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Frege's Puzzle and the Meaning of Words

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We sometimes use multiple names for the same person or thing without realizing it.

Imagine an ancient astronomer sees a heavenly body in the evening and names it 'Hesperus.' They also see a heavenly body in the morning and name it 'Phosphorus.' What they do not realize, however, is that they have named the same planet twice over, the planet that we now know as Venus.

Similarly, in the Superman comics, Lois Lane doesn't realize that the person she knows as 'Superman' is the same as the person she knows as 'Clark Kent.' Also, many people don't know that Mark Twain is Samuel Clemens.

These scenarios all raise a puzzle that is pivotal to our understanding of *meaning* and *thought*—two central notions in the philosophy of language and mind. It is called Frege's puzzle, after the philosopher and mathematician Gottlob Frege (1848-1925). This essay will introduce the puzzle and outline Frege's solution.

1. Reference

At its core, the puzzle is concerned with the meaning of words. To return to our earlier example, do the words 'Hesperus' and 'Phosphorus' mean the same thing? Or are their meanings different?

At first glance, it would appear that the meaning of a name is its *referent*—that is, the meaning of a name is the object that it names. This is a compelling account of meaning because the function of a name is to pick out an object.

When I say that 'Hesperus appears at night,' the name 'Hesperus' serves to indicate that I am speaking *about Hesperus*. Moreover, what I have said is true or false

depending on whether *Hesperus* (the planet itself) appears at night.^[1] If that's right, then the meaning of 'Hesperus' *just is* Hesperus. The planet itself serves as the meaning.

2. Frege's puzzle

However, when we consider the case of our imaginary astronomer, it appears that the meaning of a name *isn't* just its referent.

If the meaning of a name were just its referent, then 'Hesperus' would have the same meaning as 'Phosphorus' (since they refer to the same object). And 'Hesperus is Phosphorus' would mean the same thing as 'Hesperus is Hesperus.'

But that doesn't sound right; these sentences appear to have different meanings to our astronomer. The astronomer can *understand* both sentences perfectly well, but they may accept one and reject the other.

Furthermore, if *thoughts* correspond to meanings that are determined by reference, then the thought that *Hesperus is Phosphorus* would be the same as the thought that *Hesperus is Hesperus*.

But that seems incorrect: 'Hesperus is Hesperus' is trivial, whereas 'Hesperus is Phosphorus' appears to express *new information*, with the significance of an empirical discovery. The two thus differ in what Frege calls *cognitive significance* and this suggests that they express different thoughts.

Thus, *Frege's puzzle*: we have reasons both for and against identifying the meaning of a name with its referent.^[2]

3. Sense

In "On Sense and Reference," Frege proposes to solve the problem by proposing that there is not just one, but *two* kinds of meaning.

The first kind of meaning is reference. The second kind of meaning is called 'sense.'

Frege's idea is that, although 'Hesperus' and 'Phosphorus' share the same referent, they express different *senses* (same for 'Superman' and 'Clark Kent,' 'Mark Twain' and 'Samuel Clemens' and the like).

When Frege hypothesizes the existence of senses, he defines them primarily by the *roles* that they are supposed to perform. Accordingly, the sense of an expression is a feature that can fulfill each of these four tasks:^[3]

1. senses are a kind of meaning for linguistic expressions. Specifically, they are supposed to explain:

- *synonymy* (expressions are synonymous when they share the same sense);
- *linguistic understanding* (to understand an expression is to grasp its sense);
- the *publicity* of language (speakers share a common language when they associate it with the same senses).^[4]

As a result, 'Hesperus' and 'Phosphorus' will *not* be synonyms because they express different senses;

2. senses are supposed to explain differences in *cognitive significance*: e.g., 'Hesperus is Hesperus' is trivial while 'Hesperus is Phosphorus' is informative *because* 'Hesperus' and 'Phosphorus' possess different senses;

3. the sense of a name is supposed to determine its referent, not the other way around. Expressions with different senses can share the same referent (e.g. 'Hesperus' and 'Phosphorus'), but expressions with the same sense must thereby share the same referent;^[5] and:

4. senses are the constituents of thought. This explains why the thought that *Hesperus is a planet* appears to be distinct from the thought that *Phosphorus is a planet*; these thoughts *really are* distinct because they are composed of different senses.^[6]

This definition still leaves it open as to what else senses might be.

Frege also says that senses are 'modes of presentation' of the referent.^[7] When the astronomer introduced the names 'Hesperus' and 'Phosphorus,' they were presented with the referent (Venus) in different ways in different circumstances, and this is supposed to determine a difference in sense for these words.

However, it must be admitted that the idea of a 'mode of presentation' is obscure.^[8] In subsequent years, other philosophers have given more refined proposals for interpreting Fregean sense—that is, for identifying a kind of meaning that fulfills roles 1 – 4.^[9]

4. Conclusion

Frege's puzzle can arise whenever there are multiple words that represent the same thing, which is a common feature of language. These cases suggest

that there is more to meaning than reference—that we need a second concept, sense, to understand the meaning of words.

Although Frege's solution is compelling, it is not without controversy. Many philosophers have challenged Frege's concept of sense by arguing that no one thing can play all of the four roles that are required of sense; others argue that some of these roles need not be included in the definition of meaning.^[10] So it remains debatable whether Frege succeeded in defining a kind of meaning apart from reference.

Nevertheless, Frege's puzzle continues to inspire philosophical thinking about meaning and thought.

Notes

[1] There is another (more theoretical) reason for holding that the meaning of a name is its referent.

In brief, the systematic theories of meaning that have been developed in logic and linguistics typically assume that the meaning of a name is its referent. Moreover, by making this assumption, these theories are able to explain an important feature of meaning: specifically, how the meanings of complex sentences depend on the meanings of their simplest parts. (They can explain, for example, how the meaning of 'Hesperus appears at night' depends on the meaning of 'Hesperus'.)

Frege himself developed such an account in other areas of his work, in his *Grundgesetze der Arithmetik* (1893). Since it is possible to explain this fact about meaning by assuming that meaning is reference, we thus have another motivation for holding that meaning is reference.

[2] Frege's puzzle reveals an internal tension in how we ordinarily think about words' meaning. On the one hand, we sometimes think of meaning as reference: when I say 'Hesperus appears at night,' I *mean* to be speaking *about* Hesperus; by 'Hesperus,' I *mean* Venus, the second planet from the sun. But on the other hand, we sometimes do not naturally think of meaning as reference: it seems wrong to say that for Lois Lane, 'Clark Kent' has the same meaning as 'Superman.'

[3] In "On Sense and Reference," Frege appears to have a fifth role in mind: sense is also supposed to explain the significance of names that lack referents (e.g. 'Vulcan' is meaningful because it has a sense, despite lacking a referent). See Frege (1948 [1892]), 211. However, some followers of Frege (e.g., Gareth

Evans) argue that this role is inessential to the central insight.

[4] *Ibid.*, 210-212.

[5] *Ibid.*, 211. In his (1948 [1892]), Frege does not tell us *how* the sense of a term determines its referent.

However, we can see how this might work if, e.g., we assume what is called the ‘descriptivist’ interpretation of Fregean sense, which holds that the sense of a name is a *description* of the referent. So, e.g., the sense of ‘Hesperus’ would be a description, perhaps ‘the celestial body that appears at such-and-such location in the evening.’ The referent of the term would then be determined as the unique thing that satisfies this description.

[6] For Frege, this is a thesis about thoughts themselves *and* a thesis about the meanings of the sentences that report beliefs (and other kinds of thoughts).

According to the first part of the thesis, the senses of simple expressions compose into the senses of sentences. For example, the sense of the name ‘Hesperus’ will compose with the sense of ‘is a planet’ to yield the sense of ‘Hesperus is a planet.’ Furthermore, according to this picture, the sense of ‘Hesperus is a planet’ is the same thing as *what is thought* by someone who thinks that *Hesperus is a planet*. In short: the senses of sentences *are* the contents of thought.

As for the second part of this thesis, Frege claims that when a name like ‘Hesperus’ appears within a report of a belief, such as ‘The astronomer believed that Hesperus is a star’, it refers to its usual *sense*, rather than to Hesperus itself. This is called the theory of indirect reference. See *ibid.*, 218-220.

[7] *Ibid.*, 211.

[8] In “The Thought,” Frege proposes that senses are abstract objects that exist in a realm that is independent of both the material and psychological realm. According to Frege, senses cannot be subjective ideas in the minds of individuals because meanings are essentially *public* (as per role 1). In order for speakers to communicate with each other, they must each associate the same senses with the same words. See Frege (1956), 308.

This idea of Frege’s turned out to be influential for subsequent thinking about *propositions*. Many philosophers, following Frege, have held that the meanings of sentences are a kind of abstract object,

called *propositions*, that are composed of the meanings of words. These propositions are supposed to be entertainable in thought and capable of truth or falsity. Sentences from different languages—e.g. ‘snow is white’ and ‘la neige est blanche’—can express the same proposition.

[8] Frege gave examples of senses that were descriptions and some philosophers have interpreted senses as always consisting of descriptions grasped by the speaker. On this interpretation, the sense of ‘Hesperus’ could be given by the description ‘the celestial body that appears at such-and-such location in the evening.’

Other philosophers have interpreted senses as conceptual roles, whereby the sense of an expression is understood by the patterns in which it is used in inferences and reasoning.

There are other options too. Picking up on the idea that the sense of ‘Hesperus’ is a mode of presenting Hesperus, Gareth Evans interpreted the sense of a name as a *way of thinking of or recognizing the referent of the name*. See Evans (1982), ch. 1.

[10] There are a number of important works that aim to show that no one feature of a word can do all of the jobs that sense is supposed to do. The key texts in this critical tradition are Saul Kripke’s *Naming and Necessity* and “A puzzle about belief,” and David Kaplan “On Demonstratives.” Put very briefly, Kripke argues in *Naming and Necessity* that the referent of a name is not generally determined by the speaker’s idea of the referent, and so roles 3 and 4 come apart; he also argues, in “A puzzle about belief,” that words that are synonyms in public language need not have the same cognitive significance for individual speakers, and so roles 1 and 2 come apart; finally, Kaplan argues that we need to make a further distinction between two kinds of meaning, which he calls *character* and *content*, and that Frege’s concept of sense is a conflation of the two.

For an overview of these developments, see the chapter “Meaning” in Gillian Russell’s *Truth in Virtue of Meaning*.

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