
Introduction

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Reference and Semantic Content

A French speaker in uttering the words 'La neige est blanche' asserts the same thing as an English speaker uttering the words 'Snow is white'. The thing asserted is a proposition, the proposition that snow is white. The fundamental semantic role of a declarative sentence is to encode, or 'express' a proposition. A declarative sentence is said to contain the proposition it encodes, and that proposition is described as the semantic content of the sentence.¹

Propositions are ontologically complex; they have components. This is apparent from consideration of distinct propositions having components in common. The proposition that Socrates is ingenious has some component in common with the proposition that Socrates is ingenuous, since both of these are directly about Socrates, and some other component again in common with the proposition that Plato is ingenious, since both of these directly ascribe ingenuity. These two proposition components are separately semantically correlated with the two major syntactic components of the sentence – the name 'Socrates' and the predicate 'is ingenious'. Let us call the proposition component semantically correlated with an expression the semantic content of the expression. The systematic method by which it is secured which proposition is semantically contained in which sentence is, very roughly, that a sentence semantically contains that proposition whose components are the semantic contents of the sentence parts, with these semantic contents combined in a manner parallel to that in which the sentence parts are themselves combined to form the sentence.² In order to analyse the proposition contained in a sentence

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into its components, one simply decomposes the sentence into its semantically contentful parts, and the semantic contents thereof are the components of the contained proposition. In this way, declarative sentences not only encode, but also codify, propositions.

The articles in Part II are concerned with the question of the semantic content for certain sorts of terms, particularly ordinary proper names, demonstratives, and singular definite descriptions – i.e., singular noun phrases formed from the definite article 'the' or from a possessive adjective, such as 'the oldest living American', 'your first wife', etc. Terms of this sort are commonly classified as singular terms. A singular term is an expression whose semantic function, when used in a particular context, is to *refer to*, i.e. to stand for, a single individual thing.

The Naive Theory

One natural and elegantly simple theory identifies the semantic content of a singular term (as used in particular context) with its referent (in that context), that is, with the object or individual referred to (with respect to that context). Likewise, the semantic content of the predicate 'is tall' might be identified with the property of being tall, and the semantic content of the predicate 'is taller than' might be identified with the binary relation of being greater in height.³ This may be called the Naive Theory of semantic content. Its central theses are: (i) The semantic content of any singular term is its referent; (ii) Any semantically contentful expression may be thought of as referring to its semantic content; and (iii) The semantic content of a sentence is a complex, ordered entity (something like a sequence) whose constituents are semantically correlated systematically with expressions making up the sentence, typically the simple (non-compound) component expressions. (Exceptions arise in connection with quotation marks, and similar devices.) On the naive theory the proposition contained in a simple atomic subject-predicate sentence such as 'Socrates is ingenious' is what David Kaplan in Chapter 12 calls a singular proposition – a complex abstract entity consisting partly of things like properties, relations, and concepts, and partly of the very individuals the proposition is about. By contrast, a (purely) general proposition is made up entirely of the former sorts of entities (in a certain way). On the Naive Theory, a sentence is a means for referring to its semantic content, by specifying the components that make it up.

The Naive Theory is both powerful and cogent. The theory yields a plausible rendering of the observation that the proposition that Socrates is ingenious is a proposition about or concerning Socrates: Socrates is an individual constituent of it. The Naive Theory gives substance to the oft-repeated slogan that to give (or to know, etc.) the semantic content or 'meaning' of a sentence of statement is to give (know, etc.) its truth conditions. Its notion of

semantic content is exemplary of the kind of notion of content that is needed in connection with the notions of so-called *de re* modality and *de re* propositional attitudes. Perhaps the most important thing to be said for the Naive Theory is its cogency and intuitive appeal as a theory of assertion. When you utter 'Socrates is ingenious', your speech act divides into two parts: You pick someone out, Socrates, and you ascribe something to him, ingenuity. These two component speech acts – reference and ascription – correspond to two components of what you assert when you assert that Socrates is ingenious.

Mill's Theory

Unfortunately, the Naive Theory's central theses apparently come into conflict with regard to definite descriptions. According to the Naive Theory, the semantic content of a phrase like 'the individual who wrote *Begriffsschrift*' is simply its referent, Frege. Consequently, the proposition semantically contained in 'The individual who wrote *Begriffsschrift* is ingenious' is to be the singular proposition about Frege that he is ingenious. But the definite description is a phrase which, like a sentence, has parts with identifiable semantic contents – for example the singular term (work title) '*Begriffsschrift*', as well as the predicate 'wrote *Begriffsschrift*'. These semantically contentful components of the definite description are *ipso facto* semantically contentful components of the sentence. If the semantic content of a sentence is made up of the semantic contents of its semantically contentful parts, the semantic contents of these description components must also go in to make up part of the proposition that the author of *Begriffsschrift* is ingenious. Thus, instead of identifying the semantic content of 'the individual who wrote *Begriffsschrift*' with its referent, one should look instead for some complex entity made up partly of something like the relational property of having written *Begriffsschrift* at some time earlier than *t*, where *t* is the time of utterance, and partly of whatever serves as the semantic content of the definite description operator 'the'. On this modified version of the Naive Theory, the proposition that the author of *Begriffsschrift* is ingenious is not the singular proposition about Frege that he is ingenious, but a different proposition composed of something involving the property of authorship of *Begriffsschrift* in place of Frege himself.

One extremely important wrinkle in this modification of the Naive Theory is that a definite description 'the ϕ ', unlike other sorts of singular terms, is seen as having a two-tiered semantics. On the one hand, there is the description's referent, which is the individual that satisfies the description's constituent ϕ , if there is only one such individual, and is nothing otherwise. On the other hand, there is the description's semantic content. This is a complex made up, in part, of the semantic content of ϕ . By contrast, a

proper name or other simple singular term is seen as having a one-tiered semantics: its semantic content (with respect to a particular context) is just its referent (with respect to that context). From the point of view of the modified Naive Theory, the original Naive Theory errs by treating definite descriptions on the model of a simple individual constant (proper name). Definite descriptions are not single words but phrases, and therefore have a richer semantic structure.

It can be demonstrated that if a notion of reference is to be extended to expressions other than singular terms, then an expression of any variety is best regarded as referring to its semantic extension.⁴ Thus, an n -ary predicate is best regarded as referring to the set of n -tuples to which it applies, a sentence to its truth-value, and so on. Accordingly, the central theses of the Modified Naive Theory are: (i') The semantic content of any simple (non-compound) singular term is its referent; (ii') Any expression may be thought of as referring to its extension; and (iii') The semantic content of a typical contentful compound expression (including both definite descriptions as well as sentences) is a complex, ordered entity (something like a sequence) whose constituents are semantically correlated systematically with expressions making up the compound expression, typically the simple (non-compound) component expressions.⁵

Thesis (ii') involves a significant departure from the original Naive Theory with regard to simple predicates, such as 'flies'. The Naive Theory identifies the semantic content of 'flies' with its referent, and both with the property of flying (at t). Instead, the Modified Naive Theory casts the class of all things having flight as the analogue to reference for 'flies', and reserves the property of having flight for the separate role of semantic content. Thus the Modified Naive Theory attributes a two-tiered semantics to some simple expressions in addition to compound expressions. The theory retains the principle that the semantic content of a compound contentful expression is typically made up of the semantic contents of its contentful parts, but by attributing a two-tiered semantics to simple predicates, this involves abandoning the original naive-theoretical principle that the semantic content of a compound expression is made up of the referents of its simple components.

The theory proffered by John Stuart Mill in Chapter 6 is a variant of the Modified Naive Theory. Mill distinguished two possible semantic attributes of a term, which he called 'denotation' and 'connotation'. In the case of singular terms, Mill's use of 'denotation' corresponds with the term 'referent', as used here. In addition, a general term ('concrete general name') is said to 'denote' the class of individuals to which the term applies i.e., the extension of the term. Mill uses the term 'connotation', in effect, for a special kind of semantic content consisting of attributes or properties. All general terms were held by Mill to have both denotation and connotation. Among singular terms, according to Mill, definite descriptions also have both connotation and (typically) denotation as well, whereas proper names never have connotation.⁶

The Puzzles

There are at least four well-known puzzles that arise on both the Naive Theory and the Modified Naive Theory. The articles in Parts II and III below are concerned in one way or another with one or more of the four puzzles. Each of the puzzles has been put forward as a refutation of the theory on which it arises. First, there is Frege's Puzzle involving the informativeness of identity sentences. The sentence 'Hesperus is Phosphorus' (or 'The evening star is the morning star') is informative; its semantic content apparently extends knowledge. The sentence 'Hesperus is Hesperus' ('The evening star is the evening star') is uninformative; its semantic content is a 'given.' According to both the Naive Theory and the Modified Naive Theory, the semantic content of 'Hesperus is Hesperus' consists of the planet Venus, taken twice, and the relation of identity (or the relation of identity-at- t , where t is the time of utterance). Yet the semantic content of 'Hesperus is Phosphorus', according to these theories, is made of precisely the same components, and apparently in precisely the same way.⁷ Assuming a plausible principle of compositionality for propositions the Naive Theory and the Modified Naive Theory ascribe precisely the same semantic content to both sentences. This flies in the face of the fact that the two sentences differ dramatically in their informativeness.

In his early work *Begriffsschrift*, Gottlob Frege proposed solving this puzzle by reading the identity predicate, '=' or 'is' in the sense of 'is one and the very same object as' (the 'is' of identity), as covertly metalinguistic: It was held that the sentence 'Hesperus is Phosphorus' contains a proposition not about the planet Venus, but about the very names 'Hesperus' and 'Phosphorus' themselves, to the effect that they are co-referential. It is, of course, trivial that 'Hesperus' is co-referential with itself, but then this is a transparently different proposition from the proposition that 'Hesperus' is co-referential with 'Phosphorus', since the latter concerns the name 'Phosphorus'. It is no wonder, therefore, that the sentences 'Hesperus is Hesperus' and 'Hesperus is Phosphorus' differ in informativeness. There are a number of serious difficulties with this account, and Frege himself later came to reject it (Chapter 7). Frege's criticism was that the account misrepresents the proposition contained in the sentence 'Hesperus is Phosphorus' as something which, if true, is made so entirely by virtue of arbitrary linguistic convention or decision, whereas the proposition that Hesperus is Phosphorus is actually made true by virtue of a certain celestial state of affairs, quite independently of human convention. There are also technical difficulties with the account. It renders the identity predicate a non-extensional device similar to quotation marks. This makes quantification in (as for example in 'For every x and every y , if x and y are both natural satellites of the Earth, then $x = y$ ') impossible, or at least highly problematic. Moreover, the account fails to solve the general problem of which Frege's Puzzle is only a special case: whereas we are told how the sentence 'Hesperus is Hesperus' can differ in informativeness from

the sentence 'Hesperus is Phosphorus', unless the theory is only part of a much more sweeping proposal concerning the semantic contents of all expressions and not just that of the identity predicate, we are given no explanation for the analogous difference in informativeness between such pairs of sentences as 'Hesperus is a planet if Hesperus is' and 'Hesperus is a planet if Phosphorus is.'⁸ In any event, the account does not even address the remaining problems with the Naive Theory and the Modified Naive Theory.

The second puzzle is, from one point of view, a generalization of the first, though it can arise on any of a wide variety of semantic theories. This is the apparent failure of substitutivity of co-referential names or other (simple) singular terms in certain contexts, especially in propositional-attitude contexts. If Jones has learned the names 'Hesperus' and 'Phosphorus' but remains unaware that they refer to the same heavenly body, he may sincerely and reflectively assent to the sentence 'Hesperus appears in the evening' and sincerely and reflectively dissent from the sentence 'Phosphorus appears in the evening', while understanding both sentences perfectly, i.e., while fully grasping their semantic content. It seems, then, that Jones believes that Hesperus appears in the evening, but does not believe, indeed disbelieves, that Phosphorus appears in the evening. This presents a serious problem for any semantic theory, since it appears to violate a classical logical rule of inference, commonly called *the Substitutivity of Equality* or *Leibniz's Law*. This inference rule permits the substitution of an occurrence of any singular term *b* for an occurrence of any singular term *a* in a sentence, given $a = b$. Of course, classical Substitutivity of Equality is subject to certain well-known restrictions. Most notably, the inference rule does not extend to contexts involving quotation marks and similar devices. Failure of substitutivity in propositional-attitude contexts, however, poses an especially pressing difficulty for both the Naive Theory and the Modified Naive Theory. These theories are unable to accommodate the apparent fact about Jones that he believes the proposition contained in the sentence 'Hesperus appears in the evening' but does not believe the proposition contained in the sentence 'Phosphorus appears in the evening', since the theories ascribe precisely the same semantic content to both sentences. Hence, the Naive Theory requires the validity of Substitutivity of Equality in propositional-attitude contexts, and the Modified Naive Theory requires the validity of a restricted but apparently equally objectionable version of the same.

Failure of substitutivity involving definite descriptions in modal contexts presents a similar difficulty. One example, due to W. V. O. Quine, effectively refutes the Naive Theory: The sentences 'It is mathematically necessary that nine is odd' and 'The number of planets is nine' are both true, but the sentence 'It is mathematically necessary that the number of planets is odd' is false, since there might have been ten planets rather than 9.⁹ Modality creates no like difficulty for the Modified Naive Theory, which requires the validity of substitutivity of co-referential names and other simple singular terms in

modal contexts (eg., 'It is a necessary truth that . . .'), but does not require the validity of substitutivity of all co-referential singular terms, including definite descriptions, in such contexts.

Third, there is the puzzle of true negative existentials, such as 'The present king of France does not exist' (Russell) and 'Donald Duck does not exist'. These sentences are true if and only if the singular term in subject position does not refer to anything. Yet on any of a variety of semantic theories, including the Naive Theory, a sentence involving a singular term can be true only if the term has a referent. In the case of a negative existential, the ascribed property is that of non-existence (at *t*) – a property for which it is impossible that there should exist something (at *t*) that has it.

In fact, on the (Modified) Naive Theory the semantic content of any sentence involving a (simple) singular term will lack a necessary component if any contained (simple) singular term lacks a referent. This presents a fourth and more general puzzle concerning any meaningful sentence involving non-referring singular terms, such as Russell's problematic sentence 'The present king of France is bald' and sentences from fiction, eg., 'Donald Duck wears a blue hat'. Such sentences clearly have content. But how can they, according to the Naive Theory? It seems clear, moreover, that such a sentence as 'The present king of France is bald' cannot be counted true. Should it then be counted false? If so, one should be able to say that the present king of France is *not bald*, yet this is no better than saying that he is bald. There seems to be a violation of the classical Law of Excluded Middle: either *p* or not-*p*.

Russell's Theory

Inspired by his new theory of logical analysis, Bertrand Russell promoted his (post-1904) theory of semantic content explicitly on the grounds of its ability to handle the four puzzles (Chapter 8). Russell's theory augments, and slightly modifies, the central theses of the Naive Theory. The primary departure is the replacement of attributes with propositional functions. A propositional function is a function that assigns to any objects in its domain, in singular proposition concerning those objects.

Russell handled the apparent inconsistency of the Naive Theory in the case of definite descriptions and other such phrases (which he called 'denoting phrases'), and the four puzzles, via his so-called Theory of Descriptions. The latter has both a special and general form. The General Theory of Descriptions concerns the logico-semantic status of restricted universal quantifier phrases, such as 'every man', and restricted existential quantifier phrases (sometimes called 'indefinite descriptions'), such as 'some dog', and 'an anthropologist', etc. We consider first restrictive universal sentences of the form $\Pi(\dots, \text{every } \dots)$ (or $\Pi(\dots, \text{any } \varphi, \dots)$, $\Pi(\dots, \text{each } \varphi, \dots)$, $\Pi(\dots, \text{all } \dots)$, etc.) built from an *n*-place predicate Π together with the restricted

universal quantifier phrase 'every φ ' instead of a singular term in one (or more) of the n singular-term positions. On the general theory, such a sentence is analysed as

Everything is an individual β such that, if β is φ , then $\Pi(\dots, \beta, \dots)$.

(We may let β be the first variable, in some ordering of the variables, that does not occur in $\Pi(\dots, \text{every } \varphi, \dots)$.) A restricted existential sentence of the form $\Pi(\dots, \text{some } \varphi, \dots)$ (or $\Pi(\dots, \text{a } \varphi, \dots)$) is analysed instead as

Something is an individual β such that β is φ and $\Pi(\dots, \beta, \dots)$.

An extremely important aspect of Russell's General Theory of Descriptions concerns the matter of scope. Such constructions as 'every man', 'some dog', etc., often yield syntactic scope ambiguities in surface structure when embedded within more complex sentential context, as for example 'Every man is not an island' or 'Some treasurer must be found'. The two readings of the latter sentence correspond to two ways of extending the Russellian analysis of $\Pi(\dots, \text{some } \varphi, \dots)$ to $O\Pi(\dots, \text{some } \varphi, \dots)$, where O creates a sentential context. One way is simply to embed the analysis of $\Pi(\dots, \text{some } \varphi, \dots)$ within the context O , as in

It must be that: something is both a treasurer and found.

On this reading the phrase 'some treasurer' is said to have narrow scope, or to have its secondary occurrence. The other way of extending the Russellian analysis is to imitate the treatment for the atomic case, treating the extended singular term context $O\Pi(\dots, \text{---}, \dots)$ as if it were a simple, unstructured monadic predicate

Something is both a treasurer and such that it must be that he/she is found.

On this reading the phrase 'some treasurer' has wide scope, or its primary occurrence. Further embeddings within sentential contexts yield further scope ambiguities, one additional reading for each additional context-embedding. For example, the sentence 'Some treasurer must not be needy' will have three readings: 'It must not be that: some treasurer is needy' (narrow scope); 'It must be that: some treasurer is such that he or she is not needy' (intermediate scope); 'Some treasurer is such that he or she must not be needy' (wide scope).

On the General Theory of Descriptions, the phrase 'some logician' occurring in the sentence 'Some logician is ingenious' corresponds to the essentially incomplete string 'Something both is a logician and ...'. Indeed, Russell called such phrases as 'some logician', 'every treasurer', etc. incomplete symbols

and asserted that they are without semantic content (or without 'meaning in isolation').¹⁰ It is natural and plausible on this theory to regard the word 'something' as a second-order predicate, while regarding the remainder of the sentence as a long-winded version of the compound first-order predicate 'is an ingenious logician'. The sentence 'Some logician is ingenious' would thus be construed as having a semantic content made up of the second-order propositional function that is the semantic content of 'something' and the first-order propositional function that is the semantic content of 'is an ingenious logician'. This is nothing that the phrase 'some logician' contributes on its own to this proposition — although the determiner 'some' may be regarded as contributing its semantic content and the semantic content of 'logician' figures indirectly in the construction of the semantic content of 'is both a logician and ingenious'. Exactly analogous results obtain in connection with the phrase 'every logician'. On the General Theory of Descriptions, the determiner component of such a phrase (a word like 'every', 'some', etc.) may be regarded as making a separate contribution to the semantic content of the sentence in which the description occurs. The rest of the description makes no contribution of its own but joins with the surrounding sentential context to yield something that does. In this way, such phrases form part of a larger construction whose semantically contentful components exclude, but overlap with, the phrase.

Russell's Special Theory of Descriptions concerns singular definite descriptions, and treats them as indefinite descriptions of a particular kind, in accordance with the General Theory. A sentence having the surface structure of a subject-predicate sentence, $\Pi(\dots, \text{the } \varphi, \dots)$, consisting of an n -place predicate and containing a complete definite description 'the φ ' among its occurrences of singular terms, is analysed into a conjunction of three sentences

There is at least one φ (The existence condition)
There is at most one φ (The uniqueness condition) and
 $\Pi(\dots, \text{every } \varphi, \dots)$ (The subsumption condition).

The process is to be repeated until all definite-description occurrences have undergone an application of the procedure. A definite description 'the φ ' is said to be proper when the first two conditions both obtain (ie. if there is exactly one individual that answers to it), and is said to be improper otherwise. None of the sentences making up the analysis is logically subject-predicate; each is a quantificational generalization containing no definite descriptions. The Russellian analysis is thus said to be a method of eliminating definite descriptions, replacing an apparently subject-predicate sentence by a conjunction of quantificational generalizations.

Equivalently, $\Pi(\dots, \text{the } \varphi, \dots)$ may be analysed by means of a single complex generalization: Something is an individual β such that β , and only

β , is φ , and $\Pi(\dots, \beta, \dots)$. This version of the analysis illustrates the central tenet of the Special Theory of Descriptions: a complete definite description such as 'the author of *Begriffsschrift*' is regarded as semantically equivalent to the corresponding uniqueness-restricted existential quantifier, 'some unique author of *Begriffsschrift*' (or 'a unique author of *Begriffsschrift*'), which falls under the purview of the General Theory of Descriptions.

This central tenet of the Special Theory of Descriptions has several important consequences. First, the theory predicts scope ambiguities in cases where definite descriptions are embedded within sentential contexts, one additional reading for each additional embedding. Most important for present purposes are the consequences of conjoining the Special Theory of Descriptions with the Naive Theory. The former's central tenet distinguishes it from semantic theories that accord definite descriptions the logico-semantic status of singular terms. The Special Theory of Descriptions enables Russell to maintain both of the original naive-theoretical theses (i) and (ii).¹¹ (This distinguishing characteristic of Russell's theory is obscured by the fact that he misleadingly and artificially extended Mill's term 'denotation' to the semantic relation that obtains between a uniqueness-restricted existential quantifier 'some unique φ ', which the theory regards as not forming a semantically self-contained unit, and the individual, if any, that uniquely satisfies φ . For example, although the definite description 'the author of *Begriffsschrift*' is not a semantically significant unit on Russell's theory, it is nevertheless said by Russell to 'denote' Frege. Thus Russell verbally mimics Mill's version of the Modified Naive Theory, while retaining the term 'meaning' for the semantic notion here called 'semantic content'.)

As with the Modified Naive Theory, on Russell's theory such a sentence as 'The author of *Begriffsschrift* is ingenious' does not contain the singular proposition about Frege that he is ingenious. Frege does not 'occur as a constituent' of the contained proposition; the sentence is only indirectly about him. Rather, the sentence is regarded as being directly about the conceptually complex propositional function (or property), being both a *unique author of Begriffsschrift* and *ingenious*, to the effect that it is instantiated. Thus the sentence does not directly concern any individual, but only a certain propositional function. This is critical to Russell's solutions to the four puzzles that arise in connection with the Naive Theory.

The four puzzles arise primarily from the identification of the semantic content of a singular term with the term's referent. Since the Modified Naive Theory and the Special Theory of Descriptions distinguish the semantic content of a definite description from the individual that uniquely answers to it, those theories are able to solve the puzzles in the special case where the singular terms involved are all definite descriptions, but the problems remain in the case where the terms involved are proper names, demonstratives, or pronouns. Russell handled these remaining difficulties by combining his Special Theory of Descriptions with the thesis that terms ordinarily regarded as proper names

are ordinarily used not as 'genuine names' (singular terms) for individuals. Instead they are 'disguised,' 'concealed,' 'truncated,' or 'abbreviated' definite descriptions. This thesis has the effect of reducing to the previous case the special problems that arise in connection with proper names and indexicals.

Russell's treatment of the puzzle of the failure of substitutivity in propositional-attitude contexts is complicated by the fact that, on his theory, a propositional-attitude attribution such as 'Jones believes that Hesperus appears in the evening' is ambiguous. It has both a narrow-scope and a wide-scope reading. On the wide-scope reading, the sentence attributes to Jones a belief of the singular proposition about the planet Venus that it appears in the evening. Given the further premise 'Hesperus = Phosphorus', the wide-scope reading of the sentence 'Jones believes that Phosphorus appears in the evening' does indeed follow. It is only on the narrow-scope reading that Substitutivity of Equality fails. Russell's theory solves the puzzle of failure of substitutivity in narrow-scope propositional-attitude contexts by reading the complement clause, 'Hesperus appears in the evening', as referring to a different proposition from that referred to by 'Phosphorus appears in the evening'. Substitutivity of Equality licenses the substitution of co-referential singular terms (including variables). According to Russell's theory, definite descriptions, concealed or not, do not have the logical status of singular terms, and hence the traditional rule of Substitutivity of Equality does not apply to them. However, when it is given that two propositional-function expressions φ and ψ are satisfied by exactly the same individuals, restricted quantifiers of the same sort constructed from φ and ψ , such as 'some φ ' and 'some ψ ', will usually be interchangeable on other logical grounds. In the special case where it is given that there is something that uniquely satisfies φ and also uniquely satisfies ψ , the uniqueness-restricted existential quantifiers 'some unique φ ' and 'some unique ψ ', and hence the definite descriptions 'the φ ' and 'the ψ ', will be interchangeable in most contexts on logical grounds (which include the Substitutivity of Equality as applied to variables). It is for this reason that Substitutivity is upheld in the wide-scope reading of propositional-attitude attributions. But since 'some unique φ ' and 'some unique ψ ' may still contribute differently to the semantic contents of sentences in which they occur, they need not be interchangeable when occurring within the scope of operators, such as those of propositional attitude, that are sensitive to semantic content. An exactly analogous solution is available for the problems of failure of substitutivity in modal contexts.

The remaining two puzzles are solved in a similar manner, by reading sentences involving improper definite descriptions as encoding propositions about the corresponding propositional functions. In particular, the negative-existential 'The present king of France does not exist' is ambiguous on the Special Theory of Descriptions, with a true narrow-scope reading and a contradictory wide-scope reading. An unmodified sentence involving an improper definite description (concealed or not), such as 'The present king of

France is bald', will in general be false, since part of what it asserts is that there is a unique present king of France. Its apparent negation, 'The present king of France is not bald', is ambiguous on the Special Theory of Descriptions. Its narrow-scope reading yields the genuine negation of the original sentence. Its wide-scope reading is perhaps the more natural reading, but on this reading the sentence is false, for the same reason as with the original sentence. The Law of Excluded Middle is preserved in the case of 'Either the present king of France is bald, or the present king of France is not bald', provided both occurrences of the description 'the present king of France' are given narrow scope. Other readings of this ambiguous sentence are not proper instances of the law.

Russell's thesis that proper names and demonstratives are ordinarily used as disguised definite descriptions, together with his Special Theory of Descriptions, has the effect of purging (closed) simple singular terms from the language. It might seem, therefore, that Russell ultimately solves the philosophical problems that beset the Naive Theory by denying the existence of all singular terms other than individual variables. However, Russell acknowledged the possibility of 'logically proper names' or 'names in the strict, logical sense', which are semantically simple and unstructured, and which therefore function in accordance with the Naive Theory. The class of possible semantic contents for genuine names was severely limited by Russell's Principle of Acquaintance: every proposition that one can grasp must be composed entirely of constituents with respect to which one has a special sort of intimate and direct epistemic access, 'direct acquaintance.' Because the semantic content of a genuine name is to be its referent, the only genuine names of individuals that one could grasp, according to Russell, were generally the demonstrative 'this', used deictically by a speaker to refer to mental items presently (or at least very recently) contained in his or her consciousness, and perhaps the first-person pronoun 'I' used with introspective deictic reference to oneself.¹²

Though Russell acknowledged the possibility of genuine names, for which semantic content coincides with reference, his restriction on admissible referents seems sufficient to prevent the four puzzles from arising. True identity sentences involving genuine names for an item of direct acquaintance are all equally uninformative, and all co-referential genuine names are validly intersubstitutable in propositional-attitude contexts. Russell did not countenance genuine names lacking a referent; the remaining two puzzles are thus blocked.¹³

Frege's Theory of Sense and Reference

Frege's later theory of meaning, though superficially similar to Russell's in certain respects, is fundamentally different. In his classic '*Über Sinn und Bedeutung*' (Chapter 7), Frege proposed abandoning the Naive Theory in

favor of a different and richly elegant philosophy of semantics. Whereas the Modified Naive Theory attributes a two-tiered semantics to definite descriptions and predicates, Frege further extended two-tiered semantics to include all meaningful expressions, even sentences. Frege distinguished between the *Bedeutung* of an expression and its *Sinn*. The former corresponds in the case of singular terms to what is here called the 'referent'. The latter, standardly translated by the English 'sense', is the expression's semantic content. Frege's conception of sense is similar to Mill's notion of connotation, except that all meaningful expressions, including proper names, are held to have a sense. The sense of an expression is something like a purely conceptual representation, by means of which a referent for the expression is secured.¹⁴ An expression's sense is a conception of something, and the expression's referent, if there is one, is whoever of whatever uniquely fits the concept. Since the sense of a singular term secures the term's referent, strictly synonymous expressions (i.e. expressions having the very same sense) must have the same referent – although different expressions having the same referent may differ in sense. An expression is said to express its sense, and its sense, in turn, (typically) determines an object. The reference relation is simply the relative product of the relation of expressing between an expression and its sense, and the relation of determining between a sense and the object that uniquely fits it. In the special case of a sentence, Frege called its sense a 'thought' ('*Gedanke*').

The clearest examples of expressions exhibiting something like Frege's distinction between sense and referent are certain definite descriptions. (Like Mill and unlike Russell, Frege counted definite descriptions as genuine singular terms.) One of Frege's illustrations involves descriptions in the language of geometry: if *a*, *b*, and *c* are the three medians of a triangle, then the expressions 'the point of intersection of *a* and *b*' and 'the point of intersection of *b* and *c*' both refer to the centroid of the triangle, but they do so by presenting that point to the mind's grasp in different ways, by means of different aspects of the point. The descriptions thus share a common referent, but differ in sense. The senses are the semantic contents of the two expressions, and it is in virtue of this difference in sense that the sentence 'The point of intersection of *a* and *b* is the point of intersection of *b* and *c*' contains different, and more valuable, information than that contained in the sentence 'The point of intersection of *a* and *b* is the point of intersection of *a* and *b*'.

Frege illustrates what the sense of a proper name is by means of carefully chosen definite descriptions. The observation that proper names have this sort of conceptual content as well as a referent, together with Frege's doctrine that sense is conceptual content and not the referent serves the role of semantic content, immediately solves the puzzle about the informativeness of identity sentences involving two names for the same individual. The distinction between sense and referent also immediately solves the problem of how sentences involving non-referring singular terms can have content.

Crucial to Frege's theory are a pair of principles concerning the referent and sense of complex expressions. These are the Principle of Compositionality (Interchange) of Reference and the analogous Principle of Compositionality (Interchange) of Sense. They hold that the referent or sense of a complex expression is a function only of the referents or senses, respectively, of the constituent expressions. In the latter case Frege often spoke (explicitly metaphorically) of the sense of a constituent expression as a *part* of the sense of the complex expression. Thus, if a constituent expression is replaced by one having the same referent but differing in sense, the referent of the whole is preserved, but not the sense. If a constituent expression is replaced by something strictly synonymous, both the sense and the referent of the whole are preserved. In particular, Frege held as a special case of the Compositionality of Reference that a compound expression having a non-referring part must itself be non-referring. Relying on the Compositionality of Reference, Frege argued that the 'cognitive value' (*Erkenntniswerte*) of a sentence is not the referent of the sentence, but is (or is at least fixed by) its sense or 'thought' content, and that the referent of a sentence is simply its truth value, either true or falsehood ('the True' or 'the False').¹⁵

The Compositionality of Reference thus solves the problem of the truth value of sentences involving non-referring singular terms. Since a sentence refers to its truth value, and a sentence involving a non-referring singular term itself refers to nothing, such as a sentence as 'The present king of France is bald' is neither true nor false; it lacks truth value. The same holds for its negation, 'The present king of France is not bald'. Frege held that the 'thoughts' (propositions) expressed by these sentences do not assert, but merely presuppose, that there is a unique present king of France and that the expression 'the present king of France' has a referent. Thus Frege's theory does not preserve an unrestricted Law of Excluded Middle, nor any other law of logic. The laws of logic must be restricted to sentences whose presuppositions are fulfilled.

Whereas the Compositionality of Reference solves one of the puzzles, it also issues in the problems of failure of substitutivity and of true negative existentials. Since on Frege's theory sentences refer to their truth values, and the referent of a sentence is a function of the referents of its constituents, the theory requires the universal validity of Substitutivity of Equality – even in quotational contexts. Furthermore, since on Frege's theory sentences involving non-referring singular terms are neither true nor false, the theory appears unable to accommodate the truth of the negative existential 'The present king of France does not exist'.

Frege explicitly considered the problems of failure of substitutivity in quotational and propositional-attitude contexts, treating both in a like manner. Quotation marks and the sentential operator 'that' associated with propositional-attitude operators (eg. 'Jones believes that'), according to Frege, create a special context in which expressions take on a different referent from their

customary referent. Whereas the expression 'Hesperus' customarily refers to the planet Venus, when occurring within quotation marks, as in the sentence 'The expression "Hesperus" is a string of eight letters', it instead refers to itself. Such is the case when someone's remarks are reported in 'direct discourse,' that is, when quoting the very words used by the speaker, as in 'Jones said "Hesperus appears in the evening"'. Analogously, when occurring in a 'that'-clause in a propositional-attitude attribution, as in 'Jones believes that Hesperus appears in the evening', the name 'Hesperus' occurs in an *ungerade* (indirect, oblique) context, referring there neither to its customary referent nor to itself but to its customary sense. Similarly, the entire embedded sentence 'Hesperus appears in the evening', when occurring within the 'that'-operator refers to its customary sense rather than to its customary referent. Such is the case when someone's remarks are reported in 'indirect discourse,' that is, when reporting the content of his or her remarks, as in 'Jones said that Hesperus appears in the evening', rather than the very words used. The principle of Compositionality of Reference is to be understood as requiring the validity of substituting for the name 'Hesperus' in such a position any expression having the same referent as 'Hesperus' in that position. This validates the substitution of any expression having the same customary sense as 'Hesperus'; it does not validate the substitution of an expression merely having the same customary referent. Similarly, the Compositionality of Reference does not validate any substitution within quotation marks. Thus Frege's theory gives central importance to a relativized semantic notion of an expression *e* expressing a sense *s* (or referring to an object *o*) as occurring in a particular position *p* within a sentence – or equivalently, to a notion of an expression occurrence (within a sentence) referring to an object or expressing a sense – rather than the more standard notion in contemporary semantics of an expression referring to (denoting) an object ('in isolation'). The latter Frege called 'customary' reference.

Since all reference on Frege's theory is mediated by sense, an occurrence of an expression standing within a single occurrence of a propositional-attitude operator (eg. the occurrence of 'Hesperus' in 'Jones believes that Hesperus appears in the evening') must refer to its customary sense by expressing some further sense that is also associated with the expression and that determines the expression's customary sense in the usual way that sense determines reference. This Frege called the '*ungerade Sinn*' (indirect sense) of the expression. He explained this notion by observing that the *ungerade Sinn* of a sentence such as 'Socrates is wise' is just the customary sense of the phrase 'the proposition (thought) that Socrates is wise'. Just as an occurrence of a single propositional-attitude operator induces a shift in the reference of expression occurrences standing within its scope from customary referent to customary sense, so an occurrence of an expression standing within the embedding of one occurrence of a propositional-attitude operator within another (eg. the occurrence of 'Hesperus' in 'Smith doubts that Jones believes that Hesperus

appears in the evening') refers not to its customary sense but to its *ungerade Sinn*. This would have to be accomplished by means of some yet third sense associated with the expression – a doubly indirect sense – which determines the expression's (singly) indirect sense. Since there is no limit in principle to the number of allowable embeddings of operators ('Brown realizes that Smith doubts that Jones believes that . . .'), it is generally acknowledged that Frege admitted the existence of an infinite hierarchy of senses associated with each meaningful expression.

Frege did not explicitly consider the problem of failure of substitutivity in modal contexts, nor that of true negative existentials. It is in the spirit of Frege's theory, though, to regard modal operators as creating further *ungerade* contexts in which expressions refer to their customary sense, as in the sentence 'It is necessary that nine is odd' since it is not the truth value of the embedded sentence 'nine is odd' that is said to be necessary, but rather its proposition or 'thought' content, the proposition that nine is odd.¹⁶ Scattered remarks in Frege's posthumously published writings suggest that he might have applied his doctrine of reference-shifting also to the problem of true negative-existentials, treating a sentence like 'The present king of France does not exist' as making the metalinguistic assertion that the phrase 'the present king of France' is non-referring.

The Orthodox Theory

The theories of Russell and Frege have been extremely influential in contemporary philosophy. Although Russell's is essentially a supplement to the Naive Theory whereas Frege's involves a total abandonment of the Naive Theory (and any modification thereof), there is considerable common ground, especially in regard to ordinary proper names. This area of agreement between the two theories has ascended to the status of orthodoxy. The orthodox theory can be explained as follows. Let us say that an expression *e*, as used in a particular possible context, is *descriptive* if there is a set of properties semantically associated with *e* in such a way as to generate a semantic relation, which may be called 'denotation' or 'reference', and which correlates with *e* (with respect to such semantic parameters as a possible world *w* and a time *t*) whoever or whatever uniquely has all (or at least sufficiently and appropriately many) of these properties (in *w* at *t*), if there is a unique such individual, and nothing otherwise.¹⁷ A descriptive term is one that denotes by way of properties. It is a term that expresses a way of conceiving something, and its 'denotation' (with respect to a possible world and time) is secured indirectly by means of this conceptual content. Definite descriptions, such as 'the author of *Begriffsschrift*', are descriptive. A non-descriptive singular term is one whose reference is not semantically mediated by associated conceptual content. The paradigm

of a non-descriptive singular term is the individual variable. The referent or 'denotation' of a variable under an assignment of value (with respect to a possible world and time) is semantically determined directly by the value assignment, and not by extracting a conceptual 'mode of presentation' from the variable.

Frege and Russell held a strong version of the theory that an ordinary proper name, as used in a particular context, is descriptive. On their view, if a name such as 'St Anne' is analysable as 'the mother of Mary', it must be in some sense analysable even further, since the name 'Mary' is also supposed to be descriptive. But even 'the mother of the mother of Jesus' must be in this sense further analysable, in view of the occurrence of the name 'Jesus', and so on. Let α be a non-descriptive singular term referring to Socrates. Then the definite description 'the wife of α ', though descriptive, is not thoroughly so. The property expressed is an intrinsically relational property directly involving Socrates, the property of being *his* wife. We may say that the description is only relationally descriptive, and that it is descriptive relative to Socrates. A thoroughly descriptive term, then, is one that is descriptive but not relationally descriptive.¹⁸

The orthodox theory is the theory that proper names, demonstratives, and such terms as 'you', 'he', etc., as used in a particular possible context, are either thoroughly descriptive or descriptive relative only to items of 'direct acquaintance,' such as sensations, visual images, and the like. Frege held the very strong version of this theory that all such terms are thoroughly descriptive. Only if a term is thoroughly descriptive can there be something that counts as a genuine Fregean sense for the term. The reason for this is that the Fregean conception of sense is a compilation or conflation of at least three distinct linguistic attributes. First, the sense of an expression is a purely conceptual mode of presentation. Individuals that are not themselves senses, such as persons and their sensations, cannot form part of a genuine Fregean sense. Second, the sense of a singular term is the mechanism by which its referent is secured and semantically determined. Third, the sense of an expression is its semantic content. Nothing counts as the sense of a term, as Frege intended the notion, unless it is all three at once. Frege supposed that the purely conceptual content of any singular term is also its semantic content, which also secures its referent. This three-way identification constitutes a very strong theoretical claim. A descriptive singular term is precisely one whose mode of securing a referent is its descriptive content, which also serves as its semantic content. Only if the term is thoroughly descriptive, however, can this be identified with a purely conceptual (or a purely qualitatively descriptive) content. Strictly speaking, even a Russellian term descriptive relative only to items of direct acquaintance (if there exist any such terms) does not have a genuine Fregean sense. Any departure from this thesis would constitute a rejection of fundamental Fregean theory.

The Theory of Direct Reference

Beginning around the mid-1960s the orthodox theory was forcefully challenged by some philosophers, notably by Keith Donnellan (Chapter 9), David Kaplan (Chapter 12), Saul Kripke (Chapter 10), and Hilary Putnam (Chapter 11). They held the opposing theory that ordinary proper names and single-word indexical singular terms are non-descriptive. Donnellan, in particular, extended the thesis even to what is probably the most common use of definite descriptions – the so-called referential, as opposed to attributive, use. Since their view denies that the reference of names and some other terms is mediated by a descriptive concept, it has come to be called ‘the theory of direct reference’. This title may be misleading, however, since it suggests the obviously false thesis that reference is entirely unmediated. Also misleading, though literally correct, is the characterization of the direct-reference theory as the doctrine that names and indexicals have reference but not sense. In denying that proper names are descriptive, the direct-reference theory is not denying that a use of a particular proper name may exhibit any or all of the three aspects of a Fregean sense mentioned in the previous section. What the direct-reference theory denies is that the conceptual content associated with an individual constant is what secures the referent. Thus, for example, the direct-reference theory would hold that the proper name ‘Shakespeare’ is not shorthand for any description or cluster of descriptions, such as ‘England’s greatest bard’, ‘the author of *Romeo and Juliet*’, etc. But the central thesis of the direct reference theory is significantly stronger than a simple denial of Russell’s doctrine that ordinary names are concealed definite descriptions. The direct-reference theory holds that ordinary names are not even similar to definite descriptions. According to the orthodox theory, ordinary names are either thoroughly descriptive or descriptively relative only to items of ‘direct acquaintance.’ Against this, the direct-reference theorists argue that names and single-word indexical singular terms, as ordinarily used, are not descriptive at all. An immediate consequence is that a great many definite descriptions fail to be thoroughly descriptive, or descriptively relative only to items of direct acquaintance, since so many contain proper names or indexicals referring to ordinary individuals.

A number of arguments have been advanced in favor of the central thesis of the direct-reference theory. Although the arguments are many and varied, most of them may be seen as falling under one of three main kinds: modal arguments, epistemological arguments, and semantic arguments. The modal arguments are due chiefly to Kripke. Consider the name ‘Shakespeare’ as used to refer to the famous English dramatist. Consider now the properties that someone might associate with the name as forming its conceptual content on a particular occasion. These properties might include Shakespeare’s distinguishing characteristics – such properties as that of being a famous

English poet and playwright of the late sixteenth and early seventeenth centuries; authorship of several classic plays including *Hamlet*, *Macbeth*, and *Romeo and Juliet*; partnership in the Globe Theatre; and so on. Suppose for simplicity that the name ‘Shakespeare’ simply means ‘the English playwright who wrote *Hamlet*, *Macbeth* and *Romeo and Juliet*.’ Consider now the following sentences

Shakespeare, if he exists, wrote *Hamlet*, *Macbeth*, and *Romeo and Juliet*. If anyone is an English playwright who is sole author of *Hamlet*, *Macbeth*, and *Romeo and Juliet*, then he is Shakespeare.

If the orthodox theory of names is correct, then by substituting for the name its longhand synonym we find that these two sentences taken together simply mean: someone is the English playwright who wrote *Hamlet*, *Macbeth*, and *Romeo and Juliet* if and only if he is the English playwright who wrote *Hamlet*, *Macbeth*, and *Romeo and Juliet*. This is, if the orthodox theory is correct, the sentences displayed above should express *logical truths* – indeed they should be *analytic* in the traditional sense – and should therefore express necessary truths, propositions true with respect to all possible worlds. But surely, the argument continues, it is not at all necessary that someone is Shakespeare if and only if he is an English playwright who wrote *Hamlet*, *Macbeth*, and *Romeo and Juliet*. In the first place, it might have come to pass that Shakespeare elected to enter a profession in law instead of becoming a writer and dramatist. Hence, the first sentence displayed above does not express a necessary truth. Furthermore, assuming Shakespeare had gone into law instead of drama, it could have come to pass that some Englishman other than Shakespeare, say, Francis Bacon, should go on to write these plays. Hence even the second sentence displayed above expresses only a contingent truth. It follows that the name ‘Shakespeare’ is not descriptive in terms of the properties mentioned.

The intuition that the two sentences displayed above are false with respect to certain possible worlds is supported by a complementary intuition concerning reference: that the name ‘Shakespeare’ continues to refer to the same person even with respect to counterfactual situations in which this individual lacks all of the distinguishing characteristics that we actually use to identify him. In particular, the name ‘Shakespeare’ continues to refer to the same individual even in discourse about a counterfactual situation in which not he but some other Englishman wrote *Hamlet*, *Macbeth*, and *Romeo and Juliet*, whereas the definite description ‘the English playwright who wrote *Hamlet*, *Macbeth*, and *Romeo and Juliet*’ will refer in such discourse to the other Englishman. Consequently, the two sentences displayed above must be false in such discourse. Thus the main intuition behind the modal arguments is intimately connected with a related linguistic intuition concerning the reference of proper

names and indexical singular terms, in contrast to definite descriptions, with respect to other possible worlds. The orthodox theory comes into conflict with this intuition; the direct-reference theorists offer an alternative that conforms with this intuition. One important consequence of the theory of direct reference is that such expressions as proper names and single-word indexical singular terms are rigid designators (Kripke). An expression is a rigid designator if it designates the same thing with respect to every possible world in which that thing exists (and does not designate anything else with respect to other possible worlds).

The epistemological arguments against the orthodox theory, also due chiefly to Kripke, are similar to the modal arguments. Consider again the two sentences displayed above. Assuming that the orthodox theory is correct, these sentences should contain propositions that are knowable a priori, i.e. knowable solely by reflection on the concepts involved and without recourse to experience. But it is not difficult to imagine circumstances in which it is discovered that, contrary to popular belief, Shakespeare did not write *Hamlet*, *Macbeth*, *Romeo and Juliet*, or any other work commonly attributed to him. Since this possibility is not automatically precluded by reflection on the concepts involved, it follows that the first sentence displayed above contains a proposition that is knowable only a posteriori, i.e. knowable only by recourse to experience. One can even imagine circumstances in which it is discovered that we have been the victims of a massive hoax, and that, though Shakespeare is not responsible for any of these great works, some other Englishman (say, Bacon) wrote every one of the plays and sonnets commonly attributed to Shakespeare. This means that even the second sentence displayed above is not analytic or true by definition, as alleged, but contains an a posteriori proposition.

The most direct and persuasive of the three kinds of arguments for the direct-reference theory are the semantic arguments. One example is Donnellan's argument concerning Thales. Suppose that the sense or conceptual content of 'Thales' is determined by the description 'the Greek philosopher who held that all is water'. Suppose now that, owing to some error or fraud, the man referred to by writers such as Aristotle and Herodotus, from whom our use of the name 'Thales' derives, never genuinely believed that all is water. Suppose further that by a very strange coincidence there was indeed a Greek hermit-philosopher who did in fact hold this bizarre view, though he was unknown to them and bears no historical connection to us. To which of these two philosophers would our name 'Thales' refer? Clearly to the first of the two; our use of the name would bear no significant connection to the second character whatsoever. It is only by way of a comical accident that he enters into the story at all.

This example is not to be confused with the corresponding modal or epistemological arguments ('Thales might not have been the Greek philosopher who held that all is water'). In the modal and epistemological arguments,

the main question is what the truth value of such a sentence as 'Thales is the Greek philosopher who held that all is water', which is alleged to be analytic, becomes when the sentence is evaluated with respect to certain imagined circumstances. The strategy in the semantic arguments is more direct. The issue here is not whom the name *actually* refers to *with respect* to the imagined circumstances; the issue is whom the name *would have* referred to if the circumstances described above *had* obtained. The modal arguments are indirectly related to the question of what a particular term refers to *with respect to another possible world*; the semantic arguments are directly concerned with the non-modal question of reference *simpliciter*. The key phrase in the definition of a descriptonal singular term is not 'correlated with respect to a possible world', but 'whoever or whatever uniquely has the properties'.

The theory of direct reference should not be misunderstood as involving the thesis that no descriptive concepts or properties are ever semantically associated with names or indexicals. Proponents of the direct-reference theory allow that some non-descriptonal terms may be introduced into a language or idiolect by way of descriptonal expressions. In this special kind of definition the descriptonal expression serves only to assign a referent to the term being introduced, and does not simultaneously bequeath its descriptonality to the new term. To use Kripke's apt phrase, the descriptonal expression is used only to 'fix the reference' of the non-descriptonal term.

This admission is generally coupled with the observation that there are almost always non-descriptonal contextual elements at work in fixing the referent of a name. The semantic arguments reveal that the way the referent is determined is not a purely conceptual matter; external factors enter into it. The surrounding settings in which speakers find themselves are crucial to determining the referents of the names and other terms they use. This is true not only of the extra-linguistic setting in which the referent is to be found, but also of the linguistic setting in which the term is used or was learned by the speaker, i.e. the history of the use of the name leading up to the speaker's learning it. In a word, the securing of a referent for a proper name is a contextual phenomenon. Donnellan and Kripke have provided accounts of the securing of a referent for a proper name by means of such historical chains of communication. Putnam has given a similar account of certain terms designating something by means of a 'division of linguistic labor' and a 'structured co-operation between experts and nonexperts.' In virtue of these accounts the theory of direct reference is often called the 'causal' theory of reference. It would be better to call the theory the contextual theory of reference, thereby including standard accounts of such indexicals as 'I' and 'now'. The contextual accounts provided by direct-reference theorists are usually sketchy and incomplete. Though there have been attempts to work out the details of how the referent of a proper name or demonstrative, as

used in a particular context, is secured, there is much that remains to be done in this area.

The Modified Naive Theory Reconsidered

The direct-reference theory is concerned primarily to distinguish two of the three aspects of a name conflated by the Fregean conception of sense: the conceptual content and what secures the referent. We are still left, then, with a pressing question concerning the third aspect of sense: What is the semantic content of a proper name? If the direct-reference theory is correct, it cannot be the sense of the name, for there is none.

A tempting answer to our question is that the semantic content of a name is simply its associated conceptual content, its 'mode of presentation' of its referent. This identification does not require the further identification with the manner of securing a referent. This idea thus preserves a good deal, but not all, of Frege's point of view without positing full-blown Fregean senses for names.

Many of the considerations that count against the orthodox theory (the modal arguments for example) extend also to this simpler theory. To use a variant of the semantic argument, there could be two distinct individuals, *A* and *B*, such that the descriptive content individual *C* associates with *A*'s name is exactly the same as that associated by individual *D* with *B*'s name. (This could happen for any number of reasons. Perhaps *A* and *B* are very much like one another, or one or both of *C* and *D* is mistaken, etc.) Hence according to the proposed theory, *A*'s name has the same semantic content for *C* that *B*'s name has for *D*. This conflicts with the fact that when *C* uses *A*'s name to ascribe something to *A* – say, that he weighs exactly 175 pounds – and *D* uses *B*'s name to ascribe the very same thing to *B*, *C* asserts a proposition concerning *A* (and does not assert any proposition concerning *B*) whereas *D* asserts a proposition concerning *B* (and does not assert any proposition concerning *A*). The two assertions may even differ in truth value.

It might be proposed, then, that the semantic content of a name is constituted partly by associated descriptive or conceptual content, and partly by something else, say the context that secures the referent, or perhaps the referent itself. But any proposal that identifies the semantic content of a name even only partly with descriptive or conceptual associations faces some of the same difficulties as the orthodox theory – for example, the epistemological arguments. There is always a possibility of error and inaccuracy in conceptual or descriptive associations. The descriptive content one associates with the name 'Frege' may be riddled with misattribution and misdescription, enough so as to befit someone else, say Russell, far better than Frege. Nevertheless, the sentence 'Frege wrote *Begriffsschrift*' contains a proposition that is entirely accurate

and error-free. Hence, the descriptive associations that attach to the name cannot be even only a part of the name's semantic content.¹⁹

There is a more general difficulty which these and other alternatives to the Naive Theory and the Modified Naive Theory. Recall the argument from Frege's Puzzle about the informativeness of identity statements. An exactly similar argument can be mounted against any of a wide variety of theories of semantic content, including Frege's own. For example, Hilary Putnam confesses that he does not have the slightest idea what characteristics differentiate beech trees from elm trees, other than the fact that the English term for beeches is 'beech' and the English term for elms is 'elm'. The purely conceptual content that Putnam attaches to the term 'beech' is the same that he attaches to the term 'elm', and it is a pretty meager one at that. Nevertheless, an utterance of the sentence 'Elm wood is beech wood' would (under the right circumstances) be highly informative for him. In fact, he knows that elm wood is not beech wood. By an argument exactly analogous to the one constructed from Frege's Puzzle, we should conclude that the semantic content of 'elm' or 'beech' is not the conceptual content.²⁰ This argument employs the same general strategy and mostly the same premises as the original Fregean argument in connection with 'Hesperus' and 'Phosphorus'. The generalized Fregean strategy may be applied against virtually any minimally plausible and substantive theory of semantic content. In this particular application of the generalized strategy, the relevant informative identity statement is not even true, but that does not matter to the general strategy. The truth of an informative identity statement is required only in the application of the general argument against theories that locate semantic content, at least in part, in reference. In the general case, only informativeness is required. False identity statements are always informative – so informative, in fact, as to be misinformative. Thus, virtually any substantive theory of semantic content imaginable reintroduces a variant of Frege's Puzzle, or else it is untenable on independent grounds (modal arguments, epistemological arguments, the argument from error, etc.).

The sheer range of applicability of the generalized Fregean strategy would seem to indicate that the strategy involves some error. The fact that the generalized strategy is indeed flawed might be demonstrated through an application of the generalized strategy to a situation involving straightforward (strict) synonyms for which it is uncontroversial that semantic content is preserved. Suppose that foreign-born Sasha learns the words 'ketchup' and 'catsup' not by being taught that they are perfect synonyms, but by actually consuming the condiment and reading the labels on the bottles. Suppose further that, in Sasha's idiosyncratic experience, people typically have the condiment called 'catsup' with their eggs and hash browns at breakfast, whereas they routinely have the condiment called 'ketchup' with their hamburgers at lunch. This naturally leads Sasha to conclude, erroneously, that ketchup and catsup are different condiments that happen to share a similar taste,

color, consistency, and name. Whereas the sentence 'Ketchup is ketchup' is uninformative for Sasha, the sentence 'Catsup is ketchup' is every bit as informative as 'Hesperus is Phosphorus'. Applying the generalized Fregean strategy, we would conclude that the terms 'catsup' and 'ketchup' differ in semantic content for Sasha. But this is clearly wrong. The terms 'ketchup' and 'catsup' are perfect synonyms in English. Some would argue that they are merely two different spellings of the very same English word. Most of us who have learned these words (or these spellings of the single word) probably learned one of them in an ostensive definition of some sort, and the other as a strict synonym (or as an alternative spelling) of the first. Some of us learned 'ketchup' first and 'catsup' second; for others the order was the reverse. Obviously, it does not matter which is learned first and which second. If either may be learned by ostensive definition then both may be. Indeed, Sasha has learned both words (spellings) in much the same way that nearly everyone else has learned at least one of them: by means of a sort of ostensive definition. This manner of acquiring the two words (spellings) is unusual, but not impossible. Sasha's acquisition of these words (spellings) prevented him from learning at the outset that they are perfect synonyms, but the claim that he therefore has not learned both is highly implausible. Each word (spelling) was learned by Sasha in much the same way that some of us learned it. Even in Sasha's idiolect, then, the two words (spellings) are perfectly synonymous, and therefore share the same semantic content. This discredits the original Fregean argument against the Naive Theory and the Modified Naive Theory in connection with 'Hesperus' and 'Phosphorus'. (See Chapter 16 below for related discussion.)

Further argumentation is needed if the Modified Naive Theory is to be properly assessed. One important consideration favoring the Modified Naive Theory over the orthodox theory comes by way of the paradigms of non-descriptonal singular terms, individual variables. A related consideration involves pronouns. Consider the following so-called *de re* (as opposed to *de dicto*), or *relational* (as opposed to *notional*), propositional-attitude attribution, expressed by way of abstraction into the *ungerade* context created by the non-extensional operator 'believes that'

(1) Venus is an individual x such that Jones believes that x is a star.

Such a *de re* locution may be expressed less formally in colloquial English as

(1') Jones believes of the planet Venus that it is a star.

What is characteristic of these *de re* locutions is that they do not specify how Jones conceives of the planet Venus in believing it to be a star. It is left open whether he is thinking of Venus as the first heavenly body visible at dusk, or as the last heavenly body visible at dawn, or instead as the heavenly body he sees

at time t , or none of the above. The orthodox theorist contends that this lack of specificity is precisely a result of the fact that the (allegedly descriptonal) name 'Venus' is positioned outside of the scope of the *ungerade* context created by the non-extensional operator 'believes that', where it is open to substitution of co-referential singular terms and to existential generalization. What is more significant, however, is that another, non-descriptonal singular term is positioned within the scope of the non-extensional context: the last occurrence of the variable ' x ' in (1), the pronoun 'it' in (1'). Consider first the quasi-formal sentence (1). It follows by the principles of conventional formal semantics that (1) is true if and only if its component open sentence

(2) Jones believes that x is a star

is true under the assignment of the planet Venus as value for the variable ' x ' – or in the terminology of Tarski, if and only if Venus *satisfies* (2). The open sentence (2) is true under the assignment of Venus as value of ' x ' if and only if Jones believes the proposition that is the semantic content of the complement open sentence

(3) x is a star

under the same assignment of Venus as the value of ' x '.

A parallel derivation proceeds from the colloquial *de re* attribution (1'). Sentence

(1') is true if and only if its component sentence
(2') Jones believes that it is a star

is true under the anaphoric assignment of Venus as referent for the pronoun 'it'. As with the open sentence (2), sentence (2') is true under the assignment of Venus as the referent of 'it' if and only if Jones believes the semantic content of

(3') It is a star

under this same assignment.

Now, the fundamental characteristic of a variable with an assigned value, or of a pronoun with a particular referent, is precisely that its semantic content is just its referent. There is nothing else for it to contribute to the semantic content of sentences like (3) or (3') in which it figures. In fact, this is precisely the point of using a variable or a pronoun rather than a definite description (like 'the first heavenly body visible at dusk') within the scope of an attitude verb in a *de re* attribution. A variable with an assigned value, or a pronoun with a particular referent cannot have, in addition to its referent, a Fregean

color, consistency, and name. Whereas the sentence 'Ketchup is ketchup' is uninformative for Sasha, the sentence 'Catsup is ketchup' is every bit as informative as 'Hesperus is Phosphorus'. Applying the generalized Fregean strategy, we would conclude that the terms 'catsup' and 'ketchup' differ in semantic content for Sasha. But this is clearly wrong. The terms 'ketchup' and 'catsup' are perfect synonyms in English. Some would argue that they are merely two different spellings of the very same English word. Most of us who have learned these words (or these spellings of the single word) probably learned one of them in an ostensive definition of some sort, and the other as a strict synonym (or as an alternative spelling) of the first. Some of us learned 'ketchup' first and 'catsup' second; for others the order was the reverse. Obviously, it does not matter which is learned first and which second. If either may be learned by ostensive definition then both may be. Indeed, Sasha has learned both words (spellings) in much the same way that nearly everyone else has learned at least one of them: by means of a sort of ostensive definition. This manner of acquiring the two words (spellings) is unusual, but not impossible. Sasha's acquisition of these words (spellings) prevented him from learning at the outset that they are perfect synonyms, but the claim that he therefore has not learned both is highly implausible. Each word (spelling) was learned by Sasha in much the same way that some of us learned it. Even in Sasha's idiolect, then, the two words (spellings) are perfectly synonymous, and therefore share the same semantic content. This discredits the original Fregean argument against the Naive Theory and the Modified Naive Theory in connection with 'Hesperus' and 'Phosphorus'. (See Chapter 16 below for related discussion.)

Further argumentation is needed if the Modified Naive Theory is to be properly assessed. One important consideration favoring the Modified Naive Theory over the orthodox theory comes by way of the paradigms of non-descriptional singular terms, individual variables. A related consideration involves pronouns. Consider the following so-called *de re* (as opposed to *de dicto*), or *relational* (as opposed to *notional*), propositional-attitude attribution, expressed by way of abstraction into the *ungerade* context created by the non-extensional operator 'believes that'

(1) Venus is an individual x such that Jones believes that x is a star.

Such a *de re* locution may be expressed less formally in colloquial English as

(1') Jones believes of the planet Venus that it is a star.

What is characteristic of these *de re* locutions is that they do not specify how Jones conceives of the planet Venus in believing it to be a star. It is left open whether he is thinking of Venus as the first heavenly body visible at dusk, or as the last heavenly body visible at dawn, or instead as the heavenly body he sees

at time t , or none of the above. The orthodox theorist contends that this lack of specificity is precisely a result of the fact that the (allegedly descriptional) name 'Venus' is positioned outside of the scope of the *ungerade* context created by the non-extensional operator 'believes that', where it is open to substitution of co-referential singular terms and to existential generalization. What is more significant, however, is that another, non-descriptional singular term is positioned within the scope of the non-extensional context: the last occurrence of the variable ' x ' in (1), the pronoun 'it' in (1'). Consider first the quasi-formal sentence (1). It follows by the principles of conventional formal semantics that (1) is true if and only if its component open sentence

(2) Jones believes that x is a star

is true under the assignment of the planet Venus as value for the variable ' x ' – or in the terminology of Tarski, if and only if Venus *satisfies* (2). The open sentence (2) is true under the assignment of Venus as value of ' x ' if and only if Jones believes the proposition that is the semantic content of the complement open sentence

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Now, the fundamental characteristic of a variable with an assigned value, or of a pronoun with a particular referent, is precisely that its semantic content is just its referent. There is nothing else for it to contribute to the semantic content of sentences like (3) or (3') in which it figures. In fact, this is precisely the point of using a variable or a pronoun rather than a definite description (like 'the first heavenly body visible at dusk') within the scope of an attitude verb in a *de re* attribution. A variable with an assigned value, or a pronoun with a particular referent cannot have, in addition to its referent, a Fregean

- combined with 'is ingenious' in just the same way that 'Socrates' combines with 'is ingenious', the semantic contents of 'someone' and 'is ingenious' are combined very differently from the way the semantic contents of 'Socrates' and 'is ingenious' are combined. A perhaps more important qualification arises in connection with quotation marks and similar devices – since the semantic content of the numeral '9' is no part of the semantic content of the sentence 'The numeral '9' is a singular term'. Yet another important qualification concerns overlaid quantifiers. For details, see (Salmon 1986), pp. 143–51.
3. A sophisticated version of this theory identifies the semantic content of a predicate, as used on a particular occasion, with a corresponding temporally-indexed (and spatially-indexed, if necessary) attribute, for example the property of being tall at t , where t is the time of the utterance. This yields a more plausible notion of proposition. For further details, see Salmon 1986, pp 24–43.
 4. The argument is due, in its essentials, to Alonzo Church and independently to Kurt Gödel. For details see Church 1943; Church 1956, pp 24–5; Gödel 1944, pp 128–9; Salmon 1981, pp 48–52; and Salmon 1986, pp 22–3.
 5. Here again, exceptions arise in connection with quotation marks and similar devices. A further exception arises in connection with compound predicates. The semantic contents of these are best regarded as attributes, or something similar, rather than as complexes made from the semantic contents of the parts.
 6. Mill actually held a somewhat complex theory of semantic content, according to which the proposition contained in such a sentence as 'Socrates is ingenious' has two components: the proposition about Socrates that he has the property of ingenuity, and the metalinguistic proposition about the expressions 'Socrates' and 'ingenious' that the individual denoted by the former has the property connoted by the latter, and is therefore among the things denoted by the latter. In the special case of an identity sentence, such as 'Hesperus is Phosphorus', Mill held that the first component was null, so that the proposition contained reduces to the metalinguistic truth that the name 'Hesperus' denotes the same thing as the name 'Phosphorus'.
 7. But see Putnam 1954, and Salmon 1986, pp 164–5n4.
 8. See Chapter 16 below for an analysis of Frege's puzzle.
 9. Temporal contexts give rise to analogous failures of substitution: Although the sentences 'In 1978, George Bush was a Republican' and 'George Bush is the US President' are both true at the time of the writing of the present article, the sentence 'In 1978, the US President was a Republican' is false, since in 1978 a Democrat was US President.
 10. The Naive Theory may take the semantic content of the phrase 'some logician' to be the (second-order) property of being a (first-order) property possessed by at least one logician. Using Russell's preferred notion of a propositional function, the description 'some logician' might be regarded as having as its semantic content the second-order propositional function f that assigns to any one-place first-order propositional function F the proposition that at least one logician instantiates F (where an individual x is said to *instantiate* a one-place propositional function F if the proposition obtained by applying F to x is true). The proposition that some logician is ingenious would then be regarded as made up of the second-order propositional function f and the first-order propositional function *being ingenious*. Alternatively, the determiner 'some' is plausibly regarded as a two-place quantifier, so that the phrase 'some logician' would be seen as an incomplete string that is formed by attaching a two-place second-order predicate to a single first-order predicate, and that stands in need of completion by a second first-order predicate. The general theory of descriptions conflicts with both of these theories concerning the logico-semantic status of 'some logician'.
 11. The special theory conflicts with one of the assumptions used in the Church-Gödel argument for the replacement of thesis (ii) of the Naive Theory by these (ii') of the Modified Naive Theory. (See note 4 above.)
 12. Russell held that uses of genuine names for oneself or one's own mental items were rare, since the singular proposition contained in a sentence involving such a name would be apprehended by the speaker of the sentence only very briefly, and never by anyone else. Even if a speaker were to use a genuine name, his or her audience would be forced to understand the name as a disguised definite description for the intended referent. Since communication using genuine names must be circumvented in this way, even when speaking about oneself or one's own present experiences one might typically employ definite descriptions, disguised or not, in lieu of genuine names. Genuine names of individuals are expedient only when conversing with oneself about oneself.
 13. Russell claimed that singular existential or negative existential statements involving genuine names are without content, in part, because the semantic content of the unrestricted existential quantifier, 'something', is seen to be a higher-order propositional function that applies only to propositional functions of individuals, and not to the individuals themselves. This observation overlooks the fact that the unrestricted existential quantifier together with the identity predicate defines (something equivalent to) a first-order existence predicate: 'Something is identical with ____'. It would have been better to say that singular existentials and negative existentials involving genuine names have content, but are always trivially true and trivially false, respectively.
 14. In characterizing the sense of an expression as a purely conceptual entity, I intend the word 'concept' with a more or less ordinary meaning and not with that of Frege's special use of '*Begriff*'. Senses are neither empirically observed (as are external, concrete objects) nor 'had' in the way that sensations or other private experiences are had, but are abstract entities that are 'grasped' or 'apprehended' by the mind. In addition, I intend the term 'pure' to exclude concepts that include non-conceptual elements as constituents. A genuine sense may involve reference to an object, but it must do so by including a conceptual representation of the object in place of the object itself.
 15. The Church-Gödel argument mentioned in note 4 above was inspired by Frege's arguments, and was offered independently by both Church and Gödel on Frege's behalf.
 16. Frege explicitly considered certain temporal contexts – specifically the phenomenon of tense as well as such temporal indexicals as 'yesterday'. From his treatment of these it is possible to extract a solution to the problem of failure of substitutivity in temporal contexts. A tensed or temporally indexical sentence, according to Frege, is incomplete and must be supplemented by a time-specification before it can properly express a thought and refer to a truth value. Whenever such a sentence is uttered, the very time of utterance is relied upon as the needed

time-specification, a specification of itself. Analogously, a definite description whose referent may vary with the time of utterance may be regarded as an operator that forms a complete singular term only when joined with a time-specification, as may be provided by the time of the utterance itself. Thus, although the definite description 'the US President', supplemented by the time of the writing of the present article, refers to the same individual as the name 'George Bush', the description 'the US President' cannot be substituted for the name 'George Bush' in the sentence 'In 1978, George Bush was a Republican', since this sentence already includes a verbal time-specification, 'in 1978', which supersedes the time of utterance in completing any expressions occurring within its scope in need of completion by a time-specification. (A similar solution is possible for such complex constructions as 'When I lived in Princeton, George Bush was a Republican' and for quantificational temporal operators, such as 'always', in place of specific time-indicators.) It should be noted that the solution here is significantly different from that for quotational and propositional-attitude contexts. The time-specification 'in 1978' is seen not as creating an *ungerade* context inducing a reference shift, but as providing a component needed to complete the singular term so that it may properly refer to an individual, relative to its position in the sentence. Once completed by the time-specification, its referent, as occurring at that position, is just its customary referent.

The present article concerns singular terms. A full account of Frege's theory of meaning, not undertaken here, would require consideration of Frege's further doctrines concerning functions and their role in the semantics of predicates, connectives, quantifiers, and operators.

17. Frege and Russell wrote before the advent of modern intensional semantics, and consequently neither spoke of reference or truth *with respect to a possible world or with respect to a time*, but only of reference ('meaning') or truth (in a language) *simpliciter*. The parenthetical phrase 'with respect to a possible world in a time' indicates the natural and usual extensions of their account to modal and temporal semantics. It must be noted, however, that both Frege and Russell treated the phenomenon of tense and other temporal operators differently from the usual treatment today, and neither clearly distinguished tense from the distinct phenomenon of indexicality.
18. See Salmon 1981, pp 14–21, 43–4, 54–5) for a more detailed discussion of these notions.
19. For further difficulties with this and other proposed alternatives to the Modified Naive Theory, see Salmon 1986, pp 63–75.
20. It may be objected that Putnam's concept of elm trees includes the concept of being called 'elms' in English, and perhaps even the concept of being a different genus from the things called 'beeches' in English, making the purely conceptual contents different after all. There are compelling reasons, however, for denying that any concept like that of being called such-and-such in English can be part of the semantic content of terms like 'elm' and 'beech'. See Kripke 1972, pp 68–70; Chapter 14 below; and Salmon 1986, pp 163–4n2.
21. Such a position is sketched in some detail in Chapter 16 below.
22. This general strategy employed in this argument is developed in Kripke (1979), where is applied to Donnellan's claims supporting his referential-attributive distinction. I do not know whether Kripke would endorse this application of

the general strategy to the purported failure of substitutivity of proper names in propositional-attitude contexts.

23. A comprehensive survey of the topics of this article is provided in Salmon (1989).

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