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Reviewed by Hans Sluga

## Review: *Taking Frege at His Word*, by Joan Weiner

Hans Sluga

Edmund Husserl wrote in 1936 to Heinrich Scholz, the archivist of Frege's writings, that he had never met Frege in person and that Frege was considered at the time "a sharply intelligent outsider who was bearing fruit neither as a mathematician nor as a philosopher." (Frege 1976, 92)<sup>1</sup> That was, of course, a misjudgment. We can see now that Frege contributed at least three things to mathematics and philosophy after him. The first was his new logic (the propositional and predicate calculus) that replaced the old Aristotelian logic. Given the important role that the Aristotelian syllogistic had played in philosophy for more than two thousand years that was, indeed, a significant achievement. The new logic also helped to advance the level of formalization and abstraction in foundational mathematics. Frege's second important contribution was his project of reducing arithmetic to logic. The logicist thesis has not remained uncontested and Frege's way of trying to prove it has turned out to be defective, but the considerations that led him to it are still being taken seriously by philosophers of mathematics. The third are his thoughts about signs—the symbols and formulas of his logical calculus and the words and sentences of ordinary language—and the way they serve to convey meaning. These "semantic" considerations have furthered the development of the philosophy of language.<sup>2</sup>

Joan Weiner's new book pays a great deal of attention to the formal logical language that Frege developed, his *Begriffsschrift*,

<sup>1</sup>It is unclear from the formulation whether Husserl agreed with that judgment or was only reporting a widely held opinion.

<sup>2</sup>In light of the fact that Frege may have been instrumental in Husserl's turning away from his early, psychologistic view of arithmetic, we may want to add that Frege contributed also to the decline of psychologism and the rise of the phenomenological movement in philosophy.

whose originality and significance she fully recognizes. Her account of that logic is detailed, precise, and illuminating. She also acknowledges clearly that Frege constructed his logic precisely to establish the truth of the logicist thesis. His logical language was meant to be very precisely an instrument for checking inferences and thus a means for guaranteeing that the deduction of arithmetic from purely logical principles was, in fact, correct. According to Weiner: "Frege was engaged, for virtually all his career, in a single project: that of showing that the truths of arithmetic are truths of logic." (vii) For all that, she does not delve far into the philosophy of mathematics and Frege's place in it. She does not concern herself, in particular, with the difficulties the logicist thesis faces and whether it can be salvaged. Her discussion focuses, rather, on the question of whether, or to what extent, we should think of Frege as a philosopher of language in the way he has been depicted in an ever-growing body of literature.

The object of her critical attention is specifically what she calls "The Standard Interpretation" of Frege's work which she summarizes in four points: (1) Frege aimed at constructing a theory of meaning, (2) he sought to develop a compositional semantics, (3) he was concerned with giving metatheoretical proofs in his logic, and (4) he was an ontological Platonist. Weiner's ambition is to set out an interpretation of Frege that is "deeply at odds with the Standard Interpretation." (ix) The latter, she believes, is now so deeply entrenched in the literature that it takes a most careful re-reading of Frege's words to dislodge it. In undertaking that task, Weiner seeks to expose "the difference between the words that actually appear on Frege's pages, and the words that many contemporary philosophers believe are on Frege's pages." (10)

Weiner's book puts forward a compelling case for rejecting all the parts of the Standard Interpretation that she identifies. Others, myself included, have repeatedly made similar claims. This leaves me with two questions. The first is whether she does full justice to the adherents of the Standard Interpretation and

the second whether her alternative interpretation gives us a fully rounded view of the real Frege. As to the first question, we need to consider that when philosophers read the writings of others they are sometimes motivated by the question “what did the author mean by his words?” and sometimes by the question “what can we do with the author’s words?” And these two questions are not always clearly distinguished in their minds. They are trying to get at the meaning but always with an eye to the usefulness of what they find to their own way thinking. And they also often assume that what they themselves believe will be a clue to what the other author must have meant. This is the way Aristotle read the Presocratics and this is how contemporary philosophers read Frege. From a scholarly and hermeneutic standpoint that can be annoying. Weiner’s irritation with the adherents of the Standard interpretation is thus understandable.

Weiner traces the belief that we should read Frege as being primarily a philosopher of language and theorist of meaning back to Michael Dummett’s seminal book *Frege: The Philosophy of Language* from 1973. I find myself agreeing with her that Dummett is mistaken in maintaining that Frege’s explicit goal was to construct a theory of meaning for natural languages. But this does not undermine the fact that Frege did, indeed, make observations that have since led to the construction of such theories. Weiner does not explore the question of how Dummett came to read Frege in the way he did. She seems to ascribe it simply to a lack of reading skill. That surely does an injustice to Dummett’s competence as a philosopher. We can grant that he overstated his case, but that may still leave it worth asking why he came to read Frege the way he did. Dummett was, of course, well aware of Frege’s preoccupation with the logicist thesis. But by the time he wrote *Frege: The Philosophy of Language* he had given up on the idea that the logicist thesis could be salvaged and he had opted instead for an intuitionist constructivism. That view, as developed by Brouwer, Heyting and others, seemed to him, however, to lack a proper philosophical grounding. Expanding

the constructivist view to non-mathematical statements, Dummett ended up questioning Frege’s apparently “realistic,” i. e., non-constructive, conception of meaning and its associated notion of truth. He hoped to develop in this way an alternative, constructivist sort of semantics. His engagement with Frege had turned thus into a dialogue concerning language and meaning.

The linguistic turn in the interpretation of Frege was not entirely Dummett’s doing. He had, in fact, been anticipated in this by Wittgenstein. It is he more than Russell who brought Frege to the attention of English-speaking philosophers and he was interested from early on more in Frege’s thoughts on language and meaning than in his logicism. That doctrine he had already rejected in the *Tractatus* and over time he was to become increasingly sympathetic to the mathematical formalism that Frege had so vigorously attacked. He remained, however, very much concerned with Frege’s thoughts on language and meaning. Not that he found all of it plausible. Like Dummett after him, he rejected Frege’s idea that propositions are names of a sort and that they refer to truth-values. But he remained attracted to Frege’s context principle, the proposition that words have meaning only in the context of a sentence, which he re-affirmed both in the *Tractatus* and in *Philosophical Investigations*. He also retained an interest in Frege’s distinction between the sense and the reference—the *Sinn* and *Bedeutung*—of words and sentences to which he returned again in those two books while giving the distinction his own very different slant. When Max Black consulted with him about which of Frege’s writings he might most usefully translate into English, Wittgenstein advised him to take on the essay “Über Sinn und Bedeutung.” The translation appeared in *Philosophical Review* in 1948 and was the first piece of Frege’s writings available in English. For many English-speaking philosophers it became the gateway into Frege’s thinking and it is still today the one piece of Frege’s work with which students of philosophy are most familiar. It is from this text also, more than from any other in Frege’s oeuvre, that they derive the impression of him

as a philosopher of language, seeking to advance a theory of meaning for ordinary language, and one that is intended to have the form of a compositional semantics.

Weiner is right in arguing that this impression rests on a misreading of Frege's intentions. She writes that in order to understand Frege's purpose in "*Über Sinn und Bedeutung*" we must read the essay as one of three which together set out a major revision of the *Begriffsschrift* logic of 1879. The first and most important of those pieces is the monograph "On Function and Concept" (1891); the second, the essay on "On Concept and Object" (1892); and the third, "*Über Sinn und Bedeutung*" (1892). This last essay is, in effect, a corollary to the initial monograph and quite possibly only a belated addition. Weiner is right also in thinking that when we read the essay in its proper relation to the monograph we will appreciate that its real concern is with the notion of identity as used in Frege's formal language, not with a semantics of ordinary language. Frege had argued in the monograph for a revision of his earlier account of identity and "*Über Sinn und Bedeutung*" was meant to explain how that revision called for a distinction between the sense and the reference of signs, one not made in the first exposition of his logic of 1879. That the essay did not refer to Frege's logical language or use of any of his formal notations but discussed the issues only in terms of examples taken from ordinary language was the result of limitations set by the editor of the journal in which Frege was trying to publish his essay. (Sluga 2015)

While I find myself in substantive agreement with Weiner's account of "*Über Sinn und Bedeutung*," I don't believe that she takes her case far enough. She does not ask, in particular, why Frege considered the revision of his earlier account of identity to be so important. The answer, I believe, is to be found in the fact that the axiom V he was to add to his logic in *Basic Laws* in order to achieve the desired derivation of arithmetic had for him the form of an identity statement but one that according to the 1879 characterization of identity could not be considered

a logical truth. Frege's new account of identity allowed him, however, to argue that the two parts of axiom V conjoined by the identity sign do not only have the same reference (that axiom V is true) but also that they have the same sense and that this permits us to see that the axiom is a logical truth. I have myself argued repeatedly for that view since 1980. (Sluga 1980)<sup>3</sup> I am surprised to find that Weiner does not pursue that point.

I agree once more with Weiner that the single most important new idea in Frege's logic of 1879 was his characterization of predicates as functions of some sort and that the single most important revision of his logic in 1891 concerned that notion. Where he had previously spoken of functions as certain kinds of expressions, he now sought to distinguish sharply between the functional sign and the function to which it refers. In terms of the history of mathematics, Frege should be seen at this point as a descendant of the Gaussian school which had increasingly concerned itself with mathematical functions. Frege himself had studied at Göttingen, the headquarters of the Gaussians, and so had his teacher and mentor Ernst Abbe. Both Abbe and Frege had, moreover, worked on the theory of function. Frege's *Habilitationsschrift* of 1874 had dealt with the topic even before he became interested in logic and the logicist thesis. Weiner bypasses this historical context and thus misses out on two important insights into Frege's work. The first is the profound difference between Frege's function-theoretical view of logic and the now dominant set-theoretical view that treats functions as certain kinds of ordered sets. The former was represented not only by Frege but also by Russell and the early Wittgenstein and it maintained a characteristically skeptical and even hostile attitude toward the notion of manifold, set, or class as is manifest in Frege's review of Cantor theory of the transfinite and in Wittgenstein's acerbic statement that the theory of classes is altogether superfluous in mathematics. (Frege 1892; Wittgenstein

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<sup>3</sup>See also Sluga (1996), and most recently and most succinctly, Sluga (2015)

2001, 6.031) The second insight Weiner passes over is that there is something paradoxical in the logicist program in that the attempt to reduce the truths of arithmetic to truths of logic makes it necessary as a first step to revise and mathematize logic. The logicist project did thus, in effect, not achieve the triumph of logic over arithmetic but, rather, that of mathematics over logic.

Her silence on this historical context is characteristic of Weiner's entire approach to Frege. While she seeks to distance herself from the Standard Interpretation, she remains close to it, nonetheless, in at least this respect. Her reading of Frege is just as ahistorical as the one that has generated the Standard Interpretation. She is in this way not altogether different from Dummett who once wrote that Frege's thought sprang from his head almost entirely unfertilized by outside ideas. Both Weiner and Dummett separate Frege's words from their context and thus put them effectively into an historical vacuum. But authors do not write simply what is true, they write what is relevant. And the relevance is determined by what they and others have said and written before. A decontextualized reading of Frege can give us at best only an incomplete account of what he was thinking and it may easily give us a distorted account. That limits what we can learn from Weiner's attempt to take Frege at his word.

Weiner describes Frege's new logic fairly enough as "a major advance" but she never tells us what kind of advance it was or over whom. She mentions Boole in passing, but tells us nothing about how Frege saw himself in relation to Boole, though this was, in fact, a major concern for him since his logic had been criticized as no advance over Boolean algebra. (Sluga 1987) Just as important was Frege's attempt to situate his new logic in the context of the work of contemporaries (Lotze, Trendelenburg, Sigwart, Wundt, C. Fischer, and Windelband to name a few). Frege's notion of objective thoughts is clearly indebted to Lotze's *Logic* and his notion of truth-value derived from Windelband together with the distinction between the content of a proposition

and its truth-value. (Sluga 2001) These historical connections are important not only for identifying causal antecedents of Frege's use of terms like "thought" and "truth-value," but also for fully understanding how he uses those terms.

A second question to which Weiner's ahistorical reading cannot provide us an answer is why the logicist thesis was of such importance to Frege. It is, after all, not the case that those who use mathematics worry naturally over the question of whether arithmetical truths are logical truths or not. In his *Foundations of Arithmetic* Frege writes that mathematical and philosophical reasons motivated him. One such reason concerned the natural numbers. It had been part of the Gaussian program to reduce various kind of numbers to the natural numbers and that had led to the additional question of how the natural numbers themselves should be understood. Richard Dedekind's *Was sind und was sollen die Zahlen?* and Frege's *Foundations of Arithmetic* were two attempts to deal with this Gaussian agenda. But Frege adds that the epistemic status of the arithmetical propositions had also been a concern for him. We find him arguing vigorously along these lines against the idea that they are empirical generalizations and for the view that they are a priori truths. John Stuart Mill and Immanuel Kant are for him the respective representatives of those two positions. Their names refer us, in turn, to an ongoing struggle in Frege's time between an influential empiricist naturalism on the one hand and a reviving Kantianism on the other. The urgency of logicism derives for Frege from precisely this historical constellation.

Weiner's insensitivity to these historical factors makes her also overlook Frege's intensive interest in geometry that stretched from his doctoral dissertation to his very last notes. That interest was almost as great as his concern with the foundations of arithmetic. It is difficult for us to reconstruct exactly what Frege's work on geometry was aiming at since most of it was left unpublished and his manuscripts were destroyed in the Second World War. But from the little we have, we know that he objected to

purely formal theories of geometry. He, instead, believed that geometry was built on an intuitive conception of space just as the tradition and just as, in particular, Kant had believed. There was, thus, for him a significant discontinuity between arithmetic and geometry. However, when he finally abandoned the logicist thesis in his last writings, he also gave up on the idea of this discontinuity. Arithmetic could not be reduced to logic, it had to be explicated rather in terms of geometry. Geometry, not logic, was the master science. And the reason for this, he came to think, was that infinity was not, as he had once thought, a purely formal notion. It was an intuitive concept that came to us with the intuition of space. That intuition was not an empirical one. The truths of geometry were rather, as Kant had rightly seen, neither empirical nor logical and formal. They were synthetic a priori in the Kantian sense and this, Frege concluded, was still sufficient to defeat the naturalistic empiricism against which he had fought in his *Foundations of Arithmetic*. We may consider Frege's view of geometry as overly conservative. The formal conception of geometry has won out. But historically, Frege's view of geometry remains of interest in that it shows how closely his thinking was intertwined with the historical development of Neo-Kantianism.

All this is not the concern of Weiner's book. But we should not dismiss it for that reason. It is true that her way of taking Frege by his words cannot give us a comprehensive picture of Frege's thinking. Her book should be read, rather, as a polemical treatise. Its value lies in the work of demolition she has done on the Standard Interpretation of Frege's work. And in that she has certainly excelled.

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