein reacted against interpretations of his work that he considered misleading or mistaken. While the placement of the “Foreword” to the published *Philosophical Remarks* is an editorial artifice, the “Sketch for a Foreword”, written in November 1930, from which it is excerpted does provide a revealing statement of the spirit in which Wittgenstein wrote. It can be read as a reply to

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<sup>1</sup> This paper was previously published in Portuguese translation as “Das Observações Filosóficas à Unidade da Ciência” in *DoisPontos*, América do Sul, vol 6 #1 2009, 63-95. An earlier version was published as “Wittgenstein, the Vienna Circle, and physicalism: a reassessment” in *The Cambridge Companion to Logical Empiricism*, edited by Alan Richardson and Thomas Uebel, p. 305-331, Cambridge University Press, 2007.

the Vienna Circle's manifesto for its scientific philosophy, published in 1929, in which Wittgenstein, along with Russell and Einstein, was cited as a leading influence on their work. Wittgenstein characterized that spirit as a search for clarity for its own sake, and sharply contrasted it with the spirit of the "progressive civilization" in which we live.

Wittgenstein's own views were constantly changing and developing during these years, and with the possible exception of Waismann, most of his interlocutors were primarily interested in making use of his ideas for their own work. Each of these ideas takes on a wide variety of different forms, and formulations, in the hands of the figures who took part in this discussion. For instance, in his conversations with members of the Vienna Circle in the late 1920s, Wittgenstein introduced the notion of a principle of verification: the idea, roughly speaking, that the meaning of an empirical claim consists in what would confirm, or provide evidence for that claim. Carnap's memoir speaks of "Wittgenstein's principle of verifiability"<sup>2</sup>; in 1930 both Moore and Waismann recorded Wittgenstein as saying that "the sense of a proposition is the way in which it is verified"<sup>3</sup>, and further development of the view can be found in the contemporaneous *Philosophical Remarks*.<sup>4</sup> Later on, Wittgenstein would say that questions about verification are just one way of talking about how words are used,<sup>5</sup> but his earlier pronouncements are much more dogmatic.

Waismann's extensive and carefully dated notes of their meetings, the manuscripts based on his work with Wittgenstein, and the book that he ultimately wrote based on this collaboration provide us with a detailed record of various stages of their relationship.<sup>6</sup> The earlier material, a systematic digest of Wittgenstein's ideas, presumably provided the basis for Waismann's regular reports on Wittgenstein's views at the Vienna Circle's meetings, which, we are told, were prefaced by the disclaimer "I shall relate to you the latest developments in Wittgenstein's thinking but Wittgenstein rejects all responsibility for my formulations. Please note that."<sup>7</sup>

Waismann's work on the book can be divided into several distinct phases. During the first phase, from the late 1920s to 1931, he planned to write a comprehensive introduction to Wittgenstein's philosophy, incorporating the leading ideas of the *Tractatus* and Wittgenstein's more recent work into a

<sup>2</sup> Carnap in Schilpp 1963, 45.

<sup>3</sup> Moore, in Wittgenstein 1993, 59; Waismann 1967/1979, 79.

<sup>4</sup> See Wittgenstein 1964, §§59, 150, 160, 225, 232. For a valuable essay of Wittgenstein and the Vienna Circle on verification, which includes an appraisal of the previous literature on the topic, see Hymers 2005.

<sup>5</sup> See Wittgenstein 1953, I §353, for instance.

<sup>6</sup> Waismann 1967/1979, 1997, Wittgenstein and Waismann 2003. Baker 1979 is an extremely informative introduction to their relationship.

<sup>7</sup> Janik and Veigl 1998, 63. Waismann also played the role of a representative of Wittgenstein's views in the papers he presented at international conferences in Prague (1929) and Königsberg (1930). This chapter of Janik and Veigl's book provides an informative discussion of how class and social status influenced the outcome of the subsequent controversy.

systematic exposition. In 1930, Waismann's projected volume, *Logic, Language, Philosophy*, was advertised in *Erkenntnis* as the first volume in a series of books setting out the views of the Vienna Circle. However, Wittgenstein became increasingly unhappy with the plan, writing to Schlick on November 20, 1931 that he was "convinced that Waismann would present *many* things in a form *completely* different from what I take to be correct."<sup>8</sup> Matters came to a head on December 9, when Wittgenstein met with Waismann to discuss "Theses," a summary of Waismann's interpretation of his philosophy.<sup>9</sup>

Characteristically, Wittgenstein repudiated not only the details of Waismann's exposition, but also its very title, insisting that none of his philosophy consisted in formulating theses.<sup>10</sup> It is this fundamental disagreement, or misunderstanding, that was to be the single biggest obstacle in Wittgenstein's attempts at collaboration with Waismann on a systematic exposition of his ideas, even when no more than a restatement of what Wittgenstein had said (Waismann 1967), or an arrangement of what Wittgenstein dictated to Waismann (Wittgenstein and Waismann 2003), for it still failed to capture the point of what Wittgenstein was trying to do with these ideas.

Wittgenstein criticized both the *Tractatus* and the "Theses" for their "dogmatism": they claim that a logical analysis of ordinary language into elementary propositions is possible, but do not carry it out.<sup>11</sup> Instead of conceiving of philosophy as a matter of searching for an analysis of our language, Wittgenstein now characterized it as a matter of clarifying our current grasp of language, in terms that anticipate some of his most famous later statements about the nature of philosophy,<sup>12</sup> and connect them with the method recommended toward the end of the *Tractatus*:

As regards your Theses, I once wrote, If there were theses in philosophy, they would have to be such that they do not give rise to disputes. For they would have to be put in such a way that everyone would say, Oh yes, that is of course obvious... I once wrote, The only correct way method of doing philosophy consists in not saying anything and leaving it to another person to make a claim.<sup>13</sup> That is the method I now adhere to.<sup>14</sup>

In order to make sense of pronouncements like this, we need to attend not only to what Wittgenstein wrote, but also to his consistently negative response to attempts by others to make use of his ideas.

<sup>8</sup> Quoted by Baker in the preface to Wittgenstein and Waismann 2003, xxvii.

<sup>9</sup> The "Theses" are Appendix B of Waismann 1967/1979, 233-261; they are discussed on pp. 182-186.

<sup>10</sup> Waismann 1967/1979, 183.

<sup>11</sup> For further discussion of Wittgenstein's response to the Theses and "dogmatism", see Stern 1995 101-104 and Stern 2004 48.

<sup>12</sup> "If one wanted to establish theses in philosophy, no debate about them could ever arise, because everyone would be in agreement with them" Wittgenstein 2005, §89, 309. Cf. Wittgenstein 1953, §128.

<sup>13</sup> McGuinness, who translated this passage, notes that this is a rough statement of *Tractatus* 6.53.

<sup>14</sup> Waismann 1967/1979, 183-4.

The precise nature of Wittgenstein's relationship to the Vienna Circle has been much debated, and there are deep disagreements about the strengths and weaknesses of the different positions attributed to the principal protagonists. However, there has been a widespread consensus about the overall character of the encounter: the early Wittgenstein was an important influence on the founders of logical empiricism, and the later Wittgenstein one of its leading opponents. In other words, the "standard account" of Wittgenstein's relations with the Vienna Circle is that the early Wittgenstein was a principal source and inspiration for the Circle's formulation of its positivistic and scientific philosophy, while the later Wittgenstein was deeply opposed to the logical empiricist project of articulating a "scientific conception of the world."<sup>15</sup>

However, this telegraphic summary of a complex and intricate relationship is at best only half-true and at worst deeply misleading. For it amounts to an over-simplified template that prevents us appreciating the fluidity and protean character of the philosophical dialogues that took place at the time, both between Wittgenstein and various members of the Vienna Circle, and among the logical empiricists over the value of Wittgenstein's contribution. Furthermore, Wittgenstein's own views changed rapidly and repeatedly during the 1920s and 1930s. Many of the participants in these discussions gave expression to a wide range of different views; taken out of context, their formulation of those views can easily strike a contemporary reader as clear anticipations of positions that are now standard items of philosophical terminology, such as physicalism, verificationism, or a use theory of meaning. Nevertheless, at the time those positions had not been articulated with anything like the degree of clarity that we now take for granted. In retrospectively identifying and attributing clear-cut positions, lines of influence and axes of disagreement to Wittgenstein and his interlocutors in Cambridge and Vienna, it is very easy to read back our current understanding of familiar terminology

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<sup>15</sup> The first half of the standard account—concerning the influence of the *Tractatus* on the Vienna Circle—can be found in such canonical texts as the Circle's manifesto, first published in 1929, "The Scientific Conception of the World: The Vienna Circle" (Hahn 1973), and Ayer's extremely influential expository account in *Language Truth and Logic* (Ayer 1936). For an authoritative recent exposition of the "standard account" from an orthodox Wittgensteinian perspective, see Hacker 1996, chapter 3, and Stern 1999 for a brief response. In part, the success of the *Tractatus* as a canonical text for twentieth century philosophy turns on the way it is open to such a wide variety of interpretations: as the work of Russell's student, as a contribution to the philosophy of mathematics, or logic, as a work of positivist epistemology, as a contribution to ontology, as a book with an ethical point, as mystical, or as self-undermining nonsense. In Stern 2003, I argued for an alternative approach to the history of *Tractatus* reception, based on the proposal that we should attend to the conditions that made it possible for such a very wide variety of different approaches to *Tractatus* interpretation to have been in the forefront at different times since the publication of the *Tractatus* in 1922. From that perspective, this chapter focuses on the initial reception of the *Tractatus* in Vienna. However, as soon as Wittgenstein began to talk to Schlick and his circle, the relationship takes on at least two further dimensions: we have to consider the ways in which Wittgenstein responded to them, and we have to consider the ways in which their views changed over time. As soon as we zoom in to Vienna in the late 1920s, all of the issues that unfold piecemeal in the subsequent scholarly work on the topic are already in the air.

and the associated distinctions into a time when those terms were used in a much more open-ended way.

A considerable distance separates contemporary discussion of physicalism from the use of this term in the early 1930s, despite the terminological similarities. While there is general agreement that physicalism requires that all significant languages are translatable into a physical language, there is considerable room for disagreement, both about what makes a language suitably physical and also about what counts as a translation, or a reduction of one language to another.<sup>16</sup> While Carnap's paper was much more argumentative than Neurath's previous work on the topic, there was very little detailed analysis of the relationship between protocol statements and physical language. Indeed, at one point in his paper Carnap says that "*pseudo-questions are automatically eliminated*"<sup>17</sup> by using the "formal mode" of speech. This is a concise summary of a *Tractatus*-inspired approach, namely dissolving philosophical questions by clarifying syntax, in contrast with Carnap's mature view, also present in the same paper, namely solving philosophical problems by means of an analysis of the relevant syntax and semantics. In other words, the "standard account" is not only far too simple to do justice to the historical phenomena; it is also anachronistic.<sup>18</sup>

Published primary materials documenting the meetings, conversations, and correspondence from this period now provide us with a considerable quantity of information about Wittgenstein's contacts with the early logical empiricists; the last twenty years have seen a remarkable growth in the detail and sophistication of the philosophical and historical literature on this period.<sup>19</sup>

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<sup>16</sup> For present purposes, we need only consider the distance between contemporary views about the nature of the translation involved. First, most current treatments are in terms of supervenience, an approach that was first popularized by Davidson (1970); previous debate was usually framed in terms of one form of reductionism or another. However, even classic type-type reductionism, often taken as the starting point for contemporary exposition, is first set out in Smart (1959), whose work also provided a point of departure for the emergence of functionalist token-token reductionism in the 1960s. The form of mid-century reductionism that most closely corresponds to the approach advocated by Carnap is the relationship of intertheoretic reduction, which was given its classic formulation by Nagel (1961). However, Nagel's systematic program of logically deriving one theory from another by means of bridge laws is far more sophisticated than Carnap's 1932 proposal, which amounted to little more than a series of examples of proposed physicalistic translations of problematic protocol statements. For a good introduction to the current literature on physicalism, see Stoljar 2005. For an introduction to what has become known as the "Received View" of scientific theories, and its evolution from Carnap's early formulations over the next quarter century or so, see Suppe 1977, 3-61.

<sup>17</sup> Carnap 1934, 83; Carnap 1932, 456. Italics are in the original.

<sup>18</sup> For further discussion of my objections to the "standard account," see: Stern 2004, ch. 2, on the relationship between the *Tractatus* and the *Philosophical Investigations*, and Stern 2005, for a more polemical approach to the difficulties generated by talk of "early" and "late" Wittgenstein.

<sup>19</sup> The principal primary source for information on Wittgenstein's conversations with the Vienna Circle is Waismann 1967, which is based on Waismann's shorthand notes of meetings with Wittgenstein from 1929-1932. We do not have a comparable record of the content of their earlier meetings. Wittgenstein and Waismann 2003 provides a collection of verbatim transcriptions of dictations and discussions with Wittgenstein together with Waismann's redrafting of material provided by Wittgenstein, dating from 1928-1939. Among the most prominent books in the literature on Wittgenstein's relationship with the logical empiricists are: Baker 1988, Coffa 1991, Friedman 1999, Hacker 1996, Haller 1988, Hintikka and Hintikka 1986, McGuinness 2002, Stadler 2001.

However, very little of this scholarship has reached an audience beyond the relatively narrow circle of experts on early analytic philosophy and the history of early twentieth century philosophy of science. Because most scholars of the period have assumed that the framework provided by the standard account can accommodate the mass of new information concerning Wittgenstein's relationship with the early logical empiricists, the extent to which the new archival materials provide compelling grounds for rejecting the standard account put forward by the first and second generation of interpreters has rarely been appreciated. Furthermore, the animosity, competitiveness, and mutual misunderstanding that were important aspects of the debates between the principal figures has frequently been reproduced in the literature on this topic, instead of providing a topic for critical analysis. Indeed, most recent work on the history of this encounter is clearly identifiable as a defense of one or another of the original protagonists. It is precisely because the philosophical debates that took place in Vienna seventy or eighty years ago concerned the initial formulation of positions that are still debated today that contemporary readers are so ready to argue about the history of those debates. Yet for that very reason, it is often extremely difficult for us to appreciate the distance that separates twenty-first century philosophy from the issues that engaged the founders of logical empiricism, or the interpretive pitfalls that can lead us to turn that complex and multi-faceted engagement into a simple story of progress from crude beginnings to contemporary philosophical sophistication. Indeed, some of the most important developments in the recent scholarship on the history of this period have been studies that have mapped out the role of post-Kantian conceptions of logic and experience in Carnap's *Aufbau*<sup>20</sup> and the role of early twentieth century physics and engineering in Wittgenstein's *Tractatus*.<sup>21</sup>

The aim of this talk, in the spirit of this recent work on the history of early analytic philosophy, is to provide a broader perspective on the nature of the overall debate between Wittgenstein and his interlocutors in the Vienna Circle, starting from their own understanding of their respective positions. Those positions emerge more clearly, I believe, if we attend closely to the details of what they had to say at the time about specific areas of agreement and disagreement. Too often, the programmatic statements about the nature of their work that are repeated in manifestoes, introductions, and elementary textbooks have occupied center stage in the subsequent secondary literature. Consequently, we now turn to a more detailed examination of a turning point in their relationship. That turning point is Wittgenstein's charge, in the summer of 1932, that a recently published paper of Carnap's, "Physicalistic Language

<sup>20</sup> See Coffa 1985; 1991; Friedman 1999; Richardson 1998.

<sup>21</sup> See Hamilton 2001a, 2001b, 2002; Hide 2004; Lampert 2003; Spelt and McGuinness 2001; Sterrett 2002. For a critical review of this literature, see Nordmann 2002.

as the Universal Language of Science”, made such extensive and unacknowledged use of Wittgenstein’s own ideas that Wittgenstein would, as he put it in a letter to Schlick, “soon be in a situation where my own work shall be considered merely as a reheated version or plagiarism of Carnap’s.”<sup>22</sup>

## 2 Wittgenstein and Carnap on Physicalism

In early May 1932, Wittgenstein received an offprint of Carnap’s paper, “Die Physikalische Sprache als Universalsprache der Wissenschaft,” (Carnap 1932), “Physical Language as the Universal Language of Science.” Carnap’s paper was translated into English by Max Black, and published in 1934 as a small book, under a new title: *The Unity of Science*. The shorter, more accessible, title was clearly a better choice for a popular book than the original scholarly title. However, Black did translate and rephrase the title of the paper inside the book, turning the original’s talk of “physical language as the universal language of science” into “Physics as a Universal Science.” (Carnap 1934, 31.) This choice of words is doubly flawed. Firstly, the translation turns a title in the formal mode of speech – a claim about the grammar, or syntax, of our language – into one in the material mode – a claim about the world. Second, a crucial question left open by the talk of “physical language” – whether physical language is to be narrowly identified with the language of physics, or to be understood more broadly as any language that refers to physical objects – is resolved by the new translation in favor of the narrow reading.

The paper proved to be a turning point in the movement away from phenomenalist analyses of scientific language: one of the first, and one of the most influential, papers arguing for the physicalist thesis that any significant language must be translatable into an entirely physical vocabulary. While the paper is a defense of physicalism, the terms “physicalism” and “Physikalismus”, first used in print by Otto Neurath during the previous year, do not occur in Carnap 1932, except in a footnote where he cites some of these works of Neurath’s.<sup>23</sup> Although the thesis of physicalism is already stated in papers of Neurath’s published in 1931, he provides very little by way of an argumentative defense of the thesis.<sup>24</sup> In the papers Neurath published that year, Neurath advocated materialism without metaphysics: “unified science on

<sup>22</sup> Letter from Wittgenstein to Schlick, 6 May 1932; translation from Hintikka 1996, 131. “Und nun werde ich bald in der Lage sein, daß meine eigene Arbeit als bloßer zweiter Aufguß oder als Plagiat der Carnapschen angesehen werden wird.” While I will cite and make use of published translations of Wittgenstein’s correspondence, the German text of all these letters is now available in Wittgenstein 2004, together with an extensive apparatus.

<sup>23</sup> Carnap 1934, 74n; Carnap 1932, 452n. The former term occurs in the title of Neurath 1931, the latter in the titles of 1931a and 1931b. Due to an oversight, corrected in the English translation, Neurath 1931a is not cited in the German original. Indeed, the citations were only included after Neurath complained to Carnap that an earlier draft did not acknowledge his contribution.

<sup>24</sup> Neurath 1931a; see also Neurath 1931 and 1931b (reprinted as chapters 4-6 of Neurath 1982).



a materialistic basis,” as Haller puts it.<sup>25</sup> In other words, Neurath puts forward the view that there is only kind of object: physical objects, the objects that are studied by the sciences. Carnap’s main aim in his 1932 paper on physicalism was to put that view on a firm philosophical foundation, by showing how it could be articulated within a program of analysis of the structure of our language – what would soon be called “logical syntax”, but which Carnap also spoke of as “metalogic”.

Carnap makes extensive use of the distinction between the “material” and “formal” modes of speech: “The first speaks of ‘objects,’ ‘states of affairs,’ of the ‘sense,’ ‘content’ or ‘meaning’ of words, while the second refers only to linguistic forms.”<sup>26</sup> A footnote attached to the end of that sentence promises that “A strictly formal theory of linguistic forms (‘logical syntax’) will be developed later.” A sentence added to the footnote in the 1934 translation identifies “the book here announced” as *The Logical Syntax of Language*. However, the original German for the parenthetical phrase is not “logische Syntax”, but “Metalogik”, more naturally translated as “metalogic.” In 1932, Carnap used the two more or less interchangeably, and had not yet settled on “logical syntax” as his preferred term; thus while the translation is linguistically odd, it does have a certain consistency.<sup>27</sup> Both terms would have attracted Wittgenstein’s attention. Logical syntax is the Tractarian term for the rules of a sign-language that is “governed by *logical* grammar,”<sup>28</sup> Wittgenstein’s proposed replacement for Frege and Russell’s goal of a *Begriffsschrift*, or “conceptual notation.” The term “metalogic” does not occur in Wittgenstein’s earliest writing, but during 1931-33 he repeatedly speaks of it in dismissive terms: the first page of the *Big Typescript* states that “just as there is no metaphysics, there is no metalogic.”<sup>29</sup> While it is debatable precisely what Wittgenstein meant by that term, it is clear that Wittgenstein rejects the very idea of metalogic, treating it as an expression of the idea that one can take up a “sideways on” stance from which one can appraise the relationship between language and the world.<sup>30</sup>

Throughout the paper, Carnap draws our attention to the distinction between the material and the formal mode of speech, using a double column layout to simultaneously set out problematic claims in both “modes.” The paper proceeds by identifying a number of different languages. “Protocol language,”

<sup>25</sup> Haller 1989, 20.

<sup>26</sup> Carnap 1934, 38; Carnap 1932, 435.

<sup>27</sup> Talk of “logical syntax” highlights the idea that Carnap proposed a systematic study of the structure of language; talk of “metalogic” draws our attention to the “second order” character of the project.

<sup>28</sup> *Tractatus* 3.325; the expression is also used in 3.33, 3.334, 3.344, and 6.124.

<sup>29</sup> Wittgenstein 2005, 2; see also 3, 13, 158, 220, 223, 305.

<sup>30</sup> Hilmy 1987, ch. 2, argues that the rejection of “the metalogical” plays a central role in Wittgenstein’s turn towards ordinary language in his post-*Tractatus* writings. Hilmy conjectures that Wittgenstein’s principal target in his critique of metalogic is work written after the *Tractatus*, but before the first surviving post-*Tractatus* manuscripts, which date from the beginning of 1929.

or “primary language,” is used to describe “directly given experience of phenomena” (material mode) or more carefully speaking, “statements needing no justification and serving as foundations for all the remaining statements of science”<sup>31</sup> (formal mode). The simplest statements in physical language are initially introduced as those that specify a “quantitatively determined property of a definite position at a definite time” (material mode) or attaching to “a specific set of co-ordinates...a definite value or range of values of a coefficient of physical state”<sup>32</sup> (formal mode). Carnap qualifies this by acknowledging that future developments in physics may well lead to modifications, but maintains that all that matters for present purposes is that however it is modified, statements in protocol language will remain translatable into physical language. Most of the remainder of the paper is devoted to arguing that “every scientific statement can be translated into physical language” and responding to objections to his claim that “statements in protocol language... can be translated into physical language.”<sup>33</sup>

On 6 May 1932, very shortly after he had received Carnap’s offprint, Wittgenstein wrote to Schlick, setting out his initial response. He expressed his concern that Carnap’s use of his own unpublished work was so extensive that others would regard his own work, when it was eventually published, as no more than “a reheated version or plagiarism of Carnap’s.”<sup>34</sup> He went on to express a strongly proprietorial approach to what he clearly regarded as the fruit of his own labor:

I see myself as drawn against my will into what is called “the Vienna Circle.”

In that Circle there prevails a community of property, so that I could e.g. use Carnap’s ideas if *I wanted to* but he could also use mine. But I don’t *want* to join forces with Carnap and to belong to a circle to which he belongs. If I have an apple tree in my garden, then it delights me and serves the purpose of the tree if my *friends* (e.g. you & Waismann) make use of the apples; I will *not* chase away thieves that climb over the fence, but I am entitled to resent that they are posing as my friends or alleging that the tree should belong to them jointly.<sup>35</sup>

For half a century, this controversy was not discussed in the literature on Wittgenstein and the Vienna Circle. Carnap did include a discussion of it in a draft of his intellectual autobiography, but it was not included in the published version. There, he wrote that:

<sup>31</sup> Carnap 1934, 45; Carnap 1932, 438.

<sup>32</sup> Carnap 1934, 52-53; Carnap 1932, 441.

<sup>33</sup> Carnap 1934, 76; Carnap 1932, 453.

<sup>34</sup> Letter from Wittgenstein to Schlick, 6 May 1932; translation from Hintikka 1996, 131.

<sup>35</sup> Letter from Wittgenstein to Schlick, 6 May 1932; translation based on Hintikka 1996, 131.

Years later, some of Wittgenstein's students at Cambridge asked him for permission to send transcripts of his lectures to friends and interested philosophers. He asked to see the list of names, and then approved all but my own. In my entire life, I have never experienced anything similar to this hatred directed against me. I have no adequate explanation; probably only a psychoanalyst could offer one [...].<sup>36</sup>

After substantial excerpts from Wittgenstein's correspondence in 1932 with Schlick and Carnap on the topic were published in Nedo and Ranccheti (1983, 254-255, 381-382), Wittgenstein's accusations received the attention of a number of leading experts on the history of early analytic philosophy.<sup>37</sup> However, Wittgenstein's *Prioritätstreit* with Carnap is far less well known than his falling out with Popper, (EDMONDS and EIDINOW, 2001), despite the fact that we know far more about the positions on either side in the Wittgenstein-Carnap controversy. Indeed, a couple of recent pieces on the origins of physicalism not only take it for granted that "the word *physicalism*, when introduced into philosophical conversation by Neurath and Carnap, seemed theirs to define" (GATES 2001, 251) but do not even mention Wittgenstein's claims (Gates 2001, Manninen 2003).

While Wittgenstein's initial letter to Schlick expressed his immediate outrage at what he considered the wholesale appropriation of his ideas, he did not further specify what he considered Carnap had stolen. Instead, Schlick took on the task.<sup>38</sup> A little over two months later, Schlick wrote to Carnap, saying that he considered it "necessary to mention Wittgenstein by name, time and again when it comes to points specific to him and characteristic of his way of thinking, especially as he has himself published nothing for quite awhile and instead circulated his ideas orally."<sup>39</sup> Schlick listed the following points on which he considered an acknowledgement appropriate:

- [1] top of p. 433 (the nature of philosophy); CARNAP 1934, p. 33.
- [2] bottom of p. 435 and following (ostensive defining does not lead us outside language); CARNAP 1934, p. 39 ff.
- [3] top of p. 440 (the character of laws of nature, where hypotheses are characterized by means of their peculiar logical form, which differs from ordinary propositions); CARNAP 1934, p. 48-49
- [4] furthermore the passages where pseudo-problems are eliminated by

<sup>36</sup> Carnap, quoted in Stadler 2001, 433-434.

<sup>37</sup> These include Coffa (1991, 407-408), Haller (1988a; 1989; 1990), Hintikka (1996), Hintikka and Hintikka (1986, 145-147), McGuinness (2002, chs. 16 and 17), Monk (1990, 324), Pears (1988, 302-303, 316), Stadler (1992; 2002, 429-438) and Uebel (1995). For a longer list of authors who have discussed this priority dispute, see Uebel 1995, 348-349; the paper provides a thorough review of the literature on the topic up to the mid 1990s.

<sup>38</sup> See the discussion of this chronology in Hintikka 1996, 134-5.

<sup>39</sup> Letter from Schlick to Carnap, 10 July 1932; translation from Hintikka 1996, 134.

means of the “formal mode of speech” (p. 452, note, p. 456), for in fact this is after all W[ittgenstein]’s basic idea.<sup>40</sup> CARNAP 1934, footnote on p. 74, 82-84.

This list is our best evidence as to which parts of the paper Wittgenstein regarded as “stolen apples,” as Hintikka puts it. But if we go back to Wittgenstein’s first letter to Schlick, we can add a number of further charges to these particular points of alleged indebtedness:

- [5] the claim that physicalism is in the *Tractatus*
- [6] the allegation that Carnap’s work is so similar to Wittgenstein’s that Wittgenstein would look as if he had taken his ideas from Carnap.

Perhaps what is most striking about Wittgenstein’s dispute with Carnap is the last item on this list: Wittgenstein’s insistence that Carnap’s work was so close to his own. For Wittgenstein’s usual response to those who made use of his ideas in print, including Waismann’s explicitly expository project, was to complain that his work had been misrepresented, or misunderstood.

However assessing such a charge of unacknowledged intellectual indebtedness is a much more complex matter than it is in any case of petty theft or plagiarism. The criteria of identity for a conception of ostensive definition, the laws of nature, physicalism, or the nature of philosophy, are legitimate topics of philosophical debate in their own right. Given a suitably coarse-grained summary of Wittgenstein’s and Carnap’s positions on each of these topics, they are strikingly similar; given a suitably fine-grained reconstruction, the differences between them may seem much more important. Wittgenstein’s defenders have highlighted the similarities; Carnap’s defenders have emphasized their differences.

Not only is it extremely difficult to establish when one person has taken an idea from another, but even if one assumes, for the sake of argument, that those facts have been settled, the standards of appropriate behaviour are much less clear-cut than they are in the case of taking an apple from someone else’s tree, or using another’s words without citation. Indeed, in this case, one could well argue that Wittgenstein, despite his protestations to the contrary, had effectively invited the Vienna Circle to make use of his ideas. For he had agreed to provide a steady stream of expository material to Waismann and Schlick, on the explicit understanding that Waismann would serve as his representative, and devote his energies to writing a book setting out Wittgenstein’s work. Thus, there is good reason to maintain that even if Wittgenstein’s claims about

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<sup>40</sup> Letter from Schlick to Carnap, 10 July 1932; translation from Hintikka 1996, 134. I am responsible for adding the numbering and the cross-references to the English text.

the extent of Carnap's indebtedness had been entirely correct, his vehement request for a detailed acknowledgement would have been unjustified.

Furthermore, it is not unusual for a philosopher to be extremely sensitive about others' using his work, yet much less ready to acknowledge his own use of another's ideas. Wittgenstein rarely referred to other philosophers' work in his own writings, and expressed a positively cavalier attitude towards such matters in the Preface to the *Tractatus*, where he wrote that the book gave no sources "because it is indifferent to me whether what I have thought has already been thought by another."<sup>41</sup> Surely, Carnap was equally indifferent about his sources when he sent his paper to Wittgenstein. Indeed, it was only after Neurath read an earlier draft of the paper and complained that his prior work on physicalism should be cited, work that he and Carnap had discussed at length for several years, that Carnap inserted the footnote referring to Neurath's previous publications on physicalism.<sup>42</sup>

Because the six complaints of Wittgenstein's listed above range from points of detail to very general questions of method, it will be helpful to arrange them into three broadly related groups. First, there are quite specific ideas which Wittgenstein alleges were taken from his own work (items 2 and 3). Second, there are very broad methodological considerations (items 1, 4 and 6). Finally, there is the intermediate-level claim that Carnap's physicalism is already in the *Tractatus*.

Consider first [2] and [3], which are both relatively small and specific. Hintikka, has little trouble showing that the passages on these topics in Carnap's paper, cited in Schlick's letter, are very close to a summary statement of Wittgenstein's own ideas at the time about ostension and hypotheses, as set out in his meetings with Schlick and Waismann at the time. Furthermore, Carnap could have heard such ideas summarized by Waismann in his presentations to the Vienna Circle.<sup>43</sup> So it is not difficult to see how Wittgenstein could have taken umbrage over those passages. However, that hardly shows that Carnap did develop his own views out of what he had gleaned from Waismann rather than working out something like those ideas for himself, drawing on related work by Poincaré and Reichenbach. It is precisely because what Wittgenstein had to say about the relationship between hypothesis, evidence, experience and ostension in the years from 1929 to 1931 is not only

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<sup>41</sup> Wittgenstein's thoughts about influence and originality are much more complicated, and interesting, than this overly brief summary can convey. For further discussion of Wittgenstein's discussion of originality and talent, see Monk 1990, Stern 2000, McGuinness 2002.

<sup>42</sup> For a more detailed discussion of Neurath's priority claim, and its relationship to Wittgenstein's, see Uebel 1995, 334, 341-4.

<sup>43</sup> Hintikka 1996, 139-141. Hintikka's interpretation of the controversy is an exception to the generalization (see above, p n.) that Wittgenstein's defenders have stressed broad similarities between his work and Carnap's, while Carnap's defenders have pointed to detailed differences. Hintikka's reading of Wittgenstein's philosophy in the early 1930s is unusually Carnapian, and thus he finds more similarities in points of details than other interpreters.

a plausible development of the *Tractatus*, but is also a rational and plausible view, that it is unsurprising that others working on these questions might independently arrive at strikingly similar views. In a later letter to Schlick, Wittgenstein addressed these concerns:

Carnap has got his conception of hypotheses from me and again I have found this out from Waismann. Neither Poincaré nor Reichenbach could have the same conception, because they do not share my conception of propositions and grammar.<sup>44</sup>

Wittgenstein maintains here that Carnap's conception of hypotheses is the same as his own, because he claims that Carnap's conception of hypotheses is dependent on Wittgenstein's broader conception of the nature of language.<sup>45</sup> This leads us back to the methodological considerations we initially put to one side. Wittgenstein's more specific charges cannot be separated from broader concerns.

Because the question whether Carnap's conception of philosophy [1] and overall methods [4, 6] in the disputed paper is the same as (or similar enough) to Wittgenstein's is such a large one, it may well appear far more difficult to assess than the previous question about points of detail. Certainly, a full appraisal of the relationship between their respective philosophical programs is far beyond the scope of this paper. However, the overall character of their relationship is actually considerably clearer than many of the details. For, as we have already seen, there can be no doubt that Carnap was deeply influenced by, and indebted to, Wittgenstein's overall approach to philosophy, a fact attested not only in his intellectual autobiography, but also in *The Logical Syntax of Language*,<sup>46</sup> and Max Black's introduction to the 1934 translation of the physicalism paper.<sup>47</sup> In particular, Carnap's project of setting out the logical syntax, or metalogic, of language, is a direct descendent of the *Tractatus'* goal of clarifying logical syntax. Of course, there are also important dissimilarities between their conceptions of syntax, and of philosophy. In particular, Carnap's

<sup>44</sup> Letter from Wittgenstein to Schlick, 8 August 1932. Nedo and Ranccheti 255, n. 20; Hintikka 1996, p. 140. Earlier in the same letter, Wittgenstein claims that Carnap has forgotten a conversation in which Waismann reported to him Wittgenstein's conception of ostensive definitions.

<sup>45</sup> Hintikka supports Wittgenstein's charge by elaborating the analogies between the logic of Carnap's protocol sentences and Wittgenstein's treatment of elementary propositions circa 1929-1931, and observes that there is a "remarkable similarity", because "for both of them, many singular propositions... have to be confirmed indirectly by deriving them from directly verifiable propositions" (1996, p. 141). However, one could well respond that the similarity is entirely unremarkable. Both philosophers were responding to the same predicament, which Ernst Tugendhat has called "veritative symmetry" and "epistemological asymmetry": my self-ascription of an experience and your ascription of that experience to me share the same truth-conditions, yet the grounds for our beliefs are radically different.

<sup>46</sup> See Carnap 1934/1937, xvi.

<sup>47</sup> Carnap 1934, 16-20. Black's discussion of Wittgenstein's work in the preface must have been approved by Carnap, if not actually prompted by him and, like the material cited in the previous and the next note, can be seen as a response to Wittgenstein's criticism of Carnap's lack of attribution in the original paper. Black reads the *Tractatus* as phenomenalist, and contrasts it with Carnap's physicalism.

careful and measured discussion of his relationship to Wittgenstein in *The Logical Syntax of Language* highlights two related points of principled disagreement: Carnap's rejection of Wittgenstein's view that syntax is inexpressible (and so can only be shown, not said), and his rejection of Wittgenstein's conception of philosophy as an elucidatory activity that cannot be formulated.<sup>48</sup> However, we do not need to resolve the question of whether it is the similarities or differences between their respective philosophical positions that are more significant in order to defend Carnap from Wittgenstein's objections. For, it is clear, I believe, that while Carnap's work is deeply influenced by Wittgenstein's, his insistence that the nature of philosophy, and the nature of language, can be made explicit does amount to a fundamental and far-reaching methodological disagreement. Carnap's indebtedness to Wittgenstein is comparable to Wittgenstein's debt to Russell and Frege, or Russell's debt to Frege. While there is scope for legitimate scholarly debate over the extent and nature of the debt, there can be no doubt that the influence was extremely important, yet it is also undeniable that there were also fundamental disagreements between them.

Let us now return to the question of the relationship between Wittgenstein's philosophy and Carnap's physicalism. In his reply to Schlick's letter setting out Wittgenstein's complaints, Carnap treated this as the crucial issue, saying that he did not mention Wittgenstein because "he has after all not dealt with the problem of physicalism."<sup>49</sup> Schlick sent a copy of Carnap's letter on to Wittgenstein, who wrote back that It is not true that I have not dealt with the question of "physicalism" (albeit not under this—dreadful—name) and with the same brevity with which the entire *Tractatus* is written.<sup>50</sup>

In his defense, Carnap's interpreters have reiterated the point that Carnap himself made briefly in his earlier letter to Schlick: Wittgenstein had "not dealt with the problem of physicalism", at least in the terms in which Carnap and Neurath understood that problem. For there is a strong prima facie case that Wittgenstein never discussed physicalism. The term does not occur in the *Tractatus*. Indeed, it is never used anywhere in the entire corpus of Wittgenstein's writings.<sup>51</sup> However, the absence of the word is no more relevant to the question whether Wittgenstein dealt with physicalism in the *Tractatus* than the absence of that word from Carnap's own paper. While "Did the author of the *Tractatus* deal with the topic of physicalism in that book?" sounds at first like a straightforward preliminary question, it is not. For it turns on how we are to

<sup>48</sup> See CARNAP 1934/1937, p. 282-284.

<sup>49</sup> Letter from Carnap to Schlick, 17 July 1932. Translation from Hintikka 1996, 133.

<sup>50</sup> Letter from Wittgenstein to Schlick, 8 August 1932; translation based on Hintikka 1996, 137.

<sup>51</sup> A search for "physicalism", "physikalisch" and their variants yields no results in the Bergen electronic edition of Wittgenstein's *Nachlass*, which includes not only the typescripts and manuscripts on which all his published works are based, but also a great deal of preparatory work. (Wittgenstein 2000; the correspondence quoted here, in which the term does occur, is part of a separate database, Wittgenstein 2004).

understand not only the topic of physicalism, but also how we are to understand what it is for something to be “in” the *Tractatus*. Because the book is so compressed, we need to consider not only what is explicitly stated there, but also the conclusions that its author expected readers to draw for themselves.<sup>52</sup>

In a recent discussion of these very questions, Cora Diamond rightly observes that the idea of a view’s being “in” the *Tractatus* needs to be understood in a way that includes more than simply what is explicitly said there, while remaining distinct from the much broader category of whatever can be inferred from it.<sup>53</sup> Her very plausible proposal is that we use “in the *Tractatus*” to cover “the conclusions Wittgenstein wants his readers to draw for themselves, the lines of thought he wants his readers to work through for themselves.”<sup>54</sup> Diamond gives this potentially open-ended proposal some specificity by suggesting that we need to think about what Wittgenstein expected Russell, in particular, to work out from his reading of the book. The main aim of Diamond’s essay is to argue that an early version of the private language argument is “in the *Tractatus*.” However, she does connect her exposition of a Tractarian critique of Russell’s views on our knowledge of others’ inner states with Wittgenstein’s claim that physicalism is “in the *Tractatus*.” Roughly speaking, Diamond draws the connection in the following way. The *Tractatus* treatment of logic requires that we give up the Russellian conception of objects of acquaintance as belonging to subjects, for the *Tractatus* requires that all languages must be intertranslatable, and the Russellian conception, because it is committed to the privacy of another’s mental contents, does not satisfy this requirement. Once we draw this conclusion,

We are left with the translatability into each other of experience-language and ordinary physical-world language: they are not about different objects. It was Carnap’s picking up *that* point from the *Tractatus*, and making it central in his 1931 physicalism, that underlay Wittgenstein’s accusation of plagiarism.<sup>55</sup>

Diamond is right to stress the centrality of the idea that all languages are intertranslatable in the *Tractatus*. The idea of “language as the universal medium” as Hintikka calls it, is a crucial Tractarian commitment with far-reaching consequences. Indeed, this is one reason why the emergence of physicalism and of arguments against the possibility of a private language are so closely interconnected. For if a private language, a “language which

<sup>52</sup> Wittgenstein would later say that “every sentence in the *Tractatus* should be seen as the heading of a chapter, needing further exposition.” Drury 1984, 159-60. Nevertheless, he was extremely reluctant to provide such exposition, even in response to Russell’s explicit requests, insisting that it was a task that should be left up to the reader.

<sup>53</sup> Diamond 2000, 263.

<sup>54</sup> \_\_\_\_\_ . 263.

<sup>55</sup> \_\_\_\_\_ . 279. Wittgenstein explicitly states the principle of intertranslatability at 3.343.



describes my inner experiences and which only I myself can understand,"<sup>56</sup> is possible, then the physicalist thesis that all languages are intertranslatable must be false.<sup>57</sup>

Nevertheless, physicalism, however broadly conceived, requires more than bare intertranslatability: it also involves a claim about the priority, or the primacy, of the physical. For both a Tractarian solipsist and an *Aufbau*-inspired phenomenalist could accept the thesis of the intertranslatability of physical and phenomenal languages and take it to be a step on the way to arguing, against the physicalist, that "the world is *my* world."<sup>58</sup> Furthermore, Diamond's defense of Wittgenstein does not do justice to the point that Wittgenstein and Carnap have very different conceptions of physicalism.<sup>59</sup> Wittgenstein's physicalism in the early 1930s amounts to a commitment to the primacy of the objects we discuss in our ordinary language, while Carnap's physicalism turns on the primacy of the objects posited by the physical scientist.<sup>60</sup> My own view is that Wittgenstein had not arrived at the physicalist position concerning the primacy of physical language over phenomenal language when he wrote the *Tractatus*, but this much-debated question of *Tractatus* interpretation need not detain us here.<sup>61</sup> What matters for our purposes are the views Wittgenstein put forward in the late 1920s and the early 1930s, views that he regarded as a natural development of the *Tractatus*.

Indeed, the most promising starting point for a balanced understanding of the deep affinities and differences between Carnap and Wittgenstein is to recognize that each of them had been working out the consequences of the Tractarian view that all languages must be intertranslatable. In the 1920s, each of them had been attracted to a phenomenalist, or phenomenological, analysis of both everyday and scientific language: the idea that one could specify a scheme of translation that would somehow enable one to translate everything one would ordinarily say about the world into talk of one's inner states. They both spoke of a primary language, for directly talking about immediate experience, and a secondary language, for talking about physical objects.

<sup>56</sup> WITTGENSTEIN 1953/2001, §256.

<sup>57</sup> For further discussion of the multitude of private language arguments in the air at the time, see Uebel 1995, section 7, where he argues that in the early '30s, "*different private language arguments were in play to support different conceptions of physicalism*" (p. 343, italics in original). Indeed, Dejnozka (1991) argues that Russell had already offered a number of related private language arguments.

<sup>58</sup> Wittgenstein, *Tractatus*, 5.62.

<sup>59</sup> For more detailed discussion of this point, see Uebel 1995. Uebel observes that McGuinness' Solomonic attempt to resolve the priority dispute by sharing out the responsibility for developing physicalism between Wittgenstein, who "had given the impulse," Neurath, who "proclaimed the importance of the thing" and Carnap, who "began to work out the details" (McGuinness 2002, 196, first published 1991) is untenable because "the thesis they sought to promote was not one but many" (UEBEL 1995, 346).

<sup>60</sup> This is only a fast and loose material-mode summary; more careful exposition would call for use of the formal mode of speech. Note also that Carnap regarded physicalism as an empirical thesis, while Wittgenstein would presumably have treated it as a matter for philosophical elucidation.

<sup>61</sup> For further discussion, see STERN 1995, 3.4, 4.2.

While the *Tractatus* has very little to say about the philosophy of mind and epistemology, a dualistic discussion of the relationship between “primary” mental world and a “secondary” physical world played a leading role in Wittgenstein’s subsequent articulation of the book’s main ideas. If we look at the first post-*Tractatus* manuscripts, begun almost immediately after his return to Cambridge in January 1929, we find him developing a whole metaphysics of experience, barely hinted at in the *Tractatus*. It was based on a fundamental distinction between two realms, the “primary” and the “secondary.” The primary is the world of my present experience; the secondary is everything else: not only the “external world,” but also other minds, and most of my mental life. He repeatedly made use of a cinematic analogy, comparing the primary, “inner” world to the picture one sees in the cinema, the secondary, “outer” world to the pictures on the film passing through the projector. However, by October of that year, he decisively rejected this whole approach. He came to see that the primary and secondary were not two different worlds, but rather two different ways of talking, and he thought of philosophy as a matter of clarifying those uses of language. It was only after Wittgenstein repudiated the goal of a “primary language” or “phenomenological language” in October 1929 that he accepted the primacy of our ordinary physical language and so adopted a recognizably physicalist approach.<sup>62</sup>

As Wittgenstein had announced these physicalistic conclusions in his December 1929 meetings with Waismann and Schlick, it is easy to see why Wittgenstein was convinced that Carnap had taken his physicalism from Wittgenstein. However, there is good reason to believe that Neurath and Carnap had already taken the crucial steps towards the physicalistic standpoint earlier that year, due to conversations with Heinrich Neider, a student member of the Vienna Circle. Neider had argued that the two-language approach in Carnap’s *Aufbau*, which gives equal weight to both phenomenal and physical language, is incoherent, because a solipsistic starting point cannot accommodate intersubjectively verifiable evidence statements: only a physicalistic language can do that. Consequently, basic evidence statements must be formulated in the physical language.<sup>63</sup> Indeed, while a critique along these lines may well have played a crucial role in showing both Carnap and Neurath that a phenomenalist language could not provide a satisfactory basis for a reconstruction of scientific knowledge, it was certainly not the first formulation of a physicalistic thesis by a member of the Vienna Circle. In fact, in 1935 Schlick persuaded Carnap, much to Carnap’s embarrassment, that Schlick had already proposed, and argued for, a version of physicalism in his

<sup>62</sup> For further discussion, see Stern 1995, 5.2.

<sup>63</sup> See Haller and Rutte 1977, 29-30; Uebel 1995 335 ff.

*General Theory of Knowledge* in 1918.<sup>64</sup> Of course, neither Neider's nor Schlick's physicalisms made use of the distinction between the material and formal modes of speech; but their attention to questions about mapping one mode of speech onto another does anticipate the more systematic approach to questions of translation one finds in Carnap and Wittgenstein's work in the early 1930s.

Oddly, while the leading parties in this dispute shared a basic commitment to the primacy of physicalistic language, and the view that all significant languages are translatable, there was a remarkable lack of mutual understanding between them, and deep disagreement about the nature of the doctrines they disputed. Three quarters of a century later, we are so much more conscious of the differences that separated them than the points on which they agreed that it takes an effort of historical reconstruction to appreciate why Wittgenstein once feared that his own work would be regarded as a pale shadow of Carnap's.

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<sup>64</sup> (SCHLICK, 1918/1974, 295). See Uebel (1995, p. 345-346).

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