

Frege's theory of sense

Jeff Speaks
August 25, 2011

1. Three arguments that there must be more to meaning than reference.....	1
1.1. Frege's puzzle about identity sentences	
1.2. Understanding and knowledge of reference	
1.3. Opaque contexts	
2. The theoretical roles of senses	4
2.1. Frege's criterion for distinctness of sense	
2.2. Sense determines reference, but not the reverse	
2.3. Indirect reference	
2.4. Sense, force, and the theory of speech acts	
3. What are senses?	6

We have now seen how a theory of reference — a theory that assigns to each expression of the language a reference, which is what it contributes to determining the truth or falsity of sentences in which it occurs — might look for a fragment of English. (The fragment of English includes proper names, n -place predicates, and quantifiers.) We now turn to Frege's reasons for thinking that a theory of reference must be supplemented with a theory of sense.

1. THREE ARGUMENTS THAT THERE MUST BE MORE TO MEANING THAN REFERENCE

1.1. *Frege's puzzle about identity sentences*

As Frege says at the outset of “On sense and reference,” identity “gives rise to challenging questions which are not altogether easy to answer.” The puzzle raised by identity sentences is that, if, even though “the morning star” and “the evening star” have the same reference — the planet Venus — the sentences

[1] The morning star is the morning star.

[2] The morning star is the evening star.

seem quite different. They seem, as Frege says, to differ in “cognitive value.” [1] is trivial and a priori; whereas [2] seems a posteriori, and could express a valuable extension of knowledge — it, unlike [1], seems to express an astronomical discovery which took substantial empirical work to make.

In *Begriffsschrift* §8, Frege tried to explain the difference between [1] and [2] like this:

“Equality of content differs from conditionality and negation by relating to names, not to contents. Elsewhere, signs are mere proxies for their content, and thus any phrase they occur in just expresses a relation between their various contents; but names at once appear in propria persona so soon as they are joined by the symbol for equality of content; for this signifies the circumstance of two names’ having the same content. Thus, along with the introduction of a symbol for equality of content, all symbols are necessarily given a double meaning — the same symbols stand now for their own content, now for themselves.” (§8)

Given what we know about Frege’s theory of reference and the role played by proper names in that theory, this should strike you as a bizarre theory. Elsewhere, names contribute the object for which they stand to the truth-conditions of sentences in which they occur; why should they, in this one case, stand not for an object but for themselves?

In the opening passages of “On sense and reference,” Frege criticized his earlier view:

“What one wishes to express with ‘a=b’ seems to be that the signs or names ‘a’ and ‘b’ name the same thing; and in that case we would be dealing with those signs: a relation between them would be asserted. But this relation could hold only inasmuch as they name or designate something. The relation, as it were, is mediated through the connection of each sign with the same nominatum. This connection, however, is arbitrary. ...Hence, a sentence like ‘a=b’ would not longer refer to a matter of fact but rather to our manner of designation; no genuine knowledge would be expressed by it. But this is just what we do want to express in many cases. ...”

And, on reflection, the puzzle about “the morning star” and “the evening star” doesn’t essentially rely on identity sentences, and hence can’t be solved by any views about the special ways in which identity sentences work. A closely related puzzle seems to be raised by non-identity sentences like

Last morning, I was looking at the morning star.

Last morning, I was looking at the evening star.

For an individual, the first might well seem trivial, and the second highly non-trivial — even false.

But this leaves us with a dilemma: it seems that names in identity sentences neither stand for themselves nor (merely) stand for objects. Then how are names functioning here?

Frege's thought here is: names must have some property, other than their reference, which explains these facts about cognitive significance. This property is their *sense*. Sense is what explains the difference in cognitive value between [1] and [2].

1.2. *Understanding and knowledge of reference*

A second sort of argument which Frege suggests focuses on *understanding*. It seems plausible that one understands an expression iff one knows what it means.

If this is right, then we have a new form in which we can raise our question about whether the theory of reference can serve as a full theory of language: we can ask whether to understand an expression, one must know its reference.

Frege thought not:

“The sense of a proper name is grasped by everyone who knows the language or the totality of designations of which the proper name is a part; this, however, illuminates the reference, if there is any, in a very one-sided fashion. A complete knowledge of the reference would require that we could tell immediately in the case of any given sense whether it belongs to the reference. This we shall never be able to do.”

Here Frege claims that we lack the kind of knowledge of reference that we have of the meaning of an expression. Just from understanding an expression, we are typically not in a position to know what its reference is.

One might put the argument like this:

1. To understand an expression is to know its meaning.
 2. If two expressions have the same meaning, then, necessarily, anyone who understands both will know that they have the same meaning. (1)
 3. It is possible to understand two expressions without knowing whether they have the same reference.
 4. Possibly, two expressions have the same reference but different meanings. (2,3)
- C. Reference \neq meaning.

So sense is not just what explains differences in cognitive value — it is also what speakers who understand the relevant expression know.

1.3. *Opaque contexts*

A theory of reference is supposed to explain the links between language and the world by assigning to expressions what those expressions contribute to the truth or falsity of

sentences in which they occur. We've just argued that such a theory can't also explain the links between languages and their users (whether this is cashed out in terms of cognitive significance, or knowledge of meaning).

But there are sentences which seem to show that a theory of reference cannot, by itself, even explain the connections between sentences and the world. Chief among these are sentences about mental states — called *propositional attitude ascriptions* — and about necessity and possibility.

Consider, for example, the following pairs of sentences:

Bob believes that the greatest student of Plato was a philosopher.

Bob believes that the greatest teacher of Alexander the Great was a philosopher.

Bob believes that $2+2=4$.

Bob believes that $2+2=\underline{\text{the positive cube root of 64}}$.

Necessarily, all cordates are cordates.

Necessarily, all cordates are renates.

In each case, the sentences differ only in substitution of expressions which have the same reference — and yet, seem to differ in truth-value. (The “places” in sentences where this is can happen — where substitution of co-referential expressions can change truth-value — are called opaque contexts, non-extensional contexts, and (misleadingly) intensional contexts.)

2. THE THEORETICAL ROLES OF SENSES

These arguments for the distinctness of sense and reference also make plain some of the roles that senses should have to play.

2.1. Frege's criterion for distinctness of sense

The first and second argument show that sense must explain cognitive significance; and this suggests that senses should be individuated by the following criterion:

Two sentences S and S^* differ in cognitive significance iff it is possible for a rational agent who understands both to take S to be true while doubting that S^* is true (or vice versa).

For suppose that senses did not obey this criterion. Then it would be possible for a rational subject to consider two sentences with the same sense, and hold one to be true and the other false; but then the same arguments used to show that cognitive significance must be explained in terms of something other than reference could also be used to show that it must be explained in terms of something other than sense; and we could also use such a case to argue that it is possible to understand a sentence without knowing its sense (using the premise that if understanding is knowledge of sense, then anyone who understands a pair of sentences with the same sense will be in position to know that they have the same sense).

2.2. Sense determines reference, but not the reverse

According to Frege, sense determines reference: any two expressions with the same sense/meaning will also have the same reference.

Why would one think that sense determines reference? One reason: intuitively, if two sentences have the same sense, they say the same thing about the world; and if two sentences say the same thing about the world, they cannot differ in truth-value. But if the reference of a sentence is its truth-value, that means that the sense of a sentence determines its reference. (Can you see how you could use this as a premise to argue that the senses of sub-sentential expressions determine their reference?)

Reference does not determine sense: often, two expressions with the same reference will differ with respect to sense.

2.3. Indirect reference

This still does not explain what we should say about opaque contexts. Frege made the following suggestion about the semantics of propositional attitude ascriptions:

“When words are used in the customary manner then what is talked about is their reference. But it may happen that one wants to talk about the words themselves or about their senses. The first occurs when one quotes someone else’s words in direct (ordinary) discourse. ...In writing we make use of quotes enclosing the word-icons. ...In indirect discourse we speak of the sense, e.g., of the words of someone else. From this it becomes clear that also in indirect discourse words do not have their customary reference; they here name what would ordinarily be their sense.”

2.4. Sense, force, and the theory of speech acts

Frege also thought that sense could play a crucial role in (what is now called) the theory of speech acts. One can do more than one thing with a sense: one can assert it, grasp it, ask it, command it, We might say that utterances of the following sentences have the same sense, but different force:

You are doing the reading for this course.

Are you doing the reading for this course?

Do the reading for this course!

The distinction between sense and force is supposed to explain what these sentences have in common, as well as what separates them.

2.5. *Bearers of truth and falsity*

As Frege points out in “The thought”, we call lots of things true or false: pictures, sentences, sounds. But, as he says, we call these things true or false only insofar as they express something; and this something that they express is their sense. Thoughts — the senses of sentences — are the primary bearers of truth and falsity, and the other things which we call true or false are so only insofar as the relevant thought is true or false.

...

We should distinguish Frege’s positive views about sense from his arguments that there is a certain set of roles which something or other must fill — namely, (i) being what is expressed by sentences (and hence determining cognitive significance, and being what speakers who understand the sentence know); (ii) being the reference of “that”-clauses in propositional attitude ascriptions, and hence the entities to which subjects are reported to be related in ascriptions of belief, knowledge, and other mental states; and (iii) being the primary bearer of truth and falsity. Moreover, a prima facie plausible case can be made that the same entity should play each of roles (i)-(iii).

One of the central preoccupations of analytic philosophy — and one of the things that distinguishes analytic philosophy from its predecessors — is its focus on trying to explain what these things which play roles (i)-(iii) could be. These entities are standardly called *propositions*.

3. WHAT ARE SENSES?

So far we’ve discussed Frege’s arguments in favor of positing senses for expressions in addition to their reference, and talked about some of the things senses are supposed to do. But this leaves open the question of what senses *are*.

Frege argues, in “Thought,” that they can’t be mental items:

“If every thought requires an owner and belongs to the contents of his consciousness, then the thought has this owner alone; and there is no science

common to many on which many could work, but perhaps I have my science, a totality of thoughts whose owner I am, and another person has his. Each of us is concerned with the contents of his own consciousness. No contradiction between the two sciences would then be possible, and it would really be idle to dispute about truth; as idle, indeed almost as ludicrous, as for two people to dispute whether a hundred-mark note were genuine, where each meant the one he had in his pocket and understood the word 'genuine' in his own particular sense. If someone takes thoughts to be ideas, what he then accepts as true is, on his own view, the content of his consciousness, and does not properly concern other people at all. If he heard from me the opinion that a thought is not an idea he could not dispute it, for, indeed, it would not now concern him."

Whatever they are, Frege thinks, senses must be available to more than one thinker.

And there are, anyway, some pretty convincing arguments that thoughts can't be mental images:

- Mental images are not available for enough kinds of linguistic expressions. ('of', 'chiliagon')
- Berkeley's point: mental images are too precise to be meanings.
- Widespread variance in images associated with individuals. No one would ever mean the same thing by a word as anyone else.
- Wittgenstein's point: mental images need interpretation as much as physical ones.

An argument parallel to Frege's seems to show that senses can't be linguistic items, since, it seems, the same thoughts are often available to speakers of different languages.

In "On sense and reference", Frege tries to explain the nature of sense by analogy:

"The reference of a proper name is the object itself which we designate by its means; the idea, which we have in that case, is wholly subjective; in between lies the sense, which is indeed no longer subjective like the idea, but is yet not the object itself. The following analogy will perhaps clarify these relationships. Somebody observes the Moon through a telescope. I compare the Moon itself to the reference; it is the object of the observation, mediated by the real image projected by the object glass in the interior of the telescope, and by the retinal image of the observer. The former I compare to the sense, the latter is like the idea or experience. The optical image in the telescope is indeed one-sided and dependent upon the standpoint of observation; but it is still objective, inasmuch as it can be used by several observers. At any rate it could be arranged for several to use it simultaneously. But each one would have his own retinal image."

But this is only analogy. Frege makes more straightforward claims about the metaphysical category to which sense belong in “Thought”:

“So the result seems to be: thoughts are neither things in the external world nor ideas. A third realm must be recognized. Anything belonging to this realm has it in common with ideas that it cannot be perceived by the senses, but has it in common with things that it does not need an owner so as to belong to the contents of consciousness. Thus for example the thought we have expressed in the Pythagorean Theorem is timelessly true, true independently of whether anyone takes it to be true. It needs no owner. It is not true only from the time when it is discovered; just as a planet, even before anyone saw it, was in interaction with other planets.”

It seems that, for Frege, senses are a *sui generis* category of abstracta which are, in some sense, modes of presentations of (among other things) objects. Intuitive problems with the idea that we should postulate a category of entities whose sole role is to serve as the contents of linguistic expressions and the objects of thought.