

Lecture Notes on M.A. CC 2.4

Why does language matter to philosophy?

- If philosophy is a matter of conceptual analysis, then definition of concept becomes important. Concepts are expressed in language and so definition of concept amounts to clarifying use of words in various aspects. Plato's analysis of concepts like knowledge, virtue etc as such examples.
- Language is important to philosophy, because we are not even sure whether philosophical questions are genuine questions or not. In order to ascertain the real nature of philosophical questions, one needs to decipher the structure of the question and this is where analysis of the linguistic structure of the question itself becomes important.
- Linguistics is different from philosophy of language. Linguistics is an empirical study of the structure of different languages. Philosophy of language is a study of language in order to see how an analysis of language throws light on the philosophical questions. Philosophy of language is a method of doing philosophy, which linguistics is not.
- British empiricist philosophers talk about the importance of language analysis in philosophy. Locke talks about ideas being the meaning of a word. Berkeley talks about the importance of clarifying the use of words before constructing a philosophical theory. Berkeley's dictum 'esse est percipi' is based on his analysis of the use of the term 'existence'. Berkeley's rejection of Abstract General ideas is also dependent on his analysis of use of the relevant terms. Hobbes explains meaning in terms of idea.

Theories of Reference

- Frege accepts sense over and above reference. Frege's arguments for sense:
1. The argument from bearer-less names, 2. The argument from substitution in belief context and 3. The argument from informativeness.
- Russell argues against Frege's theory of sense. Russell's argument against Frege:
1. A proper analysis of a sentence containing a definite description that does not have any reference shows that the sentence is false and not neither true nor false as Frege holds. 2. Any attempt to talk about sense independent of reference would fail. In this sense, a theory of sense

independent of a theory of reference is impossible. And so introducing sense over and above reference is futile.

- Strawson argues against Russell. Strawson distinguishes 1. Sentence, 2. Use of a sentence and 3. Occasion of a sentence. The same sentence could be used to talk about different person and depending on the occasion of the utterance of the sentence the utterer could be said to be talking about different persons. Strawson distinguishes meaning from referring. Meaning depends on the convention of the language. Referring depends on the use and occasion of the utterance of the sentence. Referring is speaker oriented. Meaning is language oriented.

Reading Material

Philosophy of Language By Alexander Millar

Chapter 2 Frege and Russell Sense and definite descriptions

2.1 The introduction of sense

We have been looking at Frege's attempt to give a systematic account of meaning. We started out with the intuition that the validity of arguments depends upon the semantic properties possessed by the expressions out of which their constituent sentences are constructed. So, one way to find out what semantic properties a systematic treatment of meaning should employ would be to ask which properties of expressions are relevant to the validity of arguments in which they appear. We saw that a plausible answer to this question, in the case of whole sentences, was the property of truth. So we defined the semantic value of an expression as that feature of it which determines whether sentences in which it appears are true or false. This led us to identify the semantic values of proper names as their bearers, of sentences as their truth-values, and of functional expressions as functions. We saw that we were able to do this in a way which respects the principle of compositionality, so that the semantic value of a complex

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expression is systematically determined by the semantic values of its parts. Thus far, then, we have been attempting to give a systematic account of the intuitive notion of meaning by constructing a semantic theory which trades in just one semantic property, semantic value (although, as noted, expressions from different syntactic categories will be assigned different sorts of semantic value).

But is one semantic property a sufficiently rich basis on which to construct a philosophical account of a phenomenon as complex as that of human language? It would be odd if it were: we don't expect physics to refer to just one physical property in its explanations, or biology to refer to just one biological property in its explanations, so it would be strange if a theory of meaning could get by with just the one meaning-relevant property of semantic value. We begin this chapter by looking at Frege's reasons for thinking that we have to appeal to some other semantic property in addition to semantic value in our account of the intuitive notion of meaning: the property of having a sense.

2.1.1 The problem of bearerless names

Let's take the case of names as an example. We are trying to give a systematic account of the meanings of names, and in the theory of semantic value described in Chapter 1 we attempt to do this in terms of the assignment of the property of having a semantic value to the names, where the semantic value of a name is the object which it refers to. But if having a reference were the only semantic property in terms of which we could explain the functioning of names, we would be in trouble with respect to names which simply have no bearer. Consider a sentence such as "Odysseus was set ashore at Ithaca while sound asleep". The name "Odysseus" has no bearer, since the character is entirely fictional. Since the name has no reference, and the semantic value of a sentence is determined by the semantic values of its parts, it follows that the sentence "Odysseus was set ashore at Ithaca while sound asleep" has no semantic value either. So if having a semantic value were the only semantic property, we would have to say that the sentence is meaningless. But we can certainly understand the sentence: it is certainly not just meaningless gibberish. So it seems

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that we will have to attribute some other semantic property to the name "Odysseus" in addition to its reference. We could sum this up as follows: names without a reference (semantic value) are not meaningless; so there must be some other semantic property possessed by names in addition to having a reference (semantic value).

2.1.2 The problem of substitution into belief contexts

According to the principle of compositionality, the semantic value of a complex expression is determined by the semantic values of its parts. It followed from this that (thesis 3) substitution of a part of a sentence with another having the same semantic value will leave the truth-value of the whole sentence unchanged. This means, in particular, that substitution of one name in a sentence by another having the same reference should leave the truth-value of that sentence unchanged. But this appears to be false. Consider the following sentence, where John is a person with absolutely no knowledge about Mark Twain (except perhaps that he is the author of Huckleberry Finn):

(1) John believes that Mark Twain is Mark Twain.

This will be true, unless John has some very bizarre views on identity. But "Mark Twain" and "Samuel Clemens" are co-referential: they are different names for the same person. So the following, which results by substituting one of the occurrences of "Mark Twain" by "Samuel Clemens", should also be true:

(2) John believes that Mark Twain is Samuel Clemens.

But, of course, this is actually false, since John knows nothing about Mark Twain except that he is the author of Huckleberry Finn. This suggests that we are either going to have to give up thesis 4, that the semantic value of a name is its bearer, or thesis 3, and thereby thesis 2, the principle of compositionality. But these are both central and indispensable planks of Frege's theory of semantic value. We shall see that Frege's attempt to solve this problem without giving up any of theses 2, 3, or 4, requires the

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introduction of another semantic property of names in addition to their having a reference or semantic value.¹ This point is perfectly general, and applies to expressions in the other syntactic categories as well. In fact, it is perhaps clearest when made with respect to sentences. Thesis 3 in that case amounts to the following: in a complex sentence, the substitution of a component sentence by another sentence having the same truth-value should not change the truth-value of the complex sentence. But belief contexts threaten this principle as well. Consider the following sentence, where John is a person with a working knowledge of British geography, but absolutely no knowledge of particle physics:

(3) John believes that London is south of Glasgow.

Here, the overall sentence is true, as is the "embedded" sentence "London is south of Glasgow". Now the sentence "Electrons are negatively charged sub-atomic particles" is also true, so substituting it for the embedded sentence in the above sentence should not result in a change of truth-value in the overall sentence. But it does result in such a change, since

(4) John believes that electrons are negatively charged particles

is false. Again this suggests that Frege will have to give up either thesis 1, that the semantic value of a sentence is its truth-value, or thesis 3, and thereby thesis 2. We shall see that Frege's attempt to solve this problem without giving up any of theses 1, 2, or 3 requires the introduction of another semantic property of sentences in addition to their having a semantic value (truth-value). Likewise, Frege's attempt to solve the analogous problem in the case of functional expressions, without giving up theses 2, 3, 5, or 6, requires the introduction of another semantic property of functional expressions in addition to their having a semantic value.²

2.1.3 The problem of informativeness

When someone understands an expression, we say that he knows its meaning: meaning is that semantic property of an expression

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which someone with an understanding of that expression grasps. Now suppose that the meaning of an expression, in this intuitive sense, was identified with its semantic value. What would follow? Consider Frege's famous example concerning the planet Venus. It took an empirical discovery in astronomy to discover that this planet was both the celestial object known as the Evening Star and also the celestial object known as the Morning Star. Consider the state of a competent language user before this empirical discovery (or of a competent language user after the discovery who is unaware of it). Such a person understands the identity statement "The Morning Star is the Evening Star", even though they do not know its truth-value. Frege's point is that if meaning were identified with semantic value, this would be impossible. We can set out his reasoning here as follows:

(i) Suppose (for reductio) that meaning is to be identified with semantic value. (ii) Understanding a sentence requires understanding its constituents. In other words, knowing the meaning of a sentence requires knowing the meanings of its constituents. So, (iii) Understanding "The Morning Star is the Evening Star" requires knowing the meanings of, inter alia, "The Morning Star" and "The Evening Star". So, (iv) Understanding "The Morning Star is the Evening Star" requires knowing the semantic values (references) of "The Morning Star" and "The Evening Star". But, (v) The semantic value (reference) of "The Morning Star" is the same as that of "The Evening Star": the planet Venus. So, (vi) Understanding "The Morning Star is the Evening Star" requires knowing that the semantic values (references) of "The Morning Star" and "The Evening Star" are the same: in other words, requires knowing that "The Morning Star is the Evening Star" is true. But (vii) It is possible to understand "The Morning Star is the Evening Star" without knowing its truth-value. So, (viii) The meaning of an expression cannot be identified with its semantic value.³

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So, in giving an account of meaning we are going to have to introduce some semantic property in addition to semantic value, grasp of which constitutes understanding. Again, Frege introduces the property of having a sense to play the role of this semantic property. But what exactly is sense, and how exactly does the introduction of sense enable Frege to solve the three problems we have just outlined? We deal with these questions in the following section.

2.2 The nature of sense

One very important characteristic of sense is spelled out in the following thesis:

In addition to having semantic values, expressions also have semantic properties which determine what those semantic values are. The property which determines semantic value is the property of having a certain sense. Thus, a name has a reference – stands for a particular object – and also has a sense, some means of determining which particular object this is. Take the case above, of the name "The Evening Star". The sense of this is some condition which an object has to satisfy in order to count as the reference of the name. Perhaps the simplest way of spelling out such a condition would be to specify some descriptive condition, like "that object which appears in such and such a place in the sky at such and such times in the evening". If an object satisfies this condition, then it is the reference of "The Evening Star". It turns out, on empirical investigation, that Venus satisfies this condition, so it follows that the name "The Evening Star" refers to the planet Venus. Now, someone

who knows which descriptive condition an object has to satisfy in order to count as the reference of “The Evening Star” understands the name; but it does not follow that he knows what the reference of the name actually is. I can know that whatever object it is that appears at such and such a place

Thesis 8: The sense of an expression is that ingredient of its meaning which determines its semantic value.

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in the sky at such and such a time in the evening is referred to by “The Evening Star” without knowing which object that is: I may not have done any astronomy. Thus we also have the following thesis:

It is this thesis which allows us to solve the problem of informativeness. We first of all set out the additional theses:

Consider Frege’s Evening Star–Morning Star example. Understanding a sentence requires understanding its constituents. Together with thesis 10, this entails that knowing the sense of a sentence requires knowing the senses of its constituents. So, understanding “The Morning Star is the Evening Star” requires grasping the senses of, inter alia, “The Morning Star” and “The Evening Star”. But, from thesis 9, it is possible to grasp the senses of “The Morning Star” and “The Evening Star” without knowing their references. So, from theses 11 and 2, it is possible to grasp the sense of the sentence “The Evening Star is the Morning Star” without knowing its truth-value. So this explains how it is possible to understand a sentence without knowing its truth-value, which is just to explain how sentences can be informative. The introduction of sense thus enables Frege to solve the problem of informativeness. It might be useful to pause for a moment to see how this account also enables us to explain the uninformative nature of “The Evening Star is the Evening Star”. In order to do so, we add a further thesis, the thesis of the transparency of sense:

Thesis 9: It is possible to know the sense of an expression without knowing its semantic value.

Thesis 10: The sense of an expression is what someone who understands the expression grasps.

Thesis 11: The sense of a complex expression is determined by the senses of its constituents.

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Suppose someone understands “The Evening Star is the Evening Star”. Then, they must grasp the senses of the two occurrences of “The Evening Star”. Since each occurrence has the same sense, it follows from thesis 12 that the speaker must know that they have the same sense. But sense determines semantic value (expressions with the same sense must have the same semantic value, from thesis 8), so since the speaker knows they have the same sense, he must also know that they have the same semantic value. From thesis 2 it follows that he must know the truth-value of “The Evening Star is the Evening Star”. This explains why the sentence is uninformative. The introduction of sense also enables Frege to solve the problem of bearerless names. Consider again the example of “Odysseus”. Suppose, for the sake of argument, that the sense of this is given by some descriptive

condition such as “The hero of Homer’s *Odyssey* and the son of Laertes and Antikleia”. Clearly, someone can grasp such a condition even if there actually is no object which satisfies it: someone can know what it would be for a person to be referred to by the name “Odysseus” even if there is in fact no such person. This is even clearer in the case of a term like “The twelve-headed student in my class”. I can certainly understand this term: this in part explains why I am able to understand the sentence “The twelve-headed student in my class has more than two heads”. That is, I know what would have to be the case for someone to be referred to by the term, and I can possess this knowledge even given the fact that (thankfully!) there is no twelve-headed student in my class. Thus,

Or as Frege puts it himself:

Thesis 12: If someone grasps the senses of two expressions, and the two expressions actually have the same sense, then she must know that the two expressions have the same sense.

Thesis 13: An expression can have a sense even if it lacks a semantic value.

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The words “the celestial body most distant from the Earth” have a sense, but it is very doubtful if they also have a [semantic value]. The expression “the least rapidly convergent series” has a sense but demonstrably there is no [semantic value], since for every given convergent series, another convergent, but less rapidly convergent, series can be found. In grasping a sense, one is certainly not assured of a [semantic value].⁴

Frege thus solves the problem of bearerless names: names with no semantic value (reference) are not necessarily meaningless, because they can nevertheless possess a sense. What follows about sentences containing bearerless names? For example, consider “Odysseus was set ashore at Ithaca while sound asleep”. Since one of the expressions, “Odysseus”, lacks a reference, and since the semantic value of a complex expression is determined by the semantic values of its parts (thesis 2), it follows that this sentence itself does not have a semantic value. In other words, it lacks a truth-value: it is neither true nor false. This gives us another of Frege’s theses:

We’ll return to the question of the status of sentences containing bearerless names later in this chapter. We must now consider how Frege uses the introduction of sense to solve the problem of substitution into belief contexts. Recall that substitution into belief contexts appeared to threaten thesis 3, that substitution of co-referential parts of a sentence should leave the truth-value of the whole sentence unchanged, plus the generalisation of that thesis to the case where the parts of the complex sentence are themselves sentences, that the substitution of a component sentence by another sentence having the same truth-value should leave the truth-value of the complex sentence unchanged. For example,

(1) John believes that Mark Twain is Mark Twain

Thesis 14: A sentence which contains an expression which lacks a semantic value is neither true nor false.

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is true

whereas

(2) John believes that Mark Twain is Samuel Clemens

is false, even though the latter was obtained from the former via the substitution of apparently co-referential names. Frege's response to this is to save thesis 3 by denying that "Mark Twain" and "Samuel Clemens" are indeed co-referential in the relevant sort of belief context. Customarily, outside of belief contexts, they refer to the man who authored Huckleberry Finn and so on, as in

(5) Mark Twain was an American.

But within belief contexts they refer to the senses they ordinarily possess outwith belief contexts (as in e.g. (5)). Frege expresses this by saying that in "Mark Twain was an American", "Mark Twain" has its customary reference and customary sense. However, in belief contexts "Mark Twain" refers, not to the man, but rather to the customary sense of the name. Frege expresses this by saying that in belief contexts a name refers to its customary sense, and he calls this its indirect reference. Since "Mark Twain" and "Samuel Clemens" have different customary senses and therefore different indirect references, it follows that in moving from (1) to (2) we have not actually substituted one co-referential expression for another, so that we do not after all have a counterexample to thesis 3. The identification of indirect reference with customary sense thus allows us to avoid the problem of substitution into belief contexts. We'll have more to say about Frege's solution to this problem in due course, but for the moment we can sum things up in the thesis:

It is worth noting that just as thesis 2 led to thesis 3, so thesis 11 (the compositionality of sense) leads to:

Thesis 15: In a belief context, the (indirect) reference of a proper name is its customary sense.

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This can be used to give us some clue as to what the senses of sentences are. Consider again the move from

(3) John believes that London is south of Glasgow

to

(4) John believes that electrons are negatively charged particles.

Recall that since the semantic value of a sentence is a truth-value, and since the embedded sentences in (3) and (4) have the same truth-values (T), the fact that (3) is true and (4) is false appears to generate a problem for thesis 3. Again, Frege's way round this problem is to apply (an analogue of) thesis 15. In (3) and (4) the embedded sentences do not have their customary semantic values (truth-values): within belief contexts their semantic values are their customary senses. But

what is the customary sense of a sentence? Well, what are we referring to in using “London is south of Glasgow” within a belief context such as (3)? Intuitively, we are referring to John’s thought that London is south of Glasgow. That is to say, we are using the sentence to specify the content of a thought. Now, if we substitute the embedded sentence in (3) with one which expresses the same thought (as opposed to merely having the same truth-value), is it possible for (3) to change truth-value? If not, the identification of the sense of a sentence with the thought it expresses will respect thesis 16. The question as to the identity of thoughts is a thorny one (when does one sentence express the same thought as another sentence?), but intuitively it looks as if the substitution of “London is south of Glasgow” by another sentence expressing the same thought will leave the truth-value of (3) unchanged. For example, the sentence “London is south of Glasgow” intuitively expresses the same thought as “Glasgow is north of London”, and the substitution of the latter for the former results in the true sentence

Thesis 16: Substitution of one expression in a sentence with another which has the same sense will leave the sense of the sentence unchanged.

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(6) John believes that Glasgow is north of London.

These considerations suggest the next of our Fregean theses:

It is important to note that for Frege, a thought is not something psychological or subjective. Rather, it is objective in the sense that it specifies some condition in the world the obtaining of which is necessary and sufficient for the truth of the sentence which expresses it. This is a theme to which we shall return, but for the moment we note that, in the terminology introduced in §1.6, we can re-express thesis 17 as the view that the sense of a sentence is its truth-condition.⁵ Before leaving this section we should pause to note one problem that will have been staring the attentive reader in the face. According to thesis 8, the sense of an expression determines its semantic value. According to thesis 2, the semantic value (truth-value) of a sentence is determined by the semantic values of its parts. If we put these together we get the result that the sense of an expression determines the truth-values of sentences in which it appears (since the sense of an expression determines its semantic value, which in turn determines the truth-values of sentences in which it appears). This is nicely put in Michael Dummett’s characterisation of the notion of sense:

The sense of an expression is that part of its meaning which is relevant to the determination of the truth-value of sentences in which the expression occurs.⁶

This is problematic because it is uncomfortably close to our definition of the notion of semantic value (§1.3): the semantic value of an expression is that feature of it which determines whether sentences in which it occurs are true or false. Doesn’t it follow that we have to identify sense and semantic value, so that there is after all no distinction to be drawn between them, so that Frege’s theory of meaning, which rests on the distinction, is thrown into chaos?

Thesis 17: the sense of a sentence is a thought.

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Dummett points out that there is actually no problem here. Recall the thesis in which we introduced the notion of sense:

That is to say, the sense of an expression is that ingredient of its meaning relevant to the determination of the truth-values of the sentences in which it occurs. What does it mean to say that the sense of an expression is “an ingredient of its meaning”? Dummett spells this notion out as follows:

What we are going to understand as a possible ingredient in meaning will be something which it is plausible to say constitutes part of what someone who understands the word or expression implicitly grasps, and in his grasp of which his understanding in part consists.⁷

In other words, the claim that sense is, in this manner of speaking, an ingredient in meaning, is more or less a restatement of:

Now the key to seeing why there is no tension here with the characterisation of semantic value is to note that semantic value is not, in this manner of speaking, an ingredient in meaning. In other words,

This, indeed, is the upshot of Frege’s solution to the problem of informativeness. The argument is that if the semantic value of an expression was part of what was grasped by someone who understands it, there would be no possibility of e.g. understanding

Thesis 8: The sense of an expression is that ingredient of its meaning which determines its semantic value.

Thesis 10: The sense of an expression is what someone who understands the expression grasps.

Thesis 18: The semantic value of an expression is no part of what someone who understands the expression grasps.

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a sentence without knowing its truth-value. Theses 10 and 18 thus ensure that the characterisation of semantic value, together with the characterisation of sense given in thesis 8, do not force the identification of sense with semantic value. It is worth noting that although semantic value is not in the special way introduced above an ingredient in meaning, it is still part of the intuitive notion of meaning, and something which has to be dealt with in a systematic way by a philosophical theory of meaning. Dummett writes

To say that reference [semantic value] is not an ingredient in meaning is not to deny that reference [semantic value] is a consequence of meaning, or that the notion of reference [semantic value] has a vital role to play in the general theory of meaning: it is only to say that the understanding which a speaker of a language has of a word in that language . . . can never consist merely in his associating a

certain thing with it as its referent [semantic value]; there must be some particular means by which this association is effected, the knowledge of which constitutes his grasp of its sense.⁸

We started out attempting to say something systematic about the intuitive notion of meaning. We have now reached the point where we have distinguished between two levels in meaning: sense, that which is grasped by someone who knows the meaning of an expression, and semantic value, that which is determined by sense. This distinction, together with theses 1–18, takes us a long way in our task of saying something systematic about the intuitive notion of meaning. We continue this task in the next section.

2.3 The objectivity of sense: Frege's critique of Locke

We noted above that the sense of a sentence is a thought, and that according to Frege thoughts are in some sense objective, as opposed to subjective or psychological. This is an extremely important part of Frege's position. Indeed, in the introduction to *The Foundations of Arithmetic*, he states the following as the first of his three "fundamental principles":

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Always to separate sharply the psychological from the logical, the subjective from the objective.⁹

This applies not only to the senses of sentences, but to the senses of expressions generally. But what exactly does it mean to say that sense is objective and not subjective? One thing that it means is that grasping a sense – understanding an expression – is not a matter of associating that expression with some subjective item like a mental image, picture, or idea. Frege is quite explicit about the need to distinguish senses, which are objective, from ideas, which are subjective:

The *Bedeutung* [semantic value] and sense of a sign are to be distinguished from the associated idea . . . The *Bedeutung* of a proper name is the object itself which we designate by using it; 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.¹⁰

The view that understanding an expression consisted in the possession of some associated idea or image is one that has a long list of adherents in the history of philosophy. In distinguishing the sense of an expression from any associated idea, Frege was directly attacking this tradition, and setting the scene for similar attacks that were later to be mounted by Wittgenstein (see also §5.1). The classic example of this view of sense can be found in Book III of *An Essay Concerning Human Understanding* by the English empiricist philosopher John Locke (1632–1704). Some creatures who utter, for instance, the word "cube" understand that word, and some don't. A parrot, for example, can say the word, but unlike a normal human speaker of English, the parrot possesses no understanding of what is said. In Fregean terminology, the human speaker grasps the sense of "cube", whereas the parrot does not. But what does this difference consist in? Locke's suggestion is that the word "cube" is, in the case of the competent human speaker, associated with an idea of a cube in that speaker's mind, while in the case of the parrot there is no such idea and so no such association. Locke is thus led to the view that understanding an expression consists in associating it with some idea:

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Words, in their primary or immediate signification, stand for nothing but the ideas in the mind of him that uses them.¹¹

Locke takes ideas to be mental images or pictures: an idea of a cube is taken to be a mental image or inner picture of a cube.¹² This is clear from the way Locke speaks throughout the Essay. For example, in his account of memory the talk of ideas is explicitly cashed out in terms of picturing and imagery:

The ideas, as well as children of our youth often die before us. And our minds represent to us those tombs to which we are approaching; where though the brass and marble remain, yet the inscriptions are effaced by time, and the imagery moulders away. The pictures drawn in our minds are laid in fading colours.¹³

We could thus sum up Locke's view of sense as follows (where the sense of "cube" determines that it refers to, precisely, cubes):

Why does Frege object to this account of sense? Locke's account leads to a tension, which the reader will probably have noticed already, between the public nature of meaningful language, and the private nature of ideas and mental images. On the one hand, language is public in that different speakers can attach the same sense to their words, and one speaker can know what another speaker means by his words. Different speakers can communicate with each other in virtue of the common senses that they have attached to their words. On the other hand, ideas are private. As Locke himself puts it, a man's ideas are "all within his own breast, invisible, and hidden from others, nor can of themselves be made to appear". Also, my ideas, my "internal conceptions", are visible only to my consciousness, and likewise your ideas, your "internal conceptions", are visible only to your consciousness. But we are attempting to give an account of sense, an account that should help explain how we are able to communicate with each other via the use

A speaker grasps the sense of "cube" if and only if he is disposed to have a mental image of a cube whenever he hears or utters the word.

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of language: and how can a theory which construes grasp of sense in terms of the possession of private inner items help explain our ability to use language in successful public communication? In fact, Frege develops this rhetorical question into a powerful argument against Locke's account of sense.¹⁴ The argument can be set out as follows:

So,

Frege is explicit about (i): that Frege thinks sense can play this role is evident in a passage in which he again distinguishes between sense and idea, and refers to the role of sense in communication, or as he puts it, the transmission of thought:

A painter, a horseman, and a zoologist will probably connect different ideas with the name “Bucephalus”. This constitutes an essential distinction between the idea and the sign’s sense, which may be the common property of many people, and so is not a part or a mode of the individual mind. For one can hardly deny that mankind has a common store of thoughts which is transmitted from one generation to another.¹⁵

And it seems perfectly reasonable to demand that any notion of sense be able to play this role. What, though, is the argument for premise (ii)? One way to argue for this is to think about a possibility which Locke himself muses on in the Essay, that:

(i) One crucial role of sense is to explain how linguistic communication is possible: the success of language in facilitating communication between two speakers is to be accounted for in terms of their grasping the same senses. (ii) Private, inner items have no role to play in explaining the practical success of language in facilitating communication between two speakers.

(iii) Understanding an expression – grasping a sense – cannot consist in the possession of some inner, private item.

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The same object might produce in several men’s minds different ideas at the same time; e.g. the idea that a violet produced in one man’s mind by his eyes were the same that a marigold produced in another man’s, and vice versa.¹⁶

Locke realises that this possibility poses a problem for his account of what constitutes understanding. The possibility is one of systematic inversion between the ideas of the colours blue and yellow. If we consider two speakers, say Smith and Jones, the possibility is one in which the idea produced in Jones’s mind by bananas, egg yolks, and the skin of someone with jaundice, is of the same type as the idea produced in Smith’s mind by the sea on a sunny day, Glasgow Rangers shirts, and city buses in Birmingham; and vice versa, the idea produced in Smith’s mind by bananas, egg yolks, and jaundiced skin, is of the same type as the idea produced in Jones’s mind by the sea, Glasgow Rangers tops, and Birmingham buses. The crucial point is this: since the inversion is systematic in this way, if the possibility were actually to obtain, it would not manifest itself in any of the linguistic behaviour displayed by Smith and Jones. For example: both would learn to use the word “yellow” by being shown things like bananas, egg yolks, etc., and both would learn “blue” by being shown the sea on a sunny day, Glasgow Rangers tops etc.; other things being equal, both would call the same things blue and yellow in the circumstances; and other things being equal, both would respond in the same way to orders framed using the words “yellow” and “blue”.¹⁷ Now, if the possibility were to obtain, someone advancing an account of sense along the lines of Locke’s would have to say that Smith and Jones were not communicating successfully: after all, they would be attaching different senses to the words “blue” and “yellow”, because of the difference in the ideas which these words produce. So, one would expect Locke to provide some argument to the effect that we could always detect, somehow or other, whether the inversion possibility did or did not obtain, perhaps by showing that there is actually some way in which it eventually manifests itself in

speakers' behaviour. But, surprisingly, Locke does not attempt to do this, and instead goes on to make the following comment:

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Since this [the systematic inversion] could never be known, because one man's mind could not pass into another man's body . . . neither the ideas hereby, nor the names, would be at all confounded, or any falsehood be in either . . . whatever [the] appearances were in his mind, he would be able regularly to distinguish things for his use by those appearances, and understand and signify those distinctions marked by the names "blue" and "yellow", as if the appearances or ideas in his mind were exactly the same with the ideas in other men's minds . . . [and if the inversion hypothesis were true] it would be of little use, either for the improvement of our knowledge, or conveniency of life; and so we need not trouble to examine it.¹⁸

But this is an amazing thing for Locke to say, and it basically amounts to an admission that his account of sense is unable to play any role in the task of explaining linguistic communication. We can see the problems this causes by putting the admission alongside a consequence of his account of sense:

Putting the admission together with the consequence of the account of sense thus gives us:

Locke's Admission: If the inversion hypothesis were true, it wouldn't really matter, because everything in our linguistic lives would be as before, and we could do everything we previously did with language. A Consequence of Locke's Account of Sense: If the inversion hypothesis were true, Smith and Jones wouldn't really be communicating, because they would have different ideas annexed to their words, and so would associate different senses with those words.

It is possible that we could do everything we currently do with language – use language for all of the purposes for which we currently use it – and yet not really be communicating, and not really attach the same senses to our words.

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But this is absurd: there is absolutely nothing in our everyday conceptions of communication and grasp of sense which allows for such a possibility. In particular, the admission of such a possibility effectively renders the notion of sense empty. The conclusion is that Locke's account of sense is unacceptable.¹⁹ We can sum up the results of this section in a further thesis of Frege's:

Before moving on to look at some problems surrounding the notion of sense, we should pause to spell out a further important thesis of Frege's regarding sense. This thesis will reappear in later chapters of this book. In his late essay "The Thought", Frege distinguishes between two different sorts of law: normative (or prescriptive laws), and descriptive laws. Scientific laws fall into the latter category: they tell us what will actually happen, given such and such initial conditions. For example, Newton's First Law of Motion tells us that a body will remain at rest or travel with constant velocity in a straight line unless it is acted upon by a net unbalanced set of forces. The law describes how the

body will behave given these conditions. This contrasts with a moral law, such as “Do not kill”. This does not describe how people will actually behave: rather, it lays down a prescription as to how they ought to behave. The law constitutes a norm with respect to which people ought to regulate their behaviour: for this reason it is called a normative law. Frege makes the distinction between normative and descriptive laws because he wants to stress the point that the laws of logic are laws of thought in the normative sense: logic lays down prescriptions on how we ought to reason, on what inferences it is proper to make. It does not describe how we actually reason, or describe the inferences we will in fact make. The important point for our purposes is that sense is also normative: this is hardly surprising, given that the laws of thought are normative, and that the senses of sentences are thoughts. And it is independently plausible. Just as a normative law of conduct tells out how we ought to behave, the sense of an expression must in some sense tell us how we ought to use that expression. The sense of an expression lays down a normative

Thesis 19: Sense is objective: grasping a sense is not a matter of having ideas, mental images, or private psychological items.

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constraint which determines whether a particular use of that expression is correct or incorrect: someone who uses an expression in a manner which is out of accord with its sense will be deemed to have made a mistake. We’ll return to the issue of the normativity of sense in due course. For the moment, we can sum things up thus:

2.4 Four problems with Frege’s notion of sense

2.4.1 Problems about objectivity

Thesis 19 really only articulates a way in which sense is not subjective: grasping a sense is not constituted by the possession of mental images, and so on. But can we say anything more positive about what the objectivity of sense consists in? Frege tries to say something more in the following passage:

Somebody observes the Moon through a telescope. I compare the Moon itself to the reference [semantic value]; 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 intuition [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.²¹

The objectivity of sense over images seems to consist in the fact that whereas I cannot literally have your mental image, we can nevertheless literally grasp the same sense. And recall that our grasp of a common stock of senses is supposed to help explain the occurrence

Thesis 20: The sense of an expression is normative: it constitutes a normative constraint that determines which uses of that expression are correct and which are incorrect.²⁰

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of linguistic communication. So Frege needs to characterise sense in such a way that (i) two different individuals can literally grasp the same sense, and (ii) their grasp of this sense helps explain how they can communicate with each other. But does he manage to do this? Let's consider the case of a proper name, such as "Aristotle". So far, the only characterisation of the sense of a name that we have considered is that given by some associated descriptive condition. For example, we could take the sense of "Aristotle" to be given by the description "The pupil of Plato and teacher of Alexander the Great". Frege himself suggests this as one possible sense that might be attached to the name "Aristotle". But in the passage in which he makes this suggestion he makes a concession which is the exact parallel of the concession we saw Locke making in the preceding section. In fact, it turns out that, with the senses of names construed in terms of descriptions, we can aim an argument against Frege which is similar to his own argument against Locke. Suppose that Smith and Jones associate different descriptions with the name "Aristotle". Smith, say, associates "Aristotle" with "the pupil of Plato and teacher of Alexander", while Jones associates it with "the teacher of Alexander who was born in Stagira". Frege clearly thinks that this is possible:

In the case of an actual proper name such as "Aristotle" opinions as to the sense may differ. It might, for instance, be taken to be the following: the pupil of Plato and teacher of Alexander the Great. Anybody who does this will attach another sense to the sentence "Aristotle was born in Stagira" than will a man who takes as the sense of the name: the teacher of Alexander the Great who was born in Stagira.²²

Now what would we expect Frege to say about such a situation, given what we know of his views on sense? Recall that the sense of a sentence is a thought (thesis 17). Since the sense of a complex expression is determined by the senses of its constituents (thesis 11), the thought expressed by "Aristotle was born in Stagira", as uttered by Smith, will differ from the thought it expresses when uttered by Jones. If the sentence is uttered in an exchange between Smith and Jones there will be no transmission of a common thought: in short, there will be no communication. So, given his

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views on sense, Frege is committed to saying that in the situation envisaged Smith and Jones do not really communicate with each other. But what he actually says is somewhat different. Here is the rest of the passage quoted above:

So long as the thing referred to remains the same, such variations of sense may be tolerated, although they are to be avoided in the theoretical structure of a demonstrative science and ought not to occur in a perfect language.²³

Frege seems to be conceding that such variations in sense will make no practical difference as far as the use of language in communication is concerned. But, as with Locke's concession over the systematic inversion possibility, this concession leaves Frege in a somewhat precarious position. In fact, it generates the same absurdity:

Again, this really only renders the notion of sense empty. But the problem is that it is a consequence of Frege's account of sense together with his concession in the passage quoted above. So it looks as though Frege, like Locke, has not succeeded in capturing a plausible objective notion of sense. This, though, really only has the status of a challenge to Frege, since we have been working with a crude conception of what the sense of a proper name might be, namely, some associated description. The challenge to Frege is: explain what sense is in a way that renders it objective and apt to play a part in explaining linguistic communication.

2.4.2 Problems about sense and analysis

Frege's solution to the problem of informativeness has an odd consequence. Anglo-American philosophy in the twentieth and

It is possible that we could do everything we currently do with language – use language for all of the purposes for which we currently use it – and yet not really be communicating, and not really attach the same senses to our words.

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twenty-first centuries has been dominated by what is known as analytic philosophy. One of the main characteristics of analytic philosophy is its view of philosophy as consisting essentially in analysis. Analytic philosophers attempt to tackle the traditional problems of philosophy via the analysis of language: a proper conception of language will enable us either to solve or dissolve these problems. The advances Frege made in logic greatly facilitate the task of solving philosophical problems in this manner²⁴: so much so that Frege is often hailed as “the founder of analytic philosophy”. But what exactly is analysis? Intuitively, we would want to say that this consists in discovering relationships among senses: the analysis of “X knows that P” as “X has a justified, true belief that P” claims to exhibit an identity in sense between the two expressions. Alternatively, we could view identity in sense as corresponding to the intuitive notion of synonymy: two expressions have the same sense if and only if they are synonymous. The project of analysis would then be construed as the project of discovering philosophically interesting relations of synonymy, or identity in sense, and the employment of these in the solution or dissolution of philosophical problems. The difficulty is that Frege's solution to the problem of informativeness appears to rule out this intuitive description of the analytic project. Recall that the problem was to account for the fact that whereas

(7) The Morning Star is the Evening Star

is potentially informative,

(8) The Evening Star is the Evening Star

is not. For Frege, (7) is potentially informative because although “The Morning Star” and “The Evening Star” both refer to the same object, they have different senses. This contrasts with (8), whose uninformative nature is explained by the fact that the two signs flanking the “is” of identity have the same sense. Thus, the informativeness of some identity statements is explained in terms of the

signs on either side of the identity sign having the same reference but expressing different senses; while the un informativeness of other

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identity statements is explained in terms of the signs on either side of the identity sign having the same sense as well as the same reference. The problem with this is that given the assumption that analysis concerns relations between senses, it also entails that there can be no such thing as an informative analysis.²⁵ To see this, suppose that analytic philosophers have succeeded in showing by analysis that knowledge is justified true belief. Then consider

(9) Knowledge is justified true belief.

Suppose that analysis really is concerned with discovering relations in the realm of sense, and that (9) is a good analysis. Then consider a philosopher who understands (9). Since he grasps the sense of (9) he must also grasp the senses of its constituents. Since “Knowledge” and “Justified true belief” hypotheses have the same sense, it follows from thesis 12 that anyone who grasps (9) must know that they have the same sense. But sense determines reference (thesis 8), so since the philosopher knows that they have same sense, he must also know that they have the same reference. From thesis 2, it follows that he must know the truth-value of (9). So, any philosopher who understands (9) must know its truth-value. But this is just to say that there can be no such thing as an informative and interesting analysis. And if there can be no such thing as an interesting and informative analysis, what becomes of the project of analytic philosophy?²⁶ The dilemma for Frege here is clear. Either he gives up his explanation of why (7) and (8) differ in their potential informativeness, or he renders himself unable to account for the possibility of informative analyses, like that encapsulated in (9). The only way of avoiding this dilemma would seem to be to reject the intuitive conception of analysis as a project concerning relations of sense. This may be possible, but it would further deepen the mystery as to what sense actually is.²⁷

2.4.3 Problems about indirect reference and belief contexts

Recall that Frege’s solution to the problem of substitution into belief contexts is summed up in:

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Thus, in

(2) John believes that Mark Twain is Samuel Clemens

“Mark Twain” refers, not to the celebrated American author, but rather to the sense of “Mark Twain”, as it appears outside of belief contexts. As we saw, Frege expresses this point in the following way: in belief contexts expressions refer to their customary senses, or, the indirect reference of an expression is its customary sense. Now consider the following example of a perfectly wellunderstood sentence:

(10) James believes that John believes that Mark Twain is Samuel Clemens.

It is natural to suppose that just as the occurrence of “Mark Twain” in an indirect context such as (2) refers to the sense it possesses in a direct context such as (5), the occurrence of “Mark Twain” in a doubly indirect context such as (10) will refer to the sense which it possesses in a singly indirect context such as (2). So, on Frege’s account, the name “Mark Twain”, as it appears in (10) refers to the sense that it possesses in (2), what Frege calls its indirect sense. But what is this indirect sense? All we know is the reference of “Mark Twain” as it appears in (2), namely, its customary sense. But this won’t allow us to work out the sense of “Mark Twain” as it appears in (2), since the sense–reference relation is many–one: the same referent can be associated with indefinitely many senses (as Russell put it, “there is no route back from the reference to the sense”). The upshot of this is that we seem to be unable to say what the sense of “Mark Twain” in (2) is, and therefore unable to say what the reference of “Mark Twain” is in (10). Given that the reference of an expression is what determines the contribution it makes to the truth-values of sentences in which it appears, we should be unable to appraise sentences involving doubly indirect

Thesis 15: In a belief context, the reference of a proper name is its customary sense.

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contexts such as (10) for truth or falsity. But, of course, we are perfectly capable of making such appraisals: so Frege’s account of indirect sense and indirect reference is thrown into doubt. Is there any way Frege can get round this problem? Why does he need to distinguish between the sense of “Mark Twain” in an indirect context such as (2) and a direct context such as (5) in the first place? In other words, why can’t he just identify the indirect sense of “Mark Twain”, the sense it possesses in (2), with its customary sense, the sense it possesses in (5)? Given that we know the sense of “Mark Twain” as it appears in (5) (or at least we are supposing that we do, for the sake of argument), this would solve the problem about the reference of “Mark Twain” as it appears in the doubly indirect sentence (10). As Dummett points out, however, this option is not straightforwardly available to Frege because of his adherence to thesis 8, that sense determines semantic value. It follows from thesis 8 that if an expression has a certain reference in one context, but a different reference in another, then that expression must have different senses in each of the two contexts. Now, given that “Mark Twain” as it appears in (5) refers to the celebrated American author, and as it appears in (2) refers to its customary sense, it follows that “Mark Twain” has a different reference in each of these, and hence must express a different sense in each. In other words, the sense of “Mark Twain” in (2) is different from the sense it possesses in (5). The identification of indirect sense with customary sense is frustrated, so that we are left in the dark as to what the indirect sense, and hence the doubly indirect reference of “Mark Twain”, actually is. Dummett suggests that the whole difficulty arises from interpreting thesis 8 as meaning that the semantic value of an expression must be determined by its sense alone. Dummett claims that this is a mistake, based on a misleading tendency to speak about the semantic values of expressions in isolation from the sentential contexts in which they occur. Indeed, Frege explicitly counsels against this tendency in the second of the three fundamental principles set out in the introduction to *The Foundations of Arithmetic*:

Never to ask for the reference of a word in isolation, but only in the context of a proposition.²⁸

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Dummett interprets this as a claim that only a particular occurrence of an expression in a sentence has a semantic value, and that this semantic value is determined jointly by the sense of the expression together with the kind of context in which it occurs. Then, as Dummett puts it,

The sense of a word may thus be such as to determine it to stand for one thing in one kind of context, and for a different thing in some other kind of context. We may therefore regard an expression occurring in an indirect context as having the same sense as in a direct context, though a different reference.²⁹

Frege can thus after all equate the indirect and customary senses of “Mark Twain”, putting the differences in reference in (2) and (5) down to the fact that the expression is appearing in different types of context in each. How plausible is this solution to the difficulty? There are at least two points that one can make here. First, Dummett’s suggestion that the difficulty can be solved by equating the indirect and customary senses of “Mark Twain” appears to be ad hoc. All Dummett has shown is that there is nothing to prevent Frege from identifying indirect and customary sense. But in order to convincingly get Frege out of trouble here, we surely require some positive grounds for identifying customary and indirect sense, grounds that go beyond the observation that we avoid the relevant difficulty if we make the identification. Second, this point is made all the more pressing by the fact that there are actually some reasons against making the identification. Suppose that we do equate customary and indirect sense, and consider two expressions which arguably have the same customary sense, say, “chiroprapist” and “footdoctor”. Then, it follows that “chiroprapist” and “footdoctor” have the same indirect sense, and therefore the same reference in doubly indirect contexts. Now it follows, from thesis 3, that the move from

(11) John believes that Frank believes that all chiroprapists are chiroprapists

to

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(12) John believes that Frank believes that all chiroprapists are footdoctors

should not result in a change in truth-value. But of course it is easy enough to think of cases in which (11) is true yet (12) is false. So the identification of customary and indirect sense threatens a clash with one of Frege’s fundamental theses about semantic value. The upshot is that Frege’s solution to the problem of substitution into belief contexts is not entirely satisfactory.

2.4.4 Problems about bearerless names

We suggested in §2.1 and §2.2 that one of the reasons for the introduction of the notion of sense was that it gave us a way of accounting for the fact that sentences containing bearerless names are nevertheless intuitively meaningful. Names without a bearer are not meaningless, since they can nevertheless possess a sense. The key thesis is therefore:

Some philosophers have questioned whether this thesis is so much as coherent, given the technical notion of semantic value which Frege is working with. Recall that semantic value was defined in the following way:

But can we really make anything of the idea that an expression can have sense even though no feature of it determines whether sentences in which it occurs are true or false? The difficulty is perhaps clearest when we consider the case in which the expressions dealt with in thesis 13 are whole sentences. Recall that a

Thesis 13: An expression can have a sense even if it lacks a semantic value.

DEFINITION: The semantic value of an expression is that feature of it which determines whether sentences in which it occurs are true or false.

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sentence expresses a thought as its sense and has a truth-value as its semantic value. So thesis 13, in the case of sentences, amounts to the claim that a sentence can express a thought even though it has no truth-value. The intuitive implausibility of this claim is well brought out by Gareth Evans:

What can it mean on Frege's, or on anyone's principles, for there to be a perfectly determinate thought which simply has no truth-value? . . . If someone understands and accepts a sentence containing an empty name, then, according to Frege, he thereby forms a belief; not a belief about language, but a belief about the world. But what sense can be made of a belief which literally has no truth-value?³⁰

Doesn't this rob the technical notion of semantic value of any importance we might have thought it possessed for an account of the meaningfulness of language? How can we introduce a technical notion like semantic value, the possession of which by expressions is supposed to contribute to an explanation of their meaningfulness, and then allow that expressions can be meaningful even if they fail to possess it? As Evans puts it

The semanticist seeks to account [for the fact that a certain body of discourse is significant]. Following Frege, as part of this procedure he decides to construct a theory of semantic value, the main aim of which is to help to explain how the significance of sentences depends upon the significance of their parts. But it is just not open to the semanticist to say "There is a gap in my theory; here is a group of viable sentences which might be used to express and transmit thoughts, but to which my theory does not apply".³¹

This is a problem which Frege will have to face head on, if he accepts that the semantic value of a name is the object it stands for, and that sentences containing bearerless names may nevertheless express a thought.³²

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2.5 Kripke on naming and necessity

In his highly influential book *Naming and Necessity*, Saul Kripke raised a number of objections against what he construed as Frege's views on the sense and semantic value of proper names.³³ Thus far, whenever we have spoken of the sense of a name, we have taken it to be some descriptive condition: an object is the referent of the name if and only if the description is true of it. Thus, we can take the sense of "Aristotle" to be given by the description "the pupil of Plato and teacher of Alexander the Great". Kripke argues that if we accept this as an account of the sense of "Aristotle", we end up saying some very implausible things about Aristotle. In order to spell out Kripke's argument we need to introduce the distinction between necessary truth and contingent truth. Consider a true sentence such as " $2+2=4$ ". Could things have turned out in such a way that this would have been false? It seems not: there are simply no possible situations in which the sum of 2 and 2 is not 4.³⁴ Likewise for "All bachelors are unmarried": there is no way there could have been a married bachelor. Philosophers attempt to capture this feature of " $2+2=4$ " and "All bachelors are unmarried" by saying that they are necessary truths. Sometimes this notion is glossed as follows: a necessary truth is one which is true, not only in this, the actual world, but also in all logically possible worlds. " $2 + 2 = 4$ " and "All bachelors are unmarried" contrast with "Blair was the Prime Minister in 2006" or "Italy won the 2006 football World Cup". Although these are actually true, we can conceive of logically possible situations in which they are false: there are logically possible worlds in which Blair lost the 2005 election, and so would not have been Prime Minister in 2006, and there are logically possible worlds in which some team other than Italy won the 2006 World Cup (e.g. Scotland). "Blair was Prime Minister in 2006" and "Italy won the 2006 World Cup" are contingent truths. They are true in the actual world, but not in all possible worlds. There is another distinction which is related to the distinction between necessary and contingent truth, but which must also be distinguished from it. An analytically true sentence is one which is true purely in virtue of the senses of its constituents. "All bachelors are unmarried" would be an example of an analytic truth: its

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truth is settled by the senses of "bachelor", "unmarried", and so on. An example of a synthetic truth would be "Bush was President of the USA in 2006". This is true, but not purely in virtue of the senses of the constituent expressions. The relationship between the necessary–contingent and analytic–synthetic distinctions is a matter of some controversy. Philosophers are generally agreed that all analytic truths are necessary, but not all philosophers hold that all necessary truths are analytic. Kant (1724–1804), for example, held that arithmetical truths such as " $2+2=4$ " are necessary but synthetic.³⁵ Kripke's objection to taking the sense of "Aristotle" to be given by a description like "the pupil of Plato and teacher of Alexander the Great" is quite simple: if we take the sense of the name to be given by this description, then certain sentences that are contingently true turn out to be necessarily true. Suppose that the sense of "Aristotle" is given by "the pupil of Plato and teacher of Alexander the Great". Then consider the sentence

(13) Aristotle was the pupil of Plato and the teacher of Alexander the Great.

Since the sense of "Aristotle" is given by "the pupil of Plato and the teacher of Alexander the Great" this sentence is true, and, moreover, true purely in virtue of facts about sense. In other words, it is

analytically true. But if it is analytically true, it is also necessarily true, true in all logically possible worlds. But surely it is at most a contingent truth: we have no trouble in conceiving of situations in which Aristotle was taught by someone other than Plato and did not himself teach Alexander the Great. So, if the sense of "Aristotle" is given by the description, (13) would be a necessary truth. But (13) is not a necessary truth, it is at most a contingent truth. So the sense of "Aristotle" cannot be given by the description.³⁶ Kripke argues that this is a consequence of the fact that ordinary proper names, unlike definite descriptions, are what he calls rigid designators: where a rigid designator is an expression which refers to the same thing in every possible world in which that thing exists. Definite descriptions are non-rigid designators since their reference can change from possible world to possible world: "the

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US president in 2006" in one world refers to George. W. Bush, in another to Al Gore, and in yet another to Benny Hill. So it is unlikely that the sense of an ordinary proper name could be given by some complex definite description. Kripke introduces an important distinction which may allow Frege to deflect this objection. He distinguishes between the idea that a definite description gives the meaning of a proper name and the idea that a definite description fixes the reference of a proper name. Suppose the view is not that "Aristotle" is synonymous with "the pupil of Plato and the teacher of Alexander the Great" (so that the latter would give the meaning of the former), but instead that the reference of "Aristotle" is fixed via the property of being the pupil of Plato and the teacher of Alexander. The name "Aristotle" refers, in the actual world, to whoever possesses that property; but the property is a contingent property of whoever possesses it. Since we are not taking the definite description to give the meaning of the name, it doesn't follow that the individual concerned has to possess that property in all (or indeed any) of the various nonactual possible worlds. So if we view Frege as claiming only that definite descriptions fix the reference of ordinary proper names rather than give their meanings, Kripke's initial objection appears to be neutralised. Although Kripke objects to the idea that in general the reference of an ordinary proper name is fixed by some associated definite description, he does think that there are cases where it is plausible to view reference as fixed by a definite description. His view of these cases has some important consequences. We introduced above the concepts of necessity and contingency. Another important distinction is that between a priori and a posteriori truths. An a priori truth is one that can be known independently of sense-experience, and an a posteriori truth is one that cannot be known independently of sense-experience. Kripke points out that

In contemporary discussion very few people, if any, distinguish between the concepts of statements being a priori and their being necessary.³⁷

Against this identification Kripke argues that the concepts of

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necessity and contingency are metaphysical concepts, whereas the concepts of the a priori and a posteriori are epistemological: the latter are concerned with our knowledge, whereas the former are

not. In fact, Kripke argues that there may be statements which, although only contingently true, may nevertheless be a priori. Take the standard metre-rod, *S*, in Paris. Suppose we use the description "the length of *S* at *t*" to fix the reference of "one metre". Since there are possible worlds in which the length of *S* was different at time *t*, the statement "*S* is one metre at *t*" expresses only a contingent truth: but because we have used the length of *S* at *t* to fix the reference of "one metre" at *t*, the sentence is a priori true. So "*S* is one metre at *t*" expresses a contingent a priori truth. In general, however, Kripke thinks that we cannot view definite descriptions as fixing the reference of ordinary proper names. According to this sort of view a speaker would be viewed as referring to an individual in virtue of that individual's uniquely satisfying some complex definite description, although there is now no suggestion that the definite description gives the meaning of the name. Kripke uses two types of example to show that, in general, this is not a correct account of how the reference of names gets fixed. First of all, the fact that an individual satisfies a complex definite description associated with an ordinary proper name is not sufficient to ensure that someone using the name refers to that individual. Take the name "Gödel", and suppose that its reference is fixed by the definite description "the man who proved the incompleteness of arithmetic". Kripke invites us to consider the following (purely fictional) sort of situation:

Suppose that Gödel was not in fact the author of [the proof that arithmetic is incomplete]. A man named "Schmidt", whose body was found in Vienna under mysterious circumstances many years ago, actually did the work in question. His friend Gödel somehow got hold of the manuscript and it was thereafter attributed to Gödel. On the view in question, then, when our ordinary man uses the name "Gödel", he really means to refer to Schmidt, because Schmidt is the unique person satisfying the description, "the man who discovered the incompleteness of arithmetic".³⁸

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If the reference of "Gödel" were fixed by the definite description, then in this scenario the ordinary man would actually be referring to Schmidt and not Gödel, because it is Schmidt and not Gödel who uniquely satisfies the description. Kripke finds this consequence implausible:

[S]ince the man who discovered the incompleteness of arithmetic is in fact Schmidt, we, when we talk about "Gödel", are in fact always referring to Schmidt. But it seems to me that we are not. We simply are not.³⁹

In addition, Kripke argues that it is not necessary for an individual to uniquely satisfy a definite description associated with a name in order for the individual to be referred to by uses of that name. Take the name "Richard Feynman". The ordinary speaker, it seems, can certainly use this name to refer to Richard Feynman, as when I say to my father "Richard Feynman will be on television this evening". But there seems to be no description, associated by me with the name, which Feynman uniquely satisfies. The same thing goes for the name "Cicero":

In fact, most people, when they think of Cicero, just think of a famous Roman orator, without any pretension to think either that there was only one famous Roman orator or that one must know something else about Cicero to have a referent for the name. Consider Richard Feynman, to whom many of us are able to refer. He is a leading contemporary theoretical physicist. Everyone here

[Kripke is speaking in a seminar at Princeton University] (I'm sure!) can state the contents of one of Feynman's theories so as to differentiate him from Gel-Mann. However, the man in the street, not possessing these abilities, may still use the name "Feynman". When asked he will say: well he's a physicist or something. He may not think that this picks out anyone uniquely. I still think he uses the name "Feynman" as a name for Feynman.⁴⁰

So according to Kripke it is neither sufficient nor necessary for an ordinary proper name to refer to an individual that the individual in question satisfy some definite description associated with the

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name: in general, the reference of a proper name is not fixed by some associated definite description. Just as Kripke argues that there may be contingent a priori truths, he argues also that there may be necessary a posteriori truths. This follows from his claim that many ordinary proper names are rigid designators, in other words stand for the same individual in every possible world in which that individual exists. Then, for example, "Hesperus is Phosphorus" if it expresses a truth, expresses a necessary truth, even though there is no way, other than empirical investigation, of establishing that it is actually true.⁴¹ The problems raised in this and the previous section give an indication of the sorts of difficulties that a defender of the notion of sense must attempt to overcome. It is worth noting that some of them turn on taking the senses of proper names to be given by descriptions. Some philosophers have pointed out, however, that although Frege sometimes speaks as if the sense of a name is given by a description, there is nothing in the notion of sense which forces him to do so. Dummett, for example, writes:

In trying to say what the senses of different names may be, Frege is naturally driven to citing such definite descriptions: but there is nothing in what he says to warrant the conclusion that the sense of a proper name is always the sense of some complex description. All that is necessary, in order that the senses of two names which have the same referent should differ, is that we should have a different way of recognizing an object as the referent of each of the names: there is no reason to suppose that the means by which we effect such a recognition should be expressible by means of a definite description.⁴²

But what is sense, if it is not given by definite descriptions? A clue is perhaps provided by thesis 20, the claim that sense is normative. A norm is another term for a rule: rules are normative in that they lay down constraints on what counts as correct or incorrect behaviour. So perhaps we can take senses to be simply rules governing the use of expressions, which determine their semantic values and which are grasped by those who understand the expression in question. We can then leave it open whether these rules, in

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the case of (for example) names, would be spelled out in terms of definite descriptions. But what are these rules? Can they be spelled out in a way which respects all of the various theses about sense that we have attributed to Frege? And can Frege respond to the problems we have raised in this

section? We cannot attempt to deal with all of these questions in this book: this is perhaps the starting point for further study of Frege's notion of sense. But we'll return to at least some of them in due course.⁴³

2.6 A theory of sense?

In §1.7 we gave an example of a semantic theory for a simple language: a theory which shows how the truth-values of complex sentences are systematically determined by the semantic values of their constituent names and predicates. We also suggested that this theory could be used to show how statements of the truth-conditions of complex sentences can be derived on the basis of assignments of references and extensions to their parts. Recall that thesis 17 – the sense of a sentence is a thought – can be re-expressed as the claim that the sense of a sentence is its truth-condition. What this suggests is that a semantic theory of the sort described in §1.7 – which in the first instance shows how the semantic values of complex expressions are determined by the semantic values of their parts – might also be used as a systematic theory of sense. There would be no need for a separate systematic theory of sense over and above the systematic theory of semantic value. Or, alternatively, we could provide an account of how the senses of complex expressions are determined without having to directly ascribe senses to their parts. This idea has seemed attractive to a number of philosophers. For example, Gareth Evans writes

Frege nowhere appears to have envisaged a theory which would entail, for any sentence of the language, *S*, a theorem of the form, The sense of *S* is . . . , derived from axioms which would state the sense of the primitive words of the language. Frege had no more idea of how to complete a clause like

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The sense of "and" is . . . than we do.⁴⁴

We shall see later when we discuss Davidson's ideas on theories of meaning (Chapter 8) that it is just as well that Frege did not envisage this type of theory of sense, since it is hopeless. The important point for present purposes is that on the basis of assignments of references and extensions to the names and predicates of our simple language, we can systematically generate statements of the truth-conditions, or senses, of the complex sentences in which they appear. Doesn't this show that a systematic theory of sense – of truthconditions – doesn't require us to ascribe senses to the subsentential expressions of the language with which it deals, since the senses of sentences are generated purely on the basis of axioms spelling out the semantic values of the subsentential expressions? This would be a mistake. The axioms specify the semantic values of the subsentential expressions, but they must specify them in a way which reflects how they are determined by the senses the competent speakers of the language associate with them. The idea is that the axioms of the semantic theory display the senses of the subsentential expressions, even though they do not explicitly state them. Dummett puts the point as follows:

In the case in which we are concerned to convey, or stipulate, the sense of an expression, we shall choose the means of stating what the referent [semantic value] is which displays the sense; we

might here borrow a famous pair of terms from the Tractatus, and say that, for Frege, we say what the referent [semantic value] of a word is, and thereby show what its sense is.⁴⁵

2.7 Force and tone

Thus far we have been attempting to tell a story about meaning in terms of two semantic properties, reference and sense. In addition to these, Frege introduces two other semantic properties, force and tone. We'll take tone first. Consider the two sentences

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(14) Beckham is English and he is a good loser. (15) Beckham is English but he is a good loser.

Intuitively, (14) and (15) have same truth-value (let's take it to be T, for the sake of argument). Substituting "but" for "and" does not lead to a change in truth-value. But equally intuitively, there is also some sort of difference between (14) and (15). In order to capture this difference, Frege introduced the notion of tone (he sometimes also refers to this as "colouring" or "illumination"). Frege held that "and" and "but" have the same sense, but different tones. Like sense, tone is an ingredient in meaning: the tone of an expression is part of what is grasped by someone who is competent with it. As Dummett puts it:

A mistake about the . . . tone . . . intended to be understood as attached to a sentence or expression would ordinarily be accounted a misunderstanding of its meaning.⁴⁶

But unlike the sense of an expression, its tone is not relevant to determining the truth-values of sentences in which it appears. This is shown by the fact that the truth-tables for (14) and (15) are identical:

Other examples of expressions which have the same sense but which differ in tone are: "dog" and "cur"; "sweat" and "perspiration"; "walk" and "perambulate".⁴⁷ The notion of sense, as developed by Frege, is a notion of sentence meaning. The sense of an expression is intended to capture what a sentence strictly and literally means: in other words, the sense of an expression gives its literal meaning (or what it means, when stripped of its tone). Take a sentence such as "Jones is an efficient

P Q P and Q P but Q

T T T T T F F F F T F F F F F F

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administrator". The strict and literal meaning of this sentence is that Jones is an efficient administrator. That is, the truth-condition of this sentence is given by

(16) "Jones is an efficient administrator" is true if and only if Jones is an efficient administrator.

But what about the countless sentences of language that do not have truth-conditions, but which are nevertheless perfectly meaningful? For example neither of “Is Jones an efficient administrator?” or “Jones, administrate efficiently!” are the sorts of sentences that have truth-conditions. So far, in our account of sense and semantic value, we have considered only sentences which are in the indicative grammatical mood, and we have suggested that the sense of these sentences is given by their truth-conditions. But there are other grammatical moods: the interrogative mood, exemplified by “Is Jones an efficient administrator?”; and the imperatival mood, exemplified by “Jones, administrate efficiently!”. So what can we say about the literal meanings of sentences in these other moods? Frege’s idea is to represent the meaning of a sentence by an ordered pair, consisting of a sense, together with an indication of force. Since we already have a story about the senses of sentences in the indicative mood, we shall use this as a basis for giving an account of the meanings of sentences in other, non-indicative moods. This is what Frege thinks ought to be done (he never got so far as actually doing it in any detail). Consider the three sentences

(17) Jones is an efficient administrator. (18) Is Jones an efficient administrator? (19) Jones, administrate efficiently!

The sense of (17) is the thought that Jones is an efficient administrator. Now we can do a number of things with the thought that Jones is an efficient administrator. We can assert it, we can ask whether it is true, and we can command that it be made true. Each of these corresponds to a different force that might be attached to the thought: the force of an assertion, the force of a question, the force of a command. We can represent the meanings of (17)–(19) as

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(Jones is an efficient administrator, force of an assertion) (Jones is an efficient administrator, force of a question) (Jones is an efficient administrator, force of a command).

Thus, we can give an account of the literal meanings of many types of sentences in terms of the notion of sense developed for indicative sentences together with the additional notion of force.⁴⁸ We can now formulate our final Fregean thesis:

Note that force and tone are invoked as part of an account of sentence-meaning.⁴⁹ It is usual to distinguish between sentencemeaning and speaker’s-meaning. Speaker’s-meaning concerns what information the utterer actually intends to convey. It is clear that the speaker’s-meaning and the literal meaning of a sentence can come apart. Consider our sentence (17). As we noted, its sentencemeaning is that Jones is an efficient administrator. But imagine I am having a conversation with a visitor to my department who asks, of my colleague, Jones, whether he is an interesting philosopher. If I respond by uttering the sentence, what information do I intend to convey to the visitor? Roughly, I intend to convey the information that Jones is an uninteresting philosopher. Thus, I can use a sentence which literally means that Jones is an efficient administrator to assert that Jones is an uninteresting philosopher. Another way of putting this would be to say that I can utter sentence (17) to perform the speech-act of asserting that Jones is an uninteresting philosopher.⁵⁰ Obviously, there are many different types of speech-act: giving commands, asking questions, and so on. Note that I can even perform the speech-act of asserting that Jones is an uninteresting

philosopher by uttering a sentence which is non-indicative in mood: for example, I could reply to my visitor's question with either "Are you kidding?" or "Pull the other one!". Given that a sentence has a particular literal meaning, what determines its speaker's-meaning, or the particular speech-acts its user performs on a given occasion of utterance? Answering this

Thesis 21: In addition to sense and semantic value, we must also introduce the notions of force and tone.

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question is the province of pragmatics. Very roughly, we can say that speaker's-meaning is determined in part by the context of utterance. Whether we can say anything more systematic than this is an extremely difficult question. For the moment, we'll sum things up by saying that pragmatics concerns the determination of speaker's-meaning, while semantics concerns the determination of sentence-meaning or literal-meaning. We can sum up our account of Frege as follows. For Frege, whether or not a sentence is grammatically well-formed is determined by syntactical rules. These are the province of syntax (§1.2). Whether or not it is true is determined by the references and extensions of its constituents (§1.3–1.7). The references and extensions of its constituents are determined by their senses, which in turn determine the sense (truth-condition) of the sentence (§2.1–2.2). In addition to sense, we must also discern force and tone as ingredients in meaning (§2.6). Sense, force, and tone together determine sentence-meaning, what a sentence literally and strictly means. All this belongs to the province of semantics. Given the sentence-meaning which belongs to the sentence, the context of utterance determines the speaker's-meaning, or speech-acts actually performed by the utterance of the sentence. The story as to how sentence-meaning and context of utterance jointly determine speaker's-meaning is the province of pragmatics.⁵¹

2.8 Russell on names and descriptions

Bertrand Russell (1872–1970), in a series of famous works, challenged some of the views of Frege's that we have been outlining. In fact, Russell raised two distinct sorts of criticism of Frege. On the one hand, he accepted, in broad outline, the account of semantic value that we outlined in Chapter 1, but argued that Frege had gone wrong on some important points of detail. On the other, he attacked Frege's introduction of the notion of sense over and above that of semantic value. We'll consider criticisms of the first sort in this section and the next, and criticisms of the second sort in §2.9. This will allow us to outline Russell's famous "theory of definite descriptions". In §1.4, we saw that Frege held the following thesis:

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We could also view this as a definition of "proper name": proper names are precisely those expressions which have objects as their semantic values. It would then be an open question whether names, as they appear in natural languages such as English, are proper names as thus defined. Frege clearly held that ordinary names, such as "Aristotle" and "Odysseus", are proper names in this sense. He also held that definite descriptions are proper names in this sense. A definite description is a

phrase of the form “the so and so”. So examples of definite descriptions would be “the King of France”, “the man in the iron mask”, “the celestial body most distant from the earth”, and “the least rapidly convergent series”. Frege thus held that the semantic value of a definite description is the object which it stands for: the contribution which a definite description makes to the truth-values of complex sentences in which it appears is determined by the fact that it stands for a certain object. Recall that one of the problems we raised for Frege in §2.5 was the problem of bearerless names. The easiest way into Russell’s views is to see him as starting from essentially the same problem. Take a definite description such as “the King of France”. There is simply no object for which this stands, so if we view it as a proper name, it follows that it has no semantic value. But then there is no property in virtue of which it makes a contribution to the truth-values of complex sentences in which it appears. Thus, on Frege’s view, the sentence

(20) The King of France is bald

has no truth-value: it expresses a thought which is neither true nor false. We saw that this notion is only dubiously coherent. One way of avoiding the problem was suggested by the Austrian psychologist and philosopher Alexius Meinong (1853–1920): the expression “the King of France” does refer to an object, but a nonexistent one. The King of France, even though he doesn’t exist, nevertheless subsists. Russell attempts to avoid the problem in a

Thesis 4: The semantic value of a proper name is the object which it stands for.

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way which does not involve the highly implausible postulation of non-existent, but nevertheless subsistent, objects. Rather, Russell attempts to avoid the problem by denying that definite descriptions are proper names. If definite descriptions are not proper names, their semantic values are not given by the objects (if any) which they stand for, so the fact that there are many definite descriptions which do not stand for any object does not lead to the problem faced by Frege. But if the semantic behaviour of definite descriptions is not to be explained in terms of their standing for objects, how is it to be explained? What are definite descriptions if they are not proper names? In order to see Russell’s answer to these questions, we should think about the correct translation of (20) into Frege’s logical language. (20) has the grammatical form of a subject-predicate sentence. So if we were taking grammatical form as a guide to the correct translation of (20) into logical symbolism, it would come out as

(21) Fa.

A property, being bald, represented by “F” is predicated of the King of France, represented by “a”. Now we can say that in translating a sentence into Frege’s logical symbolism we are attempting to capture its logical form: we exhibit the form of the sentence in such a way that the contributions its constituents make to its truth-value are thereby exhibited. Thus, in translating (20) by (21) we are suggesting that “the King of France” contributes to determining the truth-value of (20) in the manner of a proper name, and “bald” contributes in the manner of a predicate. Russell suggests that in this instance we should not take the grammatical form of the sentence as a guide to its logical

form. In fact, the logical form of (20) is given by something quite different from (21). Russell analyses (20) by first breaking it up into three different parts:

(i) There is at least one King of France. (ii) There is at most one King of France. (iii) Anything which is a king of France is also bald.

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The conjunction of (i), (ii) and (iii) amounts to the claim that the King of France is bald. Thus, the logical form of (20) can be represented by the translation of the conjunction of (i), (ii) and (iii) into Frege's logical symbolism. Taking "F" to abbreviate the predicate "... is a king of France"⁵² and "G" to abbreviate the predicate "... is bald", this comes out as

(22) $(\exists x)((Fx \& Gx) \& (\forall y)(Fy \rightarrow x=y))$.

Representing the logical form of (20) by (22) does not involve representing "the King of France" as a proper name, as in (21). We can represent the logical form of sentences in which definite descriptions appear without viewing those descriptions as having objects as their semantic values. But if definite descriptions do not have objects as their semantic values, what are their semantic values? The answer to this is that definite descriptions have second-level functions as their semantic values. In (20), the definite description "the King of France" is translated by

(23) $(\exists x)((Fx \& \dots x) \& (\forall y)(Fy \rightarrow x=y))$

which stands for a function from concepts (first-level functions) to truth-values. Russell's criticism of Frege's view of definite descriptions can thus be summed up as follows. Frege assigns definite descriptions the wrong sort of semantic values: Frege views definite descriptions as proper names, as having objects as their semantic values; but in fact definite descriptions have second-level functions as their semantic values.⁵³ Note how this solves the problem of bearerless definite descriptions. Since definite descriptions are not proper names, but rather functional expressions which do not have objects as their semantic values, the failure of a definite description to stand for an object does not imply that it has no semantic value: we still have an account of how it contributes to the truth-values of complex sentences in which it appears, an account which runs along the lines of that given for functional expressions in Chapter 1. What, then, is the truth-value of (20)? Given the analysis into (22) we can see that it is false, since $(\exists x)Fx$ is false (since there is no King of France).

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In fact, Russell attempts to avoid the problem of bearerless names in exactly the same way, by treating ordinary names as disguised definite descriptions. That is, Russell claims that even ordinary names are not proper names in the sense defined by thesis 4. Consider the sentence

(24) Odysseus was set ashore at Ithaca while sound asleep.

Frege would analyse this as having the logical form given by

(25) Mb

where “M” translates the predicate “. . . was set ashore at Ithaca while sound asleep” and “b” translates “Odysseus”. Again, Russell suggests that we should not take the grammatical form of (24) as an infallible guide to its logical form. “Odysseus” is really a disguised definite description: for simplicity, suppose that it is the definite description “the hero of Homer’s Odyssey”. (24) thus really amounts to

(26) The hero of Homer’s Odyssey was set ashore at Ithaca while sound asleep.

We now analyse this in the same way that we analysed (20), using “N” to translate the predicate “. . . is a hero of Homer’s Odyssey”:

(27) $(\exists x)((Nx \ \& \ Mx) \ \& \ (\forall y)(Ny \ \rightarrow \ x=y))$.

This analysis shows that “Odysseus” is not really a proper name. Rather, the semantic value of “Odysseus” is the second-level function denoted by:

(28) $(\exists x)((Nx \ \& \ \dots \ x) \ \& \ (\forall y)(Ny \ \rightarrow \ x=y))$.

So the fact that there actually is no Odysseus does not cause problems: we can still account for the contribution “Odysseus” makes to the truth-values of sentences containing it, by giving a story along the lines of that we gave for functional expressions in Chapter 1. The problem of bearerless names has disappeared.

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If neither definite descriptions nor ordinary names can be viewed as genuine proper names, what can? Isn’t Russell committed to the view that there are no genuine proper names? In fact, Russell thinks that the only genuine proper names might turn out to be demonstrative expressions, such as “this” or “that”:

We may even go so far as to say that, in all such knowledge as can be expressed in words – with the exception of “this” and “that” and a few other words of which the meaning varies on different occasions – no [genuine proper] names occur, but what seem like [genuine proper] names are really descriptions.⁵⁴

In fact, Russell’s views here are even more drastic than they sound. Not only are “this” and “that” the only possible genuine proper names, but even they cannot be construed as proper names if they are taken as referring to physical objects. They can only be viewed as proper names if they are taken to refer to sense-data or “objects of sense”:

We say “This is white”. If you agree that “this is white”, meaning the “this” that you see, you are using “this” as a proper name. But if you try to apprehend the proposition that I am expressing when I say “This is white”, you cannot do it. If you mean this piece of chalk as a physical object, then you are not using a proper name. It is only when you use “this” quite strictly, to stand for an actual object of sense, that it is really a proper name.⁵⁵

It is easy to see the rough form of Russell's reasoning here. The only genuine proper names are those for which the problem of bearerless names cannot possibly arise. Sense-data seem like good candidates for objects whose existence cannot possibly be doubted: if it seems to me that there is a red sense-datum in my visual field, then there is. So the only genuine proper names are names of sense-data: demonstratives applied to currently existing experiences. Whether Russell's restricted conception of what count as genuine proper names is plausible is a question which we cannot enter into here, as it would take us far afield into Russell's epistemology. In §2.9 we consider further Russell's critique of Frege.

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2.9 Scope distinctions

As noted above, on Russell's analysis, the sentence

(20) The King of France is bald

comes out false. But what about the sentence

(29) The King of France is not bald.

Is this true or false? Russell worries that on his analysis this sentence will also come out as false. This would be a problem, because it would seem to lead to a counterexample to the logical law known as the law of excluded middle. This law states that for any given sentence, either it or its negation must be true. But if both (20) and (29) are false, we seem to have a case where neither a sentence nor its negation are true. As Russell himself puts it:

By the law of excluded middle, either "A is B" or "A is not B" must be true. Hence either "the present King of France is bald" or "the present King of France is not bald" must be true. Yet if we enumerated the things that are bald and then the things that are not bald, we should not find the present King of France in either list. Hegelians, who love a synthesis, will probably conclude that he wears a wig.⁵⁶

Russell responds to this worry by distinguishing between two different ways of reading (29). On one reading, it is false, but is not really the negation of (20), so that no counterexample to the law of excluded middle is generated. On the other reading, it is the negation of (20), but is actually true, so that again there is no threat to the law of excluded middle. In order to distinguish between the two readings, Russell uses the notion of scope. Consider

(30) All philosophers are not stupid.

Clearly, this is not consistent with the existence of a stupid philosopher: if a stupid philosopher exists, then (30) is false. Taking

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“F” as “. . . is a philosopher” and “G” as “. . . is stupid”, (30) formalises as

(31) $(\forall x)(Fx \rightarrow \neg Gx)$.

Notice that the negation operator “ \neg ” occurs inside the part of (31) which is governed by the universal quantifier $(\forall x)$. We say that the negation operator has narrow scope with respect to the universal quantifier (or equivalently, that the universal quantifier has wide scope with respect to the negation operator). Contrast this with

(32) It is not the case that all philosophers are stupid.

This is consistent with the existence of a stupid philosopher: so long as there is at least one other philosopher who is not stupid (32) still comes out true. Using the same letters as above, this formalises as

(33) $\neg (\forall x)(Fx \rightarrow Gx)$.

Notice that in this case the negation operator occurs outside the part of (33) which is governed by the universal quantifier. We say that the negation operator has wide scope with respect to the universal quantifier (or equivalently, that the universal quantifier has narrow scope with respect to the negation operator). Now just as we can distinguish between the negation operator’s having wide or narrow scope with respect to a quantifier, we can also distinguish between their having wide or narrow scopes with respect to a definite description. Consider the formalisation of (29), which clearly displays its falsity:

(34) $(\exists x)((Fx \& \neg Gx) \& (\forall y)(Fy \rightarrow x=y))$.

In this the negation operator has narrow scope with respect to the definite description (i.e. to the functional expression (23)). Russell points out that (34) is not the negation of (29): in order to get the negation of (29) we need to find something in which the negation operator has widest scope. The only candidate for this is

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(35) $\neg (\exists x)((Fx \& Gx) \& (\forall y)(Fy \rightarrow x=y))$.

In this, the negation operator has wide scope with respect to the definite description. This shows that (35), and not (34), is the negation of (29). Now (35) is actually true, since it is the result of negating $(\exists x)((Fx \& Gx) \& (\forall y)(Fy \rightarrow x = y))$ which on Russell’s analysis is false. So, the negation of (22) is true, and there is no problem for the law of excluded middle.⁵⁷ As Russell puts it “we escape the conclusion that the King of France has a wig”.⁵⁸

2.10 Russell’s attack on sense

In addition to making criticisms of detail about Frege’s assignments of semantic value, Russell also criticised Frege’s introduction of the notion of sense. There are two main criticisms of the notion of sense. The first is that the distinction between sense and semantic value is actually incoherent: Russell describes Frege’s attempt at drawing the distinction as leading to an “inextricable tangle”

and writes that “the whole distinction of [sense] and [reference] has been wrongly conceived”.⁵⁹ Russell provides the argument that the notion of sense is incoherent on pp.48–51 of “On Denoting”. But we shall not consider this argument here: it is truly one of the most mysterious passages in twentieth-century philosophy.⁶⁰ Instead we shall concentrate on Russell’s second main line of criticism of the notion of sense. This does not involve the claim that the notion of sense is incoherent: rather, Russell tries to show that the invocation of the notion of sense is simply superfluous. Frege introduced the notion of sense in an attempt to solve a number of puzzles. Russell argues that these puzzles can be solved in a way which does not involve any appeal to the notion of sense, so that Frege’s rationale for introducing the notion is simply undercut. Recall that Frege’s introduction of sense was motivated by the desire to solve three main problems: the problem of bearerless names, the problem of substitution into belief contexts, and the problem of informativeness. We have already seen how Russell attempted to solve the first of these: empty definite descriptions and ordinary names still have a semantic value because they are

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not actually genuine proper names, but rather have second-level functions as their semantic values. We now look at how Russell deals with the other two problems. Recall that the problem of substitution into belief contexts was a problem because it threatened thesis 3: substituting a constituent of a sentence with another which has the same semantic value will leave the truth-value of the sentence unchanged. Consider

(36) Smith believes that the composer of Fidelio had cirrhosis of the liver.

Now suppose that Smith doesn’t realise that the composer of Fidelio is in fact the same person as the composer of the Moonlight Sonata. That is, Smith doesn’t know that

(37) The composer of Fidelio is the composer of the Moonlight Sonata.

Suppose that “The composer of Fidelio” and “The composer of the Moonlight Sonata” are proper names. Then, they have the same semantic value, since they pick out the same person, Beethoven. So we should be able to substitute “The composer of the Moonlight Sonata” for “The composer of Fidelio” in (36) without changing (36)’s truth-value. But in fact the substitution results in the false

(38) Smith believes that the composer of the Moonlight Sonata had cirrhosis of the liver.

So it looks as if we have a counterexample to thesis 3. Russell wants to hold on to thesis 3, so he tries to explain away the apparent counterexample. In order to show how he attempted to do so, it will be best to first restate the problem in slightly more formal terms. On the assumption that definite descriptions are genuine proper names, we can (partially) translate (36) into logical symbolism as follows, where “a” translates “the composer of Fidelio” and “F” translates the predicate “. . . has cirrhosis of the liver”:

(39) Smith believes that Fa.

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Taking “b” to abbreviate “the composer of the Moonlight Sonata”, (37) gets translated as:

(40) $a = b$.

And (38) gets translated as

(41) Smith believes that Fb .

The counterexample is now clear: we substitute into the true (39) on the basis of the true (40) and get the false (41) as a result. Russell’s response to the problem is basically this: (39), (40), and (41) misrepresent the logical form of (36), (37), and (38), and when we see their true logical form, we’ll see that there is simply no room for the sort of substitution which takes us from (39) and (40) to (41). For Russell, “the composer of Fidelio” is not a proper name. Rather, it gets treated in the same way as “the King of France”, so that the logical form of (36) is more accurately captured by

(42) Smith believes that $(\exists x)((Gx \ \& \ Fx) \ \& \ (\forall y)(Gy \ \rightarrow \ x=y))$

where “G” stands for the predicate “. . . is a composer of Fidelio”. The logical form of (37) is given by

(43) $(\exists x)(Gx \ \& \ Hx \ \& \ (\forall y)(Gy \ \rightarrow \ x=y) \ \& \ (\forall z)(Hz \ \rightarrow \ x=z))$

where “H” abbreviates the predicate “. . . is a composer of the Moonlight Sonata”. Now whereas (40) allowed us to substitute into the true (39) to obtain the false (41), (43) simply does not allow us to substitute into (42): (42) and (43) are simply not of the right logical form to allow a substitution, so a fortiori, there is no possibility of a substitution which takes us from a true sentence to a falsehood. Alternatively, the logical form of (38) is given by

(44) Smith believes that $(\exists x)((Hx \ \& \ Fx) \ \& \ (\forall y)(Hy \ \rightarrow \ x=y))$.

This is false, but it cannot be reached by substituting into (42) on

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the basis of (43). Thesis 3 is safe. Note that since Russell views natural names as disguised definite descriptions, he can apply this solution of the problem to cases which involve natural names rather than explicit definite descriptions. This allows him to solve the problem as presented in §2.1.61 Russell is thus able to solve the problem of substitution into belief contexts without invoking the notion of sense. But what about the problem of informativeness? Recall from §2.1 that Frege argued for the introduction of sense on the basis of a reductio argument: if the only semantic property that could be ascribed to expressions was possessing a semantic value, then it would not be possible to understand a sentence and yet fail to know its truthvalue. Now, a crucial step in the reductio, as presented in §2.1, was premise (v): the semantic value of “The Morning Star” is the same as that of “The Evening Star”, namely, the planet Venus. Russell will reply that this presupposes that “The Evening Star” and “The Morning Star” are proper names, expressions which have the objects they stand for as their semantic values. But this is false. Natural names are disguised definite descriptions, and have secondlevel functions, rather than the objects they pick out, as their semantic values. The

fact that “The Evening Star” and “The Morning Star” both pick out the same object thus does not entail that they have the same semantic value, and Frege’s argument is blocked: the assumption that the only semantic property of an expression is its possession of a semantic value does not imply that one can never understand a sentence without knowing its truth-value. How plausible are Russell’s solutions to these problems? The solution to the problem of substitution into belief contexts is supposed to save the following thesis:

In the case where the constituents are proper names, this amounts to: substituting one name in a sentence with another which picks out the same object should leave the truth-value of the sentence

Thesis 3: Substituting a constituent of a sentence with another which has the same semantic value will leave the semantic value (i.e. truth-value) of the sentence unchanged.

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unchanged. Now Russell is quite right to say that if his theory of descriptions is accepted, the examples we considered do not constitute counterexamples to this version of thesis 3. Since the expressions which are substituted are not proper names, this version of thesis 3 simply fails to have any application. But, of course, the version involving names is just one version of thesis 3. Since expressions other than names are also taken to have semantic values, there will be other versions of thesis 3. In particular, where the expressions concerned are definite descriptions, which on Russell’s theory have second-level functions as their semantic values, thesis 3 will amount to: substituting one definite description in a sentence with another which has the same second-level function as its semantic value should leave the truth-value of the sentence unchanged. Does Russell’s solution to the problem preserve this version of thesis 3? It does not, given the assumption that functions have extensional identity conditions (thesis 6). Consider the second-level function which is the semantic value of “the composer of Fidelio”, denoted by:

$$(45) (\exists x)((Gx \ \& \ \dots \ x) \ \& \ (\forall y)(Gy \ \rightarrow \ x=y)).$$

What is the extension of this function? This is a second-level function, a function from concepts (first-level functions) to truth-values, so we can represent its extension as a set of ordered pairs of concepts and truth-values. Consider a few predicates: “J” for “. . . was an uncle of Karl Beethoven”, “K” for “. . . enjoyed drinking wine”, “L” for “. . . went deaf”, “M” for “. . . was English”. Then we can represent the extension of the function (45) as:

$$(46) \{(J, T), (K, T), (L, F), (M, F), \dots\}.$$

Consider the function which is the semantic value of “the composer of the Moonlight Sonata”, denoted by:

$$(47) (\exists x)((Hx \ \& \ \dots \ x) \ \& \ (\forall y)(Hy \ \rightarrow \ x=y)).$$

What is the extension of this second-level function? It can be represented as:

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(48) {(J, T), (K, T), (L, T), (M, F), ...}.

This is identical to (46), and the problem for Russell is now apparent. “The composer of Fidelio” and “The composer of the Moonlight Sonata” have the functions denoted by (45) and (47) as their respective semantic values. But these have the same extension, so given that functions have extensional identity conditions, “The composer of Fidelio” and “The composer of the Moonlight Sonata” have the same semantic value. Now go back to the sentence which led to the apparent counterexample to thesis 3:

(36) Smith believes that the composer of Fidelio had cirrhosis of the liver.

Since, even given Russell’s theory of definite descriptions, “the composer of Fidelio” has the same semantic value as “the composer of the Moonlight Sonata”, the following should be true given that (36) is:

(38) Smith believes that the composer of the Moonlight Sonata has cirrhosis of the liver.

But (38) is false. So the counterexample to thesis 3 still remains. Note that these reflections also threaten Russell’s solution to the problem of informativeness. Given that “The Morning Star” and “The Evening Star” are to be treated as disguised definite descriptions, a line of argument similar to that just given above will show that they have the same second-level functions as their semantic values. Russell’s attempt to block Frege’s *reductio* argument will thus fail. Is there any way Russell can respond to these objections? I leave this question as an exercise for the reader.⁶² But if no response can be made on behalf of Russell the conclusion will be that he fails in his attempts to solve the problem of substitution into belief contexts and the problem of informativeness without invoking the notion of sense, and that accordingly some notion of sense is after all required.⁶³

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2.11 Russell on communication

Recall from §2.3 that Frege invoked the notion of sense in an attempt to explain linguistic communication. Communication, or the “transmission of thought”, is to be explained in virtue of the common senses which speakers attach to their words. We saw in §2.3 that Frege’s attempt to use the notion of sense in an account of communication was not entirely successful, but leave this worry on one side for the moment. Does Russell fare any better? That is to say, can Russell give an account of communication in a manner which does not involve the invocation of a notion of sense? Suppose that Smith says to Jones: “Bismarck was an astute diplomat”. According to Frege, a condition on Smith’s successfully communicating by means of this utterance is that Smith and Jones both attach the same sense to the name “Bismarck”. Russell, however, wishes to reject the idea that natural names such as “Bismarck” even have a sense. So what account can he give of the conditions on successful linguistic communication? This question is all the more pressing for Russell given his view that natural names are really disguised definite descriptions and his explicit admission that different definite descriptions may be abbreviated by the same natural name for different people:

Common words, even proper names, are usually really descriptions. That is to say, the thought in the mind of a person using a proper name correctly can generally only be expressed explicitly if we replace the proper name by a description. Moreover, the description required to express the thought will vary for different people, or for the same person at different times.⁶⁴

So suppose that for Smith, the name “Bismarck” is an abbreviation of the description “the first Chancellor of Germany”, and for Jones an abbreviation of the description “the most powerful man in Europe”. Doesn’t it follow from this that Smith’s saying “Bismarck was an astute diplomat” to Jones will not result in a successful episode of communication? Russell suggests not: the fact that Smith and Jones abbreviate different descriptions by the name “Bismarck” need not frustrate their attempt at communication.

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Mark Sainsbury suggests that the key sentence in making sense of Russell’s suggestion here is the following:

The only thing constant (so long as the name is rightly used) is the object to which the name applies.⁶⁵

Sainsbury fleshes this out as follows:

Suppose I utter the words “Bismarck was an astute diplomat”. As I use the name “Bismarck”, the thought in my mind may be best described as that the first Chancellor of Germany is an astute diplomat. However, I realize that you may associate the name with a different description, perhaps “the most powerful man in Europe”. So when I utter my sentence, I am not trying to get you to share my thought; rather, I am trying to get you to have a thought, concerning Bismarck (however you think of him), that he is an astute diplomat. My intentions would be satisfied if you realized that I had tried to say, of the most powerful man in Europe, that he was an astute diplomat.⁶⁶

Also

It is not necessary that [Smith] and [Jones] should share a thought. All that is required is that the possibly various descriptions they associate with the name “Bismarck” should stand for the same thing; for this is what it means to say that the name “Bismarck” has a (public) reference in the language community to which [Smith] and [Jones] belong.⁶⁷

How successful is Sainsbury’s defence of a Russellian account of linguistic communication? We leave this as an exercise for the reader. Even if Sainsbury’s defence is successful, we saw that Russell runs into serious problems in his attempts to solve the problems of informativeness and substitution into belief contexts. What this suggests is that some notion of sense is required, even if not that invoked by Frege. We cannot pursue this matter further here. In the following two sections we look at important papers on reference by Strawson and Donnellan, followed by a brief account of the causal-historical theory of reference

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that Kripke proposes as an alternative to those of Frege and Russell.

2.12 Strawson and Donnellan on referring and definite descriptions

In his classic 1950 paper “On Referring”, P.F. Strawson outlines a critique of Russell’s Theory of Descriptions. In this section, we give a brief outline of Strawson’s main criticism of Russell followed by a brief account of some criticisms of both Russell and Strawson voiced by Keith Donnellan in his famous 1966 paper “Reference and Definite Descriptions”. Strawson notes “Russell’s Theory of Descriptions . . . is still widely accepted among logicians as giving a correct account of the use of such expressions [e.g. ‘the King of France is wise’] in ordinary language. I want to show . . . that this theory, so regarded, embodies some fundamental mistakes”.⁶⁸ His main objection turns on a distinction he draws between sentence-types, on the one hand, and statements which tokens of that sentence-type are used to make (by particular speakers in particular contexts of utterance).⁶⁹ Strawson argues that the former can be regarded as significant or insignificant, while only the latter can be regarded as true or false. Likewise for subsentential expressions: expression-types can be regarded as significant or insignificant, whereas only particular tokens of expression-types can be regarded as referring or failing to refer. He writes:

“Mentioning”, or “referring”, is not something an expression does; it is something a speaker does; it is something that someone can use an expression to do. Mentioning, or referring to, something is a characteristic of a use of an expression, just as “being about” something, and truth-or-falsity, are characteristics of a use of a sentence.⁷⁰

Consider the sentence

(49) The King of France is wise.

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According to Russell’s analysis, this sentence is false, whereas for Strawson, the sentence itself is not something that can legitimately be described as true or false: “we cannot talk of the sentence being true or false, but only of its being used to make a true or false assertion, or (if this is preferred) to express a true or false proposition”.⁷¹ So what about a particular utterance of a token of (49)? According to Russell, such an utterance would be false. Strawson disagrees:

[S]uppose someone were in fact to say to you with a perfectly serious air: “The king of France is wise”. Would you say, “That’s untrue”? I think it’s quite certain that you wouldn’t. But suppose he went on to ask you whether you thought that what he had just said was true, or was false; whether you agreed or disagreed with what he had just said. I think you would be inclined, with some hesitation, to say that you didn’t do either; that the question of whether his statement was true or false simply didn’t arise, because there was no such person as the king of France.⁷²

In order to explain why this is so, Strawson uses the distinction drawn above between sentence-types and statements made by tokens of that type:

The sentence [(49)] is certainly significant; but this does not mean that any particular use of it is true or false. We use it truly or falsely when we use it to talk about someone; when, in using the expression, “The king of France”, we are in fact mentioning someone. The fact that the sentence and the expression, respectively, are significant just is the fact that the sentence could be used, in certain circumstances, to say something true or false, that the expression could be used, in certain circumstances to mention a particular person.⁷³

Although an utterance of (49) could be used to make an assertion which would be true or false, in circumstances in which France is a republic and not a monarchy a presupposition of its making such a statement – that there is such a person as the king of France – is not satisfied, so that the utterance of (49) fails to make an assertion, in other words fails to express a statement with a truth-value:

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[T]his comes out from the fact that when, in response to his statement, we say (as we should) “There is no king of France”, we should certainly not say that we were contradicting the statement that the king of France is wise. We are certainly not saying that it’s false. We are, rather, giving a reason for saying that the question of whether it’s true or false simply doesn’t arise.⁷⁴

Thus, according to Russell, an utterance of (49) by me now would be false, whereas according to Strawson, an utterance of (49) by me now would not succeed in expressing a statement that was either true or false. Who is right? We’ll return to this question at the end of §7.6. In his famous 1966 paper “Reference and Definite Descriptions” Keith Donnellan takes both Russell and Strawson to task for neglecting a distinction between two distinct uses of definite descriptions. Contrast two contexts in which the sentence “The murderer of Smith is insane” may be uttered. In the first, it is uttered by a detective, who, inspecting Smith’s mutilated corpse, comes to the conclusion that whoever did this to Smith must be insane. Suppose it turns out that in fact Smith committed suicide. Then, there is no-one who satisfies the description “the murderer of Smith”, and, as with (49) above, Russell and Strawson disagree about the impact this has on the truth-value of the utterance. According to Russell the utterance is false; according to Strawson, the utterance fails to say anything either true or false. Donnellan calls this kind of use of a definite description an attributive use. The main problem with Russell’s account, according to Donnellan, is that it entirely neglects a radically different kind of use to which definite descriptions may be put. Consider again an utterance of “Smith’s murderer is insane”, this time uttered in court by a journalist watching the odd behaviour of Green, who is in the dock as the accused undergoing cross-examination for the alleged murder of Smith. According to Donnellan, in this sort of case the journalist succeeds in referring to Green even if in fact Green is not Smith’s murderer. This sort of case, in which a definite description can be used to say something true or false even if in fact nothing satisfies it, Donnellan calls a referential use.

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Donnellan’s main criticism of Russell is that his account of the semantics of definite descriptions fails to deal with this sort of case. Among the criticisms Donnellan levels against Strawson is the

following. According to Strawson, the utterance of “The murderer of Smith is insane” made by the detective on finding Smith’s body is neither true nor false. Donnellan concedes that this may well be the case, but his problem concerns the explanation which Strawson suggests: according to Strawson “The murderer of Smith is insane” fails to have a truth-value since, because no-one actually did murder Smith, the phrase “the murderer of Smith” fails to refer. That this is the kind of explanation that Strawson offers is apparent from his remarks on (49):

When we utter the sentence without in fact mentioning anybody by the use of the phrase, “The king of France”, the sentence doesn’t cease to be significant; we simply fail to say anything true or false because we simply fail to mention anybody by this particular use of that perfectly significant phrase. It is, if you like, a spurious use of the expression; though we may (or may not) mistakenly think it is a genuine use.⁷⁵

Donnellan objects that this presupposes that “the G” in “the G is H” fails to refer if there is in fact no G: a presupposition that is shown to be false by the possibility of referential uses of definite descriptions. So Strawson’s explanation fails.⁷⁶

2.13 Kripke’s causal-historical theory of reference

In §2.4 we saw that Kripke rejects Frege’s account of names, and he takes his criticisms to apply also to Russell’s view that names are disguised definite descriptions. How, then, is the reference of a proper name, in general, fixed? Kripke proposes to replace the Fregean and Russellian view with the following alternative picture:

Someone, let’s say, a baby, is born; his parents call him by a certain name. They talk about him to their friends. Other people meet him. Through various sorts of talk the name is spread from link to link as if by a chain. A speaker who is on the far end of this chain, who has heard about, say, Richard Feynman,

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in the market place or elsewhere, may be referring to Richard Feynman even though he can’t remember from whom he first heard of Feynman or from whom he ever heard of Feynman. He knows that Feynman is a famous physicist. A certain passage of communication reaching ultimately to the man himself does reach the speaker. He then is referring to Feynman even though he can’t identify him uniquely . . . a chain of communication going back to Feynman himself has been established, by virtue of his membership in a community which passed the name on from link to link.⁷⁷

Note that the cases where it is plausible to view definite descriptions as playing a reference-fixing role are those in which the object is originally christened with the name. In some cases this will be via ostension (“I call this baby ‘Rosa’”), but in others it may be by description (the Chief Inspector announces that “‘Jack the Ripper’ refers to whoever committed the last three Whitechapel murders”). This only applies to the first link in the chain: after the initial link, causal considerations take prominence. Kripke admits that this picture is a rough one, and he expresses doubt as to whether it can be refined into a set of necessary and sufficient conditions for reference. Indeed, he

explicitly disavows the ambition to construct an alternative “theory” of reference at all. But the picture is already sharp enough to admit of potential counterexamples. The name “Edward Elgar” was given, we may suppose, to the distinguished English composer by his parents in some initial “dubbing” or “baptismal” ceremony in Worcestershire in the nineteenth century. The name has finally reached me via a long causal chain, reaching back through time to this initial baptismal act. Does it follow that when impressed by my dog’s noble countenance I start to call him “Edward Elgar” I refer to the distinguished composer and not to my Springer Spaniel? Of course not: and Kripke adds a simple clause to his account designed to deal with this sort of example:

An initial “baptism” takes place. Here the object may be named by ostension, or the reference of the name may be fixed by a description. When the name is “passed from link to link” the receiver of the name must, I think, intend when he learns it to

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use it with the same reference as the man from whom he heard it.⁷⁸

When, in throwing the ball over the dog’s head I shout “Go fetch it, Elgar”, my intention is not to use it with the same reference as André Previn, from whom I originally picked up the name. So there is no real counterexample. Even with the addition of the clause that the receiver intend to use the name with the same reference as the person from whom he learned it, though, other counterexamples can be found. Gareth Evans cites the following example from Isaac Taylor’s 1898 book *Names and their History*:

In the case of “Madagascar” a hearsay report of Malay or Arab sailors misunderstood by Marco Polo . . . has had the effect of transferring a corrupt form of the name of a portion of the African mainland to the great African island.⁷⁹

Suppose that Marco Polo picked up the name “Madagascar” from Solly, a native. And suppose that the use we moderns make of “Madagascar” can be traced back to Marco Polo. Then, since we intend to use the name with the same reference as Marco Polo, and since Marco Polo presumably intended to use it with the same reference as Solly, it follows that in our contemporary use of “Madagascar” we refer not to the island, but to the relevant portion of the African mainland. This example clearly calls for some more sophisticated revisions in Kripke’s causal picture. However, we cannot pursue the causal-historical theory further here. In the next chapter we move on to look at a school of philosophers whose imposition of constraints on what can and cannot possess sense provided the central plank of their philosophical outlook, and who provide an essential backdrop for understanding the philosophy of language of the second half of the twentieth century: the logical positivists.⁸⁰

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2.14 Appendix: Frege’s theses on sense and semantic value

Thesis 1: The semantic value of a sentence is its truth-value (true or false). Thesis 2: The semantic value of a complex expression is determined by the semantic values of its parts (compositionality of semantic value). Thesis 3: Substitution of a constituent of a sentence with another which has the same semantic value will leave the semantic value (i.e. truth-value) of the sentence unchanged (Leibniz's Law). Thesis 4: The semantic value of a proper name is the object which it refers to or stands for. Thesis 5: The semantic value of a predicate is a function. Thesis 6: Functions are extensional: if function f and function g have the same extension, then $f = g$. Thesis 7: The semantic value of a predicate is a first-level function from objects to truth-values; the semantic value of a sentential connective is a first-level function from truth-values to truth-values; the semantic value of a quantifier is a second-level function from concepts (first-level functions) to truth-values. Thesis 8: The sense of an expression is that ingredient of its meaning which determines its semantic value. Thesis 9: It is possible to know the sense of an expression without knowing its semantic value. Thesis 10: The sense of an expression is what someone who understands the expression grasps. Thesis 11: The sense of a complex expression is determined by the senses of its constituents (compositionality of sense). Thesis 12: If someone grasps the senses of two expressions, and the two expressions actually have the same sense, then she must know that the two expressions have the same sense (transparency of sense).

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Further reading

The student should begin by looking at the following four essays by Frege: "Function and Concept", "On Concept and Object", "On Sinn and Bedeutung" and "Thought". All of these are reprinted in M. Beaney (ed.) *The Frege Reader*. The first three of these can also be found in P. Geach and M. Black (eds) *Translations from the Philosophical Works of Gottlob Frege*. The last can also be found in P.F. Strawson (ed.) *Philosophical Logic*. After that, it would be advisable to look at some of the recent introductory textbooks, for example, A. Kenny, Frege, H. Noonan, Frege, or J. Weiner, Frege. Next, it might be useful to look at G. McCulloch, *The Game of the*

Thesis 13: An expression can have a sense even if it lacks a semantic value. Thesis 14: A sentence which contains an expression which lacks a semantic value is neither true nor false. Thesis 15: In a belief context, the (indirect) reference of a proper name is its customary sense. Thesis 16: Substitution of one expression in a sentence with another which has the same sense will leave the sense of the sentence unchanged. Thesis 17: the sense of a sentence is a thought (its truthcondition). Thesis 18: The semantic value of an expression is no part of what someone who understands the expression grasps. Thesis 19: Sense is objective: grasping a sense is not a matter of having ideas, mental images, or private psychological items. Thesis 20: The sense of an expression is normative: it constitutes a normative constraint which determines which uses of that expression are correct and which are incorrect. Thesis 21: In addition to sense and semantic value, we must also introduce the notions of force and tone.

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Name (especially Chapters 1 and 5). McCulloch's *The Mind and its World* also contains much useful material on Frege, and is especially good on the relationship between themes in Frege's philosophy of language and current issues in philosophy of mind. Chapter III is devoted to Frege, but this book is probably best read in its entirety. The doyen of Frege scholarship is Michael Dummett. His books *Frege: Philosophy of Language* and *The Interpretation of Frege's Philosophy* are classics, and set the scene for all subsequent discussion of Frege. But they are very long and, in places, very demanding. A crash course in Dummett's Frege might consist of the Introduction, and Chapters 1, 5, 6, and 19 of *Frege: Philosophy of Language*, though Dummett's books require and deserve close and careful study. An alternative interpretation of Frege's views on sense – one which interprets Frege as denying thesis 13 – can be found in G. Evans, *The Varieties of Reference*. See also J. McDowell, "On the Sense and Reference of a Proper Name" and the two books by McCulloch mentioned above. A spirited defence of a Lockean view of sense can be found in Chapter 7 of E.J. Lowe, *Locke on Human Understanding*. For a critical reply, see A. Miller, "Review Article on Lowe". Lowe replies in Chapter 4 of his later (2005) book *Locke*. A useful discussion of Kripke's Naming and Necessity can be found in Chapter 4 of McCulloch's *The Game of the Name*. See also the essays by Stalnaker and Stanley in Hale and Wright, *A Companion to the Philosophy of Language*, and M. Devitt, *Designation*. Dummett defends Frege against Kripke's objections in the appendix to Chapter 5 of *Frege: Philosophy of Language*. For an introduction to philosophical issues surrounding the notions of necessity and contingency, see J. Divers, *Possible Worlds* and J. Melia, *Modality*. A useful introduction to Russell's philosophy as a whole is A. Grayling, *Russell: A Very Short Introduction*. For Russell's theory of descriptions, the relevant papers are "On Denoting" and "Descriptions and Incomplete Symbols" (Chapter VI of "The Philosophy of Logical Atomism"). Both of these are reprinted in R. Marsh (ed.) *Logic and Knowledge*. Other relevant works are "Descriptions" (Chapter 16 of Russell's *Introduction to Mathematical Philosophy*), and "Knowledge by Acquaintance and Knowledge by Description" (Chapter 5 of Russell's *The Problems of Philosophy*). There is a good discussion of Russell's theory, and a very

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useful account of how it relates to his more general epistemological doctrines, in Chapters 2 and 3 of McCulloch's *The Game of the Name*. Sainsbury's account of Russell on Communication can be found in the section on Russell in his "Philosophical Logic", in A. Grayling (ed.) *Philosophy: A Guide through the Subject*. See also Sainsbury's entry on "Frege and Russell" in *The Blackwell Companion to Philosophy*, and Chapter 9, "Reference", of S. Blackburn, *Spreading The Word*. Other works worth consulting are: G. Makin, *The Metaphysicians of Meaning: Russell and Frege on Sense and Denotation*; W. Lycan, "Names"; and the various essays in Part IV, "The Nature of Reference", of LePore and Smith, *The Oxford Handbook of Philosophy of Language*. For very interesting background to the issues dealt with in this chapter, see Ray Monk's excellent two-volume biography of Russell, *Bertrand Russell: The Spirit of Solitude and Bertrand Russell: The Ghost of Madness*.

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