

Gottlob Frege

ON SENSE AND REFERENCE (excerpt)<sup>1</sup>

[English translation of part of Gottlob Frege: “Über Sinn und Bedeutung”, *Zeitschrift für Philosophie und philosophische Kritik* NF 100 (1892): 25–50. For ease of reference, the original pagination is indicated in double square brackets. The part translated corresponds to pages 25–36 of the original article as well as the last paragraph. The translation is by Max Kölbel and may be used unchanged for non-commercial purposes, as long as the source is properly acknowledged. This translation has appeared also in Darragh Byrne and Max Kölbel (eds), *Arguing about Language*, London: Routledge 2009, pp. 49–55.]

[[25]] Equality<sup>2</sup> challenges our capacity to think, because it gives rise to questions that are not quite easy to answer. Is it a relation? a relation between objects? or between names or signs for objects? I had assumed the latter in my *Begriffsschrift*. The reasons that seem to favour it are the following:  $a = a$  and  $a = b$  are obviously sentences of different cognitive value:  $a = a$  holds a priori, and, following Kant, should be called analytic, while sentences of the form  $a = b$  often contain valuable extensions of our knowledge and cannot always be justified a priori. The discovery that a new sun does not rise every morning but always the same one has probably been one of the most consequential discoveries in astronomy. Even now we cannot always take for granted that we will recognise a small planet or comet. Now, if we wanted to view [[26]] equality as a relation between that which the names “ $a$ ” and “ $b$ ” mean,<sup>3</sup> then it would seem that  $a = b$  could not be different from  $a = a$ , in case  $a = b$  is true. It would express a relation of a thing to itself, namely such a relation in which each thing stands to itself, but none stands to another. What one wants to say by  $a = b$  seems to be that the signs or

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<sup>1</sup> [Translator’s note: There are already two published English translations of Frege’s “Über Sinn und Bedeutung”, so why are we providing a third one? There were several considerations: First, the only translation we regarded as acceptable was that by Black. However, this translation has already been revised twice, and we did not want to add to this chaos of versions of the Black translation. Secondly, it seemed to us that the Black translation, which is on the whole very good, sometimes departs unnecessarily from the original. Thirdly, the cost for a licence to re-use the Black translation would have entailed cuts in other places in this volume, which we found difficult, given that we were already having to make cuts.]

<sup>2</sup> [Original footnote 1] I am using this word in the sense of Identity and I mean “ $a = b$ ” in the sense of “ $a$  is the same as  $b$ ” or “ $a$  and  $b$  coincide”.

<sup>3</sup> [Translator’s note: The verb “to mean” here translates Frege’s “bedeuten”. Later in this article, Frege introduces a special stipulated sense for the verb “bedeuten”, which will be translated here as “to refer to”. See note 8 below where the translation of the special technical use of “bedeuten” is explained.]

names “*a*” and “*b*” mean<sup>4</sup> the same, so that one would be talking precisely about those signs, and asserting a relation between them. But this relation would hold between the names or signs only in so far as they name or designate<sup>5</sup> something. The relation would be one that is mediated by the connection of each of the signs with the same object designated. But this [connection] is arbitrary. One cannot prevent anyone from accepting any arbitrarily producible procedure or object as a sign for anything. Thus a sentence  $a = b$  would no longer concern the issue itself, but only our way of using signs; we would not express any proper knowledge with it. However, in many cases that is precisely what we want to do. If sign “*a*” differs from sign “*b*” merely as an object (in this case by its shape), but not as a sign—this is supposed to mean: not in the way in which it designates something—then the cognitive value of  $a = a$  would be essentially equal to that of  $a = b$ , if  $a = b$  is true. A difference can only come about because the difference of the sign corresponds to a difference in the way in which what is signified is given. Let *a*, *b*, *c* be the lines that connect the vertices of a triangle with the midpoints of the opposite sides.<sup>6</sup> Then the intersection of *a* and *b* is the same as the intersection of *b* and *c*. Thus we have different designations of the same point, and these names (“intersection of *a* and *b*”, “intersection of *b* and *c*”) indicate at the same time the mode of presentation,<sup>7</sup> so that real knowledge is contained in the sentence.

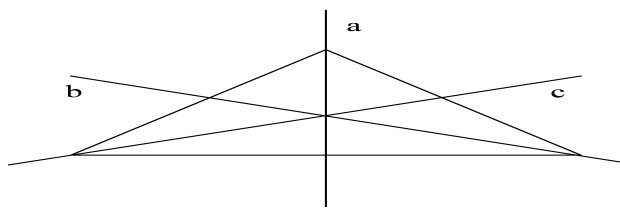
It is thus natural to view as tied to a sign (name, combination of words, written sign) not just what is designated by the sign (which may be called the Reference<sup>8</sup> of the

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<sup>4</sup> [Translator’s note: See note 3.]

<sup>5</sup> [Translator’s note: The German verb “bezeichnen”, the participle “Bezeichnetes”, and the noun “Bezeichnung”, have been uniformly translated as “to designate”, “thing designated” and “Designation”.]

<sup>6</sup> [Translator’s note: This diagramme illustrates Frege’s example:



<sup>7</sup> [Translator’s note: “Mode of presentation” has become the standard translation for Frege’s “Art des Gegebenseins”, which literally means *way of being given*. This translation adopts the standard translation in order to avoid confusion.]

<sup>8</sup> [Translator’s note: At this point, Frege explicitly introduces the terms “Bedeutung” and “Sinn” in their special technical sense. From this point on, these terms and their cognates—when used with the special technical sense Frege gives them—will be translated as “Reference” and “Sense”, each time indicating the technical use by capitalization. It seems best to translate the term “Bedeutung” in this way because the terms “reference” or “referent” are almost uniformly used nowadays for the object a singular term stands for. “Meaning” may have been a better translation initially, as it has more or less the same non-technical connotations as “Bedeutung” in German (and this is no doubt the reason why the revised Black translation uses it); however, this would now be misleading.]

sign), but also what I would like to call the Sense of the sign, which contains the way of being given. In our example, then, [[27]] while the Reference of the expressions “the intersection of *a* and *b*” and “the intersection of *b* and *c*” would be the same, their Sense would not. The Reference of “Evening Star” and “Morning Star” would be the same, but not the Sense.<sup>9</sup>

It follows from the context that by “sign” and “name” I have here been meaning any designation that takes the place of a proper name, the Reference of which is thus a determinate object (taking this word in the widest extension), but not a concept or relation, which will be discussed in another essay.<sup>10</sup> The designation of a particular object can also consist of several words or other signs. For brevity, any such designation may be called proper name.

The Sense of a proper name is grasped by anyone who has sufficient knowledge of the language or set of designations to which it belongs;<sup>11</sup> but this only ever illuminates the Reference, if there is one, on one side. All-round knowledge of the Reference would involve our being able to specify immediately for any given Sense, whether it belongs to that Reference. We never reach that point.

The regular association between a sign, its Sense and its Reference is such that to the sign corresponds a determinate Sense, and to it in turn corresponds a determinate Reference, while it is not just one sign that belongs to a Reference (to an object). The same Sense has different expressions in different languages, even in the same language. Exceptions to this regular behaviour do of course occur. Certainly, in a perfect System of signs, a determinate Sense should correspond to each expression; but popular languages often fail to fulfil this demand, and one has [[28]] to be content if at least in the same context the same word always has the same Sense. Perhaps one might concede that a grammatically correctly formed expression that stands in for a proper name

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<sup>9</sup> [Translator’s note: The German names “Abendstern” and “Morgenstern”, here translated as “Evening Star” and “Morning Star”, which are alternative names for Venus, are sometimes translated as “Hesperus” and “Phosphorus”.]

<sup>10</sup> [Translator’s note: Frege’s essay “On Concept and Object” discusses concepts and relations.]

<sup>11</sup> [Original footnote 2] In the case of an actual proper name [i.e. a proper name in the usual sense, not in the sense just defined] such as “Aristotle”, opinions may of course diverge as to its Sense. One might, for example, assume as its Sense: Plato’s pupil and teacher of Alexander the Great. He who does this will associate a different Sense with the sentence “Aristotle was born in Stagira” from someone who assumed as Sense of this name: the teacher of Alexander the Great, who was born in Stagira. As long as at least the Reference remains the same, these vacillations of sense can be tolerated, even though they are to be avoided in the edifice of knowledge of a demonstrative science, and would not be allowed to occur in a perfect language.

always has a Sense. But that does not settle whether there is also a Reference that corresponds to the Sense. The words “the celestial body furthest away from the Earth” do have a Sense; but it is very doubtful whether they also have a Reference. The expression “the least convergent series” has a Sense; but one proves that it has no Reference, because for each convergent series one can find a less convergent one that is still convergent. Thus grasping a Sense does not yet guarantee having a Reference.

When one uses words in the ordinary way, their Reference is that about which one wants to speak. But occasionally one wants to talk about the words themselves or about their Sense. This occurs, e.g., when one cites the words of another in direct speech. In this case one’s own words first Refer to the words of the other, and it is only these that have the ordinary Reference. Then we have signs of signs. In writing one encloses the word images [Wortbilder] in quotation marks in this case. Therefore a word image that is enclosed in quotation marks must not be taken as having the ordinary Reference.

If one wants to talk about the Sense of an expression “A”, one can do so simply by using the phrase “the Sense of expression ‘A’ ”. In indirect speech one speaks about the Sense of, for example, the speech of another. It is clear from this that in this form of speech the words do not have their ordinary Reference either, but Refer to what is ordinarily their Sense. In order to have a short expression, let us say: in indirect speech, the words are used *indirectly*, or have their *indirect* Reference. Thus we distinguish the ordinary Reference of a word from its indirect Reference and its ordinary Sense from its indirect Sense. So the indirect Reference of a word is its ordinary Sense. One should always keep an eye on such exceptions, if one is to understand correctly the way in which sign, Sense and Reference are associated.

[[29]]The Reference and Sense of a sign is to be distinguished from the idea [Vorstellung] associated with it. If the Reference of a sign is an object that can be perceived by the senses, then my idea of it is an inner image brought about by memories of sense impressions that I have had, and of activities, internal as well as external, that I have carried out.<sup>12</sup> This is often soaked in feelings; the clarity of its individual parts

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<sup>12</sup> [Original footnote 3] We can bring the idea under one head with intuitions [Anschauungen]. In the case of intuitions, the sense impressions and activities themselves take the place of the traces they have left behind in the soul. For our purpose, the difference is of no consequence, given that presumably besides sensations and activities, memories of them help complete the intuitive image. But one can also understand “intuition” to mean an object in so far as it is perceptible through the senses or is spatial.

varies and vacillates. The same idea is not always tied to the same Sense, not even in the same person. The idea is subjective: one person's idea is not that of another. By virtue of this alone, there are many differences among the ideas that are associated with the same Sense. A painter, a horseman, a zoologist will associate very different ideas with the name "Bucephalus". In this, the idea differs essentially from the Sense of a sign, which can be common property of many and is not a mode of an individual soul. For one can hardly deny that humanity has a common treasure of thoughts that it transmits from one generation to another.<sup>13</sup>

Thus, while there are no misgivings about speaking of *the* Sense without further qualification, one must, strictly speaking add in the case of the idea, whom it belongs to at what time. One might say: just as one person connects this idea and another that idea with the same word, similarly one may associate this Sense with it, and another that Sense. But in that case the difference does consist merely in the kind of association. This is no obstacle to both grasping the same Sense; while they cannot have the same [[30]] idea. *Si duo idem faciunt, non est idem* [= if two do the same, it is not the same]. If two people have an idea of the same, then each still has their own idea. Even though it is on occasion possible to discover differences between the ideas, or even feelings, of different people, a precise comparison is not possible because we can't have these ideas together in the same consciousness.

The Reference of a proper name is the object itself that we thereby designate; the idea we have when we do so is wholly subjective. In-between is the Sense, which is no longer subjective, like the idea, but which is not the object itself either. The following simile might be suitable for clarifying these interrelations. Someone is looking at the moon through a telescope. I compare the moon itself with the Reference, it is the object of observation which is mediated through the real image which is projected from the lens inside the telescope and through the observer's retinal image. I compare the former with the Sense, the latter with the idea or intuition. The image inside the telescope is only one-sided, it depends on the location of the observer, but it is still objective in so far as it can serve several observers. In any case, it would be possible to set things up in such a way that several people can use it simultaneously. As far as retinal images are

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<sup>13</sup> [Original footnote 4] That is why it is unhelpful to use the word "idea" to designate things that are so fundamentally different.

concerned, each person would still have their own. Even geometrical congruence would be hard to achieve because of the differences in the way the eyes have developed. Real coincidence would be out of the question. Perhaps one could elaborate the simile further by assuming that the retinal image of A can be made visible for B; or that A himself could see his own retinal image in a mirror. This might be good for showing that an idea can itself be taken as the object, but that as such it is to the observer not what it is immediately to the one who has the idea. However, to pursue this would lead too far astray.

We can now recognize three levels of difference among words, expressions and whole sentences. Either the difference concerns at most the ideas; or it concerns the Sense but not the Reference; or, finally, it concerns the Reference as well. With respect to the first level one should note that, because of the insecure connection of ideas with words, there may occur a difference for one person that another person cannot find. The difference between translation and original should not go beyond the first level. The differences that are still possible here include the colourings and illuminations with which poetry and eloquence seek to endow Sense. These colourings and illuminations are not objective, but each listener or reader must create these for himself according to the hints of the poet or orator. Without some kinship between human ideas art would of course not be possible; however, it can never be established to what extent the intentions of the poet are complied with.

In what follows there shall be no more talk of ideas and intuitions; they have only been mentioned here so that the idea a word triggers in a hearer is not confused with its Sense or its Reference.

In order to enable short and precise expression, let us stipulate the following turns of phrase:

A proper name (word, sign, string of signs, expression) expresses its Sense but Refers to, or designates, its Reference. With a sign we express its Sense and designate with it its Reference.

Perhaps an idealist or sceptic would have objected long ago: “You are speaking without further ado of the moon as an object; but how do you know that the name ‘the moon’ has a Reference at all? How do you know that anything has a Reference?” I reply

that it is not our intention to speak about our idea of the moon, and that we do not content ourselves with the Sense, when we say “the moon”, but we presuppose a Reference. It would be to miss the Sense completely, if one were to assume that in the sentence “the moon is smaller than the Earth” one is talking about an idea of the moon. If the speaker wanted this, he or she would use the phrase “my idea of the moon”. Now, we might of course be mistaken in that presupposition, and such mistakes have occurred. However, the question whether we are perhaps always mistaken in this may be left unanswered here; in order to justify speaking about the Reference of a sign, [[32]] it suffices for now to point to our intention in speaking or thinking, even if with the proviso: in case there is such a Reference.

Until now, only the Sense and Reference of those expressions have been considered that we have called proper names. We shall now enquire into the Sense and Reference of a whole assertoric sentence. Such a sentence contains a thought.<sup>14</sup> Should this thought be seen as its Sense or as its Reference? Let us suppose for a moment that the sentence has a Reference! If we now replace a word in it by another word with the same Reference but a different Sense, then this cannot have an influence on the Reference of the sentence. But we do see that the thought changes in such a case; for the thought of the sentence “the Morning Star is a body illuminated by the sun” is different from that of the sentence “the Evening Star is a body illuminated by the sun”. Someone who didn’t know that the Evening Star is the Morning Star might regard the one thought as true, the other as false. Therefore the thought cannot be the Reference of the sentence. Rather, we have to view it as the Sense. But what about the Reference then? May we ask what it is at all? Perhaps a sentence as a whole has a Sense but no Reference? In any case it is to be expected that such sentences occur, just as there are sentence parts that do have a Sense but no Reference. And sentences that contain proper names without Reference will be of this kind. The sentence “Ulysses was fast asleep when he was put to shore on Ithaca” obviously has a Sense. But because it is doubtful whether the name “Ulysses” that occurs in it has a Reference, it is therefore also doubtful whether the whole sentence has one. But it is surely certain that someone who seriously considers the sentence true or false will also admit that the name “Ulysses” has a Reference, not [[33]] just a Sense, for it is the Reference of this name of which the

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<sup>14</sup> [Original footnote 5] By thought I do not mean the subjective act of thinking but its objective content, which is capable of being the common property of many.

predicate is affirmed or denied. He who does not recognize a Reference cannot affirm or deny a predicate of it. Now, advancing to the Reference of the name would be superfluous; one could be content with the Sense, if one wanted to come to a halt at the thought. If only the Sense of the sentence, the thought, mattered, it would be unnecessary to care about the Reference of a sentence part; for the Sense of the sentence only the Sense of a part, not the Reference, is taken into consideration. The thought remains the same, whether the name “Ulysses” has a Reference or not. The fact that we take trouble over the Reference of a sentence part at all is a sign that we recognize and require a Reference also for the sentence itself. The thought loses in value as soon as we realize that one of its parts lacks a Reference. We are therefore within our rights not to rest content with the Sense of a sentence, but to enquire also after its Reference. But why do we want it to be, then, that each proper name has not only a Sense but also a Reference? Why isn’t the thought enough for us? Because, and in so far as, its truthvalue matters to us. This is not always the case. For example when listening to an epic, we are gripped—besides the pleasant sound of the language—only by the Sense of the sentences and the ideas and feelings thereby aroused. In asking after the truth we would be leaving behind the enjoyment of art and be turning to a scientific contemplation. That’s also why we do not care whether, for example, the name “Ulysses” has a Reference, as long as we take up the poem as a work of art.<sup>15</sup> It is therefore our striving for truth which drives us everywhere to advance from Sense to Reference.

We have seen that a Reference corresponding to a sentence is to be sought whenever the Reference of the constituents matters; and this is the case when, and only when, we ask after the truthvalue.

We are therefore pushed into recognizing the truth-value of a sentence [[34]] as its Reference. By the truth-value of a sentence I mean the fact that it is true or that it is false. There are no further truthvalues. For brevity’s sake, I call the one the True, and the other the False. Every assertoric sentence in which the Reference of the words matters should therefore be viewed as a proper name, and furthermore its Reference, if there is one, is either the True or the False. These two objects are recognised, even if

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<sup>15</sup> [Original footnote 6] It would be desirable to have a special expression for signs that are meant to have only a Sense. If we call such expressions images, then the actor’s words on stage would be images, even the actor would be an image.



tacitly, by anyone who judges at all, or who takes something to be true, thus by the sceptic, too. To describe the truth-values as objects may at this point seem an arbitrary idea and possibly a mere play with words, from which no profound inferences should be drawn. What I call object can be explained in more detail only in connection with concept and relation. I want to reserve this for another essay. But may that much be clear at this point: that in every judgement—be it as obvious as it may—the step from the level of thoughts to the level of References (the objective) has already happened.

One might be tempted to think of the relation of thought to the True not as that of Sense to Reference, but as that of subject to predicate. After all one can say directly: “the thought that 5 is a prime number is true”. But if one looks more in detail, one notices that no more has been said in this than in the simple sentence “5 is a prime number”. In both cases, the assertion of truth lies in the form of an assertoric sentence, and where this form does not have its usual force, e.g. in the mouth of an actor on stage, the sentence “the thought that 5 is a prime number is true” also contains just one thought, namely the same thought as the simple “5 is a prime number”. One can take from this that the relation of the thought to the truth-value must not, after all, be compared to [[35]] that of subject to predicate. For subject and predicate are (in the logical sense) parts of a thought; they stand on the same level for cognition. By compounding subject and predicate one only ever gets to a thought, never from a Sense to its truth-value. One is moving on the same level, but one does not advance from one level to the next. A truth-value cannot be a part of a thought, just as, say, the sun can’t, because it [the truth-value] is not a Sense but an object.

If our conjecture that the Reference of a sentence is its truth-value is correct, then the latter must remain unchanged if a sentence part is replaced by an expression of the same Reference but different Sense. And this is in fact the case. Leibniz states directly: “Eadem sunt, quae sibi mutuo substitui possunt, salva veritate” [= the same are those which can be mutually replaced under preservation of truth]. What else but the truth-value could be found, which belongs generally to every sentence in which the Reference of constituents matters, which remains unchanged under a substitution of the kind indicated?

If, now, the truth-value of a sentence is its Reference then on the one hand all true sentences have the same Reference, and so on the other hand all the false ones. We see

from this that in the sentence's Reference everything particular is blurred. Therefore it will never be the Reference of a sentence alone that matters to us; but neither does the mere thought provide knowledge, but only the thought together with its Reference, i.e. its truth-value. Judging can be captured as the advancement from a thought to its truth-value. Of course this is not supposed to be a definition. Judging is after all something entirely unique and beyond comparison. One could even say that judging is distinguishing parts within the truth-value. This distinction occurs by recourse to the thought. Each Sense that corresponds to a truth-value would correspond to its own manner of dissection. I did, though, use the word "part" in a special way here. For I employed the sentence's whole-part relation in the case of its Reference by calling the Reference of a word part of the Reference of the sentence, when that word is itself part [[36]] of the sentence— a manner of speaking that is of course open to criticism, because in the case of Reference the whole and a part do not determine the remaining part, and because in the case of bodies the word part is already used in a different sense. A separate expression should be created for this.

We shall now further test the hypothesis that the truth-value of a sentence is its Reference. We found that the truth-value of a sentence remains untouched if we replace one expression in it by another with the same Reference: however, we have not yet considered the case where the expression to be replaced is itself a sentence. Now, if our view is correct, then the truth-value of a sentence that contains another sentence as part should remain unchanged if we substitute for the subsentence another sentence whose truth-value is the same. Exceptions are to be expected if the whole or the subsentence were direct or indirect speech; for, as we have seen, the Reference of words is not the ordinary one in that case. Again, in direct speech, a sentence refers to a sentence and in indirect speech to a thought.

[. . .]

[[50]] Let us now return to our point of departure! If we found the cognitive value of " $a = a$ " and " $a = b$ " generally to be different, then this is explained by the fact that the Sense of the sentence, namely the thought expressed in it, is to be taken into account no less than its Reference, that is its truth-value. Now, if  $a = b$  then the Reference of " $b$ " is the same as that of " $a$ ", and therefore the truth-value of " $a = b$ " also the same as that of " $a = a$ ". Nevertheless the Sense of " $b$ " can be different from the Sense of " $a$ ", and

thus the thought expressed in " $a = b$ " also different from the one expressed in " $a = a$ ". Then the two sentences do not have the same cognitive value. If, as above, we mean by "judgement" the advancement from the thought to its truth-value, then we will also say that the judgements are different.