Chapter 6

Semantics: The Study of Linguistic Meaning

6.1 SEMANTICS AS PART OF A GRAMMAR

The study of linguistic units and their principles of combination would not be complete without an account of what these units mean, what they are used to talk about, and what they are used to communicate. The study of communication is a part of pragmatics, to which we will return in chapter 9. In this chapter we will take up the first two topics, which constitute a major portion of *semantics*.

Semantics has not always enjoyed a prominent role in modern linguistics. From World War I to the early 1960s semantics was viewed, especially in the United States, as not quite respectable: its inclusion in a grammar (as linguists sometimes call a scientific description of a language—see Chomsky 1965) was considered by many as either a sort of methodological impurity or an objective to be reached only in the distant future. But there is as much reason to consider semantics a part of grammar as syntax or phonology. It is often said that a grammar describes what fluent speakers know of their language—their *linguistic competence* (recall chapter 5). If that is so, we can argue that whatever fluent speakers know of their language is a proper part of a description of that language. Given this, then the description of meaning is a necessary part of the description of a speaker's linguistic knowledge (i.e., the grammar of a language must contain a component that describes what speakers know about the semantics of the language). In other words, if appealing to what fluent speakers know about their language counts as motivation for including a phonological fact or a syntactic fact in the grammar of that language, then the same sort of consideration motivates the inclusion of semantic facts.

A more general consideration also motivates us to include semantics in the grammar of a language. A language is often defined as a con-

ventional system for communication, a system for conveying messages. Moreover, communication can be accomplished (in the system) only because words have certain meanings; therefore, to characterize this system —the language—it is necessary to describe these meanings. Hence, if a grammar describes a language, part of it must describe meaning, and thus the grammar must contain a semantics. Taking these two considerations together, it seems reasonable to conclude that semantic information is an integral part of a grammar.

In reading this chapter, though, bear in mind that the subfield of semantics is in a greater state of diversification than phonology or syntax; much that we will discuss is a cautious selection from among possible alternatives. There is no shortage of semantic theories, and it is widely acknowledged that serious open questions still lie at the very foundations of semantics. We suggest consulting the works listed at the end of this chapter, in order to get a general idea of the scope of semantics.

6.2   THEORIES OF MEANING

It would take a whole semantic theory to answer the questions raised below, but in the history of semantics a few "leading ideas" have emerged concerning the nature of meaning, and a brief look at some of these proposals is instructive.

Varieties of Meaning

As a preliminary we should note that in everyday English, the word *mean* has a number of different uses, many of which are not relevant to the study of language:

(1)
a. That was no mean (insignificant) accomplishment.
b. This will mean (result in) the end of our regime.
c. I mean (intend) to help if I can.
d. Keep Off the Grass! This means (refers to) you.
e. His losing his job means (implies) that he will have to look again.
f. Lucky Strike means (indicates) fine tobacco.
g. Those clouds mean (are a sign of) rain.
h. She doesn't mean (believe) what she said.

These uses of the word *mean* can all be paraphrased by other expressions (indicated in parentheses above). None of them is appropriate for our

discussion of word meaning. Rather, we will use the terms *mean* and *meaning* as they are used in the following examples:

(2)
a. *Procrastinate* means "to put things off."
b. In saying "It's getting late," she meant that we should leave.

These two uses of the word *mean* exemplify two important types of meaning: *linguistic meaning* (2a) and *speaker meaning* (2b).

This distinction can be illustrated with an example. Suppose that you've been arguing with another person, who exclaims, "The door is right behind you!" You would assume, quite rightly in this context, that the speaker, in uttering this sentence, means that you are to leave—although the speaker's actual words indicate nothing more than the location of the door. This illustrates how a speaker can mean something quite different from what his or her words mean. In general, the *linguistic meaning* of an expression is simply the meaning or meanings of that expression in the language. In contrast, the *speaker meaning* can differ from the linguistic meaning, depending on whether the speaker is speaking *literally* or *nonliterally*. When we speak literally, we mean what our words mean, and in this case there is no important difference between speaker meaning and linguistic meaning. But when we speak nonliterally, we mean something different from what our words mean.

Two nonliteral uses of language are sarcasm or irony, as when someone says of a film, "That movie was a real winner!" uttered in such a way that we understand the speaker to mean that the movie was a flop. Metaphorical uses of language (some of which we discussed in chapter 2) are also types of nonliteral language use, as, for example, when someone is described as having raven hair, ruby lips, emerald eyes, and teeth of pearl. Taken literally, this description would indicate that the person in question is a monstrosity; however, taken metaphorically, it is quite a compliment. As we will see in chapter 9, a crucial feature in human communication is the ability on the part of the hearer to determine whether a speaker is speaking literally or nonliterally.

Returning now to the question of linguistic meaning, it is useful to keep in mind the distinction between the linguistic meaning of an expression and a given speaker's literal or nonliteral use of the expression. Furthermore, in talking about the linguistic meaning of an expression, we must note that meanings can vary across dialects and across individual speakers. To recall an example from chapter 2, in American English the

word *bonnet* refers only to a type of hat, whereas in British English it can refer to the hood of a car. Hence, for a word such as *bonnet* we cannot isolate a single meaning valid for all forms of English; rather, our discussion of the meaning of the word will be relative to a specific dialect of English.

The matter is further complicated when we note that meanings of words can vary across individual speakers within the same dialect. For example, the word *infer* seems to have different meanings for different speakers. For some speakers, it has roughly the same meaning as *conclude*, as in *I infer from what you say that you are sick*. For other speakers, it has roughly the same meaning as *imply*, as in *He inferred that he was fed up with us*. The language of a particular individual is referred to as that person's *idiolect* (see chapter 7), and it is clear that the idiolectal meaning of a word can differ from one person to another (even among people who can be said to speak the same dialect). The varieties of meaning we have specified so far are summarized in figure 6.1.

At this point we might ask, How can so many varieties of meaning exist? Isn't it the case, after all, that "official" dictionaries of a language tell us what the meaning of a word is? And isn't it the case that the only "valid" meanings for a word are those listed in the dictionary? In answering these questions, it is important to recall the distinction made earlier between prescriptive and descriptive grammar. Current dictionaries of English (and many other languages as well) derive from a tradition of prescriptive grammar, and almost invariably have focused on the written language. You can probably think of numerous words and
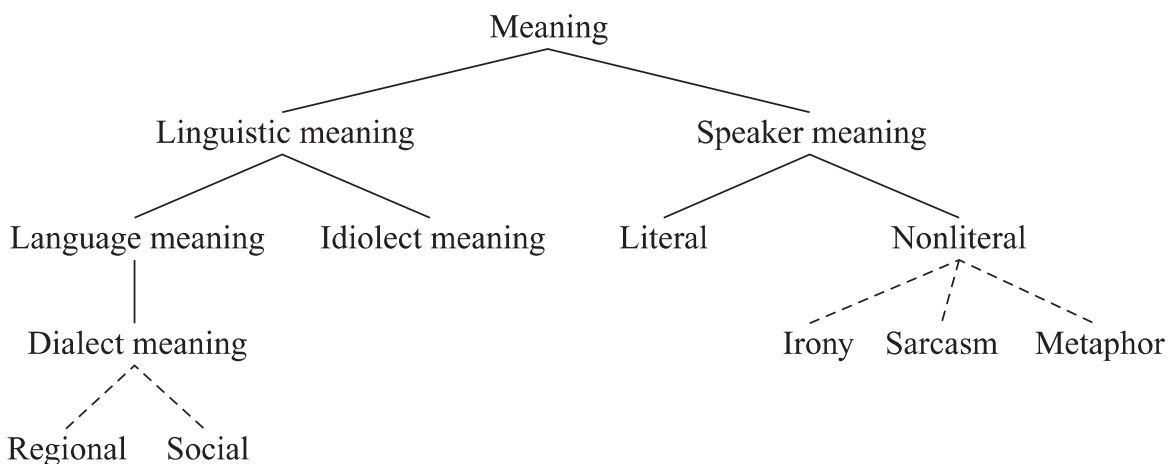

Figure 6.1
Some varieties of meaning

uses of words in current spoken, informal English that do not appear in dictionaries. From a prescriptive point of view these unlisted words and uses might be termed "incorrect" or "improper." From a descriptive point of view, however, the spoken language forms a central source of data for linguistic theory, and linguists are very much concerned with discovering meaning properties and relations in forms of spoken language actually used by speakers (rather than forms of language that prescriptive grammar dictates speakers "should" use). Hence, although dictionaries might be useful in providing certain basic explanations of common words, they do not, by and large, reflect accurately enough the meaning and variations in meaning of words in current use in everyday spoken language. And even where they are useful, they presuppose that the reader is already familiar with all the words used in the definition, which eventually appear in other definitions!

The descriptive point of view is sometimes misinterpreted as advocating "linguistic freedom"—that is, a situation in which speakers are free to use words any way they like and are allowed to "get away with" breaking the rules of proper English. This is, of course, an absurd parody of the descriptive point of view. It turns out that, quite aside from dictionaries and prescriptive grammar books, speakers are indeed not free to use words any way they like. There is tremendous social pressure for speakers of a language to use words in similar ways—successful communication depends on this, in fact—and the need to communicate effectively provides constraints on how "creative" an individual speaker can be in the use of words. What, then, is recorded in language as "meaning"?

What Is Meaning?

Historically, the most compelling idea concerning meaning has been that meaning is some sort of entity or thing. After all, we do speak of words as "having" a meaning, as meaning "something," as having the "same" meaning, as meaning the same "thing," as "sharing" a meaning, as having "many meanings," and so forth. What sort of entity or thing is meaning? Different answers to this question give us a selection of different conceptions of meaning, and a selection of different types of semantic theory.

The Denotational Theory of Meaning

If one focuses on just some of the expressions in a language—for instance, proper names such as *de Gaulle*, *Italy*, or deictics such as *I*, *now*,

that—one is likely to conclude that their meaning is the thing they refer to. This relation between a linguistic expression and what it refers to is variously called *denotation*, *linguistic reference*, and *semantic reference*. For convenience we will formulate this conception of meaning in terms of the following slogan:

(D)
The meaning of each expression is the (actual) object it denotes, its *denotation*.

Although (D) does reflect the fact that we use language to talk about the world, there are serious problems with the identification of meaning as denotation.

   For instance, if we believe that the meaning of an expression is its denotation, we are committed to at least the following additional claims:

(3)
a. If an expression has a meaning, then it follows that it must have a denotation (meaningfulness).
b. If two expressions have the same denotation, then they have the same meaning (synonymy).

Each of these consequences of (D) turns out to be false. For instance, (3a) requires that for any expression having a meaning there is an actual object that it denotes. But this is surely wrong. What, for instance, is the (actual) object denoted by such expressions as *Pegasus* (the flying horse), *the*, *empty*, *and*, *hello*, *very*, and *Leave the room*? Next, consider (3b). This says that if two expressions denote the same object, then they mean the same thing; that is, they are synonymous. But many expressions that can be correctly used to denote a single object do not mean the same thing. For instance, *the morning star*, *the evening star*, and *Venus* all denote the same planet, but they are not synonymous, as can be seen by the fact that the morning star is the last star seen in the morning and the evening star is the first star seen at night. Nor are the expressions *the first person to walk on our moon* and *Neil Armstrong* synonymous, but they denote the same person.

Mentalist Theories of Meaning
Well, we might say, if meanings are not actual objects, perhaps they are mental objects; even if there is no real flying horse for *Pegasus* to denote, there is surely such an *idea*, and maybe this idea is the meaning

of *Pegasus*. A typical example of this view can be seen in the following quotation from Glucksberg and Danks (1975, 50): "The set of possible meanings of any given word is the set of possible feelings, images, ideas, concepts, thoughts, and inferences that a person might produce when that word is heard and processed." As with the denotational theory, this conception of meaning can be formulated in terms of a slogan:

(M)
The meaning of each expression is the *idea* (or ideas) associated with that expression in the minds of speakers.

This sort of theory has a number of problems, but the most serious one can be put in the form of a dilemma: either the notion of an idea is too vague to allow the theory to predict or explain anything specific, and thus the theory is not testable; or if the notion of an idea is made precise enough to test, the theory turns out to make false predictions. The quotation from Glucksberg and Danks illustrates the first problem. How, with such a view of meaning, could one ever determine what an expression means? With such a view, could two expressions be synonymous (have the same meaning), or would there always be feelings and thoughts associated with one expression that are not associated with the other?

Meaning as Images   Suppose we sharpen the notion of an idea by saying that ideas are *mental images* (mental pictures and diagrams). Though this might work for words like *Pegasus* and perhaps *the Eiffel Tower*, it is not obvious how it would work for nouns such as *dog* and *triangle*, or a verb such as *kick*. For instance, if one really does form an image of a dog or a triangle, more than likely the dog will be of some particular species and will not comprise both a Chihuahua and a Saint Bernard; the triangle will be isosceles or equilateral but will not comprise all triangles. Similar problems arise with *kick*. If one really forms an image of *X* kicking *Y*, then that image probably will have properties not essential to kicking, such as the sex of the kicker, which leg was used, the kind of thing being kicked, and so forth. In general, mental images are just not abstract enough to be the meanings of even common nouns and verbs. But suppose for the moment that appropriate images could be found for these nouns and verbs. What about other kinds of words? What images are the meanings of words such as *only*, *and*, *hello*, and *not*? Worse still, can the theory apply to units larger than words, such as the sentence *She speaks*

French and Navajo? How, for instance, does an Image Theory of meaning differentiate this sentence from *She speaks French or Navajo*?

Meaning as Concepts   One way around this problem of the excessive specificity of images is to view ideas as *concepts*, that is, as mentally represented categories of things. As we will see in more detail in chapter 10, this version of the idea theory is also problematic. First, concepts also might be too specific in that various speakers' concepts might include information specific to the way they developed the concept, information that is not a part of the meaning of the word that expresses it. There is psychological evidence that our system of cognitive classification is structured in terms of *prototypes*, in that some instances of a concept are more typical (closer to the prototype) than others; robins are more typical birds than penguins, chairs are more typical pieces of furniture than ashtrays, and so on (see chapter 10). Yet these are not features of the meaning of *bird* and *furniture*. And even if concepts work as meanings for some words, such as common nouns, adjectives, and maybe verbs, there are still many other kinds of words that do not have clear conceptual content, such as *elm tree*, *only*, *not*, and *hello*. Furthermore, it is not clear what concept would be assigned to a sentence, though sentences are clearly meaningful. The concept analysis of meaning is at best a theory of a restricted portion of the language. So although this way of understanding the notion ''idea'' makes the theory as testable as theories in general in cognitive psychology, there is as yet no such theory of meaning in cognitive psychology that is detailed enough to test. To succeed, such a theory must be capable of identifying and distinguishing concepts independently of meaning, which current versions fail to do. In short, theories of meaning as entities, whether they be objects denoted, images in the mind, or concepts, all face various difficulties. Perhaps the trouble lies with the initial assumption that meaning is an entity.

The Sense Theory of Meaning
Frege (1892) argued that ideas cannot be meaning since ideas are subjective and fleeting whereas meaning is objective and (relatively) stable—we use language to pass on information from person to person. And denotations are not enough because if language consisted only of form and denotation, then an identity sentence such as (4a) would carry the same information as (4b):

(4)

a. a = a (the morning star is (=) the morning star)

b. a = b (the morning star is (=) the evening star)

But, said Frege, (4b) does not convey the same information as (4a), since one can believe the first, but not even be aware of the second. Frege's solution was to propose that all referring expressions with a denotation also have what he called a *sense*—a way that the denotation is presented or known to the language user. For instance, you might know a person as "the lady who lives next door" without knowing her as "the principal of Martha Graham Elementary School." Frege also proposed that whole sentences have a sense. For declarative sentences the sense is the conditions that make the sentence true. (Or put another way, a declarative sentence represents the world as being a certain way.) These are called the sentence's *truth conditions* because understanding the sentence is knowing under what conditions the sentence *would be true*. Understanding a declarative sentence such as (5)

(5)

Neil Armstrong was the first person to walk on our moon.

involves knowing how the world must be for the sentence to be true. Note of course that one need not know whether it is *in fact true*. Frege extended this idea to yes/no questions such as (6):

(6)

Was Neil Armstrong the first person to walk on our moon?

He thought that this too expresses a proposition to the effect that Neil Armstrong was the first person to walk on the moon, but that it contains something else as well, an element that carries the force of a *question*. Declaratives also contain an element that carries force, but in their case it is the force of an *assertion*, and imperative sentences contain an element that carries the force of a *request*. However, since interrogatives and imperatives are not true or false, their sense cannot involve truth conditions. What might it involve instead? Contemporary semantics answers by saying that interrogatives are associated with *answerhood conditions*, and imperatives are associated with *compliance conditions*. To understand an interrogative would be to understand what would be an answer to the question it expresses, and to understand an imperative would be to understand what it would be like to comply with the request it expresses. Such conditions (truth conditions, answerhood, conditions, compliance

conditions) are collectively called *satisfaction conditions*. The suggestion, then, is that the meaning of a sentence should be analyzed in part in terms of its satisfaction conditions, and the meaning of its constituents should be analyzed in terms of the contributions the constituents make to these conditions:

(S)
The meaning of a sentence is its *sense* satisfaction condition (i.e., its truth condition, compliance condition, answerhood condition), and the meaning of a word or phrase is the contribution it makes to the satisfaction condition of the sentences it occurs in.

This theory has many advantages over earlier denotational and mentalist theories, since (1) it does not equate meaning with either denotation or ideas (images/concepts), and (2) unlike (D) and (M), (S) assigns semantic priority to sentences, in the way that syntax does, and not to words or phrases. In some form or other, this theory is probably the dominant view in linguistic semantics today (see suggested readings).

The Use Theory of Meaning
The idea that meaning should be explained in terms of truth (or more generally, satisfaction) conditions, as well as in terms of any kind of entity, came under attack in the 1930s when Wittgenstein (1933) advanced an alternative conception of meaning as use that influenced Anglo-American theorizing for many decades. Like the previous theories of meaning, the Use Theory of meaning can be formulated as a slogan:

(U)
The meaning of an expression is its *use* in the language community.

One advantage of this theory is that we can just as easily speak about the use of *hello* and of sentences as about the use of *table* or *Pegasus*. The main problem with the Use Theory of meaning is that the relevant conception of *use* must be made precise, and the theory must say how, exactly, meaning is connected to use.

In conclusion, it is fair to say that researchers do not have a very clear idea what meaning is. All of the theories we have surveyed are in various states of disarray. The situation is not hopeless, as there are still promising avenues of approach to this topic. As a student, you should not be deterred by present limitations on understanding, but should consider it a promising area for future research.

6.3 THE SCOPE OF A SEMANTIC THEORY

The foregoing discussion indicates that there are facts for a semantic theory to describe, and it leads us to consider what kinds of information are central to the description of the semantics of a language.

Words and Phrases

Meaning Properties

We now turn our attention to certain *meaning properties* of words that play an important role in the description of human languages. Perhaps the central semantic property of words (and morphemes in general) is the property of being *meaningful* or being *meaningless*. Any adequate account of the lexicon of a language must specify the meaningful words of the language and must represent the meaning of those words (both simple and complex) in some fashion. For example, at the very least an adequate account of the English lexicon must tell us that *procrastinate* means "put things off," *bachelor* means "unmarried adult male," *mother* means "female parent," and so on for numerous other words of the language. Here our earlier distinction between linguistic meaning and speaker meaning is crucial—how could a description of a *language* anticipate all the things a *speaker* might mean in uttering an expression from it on some occasion?

Another important semantic property of words is *ambiguity*, in particular what is referred to as *lexical ambiguity*, as illustrated in the following examples:

(7)
a. He found a *bat*.
    (*bat*: baseball bat; flying mammal)
b. She couldn't *bear* children.
    (*bear*: give birth to; put up with)

In each case the italicized word is ambiguous in that it has more than one meaning. The ability to detect ambiguity is crucial in the communicative process, and successful communication can depend on both speaker and hearer recognizing the same meaning for a potentially ambiguous word.

Similarly for *polysemy*, which is often defined as the property of having more than one related meaning. Thus, *table* can mean a certain kind of furniture, or it can be the act of putting an item at a meeting on hold (*She*

tabled the motion). Someone might argue that these are two different words because the same word can't be both a noun and a verb, and so there are no relations here *between* the meanings of a word. Still, there are examples of relations between the meanings of words from just one syntactic category. For instance, *Sports Illustrated* can be bought for 1 dollar or 35 million dollars; the first is something you can read and later start a fire with, the second is a particular company that produces the magazine you just read. Such polysemy can give rise to a special ambiguity (*He left the bank five minutes ago*, *He left the bank five years ago*). Sometimes dictionaries use history to decide whether a particular entry is a case of one word with two related meanings, or two separate words, but this can be tricky. Even though *pupil* (eye) and *pupil* (student) are historically linked, they are intuitively as unrelated as *bat* (implement) and *bat* (animal).

Another important semantic property of words, in particular words put together into phrases, is *anomaly*. An expression is anomalous when the meanings of its individual words are incompatible:

(8)
a. gradually plummet
b. colorless green idea
c. dream diagonally

Of course, it is almost always possible to impose a meaning on such expressions—indeed, certain forms of poetry demand that the reader impose a meaning on anomalous expressions. For example, *to dream diagonally* might be taken to mean "to lie diagonally in a bed while dreaming," but this is the result of a special (and forced) interpretation, which speakers could argue about at length. The point is that expressions like those in (8) have no conventional interpretation in English. It is important to notice that a semantically anomalous expression can nevertheless be syntactically well formed (e.g., *colorless green idea* is formed on a regular syntactic pattern of English exemplified by phrases such as *colorful red flower*), and this may be a major factor that makes it feasible for speakers to invent meanings for such anomalous expressions.

Meaning Relations

Not only do words have *meaning properties* (such as ambiguity, or having a meaning), they also bear various *meaning relations* to one another. Just

as words can be related morphologically (e.g., by word formation rules such as the *-able* rule), so they can also be related semantically, and words related by virtue of meaning form subgroups within the lexicon of a language.

For example, one central meaning relation is *synonymy*, "sameness" of meaning or "paraphrase." Thus, we say that *automobile* is synonymous with *car*, *plane* (in one of its senses) is synonymous with *aircraft*, *kid* (in one of its senses) is synonymous with *child*, and so on.

Words may also be *homophonous*; that is, they may have identical pronunciations but have distinct spellings in the written language, such as *Mary*, *marry*, and *merry*. Two words with the same spelling (and pronunciation) are *homonymous* (i.e., they are *homonyms*). An often-cited example of homonymy is the word *bank* referring to the side of a river, versus the word *bank* referring to a financial institution. Of course, the question immediately arises, Why not say that there is a single word *bank* with two distinct meanings? As we saw in chapter 2, it is by no means easy to resolve the issue of how to count different words, and we can provide no solution here.

Another important meaning relation is *meaning inclusion*, illustrated in (9):

(9)
a. The meaning of *sister* includes the meaning of *female*.
b. The meaning of *kill* includes the meaning of *dead*.

When we put words together that are related by meaning inclusion, we derive expressions that are *redundant* (such as *female sister*), and idiomatic expressions (such as *She killed him dead*).

Even if two expressions are not synonymous and the meaning of one does not include the meaning of the other, they still may be semantically related in that they *overlap*, or *share* some aspect of meaning:

(10)
a. *Father*, *uncle*, *bull*, and *stallion* all express the property "male."
b. *Say*, *speak*, *whisper*, *yell*, *shout*, and *scream* all express the property "vocalization."
c. *Fortunately*, *luckily*, *happily*, and *fortuitously* all express the property "good for" something or someone.

Groups of words in the lexicon can be semantically related by being members of a set known as a *semantic field* (see Lehrer 1974). On a very

general and intuitive level, we can say that the words in a semantic field, though not synonymous, are all used to talk about the same general phenomenon, and there is a meaning inclusion relation between the items in the field and the field category itself. Classical examples of semantic fields include color terms (*red*, *green*, *blue*, *yellow*), kinship terms (*mother*, *father*, *sister*, *brother*), and cooking terms (*boil*, *fry*, *bake*, *broil*, *steam*). The notion of a semantic field can be extended intuitively to any set of terms with a close relation in meaning, all of which can be subsumed under the same general label. Thus, in addition to the specific semantic fields cited, we could refer to labels such as "nautical terms," "plant names," "animal names," "automobile terms," and so on, as specifying semantic fields. It is difficult to be very precise about what counts as a semantic field. Do all time words form a semantic field? How about wearing apparel for the feet, or the things Napoleon thought about the day he died? Although there have been interesting attempts to make the notion of a field more precise (see suggested readings), so far they have not created much consensus for research. The kinds of semantic fields found in the lexicon of any given language (i.e., the kinds of general labels that define the particular semantic fields) may vary from culture to culture, and in fact anthropologists have found the study of semantic fields useful in investigating the nature of belief systems and reasoning in different cultural groups.

Sometimes words can share an aspect of meaning but be "opposite" in some other aspect of meaning. We say that such sets of words are *antonymous*. Typical examples of word antonymy include the following:

(11)
a. *Small* and *large* share the notion "size" but differ in degree.
b. *Cold* and *hot* share the notion "temperature" but differ in degree.

The sense in which words such as *hot* and *cold* are "opposites" is not just that they are incompatible in meaning. Many words are semantically incompatible in the sense that they cannot both be true of something at the same time. For example, the words *cat* and *dog* are semantically incompatible (they cannot both be truly applied to the same thing at the same time); nevertheless, they are not "opposites" in the sense of being antonyms. The examples in (11) are antonyms essentially because there is a scale containing the "opposites" at either end, with a midpoint (or midinterval) between them:

$$\longleftarrow \hspace{3cm} \big| \hspace{3cm} \longrightarrow$$

cold   cool   lukewarm   warm   hot

Thus, the words *hot* and *cold* can be said to be antonyms ("opposites") since they define the *extremities* of a scale (of temperature, in this case) that has a midinterval between them (in this case, represented by the word *lukewarm*, a word that can be used to refer to things that are neither hot nor cold). The comparative (*-er*) form of antonyms points in the direction of the scale, and so the midpoint will not take comparison:

(12)
a. smaller – *mediumsizeder – larger
b. colder – cooler – *lukewarmer – warmer – hotter

   This completes our initial survey of semantic properties and relations in the area of word (and phrase) meaning. We note, once again, that the study of word meaning reveals that the lexicon of a language is not simply an unorganized list of words. Semantic relations such as synonymy, antonymy, and the relations involved in semantic fields all serve to link certain words with other words, indicating that the overall lexicon of a language has a complex internal structure consisting of subgroups, or "networks," of words sharing significant properties.

Sentences

Since sentences are composed of words and phrases, we can expect that certain semantic properties and relations of words and phrases will carry over to sentences as well. However, as traditional grammarians put it, a sentence (as opposed to a single word or phrase) expresses a "complete thought." This is not a very useful definition of a sentence, but it does suggest that we might expect to find semantic properties and relations that are distinctive to sentences (or expressions that are elliptical for sentences) as opposed to words and phrases.

Meaning Properties and Relations

Among the meaning properties and relations of words and phrases that carry over to sentences are ambiguity and synonymy (paraphrase):

(13)
a. *Synonymy (paraphrase)*
   His pants were too small.
   His pants were not big enough.

b. *Ambiguity*

She visited a little girl's school.

Notice that in some cases the ambiguity of a sentence is caused by the ambiguity of a word in it (see (7a–b) again), but in other cases no particular word is ambiguous—the ambiguity is due to structural relations in the sentence (recall the discussion of structural ambiguity in chapter 5). For example, in (13b) it is not clear whether *little* modifies only the word *girl* (*She visited a [little girl's] school*) or modifies the phrase *girl's school* (*She visited a little [girl's school]*). As we will see in chapter 10, speakers often disambiguate such sentences for their hearers by using stress and pauses.

Ambiguity can give rise to humorous double meanings, especially when unintended, as in these newspaper headlines:

BRITISH LEFT WAFFLES ON FALKLANDS
DRUNK GETS NINE MONTHS IN VIOLIN CASE
IRAQI HEAD SEEKS ARMS
TEACHER STRIKES IDLE KIDS
STOLEN PAINTING FOUND BY TREE
TWO SOVIET SHIPS COLLIDE, ONE DIES
TWO SISTERS REUNITED AFTER 18 YEARS IN CHECKOUT COUNTER

Communicative Act Potential

Sentences also exhibit meaning properties and relations that words and phrases may lack.

One important property of a sentence is its *communicative act potential*. Sentences with different structures often have different communicative functions—they are conventionally used to perform different communicative acts in speaking (see "Special Topics," and chapter 9). Thus, a speaker who wants to assert or state that something is true will normally utter a declarative sentence such as *Snow is white*. On the other hand, if the speaker wants to issue an order, request, or command, then an imperative sentence such as *Leave the room!* is appropriate. Finally, if a speaker wants to ask a question, then the obvious choice is an interrogative sentence such as *What time is it?* As a first approximation we could diagram these facts as follows:

(14)

a. Declarative sentence → Used to constate (assert, state, claim, etc.)

b. Imperative sentence → Used to direct (order, request, command, etc.)

c. Interrogative sentence → Used to question

It seems to be a part of the semantics of these structural types (declarative, imperative, interrogative) that they have the distinct communicative functions cited above. In any event, we would not say someone understood sentences of these types unless that person understood the differences in communicative function.

That these different types of sentence have these different normal uses is an important semantic fact. However, the field of semantics has traditionally concentrated on the assertive function of language, concerning itself mainly with the properties and relations that declarative sentences have regarding truth.

Truth Properties

Not only do expressions in a language have meaning and denotation, they are also used to say things that are true or false. Of course, no semantic theory can predict which sentences are used to say something true and which are used to say something false, in part because truth and falsity depend upon what is being referred to and the way the world actually is, and also because the same words can be used in identical sentences to refer to different things. Does this mean that the semantics of natural language cannot deal with truth and falsity? The answer is no, because some truth properties and truth relations hold regardless of reference and the way the world actually is, provided meaning is held constant.

Consider first the property of being *linguistically true* (also called *analytically true* or just *analytic*) or *linguistically false* (also called *contradictory*). A sentence is linguistically true (or linguistically false) if its truth (or falsehood) is determined solely by the semantics of the language and it is not necessary to check any facts about the nonlinguistic world in order to determine its truth or falsehood. A sentence is *empirically true* (or *empirically false*) if it is not linguistically true or false—that is, if it is necessary to check the nonlinguistic world in order to verify or falsify it; knowledge of the language alone does not settle the matter. Semantics is not concerned to explain empirical truths and falsehoods, but it is concerned to explain those sentences that are linguistically true or false. In

each of the groups (15), (16), and (17) it is possible to determine truth values (true = T, false = F) without regard to the actual state of the world.

(15)
a. Either it is raining here or it is not raining here. (T)
b. If John is sick and Mary is sick, then John is sick. (T)
c. It is raining here and it is not raining here. (F)
d. If John is sick and Mary is sick, then John is not sick. (F)

(16)
a. All people that are sick are people. (T)
b. If every person is sick, then it is not true that no person is sick. (T)
c. Some people that are sick are not people. (F)
d. Every person is sick, but some person is not (sick). (F)

(17)
a. If John is a bachelor, then John is unmarried. (T)
b. If John killed the bear, then the bear died. (T)
c. If the car is red, then it has a color. (T)
d. John is a bachelor, but he is married. (F)
e. John killed the bear and it's (still) alive. (F)
f. The car is red, but it has no color. (F)

Again, knowing the language seems to be sufficient for knowing the truth or falsity of these sentences, and this being so, the semantics of these sorts of sentences will be relevant to a semantic theory that attempts to characterize knowledge that speakers have about their language.

Truth Relations
We have noted that there are truth relations as well as truth properties that fall within the scope of semantics. The most central truth relation for semantics is *entailment*. One sentence S is said to entail another sentence S′ when the truth of the first guarantees the truth of the second, and the falsity of the second guarantees the falsity of the first, as in (18):

(18)
a. *The car is red* entails *The car has a color*.
b. *The needle is too short* entails *The needle is not long enough*.

We can see that the first sentence in each example, if true, guarantees the truth of the second; and the falsity of the second sentence in each example guarantees the falsity of the first.

Closely related to entailment is another truth relation, *semantic presupposition*. The basic idea behind semantic presupposition is that the falsity of the presupposed sentence causes the presupposing sentence not to have a truth value (T or F). Furthermore, both a sentence and its denial have the same semantic presupposition. Although this truth relation is somewhat controversial, (19) and (20) show typical examples of semantic presupposition in which both the positive (a) and the negative (b) sentences have the same presupposition (c):

(19)
a. The present king of France is bald.
b. The present king of France is not bald.
c. There is a present king of France.

(20)
a. John realizes that his car has been stolen.
b. John does not realize that his car has been stolen.
c. John's car has been stolen.

In sum, in addition to truth properties, there are at least two truth relations that an adequate semantic theory must explain (or explain away), namely, entailment and semantic presupposition. Furthermore, since there are analogues of these properties and relations for nondeclarative sentences, an adequate semantics must ultimately account for how the world can *satisfy* a sentence of any type.

Goals of a Semantic Theory

We now come to the question of the goals of a semantic theory. What should a semantic theory do, and how?

The short answer to the first question is that a semantic theory should attribute to each expression in the language the semantic properties and relations that it actually has; moreover, it should define those properties and relations. Thus, if an expression is meaningful, the semantic theory should say so. If it has a specific set of meanings, the semantic theory should specify them. If it is ambiguous, the semantic theory should record that fact. And so on. Moreover, if two expressions are synonymous, or if one entails the other, the semantic theory should mark these semantic relations. We can organize these constraints on a semantic theory by saying that an adequate theory of a language must generate every true instance of the following schemes for arbitrary expression E:

(21)
a. *Meaning properties and relations*
   E means _____.
   E is meaningful.
   E is ambiguous.
   E is polysemous.
   E is anomalous (nonsense).
   E is redundant.
   E and E′ are synonymous.
   E and E′ are homonymous.
   E includes the meaning of E′.
   E and E′ overlap in meaning.
   E and E′ are antonymous.
   E is conventionally used to _____.
b. *Truth properties and relations*
   E is linguistically true (analytic).
   E is linguistically false (contradictory).
   E entails E′.
   E semantically presupposes E′.

We can say in sum that the domain of a semantic theory is at least the set of properties and relations listed in (21); we should not be satisfied with a semantic theory of English that fails to explain them (or to explain them away).

The second question concerning the goals of a semantic theory is, How should the theory handle these semantic properties and relations? What kinds of constraints on a semantic theory are reasonable to impose? We will note just two. First, it is generally conceded that even though a natural language contains an infinite number of phrases and sentences (recall chapters 2 and 5), a semantic theory of a natural language should be *finite*: people are capable of storing only a finite amount of information, but they nevertheless learn the semantics of natural languages. The second constraint on a semantic theory of a natural language is that it should reflect the fact that, except for idioms, phrases and sentences are *compositional*—in other words, that the meaning of a syntactically complex expression is determined by the meaning of its constituents and their grammatical relations. Compositionality rests on the fact that a finite number of familiar words and expressions can be combined in novel ways to form an infinite number of new phrases and sentences; hence, a finite

semantic theory that reflects compositionality can describe meanings for an infinite number of complex expressions.

The existence of compositionality is most dramatic when compositional expressions are contrasted with expressions that lack compositionality. In (22a) the expression *kick the bucket* has two meanings:

(22)
a. John kicked the bucket.
b. John kicked the wooden pail.
c. John died.

One of the meanings of (22a) is compositional: it is determined on the basis of the meaning of the words and is approximately synonymous with (22b). The other meaning of (22a) is idiomatic and can be paraphrased as (22c). Idiomatic meanings are not compositional in the sense of being determined from the meaning of the constituent words and their grammatical relations. That is, one could not determine the idiomatic meaning of (22a) by knowing just the meaning of the words and recognizing familiar grammatical structure—an idiomatic meaning must be learned separately as a unit. Idioms behave as though they were syntactically complex words whose meaning cannot be predicted, since their syntactic structure is doing no semantic work.

It would be a mistake to think of the compositionality of a complex expression as simply adding up the meanings and references of its parts. For adjective + noun constructions like that in (23a), adding up sometimes works:

(23)
a. A *bearded sailor* walked by. =
b. Someone who was bearded and a sailor walked by.

But even in such constructions the contributions of syntax can be obscure. In (24), for example, we cannot simply add up the meanings of *occasional* and *sailor*:

(24)
a.   An *occasional sailor* walked by. ≠
b. *Someone who is a sailor and occasional walked by.

Modifiers can create other complications for compositionality, which must also be reflected in a semantic theory of the language. Contrast the arguments in (25) and (26):

(25)

a. That is a *gray* elephant. (T)
b. All elephants are animals. (T)
c. So, that is a *gray* animal. (T)

(26)

a. That is a *small* elephant. (T)
b. All elephants are animals. (T)
c. So, that is a *small* animal. (F)

In (25) the premises (a) and (b) jointly entail the truth of (c), but in (26) the premises (a) and (b) do not jointly entail the truth of (c). The only difference between (25) and (26) is the occurrence of *gray* in (25) and *small* in (26), so clearly there is some difference in the semantics of these two words.

   More complicated and interesting examples of the interaction of semantics and syntax come from the functional relations of subject and object in a sentence. In sentences like (27a) and (27c) the words are the same, but the entailments (27b) and (27d) are importantly different.

(27)

a. John killed the snake.
b. The snake died.
c. The snake killed John.
d. John died.

This further illustrates the degree to which a semantic theory must be integrated with a syntactic theory in an adequate description of a natural language.

   In conclusion, in this section we have specified and illustrated a number of semantic properties and relations that a complete description of a language must account for, and we have motivated some very general conditions on such an account. At a more advanced level, by reading selections from the bibliography, you can investigate theories that attempt to do just this.

6.4 SPECIAL TOPICS

The issues we have just surveyed represent common ground for most semantic theories. However, many topics are the special concern of par-

ticular theories, and the problems they pose for semantics form part of its research agenda for the future.

Mood and Meaning

Traditional grammars say that a verb is in, for example, the subjunctive mood if it has a certain inflection (verbal morphology) and a sentence is in that mood if its main verb is in that mood. We can call this *verbal mood*. Jespersen (1924) championed the alternative idea that moods are best analyzed sententially, as forms with certain conventional communicative functions (what we earlier called "communicative act potential"). We can call these *sentential moods*. In what follows we will be speaking of sentential moods exclusively.

The major moods of English are traditionally said to be the *declarative*, *imperative*, and *interrogative*. For example:

(28)
a. *Declarative*
   Snow is white.
b. *Imperative*
   Leave the room!
c. *Yes/no interrogative*
   Is snow white?
   Snow is WHITE?
d. *Wh-interrogative*
   What time is it?
   You saw WHAT?

But there are also minor moods, exemplified by the following examples:

(29)
a. *Tag declarative*
   You've been drinking again, haven't you.
b. *Tag imperative*
   Leave the room, will you!
c. *Pseudo-imperative*
   Move and I'll shoot!
   Move or I'll shoot!
d. *Alternative question*
   Does John resemble his father or his mother? (with rising intonation on *father* and falling intonation on *mother*)

e. *Exclamative*
   What a nice day!
f. *Optative*
   May he rest in peace.
g. *"One more" sentence*
   One more beer and I'll leave.
h. *Curse*
   You pig, bag of wind, ...!

The distinction between major and minor mood is not clear-cut, but intuitively minor moods (1) are highly restricted in their productivity, (2) are peripheral to communication, (3) are probably low in their relative frequency of occurrence, and (4) vary widely across languages. This last feature is interesting; there seem to be some regularities across unrelated languages for the major moods, but not the minor moods. For instance, *declaratives* occur marked or unmarked. When they are marked, they have some distinctive characteristic such as word order, a special declarative particle, or declarative inflection. When they are unmarked, they are typically of the same form as dependent clauses. Furthermore, almost all languages have a declarative form devoted to making explicit the force of any sentence. This declarative form is called a *performative* sentence. For example, *I (hereby) order you to leave* makes explicit that the sentence is being used to order, and not request, someone to leave.

Imperatives have been found in almost all languages studied to date. The person being directed to do something is usually referred to via the subject expression (*you*). Typically the verbal morphology of imperatives is simpler than that of other moods, and imperatives resist occurring in dependent clauses. Many languages have a special form for negative imperatives.

As for *interrogatives*, both yes/no and *wh*-interrogatives occur in most languages. Yes/no questions typically are signaled by using rising intonation, although sentence-final or -initial particles, special verbal morphology, and word order are also used. There are three main systems for answering yes/no questions: yes/no systems that use a special particle, such as *yes* or *no*, to answer the question (English, French); agree/disagree systems, where the answer agrees with the proposition expressed (Japanese); and echo systems, where the answer repeats the relevant part of the sentence (Welsh). For example:

(30)
Question
Doesn't John like beans?
a. *Yes/no*
   Yes (he does)./No (he doesn't).
b. *Agree/disagree*
   Yes (he doesn't)./No (he does).
c. *Echo*
   John does./John doesn't.

Finally, some forms seem to have the characteristics of minor moods, but probably are not moods at all. Instead, they are *speech act idioms*—forms that are frozen for a particular use, and so are hardly productive at all (compare *kick the bucket* on its idiomatic and compositional readings). For instance:

(31)
a. How(s) about a beer? (suggestion)
b. Good morning/afternoon/evening. (greeting/leave-taking)
c. Where does he get off saying that? (complaint)

What are the semantics of these various forms? There are two semantic dimensions involved. First, these sentences are all used to perform different types of (communicative) speech acts. Second, connected to each type of speech act are certain satisfaction conditions. The first dimension is sometimes called the *force* of (the utterance of) the sentence; the second is called the *content*. For instance, *Snow is white* has the force of an assertion, and the content of that assertion is that snow is white; *Snow is WHITE?* has the force of a question, and the content (of a question whether) snow is white. Thus, these two sentences have the same content but different forces. *Snow is white* and *Grass is green*, on the other hand, have the same force, but different contents. They are both used to assert, but they are used to assert different things. In general, we would not say someone understood sentences in the various moods unless that person understood both the relevant force and content.

Force and content are intimately related. A sentence with assertive force represents the world to be a certain way, a way indicated by that content, and the sentence is true if the world is that way. These conditions are called the *truth conditions* of the sentences uttered. A true assertion fits the world, and we say it has a *word-to-world* direction of fit.

Imperatives, on the other hand, do not represent the world the way it *is*; instead, they represent the way the world is supposed to *become*. For instance, *Leave the room!* is used to direct the hearer to leave the room, and so comply with that request. We say that imperatives have a *world-to-word* direction of fit. Imperatives have *compliance conditions*. Likewise, interrogatives are used to ask questions, and so have *answerhood conditions*.

In our earlier discussion of the communicative potential of sentences we noted that there are some general correlations between certain types of sentence and certain ranges of speech acts. For instance, declaratives are conventionally used to make statements and other constatives (utterances that are assessable as true or false), whereas imperatives are conventionally used to direct the actions of others, and interrogatives are conventionally used to ask questions. Yet many sentences seem to have the form of a declarative, imperative, or interrogative, but do not have its traditionally defined use:

(32)
Declarative
I promise I'll be there. (promise)

(33)
Imperative
a. Have some more pâté. (offer)
b. Have a nice day! (wish)
c. Break a leg! (traditional Austrian ski leave-taking)
d. Help yourself. (permission)
e. Look out! (warning)
f. Be good! (exhortation)
g. Start, you pile of junk! (exhortation)

(34)
Interrogative
a. When was the battle of Waterloo? (exam question)
b. Which hand is it in? (child's game: request to guess)
c. What should I do now? (request for advice)
d. O Death, where is thy sting? (poetic)
e. Is the Pope Catholic? Can pigs fly? (rhetorical)
f. What should a good theory of mood consist in? (raising the question)

g. Now, how can I put this back together? (wondering aloud)
h. (You've won first prize) Have I? Great! (exclamation-question)
i. Why don't you go to blazes? (curse)

The problem facing existing semantic theories is to account for the force and content of sentences in the various moods in a way that meets four plausible conditions of adequacy:

1. The theory should account for semantic force and content compositionally.
2. It should assign sentences information that is specific enough to enable speakers to communicate literally and directly what we intuitively suppose them to communicate using these sentences.
3. Nevertheless, it must assign sentences information that is general enough that all sentences with the same mood can have the same force potential.
4. It must not postulate implausible or unintuitive ambiguities in sentences of the various moods.

At present no theory of mood and speech acts is able to meet all of these conditions.

Singular and General

The *singular* versus *general* distinction is drawn at two levels—the level of words and phrases ("terms") and the level of what is said (the "proposition expressed") in the utterance—and it signifies something importantly different in each case.

Singular versus General Terms

Denotations are things and events in the world (or groups of them); what words or phrases *denote* are the things and events that the words correctly indicate, name, or describe. For example:

(35)
a. *desk* denotes each and every desk
b. *I* denotes the speaker of this utterance of *I*
c. *the first person to walk on our moon* denotes Neil Armstrong
d. *Richard Nixon* denotes those named Richard Nixon (including the former president of the United States)

These examples reveal a distinction that is important for more advanced work in semantics, and for pragmatics: the distinction between *general*

terms such as (35a) and *singular terms* such as (35b–d). General terms
—such as common nouns, verbs, adjectives, and phrases that contain
them—correctly describe potentially many different things or events.
Thus, *red* applies to any red thing (and so denotes them all), and *kick*
applies to any act of kicking (and so denotes them all). Singular terms—
such as deictics, definite descriptions, and proper names—are used, on
particular occasions, to refer to one single thing or collection of things.
Thus, *she* is used on an occasion to refer to a contextually specified
female, *the dents on the fender* is used on an occasion to refer to a certain
collection of dents, *Paris* is used on an occasion to refer to a certain city.
Even though there are many persons we can speak of as *she*, and many
collections of dents that can be referred to as *the dents on the fender*, and
even several different people named *Richard Nixon*, when we use these
singular denoting expressions in normal discourse, we are still taken to
have just one person or collection of dents in mind.

Singular versus General Propositions
At the level of what is said in uttering a sentence, the distinction between
singular and general is a difference drawn *within* the use of singular
terms. A *general proposition* is one that could be made true by different
particular things. For instance, the property of being the first person to
walk on our moon is one that Neil Armstrong in fact has; but had he
gotten sick in flight, it might have been had by another member of the
crew. So it is true that:

(36)
The first person to walk on our moon might not have been Neil
Armstrong.

But in a *singular proposition* the particular referent is a constituent of the
proposition expressed. For example, it could not be true that:

(37)
Neil Armstrong might not have been Neil Armstrong.

Notice that even though the first person to walk on our moon is in fact
Neil Armstrong, what is said in these utterances is importantly different:
(36) involves general descriptive information, (37) involves a single spe-
cific individual.

Deictics and Proper Names

So far we have reserved the word *refer* for what speakers do, and the term *denote* for what words or phrases do. Under this terminology, the object (or objects) referred to by a person is called the *referent*, and the object (or objects) semantically referred to by a word or phrase is called the *denotation* of that word or phrase. Two kinds of expression seem to be especially apt for referring to objects we then go on to speak about: so-called deictic expressions and proper names.

Deictics

The word *deictic* comes from the Greek word for pointing, and the idea is that deictic terms pick out their referents like pointers, that is, in virtue of some relation to the context of utterance. In this they are unlike names, which are given to persons, places, and things, and unlike definite descriptions (*the* + *noun*), which refer by describing their referents. There are two main subdivisions of deictic terms: indexicals and demonstratives.

The expressions in (38) illustrate the purest form of *indexicals*:

(38)
a. I
b. now
c. here

An indexical expression is one that has an indexical use, that is, a literal use to refer to something in virtue of its relation to the actual physical utterance. For example, the word *I* will be used to refer to Sam when Sam utters it, but will be used to refer to Jane when Jane utters it. And every moment the reference of *now* changes. Yet none of these words changes its *meaning* when it changes its reference. If it did, how would we know what it meant, and how could we understand what the speaker was trying to communicate? The semantics of indexicals, on their indexical use, seems to involve rules such as the following:

(39)
a. *I*: used to refer to the speaker of this utterance of *I*
b. *now*: used to refer to the time of this utterance of *now*
c. *here*: used to refer to the place of this utterance of *here*

In these cases the meaning of the indexical plus the context (speaker, time, place, etc.) determines the reference, and that reference alone is what the statement is about.

Some indexicals involve explicit descriptive information as well as indexicality:

(40)
a. yesterday
b. tomorrow

For instance, *yesterday* means something like "the day before the day of this utterance of *yesterday*," and *tomorrow* means something like "the day after the day of this utterance of *tomorrow*."

Demonstratives involve a supplementary gesture (demonstration) or special setting in order to determine reference. Typical examples include:

(41)
a. this, these
b. that, those
c. he, she, it
d. you

Using demonstratives successfully to refer involves more than just the aspects of the context of utterance required by indexicals (speaker, place, time, etc.). In uttering (42),

(42)
He/That man/You are the boss.

it is important to determine who the speaker has in mind or is demonstrating in order to determine who is being claimed to be the boss. Moreover, context can replace gesture in identifying the referent: if a certain man is running for the door, one can, without ambiguity and without gesture, utter (43):

(43)
Stop that man!

Deictic words can have other uses and need not always be used deictically:

(44)
a. *Here* we go again, another bumpy landing.
b. *You* never know./*You* can't tell a book by its cover.
c. Come on *now*, you don't believe that!
d. I felt *this* crawly thing on my leg.
e. *Everyone* thinks *he* can do something well. (linked)

These uses are not deictic because they are not uses of the expression to refer to something via the actual production of the utterance, nor are they accompanied by a demonstration.

Proper Names

As Kaplan (1989) comments, proper names "may be a practical convenience in our mundane transactions, but they are a theoretician's nightmare. They are like bicycles. Everyone easily learns to ride, but no one can correctly explain how he does it." J. S. Mill (1843) first proposed the Referential Theory of proper names:

(RT)
Proper names are like labels that mean what they name.

As we noted earlier, Frege (1892) claimed that if this were true, then sentences with two names for the same thing should be no more informative than sentences with the same name repeated, but clearly they are indeed more informative:

(45)
a. Bob Dylan is Bob Dylan.
b. Bob Dylan is Robert Zimmerman.

We learn something from the second sentence that we do not learn from the first. But how could that be if names merely introduce their bearer into the proposition expressed? Furthermore, almost all names have many bearers, even historically prominent ones such as *Moses*, *Aristotle*, and *Napoleon*. To which Moses, Aristotle, or Napoleon is the speaker referring? Or consider the issue of *vacuous* names, names that do not name anything. For instance, *Vulcan* was once taken to name a planet just opposite the Sun from Earth (that's why we could never see it). People asked, "Is there life on Vulcan?" But such questions should be as meaningless on the Referential Theory as "Is there life on Csillam?" Neither word names anything; thus, neither makes any semantic contribution to the sentence it is a constituent of. The sentence should therefore fail to have a complete meaning—but intuitively it *does* have a meaning.

   These problems led some theorists to propose a *Description Theory* of proper names:

(DT)
Proper names, semantically, are abbreviated definite descriptions of what they name.

This theory explains our ability to refer using names in terms of our ability to refer using definite descriptions. It solves some of the puzzles mentioned for proper names. For instance, sentence (45b) can be informative because the different names abbreviate different descriptions.

Description Theory has come under intense criticism (see Kripke 1980). One problem is how to choose the description we associate with a name. Does each person associate his or her own description? Then how is communication possible? Is there just one description for the whole language? Which one? What is "the" description for *Aristotle*? Furthermore, it seems that no description is necessary because Aristotle might not have been the most famous student of Plato, teacher of Alexander the Great, author of *Metaphysics*, and so on.

According to the Referential Theory of proper names, names contribute only their bearers to what is said, but that seems insufficient to many. According to the Description Theory of reference, names contribute some definite descriptive information to what is said, but no particular information seems motivated or necessary. What are we to think? A compromise has been defended. According to Bach (1987), names have only nominal descriptive content, yielding the Nominal Description Theory of names:

(NDT)
A proper name has the meaning "the bearer of *N*" (*Jane* means "the bearer of *Jane*").

Thus, *Aristotle* means just "the bearer of *Aristotle*." Unlike the Description Theory, this theory does not raise the problem of choosing one description in the language. It explains how sentences with different names for the same thing can be informative. It also explains how we can use a name to refer literally to things that bear that name. Still, it does not yet explain how we can use a name to refer to just one bearer of that name. But settling questions of use of language is the job of *pragmatics*—the study of the use of language in context.

Definite Descriptions: Referential and Attributive

Definite descriptions have the form *the F*, where *F* can be anything appropriate to a noun phrase:

(46)
a. the book on the table
b. the first man to walk on our moon
c. the dent on the fender

By far the most influential theory of the semantics of definite descriptions is Russell's (1905) *Theory of Descriptions*. Russell proposed that sentences containing definite descriptions are to be analyzed as *general* sentences. For instance, (47a) is schematized as (47b), and anything of this form is analyzed as (47c); thus, (47a) is analyzed as (47d):

(47)
a. *The first person to walk on our moon* is *right-handed*.
b. *The F* is *G*.
c. There is just one thing that is F and it is G.
d. There is just one thing that is the first person to walk on our moon and it is right-handed.

Referentiality and Attributivity

Some theorists have objected that Russell's account fails to reflect an important "ambiguity" in descriptions. Consider normal uses of the following sentences:

(48)
a. *The tallest man in the world* must be lonely.
b. *The woman drinking a martini* is a famous linguist.

The first description is naturally used to refer to whatever man is the tallest man, no matter who he may be, and to say of that man that he must be lonely. If there is no single such man, then the statement is false, just as Russell's theory predicts. But in the second case the description is being used to refer to a particular woman, and even if she has ginger ale in her martini glass, the speaker will be saying something true—if the woman is in fact a famous linguist. On the first, *attributive* use of the definite description (as Donnellan (1966) has called it), the role of the description is to set down conditions that determine the referent. In (47a), for example, what the speaker says (the proposition expressed) is completely general in that *whoever* is the first person to walk on our moon is claimed to be right-handed. Indeed, the following is true, since Neil Armstrong might have gotten sick during the flight and had to be replaced by a left-hander:

(49)
The first person to walk on our moon might not have been right-handed.

On the second, *referential* use of the definite description, the description is not essential to picking out the referent, and the important thing is the object or person itself, not how it happens to be described. The description is chosen mainly to help the hearer recognize what or who the speaker has in mind and is referring to, but any device might have done as well: in this case, *that guy over there*, *him*, *Neil Armstrong*, and so forth. What one says on the referential use of a description in (47a) is that a single individual—Neil Armstrong—is right-handed:

(50)
Neil Armstrong might not have been right-handed.

The difference between (49) and (50) is the difference between an attributive and a referential use of the definite description *the first person to walk on our moon*, and it is also the difference between a general and a singular proposition.

What Determines Reference?
At present there are two major competing theories of what determines reference: the previously mentioned *Description Theory* and the *Historical Chain Theory*. The basic idea behind the Description Theory, recall, is that an expression refers to its referent because it describes the referent, either uniquely or uniquely enough in the context that the referent can be identified. For instance, the phrase *the first person to walk on our moon* refers to Neil Armstrong by virtue of the fact that the description fits him uniquely. What about other kinds of singular terms, such as the pronouns *he*, *she*, *that*, or proper names such as *Charles de Gaulle*, *America*, *Fido*? These do not seem to describe anything uniquely, so how does the Description Theory handle them? It says that people using these expressions have *in mind* some description of the thing they intend to refer to. A speaker might say *Close the window*, intending the hearer to pick out the open window as the relevant window. If there are two open and closable windows, then the hearer can reasonably ask which one.

The Historical Chain Theory says, in effect, that an expression refers to its referent by virtue of there being a certain historical relation between the words uttered and some initial dubbing or christening of the object with that name. For instance, on this view, when a speaker uses the name *Charles de Gaulle*, it refers to the person christened by that name, provided there is a chain of uses linking the current speaker's reference with the original christening. This view proposes no unique description to

pick out the proper referent; rather, it proposes that referential uses are handed down from speaker to speaker, generation to generation, from the original dubbing or christening. As Kripke (1980, 96), one of the originators of this theory, put it:

An initial 'baptism' takes place. Here the object may be named by ostension, or the reference of the name may be fixed by a description. When the name is 'passed from link to link', the receiver of the name must, I think, intend when he learns it to use it with the same reference as the man from whom he heard it.

Both theories of reference have strengths and weaknesses. The Description Theory works best for definite descriptions, and perhaps also for indexicals, whereas the Historical Chain Theory works best for proper names, which can be given to persons, places, and things.

Natural Kind Terms, Concepts, and the Division of Linguistic Labor

Putnam (1975, 1988) notes that elm trees are not beech trees and that most speakers know that elm trees are not beech trees. They know that *elm* does not mean the same as *beech*. Yet many of these same speakers cannot tell an elm tree from a beech tree; the knowledge they have in their heads is not sufficient to differentiate these kinds of trees. The same goes for many other *natural kind terms*—common nouns that denote kinds of things in nature, such as aluminum versus molybdenum, gold versus pyrite ("fool's gold"), diamonds versus zircons. We are all confident that these pairs of words are not synonymous, yet many people's concepts contain no information sufficient to distinguish one member of these pairs from the other. Thus, it is clear that normal speakers do not have a determinate concept of the things these words denote. What then fixes their denotation? Putnam suggests that there is a "division of linguistic labor" in language: normal speakers depend on and defer to "experts" in these matters. If one wants to know whether a tree really is an elm or a beech, one calls in a tree specialist. To determine whether a metal is gold or pyrite, one calls in a metallurgist. And so on. These experts have procedures, based on scientific understanding, for determining the category of these samples. Reference with these terms is therefore in part a social phenomenon. In this respect natural kind terms are similar to proper names on the Historical Chain Theory.

Anaphora and Coreference

One phenomenon that has interested linguists and logicians for some time is the relation between pronouns (or pronoun phrases) and a set of "ante-

cedent" noun phrases (see Chomsky 1981 and references cited there). Such relations, known as *anaphoric relations,* can be illustrated as follows:

(51)
Co-linked
a. Reflexives: John shaves himself.

b. Reciprocals: The men liked each other.

c. Idioms: I lost my way.

d. *Wh*-antecedents: Who thinks that he has been cheated?

e. Quantified antecedents: Everyone said that he was tired.

f. Epithets: He stepped on my foot, the creep!

(52)
Disjointly linked
a. Robert saw Michael.

b. He likes Sam.

c. John believes him to be rash.

d. John believes that she is rash.

e. Sam believes that Sam is rash.

In each case the second item is linked to the first item in some way that is relevant to how a speaker and a hearer communicate (there would be a misunderstanding if the speaker intended one linking, but the hearer understood another).

   What sorts of linking are we dealing with here? This is a difficult question, and at present any answer would have to be considered tentative, but it seems likely that some of these links are syntactic or semantic, whereas others are pragmatic (see chapter 9 for further discussion). One way of getting a feel for which is which is to ask whether the sentence would be used nonliterally if the link were actually broken. For instance, in (52a) *Robert* and *Michael* are disjointly linked and thus are considered to be distinct in reference. But is this denotation or speaker reference? Well, imagine a person named both *Robert* and *Michael*, who sees himself in a mirror at an arcade. If a speaker were to say *No one saw Michael*, it would be possible to answer literally *That's not so, Robert saw Michael*. Although it can be true that Robert *is* Michael, it is still an odd

way of *saying* what we want to say. Why is this so? Probably there is a pragmatic presumption to the effect that unless otherwise indicated, subject and object positions of verbs are to be taken as disjoint in speaker reference. This same principle would account for (52b). A case where the linkage is semantic, and so cannot be overridden pragmatically without being nonliteral, is given in (51a). Here the reflexive pronoun *himself* marks the fact that *him* has the same denotation as the subject of the verb, *John*. If *himself* is changed to *herself*, either one must assume that the speaker is speaking nonliterally in virtue of using the pronoun *her*, or one must assume that *John* is being used to refer to some female. These remarks extend to complex cases such as (52d). Notice that if the name *John* in (52d) is changed to one without gender associations, as in (53), one has to know whether that name is being used to refer to a male or a female in order to determine whether *she* is co-linked with it or not, preserving literality:

(53)
Lee believes that *she* is rash.

In some cases the linking is optional, in that there is another way of construing the sentence literally that does not involve co-linking or disjoint linking. For instance, (54a) and (54b) seem to admit the indicated interpretation:

(54)
a. John thinks that *he* has been cheated. (that man over there)
b. Everyone said that *he* was tired. (that man over there)

Next consider (52e), *Sam believes that Sam is rash*. This sentence has the natural interpretation that two Sams are involved. To account for this, we will first say that when a noun phrase (NP_1) c-commands (see chapter 5) a second noun phrase that is not a pronoun (NP_2), the two noun phrases will be subject to the following presumption:

(55)
Presumption of Disjoint Reference
If a speaker utters a sentence in which NP_1 c-commands NP_2, then the hearer may assume that the speaker intends to refer to two distinct persons (or things).

Given this presumption, sentence (52e) is understood by a hearer to involve references to two different people, unless the context of utterance

provides evidence that overrides it. This can happen in cases such as the following:

(56)
Speaker A: Everybody believes Sam is rash.
Speaker B: But does Sam believe *himself* to be rash?
Speaker A: Sure, since *everybody* believes Sam is rash, Sam (pointing to Sam) must believe that Sam is rash.

This example illustrates again the important difference between semantic constraints and these sorts of pragmatic constraints. If the speaker chooses to override semantic constraints, then he or she will be speaking nonliterally. However, if the pragmatic constraint is overridden, the speaker can still be speaking literally; however, the hearer will now have to figure out what the speaker is referring to, given that the most obvious presumption is not in effect. In this way, we can see that all levels of a grammar can be called upon to explain related aspects of language structure and communication.

Finally, notice that we can use more than one anaphoric device in a sentence and thereby affect its linking. For instance, (57) allows *he* either to be linked to *John* or to refer demonstratively to someone else:

(57)
John said that he was tired.
a. John said that he was tired.

b. John said that he was tired. (that man over there)

However, if we add *as for himself* to the sentence, we block the latter possibility:

(58)
John said that, as for himself, *he* was tired.

How can the phrase *as for himself* contribute to establishing the link between *John* and *he*? These are still matters of current research, but the above examples should serve to illustrate that anaphora is a topic rich in connections among morphology, syntax, semantics, and pragmatics.

Study Questions

1. Give two reasons for including a representation of semantic information in a grammar.

2. What is the Denotational Theory of meaning? Discuss at least one objection to it.

3. On the Denotational Theory of meaning, if an expression has a meaning, it has a denotation. Give at least one example of an expression for which this is false.

4. What is the Mentalist Theory of meaning? What two versions of it are discussed in the text? Discuss the problems with each version.

5. What is the Sense Theory of meaning? Why did Frege think referring expressions have a sense as well as a denotation?

6. What is the Use Theory of meaning? Discuss its major weakness.

7. What semantic properties and relations of words and phrases must a semantic theory account for?

8. What semantic properties and relations of sentences must a semantic theory account for?

9. Why should a semantic theory be finite?

10. What is it for a semantic theory to be compositional?

11. What is verbal mood?

12. What is sentential mood?

13. What are the major moods of English? Give examples.

14. What are some minor moods of English? Give examples.

15. How can we distinguish major and minor moods?

16. What two semantic dimensions are there to mood?

17. What force is standardly associated with each of the major moods?

18. What are some purported counterexamples to these forces?

19. What conditions must an adequate theory of mood meet?

20. At what two levels is the distinction between singular and general drawn?

21. What is the distinction between singular and general terms?

22. What is the distinction between singular and general propositions?

23. What is a "directly referring" expression?

24. What is the general difference in the way deictics, proper names, and descriptions work?

25. What are two major types of deictic terms?

26. What is the major difference between indexicals and demonstratives?

27. What two problems are there for the view that proper names are just labels for what they name?

28. What is the Description Theory of proper names and what problems does it have?

29. What is the Nominal Description Theory of proper names and which problems of the Description Theory does it avoid?

30. What is the distinction between referential and attributive uses of definite descriptions?

31. What are the two major theories about what determines reference?

32. What problems do natural kind terms pose for the Concept Theory of meaning? Discuss.

Exercises

1. Think of a reason, not given in the text, why semantics might be considered a part of a grammar of a language.

2. Can you think of a reason why semantics should not be included in a grammar of a language? Discuss.

3. Think of five words, write down what you think they mean, then look them up in a good dictionary. Is your idiolect at variance with what is recorded in the dictionary?

4. What is *ambiguity* on the Denotational Theory of meaning? How might this semantic property be a problem for the theory? (Hint: Think of the number of possible referents.)

5. What is *ambiguity* on the imagist version of the Mentalist Theory of meaning? How might this be a problem for the theory? Discuss.

6. Suppose someone said that a grammar of a language must describe what a *speaker* means in uttering an expression from the language, and that it must do this for every meaningful expression. What problems are there for this proposal?

7. How might the relevant meaning properties and relations schematized in (21a) be defined for *words*? (Hint: Some of these were defined in the text.)

8. Give examples of homophony for phrases and sentences.

9. Do words or phrases have communicative potential in the way sentences do? Give examples to support your claim.

10. Are there any semantic properties or relations distinctive to *phrases* versus words in the way there are semantic properties and relations distinctive to *sentences* versus words and phrases? If not, why not?

11. Consider the following sentences and state what the referring expression refers to:

a. *The chair you are sitting on* sells all over France for $200.
b. *Time magazine* was bought out by Hearst, so now *it* is good for wrapping your garbage.

12. How many different meanings can you see in the following sentences? (Hint: If you think of the possible meanings of the words in isolation, you may come up with more meanings.)

a. My dogs are very tired today.
b. The green giant is over the hill.
c. Time flies.

13. Interpret the following sentences. What principles do you think you used to interpret them?

a. Ralph may not be a communist, but he's at least a *pinko*.
b. He traded his hot car for a *cold* one.
c. John is studying sociology and other *soft* sciences.
d. Who *killed* Lake Erie?

14. Entailment relations ($\Rightarrow$) are transitive: If *being a cat $\Rightarrow$ being a mammal*, and *being a mammal $\Rightarrow$ being an animal*, then *being a cat $\Rightarrow$ being an animal*. Now consider the "part of" relation. Is it transitive? Defend your answers. If entailment and "part of" are different in this way, why?

a. A second is part of a minute.
   A minute is part of an hour.
   An hour is part of a day.
   Is a second a part of an hour? Part of a day?
b. The toenail is part of the toe.
   The toe is part of the foot.
   The foot is part of the leg.
   Is the toenail part of the leg?
c. Henry's toe is part of Henry.
   Henry is part of the 23rd Battalion.
   Is Henry's toe part of the 23rd Battalion?

15. Analyze each of the humorous newspaper headlines cited in the text, saying what kind of ambiguity is responsible for the double meaning.

16. If a speaker were to utter the following sentences, what might that speaker commonly be taken as intending to communicate? Discuss.

a. Move and I'll shoot!
b. Move or I'll shoot!
c. You've been drinking again, have you!
d. You've been drinking again, haven't you?
e. Marry my daughter, will you!
f. Marry my daughter, will you?
g. What, me worry?

17. Some forms of words do not receive their proper interpretation in any regular way; they are in effect *idiomatic* and must be learned case by case. Here are some typical examples; try to think of more:

Declarative form
a. That just goes to show (you).

Imperative form
a. Take it easy! (meaning: Calm down!)
b. Buzz off! (meaning: Leave!)
c. (Go) Fly a kite! Take a hike! Get lost! (meaning: Leave!)
d. Never mind! Forget it! (meaning: Don't bother doing it!)

Interrogative form
a. Where does he get off saying that?
b. What do you say we leave?
c. How's things?
d. What's up?
e. What's the matter?
f. How about lunch?
g. How about that?

18. Try to paraphrase the declarative and interrogative examples in exercise 17. Why might these cases be so difficult?

19. Can the minor moods be analyzed as compositional compounds of the major moods?

20. Propose a structural analysis (syntactic, intonational) for each of the major and minor moods.

21. Are the purported counterexamples to the standard force of the moods genuine, or can they be explained away? Discuss each case.

22. Can a *singular* term be used to express a *general* proposition? Defend your answer with examples.

23. Can a *general* term be used to express a *singular* proposition? Defend your answer with examples.

24. What other indexical expressions are there besides the ones discussed in the text? (Hint: Think of pronouns in the accusative and possessive.)

25. Find nonindexical uses for all the indexical expressions in the text (except the ones given).

26. Formulate plausible semantic rules for more indexicals on the model of *I* and *now*. For example, try *you*, *this*, *yesterday*, and *here*.

27. How would you describe each of the nonindexical uses given in (44) as a rule? Is this semantic? Discuss.

28. What problems do the following sentences pose for the idea that proper names have no meaning? Discuss.

a. Vulcan exists.
b. Budapest exists.
c. Vulcan does not exist.
d. Budapest does not exist.

29. What are some further problems for the Nominal Description Theory of proper names? Discuss.

30. Consider the following grammatical and ungrammatical sentences containing proper names. Try to formulate a rule (or rules) describing their syntactic distribution. (Words set in capitals are pronounced with heavy stress.)

a.   Paris is beautiful.
b. *The Paris is beautiful.
c.   THE Paris is beautiful.
d.   The Paris which is in France is beautiful.
e.   The French Paris is beautiful.
f.   Paris the capital is beautiful.
g. *The Paris the capital is beautiful.
h. *The Paris, which is in France, is beautiful.
i.   Paris, which is in France, is beautiful.
j.   I saw SOME Sam.
k. *I saw some Sam.
l.   Sams are all quite similar, you know.
m.   A Sam is usually a funny guy.

31. How does the syntax of proper names differ from that of descriptions?

32. Is there any reason to think that the referential-attributive distinction is a case of semantic ambiguity? Discuss.

33. Is there any reason to think that the referential-attributive distinction is *not* a case of semantic ambiguity? Discuss.

34. What kind of theory of what determines reference do you think is best for deictics? Defend your answer.

35. Think of some natural kind terms that are not nouns (e.g., adjectives, verbs, adverbs).

Further Reading

General
For *article-length* introductions to problems of meaning and semantics, see Alston 1967; Higginbotham 1985; Ladusaw 1988; Chierchia and McConnell-Ginet 1990, chap. 1; Cann 1993, chap. 1; and Larson and Segal 1995, chap. 1. For *books* that survey semantics, see Kempson 1977; Dillon 1977; Fodor 1977; Lyons 1977; Dowty, Wall, and Peters 1981; Allan 1986; Fewley 1992; Saeed 1996; Cruse 1999; and Allan 2000.

Semantics as Part of a Grammar
Katz and Fodor 1963 sets out the original arguments for including a semantic component in a grammar. See also Higginbotham 1985 and Goddard 1998, chap. 1. For software that allows one to do semantics in conjunction with syntax, see Larson et al. 1997.

Theories of Meaning
Good surveys of theories of linguistic meaning can be found in Horwich 1998; Taylor 1998, chaps. 1–4; Goddard 1998, chaps. 2–3; and Lycan 2000, part II. See Katz 1972 for one way of developing the idea that sense is linguistic meaning. Miller 1998 is devoted to developing the Sense Theory of meaning from a historical perspective. Heim and Kratzer 1997 develops Sense Theory within Chomsky's syntactic framework. See Schiffer 1988 and Alston 2000 for discussion of the Use Theory of meaning.

Goals of a Semantic Theory
Marconi 1997 is a recent discussion of *word meaning*. For more on *semantic fields*, see Katz 1972, sec. 7.5; Miller and Johnson-Laird 1976, chaps. 4–5; Grandy 1987; Lehrer and Kittay 1992; and Goddard 1998, chaps. 4–10. Ruhl 1989 takes up issues of *ambiguity* and *polysemy*. Lehrer and Lehrer 1982 contains an interesting discussion of *antonymy*.

Special Topics
For *mood and meaning*, see Sadock and Zwicky 1985 and Harnish 1994b. Kaplan 1978 introduced the distinction between *singular* and *general propositions*. For *deixis*, Fillmore 1997 (originally distributed in 1977) is a linguistic classic, and Kaplan 1989 (originally distributed in 1977) is a philosophical classic. Good survey discussions with an emphasis on linguistics include Levinson 1983, chap. 2, and Anderson and Keenan 1985. For *proper names*, Kripke 1980 is now the classic semantics discussion; and see Sloat 1969 for some important syntactic properties of proper names. For *referential and attributive* uses of *definite descriptions*, the classics are Russell 1905 and Donnellan 1966. An excellent survey discussion is Neale 1990, and Ostertag 1998 is a recent anthology. Evans 1981 is a classic on *reference*. For *natural kind terms* and the *division of linguistic labor*, the classics are Putnam 1975 and Kripke 1980, lecture III. Schwartz 1977 is a

useful anthology, and Platts 1997 is a useful recent discussion. Reinhart 1983 is a good early survey of issues in *anaphora* and *coreference*.

Reference Works
Lappin 1996 is a recent and useful survey of specific topics in semantics. Lamarque 1997 and Hale and Wright 1997 contain many entries relevant to semantics.

Journals
Journal of Semantics, *Linguistics and Philosophy*

Bibliography

Allan, K. 1986. *Linguistic meaning*. 2 vols. London: Routledge and Kegan Paul.

Allan, K. 2000. *Natural language semantics*. London: Routledge.

Alston, W. 1967. Meaning. In P. Edwards, ed., *The encyclopedia of philosophy*, vol. 5. New York: Macmillan.

Alston, W. 2000. *Illocutionary acts and sentence meaning*. Ithaca, N.Y.: Cornell University Press.

Anderson, A., and E. Keenan. 1985. Deixis. In T. Shopen, ed., *Language typology and syntactic description*, vol. 3. Cambridge: Cambridge University Press.

Bach, K. 1987. *Thought and reference*. Oxford: Oxford University Press.

Cann, R. 1993. *Formal semantics*. Cambridge: Cambridge University Press.

Chierchia, G., and S. McConnell-Ginet. 1990. *Meaning and grammar*. Cambridge, Mass.: MIT Press.

Chomsky, N. 1965. *Aspects of the theory of syntax*. Cambridge, Mass.: MIT Press.

Chomsky, N. 1981. *Lectures on government and binding*. Dordrecht: Foris.

Cruse, D. 1986. *Lexical semantics*. Cambridge: Cambridge University Press.

Cruse, D. 1999. *Meaning in language*. Oxford: Oxford University Press.

Devitt, M., and K. Sterelny. 1987. *Language and reality*. Cambridge, Mass.: MIT Press.

Dillon, G. 1977. *Introduction to contemporary linguistic semantics*. Englewood Cliffs, N.J.: Prentice-Hall.

Donnellan, K. 1966. Reference and definite descriptions. *Philosophical Review* 67, 237–242. Reprinted in Harnish 1994a.

Dowty, D., R. Wall, and S. Peters. 1981. *Introduction to Montague semantics*. Dordrecht: Reidel.

Evans, G. 1981. *Varieties of reference*. Oxford: Oxford University Press.

Fawley, W. 1992. *Linguistic semantics*. Hillsdale, N.J.: Lawrence Erlbaum Associates.

Fillmore, C. 1997. *Lectures on deixis*. Stanford, Calif.: CSLI Publications.

Fodor, J. D. 1977. *Semantics: Theories of meaning in generative grammar*. New York: Crowell.

Frege, G. 1892. On sense and reference. Reprinted in Harnish 1994a.

Glucksberg, S., and J. Danks. 1975. *Experimental psycholinguistics*. Hillsdale, N.J.: Lawrence Erlbaum Associates.

Goddard, C. 1998. *Semantic analysis*. Oxford: Oxford University Press.

Grandy, R. 1987. In defense of semantic fields. In Lepore 1987.

Grice, H. P. 1957. Meaning. *Philosophical Review* 66, 377–388. Reprinted in Harnish 1994a.

Grice, H. P. 1968. Utterer's meaning, sentence-meaning, and word-meaning. *Foundations of Language* 4, 225–242.

Grice, H. P. 1969. Utterer's meaning and intentions. *Philosophical Review* 78, 147–177.

Hale, B., and C. Wright, eds. 1997. *A companion to the philosophy of language*. Malden, Mass.: Blackwell.

Harnish, R. M., ed. 1994a. *Basic topics in the philosophy of language*. Englewood Cliffs, N.J.: Prentice-Hall.

Harnish, R. M. 1994b. Mood, meaning and speech acts. In S. L. Tsohatzidis, ed., *Foundations of speech act theory*. London: Routledge.

Heim, I., and A. Kratzer. 1997. *Semantics in generative grammar*. Malden, Mass.: Blackwell.

Higginbotham, J. 1985. On semantics. *Linguistic Inquiry* 16, 547–593.

Horwich, P. 1998. *Meaning*. Oxford: Oxford University Press.

Jackendoff, R. 1972. *Semantic interpretation in generative grammar*. Cambridge, Mass.: MIT Press.

Jackendoff, R. 1983. *Semantics and cognition*. Cambridge, Mass.: MIT Press.

Jespersen, O. 1924. *The philosophy of grammar*. London: Allen and Unwin.

Kaplan, D. 1978. Dthat. In P. Cole, ed., *Syntax and semantics*, vol. 9. New York: Academic Press.

Kaplan, D. 1989. Demonstratives. In J. Almog, J. Perry, and H. Wettstein, eds., *Themes from Kaplan*. New York: Oxford University Press. Selections reprinted in Harnish 1994a.

Katz, J. 1972. *Semantic theory*. New York: Harper and Row.