

## On Sense and Reference The Problem of Cognitive Content

### The Example

Hesperus is Hesperus.  
Hesperus is Phosphorus.  
Both 'Hesperus' (evening star) and 'Phosphorus' (morning star) are actually the planet Venus.

### The Frege Passage

Equality gives rise to challenging questions which are not altogether easy to answer. Is it a relation? A relation between objects, or between names or signs of objects? In my *Begriffsschrift* I assumed the latter. The reasons which seem to favour this are the following:  $a = a$  and  $a = b$  are obviously statements of differing cognitive value;  $a = a$  holds *a priori* and, according to Kant, is to be labelled analytic, while statements of the form  $a = b$  often contain very valuable extensions of our knowledge and cannot always be established *a priori*. The discovery that the rising sun is not new every morning, but always the same, was one of the most fertile astronomical discoveries. Even today the identification of a small planet or a comet is not always a matter of course. Now if we were to regard equality as a relation that which the names  $a$  and  $b$  designate, it would seem that  $a = b$  could not differ between from  $a = a$  (i.e. provided  $a = b$  is true). A relation would thereby be expressed of a thing to itself, and indeed one in which each thing stands to itself but to no other thing. What is intended to be said by  $a = b$  seems to be that the signs or names  $a$  and  $b$  designate the same thing, so that those signs themselves would be under discussion; a relation between them would be asserted. But this relation would hold between the names or signs only in so far as they named or designated something. It would be mediated by the connection of each of the two signs with the same designated thing. But this is arbitrary. Nobody can be forbidden to use any arbitrarily producible event or object as a sign for something. In that case the sentence  $a = b$  would no longer refer to the subject matter, but only to its mode of designation; we would express no proper knowledge by its means. But in many cases this is just what we want to do. If the sign ' $a$ ' is distinguished from the sign ' $b$ ' only as object (here, by means of its shape), not as sign (i.e. not by the manner in which it designates something), the cognitive value of  $a = a$  becomes essentially equal to that of  $a = b$ , provided  $a = b$  is true. A difference can arise only if the difference between the signs corresponds to a difference in the mode of presentation of that which is designated. Let  $a, b, c$  be the lines connecting the vertices of a triangle with the midpoints of the opposite sides. The point of intersection of  $a$  and  $b$  is then the same as the point of intersection of  $b$  and  $c$ . So we have different designations for the same point, and these names ('point of intersection of  $a$  and  $b$ ,' 'point of intersection of  $b$  and  $c$ ') likewise indicate the mode of presentation; and hence the statement contains actual knowledge.

It is natural, now, to think of there being connected with a sign (name, combination of words, letter), besides that to which the sign refers, which may be called the reference of the sign, also what I should like to call the sense of the sign, wherein the mode of presentation is contained. In our example, accordingly, the reference of the expressions 'the point of intersection of  $a$  and  $b$ ' and 'the point of intersection of  $b$  and  $c$ ' would be the same, but not their senses. The reference of 'evening star' would be the same as that of 'morning star,' but not the sense.

### The Questions

1. What is the problem? Connect what Frege says with the example above it.
2. What is Frege's solution?
3. Why might someone object to Frege's solution?

On Sense and Reference  
The Problem of Empty Reference  
AKA: Failure of Presupposition

The Example

Sherlock Holmes lives at 221B Baker Street.

The Frege Passage

It is natural, now, to think of there being connected with a sign (name, combination of words, letter), besides that to which the sign refers, which may be called the reference of the sign, also what I should like to call the sense of the sign, wherein the mode of presentation is contained...

The regular connection between a sign, its sense, and its reference is of such a kind that to the sign there corresponds a definite sense and to that in turn a definite reference, while to a given reference (an object) there does not belong only a single sign. The same sense has different expressions in different languages or even in the same language. To be sure, exceptions to this regular behaviour occur. To every expression belonging to a complete totality of signs, there should certainly correspond a definite sense; but natural languages often do not satisfy this condition, and one must be content if the same word has the same sense in the same context. It may perhaps be granted that every grammatically well-formed expression representing a proper name always has a sense. But this is not to say that to the sense there also corresponds a reference. The words 'the celestial body most distant from the Earth' have a sense, but it is very doubtful if they also have a reference. The expression 'the least rapidly convergent series' has a sense but demonstrably has no reference, since for every given convergent series, another convergent, but less rapidly convergent, series can be found. In grasping a sense, one is not certainly assured of a reference.

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## On Sense and Reference Opaque Contexts

### The Example

Lois Lane believes that Superman can fly.  
Superman is Clark Kent.  
So, Lois Lane believes that Clark Kent can fly.

### The Frege Passage

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If words are used in the ordinary way, what one intends to speak of is their reference. It can also happen, however, that one wishes to talk about the words themselves or their sense. This happens, for instance, when the words of another are quoted. One's own words then first designate words of the other speaker, and only the latter have their usual reference. We then have signs of signs. In writing, the words are in this case enclosed in quotation marks. Accordingly, a word standing between quotation marks must not be taken as having its ordinary reference.

In order to speak of the sense of an expression 'A' one may simply use the phrase 'the sense of the expression 'A''. In reported speech one talks about the sense, e.g., of another person's remarks. It is quite clear that in this way of speaking words do not have their customary reference but designate what is usually their sense. In order to have a short expression, we will say: In reported speech, words are used *indirectly* or have their *indirect reference*. We distinguish accordingly the *customary* from the *indirect* reference of a word; and its *customary* sense from its *indirect* sense. The indirect reference of a word is accordingly its customary sense. Such exceptions must always be borne in mind if the mode of connection between sign, sense, and reference in particular cases is to be correctly understood.

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