

## Frege and the Linguistic Turn<sup>1</sup>

What is analytic philosophy? And what is Frege's relation to it? In answer to the first question, Michael Dummett writes,

What distinguishes analytical philosophy, in its diverse manifestations, from other schools is the belief, first, that a philosophical account of thought can be attained through a philosophical account of language, and, secondly, that a comprehensive account can only be so attained.<sup>2</sup>

According to Dummett, Frege was one of the first to perceive that the theory of meaning, or philosophy of language, is the fundamental part of philosophy that underlies all others.<sup>3</sup>

Frege does not explicitly state the insight that Dummett finds in his work however. Indeed, the explicit subject of most of Frege's writings is not language, but mathematics. He was engaged, for most of his career in a unified project, the outlines of which are well-known. Frege's logic was first set out in his 1879 monograph, *Begriffsschrift*. He envisioned *Begriffsschrift* as the first part of a project to define the real numbers from purely logical concepts and to show, by proving basic truths of arithmetic from definitions and logical laws, that all truths of mathematics, with the exception of those of geometry, are analytic. He first described the project in *Foundations of Arithmetic*, published in 1884. Its details were to have been carried out in a later, two volume work, *Basic Laws of Arithmetic*. These works contain very little discussion of language.

How is it, then, that Frege is so renowned as a philosopher of language?

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<sup>1</sup> This paper was originally presented at an Eastern Division APA symposium on Frege and the origins of analytic philosophy. Later versions were presented at departmental colloquia at the University of Edinburgh, the University of Virginia and Northwestern University. I am indebted to the participants for helpful discussions. The arguments in some parts of this paper were influenced by discussions with Cora Diamond and Richard Heck. I have also benefited from comments on earlier versions by Mark Kaplan, John Koethe, and Thomas Ricketts.

<sup>2</sup> Michael Dummett, *Origins of Analytic Philosophy* (London: Duckworth, 1994), 4.

<sup>3</sup> Dummett, *Frege: Philosophy of Language* (New York: Harper and Row, 1973), 667-669

As any survey of collections on the philosophy of language would suggest, much of Frege's influence on the philosophy of language can be found in two papers that I have not yet mentioned, "On Sense and Meaning" and "Thoughts". These papers, unlike most of Frege's writings, seem to be straightforwardly about language. On the standard interpretation, "On Sense and Meaning" contains an early—perhaps the first—version of the sort of theory of meaning that, according to Dummett, underlies all other parts of philosophy.<sup>4</sup> But, even in this paper, there is no explicit statement of the importance of language to philosophy. Nor does Frege claim, in "On Sense and Meaning" that he intends to give a theory of meaning or an explanation of what is required for a theory of meaning. In fact, the expressions 'theory of meaning', 'theory of the workings of language', 'philosophical account of language' and the like do not even appear in "On Sense and Meaning". The absence of all this, however, does not of itself undermine the standard interpretation. For Frege does not give us a different account of what he hopes to accomplish or what his methodology is. He does not give us any account at all.

This is another respect in which "On Sense and Meaning" is atypical of Frege's writings.

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4 Although I have dubbed this interpretation the 'standard interpretation', I do not mean to suggest that it is the only interpretation available in the literature. In particular, I do not mean to suggest that there is general agreement that the purpose of Frege's sense/meaning distinction is to play a role in a theory of meaning. One need not regard Frege as having an interest in a theory of meaning in order to find a role for the distinction in his project. Arguments that it is a response to the demands of Frege's logic appear in Thomas Ricketts, "Generality, Meaning and Sense in Frege" *Pacific Philosophical Quarterly*, 67 (1986): 172-95, Peter Simons "Why is There so Little Sense in Grundgesetze?" *Mind* 101 (1992) 752-66, and William Taschek "Frege's Puzzle, Sense and Information Content," *Mind* 101 (1992): 767-91. In "Frege's Epistemology in Disguise", in *Frege: Importance and Legacy*, ed. Matthias Schirn, vol 13 in *Perspectives in Analytic Philosophy* ed. Georg Meggle and Julian Nida-Rümelin (Berlin: Walter de Gruyter, 1996) Gottfried Gabriel argues that Frege's notion of sense is meant to play an epistemological role. In my *Frege in Perspective* (Ithaca, N.Y.: Cornell University Press 1990) I argued that it is a response to the demands of Frege's project of proving the truths of arithmetic from definitions and the laws of logic. Indeed, even Dummett comes close to acknowledging that something like the sense/meaning distinction for sentential expressions is required, given Frege's function/argument analysis of sentential expressions in *Begriffsschrift*. Nor do I mean to suggest that Frege's sense/meaning distinction only had one role to play. But, granted that Frege had multiple reasons for introducing a sense/meaning distinction, and granted that some of his reasons stem from the demands of his logic or his mathematical project, one still might think it is obvious that, in "On Sense and Meaning", the reason offered is that the distinction is required by a theory of meaning. The issue on which I will concentrate today is not what purposes the sense/meaning distinction serves but, rather, why "On Sense and Meaning" is written as it is.

Frege explicitly tells us the purpose of *Begriffsschrift*—it is to introduce a logical adequate for the expression and evaluation of inferences. This, he tells us, will be used to produce gapless proofs of the truths of arithmetic, so that we can see whether they are analytic or synthetic.

Frege explicitly tells us the purpose of *Foundations*—he hopes to make it seem probable that the laws of arithmetic are analytic. "Function and Concept", he tells us, provides an explanation of the notion of function that he deems too elaborate to put into *Basic Laws* without alienating some readers. *Basic Laws*, of course, is intended to establish the epistemological nature of the truths of arithmetic. And numerous discussions in his earlier works explain how it is that the proofs in *Basic Laws* can establish the analyticity of the truths of arithmetic. In "On Sense and Meaning" we are left to our own devices.

This reticence has bothered few philosophers because it has seemed obvious what Frege is doing. He is, after all, offering important, if not always unproblematic, answers to problems that still bother us today. Moreover, the standard interpretation presents us with a philosophical hero, a philosopher of astonishing insight and prescience who set a large part of an agenda that still guides philosophical investigation. But, for all the insight and prescience ascribed to Frege by the standard interpretation, this interpretation also requires us to ascribe astonishing blunders to him.

In "On Sense and Meaning" Frege assimilates assertoric sentences to proper names. This is not, in itself, a mistake. It does, as Frege notes in the preface to *Basic Laws*, effect an improvement in his logical system. But if Frege truly means to be giving a theory of the workings of language—as, on the standard interpretation, he does—then it is obviously wrong. Sentences and proper names play different roles in language—as Frege himself notes early in his

career.<sup>5</sup> Dummett has characterized this assimilation as a gratuitous blunder that has a fatal effect on the theory of meaning. Dummett says, "It is tragic that a thinker who achieved the first really penetrating analysis of the structure of our language should have found himself driven into such absurdities."<sup>6</sup>

This is not the only apparently inexplicable blunder. Another is Frege's failure to define his use of 'proper name'. Again, this is not a mistake in itself. Nobody is in any doubt about which expressions are to count as proper names and which are not. But if Frege means to be giving the sort of theory of the workings of language that Dummett describes then, as Dummett says, "Such an attitude is unacceptable"<sup>7</sup>

Can we avoid attributing such blunders to Frege? If, as Dummett has claimed, construing Frege otherwise than as a philosopher of language "will make nonsense of his doctrines",<sup>8</sup> then perhaps we cannot. I believe, however, that Dummett is wrong about our options. I think that it is possible to give an interpretation of "On Sense and Meaning" on which there is no need to attribute absurdities or gratuitous blunders to Frege. My interpretation, however, is not motivated solely by a desire to avoid attributing blunders to Frege. For the standard interpretation is by no means as obviously correct as it is often taken to be. Even if we ignore the apparent blunders, the view that "On Sense and Meaning" is meant as a contribution to a philosophical account of language does not entirely fit the text. To see this, it will help to examine the standard interpretation in more detail.

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5 As, for example, when he distinguishes expressions--e.g. "opposite magnetic poles attract each other"--that can be used to express judgements from those--e.g. 'house'--that cannot. See his *Begriffsschrift, a Formula Language, Modeled upon that of Arithmetic*, ed. Jean van Heijenoort (Cambridge, Mass.: Harvard University Press, 1970, section 2). This difference is mirrored in the rules for the use of one of his signs in the first version of *Begriffsschrift*. He says "Whatever follows the content stroke must have a content that can become a judgement" (ibid).

6 See Dummett, *Frege: Philosophy of Language*, 184.

7 Ibid., 54

8 Dummett, *The Interpretation of Frege's Philosophy* (Cambridge, Mass.: Harvard University Press, 1981), 55.

## I

### The standard interpretation

Let us begin with some specific characterizations of Frege's philosophical account of language. Donald Davidson writes,

Frege saw the importance of giving an account of how the truth of a sentence depends on the semantic features of its parts, and he suggested how such an account could be given for impressive stretches of natural language. His method was one now familiar: he introduced a standardized notation whose syntax directly reflected the intended interpretation, and then urged that the new notation, as interpreted, had the same expressive power as important parts of natural language.<sup>9</sup>

But Frege's interest in a theory of meaning is not to be understood as an interest in a theory of meaning for natural language as it actually is. Davidson continues,

Or rather, not quite the same expressive power, since Frege believed natural language was defective in some respects, and he regarded his new language as an improvement.<sup>10</sup>

Or, as Dummett says,

no systematic theory of meaning will fit our linguistic practice as it actually is: but so much the worse for our linguistic practice, which ought to be revised so as to accord with such a theory.<sup>11</sup>

"On Sense and Meaning", on the standard view, is meant as a contribution to this project.

How are these characterizations related to what Frege says in "On Sense and Meaning"? They are not paraphrases of Frege's descriptions of his project. The method described by Davidson is never described by Frege. Nor does Frege ever explicitly say that he wants to give a part of a general account of how the truth of a sentence depends on the semantic features of its

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<sup>9</sup> Donald Davidson, *Inquiries into Truth and Interpretation* (Oxford: Oxford University Press, 1984), 202.

<sup>10</sup> Ibid.

<sup>11</sup> Ibid., 30

parts. On the other hand, I do not mean to suggest that this is a sense in which the standard interpretation fails to fit Frege's text. For, beyond saying that he wants to solve a problem with identity, Frege says surprisingly little about why he wrote "On Sense and Meaning". The conviction that this *is* Frege's project is a result of the examination of what Frege *does*. It is, to supporters of the standard interpretation, evident that "On Sense and Meaning" is meant as a contribution to a theory of the workings of language. What is the nature of this contribution?

According to the standard view, one part of the theory tells us how the truth of a sentence depends on the semantic features of its parts. Consider the simplest sentences, simple predications. The contribution of a proper name is determined by the object it names. A sentence in which a proper name appears is, presumably, about that object. The truth of the sentence will be dependent on the character of the object for which the proper name stands. But this is only one part of a theory of the workings of language. Frege's concern is not only with truth but with expressive power. Thus it is not enough to identify the role of a proper name as its connection with an object. For this cannot account for the information conveyed by sentences in which the proper name appears. The purpose of "On Sense and Meaning", on the standard view, is to fit together accounts of the relation of the constituents of a sentence to both truth value and information content. Frege motivates "On Sense and Meaning" with a puzzle.

The puzzle is framed as a puzzle about identity statements. Some identity statements—those of the form 'a=a'—appear to convey no information while others—those of the form 'a=b'—can be used to communicate valuable extensions of our knowledge. But if identity is simply a relation that each object bears to itself and no other, then it is hard to see how *any* identity statement can convey real information. Frege's solution is to say that the contribution of a proper name to the information conveyed by a sentence in which it appears is something distinct from the object named. Objects are not linked directly with their names but indirectly, via a mode of presentation. The information conveyed by an identity statement is substantive if

the names are associated with distinct modes of presentation. A sign is connected both with a Bedeutung, what it designates, and a Sinn that contains the mode of presentation. Any theory of the workings of language will include a theory of Sinn. Theories of Sinn, like theories of truth, will be compositional. Just as the truth-value of a sentence should not be altered by replacing one of its proper names by another with the same Bedeutung, so the Sinn of a sentence should not be altered by replacing one of its proper names by another with the same Sinn.

This, then, is an outline of the standard interpretation of "On Sense and Meaning". Frege's concern is with the workings of language. He wants to provide a theory of how truth-values of sentences are determined. But there is more to a theory of the workings of language than this. We need, also, a theory of information content. The disentangling of two features of linguistic expressions, their Sinn and Bedeutung, gives us a foundation for these theories as well as a solution to the puzzle with which Frege begins.

The view that "On Sense and Meaning" is meant as a contribution to a theory of the workings of language is supported by the evident fact that Frege *did* discuss language; by the fact we can use this view to explain the point of the individual discussions of "On Sense and Meaning" and, in particular, by the role of compositionality in these discussions. In these respects the standard interpretation seems to work. Nonetheless, since Frege never describes himself as engaged in the project attributed to him, there remains the possibility that another interpretation might account for these facts. Moreover, there are also important respects in which the standard interpretation does not fit the text.

In particular, on the standard interpretation, we cannot always take Frege at his word when he comments on what he is doing. For Frege not only fails to tell us the real purpose of some of the discussions of "On Sense and Meaning", he also (whether intentionally or not) sometimes misleads us about their purpose. For example, Frege begins "On Sense and Meaning" with a puzzle about identity. On the standard interpretation this is merely a rhetorical device for

introducing a more general puzzle about information content. Nathan Salmon writes, "*pace* Frege, it is not a puzzle about identity. It has virtually nothing to do with identity."<sup>12</sup> Yet Frege *says* his puzzle is a puzzle about identity. Nor does the paper end with a discussion of the importance of a theory of Sinn or information content. Frege not only fails to say that his real concern is with information content, he ends the paper just as he begins it: with a discussion of identity statements.

Another example: On the standard interpretation, the longest discussion of the paper is obviously meant as a contribution to a theory of how the truth-value of a sentence is determined by semantic features of its constituents. Frege is engaged in a series of explanations of the proper analyses of sentences with subordinate clauses. Yet, again, that isn't what Frege *says* he is doing. Frege begins this discussion with "The supposition that the truth value of a sentence is what it means shall now be put to further test".<sup>13</sup> He ends the discussion with the claim that it follows with sufficient probability that the cases he has discussed "cannot be brought in disproof of our view that a truth-value is the meaning (*Bedeutung*) of a sentence that has a thought as its sense".<sup>14</sup> It is not that these statements are ignored on the standard interpretation. Nobody denies that Frege says there is a puzzle about identity; nobody denies that he attempts to deal with apparent counterexamples to his claim that a sentence designates its truth-value. But on the standard interpretation, these statements are, at the very least, misleading. Frege says his puzzle is a puzzle about identity but, *pace* Frege, it is about information content. Frege says, of the

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12 Nathan Salmon *Frege's Puzzle* (Cambridge, Mass.: MIT Press 1986) p. 12). Although, as far as I know, Dummett does not explicitly say that Frege's puzzle is not really a puzzle about identity, he does characterize Frege's concern in distinguishing sense and *Bedeutung* as a concern with information content. Also, while he acknowledges Frege's use of identity in the introduction of the distinction, there is little talk of identity in Dummett's discussion of Frege's need for the notion of sense. See, e.g., his *Frege: Philosophy of Language* chap. 6 and "Frege's Distinction between Sense and Reference" in his *True and Other Enigmas* (Cambridge, Mass.: Harvard University Press, 1978) 116-144.. Moreover, in the latter paper, Dummett argues that Frege's puzzle about identity can be generalized to affect all atomic sentences, provided that every sentence is either true or false. The view that it is not really a problem about identity is not limited to supporters of the standard interpretation, however. See William Taschek "Frege's Puzzle 1993 p. 771.

13 Frege, *Collected Papers* (Oxford: Basil Blackwell, 1984), 165

14 *Ibid.*, 176

longest discussion in "On Sense and Meaning", that it shows that examples of certain sentences with subordinate clauses cannot be brought disproof of the view that sentences have truth-values as their meaning but, *pace* Frege, the discussion really shows how semantic features of sentences with subordinate clauses determine their truth-values.

I propose to take Frege at his word. I will give an interpretation on which the point of "On Sense and Meaning" is exactly what Frege says it is: an attempt to solve a problem with identity statements. I will argue, further, that we can see why Frege might be so concerned with identity—the puzzle originates with a difficulty Frege sees in his central project. On my interpretation, the views stated in "On Sense and Meaning" are designed to solve a difficulty with identity in the first version of *Begriffsschrift* and the construal of sentences as names of truth-values is an integral part of this solution.<sup>15</sup> The paper, on my reading, derives its import from the role of Frege's *Begriffsschrift* in his overall project of showing that the truths of arithmetic are analytic. The arguments for my interpretation, however, are not conclusive. As I have already acknowledged, Frege never does come out and explain exactly why he wrote "On Sense and Meaning". Although I take him at his word when he says that the point is to solve a puzzle about identity, I will also tell a story about why the puzzle about identity is important to Frege's central project—a story that does not appear explicitly in his writings.

## II

### Begriffsschrift

Let us return to the puzzle about identity which begins "On Sense and Meaning". Frege says that, in his *Begriffsschrift* he assumed that identity was a relation between names or signs of objects. His reason, he says, was that identity statements of the form 'a=a', unlike identity

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<sup>15</sup> My mention of names here may suggest that I mean to say that the views are designed to solve a difficulty with the semantic theory of the first version of Frege's *Begriffsschrift*. This is not so. One needn't have a semantic theory to talk about names. I do not believe that Frege has a semantics either for the first version of the *Begriffsschrift* or for the later version. One argument for this appears in the final section of this paper. For other arguments, see my "Understanding Frege's Project," in the *The Cambridge Companion to Frege*, ed. Thomas Ricketts (Cambridge: Cambridge University Press, forthcoming)

statements of the form 'a=b', could not contain valuable extensions of our knowledge. Frege goes on to say that, for such a statement to contain a valuable extension of our knowledge, it is not sufficient that different signs appear flanking the identity sign. The mode of presentation corresponding to the two signs [*der Art des Gegebenseins*] must be different as well. He gives, as an example, two expressions he calls names [*Namen*]: 'point of intersection of a and b' and 'point of intersection of b and c', where a, b and c are lines with a common point of intersection. He continues,

It is natural, now, to think of there being connected with a sign (name, combination of words, written mark), besides that which the sign designates,...also what I should like to call the *sense* of the sign, wherein the mode of presentation is contained. In our example, accordingly, the meaning of the expressions ... would be the same but not their sense.

The departure from the *Begriffsschrift* view is that identity statements are no longer about signs.

Suppose we take Frege at his word. Then his puzzle really is a puzzle about identity and it is a puzzle that he first addresses in *Begriffsschrift*, not in "On Sense and Meaning".<sup>16</sup> It does not seem unreasonable, then, to go back to Frege's treatment of the puzzle in *Begriffsschrift*, if we are to understand its full significance.<sup>17</sup> Let us turn, then, to Frege's *Begriffsschrift* and the role his identity sign plays there.

What is the description in *Begriffsschrift* of the purpose of Frege's logically perfect language? Frege says that he began to develop it in his attempt to show that one could prove the truths of arithmetic "with the sole support of those laws of thought that transcend all

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<sup>16</sup> The observation that the puzzle first arises in *Begriffsschrift*, however, is not dependent on our understanding it as a puzzle about identity. In *Frege's Puzzle*, Salmon claims that the puzzle first arises in *Begriffsschrift*. In "Frege's *Begriffsschrift* Theory of Identity", *Journal of the History of Philosophy* 20 (1982), 279-99, Richard Mendelsohn also claims both that the puzzle first arises in *Begriffsschrift* and that the puzzle is not a puzzle about identity.

<sup>17</sup> Indeed, even on the standard interpretation, an understanding of "On Sense and Meaning" is inextricable from an understanding of *Begriffsschrift*. For the account of how the truth-value of a sentence of natural language is dependent on semantic features of its constituents is indirect. The sentence of natural language must be translated into a logically perfect language. The direct account is provided for Frege's logically perfect language. Thus Frege's conception of his logically perfect language and its relation to natural language is crucial to our interpretation of "On Sense and Meaning".

particulars"<sup>18</sup> He continues,

To prevent anything intuitive from penetrating here unnoticed, I had to bend every effort to keep the chain of inferences free of gaps. In attempting to comply with this requirement in the strictest possible way I found the inadequacy of language to be an obstacle; ... This deficiency led me to the idea of the present ideography. Its first purpose, therefore, is to provide us with the most reliable test of the validity of a chain of inferences and to point out every presupposition that tries to sneak in unnoticed, so that its origin can be investigated.<sup>19</sup>

The logical notation is meant to express all content of any statement that has significance for the inferences in which it can figure.<sup>20</sup> It is intended to be a means for evaluating the legitimacy of any inference on any subject and for preventing any presupposition from sneaking into an inference unnoticed. Once our inferences are expressed in *Begriffsschrift*, it is supposed to be a mechanical task to determine whether or not an inference is correct and gapless, or whether it requires an unstated premise. We should be able to see by inspection whether or not a statement is a primitive logical law; whether or not the transition from one statement to another follows by Frege's rule of inference.

One consequence of the task Frege assigns his logical notation is that some of what is expressed in natural language will not be expressible in his notation. He tells us that he has decided to forgo expressing anything that is without significance for the inferential sequence.<sup>21</sup> He calls what his language does express 'conceptual content' [*begriffliche Inhalt*]. Two judg-

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18 *Begriffsschrift*, p. 5

19 *Begriffsschrift* pp. 5-6.

20 This characterization of Frege's notation appears in the preface to his *Begriffsschrift* and is consonant with his later writings about logic. I have discussed and defended the claim that Frege had this view of his notation in Chapter 2 of my *Frege in Perspective* (1990), in "Has Frege a Philosophy of Language?" in *Early Analytic Philosophy: Essays in honor of Leonard Linsky*, ed. William W. Tait (Chicago: Open Court Press, 1997), 249-73, "Theory and Elucidation: The End of the Age of Innocence," *Future Pasts: Reflections on the History and Nature of Analytic Philosophy*, eds. Juliet Floyd and Sanford Shieh Oxford University Press, 2001. pp. 43-65 and "Section 31 Revisited: Frege's Elucidations" in ed. E. Reck, *From Frege to Wittgenstein: Perspectives on Early Analytic Philosophy*, Oxford University Press, 2002, pp.149-182.

21 *Begriffsschrift*, p. 5.

ments from which exactly the same consequences can be derived are said to have the same conceptual content.<sup>22</sup> The difference between what is expressed in natural language by the use of 'and' and 'but', which Frege mentions in *Begriffsschrift*, is a classic example of what Frege's notation does not express.<sup>23</sup>

One might be inclined to infer that Frege's notation is just a version of natural language from which the extra content that obscures inferential connections is removed.<sup>24</sup> To do so, however, would be to ignore the differences in the purposes of natural language and of Frege's logical notation. In the preface to *Begriffsschrift* Frege says,

I believe that I can best make the relation of my ideography to ordinary language clear if I compare it to that which the microscope has to the eye. Because of the range of its possible uses and the versatility with which it can adapt to the most diverse circumstances, the eye is far superior to the microscope. Considered as an optical instrument, to be sure, it exhibits many imperfections, which ordinarily remain unnoticed only on account of its intimate connection with our mental life. But, as soon as scientific goals demand great sharpness of resolution, the eye proves to be insufficient. The microscope, on the other hand, is perfectly suited to precisely such goals, but that is just why it is useless for all others.<sup>25</sup>

A microscope does not filter out extraneous details from the images we see. Rather, the sharpness of resolution enables us to see what cannot be seen at all with the naked eye. And Frege seems to believe that his notation has expressive power that is not available in natural language. For some of the proofs in Part III of *Begriffsschrift* require his definition of a property's being hereditary in a sequence. And he says, about a property  $F$ 's being hereditary in an  $f$ -sequence, it can become difficult and even impossible to give a rendering in words if very

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22 Ibid. 12.

23 Ibid., 20.

24 As Dummett apparently does. See, for example, 1981 p. 18.

25 *Begriffsschrift*, p. 6.

involved functions take the places of  $F$  and  $f$ .<sup>26</sup> If it can be impossible to express in words some of the statements that Frege expresses in his logical notation, then the notation has more expressive power than natural language.

But there are also respects in which it has less expressive power. While the microscope is perfectly suited to certain goals, Frege also says, "that is just why it is useless for all others"<sup>27</sup> Similarly, he says that his logical notation is "a device invented for certain scientific purposes, and one must not condemn it because it is not suited to others". For scientific purposes, natural language is defective.<sup>28</sup> But these logical defects, Frege says, are necessary if natural language is to serve its purposes. In one of the articles about his notation, he compares natural language to the hand.<sup>29</sup> He says,

We build for ourselves artificial hands, tools for particular purposes, which work with more accuracy than the hand can provide. And how is this accuracy possible? Through the very stiffness and inflexibility of parts the lack of which makes the hand so dextrous.<sup>30</sup>

If our interest is in something that will serve the purposes of natural language, then logical notation is defective. It is a mistake to describe Frege's logical language as a properly functioning version of natural language.<sup>31</sup> Frege's notation is meant to be, not a *perfect* language, but a *logically* perfect language.

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26 Ibid., 57.

27 Ibid, 6.

28 But not for all scientific purposes. I discuss Frege's view of the use of natural language in scientific contexts in "Understanding Frege's Project".

29 See, "On the Scientific Justification of A Concept-script", in his *Conceptual Notation*, trans. and ed. Terrell Ward Bynum (Oxford: Clarendon Press, 1972), 86. He also claims, in a letter to Peano (in *Collected Papers*, 114-5) that, for purposes of natural language, words need not even have their own meaning or sense

30. *Conceptual Notation*, 86.

31 The description is Dummett's, see Dummett, *Interpretation of Frege's Philosophy*. 31. Of course, Dummett recognizes that there are purposes for which natural language is used and for which logically perfect language would be inappropriate. But Dummett characterizes that distinction as "between language as serving to express thoughts and language as fulfilling other, ancillary, purposes." this conflicts with Frege's view that sentences used in fiction express thoughts. See the discussion of 'Odysseus' in "On Sense and Meaning," *Collected Papers*, 162. As I have argued in "Understanding Frege's Project", Dummett's view also conflicts with Frege's view about the use of natural language in scientific contexts. In "Has Frege a Philosophy of Language", (1996) I argue that the demands of a theory of the workings of language and of a logically perfect language in Frege's sense do conflict.

Frege's treatment of most of the signs used in his logical notation are what one would expect, given that his aim is to express all and only what is of significance for inference. He introduces the signs quickly. After he introduces a sign he goes on to show how it can be used to translate various statements of ordinary language or he goes on to show how sentences in which the sign appears function in inferences. In contrast, when Frege introduces the identity sign there is no discussion of sample translations. Its function in inferences is mentioned only in one sentence at the end of the section. The section is taken up, instead, with a long discussion of the nature of identity statements, a discussion that bears a noticeable similarity to the opening discussion of "On Sense and Meaning".<sup>32</sup> As in the beginning of "On Sense and Meaning", Frege provides an example from geometry of two ways of describing the same point. He then says,

that in a particular case *two ways of determining it really yield the same result* is the content of a *judgment*. Before this judgment can be made, two distinct names, corresponding to the two ways of determining the content, must be assigned to what these ways determine. The judgment, however, requires for its expression a sign for identity of content, a sign that connects these two names. From this it follows that the existence of different names for the same content is not always merely an irrelevant question of form; rather, that there are such names is the very heart of the matter if each is associated with a different way of determining the content. In that case the judgment that has the identity of content as its object is synthetic in the Kantian sense.<sup>33</sup>

In *Begriffsschrift*, as in "On Sense and Meaning", Frege seems to be talking about ways of using descriptions (which he calls 'names') to pick out something and in both discussions he identifies

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32 This observation, as well as several of the points made in the next section, appear elsewhere in the literature. See Roger White, "Wittgenstein on Identity", *Proceedings of the Aristotelian Society* 78 (1977-78): 157-74; and Richard Mendelsohn, "Frege's *Begriffsschrift* Theory." However, their assessments of the significance of this point differ from my own.

33 *Begriffsschrift*, 20.

substantive statements of identity not just with a difference in names but with a difference in something else associated with the names: a way of determining [*Begriffsschrift*] or a mode of presentation ["On Sense and Meaning"].

There is a change, however, in Frege's explanation of the role played by the names flanking the identity sign. "On Sense and Meaning" begins with a rejection of the *Begriffsschrift* view that when names flank the identity sign they name themselves. Frege says that names flanking the identity sign designate exactly what they designate in other contexts. What motivates this change? Then answer is that there is a real difficulty with Frege's treatment of identity in *Begriffsschrift*. In order to appreciate this, it will help to consider, in more detail, the significance some of Frege's signs have for the inferential sequence.

### III

#### The problem with identity in Begriffsschrift

It is easy to see the significance that Frege's conditional-stroke has for inference. A statement that is a conditional provides us with a license to infer the consequent from the antecedent. Since Frege's one rule of inference is Modus Ponens, the inference from antecedent to consequent is an immediate consequence of the conditional. What of Frege's identity sign? An identity statement is meant to be a license for the intersubstitution of names in inferences. More specifically, an identity, say 'c=d', is supposed to license the inference, from any sentence in which 'c' appears, to any sentence that results from substituting 'd' for one or more of the occurrences of 'c'. Described in this way, Frege's identity symbol does seem to concern names.<sup>34</sup> Thus Frege says, in *Begriffsschrift*,

Identity of content differs from conditionality and negation in that it applies to names and not to contents. Whereas in other contexts signs are merely representatives of their content, so that every combination into which they enter expresses only a relation between

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<sup>34</sup> Of course, this difference between the identity sign and conditional sign is only apparent. The description of the inferences licensed by a conditional can also be expressed by talking about names

their respective contents, they suddenly display their own selves when they are combined by means of the sign for identity of content; for it expresses the circumstance that two names have the same content. Hence the introduction of a sign for identity of content necessarily produces a bifurcation in the meaning of all signs: they stand at times for their content, at times for themselves.<sup>35</sup>

There is also another difference between conditionals and identity statements. Since Frege limits himself to one rule of inference, there is no immediate inference from 'c=d' and a sentence in which 'c' appears, to a sentence that results by replacing 'c' with 'd'. Frege's Basic Law (52), 'c=d  $\rightarrow$  (f(c)  $\rightarrow$  f(d))' does this work. One result is that any instance of Basic Law (52) contains ambiguous names. Whatever names replace 'c' and 'd' appear, in the first part of the sentence, as names for themselves and, in the second part, as representatives of their content. Frege may not have seen any difficulty with this ambiguity when he wrote *Begriffsschrift* but, shortly thereafter, he identified ambiguity as an important logical defect.<sup>36</sup>

In the years between the publication of *Begriffsschrift* and *Foundations*, Frege wrote several papers about his logical language. In one of these, he says that the "first requirement" is that such a language not be ambiguous.<sup>37</sup> "We need a system of symbols from which every ambiguity is banned".<sup>38</sup> Ambiguity is a defect that, according to Frege, can be found not only in natural languages, but also in a number of logical languages proposed by others.<sup>39</sup> In another paper he says "we may not use the same symbols with a double meaning in the same context".<sup>40</sup>

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35 *Begriffsschrift*, 20.

36 And Frege continued to hold this view throughout his career. See, for example, CP 235, 239, 306-8, 315-16, 401; BLA 50, 65-66, PW 213, 237.

37 *Conceptual Notation*, 84.

38 *Conceptual Notation*, 86.

39 He writes,

Exactly the opposite holds for the symbolism for logical relations originating with Leibniz and revived in modern times by Boole, R. Grassmann, S. Jevons, E. Schröder, and others. Here we do have the logical forms, though not entirely complete; but content is lacking. In these cases, any attempt to replace the single letters with expressions of contents, such as analytic equations, would demonstrate with the resulting imper-spiciousity, clumsiness--even ambiguity--of the formulas how little suited this kind of symbolism is for the construction of a true conceptual nota-tion. (Ibid. 88).

40 Ibid, 93.

Unfortunately, as we have just seen, the same symbol *is* used with a double meaning in an instance of Basic Law (52). The system of symbols Frege gives us in *Begriffsschrift* is, by Frege's own account, ambiguous.

Frege does not mention the apparent ambiguity of his own notation in any of these papers. It may be that he was simply blind to the problem. However, it also may be that he believed that his notation was not really ambiguous—that the apparent ambiguity was a result of his having provided a faulty explanation of the identity sign. In another paper written at the beginning of this period, Frege claims that he no longer needs identity as a primitive sign but can define it from his other signs and that his basic laws for identity are dispensable.<sup>41</sup> If he is right, then there really is no ambiguity. The fragment of Frege's notation that results from removing the identity sign is not ambiguous. If all identity statements can be expressed in the notation without using the identity sign, the signs are not used ambiguously in the identity statements. Were Frege to define the identity sign from his other signs in the next version of his logic, no such explanation would be required.

However, the later version of Frege's logic also has a primitive identity sign. Frege seems to have decided that, because definitions are logical identities, the identity sign could not be defined.<sup>42</sup> The problem, it seems, remains to be solved. On the other hand, the above

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41 These claims appear in another early paper, "Boole's Logical Calculus and the Concept-script", which was submitted for publication in 1881 but not accepted (see *Posthumous Writings*, pp. 35-36, 39). Although he doesn't actually say, there, how he would define the identity sign, there is evidence from a 1914 letter to Jourdain that he had in mind replacing 'c=d' with '(f)(f(c) → f(d))'. See his *Philosophical and Mathematical Correspondence* (Chicago: University of Chicago Press, 1980), 78. This also explains why he thinks he has no need for basic laws for identity, since his two basic laws in *Begriffsschrift* are 'c=c' and 'c=d → (f(c) → f(d))', both of which can be proved from the other laws, given the new identity statement.

42 Frege probably does not explicitly say this in print until two years after the publication of "On Sense and Meaning", in a review of Husserl's *Philosophy of Arithmetic* (see *Collected Papers* p. 200). However, it is clear, from the early draft of "On Concept and Object" that, for whatever reason, Frege has already decided that, for this reason, identity must be primitive. He says several times that a definition is "a logical identity" (*Posthumous Writings* pp. 102, 103)

It is worth noting, however, while this consideration does prevent Frege from defining an identity sign, this is not a conclusive reason for introducing an identity sign. Frege could, nonetheless, have used a different, complex expression in place of the identity sign. What distinguishes Frege's definitions, in both *Begriffsschrift* and *Basic Laws*, from other statements is not that they are identities but that they are stipulated identities, one of whose sides contains a new expression. Indeed Frege indicates definitions by use of a double vertical stroke instead of his usual

considerations are still significant. For each identity statement, there is a statement in Frege's notation without an identity sign from which exactly the same consequences can be derived. That is, a statement without an identity sign that has the same conceptual content. Since the use of this statement creates no ambiguity in the notation, it still seems that only Frege's *explanation* of the identity sign is faulty. What is needed is an alternate explanation of the identity sign. "On Sense and Meaning" provides such an explanation.

#### IV

#### Interpreting "On Sense and Meaning"

The story so far shows how "On Sense and Meaning" might be viewed as a contribution to Frege's central project. However, it may seem that all Frege *needs* is a new explanation to accompany the introduction of his identity sign in *Basic Laws*. Why devote an entire paper to this new explanation? Furthermore, most of the paper seems to be an account of how the truth-values of various complicated sentences of natural language are determined by semantic features of their constituents. What could have motivated this discussion, if not an interest in semantic theory? What does this discussion have to do with identity? What explains the fact that there is so little discussion of Frege's formal language in that paper, and so much discussion of natural language?

To see how these questions might be answered, let us consider the structure of "On Sense and Meaning". The paper begins and ends with brief descriptions both of the puzzle about identity and of how the introduction of the notions of sense and meaning provides a solution. In

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assertion stroke. This distinction could be marked as well by replacing all occurrences of the identity sign with a more complex sign involving a biconditional (e.g., 'a=b' would be replaced by

(1) '(f)(f(a)→f(b))'

[note that Frege needs only the conditional, not the biconditional because, for any function  $g(x)$ , both ' $g(a)→g(b)$ ' and ' $∼g(a)→∼g(b)$ ' will be instances of (1).] I suspect that Frege's reason for introducing a primitive identity sign is that it results in a considerably more perspicuous logical system and it makes vivid Frege's function/argument analysis. For the sake of perspicuity Frege introduced several rules of inference in *Basic Laws* instead of limiting himself to Modus Ponens. As any attempt to use the above recipe to rewrite one of the *Basic Laws* definitions will show, the perspicuity gained by the use of a primitive identity sign far outweighs that gained by the Introduction of extra rules of inference.

between Frege asks whether sentences, as well as proper names, have both sense and meaning. He argues that the meaning of a sentence is its truth-value and introduces two objects, the True and the False which, he says, are named by sentences. The discussion that occupies most of "On Sense and Meaning", however, appears to have little to do with the puzzle about identity. This discussion concerns how the truth-values of certain sentences—those that have, or seem to have, sentential constituents—are determined.

As I noted earlier, Frege does not say that the point of this discussion is its contribution to a general theory of how truth-values of sentences are determined by features of their constituents. Its point, he says, is to put the supposition that the truth-value of a sentence is what it means to a further test.<sup>43</sup> His test is to consider a variety of potential counter-examples. He ends that discussion with the following claim: "It follows with sufficient probability from the foregoing that the cases where a subordinate clause is not replaceable by another of the same truth-value cannot be brought in disproof of our view that a truth-value is the meaning of a sentence that has a thought as its sense."<sup>44</sup> On Frege's view, then, the discussion is designed to support his claim about what the meaning of certain sentences is, i.e., what objects they designate.

Why should it be so important, for the explanation of the identity sign, to establish that certain sentences have truth-values as their meaning? The answer is simple. Frege's identity sign can appear between any two complete expressions, non-sentential or sentential. According to Frege, 'a=b' is true just in case 'a' and 'b' designate the same object. If this explanation is to work, all complete expressions, non-sentential and sentential, must designate objects. Furthermore, as Frege argues, his constraints show that, if assertoric sentences do designate

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43 *Collected Papers*, 165.

44 *Ibid.*, 176. I have altered the translation by replacing "another of the same value" with "another of the same truth-value". The German sentence is: "Hieraus geht wohl mit hinreichender Wahrscheinlichkeit hervor, dass die Fälle, wo ein Nebensatz nicht durch einen andern desselben Wahrheitswertes ersetzbar ist, nichts gegen our Ansicht beweisen, der Wahrheitswert sei die Bedeutung des Satzes, dessen Sinn ein Gedanke ist

objects, the objects will be truth-values. Of course, this answer may appear to beg the question. It may seem that the use of the identity sign between sentential expressions already serves to classify sentential expressions as names. Once an expression has been classified as a name, we need to know what object it names.<sup>45</sup> And, once we have accepted Frege's claim that sentences are names, Frege's familiar argument shows that they must name truth-values. The real puzzle, one might claim, is why Frege takes sentences to be names.

It is helpful to note, at this point, that Frege's notion of a name is not a generalization of the notion of an actual proper name, something to be understood on the model of the name/bearer relation. Nor does his talk about expressions that designate objects come from a consideration of the function of actual proper names. To see this, let us consider the origin of Frege's use of the term 'names'. When I described Frege's view of the role of identity statements in inferences, I characterized them as licenses for the intersubstitution of names. The word 'names' [*namen*] is the word that Frege uses, both in *Begriffsschrift* and in "On Sense and Meaning", for expressions that can flank the identity sign.<sup>46</sup> Even in *Begriffsschrift*, the word 'names' applies to sentential expressions as well as non-sentential expressions. For the identity sign is used to express something that licenses the intersubstitution of complete expressions, non-sentential or sentential. In fact the only actual uses of the identity sign in *Begriffsschrift* are uses in which the expressions flanking the identity sign are sentential expressions. In fact, the only actual uses of the identity sign in *Begriffsschrift* are uses in which the expressions flanking the identity sign are sentential expressions. In *Basic Laws*, as well, the identity law is needed to license intersubstitution of sentential expressions. If Frege's account of identity statements is to work, it must work for all expressions that can appear flanking the identity sign, whether

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45 Indeed, Frege himself says,

1/2 is treated as a single determinate object, as is evident from the expression 'the number 1/2' and from the fact that it stands on one side of the equality-sign. (Ibid. p. 120)

46 Actually, Frege does not consistently use the term 'names' for complete expressions. In *Basic Laws* the term 'name' is used for any expression that is not a variable. See, for example, section 16 of volume 1.

non-sentential or sentential. But Frege's new explanation of identity makes it more difficult to understand identity statements involving sentential expressions. Thus Frege will need to devote considerable attention to showing that his account of identity statements involving sentential expressions is correct, that is, that the account licenses the right inferences.

To see why this is so, consider the difference in the two explanations. In *Begriffsschrift*, Frege's example of an identity statement involves two names which are associated with different ways of determining the same point. The names are not actual proper names and there is no appeal at all to a name/bearer relation. Frege says both that they are associated with different ways of determining the same point and that they are associated with different ways of determining the same conceptual content. The former description will hardly do as a general explanation of identity, since not all names are associated with geometrical constructions. But the latter will. Frege's final description of the content of identity statements--that "*the sign A and the sign B have the same conceptual content, so that we can everywhere put B for A and conversely.*"<sup>47</sup>—is applicable to all complete expressions, non-sentential and sentential.

Frege's new explanation of identity statements, in "On Sense and Meaning", begins, again, with an example of two names that are associated with different ways of determining (now: modes of presentation of) the same point. Again, there is no appeal to a name/bearer relation. This time, however, Frege conflates sameness of the point determined not with sameness of the conceptual content but, rather, with sameness of the meaning of the names. 'Meaning' (*Bedeutung*) is, of course, a new technical term. To explain that the meaning of the expression 'point of intersection of a and b' is the point at which we arrive when we carry out the construction is not to show us what, in general, the meaning of an expression is. If sameness of meaning is what licenses the intersubstitution of complete expressions, then Frege must give some general statement about what the meanings of complete expressions are.

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<sup>47</sup> *Begriffsschrift*, 21.

Shortly after his introduction of the notions of sense and meaning in his initial explanation of identity statements, Frege turns to the issue of the sense and meaning of sentential expressions, a subject that occupies most of the rest of the paper. His treatment of this issue focuses on the effects of substituting different expressions for sentential expressions that appear as constituents of other sentences. The reason for this focus, most readers believe, is that Frege means to be contributing to a compositional semantic theory. But one need not attribute an interest in semantic theories to Frege in order to explain this.<sup>48</sup> The focus on the result of substituting different expressions for sentential constituents is easily explained if we remember that Frege is trying to offer an explanation of identity statements that answers to the demands of his logic. For these substitutions amount to looking at apparent instances of his identity axiom—now Basic Law III.

To decide whether we can take the meaning of a sentence to be its truth-value, we need to decide whether sameness of truth-value will license the appropriate inferences—that is, the inferences licensed by identity statements. Frege's explanation of identity statements will work for sentential expressions just in case substitution of one sentential expression for another is licensed by sameness of truth-value.

Frege's strategy for convincing his readers that sameness of truth-value is what licenses such substitutions is a familiar one. He relies on our understanding of everyday language as expressing truths and on our everyday standards of adjudication for disputes. If our recognition

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48 There are also several other reasons, not having to do with semantic theory, for the compositional features that appear to be mentioned in Frege's discussion. For example, on Frege's view concepts are functions and functions are compositional. Moreover, it is no accident that Frege's logic is called 'Begriffsschrift' (concept-script), for every sentential expression will contain a concept expression. Indeed, every object expression will contain a function expression. Frege writes, "Where logic is concerned, it seems that every combination of parts results from completing something that is in need of supplementation; where logic is concerned, no whole can consist of saturated parts alone" (*Posthumous Writings* p. 254)

Frege does, of course, give what is taken to be one of the classic statements of the defense of compositional theories in the beginning of his paper "Compound Thoughts". This paper was published in 1923, nearly thirty years after the publication of "On Sense and Meaning". The only other place where this sort of statement appears is in unpublished work, "Logic in Mathematics", unpublished notes that Frege prepared for a course he taught in 1914, (*Posthumous Writings*, 203-51).

that two sentences have the same truth value does not license us to replace one sentence with another in everyday inferences, then something in Frege's explanation of identity, at least for sentential expressions, must be wrong. In "On Sense and Meaning", the long examination of sentences that appear to have sentential constituents is designed, Frege says, to subject his supposition that the truth-value of a sentence is what it means to a further test.

We can now see why Frege's concern is with sentences that have constituent sentential expressions. His aim is not to systematize our knowledge of how to evaluate the truth-values of sentences with sentential constituents. It is, rather, to show that there is no difficulty with the claim that the meanings of these sentential constituents are truth-values. He focuses on contexts in which sentences appear as parts of longer sentences because only this sort of context can provide a counter-example to his claim that the meaning of a sentence is its truth-value. Contexts in which a sentence is simply asserted can provide no counter-examples. For the information that two sentences have the same truth-value does entitle us to write, in the expression of an inference, either of the sentences below a line on which the other appears. In this case, sameness of truth-value does allow us to infer what results from replacing one sentence with the other.

Thus Frege's further test involves contexts in which a sentence is not itself asserted but is a constituent of a sentence that is asserted. If the meaning of such a sentential constituent is its truth-value, then the result of replacing it with another sentence with the same truth-value should not alter the meaning of the longer sentence. Of course, Frege's supposition fails this test. He ends with a modification of his original view: it is not that all sentences have truth-values as their meanings but, rather, that the meaning of a sentence that has a thought as its sense must be a truth-value.<sup>49</sup>

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<sup>49</sup>Notice, however, that Frege's conclusion—that the meaning of a sentence that has a thought as its sense is a truth-value—does not hold for natural language. He has, after all, provided an example of a sentence that has a thought as its sense and that, he says, may have no meaning, 'Odysseus was set ashore at Ithaca while sound asleep'. Frege's conclusion, of course, will hold for sentences in his logically perfect language—for all well-formed ex-

On this interpretation, Frege's concern to provide an account of the identity sign for his logical notation motivates the long discussion that takes up most of "On Sense and Meaning". It is important to be clear about the role of natural language in this discussion. If sameness of meaning is what licenses intersubstitution in inference then, in Frege's logic, sameness of meaning for sentential expressions *does* amount to sameness of truth-value. This is so even for sentential constituents of longer sentences. Frege's arguments in "On Sense and Meaning" are not about expressions in logical notation, however. They are about sentential expressions of natural language. Why is this? If Frege wants to defend his claim that his logic is truly a tool for evaluating *all* inference, he cannot ignore the fact that the sort of intersubstitution just described is *not* generally licensed in everyday language. The solution is to give an analysis that explains the apparent counter-examples. Consider one apparent counter-example: sentences that occur in indirect contexts.

Why does the identification of indirect contexts remove a problem for Frege's explanation of identity statements? The simple answer is that in Frege's Begriffsschrift there are no such contexts. Thus these examples present no obstacle to saying that sentential expressions in Frege's Begriffsschrift are names of truth-values. But this answer will not suffice. For Frege's logical notation is supposed to be adequate for expressing all content that is of significance for inference. We do make and evaluate inferences from statements that involve indirect speech. Frege's notation and logical laws must not be inapplicable, in principle, to such inferences. His strategy for dismissing this sort of apparent counterexample to his identity law is to say that, in indirect speech, expressions do not have their customary meaning. Instead, the meaning of an expression in an indirect context is its customary sense. In such a context two sentences with the same truth-value may not be intersubstitutable in inference. How is this a solution?

The apparent counter-example presented by indirect speech is an example of one of the

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pressions in a logically perfect language will have a meaning

logical defects of natural language. All natural language expressions are ambiguous: depending on context they can have either their customary or their indirect meaning. Thus, if we want to express statements involving indirect speech in logical notation, where ambiguity is prohibited, new terms would have to be introduced.<sup>50</sup> By showing us how the translation into logical notation will differ in structure from the natural language sentence, Frege is also showing us that his logic is not prevented, in principle, from providing the appropriate verdicts.

Frege needs not only to show how such analyses can be given for some apparent counterexamples, he also needs to make it plausible that his analysis will work for anything that will come up. Hence his extensive discussion of examples. He writes,

It is hard to exhaust all the possibilities given by language [*der Sprache*]; but I hope to have brought to light at least the essential reasons why a subordinate clause may not always be replaced by another of equal truth-value without harm to the truth of the whole structure.<sup>51</sup>

The essential reasons are that a subordinate clause does not always have a thought as its sense. Sometimes this is easy to see, for the subordinate clause is clearly a noun phrase. The more difficult cases are those that have captured the interest of contemporary philosophers, cases for which Frege uses the expression 'indirect speech'.

On this interpretation of "On Sense and Meaning", the introduction of the notion of sense is important even if Frege has no interest in a philosophical account of language. Frege's explanation of identity requires him to deal with apparent counter-examples and, for this, he needs to give some idea of what the meaning of an expression in such a context is. There is also an independent need for the introduction of sense, or something like it. On the *Begriffsschrift* view, the notation is meant to express what has significance for inference. Frege's term for this

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50 As Frege later says explicitly, the same signs should not be used for indirect speech. See Frege's letter to Russell of 28 December 1902, in *Philosophical and Mathematical Correspondence*, 153

51 *Collected Papers*, 176.

was 'conceptual content'. But there are problems with the notion of conceptual content. In particular, on the *Begriffsschrift* view, the conceptual content of 'point of intersection of a and b' and 'point of intersection of b and c' are the same when the lines a, b and c have a common point of intersection. But these expressions do not have the same significance for inference. For, while the identity expressed by putting one expression on both sides of the identity sign is a simple consequence of the laws of logic, the identity expressed by putting an identity sign between the two expressions can be demonstrated only by a proof which exploits the axioms of geometry.

In the new explanation of identity, of course, it is not the conceptual content of the two expressions that is identical. Yet the need for a notion like conceptual content remains, for the logical notation is still conceived as a language. Even if Frege abandons the notion of conceptual content, he does not abandon the conception of his logical notation as a language that expresses content. What is it that constrains our translations from natural language into logical notation? It cannot be the meanings of expressions, in Frege's new sense of 'meaning'. The notion of sense seems appropriate for what must be preserved in the translation into the logical notation. Moreover, given that the sense of a natural language sentence is to be expressed in the logical notation, it is obvious that Frege will need to say something about the senses of sentences of natural language. How else are we to see how to translate our sentences?<sup>52</sup>

## V

But does Frege have a semantics?

I began this paper with a discussion of some problems with the standard interpretation of "On Sense and Meaning". This interpretation, as its supporters admit, requires us to attribute serious blunders to Frege. It also, as I have emphasized, prevents us from taking Frege at his

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<sup>52</sup> I do not mean to suggest that this is *all* the notion of sense does for Frege. As I have argued in *Frege in Perspective* pp. 102-120, the introduction of the notion of sense solves other problems introduced by Frege's description of his project.

word when he tells us the purpose of his introduction of the sense/meaning distinction and when he tells us the purpose of the longest discussion of "On Sense and Meaning". The interpretation described above allows us to avoid these problems. I think that it is also an advantage of this interpretation that it allows us to understand Frege's motivation for "On Sense and Meaning" as having arisen from the demands of his central project. On the standard interpretation, while "On Sense and Meaning" is certainly related to Frege's central project, the paper is, in effect, on another topic.

It may seem, however, that much of the substance of my interpretation of "On Sense and Meaning" is compatible with the standard interpretation. After all, nothing in the interpretation I have offered so far requires that we *deny* that Frege was engaged in constructing a semantic theory. Rather, I have argued that we *need not* attribute such a project to Frege—that the details of the paper can be understood as stemming from the demands of his logic and his epistemological project. Moreover, it will have escaped no one's notice that the notion of a truth-value figures prominently in my own interpretation of "On Sense and Meaning". Surely, one might think, any general discussion of truth-values belongs to the realm of semantics.

Insofar as the mere use of terms like 'truth-value', etc. constitutes an interest in semantics, Frege was, without question, interested in semantics. But this sort of interest in semantics does not distinguish Frege from scientists with no apparent interest in semantic theorizing. After all, it is not difficult to find talk of truth, of semantics and of the meanings of expressions, in the writings of medical researchers.<sup>53</sup> Yet it is unlikely that many medical researchers have given any thought at all to the sort of semantic theory or definition of truth to which, according to Davidson, Frege meant to contribute. Thus the issue of concern here is whether Frege wanted to construct a semantic *theory*. This issue cannot be settled by identifying terms for semantic

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<sup>53</sup> See, for example, DeVita, V.T., Hellman, S. and Rosenberg S.A. (1993) *Cancer: Principles and Practice of Oncology*, Philadelphia: J.B. Lippincott Company, p. 229. The authors use the expression 'semantics' to characterize their discussion, but it is clear that they mean only to be saying that the discussion concerns the meanings of their terms.

notions in his writings. Nor, as I have argued above, is it settled by the text of “On Sense and Meaning.” In order to address the issue properly, it is necessary to consider Frege’s other writings in some detail. The work required is beyond the scope of this paper. I would like to end, however, with a brief discussion of the significance Frege’s explicit conception of his project has for one sort of interpretation on which he is attempting to construct a semantic theory.

To see this, consider, again, Davidson's description of Frege's method,  
...he introduced a standardized notation whose syntax directly reflected the intended interpretation, and then urged that the new notation, as interpreted, had the same expressive power as important parts of natural language.<sup>54</sup>

Frege's semantics, on this story, is what Davidson refers to as the intended interpretation of his standardized notation, his logical notation. Thus Frege's actual semantics appears, not in "On Sense and Meaning" but in the first part of *Basic Laws*. Supposing this is so, what is the relation between the semantic truths introduced in *Basic Laws* and Frege's logical laws? One might assume that the semantics provides an explanation of, to use Frege's language, "why and with what right we acknowledge a law of logic to be true".<sup>55</sup> If Frege has a semantic theory then, presumably, these explanations make use of semantic truths. On the other hand, if this is so, it would seem that the primitive truths underlying logic (and hence arithmetic) are *semantic* truths. Why, then, do the derivations of truths of arithmetic in Frege's logical language not have these semantic truths as their premises?

One might respond that semantic theory is not meant to be assimilated to logic--it is meant to be metatheory. The point is not to establish the *truth* of the primitive logical laws, but to uncover the source of their truth—to show that they are really laws of *logic*. They can be seen to be laws of *logic* by the fact that they can be given a purely semantic justification. Surely

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54 Davidson, *Inquiries into Truth and Interpretation*, 202.

55 *Basic Laws*, 32.

Frege's aim is to uncover the source of justification of the primitive laws of logic, not to establish their truth.

But what is involved in uncovering the source of their truth? If the laws of logic depend on semantic truths then, presumably, what is required is a proof of the primitive laws of logic from semantic truths. Frege says, "The aim of proof is, in fact, not merely to place the truth of a proposition beyond all doubt, but also to afford us insight into the dependence of truths upon one another"<sup>56</sup> He says, "if it is a matter of gaining an insight into the nature of this 'being evident'... we must put down all of the intermediate steps, that the full light of consciousness may fall upon them."<sup>57</sup> Frege's aim is to show that the truths of arithmetic can be derived without any appeal to evidence of sense experience or intuition. If, on Frege's view, the truths of logic depend on semantic truths, then the only way to make sure that the semantic justification of the laws of logic does not depend on such appeals is to express them in the logical notation. Had Frege believed that the truths of logic depend on other, semantic truths, it is difficult to imagine that he would have overlooked this task.

Moreover, it is difficult to imagine that Frege thought that the primitive laws of logic were dependent on other truths. Frege says "the grounds which justify the recognition of a truth often reside in other truths which have already been recognized" and this is the concern of logic but, he adds, "this cannot be the only form that justification takes".<sup>58</sup> What of the justification of the logical laws? Frege says,

The questions why and with what right we acknowledge a law of logic to be true, logic can answer only by reducing it to another law of logic. Where that is not possible, logic can give no answer.<sup>59</sup>

A primitive logical law, it seems, is not dependent on any other truth. And Frege says, "the truth

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<sup>56</sup> *Foundations of Arithmetic*, trans. J.L. Austin (Evanston, Ill.: Northwestern University Press, 1953), 2.

<sup>57</sup> *Basic Laws*, 4.

<sup>58</sup> *Posthumous Writings*, 3.

<sup>59</sup> *Basic Laws*, 15.

of a logical law is immediately evident of itself, from the sense of its expression".<sup>60</sup> But what, then, are we to make of Frege's apparent explanations of the truth of his primitive laws?

If the truth of a logical law is evident from its sense, all we need is to understand the law. For this, all we need is to understand the primitive Begriffsschrift terms used in Frege's Begriffsschrift expressions of his primitive logical laws. But this understanding cannot be obtained by definition. After stating that his first task will be to expound his Begriffsschrift, Frege says in section 0 of *Basic Laws*,

The following observation may be made before we proceed. It will not always be possible to give a regular definition of everything, precisely because our endeavor must be to trace our way back to what is logically simple, which as such is not properly definable. I must then be satisfied with indicating what I intend by means of hints.<sup>61</sup>

Or, as Frege says elsewhere about elements that cannot be defined, "something else must enter in", something he calls elucidation.<sup>62</sup> His explanations of the truth of the basic laws, as I have argued elsewhere, are meant to be elucidatory.<sup>63</sup> Elucidations, he tells us, do not appear in the proofs but are relegated to the propaedeutic. No conclusions are based on them. They are not evaluable by the standards to which we hold theoretical arguments—their success requires cooperative understanding, and even guesswork.<sup>64</sup> If Frege's explanations of his logical laws are elucidatory, then they should constitute no part of his proofs in *Basic Laws*.

Frege's project is epistemological: he wants to trace the source of our justification of the truths of arithmetic, by proving them from the primitive truths on which they depend. This task can only be carried out, however, if we can recognize those general laws which, Frege says,

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60 *Collected Papers*, 405.

61 *Basic Laws*, 32.

62 *Collected Papers*, 300.

63 See my *Frege in Perspective*, chap. 6, and "Understanding Frege's Project". This is also true of Frege's comments about sense and meaning. They do, in a sense, underlie his logic. But they are not meant as the beginnings of a theory of the workings of language. They appear only in the propaedeutic.

64 *Collected Papers*, 300-301.

"neither need nor admit of proof."<sup>65</sup>—that is, if we can recognize the appropriate point at which to stop. It is part of Frege's accomplishment to have given us his account of the stopping point, his logical laws.

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<sup>65</sup> *Foundations of Arithmetic*, 4.