

COMPOSITIONALITY. Dummett begins by noting the links between Frege's work in the foundations of mathematics and his concern with the theory of meaning. Formal axiomatization, such as formulation of geometry as an axiomatic system where theorems follow from axioms by the rules of inference, requires understanding of proof-theoretic mechanism. A proof cannot be made of a mere sequence of sentences. Which sentence logically follows from which is determined by the meaning of those sentences. In turn, the meaning of an individual sentence is determined by the meaning of its constituent parts. This is the *Principle of Compositionality*.

From the beginning, the analysis of meaning could not be conducted syntactically, by simply specifying syntactic rules (compare the sentence (2-3)). It should be semantic, showing the dependence of the meaning of a sentence on the meanings of its part.

tone. Dummett's chief concern in this chapter is to present and contrast the Principle of Compositionality and the Context Principle. He makes a short detour to distinguish between sense and tone.

The idea is to say that speakers may recognise differences in the use of two words and loosely associate it with their respective meanings. Frege's own example is poetic language. Thus when Shakespeare says:

Weary with toil, I haste me to my bed (5-1)

and I paraphrase:

Tired after work, I rush to get in bed, (5-2)

you think that something (everything!) is lost from the singular beauty of the original sentence. This is certainly so. But the difference is not semantic. Shakespeare and myself are saying the same thing (about our respective selves), just in a different style. Part of it is due to the different tone of the words 'weary' and 'tired', 'toil' and 'work', or 'haste' and 'rush'. Replacing one with the other will not alter the truth value of a sentence, even where the original sentence 'sounds' different from the resulting sentence.

Remark 1 (Pejoratives). Dummett's own example is the difference in tone between 'dog' and 'cur'. The example derives from Frege's own. This is not a happy example in English, since 'cur' usually means 'mongrel' (a dog of a mixed breed). Thus sentences can change their truth value upon relevant substitutions, as in 'The most expensive dog in the world is a dog' and 'The most expensive dog in the world is a cur.' Dummett must have a different, pejorative meaning of 'cur' in mind (which was the point of Frege's original example). It is a further very interesting question whether pejoratives have a semantic meaning (sense) different from their neutral counterparts. Thus compare:

Proust is a homosexual (5-3)

and:

Proust is a faggot. (5-4)

CONTEXT PRINCIPLE. A claim missing from *On Sense and Reference*, but prominent in Frege's early writing, is that words have meaning only in the context of a sentence. As Dummett notes, this goes against the ancient tradition of ascribing meaning to words first. In the empiricist tradition of Hobbes and Locke, words stood for 'ideas'. The terminology of 'ideas' has always been misleading, and it certainly had psychologistic connotations. Words compose sentences, and the meaning of the sentence is determined by the meanings of individual words. The Principle of Compositionality is a very intuitive way of thinking about meaning.

Now, as Dummett interprets it, you can see the Principle of Compositionality as a way of recognising the meaning of sentential wholes. You grasp the meaning of a sentence by processing the meaning of individual words. However, this obscures the central role of sentences. In the first place, we use language to convey thoughts. If I say, 'Dog', I have not done much of use with my linguistic capacity. Hearing me utter this word, you would like to figure out what it is that I said—i.e. figure out what *sentence* I uttered. Secondly, when I want to tell you what a word means, I will have to cite its use within certain sentences. This means that you can understand the meaning of that word only through your grasp of the meaning of those sentences.

This seems to entangle us in a circle. We grasp ('recognise') the meaning of a sentence by grasping the meaning of its words, but each word is intelligible only through its use in sentences. One way out of the circle is to connect the sentential meaning normatively to its truth conditions. We should justify the meaning of individual sentences by citing the conditions under which they are true.

FREGEAN SEMANTICS. As mentioned before, Frege did not aspire to provide semantics for natural language. He was primarily occupied with the task of giving semantics for formalised languages. Understanding natural language could nevertheless benefit from that formal language semantics. The Principle of Compositionality was at the forefront of that semantics. We begin with atomic sentences. These are the sentences p , q in propositional languages, and Fa , Fb in first-order languages. Out of those, with the aid of logical constants such as 'and' or 'not', we construct complex sentences.

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Example 2 (Complex sentences). Consider the sentences 'Lenin is hot' and 'Stalin is cold'. In the propositional semantics we represent them simply as p and q . Then a complex sentence 'Lenin is hot and Stalin is cold' will be represented as:

$$p \& q.$$

In the first-order semantics we discern more *semantic structure* in the original sentences, i.e. we register the fact that they are composed of names and predicates. Hence we now represent them as Fa and Gb . The complex sentence above will be represented as:

$$Fa \& Gb.$$

The meaning of a complex sentence is determined by the meaning of its constituent atomic sentences. In turn, the meaning of an atomic sentence is determined by the meaning of its constituent parts (in the first-order case). Truth has a leading role in the theory of sentential meaning. In order to understand what a sentence means, or says, we have to know what condition is to obtain for it to be true. On the other hand, because of the Context Principle, it has the same role in the meaning of any expression.

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There is a philosophically important nuance, whether the sense of an expression determines its semantic value (objectual reference for singular terms, truth value for sentences) by itself, or in combination with the world. Many presentations of Frege do not clearly distinguish between these options. Dummett insists on doing that, because the issue bears on the metaphysical doctrine of realism.

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You might say that a sentence can be meaningful, but be neither true nor false. Indeed, this seems to be Frege's view of fictional sentences. This is a view of anti-realism, at least with regard to the given area of discourse (fiction, say, or mathematics). In Dummett's reading, sense unambiguously fixes reference, with the contribution of reality built into it. That is, in attributing meaning to sentences we make them determinately either true or false.

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