

Chapter 2

Frege's Theory of *Sinn* and *Bedeutung*

In the introductory chapter it was suggested that the intension/extension distinction (or some comparable distinction) is fundamental to an intensional logic. It was there also suggested that this sort of distinction is largely derived from Gottlob Frege's understanding of *Sinn* and *Bedeutung*. Here in this chapter it will be shown how Frege's own account might help in understanding the problems relating to principles (A) and (B). More particularly, it will be shown how his theory of *Sinn* and *Bedeutung*, along with his understanding of *Bedeutung* shift, might be used to explicate these problems. From the outset it should be noted that Frege did *not* provide an intensional logic. In fact, Frege's formal logical language (his *Begriffsschrift*) was given an entirely extensional interpretation. To be sure, an intensional logic *was* created that did mean to capture Frege's theory of *Sinn* and *Bedeutung*: namely, Alonzo Church's Logic of Sense and Denotation. An outline and evaluation of Church's account will be given in the following chapter. In fact, Frege's account provides the impetus for most of the later intensionalist accounts. Hence, an outline of Frege's theory paves the way for the introduction of these later theories. In this chapter Sects. 2.1 and 2.2 are meant as an exposition of Frege's position; Sect. 2.3 tests Frege's account as to whether it is adequate to solving the problems associated with principles (A) and (B); and a chapter summary is provided in Sect. 2.4.

2.1 Frege's Puzzle, and the Theory of *Sinn* and *Bedeutung*

The outline of Frege's theory of *Sinn* and *Bedeutung* was briefly sketched in his paper 'Funktion und Begriff' ('Function and Concept') (1984), but more fully developed in 'Über Sinn und Bedeutung' ('On Sense and Reference') (2001). The distinction between *Sinn* and *Bedeutung* was employed by Frege to solve a puzzle about identity. Importantly, Frege's solution to this puzzle would also offer insights into how intensionality might be dealt with. In 'Über Sinn und Bedeutung' Frege

begins by asking whether identity is a relation between objects, or rather, between the *signs* for objects. At first glance it might be thought that identity is a relation between signs. For example, consider the following identity statements:

- (1) The morning star = the morning star,
- (2) The morning star = the evening star.

Frege suggests that (1) differs in 'cognitive value' from (2). Perhaps a more perspicuous way of putting this is to say that while (1) is analytic (or rather, only trivially true), (2) is informative, in that it constitutes a genuine discovery (Frege 2001, p. 7). It might be claimed that the difference in cognitive value between (1) and (2) is explained if identity is regarded as a relation between signs for objects. For, to claim that the morning star is identical with the evening star is, on this view, to claim that the sign 'the morning star' stands for the same object as the sign 'the evening star'. But to suggest that the morning star is identical to the morning star is, on this view, to say that the signs 'the morning star' and 'the morning star' both stand for the same object. Of course, there is nothing informative about this. But presumably, it *is* often informative to learn that two different signs both stand for the same object (Taylor 1998, p. 2). Thus, the account of identity as a relation between signs may *prima facie* account for the difference in cognitive value between (1) and (2).

Frege's initial understanding of identity as a relation between signs was first espoused in his early work *Begriffsschrift (Conceptual Notation)* (1972). There he introduced a special symbol for identity of 'content' (i.e., ' $\equiv$ '). This symbol was used to show that, as in (2) above, the two signs flanking the identity relation both stood for the same object (or as Frege put it, had the same content) (Frege 1972, pp. 124–126).¹ But by the time of 'Über Sinn und Bedeutung' Frege had found reason to doubt the view that identity was a relation between signs. It is to be assumed that names are arbitrarily assigned so as to denote their respective referents. But according to Frege, if sentences of the form ' $a = b$ ' state a relation between signs, no proper knowledge of the extra-linguistic world would be acquired. A statement like 'the morning star = evening star' would only be a statement of lexical fact: not a statement about an astronomical discovery (Frege 2001, p. 7; Kenny 2000, p. 127).

If identity is not a relation between signs, then the alternative is that identity is a relation between objects, which is to say that it is a relation that each object has to itself. But if this is so, how might the problem of the difference in cognitive value between sentences like (1) and (2) be solved? For in both (1) and (2) the same object is denoted (viz., the planet Venus), and thus the same relation of identity is established between the same object and itself in both identity statements (Taylor 1998, pp. 6–7). Given this, Frege is led to the view that a difference between the

¹In fact, Frege's symbol for identity of content was intended to show how the same content might be *determined* in different ways: a view that, as will be seen, already mirrored his mature understanding of identity.

signs of an identity statement (such as 'the morning star' and 'the evening star') corresponds to a difference in the *mode of presentation* of what is denoted. This will apparently provide a proper understanding of identity, as well as explaining the difference in cognitive value between identity statements like (1) and (2).

To show this, Frege provides a geometrical example where the lines *a*, *b* and *c* connect the vertices of a triangle to the midpoints of their opposite sides. The intersection of the lines *a* and *b* will coincide with the intersection of lines *b* and *c*. Thus, there are different designations (i.e., 'point of intersection of *a* and *b*' and 'point of intersection of *b* and *c*') of the same point of intersection; which is to say that there are different presentations of that same point of intersection (Frege 2001, p. 7). On Frege's account a sign will be associated with a mode of presentation, or as he puts it, a *Sinn* (sense). A sign's *Sinn* is to be distinguished from its *Bedeutung*, which is seen as the thing that is denoted by the sign. So for example, 'point of intersection of *a* and *b*' and 'point of intersection of *b* and *c*' will have the same *Bedeutung*, though different *Sinne*. Likewise, the *Bedeutung* of 'the evening star' and 'the morning star' will be the same, while the *Sinn* of each sign will be different (Frege 2001, pp. 7–8). Importantly, it is a difference in *Sinn*, or mode of presentation, which would explain why identity statements of the form '*a* = *b*' are informative, while those of the form '*a* = *a*' are not. That is, statements like 'the morning = the evening star' are informative for the reason that the *Sinn* of 'the morning star' differs from the *Sinn* of 'the evening star'. However, there is no difference of *Sinn* to be detected in 'the morning star = morning star'. Therefore, no knowledge is gained by way of this latter identity statement.

It was Frege's mature understanding of identity which led to the development of his theory of *Sinn* and *Bedeutung*. On this account a distinction is made between three items: signs, their *Sinne* and their *Bedeutungen*. A sign is understood to *express* its *Sinn* and *denote* its *Bedeutung* (Frege 2001, p. 9). Frege thinks that signs (or names) are to be used in a broad way, such that any designation, even complex designations such as 'point of intersection of *a* and *b*', can be regarded as proper names (Kenny 2000, p. 127; Frege 2001, p. 8). As mentioned above, the *Bedeutung* of a sign is the object, or objects, which the sign denotes. Understanding the precise nature of *Sinn* is slightly more complicated. As has been noted, Frege says that the *Sinn* is a way of presenting or determining a *Bedeutung*. This might suggest that a *Sinn* provides a *criterion of identification* for the object denoted by the sign (i.e., the *Bedeutung*). On this understanding the same *Bedeutung* may be identified in accordance with different criteria; for example Venus may be identified by way of the *Sinn* of either 'the morning star' or 'the evening star' (Linsky 1983, p. 10). *Sinne* might also be seen as analogous to routes that lead to a *Bedeutung*. Thus, two *Sinne* which both determine the same *Bedeutung* might be like two different routes to the same destination (Taylor 1998, p. 7).

Thus far, Frege's *Sinn/Bedeutung* distinction has only been understood in relation to names that denote objects. Yet Frege also applied the distinction to other kinds of expressions; namely, whole declarative sentences, and predicates (what Frege called 'incomplete' or 'unsaturated' expressions). Frege believed that whole sentences contain a *Gedanke* (thought), and that a *Gedanke* is to be identified with

the *Sinn* of a sentence, while its *Bedeutung* will be a truth-value. Frege's thinking here relies on what is often termed his *compositionality thesis*, a thesis that in some respects is reminiscent of the truth-functionality thesis which is central to extensional logic. This thesis has it that the *Bedeutung* of an entire sentence is a function of the *Bedeutungen* of its components. But also, that the *Sinn* of an entire sentence is likewise a function of the *Sinne* of its components. This means that components of whole sentences are everywhere intersubstitutable *salva veritate* with other components which have either the same *Sinn*, or the same *Bedeutung*. An example of this may be provided by way of the following sentence:

(3) The morning star is a body illuminated by the sun.

Here, according to the compositionality thesis it would be expected that the component 'the morning star' will be everywhere intersubstitutable *salva veritate* with 'the evening star', given that both of these terms have the same *Bedeutung*. Thus, from (3) the following sentence is obtained:

(4) The evening star is a body illuminated by the sun.

But Frege would also point out that the *Gedanke* (thought) expressed by (3) is different to the *Gedanke* expressed by (4) (Frege 2001, p. 10). But how is this? As 'the morning star' and 'the evening star' have the same *Bedeutung*, the exchanging of these components won't alter the *Bedeutung* of either (3) or (4), and as such, does not explain the purported difference in *Gedanke* between (3) and (4). But if it is assumed that 'the morning star' and 'the evening star' each have a different *Sinn*, then according to Frege's compositionality thesis, when one of these components is exchanged for the other the *Sinn* of the entire sentence will be altered.²

Frege then identifies the *Sinn* of a sentence with its *Gedanke* (Frege 2001, p. 10). He also thinks (perhaps controversially) that the *Bedeutung* of a whole sentence will be a truth-value, either the True or the False. Just as the *Bedeutung* of a name is an object, Frege believed that either the True or the False would be objects which sentences take as their *Bedeutung*. And also, just as the *Sinn* of the name of an object determines how that object is presented, so too does the *Gedanke* of a sentence provide a mode of presentation of a sentence's truth-value. For example, the sentences ' $2 + 5 = 7$ ' and 'The sky is blue' both have the True as their *Bedeutung*; yet each sentence expresses a very different *Gedanke*, and therefore presents the same truth-value differently (Klement 2002, p. 11; Frege 2001, p. 10).

In 'Über Sinn und Bedeutung' Frege only applies his *Sinn/Bedeutung* distinction to names and sentences. Though in 'Comments on *Sinn* and *Bedeutung*' (1997a) he also applies it to what he calls 'incomplete' or 'unsaturated' expressions;

²The compositionality thesis appears to commit Frege to a claim about *Sinne* which is stronger than the comparable claim about *Bedeutungen*. Specifically, attempting to exchange component expressions that have different *Sinne* will apparently *always* change the *Sinn* of the whole sentence. But this is *not always* true in the case of *Bedeutungen*. For instance, in the sentence 'Smith is tall', 'Smith' might be exchanged for 'Jones', provided that Jones is tall, without altering the *Bedeutung* of the whole sentence. Yet 'Smith' and 'Jones' may each have a distinct *Bedeutung*.

expressions which would typically be thought of as predicates. Frege thinks of these predicative expressions as incomplete in that they have a 'space' which, when filled with an *argument*, yield complete expressions as a *value*. Frege generally represents the holding open of argument spaces with lower case Greek letters such as 'ξ', or 'ζ'. For example, an incomplete expression such as 'ξ is red' has a space which, when filled by an argument (i.e., a name of an object) will yield a complete expression as value (McColloch 1989, pp. 8–9; Frege 1997a, pp. 173–174). Unlike the *Bedeutungen* of complete expressions like names and sentences, Frege thinks that the *Bedeutungen* of incomplete expressions are not objects, but *functions*. According to Frege, objects are 'saturated' entities that 'stand on their own'. On the other hand, functions are 'unsaturated', in need of objects as arguments in order to yield complete or saturated expressions as a value, either the True or the False (Frege 1997a, p. 174). For example, 'ξ is a planet' has as its *Bedeutung* a function that yields as value the True when it is saturated by an object such as Venus, but yields the False when it is saturated by an object such as the number three (Klement 2002, p. 12).

Frege also believed that incomplete expressions have *Sinne*. While it is a matter of contention, Frege scholars have often referred to these *Sinne* as 'sense-functions'. Although Frege's account of this is not entirely perspicuous, he asserts that the *Sinne* of incomplete expressions are, like functions, also unsaturated. The *Sinn* of an unsaturated expression such as 'ξ is a planet' takes the *Sinn* of a name, such as 'Venus', and yields the *Sinn* of the complete sentence 'Venus is a planet'; and of course, according to Frege the *Sinn* of an entire sentence is a *Gedanke*. Incomplete expressions such 'ξ has a heart', and 'ξ has kidneys' will have different *Sinne*, and thus will express different *Gedanken* when they are saturated by the *Sinne* of the names of objects, despite the fact that both of these expressions will be true of just the same objects (Klement 2002, p. 66).

2.2 Oblique Contexts

The mature theory of *Sinn* and *Bedeutung* that Frege developed in response to the puzzle about identity was also employed to explain what he termed *oblique* contexts. Although Frege did not exhaustively explore the topic, it will be seen that oblique contexts have the characteristics of the intensional contexts that were introduced in the first chapter. Frege's theory of *Sinn* and *Bedeutung* might therefore provide one means of explicating intensional contexts.

In 'Über Sinn und Bedeutung' Frege distinguishes between what he calls direct and indirect discourse. An example of a direct discourse sentence would be something like:

(5) The earth moves.

On Frege's theory (5) has a truth-value as its *Bedeutung* (presumably, the True), and expresses a *Gedanke* (presumably, the thought that the earth moves). Frege's compositionality principle (as explained above) allows that 'the earth' may be substituted for another expression with the same *Bedeutung*, say, an expression such as 'the third planet from the sun'. And of course, this should not affect the *Bedeutung* (truth-value) of the entire sentence. Thus, in what follows, (7) is obtained given (5) above and the true identity of (6):

(6) The earth = the third planet from the sun,

(7) The third planet from the sun moves.

And (7) has the same truth-value (the True) as (5). Yet there are instances where this inference appears to fail. These are what Frege calls oblique contexts. Such contexts will be instances of indirect discourse, which is to say that they will involve a 'that clause' (Frege 2001, p. 11). For example:

(8) Galileo *believed that* the earth moves.

It will be noticed that in these contexts the *Bedeutung* (truth-value) will *not* be preserved when, from (8) and (6), the following is inferred:

(9) Galileo believed that the third planet from the sun moves.

The attitude report (9) does not follow from (8) and (6). Therefore, while (8) and (6) apparently have the same *Bedeutung* (the True), this is not preserved in (9), something which is apparently at odds with Frege's compositionality principle (Taylor 1998, p. 23).

But Frege can show that the failure of his compositionality thesis is illusory. This involves recognising that in direct discourse contexts 'the earth' and 'the third planet from the sun' have the same *Bedeutung*; but when these expressions occur in indirect or oblique contexts they do *not* have the same *Bedeutung*. The reason for this, according to Frege, is that in oblique contexts the expression 'the earth' undergoes a *Bedeutung shift*, whereby the *Bedeutung* becomes that expression's customary *Sinn*. Thus in oblique contexts an expression denotes its customary *Sinn*. In such situations the customary *Sinn* is regarded as an indirect *Bedeutung* (Frege 2001, p. 8). Frege also claims, without elaboration, that there are *indirect Sinne*. Despite a lack of detail, it can nonetheless be seen that indirect *Sinne* are required given Frege's view that *Bedeutungen* are determined by *Sinne*. For, where the indirect *Bedeutung* of an expression is its customary *Sinn*, it must be presumed that there is also an indirect *Sinn* (different from the relevant customary *Sinn*) which can be called upon to determine the relevant indirect *Bedeutung* (Linsky 1983, p. 45).

Now, given his theory of *Bedeutung shift*, Frege is able to suggest that when 'the earth' occurs in an oblique context like (8), it will *not* share its *Bedeutung* with an expression like 'the third planet from the sun', as it would in a direct speech context like (6). In a direct speech context both expressions will denote the same customary *Bedeutung*. But in an oblique context like (8) 'the earth' will denote its indirect *Bedeutung*, which Frege assumes to be distinct from the indirect *Bedeutung* of 'the

third planet from the sun'. Thus 'the earth' will not in this context have the same *Bedeutung* as 'the third planet from the sun'. In this situation the identity statement (6) (which is a direct speech context) will not warrant the substitution *salva veritate* of 'the third planet from the sun' for 'the earth' in (8) (which is an oblique context). This means that one should not have expected that (8) and (9) would both share the same *Bedeutung*. But importantly, it is also shown that the invalid inference from (6) and (8) to (9) does not constitute a failure of Frege's compositionality thesis. For Frege's thesis is applicable only in cases where the terms being exchanged denote the same *Bedeutung*. But as has been shown here, the terms in question do *not* (in the relevant contexts) denote the same *Bedeutung*. Thus on Frege's view the compositionality principle does not fail in oblique contexts, but is rather, in these contexts, just misapplied.

2.3 The Adequacy of the Fregean Account

Having presented both Frege's theory of *Sinn* and *Bedeutung*, and his theory of *Bedeutung* shift, an evaluation of his account will be attempted in this section. Frege's account is here evaluated in terms of whether or not it is capable of explicating the full range of contexts that have been identified as intensional. It will be recalled that such contexts are characterised by their apparent violation of either principle (A) (i.e., the substitutivity of co-extensional expressions *salva veritate*) or principle (B) (i.e., existential generalisation).

Frege's account of oblique contexts (as explained in Sect. 2.2) may be offered as a means of dealing with the sort of propositional attitude contexts which were shown to apparently fail of principle (A) in the first chapter (i.e., contexts in which an agent *believes that* such and such, *thinks that* such and such, etc.). Yet, it must be noted here that Frege did not likewise apply his theory to alethic modal, temporal and deontic contexts. In his own work, Frege restricted the use of his theory to the propositional attitudes. But despite this, it may be claimed that the Fregean account can nonetheless be viewed as a means of understanding all intensional contexts: not just those involving the propositional attitudes.

In Sect. 1.2 above an alethic modal example was given which showed the apparent failure of principle (A). That is, from the true sentences 'It is necessary that $9 > 7$ ', and ' $9 =$ the number of planets', it doesn't follow that 'It is necessary that the number of planets is > 7 '. This would, *prima facie*, seem to contravene principle (A). But, assuming that the alethic modal context 'It is necessary that $9 > 7$ ' is deemed an oblique context, the *Bedeutung* of '9' will in this context undergo a *Bedeutung* shift. This is to say that the *Bedeutung* of '9' will in this context be the customary *Sinn* of '9'. However, in the direct speech context ' $9 =$ the number of planets', the *Bedeutung* of '9' will be this term's customary *Bedeutung*. Now given this, the identity statement ' $9 =$ the number of planets' will not warrant the substitution *salva veritate* of 'the number of planets' for '9' in the oblique context 'It is necessary that $9 > 7$ '. In such cases it should not be expected that one

of these term could be exchanged for the other *salva veritate*. So, the invalid inference in question does not show that principle (A) has here been violated.

The same might also be said of the other modal contexts where principle (A) seems to fail. The temporal example of Sect. 1.2 showed that, given the sentence 'It has as at some time been the case that it is 1980', the component 'It is 1980' is not intersubstitutable *salva veritate* with the component 'It is 2056', despite the fact that both components have the same *Bedeutung* (i.e., the False). Yet, if temporal contexts are regarded as oblique contexts, then a component sentence like 'It is 1980' will denote its indirect *Bedeutung* upon occurring in such a context. However, in the direct speech context 'It is 1980 $\equiv$ it is 2056', the sentence 'It is 1980' will denote its customary *Bedeutung*. Given this, 'It is 1980 $\equiv$ it is 2056' will not warrant the substitution *salva veritate* of 'It is 2056' for 'it is 1980' in the context of 'It has at some time been the case that it is 1980'. But principle (A) does not here fail. A comparable explanation can be given with respect to the deontic example shown in Sect. 1.2. Here, given the sentence 'It ought to be the case that no one is impoverished', the component sentence 'No one is impoverished' is not intersubstitutable *salva veritate* with 'Everyone is impoverished', despite the fact that both sentences have the same *Bedeutung* (i.e., the False). If deontic contexts are deemed to be oblique, then a component sentence like 'No one is impoverished' will undergo *Bedeutung* shift upon occurring in such a context. But in the direct speech context 'No one is impoverished $\equiv$ everyone is impoverished', the sentence 'No one is impoverished' will denote its customary *Bedeutung*. Given this, 'No one is impoverished $\equiv$ everyone is impoverished' won't warrant the substitution *salva veritate* of 'Everyone is impoverished' for 'No one is impoverished' in the context of 'It ought to be the case that no one is impoverished'. Once again, there is no genuine failure of principle (A).

While the foregoing shows that there is no genuine failure of principle (A) in oblique contexts, it still remains the case that arguments that exhibit obliquity also exhibit an invalid logical form.

One way of showing this is to note the difference between Leibniz's principle, and an invalid (oblique) counterpart. In what follows, let '*Int*' represent an unspecified obliquity inducing operator/predicate. It may be a monadic operation on *Gedanken*, as in 'It is necessary that...'; or it may be a two-place predicate relating agents and *Gedanken*, as in 'Smith believes that...'; or possibly also a two-place predicate which relates agents to the *Sinne* of names, as in 'Pizarro searched for...'. In the following it is taken as a monadic operation on *Gedanken*. The sign '*' indicates that the relevant term denotes its customary *Sinn*:

(10) *Fa*

$a = b$

$\therefore Fb,$

(11) *Int* [*Fa**]

$a = b$

$\therefore \text{Int } [Fb*].$

It is clear that the valid (10) abides by the compositionality thesis. It serves as a valid inference in direct speech situations unaffected by obliquity. On the other hand, the invalid (11) apparently does not abide by Frege's thesis. But assuming that the indirect *Bedeutung* denoted by ' a^* ' is not identical to the indirect *Bedeutung* denoted by ' b^* ', there is no reason to expect the conclusion to follow from the premises. This is to say that in contexts such as (11), ' a ' and ' b ' should not, on pain of equivocation, be seen as being intersubstitutable *salva veritate* in the first place. Thus while (11) is nonetheless invalid, the compositionality thesis is not compromised. Yet it might be recalled that Frege's thesis also applies to *Sinn*, such that two distinct expressions having the same *Sinn* will be everywhere intersubstitutable *salva veritate*. Thus as the indirect *Bedeutung* of ' a ' is this expression's customary *Sinn*, anything identical to the customary *Sinn* of ' a ' will be everywhere intersubstitutable *salva veritate* with this expression. This can be shown by way of the following:

- (12) *Int* [Fa^*]
 $a^* = b^*$
 $\therefore$ *Int* [Fb^*].

Here, given that in the first premiss ' a^* ' will denote a customary *Sinn*, and given that the identity premiss shows that the customary *Sinn* denoted by ' a^* ' is identical to that denoted by ' b^* ', it follows that these two expressions are everywhere intersubstitutable *salva veritate*. Thus, unlike (11), (12) is valid. It was claimed in Sect. 1.3 above that an intensional logic should be able to provide (what was there termed) a *valid intensional analogue* of principle (A), legitimately applicable in intensional (i.e., oblique) contexts. The inference (12) shows how an instance of such a principle should look on the Fregean account. (Note that (12) could easily be adapted to deal not simply with singular terms, but also with predicates and whole sentences.)

It has been stated that, apart from apparent failures of substitutivity, there is also the problem of the apparent failure of existential generalisation (i.e., principle (B)) in contexts containing names lacking an extension. For instance, in Sect. 1.2 above it was shown that from 'Pizarro searched for El Dorado', it apparently can't be inferred by means of existential generalisation that ' $(\exists x)$ (Pizarro searched for x)'.

It can be shown that Frege's theory of *Bedeutung* shift might be a candidate for explaining this lately-mentioned problem. This is achieved by appeal to the Fregean theory of *Bedeutung* shift. In particular, the Fregean will treat 'Pizarro searched for El Dorado' as an oblique context in which the name 'El Dorado' denotes its indirect *Bedeutung*. While names without an extension like 'El Dorado' won't have a customary *Bedeutung*, they will, according to Frege, nonetheless have an indirect *Bedeutung* (Frege 2001, p. 10). However, there is no customary *Bedeutung* determined by the indirect *Bedeutung* of 'El Dorado'. On Frege's theory, 'Pizarro searched for El Dorado' will be analysed in a manner that relates Pizarro to the indirect *Bedeutung* of 'El Dorado'. But from this it can't be inferred that there is

some extensional object (i.e., a customary *Bedeutung*) which Pizarro searched for. The Fregean will take this to explain the invalidity of the inference in question.

For an extensionalist, the existential quantifier will be seen as binding variables that have as values extensional objects (i.e., Frege's customary *Bedeutungen*). However, the Fregean will assume that the existential quantifier ranges over *Sinne* as well. Now, it was claimed in Sect. 1.3 above that an intensional logic should be able to provide a *valid intensional analogue* of principle (B), legitimately applicable in oblique (intensional) contexts containing names which lack an extension. It would seem that such a principle can be provided on the Fregean account. For instance, supposing that the existential quantifier ranges over Fregean *Sinne*, and letting 'Pizarro searched for El Dorado' be analysed in a manner that relates Pizarro to the indirect *Bedeutung* of 'El Dorado', it can validly be inferred that there is something which Pizarro is related to; specifically, the indirect *Bedeutung* of the name 'El Dorado'.

As suggested, a valid intensional analogue of principle (B) is provided for on the Fregean theory by allowing an existential generalisation on the indirect *Bedeutungen* of names.³ Now, compare the following, where '*Int_s*' is here seen as a predicate relating an agent *S* to the indirect *Bedeutung* of a name, and the sign '*' indicates again that the relevant term denotes its customary *Sinn*:

(13) *Int_s* *a**

∴ (∃*x**)(∃*x*) (*Int_s* *x** & Determ *x*, *x**),

(14) *Int_s* *a**

∴ (∃*x**) (*Int_s* *x**).

The inference (13) is invalid. Here the relation 'Determ *x*, *x**' is meant to express the Fregean idea that the customary *Bedeutung* of the relevant term (should there be one) will be determined by the indirect *Bedeutung* of that term. The existential quantifier ranges over both *Sinne* and *Bedeutungen*, as indicated by '(∃*x**) (∃*x*)'. The inference (13) has an invalid form, for the truth of the premiss won't guarantee that the relevant agent can be related to some indirect *Bedeutung* which also determines some customary *Bedeutung*. But the inference (14) should be valid, given that the indirect *Bedeutung* of the name in question is not shown to determine some customary *Bedeutung*. The argument (14) shows how the intensional analogue of principle (B) might successfully be applied in intensional (i.e., oblique) contexts like 'Pizarro searched for El Dorado'.

The foregoing of this section shows how Fregean *Sinne* might be used to account for the problems associated with principles (A) and (B). However, one major difficulty for Frege was in providing an identity criterion for *Sinne*. Nowhere in the work published during his lifetime did he set down such a criterion, and it is only in posthumously published writings that he attempted to address the issue. The two

³This principle could be extended to allow for existential generalisations on the indirect *bedeutungen* of predicates and sentences. Typically, this would be achieved by means of a second-order logic.

criteria which he suggested will be examined shortly. But first, why is a criterion of identity for *Sinne* needed in the first place?

One reason typically cited is Quine's dictum that there can be 'no entity without identity'. In the absence of any means of discerning one *Sinn* from another, one could not, according to Quine, posit any such entity (Quine 1969, pp. 19–24). Another reason is that a criterion of identity for *Sinne* is needed in connection with the valid intensional analogue of principle (A) which Frege's theory yields. It will be recalled that on his account terms having the same *Sinn* are purported to be interchangeable *salva veritate* in intensional contexts. But now, when *do* (distinct) terms have the same *Sinn*? What concrete examples of sameness of *Sinn* can be provided? These questions are relevant, for in the absence of a criterion of identity for *Sinne* it is difficult to see how one might go about assessing the viability of the Fregean intensional analogue of principle (A). Of course, there may be wide spread intuitive agreement as to the identity of the *Sinne* of the expressions employed in the examples usually supplied in discussions about the apparent failure of principle (A). That is, it is typically accepted without argument that expressions such as 'the morning star' and 'the evening star', while sharing the same customary *Bedeutung*, differ in terms of their customary *Sinne*. The same can also be said of expressions like '9' and 'the number of planets'. The intuitions of most people might concur regarding 'the evening star' and 'the morning star', or '9' and 'the number of planets', in that few might regard these expressions as having the same *Sinn*.

Yet, not all cases will involve expressions where there is wide spread agreement as to the identity of their *Sinne*. For instance, do the expressions '9' and 'IX' have the same *Sinn*? It is certainly less clear that the intuitions of most concur regarding these expressions. If these terms do have the same *Sinn*, then, according to the principle underlying (12) above, they will be seen as intersubstitutable *salva veritate* in any intensional context. Supposing this, an agent will be taken as (say) believing that $9 > 7$ iff he believes that $IX > 7$ (where, of course, ' $9 > 7$ ' and ' $IX > 7$ ' will here share the same indirect *Bedeutung*). It is doubtful that there would be wide spread agreement as to whether or not the interchange of '9' and 'IX' in this case is justifiable.

Now, as mentioned above, Frege provided two possible criteria in posthumously published writings. In a letter of 1906 written to Husserl, Frege suggests that two sentences *A* and *B* have the same *Sinn* (i.e., express the same *Gedanke*) iff:

...both the assumption that the content of *A* is false and that of *B* true and the assumption that the content of *A* is true and that of *B* false lead to logical contradiction, and...this can be established without knowing whether the content of *A* or *B* is true or false, and without requiring other than purely logical laws for this purpose... (Frege 1980, p. 70).

This criterion bases sameness of *Sinn* on logical equivalence: that is, that *A* and *B* have the same *Sinn* iff $A \equiv B$ can be established by means of logical laws alone. Given Frege's own logicism, where arithmetic was purportedly definable in terms of logical notions, a bi-conditional such as ' $(2^2 = 4) \equiv (2 + 2 = 4)$ ' would be provable by logical means alone (van Heijenoort 1977, p. 105).

Of course, the problem with this criterion is that *all* arithmetical (and logical) truths will have the same *Sinn*, as they can all be shown to be logically equivalent. But given a propositional attitude context, where (say) Smith believes that $2 + 2 = 4$, it apparently doesn't follow that Smith believes that $2^2 = 4$. Here, if the logical equivalence of ' $2 + 2 = 4$ ' and ' $2^2 = 4$ ' determines that they have the same *Sinn*, then the Fregean strategy of *Bedeutung* shift cannot be used to explain how Smith can believe one of these expressions but not the other.⁴

However, Frege does make a certain qualification that is meant to address this difficulty. He stipulates that his criterion is to be exempt from dealing with cases in which one of the two sentences *A* and *B* '...contains a logically self-evident component' (Frege 1980, p. 70). This is hardly perspicuous. But it does seem that by excluding 'logically self-evident' sentences Frege means to prevent his criterion from being applied to logically equivalent expressions whose negations would alone result in a logical contradiction (Beaney 1996, p. 299). Now presumably, even if all logically self-evident expressions are excluded from Frege's criterion, it will still be applicable to *contingent* sentences (i.e., sentences whose negations *do not* result in a logical contradiction). However, this understanding of the criterion still creates problems. For instance, if *A* is a contingent sentence, on Frege's criterion it will express the same *Sinn* as other contingent sentences, such as $\sim \sim A$, or *A* & *A*. For even given the assumed contingency of these sentences, the rules of logic alone can show that they are logically equivalent with *A*. But yet, it is certainly not beyond the realm of possibility that Smith might believe $\sim \sim A$ without believing, say, *A* (especially if Smith is an intuitionist). And once again, if *A* and $\sim \sim A$ are deemed to have the same *Sinn*, *Bedeutung* shift will not explain how it is that Smith can believe one of these sentences without believing the other. Thus, Frege's criterion of identity of *Sinne*, conceived of in terms of logical equivalence, cannot discriminate *Sinne* finely enough to properly deal with propositional attitude contexts.

But Frege also provides a second criterion in another posthumously published work. In 'A Brief Survey of My Logical Doctrines' (also of 1906, though in fact written several months before his letter to Husserl), Frege suggests that two sentences *A* and *B* have the same *Sinn* (i.e., express the same *Gedanke*) iff:

...anyone who recognises the content of *A* as true must straightaway [*ohnweiteres*] also recognise that of *B* as true, and conversely, that anyone who accepts the content of *B* must immediately [*unmittelbar*] accept that of *A* (*equipollence*) (Frege 1997b, p. 299).

While Frege's first criterion produced a semantic rendering of *Sinn* identity, his second criterion provides an epistemic rendering of *Sinn* identity. It says that *A* and *B* have the same *Sinn* iff they are both immediately, or perhaps simultaneously,

⁴In fact, the criterion as it stands will conflict with what Frege has to say elsewhere with regard to the *Sinne* of sentences such as ' $2 + 2 = 4$ ' and ' $2^2 = 4$ '. For instance, in *Grundgesetze der Arithmetik* (*The Basic Laws of Arithmetic*) (1964), where Frege gave his mature exposition of his logic proper, he gives ' $2 + 2 = 4$ ' and ' $2^2 = 4$ ' as examples of two expressions having the same *Bedeutung*, but *differing* with regard to the *Gedanke* that each expresses (Frege 1964, p. 35).

recognised as true. But as with the first criterion Frege makes a certain qualification. He states that there be ‘...nothing in the content of the two equipollent sentences *A* and *B* that would have to be immediately accepted as true by anyone who had grasped it properly’ (Frege 1997b, p. 300). This qualification is also hardly perspicuous. But what it perhaps addresses are cases involving self-evidently true sentences, where a self-evidently true sentence is such that its content cannot be grasped without it immediately being understood as true (Beaney 1996, p. 230). This qualification is meant to cover instances where two (or more) sentences can each immediately be grasped as true, yet should not *ipso facto* be seen as having the same *Sinn*. Frege provided no examples of sentences that are to be exempt from his criterion. However, a pair such as $A \vee \sim A$ and $\sim(A \ \& \ \sim A)$ are probably self-evident (at least to those who work only in classical logic), so an exemption might apply to them.

But it is still difficult to find concrete examples of sentences which *are* to be immediately recognised as true. Contingent sentences of the form *A* and $\sim \sim A$ won’t (presumably) be self-evidently true. But, if either one of these sentences is recognised as true, must one immediately recognise the other as true? Arguably, it is not the case that one must (especially if, again, one is an intuitionist). Of course, the Fregean may simply take this as evidence that on the second criterion *A* and $\sim \sim A$ *don’t* express the same *Sinn*. But opinions on this might vary. What is apparently required is some kind of standard by virtue of which two sentences may *justifiably* be regarded as immediately recognised as true. Yet, in stating his second criterion Frege didn’t provide any indication of just how one might go about providing the sort of justification which appears to be required. Certainly, it would seem to be Frege’s view that determinations of *Sinn* identity were not to be merely subjective. That is, it was apparently not his view that such determinations were down to individuals simply deciding for themselves whether or not two statements were immediately recognisable as true. For Frege claimed that *Sinne* are purely *objective* entities. In ‘Über Sinn und Bedeutung’ he contrasts the objective nature of a *Sinn* with the subjective nature of an idea, where the latter is particular to every individual. According to Frege, a *Sinn* is ‘...the common property of many, and therefore is not a part or a mode of the individual mind’ (Frege 2001, p. 8). Frege makes much the same comment in ‘A Brief Survey of my Logical Doctrines’, shortly after he espouses the criterion of immediate recognition. There he says of thoughts (i.e., *Gedanken*) that:

[they] are not psychological entities and do not consist of ideas in the psychological sense. The thought in Pythagoras’ theorem is the same for all men; it confronts everyone in the same way as something objective, whereas each man has his own ideas, sensations, and feelings, which belong only to him. We grasp thoughts but we do not create them (Frege 1997b, p. 300).

Given this, there is no doubt as to Frege’s commitment to the claim that *Sinne* are objective in nature. So, whether or not two sentences are to be immediately recognised as true can’t on Frege’s view be simply a subjective matter. However, it is still not very clear just how one might go about justifiably determining (i.e., in a

non-subjective manner) whether or not two sentences *are* to be immediately recognised as true. Other than trivial cases (i.e., cases where A and A may both immediately be recognised as true) no uncontroversial examples of sentences being both immediately recognised as true appear to be available. So, it is still hard to see what procedure could be employed for justifiably determining whether or not (say) the sentences A and $\sim \sim A$ have the same *Sinn*. The fact that this issue cannot be properly settled makes it difficult to see how Frege's second identity criterion for *Sinne* could be a viable option.

2.4 Chapter Summary

In this chapter it has been shown how Frege's theory of *Sinn* and *Bedeutung*, along with his theory of *Bedeutung* shift, might be employed to solve the problems associated with principles (A) and (B). Frege's theory, as far as it goes, seems to account for these problems. However, an important challenge facing Frege's account has to do with the lack of appropriate identity conditions for *Sinne*. This makes it difficult to assess the intensional analogue of principle (A) available on Frege's account. It has been argued here that the two criteria which Frege suggests are found wanting. His criterion employing logical equivalence is not strict enough to plausibly account for propositional attitude contexts. And his criterion employing immediate recognition gives no clear picture of just which sentences will have the same *Sinn*.

In the following chapter it will be shown that Alonzo Church provided a rigorous formalisation of Frege's theory. In so doing, Church provided a pretty thorough account of identity conditions for *Sinne*: an account that was more thorough than Frege's. Attempts shall be made in the following chapter to determine whether Church's approach to this problem was more successful than Frege's.

Related Readings

Seminal investigations into Frege's work, especially his contribution to the philosophies of language and logic, are found in Dummett's (1973) and (1981). Volume 4 of Sluga's (1993) provides many articles dedicated to Frege's theory of *Sinn* and *Bedeutung*. Much of the criticism of Frege's theory has focused on his claim that proper names have *Sinne*. Kripke's (1980) and Salmon's (1986) provide two of the more historically significant accounts in which Frege's theory of names is criticised. Historically significant accounts in which Frege's theory of names is defended (and/or developed) are Searle (1967), Kaplan (1971) and Evans (1982).

References

Beaney, M. (1996). *Frege: Making sense*. London: Duckworth.

- Frege, G. (1964). In M. Furth (Ed.) *Basic laws of arithmetic* (M. Furth, Trans.). Los Angeles: University of California Press.
- Frege, G. (1972). In T. W. Bynum (Ed.) *Conceptual notation and related articles*. Oxford: Clarendon Press.
- Frege, G. (1980). *Philosophical and mathematical correspondence*. Chicago: University Press.
- Frege, G. (1984). Function and concept. In B. McGuinness (Ed.), *Collected papers on mathematics, logic and philosophy* (pp. 137–156). Oxford: Blackwell.
- Frege, G. (1997a). Comments on *Sinn* and *Bedeutung*. In M. Beaney (Ed.), *The Frege reader* (pp. 172–180). Oxford: Blackwell.
- Frege, G. (1997b). A brief survey of my logical doctrines. In M. Beaney (Ed.), *The Frege reader* (pp. 299–300). Oxford: Blackwell.
- Frege, G. (2001). On sense and reference. In A. P. Martinich & D. Sosa (Eds.), *Analytic philosophy: An anthology* (pp. 7–18). Oxford: Blackwell.
- Dummett, M. (1973). *Frege: Philosophy of language*. London: Duckworth.
- Dummett, M. (1981). *The interpretation of Frege's philosophy*. London: Duckworth.
- Evans, G. (1982). *The varieties of reference*. Oxford: Clarendon Press.
- Kaplan, D. (1971). Quantifying in. In L. Linsky (Ed.), *Reference and modality* (pp. 112–144). London: Oxford University Press.
- Kenny, A. (2000). *Frege*. London: Blackwell.
- Klement, K. C. (2002). *Frege and the logic of sense and reference*. New York: Routledge.
- Kripke, S. (1980). *Naming and necessity*. Cambridge, MA: Harvard University Press.
- Linsky, L. (1983). *Oblique contexts*. Chicago: The University of Chicago Press.
- McCulloch, G. (1989). *The game of the name: Introducing logic, language and mind*. Oxford: Clarendon Press.
- Quine, W. V. O. (1969). *Ontological relativity and other essays*. New York: Columbia University Press.
- Salmon, N. (1986). *Frege's puzzle*. Cambridge, MA: The MIT Press.
- Searle, J. R. (1967). Proper names. In P. F. Strawson (Ed.), *Philosophical logic* (pp. 89–96). London: Oxford University Press.
- Sluga, H. (ed.) (1993). *The philosophy of Frege*. New York: Garland (Four volumes).
- Taylor, K. (1998). *Truth and meaning: An introduction to the philosophy of language*. London: Blackwell.
- van Heijenoort, J. (1977). Frege on sense and identity. *Journal of Philosophical Logic*, 6(1), 103–3108.

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