

Frege's (first) Puzzle

Gottlob Frege (1848-1925): A German mathematician and progenitor of modern logic who laid the foundations of contemporary philosophy of language.

Frege was in some ways indirectly lead to think about issues of meaning, truth, and understanding while he was engaged in a separate project, namely

Logicism: The view that the truths of mathematics are simply truths of logic.

To reduce mathematics to logic, Frege needed supply his own more sophisticated understanding of logic. But getting a good grip on the foundations of logic requires an understanding of truth, inference, and meaning. This led Frege to confront various puzzles that turned out to be remarkably deep and challenging. For example,

Frege's Puzzle of Informative Identities: How can an identity statement of the form "A is B" be informative while an identity statement of the form "A is A" is always uninformative?

That is how can (1) be uninformative and (2) be informative, despite the fact that "Clark Kent" and "Superman" refer to the same person.

- (1) Clark Kent is Clark Kent.
- (2) Clark Kent is Superman.

A dilemma, as Frege presents it:

(A) Information supplied by identity statements is exclusively given by the objects referred to in them.

Problem: but why don't the sentences carry the same information then? They talk about the *same* person and seem to say of that person that he is himself.

(B) Information supplied by identity statements are actually about the *words* used in them

Problem 1: When you learn Clark Kent is Superman, you don't just learn something about *words*. You learn a fact about a caped superhero and his alter ego. Frege points out that learning that the the Morning Star is the Evening Star was a very important *astronomical* discovery—not a discovery about (say) English.

Problem 2: It seems two people can learn the *same thing* communicated with the informative identity statement in *different* languages. So at the very least it doesn't seem to be a fact about English that you're learning.

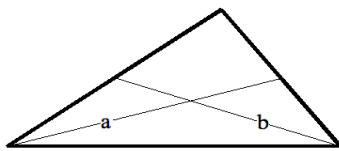
Problem 3: It seems like something *without any* language at all (a sophisticated dog, for example) might be said to learn what we learn when we hear the statement. But of course such a thing couldn't learn anything about language by hypothesis. So how could the statement be *about* language?

Frege's proposal: make a distinction between two *types* of meaning. One type is connected with what words talk about or refer to, and another is connected with the cognitive significance that words have. (1) and (2) have the same meaning in one sense, but different meanings in another.

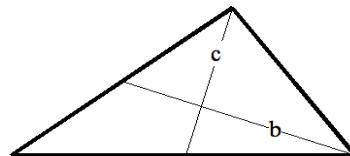
Reference of a Referring Expression: the thing which a referring expression designates.

Sense of a Referring Expression: the way that thing is picked out by the expression—the "mode of presentation" of the object.

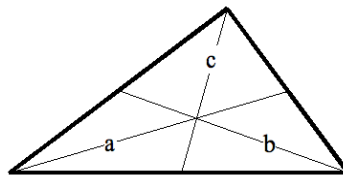
Frege develops an analogy to help give a feel for what senses of words are, and the relationship between the sense and referent of a word. The analogy appeals to the provable claim that if you take any triangle and draw lines from its corners to the midpoints of the edges that face them, the three lines you will draw will intersect at the same point.



the intersection of lines a and b



the intersection of lines b and c



the intersection of lines a and b = the intersection of lines b and c

The same *point* in physical space is being talked about here with both referring expressions. But that same point is being picked out in *two different ways*. The point corresponds to the *referent* of the referring expressions. The pairs of lines which intersect in the point correspond to the *senses* of the referring expressions.

Two features of senses:

(1) Senses *determine* reference.

A sense is something like a way of identifying an object. Frege is not always clear on this point, but it *seems* like he thinks that senses determine their referents based on some, but not all, *features* or *properties* of the referent. This enables two *different* senses to have the *same* referent.

(2) Senses embody the *cognitive significance* of an expression.

Frege: "[the] sense of a proper name is grasped by everybody who is sufficiently familiar with the language or totality of designations to which it belongs."

How does this proposal help with the original puzzle? Two referring expressions can have different *senses* which nonetheless pick out the same referent. So (1) and (2) contain names which all have the same referents.

(1) Clark Kent is Clark Kent.

(2) Clark Kent is Superman.

But the second differs from the first in that it replaces one name with another that has a different *sense*. Since *sense* is what affects *cognitive significance*, this explains why the two sentences can differ in their informativeness.

Okay, but what *are* these senses? How should we think about the senses at work here? In an early footnote, Frege tells us that the sense of "Aristotle" might be something like (what is expressed by) "the student of Plato and teacher of Alexander the Great". This at least makes it seem that Frege wants us to think of senses along the lines of properties, or what is expressed by a definite description.

So maybe the sense of "Clark Kent" might be what we would express with "the mild mannered reporter for the Daily Planet" and the sense of "Superman" might be "the guy who flies around with tights and a cape." (Are sentences (1) and (2) 'about' these senses? *No*. They are about Superman/Clark Kent—the referent of the names. That's what reference *is*.)

Some other quick points:

- Senses seem to be able to sometimes lack reference. [e.g. "celestial body most distant from the earth", "greatest integer"]
- There seems to be no "backwards road" from referent to sense.
- It's not clear that we always coordinate perfectly on senses of expressions we use. [see, e.g., Frege's early footnote on the sense of "Aristotle"]