

FREGE ON SENTENCES AND PROPER NAMES

Michael Blome-Tillmann
University College, Oxford

Abstract

This essay is an examination of Frege's claim that sentences are a special type of proper names. After discussing Frege's motives for his apparent assimilation of sentences to names and the downsides of this thesis, an interpretation of Frege will be taken into consideration according to which the assimilation takes place at the semantic level only, while involving neither a syntactic, nor a pragmatic assimilation of sentences to names.

Keywords

Frege, Reference, Truth, Proper Names.

1. Frege's Assimilation of Sentences to Names

In *On Sense and Meaning* Frege writes:

“Every assertoric sentence [...] is to be regarded as a proper name, and its meaning [Bedeutung], if it has one, is either the True or the False.”¹

And in the *Introduction to Logic* in his *Posthumous Writings*, he claims in a similar vein that

“[a] sentence proper is a proper name, and its meaning [Bedeutung], if it has one, is a truth value: the True or the False.”²

The views implicit in these quotations have puzzled almost every interpreter of Frege's works. According to Michael Dummett, for instance, Frege's view that sentences are proper names of truth-values “is prompted by no necessity, but is a gratuitous blunder”³ and Burge (1986) even reports that concerning these views of Frege's “a standardized form of philosophical humour has grown up around talk of ‘naming the True’.”⁴ The goal of this paper is to yield a better understanding of what Frege had in mind with these *prima facie* puzzling claims. To begin with, let us take a look at Frege's motives for his controversial view.

¹ SB 34.

² NL 211/195. The first numeral in my references to Frege's *Posthumous Writings* always denotes the page number in the German edition, the second the page number in the English translation.

³ Dummett (1981), 184.

⁴ Burge (1986), 97.

In *Concept Script* Frege for the first time presents his groundbreaking analysis of the logical structure of sentences in terms of function and argument. According to this analysis, sentences disintegrate into complete or saturated and incomplete or unsaturated parts. The incomplete parts are expressions containing gaps into which other expressions may be placed, while complete expressions do not contain any such gaps. According to this theory, the sentence ‘Kepler died in misery’, for instance, disintegrates into the incomplete expression ‘ ξ died in misery’, the Greek letter indicating the gap into which singular terms are to be inserted for completion, and the singular term ‘Kepler’.⁵ This metaphorical talk of incomplete or unsaturated expressions circumscribes Frege’s functional analysis of the logical structure of sentences: predicates are sentential patterns, to be conceived of as functions taking singular terms as arguments and yielding sentences as values. Moreover, Frege has it that complex singular terms disintegrate in a similar way as sentences. The definite description ‘the capital of Columbia’, for instance, disintegrates into the function ‘the capital of ξ ’ and the proper name ‘Columbia’. The linguistic pattern ‘the capital of ξ ’ is thus to be conceived of as a function mapping singular terms onto other singular terms, namely definite descriptions.

After having introduced the notions of function and argument at the linguistic level in *Concept Script*, Frege extends his usage of this terminology in *Function and Concept* to the realm of *Bedeutung*. In this paper, the complex singular term ‘the capital of Columbia’, for instance, is taken to denote Bogotá, while the linguistic pattern it instantiates, i.e. ‘the capital of ξ ’, is understood as denoting a function taking objects (countries) and mapping them onto other objects (cities). Thus, Frege doesn’t only explain the structure of complex linguistic expressions by means of the concept of a function, he rather also uses it to explain how the *Bedeutung* of a complex singular term depends on the *Bedeutungen* of its parts: the singular term ‘the capital of Columbia’ denotes Bogotá just because the pattern it instantiates, i.e. ‘the capital of ξ ’, designates a function mapping Columbia, i.e. the referent of the proper name ‘Columbia’, onto Bogotá. Frege thus draws a neat picture of the relations between the syntax and the semantics of his formal language: the syntactic distinction between predicates and singular terms is mirrored in the realm of *Bedeutung* by the metaphysical distinction between functions and objects: incomplete entities are denoted by incomplete expressions, while complete entities are denoted by complete expressions. Predicates and other incomplete expressions denote functions and singular terms denote objects.

Now, the crucial step in *Function and Concept* with regard to Frege’s assimilation of sentences to names is the assimilation of concepts, the referents of predicates, to functions: Frege does not only take linguistic functions having singular terms as values to denote functions, but also regards so linguistic functions having sentences as values. In illustrating this point Frege uses examples from arithmetic. Not only patterns such as ‘ $\xi + 3$ ’ and ‘ $\xi - 5$ ’, but also sentential patterns such as ‘ $\xi + 3 = 5$ ’ and ‘ $\xi < 7$ ’ have functions as their *Bedeutung*. Obviously, the functions denoted by patterns of this latter kind also take objects (numbers, in this case) as arguments, but what can plausibly be regarded as their values? Frege succinctly notes that predicates denote functions having one of the truth-values as values, i.e. either the True or the False. Sentential patterns such as ‘ $\xi + 3 = 5$ ’ thus denote special kinds of functions, namely functions from objects to truth-values. But why does Frege regard the truth-values as the *Bedeutung* of sentences? Frege cryptically employs the *Compositionality Principle of Bedeutung* (C) to support this view. The argument runs as follows:⁶

(C) The *Bedeutung* of a complex expression is a function of the *Bedeutungen* of its parts.
[premise]

(1) The *Bedeutung* of a sentence does not change, if one substitutes one of its parts by an expression with the same *Bedeutung*. [from (C)]

⁵ I restrict my considerations to one-place predicates of first level in the following.

⁶ I will leave aside Frege’s treatment of intensional contexts in this essay.

- (2) The only feature of a sentence that does not change, if one substitutes one of its parts by an expression having the same *Bedeutung* is its truth-value. [premise]
- (3) The *Bedeutung* of a sentence is its truth-value. [from (1), (2)]⁷

But what are Frege's motives for adopting all these views? As is obvious from *Begriffsschrift*, the overall motivation for his philosophical logic is to serve his logicist project. To carry out this project Frege aims to ground the validity of the inferential rules explicated in *Concept Script* semantically. Obviously, the *Compositionality Principle* together with the thesis that a sentence has its truth-value as its *Bedeutung* provides a great step towards achieving this goal, for these theses jointly allow Frege to give a systematic account of how a sentence's truth-value depends on the semantic features of its parts. However, as a consequence of these views, Frege seems to be forced to accept that the truth-values are objects: after all, they are the *Bedeutung* of sentences, which are fairly obviously to be classified as complete expressions. Moreover, it also seems that Frege must accept the *prima facie* unattractive view that sentences are complex singular terms: the linguistic patterns 'the capital of ξ and ' ξ is a beautiful city' differ only in a minor respect: the latter denotes a function that has either the True or the False as a value, while this is not the case with the former. However, since both functions have objects as their values, one might suspect that if the completion of the former yields a singular term, by analogy the completion of the latter should yield a singular term, too: sentences are proper names of truth-values. And this exactly seems to be what Frege has in mind, when he introduces his semantic terminology in Basic Laws I:

"I say: the *names* ' $2^2 = 4$ ' and ' $3 > 2$ ' *mean* [bedeuten] the same truth-value, which I call for short the *True*. Likewise, for me ' $3^2 = 4$ ' and ' $1 > 2$ ' *mean* [bedeuten] the same truth-value, which I call for short the *False*, precisely as the name ' 2^2 ' *means* [bedeutet] the number four. Accordingly I call the number four the *meaning* [Bedeutung] of ' 4 ' and of ' 2^2 ', and I call the True the *meaning* [Bedeutung] of ' $3 > 2$ '."⁸

2. Sentences and Names in Syntax and Pragmatics

What do most interpreters find fault with Frege's assimilation of sentences to singular terms? There are two reasons to mistrust it.⁹ Firstly, from a syntactical point of view, sentences and singular terms are generally taken to belong to different categories: the intersubstitution of sentences and proper names does not preserve grammaticality. A proper name, for instance, cannot join a logical connective so as to yield a grammatical expression, and the result of inserting a sentence into the argument place of a one-place predicate such as ' ξ is red' fails to be a syntactically well-formed expression, too.

Secondly, sentences and singular terms seem to belong to different pragmatic categories: in customary contexts, an isolated proper name cannot be used to make a genuine move in a language game. Quite to the contrary, proper names are merely used to refer to their bearers, but in isolation cannot serve to convey information, i.e. to assert something, to ask a question or to issue a command, for instance. As a consequence, if sentences really were a species of singular terms denoting exclusively truth-values, then an utterance of a true sentence would amount to a conversationally entirely useless speech-act of *Naming the True*, and couldn't be regarded as a felicitous act of communication. In customary contexts, speakers cannot convey any interesting information to their audience by merely referring to a truth-value.¹⁰

⁷ Cf. Church (1956) and Davidson (1967) for this argument.

⁸ GGI 7.

⁹ Cf. Greimann (2003), 156.

¹⁰ Cf. Dummett (1981), 7.

The view that sentences are proper names of truth-values is thus certainly a view that we should aim to avoid, for it entails the implausible view that sentences are of the same syntactic and pragmatic type as singular terms. To get clearer about Frege's intentions, however, let us split the initial thesis that sentences are proper names of truth-values into the following six theses:

- (a) Sentences have *Bedeutung*.
- (b) The *Bedeutung* of a sentence is its truth-value.
- (c) The *Bedeutung* of a sentence is an object.
- (d) Sentences are of the same semantic type as proper names.
- (e) Sentences are of the same pragmatic type as proper names.
- (f) Sentences are of the same syntactic type as proper names.¹¹

In the remainder of this paper I shall argue that Frege affirmed theses (a) – (d), but simultaneously intended to reject (e) and (f). According to this view, Frege only partially assimilated sentences to singular terms. To yield support for this view let us firstly take a closer look at Frege's notion of *Bedeutung* in the next paragraph. In §5 I will then argue that the syntaxes of *Concept Script* and *Basic Laws* do neither involve a syntactic nor a pragmatic assimilation of sentences to names. Thus, Frege did not hold (e) and (f). In the last paragraph of this essay I will then address the question whether this position, i.e. a position rejecting (e) and (f) while accepting (d) can be coherent.

3. *Bedeutung* as Semantic Value

To find out what Frege means by his theses (a) – (c) let's take a closer look at his notion of *Bedeutung*. As is familiar, Frege uses the expression 'Bedeutung' in an ambiguous way: as Dummett points out,¹² *Bedeutung* is on the one hand often characterised by means of the name-bearer relation as a prototype, on the other hand, however, the notion seems to be of an entirely different, programmatic, nature, like the notions of semantic role and semantic value. However, Frege mainly characterises *Bedeutung* in terms of the *Compositionality Principle* (C) and the following *Substitution Principle*, which can be derived from (C):

(SUB) Two linguistic expressions *e* and *e'* have the same *Bedeutung* iff they are intersubstitutable within certain contexts *salva veritate*.

Obviously, (C) and (SUB) play a central role with regard to Frege's notion of *Bedeutung*.¹³

Now, for a first approximation to what Frege had in mind let us call that feature of an expression that figures in the determination of the truth-value of the sentences in which it occurs the expression's *semantic role*. As is obvious from *On Sense and Reference*, Frege takes the semantic role of a singular term to consist in its designating an object. Thus, the view suggests itself that Frege's notion of *Bedeutung* is to be identified with the notion of semantic value: Expressions are associated with entities in the world, and these entities are what Frege has in mind when employing his notion of *Bedeutung*.

However, what are the consequences of these views for the theses (a) – (f)? Prima facie the view suggests itself that the theses (a) – (d) are no longer problematic once we interpret *Bedeutung* as semantic value: concerning (a) it is to be noted that in Frege's formal systems sentences must be assigned semantic values, for these values are needed to determine the truth-values of more complex sentences containing them. Moreover, on the background of the argument briefly alluded to in §1 it seems quite natural that the *Bedeutung* of a sentence is its truth-value. Now, if we furthermore

¹¹ Burge (1986), 98-9 and Noonan (2001), 141 both distinguish between (a), (b) and (c), but combine theses (d) – (f) to the statement that sentences are of the same logical type as proper names.

¹² Dummett (1981), 181ff.

¹³ Cf. FB 13-4; SB 32, also 35-6; NL 250-1/232-3.

combine these views, i.e. (a) and (b), with (c),¹⁴ i.e. with the thesis that the *Bedeutungen* of sentences are objects, we naturally seem to be committed to (d), the view that sentences and proper names are of the same semantic type, if the phrase ‘are of the same semantic type’ means that the expressions in question have semantic values which are of the same ontological category.

The crucial question in our interpretation of Frege’s assimilation of sentences to proper names, however, must relate to the interrelations between the *prima facie* uncontroversial theses (a) – (d) and the apparently fairly bizarre theses (e) and (f). Is Frege committed to accepting (e) and (f) because he previously accepted (a) – (d)? At first glance it does not seem so. Quite to the contrary, it seems rather promising to interpret Frege’s philosophical logic as merely involving a semantic assimilation of sentences to proper names, which leaves room for syntactic and pragmatic distinctions between these types of expression, which are necessary so as to avoid the paradoxical results mentioned in §2. Thus, it seems no longer bizarre when Frege writes in *Function and Concept*:

“I now say: ‘the value of our function is a truth-value’, and distinguish between the truth-values of what is true and what is false. I call the first, for short, the True; and the second, the False. Consequently, e.g., what ‘ $2^2 = 4$ ’ means is the True just as, say, ‘ 2^2 ’ means 4.”¹⁵

4. The Syntax and Semantics of *Concept Script* and *Basic Laws*

However, this *prima facie* charitable interpretation has two serious downsides: Firstly, it has as a consequence that Frege’s notion of a proper name does not coincide with that of a singular term, i.e. it has as a consequence that Fregean proper names are not essentially devices allowing speakers to refer to objects. According to this interpretation, Fregean proper names are only expressions having objects as their *Bedeutung*, so that genuine singular terms are to be conceived of as a sub-species of Frege’s proper names.¹⁶ This entailment of the above interpretation, however, is fairly controversial. In §2 of *Basic Laws*, for instance, after having introduced his distinction between *Sinn* and *Bedeutung* and the view that ‘ $2^2 = 4$ ’ and ‘ $3 > 2$ ’ are names of truth-values, Frege writes:

“I further say a name expresses its sense and means [bedeutet] its meaning [Bedeutung]. I designate [bezeichne] with the name that which it means [bedeutet].”¹⁷

In this passage Frege clearly makes a claim about the pragmatic role of names: names are expressions that are used to designate their *Bedeutung*.¹⁸ On the basis of this quotation the above interpretation therefore seems incorrect, and Frege’s remarks to the effect that sentences are names of truth-values bring us back into the absurd business of naming the True: if sentences are proper names and if proper names are referential devices, then by uttering a

¹⁴ In *Function and Concept* Frege argues for (c) as follows: “An assertoric sentence contains no empty place, and therefore we must take its meaning [Bedeutung] to be an object. This meaning [Bedeutung], however, is a truth-value. Thus, the two truth-values are objects.” See FB 18. Certainly, (c), once combined with (b), still appears dubious from an ontological point of view, but these problems shall not interest us in this essay.

¹⁵ FB 13.

¹⁶ Cf. Greimann (2003), 175.

¹⁷ GGI 7.

¹⁸ Cf. also Frege’s *Introduction to Logic* (NL 208/191): “Proper names are meant to designate [bezeichnen] objects, and we call the object designated [bezeichnet] by a proper name its meaning [Bedeutung].” However, note also that there are passages *prima facie* supporting the above reading: When Frege introduces the terms ‘name’ and ‘proper name’ in GGI 43 he contrasts names with variables, i.e. he seems to use the expression ‘name’ in essentially the same way in which logicians nowadays use the term ‘constant’. In this passage a name is thus simply characterised as a sign having *Bedeutung*. Moreover, the passage at issue also suggests that by the term ‘proper name’ Frege merely aims to designate expressions having objects as their semantic values, but not expressions that are used in a particular way, namely to designate objects. Nevertheless, on the basis of the above quoted passage of the *Introduction to Logic* and corresponding passages of *On Sense and Meaning* it seems more plausible that Frege actually regards proper names as singular terms.

sentence speakers name the True.

The second serious downside of the interpretation just sketched is its incoherence. As can easily be demonstrated, the acceptance of (a) – (d) commits Frege to the view that sentences and names are of the same syntactical type, i.e. it commits Frege to (f). To bring this out more clearly, it helps to recall from §3 that Frege’s notion of *Bedeutung* is crucially governed by the *Principle of Substitutivity*: Since the singular term ‘the True’ and the expression ‘ $2 + 3 = 5$ ’ have the same *Bedeutung*, they must be intersubstitutable *salva veritate*. However, this is obviously not the case, for the intersubstitution of singular terms and sentences does not preserve grammaticality, and, as a consequence, does not preserve meaningfulness and *Bedeutung*.¹⁹ We cannot separate an expression’s syntactic type and its semantic type as is required by the above interpretation.

How can we make sense out of Frege’s remarks? When calling sentences proper names of truth-values did Frege really accept that by uttering a sentence of his formal languages speakers name the True? Let us take a closer look at the syntax of the language of *Basic Laws*. This will eventually bring us nearer to what Frege actually had in mind when assimilating sentences to proper names.

According to the interpretation I have in mind the key to the solution of the problem is that in the language of *Basic Laws*, Frege does not actually regard expressions such as ‘ $3 + 5 = 8$ ’, as sentences.²⁰ Quite to the contrary, in *Basic Laws* such expressions are explicitly regarded as singular terms designating truth-values. This view may seem to beg the question at first glance, but let us take a closer look at the different syntactic categories of the language of *Basic Laws*.

When introducing the judgement stroke ‘|’ in §5 of *Basic Laws* Frege explicitly notes that expressions such as ‘ $2 + 3 = 5$ ’, i.e. expressions counting as sentences in natural language, are not actually sentences in his formal system, but rather count as proper names of truth-values. However, when such expressions are conjoined with both Frege’s horizontal stroke ‘—’ and the judgement stroke ‘|’, then—according to Frege—we yield an expression that counts as an assertoric sentence in the formal language of *Basic Laws*. Thus, as Frege points out in a similar vein in *Concept Script*, his formal languages are languages that strictly speaking contain only one predicate: the predicate “is a fact”:

“We can imagine a language in which the [sentence], ‘Archimedes perished at the conquest of Syracuse.’, would be expressed in the following way: ‘The violent death of Archimedes at the conquest of Syracuse is a fact.’ Even here, if one wishes, he can distinguish subject and predicate; but the subject contains the whole content, and the predicate serves only to present this as a judgement. *Such a language would have only a single predicate for all judgements; namely ‘is a fact’.* We see that here we cannot speak of subject and predicate in the usual sense. *Our ‘[concept script]’ is such a language, and the symbol ⊢ is its common predicate for all judgements.*”²¹

Thus, sentences of the formal languages of *Concept Script* and *Basic Laws* are to be preceded by the sign ‘⊢’, and expressions counting as sentences in English (German) are not really sentences in the language of *Basic Laws* but rather clausal-terms, i.e. devices to refer to truth-values.²² Thus when Frege claims that ‘ $2^2 = 4$ ’ and ‘ $3 > 2$ ’ are proper names of the True,²³ then this does not involve an assimilation of sentences to proper names, it rather merely means that expressions that are sentences in English are proper names in the formal language of *Basic Laws*. Moreover,

¹⁹ Cf. Rumfitt (1996) for this point.

²⁰ See also Greimann (2003), ch. 5 for this view.

²¹ BS §3, Frege’s emphasis. Note that Frege’s interpretation of ‘—’ has changed from *Concept Script* to *Basic Laws*, but this difference is irrelevant for the point at issue here.

²² Cf. also GGI 7-9, NL 262, 252 and the famous footnote of *Function and Concept*, FB 22, fn.

²³ GGI 7.

since Frege has it that the symbol ‘ \vdash ’ does not have *Bedeutung*, he can claim that the *Bedeutung* of the sentence ‘ $\vdash 2^2 = 4$ ’ is still the same as the *Bedeutung* of the proper name ‘ $2^2 = 4$ ’.

5. Conclusion

On the basis of the above considerations it is plausible that Frege did not intend to construe sentences as a species of singular terms, i.e. as expressions designating truth-values. We have thus achieved a more charitable but not entirely unproblematic interpretation of Frege’s philosophical logic: Frege rejected (e) and (f) while nevertheless holding (d). The incoherence arising from this position if combined with (SUB) Frege apparently intended to avoid by the special status of the symbol ‘ \vdash ’, which, even though having no semantic value, still has a syntactic impact, its function being, among others, to turn proper names of truth-values into sentences. Thus, when Frege explicitly states in *On Sense and Meaning* that sentences are proper names, he is most charitably read as meaning that sentences have objects as semantic values.

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Abbreviations:

SB: Über Sinn und Bedeutung / On Sense and Reference • FB: Funktion und Begriff / Function and Concept • NL: Nachgelassene Schriften / Posthumous Writings • GGI: Grundgesetze der Arithmetik I / Basic Laws of Arithmetic I • BS: Begriffsschrift / Concept Script