

Frege's theory of reference (*Bedeutung*)

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We concluded our discussion of §§1-12 of Frege's *Begriffsschrift* with some unanswered questions. We saw how Frege's replacement of the subject/predicate analysis of sentences with the function/argument analysis seemed to provide solutions to the problems which the subject/predicate analysis faced with the explanation of the logical properties of multiply general sentences. We took this as an indication that the analysis of sentences in terms of quantifiers and functions provided a deeper explanation than was possible with the subject/predicate analysis of the contribution made by sub-sentential expressions to the determination of the truth-value of sentences in which they occur. But we did not take the further steps of explaining which expressions stand for functions and which for arguments to those functions, and of explaining what the arguments and values of the relevant functions are. Frege had a great deal to say about these questions. Rather than working through the various writings in which he discusses these questions, we will summarize some of the main views here.

1 Reference as power to affect truth-value

Frege characterizes his project as explaining the *Bedeutung* of various linguistic constructions. Though '*Bedeutung*' is most naturally translated as 'meaning' or 'significance', it is usually rendered – for reasons which will become clear later – as 'reference', 'denotation,' or 'nominatum.' These three expressions are, for our purposes interchangeable. We will use 'reference.'

Before asking what Frege takes the reference of various kinds of expressions to be, we should ask what the notion of reference is intended to do. It is clear that Frege is out to give an account of the truth-involving relations between different sentences; and it is clear that he is trying to do this by giving an account of the contributions made by various parts of sentences to determining the truth-values of sentences in which they occur. (We discussed last time the reasons for thinking that the latter kind of theory could help with the former.)

For this reason it is natural to think of the reference of an expression – that thing Frege was trying to give an account of – to, as a first approximation, *an expression's power to affect the truth-value of sentences in which it occurs*.

Given this rough characterization, our next question is: what are the references of various categories of linguistic expressions?

2 Compositionality and the reference of sentences

To give a satisfying answer to this question, we'll first have to get clear on the relationships between the references of expressions and the references of their parts.

If the reference of an expression is that expression's power to affect the truth-value of sentences in which it occurs, and if a theory of reference is to give us a satisfying explanation of the relations between sentences and the world in virtue of which some are true and some false, then there had better be a systematic connection between the references of sub-sentential expressions and the truth-values of sentences. In particular, the following connection between reference and truth had better be true:

The truth-value of a sentence is a function of the references of the expressions which compose the sentences, along with the way in which they are combined (and along with, of course, the relevant facts about the world).

E.g., the truth or falsity of

John loves Mary.

should be determined by the references of 'John', 'Mary', 'loves', the way the three terms are combined, and the relevant extra-linguistic facts about John and Mary.

Further, we should expect that the reference of a complex expression should in general be a function of the references of its parts. That is, the thesis of the *compositionality of reference* had better be true:

The reference of a complex expression is a function of the references of its parts.

It follows from this that if you take any complex expression, remove one of its components, and replace it with another expression with the same reference, the reference of the whole should be unchanged.

(One question you may have at this point is: is the first principle just a special case of the second? This is a question to which we will return when we ask about whether sentences have a reference.)

This, of course, does not yet help us in seeing how sentences are to be divided up into their parts or, yet, with the question of what references those parts should be assigned.

3 The reference of a proper name

There is a sense in which, for Frege, the foundations of the theory of reference are to be found in the theory of the references of proper names, and the view that the reference of a proper name is an object.

The problem of demarcating the proper names. The intuitive distinction between singular terms and other expressions. Why drawing the distinction at an intuitive level is not satisfactory; the lesson that the superficial appearances of sentences can be misleading.

A more theoretical attempt to demarcate singular terms on the basis of their use (sketched in Dummett's *Frege: Philosophy of Language*).

The intuitive idea is that we demarcate singular terms on the basis of the inferences they permit. The following three conditions appear to be necessary conditions on 'a' being a proper name:

1. ' $F(a)$ ' should entail ' $F(\text{something})$ '.
2. From ' $F(a)$ ' and ' $G(a)$ ' it should follow 'there is some x such that $F(x)$ and $G(x)$ '.
3. From ' a is such that $F(\text{it})$ or $G(\text{it})$ ' it should follow ' $F(a)$ or $G(a)$ '.

The most fundamental of these is the first; the second two distinguish proper names from devices for expressing generality, like 'something' and 'everything.'

An objection: criteria (1)-(3) do not serve to distinguish proper names from simple predicates.

A reply on Frege's behalf (from Dummett): Aristotle's idea that qualities, but not substances, have contraries. For any predicate 'is F ' we can introduce a new predicate which is to apply to all and only those things to which the 'is F ' does not apply. But we cannot introduce, in the same way, a new singular term for any term ' n ' which has all and only those properties which the referent of ' n ' does not. A way of stating this point which does not rely on the distinction between singular terms and predicates.

The relationship between the logical category of proper names and the metaphysical category of objects. The 'linguistic priority thesis.'

4 The reference of a predicate

So far we have the views that the reference of a name is an object, and that the reference of an expression is, in general, its power to affect the truth-values of sentences in which it occurs. What should we take the reference of a simple predicate to be?

4.1 *Functions from objects to truth-values*

The reference of a predicate as something like what is left from the truth-conditions of a sentence when you subtract a name. The idea of the reference of a (monadic) predicate as a function from objects to truth-values.

Natural extensions of this idea to the case of relational predicates.

Frege's term for the reference of a predicate is *concept*.

4.2 *The problem of the unity of the proposition*

An intuitive statement of the problem of the unity of the proposition. The distinction between sentences and lists.

A more theoretical way to generate the problem of the unity of the proposition, using the following plausible-sounding claim:

Since the reference of an expression is the contribution that it makes to the determination of truth-value, if two expressions have the same reference, then they should be substitutable without change of truth-value.

Frege's distinction between complete and incomplete expressions, and the doctrine of the incompleteness of the reference of predicates (i.e., concepts). The metaphysical distinction between concepts and objects as providing a solution to the problem of the unity of the proposition.

4.3 *The paradox of the concept horse*

A problem which appears to result from a Fregean solution to the problem of the unity of the proposition. (For Frege's discussion of this problem, see his "Function and Concept.")

5 The reference of other functional expressions

Within this framework, what would you assign as the reference of a word like 'the'? How about adjectives or adverbs? How about the existential and universal quantifiers? 'and'?

6 The reference of a sentence

The reference of a sentence as a truth-value. Complex sentence, and the reason why sentences must have a reference. Given that sentences must have a reference, there are two routes to the conclusion that the reference of a sentence should be its truth-value: (i) Given that the reference of a complex expression should be a function of the reference of its parts, the reference of a sentence must be something which is invariant under changes of co-referential sub-sentential expressions; truth-value appears to be. (ii) The reference of a sentence as its contribution to complex sentences of which it is a part; truth-functional combinations of sentences as fitting well with the idea that the reference of a sentence should be a truth-value.

Frege's idea of truth-values as objects (the True and the False). The darkness of this doctrine.

Why Frege thought that sentences involving proper names with no reference must lack a truth-value; the general principle that if an expression lacks a reference, then all complex expressions containing it must lack a reference. Why this principle seems plausible for complex singular terms like 'the planet nearest to Vulcan' but not for sentences like 'The largest natural number is less than 100.'

7 A theory of reference and force as a theory of language

7.1 Force

The idea of a theory of force. A theory of force as supplying part of what would be lacking if one took a theory of reference to be the whole of a theory of the nature and use of language.

7.2 Unanswered questions

Cognitive aspects of language use. Non-extensional contexts for sentences and sub-sentential expressions. The route from the theory of reference + force to the distinction between sense and reference.