Semantics

Second Edition

Kate Kearns
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1

1.1 Semantics and pragmatics

The study of linguistic meaning is generally divided in practice into two main fields, semantics and pragmatics. Semantics deals with the literal meaning of words and the meaning of the way they are combined, which taken together form the core of meaning, or the starting point from which the whole meaning of a particular utterance is constructed. Pragmatics deals with all the ways in which literal meaning must be refined, enriched or extended to arrive at an understanding of what a speaker meant in uttering a particular expression. This division can be roughly illustrated with (1) below:

(1) I forgot the paper.

Semantics provides the literal meaning of the elements I, forgot, past tense, the and paper, and the meaning drawn from the order of the words, giving very approximately 'The person who is speaking at some time before the time of speaking forgot a particular item which is a paper'. Pragmatic considerations flesh this out to a more complete communication.

Suppose that it is Sunday morning. Anna, the speaker, has just returned to her flat from the local shops where she went to buy croissants and the Sunday newspaper. In this context her flatmate Frances understands Anna to say that she forgot to buy a copy of the Sunday newspaper for that morning, and the time of her forgetting was while she was at the shops — she presumably remembered her intention to buy a paper when she set out and has obviously remembered it on returning. If the shops are nearby, Anna might also intend Frances to infer that Anna will go back for the paper.

Suppose, alternatively, that a man has been found murdered in the fields near a farmhouse. Two nights before the body was found the farmhouse was broken into, although nothing was reported missing. The owners of the house are renovating a small upstairs room, and the floor of this room is currently littered with sticky scraps of stripped wallpaper. The dead man was found with a scrap of the wallpaper on the sole of his shoe. Two detectives are discussing the
case. One has just finished speculating that the murder is connected to another set of recent events in the nearby town, and it is not related to the break-in at the farmhouse. She then stops and says 'I forgot the paper'. In this context her colleague understands her to mean that while she was working through her alternative scenario she forgot the wallpaper scrap on the dead man’s shoe. Given the background assumption that the scrap of paper proves the man’s presence upstairs in the farmhouse at some stage, her utterance is also understood to mean that she withdraws her speculative alternative scenario, which is probably not correct.

Examples like these demonstrate the enormous contribution of pragmatic information to communication. On the other hand, the starting point from which we arrive at both fleshed-out meanings is the constant contribution of the literal meaning of I forgot the paper.

This book will mainly concentrate on literal meaning, the content of words and expressions which is fairly constant from one occasion of use to another. The next part of this chapter will review some of the main issues in the analysis of literal meaning. After that, we will consider some important kinds of pragmatic meaning which may be difficult to distinguish from literal meaning.

1.2 Kinds of meaning

1.2.1 Denotation and Sense

There are two major basic ways of giving the meaning of words or longer expressions. The first and most simple way is to present examples of what the word denotes. For example, the word cow can be defined by pointing to a cow and saying 'That is a cow', or the word blue can be defined by pointing to a blue object and saying 'That colour is blue'. Definition by pointing to an object of the kind in question, called extensive definition, appeals directly to the denotations of the words defined. The word blue denotes the colour blue, or blue objects in the world, and the word cow denotes cows. The general point is that linguistic expressions are linked in virtue of their meaning to parts of the world around us, which is the basis of our use of language to convey information about reality. The denotation of an expression is the part of reality the expression is linked to.

The second way of giving the meaning of a word, commonly used in dictionaries, is to paraphrase it, as illustrated in (2):

(2) forensic
   - pertaining to courts of law and court procedures
   - to send out from one country to another, usually of commodities

This kind of definition attempts to match the expression to be defined with another expression having the same sense, or content. The clearest kind of sense-for-sense matching is translation from one language to another. To say
From a vocabulary of seven words (wh, that, rat, dog, cat, chased, bit) we can construct a large number of different sentences with different meanings, all based on a single syntactic structure with a common 'meaning template':

\[ \text{(The A [that B-ed the C]} \text{]} D-ed the E \]

\[ x \text{ is an A} \]
\[ y \text{ performing the D action} \]
\[ z \text{ undergoing the C action} \]
\[ x \text{ performing the B action} \]
\[ z \text{ is the undergoer of the C action} \]

The meaning components outlined in (6) are examples of syntactic meaning. Any theory of human language has to be compatible with the fact that human languages are instantiated in human minds, which have a finite capacity. Although the language known by any one person at a given point in time contains a fixed number of words, it can in principle produce, or generate, infinitely many sentences, because the syntax is recursive. Recursiveness is the property of embedding a phrase inside another phrase of the same kind, which allows for sentences to be extended in length indefinitely. The examples below illustrate two kinds of recursion many times repeated:

(5) a. The car broke down because Tom forgot to fill the tank because he was running late because Bill rang him just when he was leaving because Bill wanted to sell John a home gym because he doesn't use the home gym anymore and he needs the money because he spent too much money last month because he went for a quick holiday because he needed a break.

b. This is the maiden all forlorn that milked the cow with the crumpled horn that tossed the dog that chased the rat that ate the malt that lay in the house that Jack built.

The examples in (5) show that recursion can be used to lengthen a sentence by adding to it. For example, the sentence The car broke down can be lengthened by adding because Tom forgot to fill the tank, giving two sentences, the original one and the longer one. In principle, any sentence can be used to form a new sentence by using a recursive addition, and so the number of sentences is infinite. Given that the language has infinitely many sentences, our knowing a language cannot possibly amount to memorizing its expressions. Rather, we know the vocabulary and the syntactic rules for generating sentences. The syntactic rules themselves are a finite number, probably a fairly small number.

We can also match meanings to these infinitely many sentences, and again, we can't possibly do this by memorizing sentence/meaning pairs. Most of the sentences we hear and understand are heard for the first time, and could not have been learned ahead. It must be that along with the syntactic rules for forming phrases and sentences, we also know interpretation rules which combine meanings just as syntactic rules combine forms. Accordingly, linguistic meaning is compositional. Compositional is the property of being composed from parts. Compositional in syntactic analysis is discussed in Chapter 4.

Structural meaning also overlaps with the meaning of syncatalectic expressions, introduced in the next section.

1.2.3 Categorematic and syncategorematic expressions

The distinction between categorematic and syncategorematic expressions applies to individual words, rather than phrases. Meaningful inflections can also be included here, as they are syncategorematic.

Categorematic expressions, which include the vast majority of words, are the descriptive words such as nouns, adjectives and verbs. These words are termed categorematic because their descriptive content, or sense, provides a basis for categorisation. For example, the descriptive content of the word chimney provides the basis for forming the category of chimneys, the sense of blue provides the basis for the category of blue things, the senses of the words domestic, professional, commercial, and so on provide the basis for categories of things and activities, and so on.

Syncategorematic words are all the rest, including the examples here:

(6) a. as, some, because, for, to, although, if, since, and, most, all, ...

What syncategorematic words have in common is that they do not have independent, easily paraphrasable meanings on their own, and we can only describe their meanings by placing them in a context. Unlike the categorematic words, they are not themselves descriptive of reality and do not denote parts of reality. Rather, they serve to modify categorematic expressions or to combine them in certain patterns.

Examples of modifying expressions are tense, illustrated in (7a–c), and modality, illustrated in (7d). (Modality and tense are discussed further in Chapters 5 and 9)

(7) a. He believed us.
   b. He believes us.
   c. He will believe us.
   d. He might believe us.

In (7a–c) the tense endings -ed and -ed and the future auxiliary will are combined with the same base sentence form He believe us. The basic sentence form describes a state of affairs, and semantic tense locates this state of affairs in the past, present or future. The past, present or future content of the tense expressions (-ed, -ed, will) doesn't stand alone, but must combine with a base sentence form to be given a particular interpretation. The same base sentence He believe us appears in (7d), but here the state of affairs of his believing us is not located in the past, present or future. Rather, the modal verb might expresses the possibility of such a state of affairs existing.
An example of a syncategorematic expression combining descriptive expressions is "all" in the examples below:

(8) a. All diamonds are hard.
   b. All dogs like icecream.
   c. All zinks nhs.
   d. All A B. (*All As are B or All As B*)

The general form of the framework for "all", given in (8d), is just as clear when filled with nonsense words as in (8c). All sets up a relationship between A and B. Thinking in terms of categories, we can say that "All A B" places the A category inside the B category – the Bs include the As. For example, the category of hard things includes the category of diamonds (8a), the category of icecream-lovers includes the category of dogs (8b), and the category of wavers, whatever they are, includes the category of zinks, whatever they are (8d). The meaning of "all" is defined in terms of the way it relates the meaning of the A predicate to the meaning of the B predicate, rather than being defined apart from a context, and this gives all a syncategorematic character. (The quantificational deteremnites, including "all", are discussed in Chapter 6.)

In summary, lexical meanings may be either syncategorematic or syncategorematic. Syncategorematic expressions, both words and parts of words like tense endings, group naturally with structural meaning, because they must be defined in terms of the constructions they appear in.

9. lexical meaning ↓ categoricentreic expressions
   structural meaning ↓ syncategorematic expressions
   syntax

1.3 Truth-conditional theories of meaning

1.3.1 Denotations

A long-standing and influential view about language is that the meaningfulness of language amounts to its "truthfulness". Words and expressions symbolize and describe – and are thus about – things and phenomena in the world around us, and this is why we can use language to convey information about reality. Accordingly, the meaningfulness of language consists of connections between words and expressions and parts of reality. As we saw earlier, the part of reality a linguistic expression is connected with is the expression's denotation. A name, such as "Midge," "Rini," or "Keep" has the thing it refers to as its denotation. Suppose that the names in (10) all refer to dogs. (Note that when a word itself is referred to so it is presented in italics e.g. 'the name Midge' but 'the dog Midge'.)

(10) name: Midge
denotation of Midge = Midge (She is a small brown dog)
name: Rini
denotation of Rini = Rini (He is a fox terrier)
name: Keep
denotation of Keep = Keep (He is a faithful hound)

Names don't describe the things they refer to. Most personal names are coded as male or female by convention, but the convention is just arbitrary. In the case of the American actresses Michael Learned, who has a first name usually given to boys, female forms of the name include Michaela and Michelle. Names which are based on meaningful expressions don't have to be given to people who fit the meaning; an ugly man can be called Beauregard and a blonde woman can be called Melanie. In short, the apparent descriptive content that some names have isn't relevant to determining what their denotation is.

In contrast to names, descriptive words like brown, coughs, daisy and impudent can only denote things that they do describe – words like these, which are categoricentric, are called predicates. Most predicates are nouns, adjectives and verbs, and their denotations are the sets of things they apply to or are true of, for example:

(11) word (noun): dog
donotation of dog = the set of dogs
word (adjective): brown
donotation of brown = the set of brown things
word (verb): grin
donotation of grin = the set of creatures that grin

At first, this analysis for the meaning of predicates seems a bit thin. Take, for example, the meaning of brown as the set of brown things in the world. Is that all there is to it? Suppose the world was exactly the way it is except for one detail – a certain brown pottery bowl on a windowsill in Ladakh is blue instead of brown. If the world was like that instead of how it is, then the set of brown things would be different, but surely the word brown wouldn't have a different meaning. This seems to make the word meaning depend on accidents of fate. We want to take into account the way the word brown would relate to the world even if things were a bit different from the way they actually are.

We want to take into account not only the objects a predicate happens to apply to in fact, but also all the hypothetical objects that it would apply to, meaning what it does mean, if things were different. Dog applies to all actual dogs and hypothetical dogs, grin applies to all actual and hypothetical creatures that grin, and so on. We need to consider hypothetical versions of the whole of reality to state what individual predicates would apply to in virtue of their meaning. Words connect not only with the real world, but also with other possible worlds.
1.3.2 Possible worlds, extension and intension

The term possible worlds is used in semantics for hypothetical ways reality might be or might have been. The way things actually are is the actual world, and it is included in the possible worlds because it is obviously a possible reality. A possible world different from the actual world is a whole alternative universe, not just an alternative version of Planet Earth. There are infinitely many possible worlds.

Many possible worlds have dogs in them, in which the word dog applies to. We can collect together all the dogs in the real world to form the set of all real dogs – this set is the extension of dog. To get closer to what we think of as the 'real meaning' of the word dog we need the intension, which is the set of all dogs in all possible worlds. This comprises the full possible range of doghood.

So there are two kinds of denotation for predicates:

12 word (noun): dog
extension: the set of all dogs in the actual world
intension: The set of all dogs in all possible worlds
word (adjective): brown
extension: the set of all brown things in the actual world
intension: the set of all brown things in all possible worlds

1.3.3 Truth conditions

The analysis of sentences centres on declarative sentences – declarative sentences are the sort that can be used to make statements.

For example, we need to establish how the whole sentence Midge is grinning connects with the world. The sentence accurately describes part of the world, if in fact it is the case that Midge is grinning. If she is, the sentence is true. To find out whether the sentence is true you have to know what it means so that you can identify which facts are relevant: in this case, you have to find Midge and check her facial expression.

So a sentence is true or false depending on whether or not its meaning 'matches' the way reality is. If you know the relevant facts about reality and you know what a sentence means, then you know whether it is true or false. If you know what a sentence means and you know that it is true, then you know the relevant facts. If you know a certain fact, and you know that the truth of a particular true sentence depends precisely on this fact, then you know what that sentence means.

Extensions and intensions for sentences establish connections with reality in terms of truth. They work a little differently from extensions and intensions for predicates. The extension of a sentence is its truth value – that is, either true or false, depending on whether or not the sentence is true in the actual world. The intension of a sentence is the set of all possible worlds in which that sentence is true, for example:

13 sentence: Midge is grinning
extension: truth value (true or false) in the actual world
intension: the set of all possible worlds in which Midge is grinning is true

The intension of a sentence is also called the truth set for the sentence.

In theories of this kind the sense of a predicate is analysed as its intension. Correspondingly, a sentence intension (or truth set) stands for the sense, or meaning, of a sentence, which seems odd – how can the meaning of a sentence be a set of universes? The example Midge is grinning, if true, directly describes a state of affairs in the actual world of Midge having a certain expression on her face. Why isn’t that state of affairs the semantic value of the sentence?

A few more examples will show that the actual world is not enough to pin down a sentence meaning, and that other worlds are also needed.

Suppose the sentences below are true, and think of the situations they relate to.

14 a. Midge isn’t purple.
b. Midge isn’t white.

First locate the situations – presumably they are wherever Midge is. Now how can you tell the difference by looking at the world between Midge’s not being purple and Midge’s not being white? The actual situation of Midge’s being brown gives you the truth of both (14a) and (14b). The sentence meanings can’t be told apart just from looking at the actual world, in which they are both true. But they can be separated if all the possible worlds are brought into play.

There are possible worlds containing Midge in which she is purple – call the set of all those worlds WP. Then there are worlds in which she is white – call the set of all those worlds WW. Now Midge isn’t purple is true not only in the actual world, but also in every other possible world containing Midge except the worlds in WP. Similarly, Midge isn’t white is true in all possible worlds containing Midge – including the actual world – except the worlds in WW. So although these two situations can’t be told apart in a single situation where they coincide, they can be distinguished if we consider all the worlds where those situations occur. The truth set for Midge isn’t purple is a different set from the truth set for Midge isn’t white, which shows that the two sentences have different meanings.

The worlds in which the situation of Midge’s not being purple occurs are the worlds in which Midge isn’t purple is true – in other words, the intension or truth set of Midge isn’t purple. The truth set for Midge isn’t purple is like a complete specification of every possible version of a situation of that kind, combined with every other possible way that reality, apart from Midge’s colour, might have been. The truth set for Midge isn’t purple will be different from the truth set for any other factual sentence, unless it means the same thing. (A factual sentence is any sentence which is true or false according to how things actually are.)

Sentence X in (15) below stands in for any factual sentence at all that does not mean the same as Midge isn’t purple. Whatever Sentence X is, there will
always be at least one world where one of these combinations of truth values occur:

(15) Sentence X  Midge isn’t purple
true     false false
false    true

Suppose that Sentence X is Midge is coloured. Then in all the worlds where Midge is purple, Midge isn’t purple is false and Midge is coloured is true. Suppose Sentence X is Midge is green. In any world where Midge is brown, Midge is green is false and Midge isn’t purple is true.

So long as they differ by at least one world, the truth sets or intensions for two sentences are different, and the sentences have different meanings. This argument applies to any factual sentence at all in the place of Sentence X. Midge isn’t purple has a different intension, by at least one world, from any other factual sentence — it is unique. If a factual sentence turns out to have the same intension as Midge isn’t purple, then it has the same meaning, Midge n’est pas violette and Midge n’est pas violette are sentences with the same intension as Midge isn’t purple.

Using all the possible worlds, we can also deal with Midge is purple. Given that Midge is brown, this sentence is false, and doesn’t match up to any situation in reality. Even if we locate Midge in reality, as we have seen, her brownness is evidence for the falsity of Midge is green or Midge is yellow just as much as for Midge is purple — the actual world has no particular relationship with any false sentence, and can’t help us pin down its meaning. To give the meaning of Midge is purple (or any false sentence) we need the set of all worlds where it is true.

To say that a sentence is true if and only if a certain circumstance or state of affairs is actually the case is to state the conditions under which the sentence is true. Accordingly, to state the required circumstance is to state what is called the truth condition for a sentence. Many theories analyse sentence meaning in terms of truth conditions, and such theories are called truth-conditionalist theories. Theories which analyse meaning in terms of referring to, denoting or describing things, situations and events in the world (or in possible worlds) are denotational theories. Most formal semantic theories are both denotational and truth-conditionalist.

So far, the tools we have to analyse meaning are these: we have reality itself, also called the actual world, and all the infinitely many possible alternative ways reality might have been — these are the possible worlds (including the actual world). Given the possible worlds, we have both extensions and intensions for linguistic expressions.

- The extension of a name is its actual referent.
- The extension of a predicate is the set of things in actuality that the predicate applies to, or is true of.
- The extension of a sentence is its actual truth value, true or false.
- The intension of a name is its actual referent wherever it occurs in any possible world. (This point will be discussed further in Section 5.5.)

1.3.4 Truth-based relations between statements

The notion of truth underlies several important properties of statements, outlined briefly here. A statement A entails a statement B if wherever A is true, B must also be true: in other words, B is an entailment of A. Some examples of entailment are shown in (16):

(16) a. 'The door is open' entails 'The door is not closed'.
    b. 'Leo is shorter than Dan' entails 'Dan is taller than Leo'.
    c. 'The solution is odourless' entails 'The solution does not smell of clove'.

A statement A is a contradiction of B if A and B cannot both be true in any circumstance. If the contradictory statements A and B are conjoined in a complex statement D, then D is also called a contradiction. Contradiction is illustrated in (17):

(17) a. 'Jones is at home' contradicts 'Jones is not at home', and vice versa.
    b. 'This clock is fast and slow' is a contradiction.

A contradiction can never be true because only one part or the other can be true in any given circumstance. On the other hand, a tautology is a statement which is always true and cannot be false, as in (18):

(18) a. When Jones was walking his feet moved.
    b. The universe is either expanding or not expanding.

Another truth-based (and much-debated) property of statements is the distinction between analytic and synthetic statements. An analytic statement is said to be true depending simply on the sense of the words in which it is expressed, and not on particular facts about how things are. For example, you can judge (19a) to be true without knowing which particular animal is referred to, because the word tiger already contains the information that its denotation is female. A classic analytic statement has the form illustrated in all of (19a–c), where the predicate repeats some content which is already expressed in the subject:

(19) a. That tiger is a female.
    b. Red wine is coloured.
    c. The murdered man was dead.

A synthetic statement is any statement which has its truth value determined by the way things are and not just by the senses of the words in it.
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Synthetic statements in (20), in contrast to the statements in (19), cannot be judged true or false without knowing the facts about the particular tigress or liquid referred to:

(20) a. That tigress is pregnant.
   b. The distilled liquid was a rich purple.

Of these properties, entailment is the most important and most often encountered in semantic analysis. The notion that statement A entails statement B can also be informally expressed as 'B follows from A'. But the idea that 'B follows from A' can also include some other relations different from basic entailment, which we consider in the rest of this chapter.

1.4 Implicature

Recall the two anecdotes at the beginning of this chapter which gave quite different total interpretations for the utterances of I forgot the paper. In the first case, Anna says 'I forgot the paper' to communicate that while she was at the shops she forgot to buy the newspaper, and possibly also to mean that she'll go back and get it. In the second case, the detective says 'I forgot the paper' to communicate that while building her theory of the murder case, she forgot to account for the scrap of wallpaper stuck to the dead man's shoe, and so she withdraws her speculative theory as unsatisfactory. In each case, the extra bits of information which are not expressed by the literal meaning of the words I, forgot, the, and paper (and the sentence syntax) are inferred by the hearer from the particular context in which the utterance occurs, and any other background knowledge that is relevant. So, for example, in the first case the inferences that Frances draws from Anna's utterance include the following bits of information: the paper refers to a copy of the day's newspaper; the time of Anna's forgetfulness was while she was at the shops; what Anna forgot to do was to buy the newspaper (not read it or burn it); and possibly, Anna intends to return to the shops immediately to buy the newspaper.

Most normal communication includes this kind of inference-drawing to a greater or lesser extent. The hearer effortlessly and without conscious awareness draws out the literal meaning of what the speaker said to construct a message which is most plausibly what the speaker intended to convey. Conversely, the speaker speaks in such a way as to allow the right inferences to be easily drawn by the hearer. Both participants are actively engaged in understanding and being understood, and in this sense normal communication is co-operative. As we have seen, the hearer's part is to draw appropriate inferences. The speaker's co-operative role is to enable the hearer to draw the right inferences, or in other words, to 'invoke' the right inferences. An invited inference is called an implicature, and is implicated by the speaker.

The philosopher Paul Grice outlined a framework for analysing implicature in which he identified four main rules (or maxims) for the co-operative speaker to follow, but in fact two of the four maxims do almost all the work. Subsequent research has largely converged on two major principles that guide the hearer's drawing of inferences and the speaker's inviting of inferences (or implicating). These are the Principle of Relevance and the Principle of Informativeness.

1.4.1 The Principle of Relevance

The Principle of Relevance states that what the speaker says should be relevant to the current concerns of the communicators. Conversely, the hearer should assume that what the speaker says is currently relevant and draw inferences accordingly. The Principle of Relevance prevents the inferring in the anecdotes we started with. Consider: it is perfectly possible that the detective intended to buy the newspaper on her way to work, where she normally shares it with her colleague if they have a coffee break, but on this day she forgot to buy the newspaper. In the right circumstances (a coffee break) she could say to him 'I forgot the paper' and he would instantly understand her intended message that she forgot to buy that day's newspaper. But in the actual circumstances where she does say 'I forgot the paper', 'I forgot to buy the newspaper' is hardly a possible interpretation because it isn't currently relevant. (If she meant 'I forgot to buy the newspaper' she would be perversely and unco-operatively changing the subject without warning.)

Other relevance-based implicatures are illustrated in (21)--(22):

(21) Alice: How will Sylvie get here?
    Bella: Claude will be back from work.

On the face of it, Bella's response doesn't seem to be about transport for Sylvie. But assuming that Bella means to answer Alice's question, along with other background knowledge about Claude and Sylvie, Alice can easily infer, say, that Claude will bring their car home from work and Sylvie will be able to use it. In short, Bella implicates 'Sylvie will have the car'.

(22) Axel: Shall we invite Rupert?
    Benny: We don't want any rows about politics.

Benny's response must be taken as relevant to the issue of inviting Rupert to some event – Axel can easily infer that Benny thinks Rupert is likely to provoke a row about politics at the event, and Benny does not advise inviting Rupert to come. Benny implicates 'Don't invite Rupert'.

1.4.2 The Principle of Informativeness

The Principle of Informativeness has two clauses: (1) Give as much information as is required, and (2) Do not give more information than is required. Informativeness 2 is usually described as having rather general outcomes, in that it licences the speaker to make a statement that requires inferring to produce the full intended message. Correspondingly, the hearer assumes that the speaker hasn't directly stated whatever is easily filled in by inference, and
so draws the required inferences. Consider again I forgot the paper. In the first anecdote, Anna speaks normally when she says 'the paper' to refer to a copy of the current issue of a particular newspaper. In the circumstances it would have been very odd for her to have said 'I forgot to buy a copy of today's issue of the Christchurch Press'. By not spelling out unnecessary information, she obeys the first clause of the Principle of Informativeness.

Informativeness 1 — 'Give as much information as is required' — is the basis of what is also called scalar implicature. Scalar implicatures typically arise with expressions denoting quantities or degrees of attributes which can be graded on some scale of informative weakness or strength. A classic scale giving rise to scalar implicature is the one shown in (23):

(23) (weak) some, most, all — (strong)

The scale indicates that some is typically used to make a weaker, less informative statement than most, and most is typically used to make a weaker, less informative statement than all.

With a scalar implicature it is assumed that the speaker obeys Informativeness 1 and makes the strongest statement consistent with what he or she knows or believes to be the case. The speaker's use of an expression on an information strength scale implicates the negation of any higher term on the same scale, because if a stronger version of the statement had been true, the speaker would have made the stronger statement. For example, assume that the students in a particular course have just had a test. Their teacher is asked 'So how did the students do on the test? The possible answers in (24) have different scalar implicatures:

(24) a. Most of them passed.
   implicature: Not all of them passed.

b. Some of them passed.
   implicature: Not all of them passed.

   implicature: It isn't the case that most of them passed.

c. Two or three did very well.
   implicature: Not more than two or three did very well.

On the scale illustrated here, the relative informational strength of the expressions can also be defined in terms of entailment. 'All the students passed' entails 'Most of the students passed' and 'Some of the students passed' but not vice versa, so all is informationally stronger on the scale than most and some. Similarly, 'Most of the students passed' entails 'Some of the students passed' but not vice versa, so most is informationally stronger than some.

Further examples of scalar implicature are shown below:

(25) I tried to contact Don several times.
   implicature: I didn't manage to contact Don.

   weak <try, manage> strong

I've read halfway through the book.
   implicature: I haven't read any further than halfway.

   weak <barely started, halfway, three-quarters through, finished> strong

Diane can carry 30 pounds in her pack.
   implicature: She can't carry any more weight than 30 pounds.

   weak <20 pounds, 30 pounds, 40 pounds, ... > strong

(Receptionist to patient seeking an urgent appointment)
Dr Evans could fit you in tomorrow afternoon at 2:00.
   implicature: He can't see you any sooner.

   weak <tomorrow at 2:00, tomorrow morning, this afternoon, in an hour, right now> strong

Example (28) shows that the strong/weak orientation of the scale for a scalar implicature may depend on the context. Here the patient wants to see the doctor as soon as possible, so the most informative response the receptionist can make is to identify the earliest available time. In a different context, as in (29) below, the relative informational strength of different time expressions is reversed, and the most informative utterance identifies the latest possible time:

(29) The machine is playing up a bit — when do you want those negatives?
   I suppose first thing tomorrow would be OK.
   implicature: We need the negatives no later than first thing tomorrow.

   weak <this afternoon, first thing tomorrow, tomorrow afternoon, ... > strong

For the purposes of this book, the main point to remember about implicature is that not all that seems to follow from an utterance is necessarily part of the literal meaning. In some cases, such as the different interpretations of the paper in different scenarios, the pragmatic contribution of meaning is obvious. But in other cases, particularly with scalar implicature, the pragmatic nature of the implicature is not so obvious. Perhaps the most salient example of this is the implicature 'not all' from some, which is easily confused with an entailment. Nevertheless, it is an implicature and depends on the context, as (30) and (31) show:

(30) a. Some cast members want to see you after the show.
   b. The photographer wants some cast members for the photo.

(31) a. Some of you are working well.
   b. If some of you work solidly the mess could be cleared by tomorrow.
1.6 Presupposition

The issue of presupposition was raised by Strawson (1950), who pointed out that certain kinds of sentences are difficult to judge as being either true or false. Strawson observed:

\[ \text{suppose someone were in fact to say to you... The King of France is bald... and went on to ask you whether you thought that what he had just said was true, or was false... I think you would be inclined to say... that the question of whether his statement was true or false simply did not arise, because there was no such person as the King of France.} \]

Strawson said that the use of an expression like the King of France (that is, a singular noun phrase with the presupposes the existence of its referent. The presuppositions of a statement must be satisfied for the statement to have a truth value. If the presuppositions of a statement fail, then the statement is neither true nor false — there is a truth value gap. Conversely, if the full statement does have a truth value — either true or false — then the presupposition is true. The full pattern is shown in (38):

\[ \text{38 a. Statement } S \text{ presupposes presupposition } P. \]
\[ b. \text{ If } S \text{ is true, then } P\text{ is true.} \]
\[ c. \text{ If } S \text{ is false, then } P\text{ is true.} \]
\[ d. \text{ If } P\text{ is false, then } S\text{ is neither true nor false.} \]

Notice that the two versions of (38c) are based on the fact that if a statement \( S \) is true, then the negative version \( \neg S \) is false, and vice versa: If John is home is true, then John is not home is false; if John is not home is true, then John is home is false. (We will return to this point in Chapter 2.) This fact — commonly expressed as presupposition survives negation — provides the main text for presupposition as shown in (39). The comparison examples in (40) show that ordinary entailments do not survive negation:

\[ \text{39 a. If } S \text{ presupposes } P, \text{ then } S \text{ entails } P \text{ and } \neg S \text{ entails } P. \]
\[ b. \text{ The King is France is bald entails There is a King of France.} \]
\[ c. \text{ The King of France is not bald entails There is a King of France.} \]

\[ \text{40 a. Nero is a bulldog entails Nero is a dog.} \]
\[ \text{ Nero is not a bulldog does not entail Nero is a dog.} \]

The fact that presupposition survives negation is also the basis of the phenomenon illustrated in (41). Either way is (41), by answering 'Yes' or 'No' to a yes-no question, the speaker is committed to the truth of the presupposition that Tom has been fiddling his taxes.
(41) Has Tom stopped fiddling his taxes yet?
   'Yes.' Tom has stopped fiddling his taxes entails that Tom has been
   fiddling his taxes.
   'No.' Tom hasn't stopped fiddling his taxes entails that Tom has been
   fiddling his taxes.

If the speaker does not believe that Tom has been fiddling his taxes, he or
she has to signal that the presupposition is rejected. One strategy for doing this
is the 'Hey! Wait a minute!' routine which provides another useful diagnostic
for presupposition, as illustrated below with examples from von Fintel (2004).
The 'Hey! Wait a minute!' routine signals that the speaker's objection relates
to the assumed background of what was said, but not the actual content of
the statement. This is shown in (43) where the speaker objects to the presupposi-
tion of (42). But (44) is odd, because the speaker goes on to question the actual
statement that was made, not the presupposition.

(42) The mathematician who proved Goldbach's Conjecture is a woman.
This statement has the false presupposition that Goldbach's Conjec-
ture has been proved by someone.

(43) reasonable response:
   'Hey! Wait a minute! -- I had no idea that anyone had proved
   Goldbach's Conjecture.'

(44) odd response:
   'Hey! Wait a minute! -- I had no idea that was a woman.'

Statements made in daily communication often carry presuppositions that
the hearer doesn't independently know to be true, but doesn't object to. For
example, suppose Leda says to Arianne 'My sister has exactly the same
cut', which presupposes that Leda has a sister. Arianne may not have previously
known that, but the usual response is just to assume that the required presup-
position is true -- Arianne just adds the fact that Leda has a sister to her general
knowledge, and then the fact that that sister has a particular haircut. This is
called presupposition accommodation -- the hearer accommodates the presup-
position by simply accepting it as a fact.

A range of different types of presupposition have been identified, and a
selection of these is illustrated in the following examples.

Some determiners presuppose the total number of things of the kind men-
tioned. The determiner the in a singular NP presupposes that there is exactly
one thing of the kind described (The semantics of the will be discussed in more
detail in Chapter 6.) The determiners both and neither presuppose that there
are two things of the kind described. Note that the hash sign # indicates that
the marked expression is semantically anomalous:

(45) #The island of New Zealand lies to the south-east of Australia.
   (New Zealand has three main islands.)

(46) Both twins called the wolf 'Mama'.
(47) #Both triplets called the wolf 'Mama'.

So-called factive verbs take a clause argument which is assumed to be a
fact (that is, true). Factive expressions also include the noun fact, and nominals
derived from factive verbs.

(48) Jones knew that the pass was closed by snow entails that the pass was
closed by snow.
(49) Jones didn't know that the pass was closed by snow entails that the pass
was closed by snow.

Statements that express certain kinds of focus also indicate that the non-
focused content expressed in the sentence has presupposed status. The clearest
elements of this are so-called it-cleft sentences as in (50) and intonational focus
as in (51):

(50) It was (wasn't) Greg who first noticed the marks on the wall presupposes
     that someone noticed the marks on the wall, and asserts as new infor-
     mation that the person in question was (wasn't) Greg.
(51) Judith doesn't grow LEMONS presupposes that Judith grows some-
     thing, and asserts as new information that whatever she grows isn't
     lemons.

So-called aspectual verbs that indicate that some kind of event continues or
maps presuppose that the event has been in progress (Example (41) above also
belongs to this group):

(52) James has been reading.moved to ceased to stop finished reading the paper
     presupposes that James was reading the paper.

Expressions of repetition presuppose that some kind of state of affairs has
held previously, as illustrated below, where (53)--(55) all presuppose that Harry
had previously looked at the house:

(53) Harry looked over the house again on Wednesday.
(54) Harry re-examined the house.
(55) Harry had another look at the house.

Verbs like manage and succeed presuppose that some attempt preceded the
successful outcome:

(56) Jones managed to get the door open presupposes that Jones tried to get
     the door open.

To sum up: presupposition is a special kind of entailment, specifically one
that is not cancelled by negating the statement which carries it -- presupposition
survives negation. Because presupposition is a kind of entailment, it is part of
the literal sense of the statement (or expression) which carries the presupposition. A presupposition attaches to a statement or sentence according to its literal meaning and doesn’t depend on a particular context.

In contrast, the kind of implicature we reviewed in Section 1.4 is not entailed by what the speaker said – implicature attaches to particular utterances in specific contexts, not to sentences or statements in general. Implicature is a communicative strategy rather than a semantic property of expressions. The speaker implicates by speaking in such a way that the hearer will naturally infer the extra content.

Nevertheless, the semantic phenomenon of presupposition can be used by a speaker to indirectly convey information in a way that resembles implicature. This occurs particularly with the kind of presupposition that is likely to be accommodated by the hearer, as in (57):

(57) Oh yes, it’s quite a good little garage, I’ve had the Rolls in there and they did a good job, no complaints...

Ostensibly, the speaker is discussing the merits of a particular garage. The expression the Rolls carries the presupposition that there is a Rolls Royce, and the wider context makes it likely that this is the speaker’s car. The hearer is likely to simply accommodate this presupposition, and so without actually saying ‘I’ve got a Rolls’ the speaker nevertheless manages to get that viral information across.

EXERCISES

(1) a. That tigress is a female.
    b. Every circle in the pattern was round.
    c. Either God exists or God doesn’t exist.
(5) a. Two plus two is five.
    b. Spain is bigger than Iceland and Iceland is bigger than Spain.

Implications

(4) In each pair of utterances below, the second utterance carries a standard kind of implicature. For each example, identify the implicature (or implicatures) and the main Principle involved (Relevance, Informativeness 1, Informativeness 2).

a. Ally: Do your children eat greens?
    Brett: Well, David eats spinach.

b. Abe: Did you fix the blind?
    Brian: I tried to.

c. Alice: Do you love me?
    Bob: I’m very fond of you.

d. Aelfric: Did you stack the dishes and load the washing machine?
    Beowulf: I’ve stacked the dishes.

e. Abdul: Let’s try that new French restaurant.
    Saladin: I’m on a low-fat diet.

(2) a. What is the extension of alarm clock?
    b. What is the extension of carol?
    c. What is the extension of fekhuf?
    d. What is the truth set for Jones has a new game console?

Denotations

(2) a. What is the extension of Ludwig Beethoven?
    b. What is the extension of phoenix?
    c. What is the extension of phoenix?

(3) Recall that possible worlds theory analyses the meaning of a sentence as its truth set, or the set of all possible worlds in which the sentence is true. This doesn’t always work out. Can you identify the problem for the groups of sentences below? (Hint: What is the truth set for each sentence?)

Truth conditions – a new point

Anaphors

(6) Identify the anaphoric expressions and their antecedents in the passage below.

Clive and Marcia had themselves photographed first thing on Tuesday, and in the afternoon of the same day their secretary drew up a list of things to do. Ordering the passports, arranging visas, buying travellers’ cheques and other such matters were Marcia’s province, while Clive shopped busily for suntan lotion, enjoyable trashy
paperbacks and those stick-on patches for seasickness. Clive bought mostly spy
shockers to read, which annoyed Marcia as she preferred murder mysteries. When
Marcia was organizing the visas she found she couldn't get herself one for Burma,
although Clive still wanted to go there. Nevertheless, none of this depressed their
holiday mood; Marcia became more and more excited and so did Clive.

Indexicality

(7) *
Identify all the indexical expressions in the passage below, and state how each one is
interpreted according to the utterance context.

When I saw John the other day he had just come out of the tube station. He was
standing right here in front of the doorway - I nearly ran into him. He said ‘Oh,
it's you!’ in the most peculiar way - I thought he was annoyed that I knew he had
been in there.

Presupposition

(8) *
What are the presuppositions, if any, of the following sentences?

a. Mandy didn't finish her dinner.
b. Clive enjoyed the party immensely.
c. Edward realized that he knew Sally.
d. Latoya was delighted that she got her license.
e. Mandy is looking forward to her trip.
f. John didn't stop laughing.
g. She knows they're lovers.
h. Jones commended Louis for publishing the pamphlet.
i. Jones paid Louis for publishing the pamphlet.
j. Jones accused Louis of publishing the pamphlet.
k. Jones is going to Paris and he's thrilled that he's flying on Concorde.
l. Many people who have been kidnapped by aliens have published their

m. The truck began to roll faster on the slope.

(9) **
What are the presuppositions, if any, of the following sentences?

a. Even John couldn't get tickets.
b. Even John got good tickets.

(10) ***
Consider the examples below: (a) seems to convey that the terrace and the conserva-
tory are hot, and (b) that the Pompidou building and the National Theatre are ugly.
But (c) and (d) do not convey, respectively, that Sam is old or young. Is the effect in
(a) and (b) a presupposition? Use the diagnostic tests to check this.

a. In the afternoons the terrace is hotter than the conservatory.
b. The Pompidou building is uglier than the National Theatre.
c. Sam is older than Annette.
d. Sam is younger than Annette.

FURTHER READING

Fairner (2005) Chapter 1 is an introduction to truth conditions. Cantor (1995) is an
accessible overview article on truth conditional semantics.

The field of pragmatics is large and complex, with increasing interest in and connec-
tions to cognitive science. For the issues addressed here (most relevant to the semantic
concerns of this book), Levinson (1983) is a good introductory textbook covering traditional
ideas in pragmatics, including Grice's theory of implicature. A more recent introduction
to implicature in a Relevance Theory framework is Blakemore (2002). Relevance Theory
explores the cognitive aspects of implicature and inferring.

The most recent authoritative introduction to pragmatics is Huang (2007) - this text
is more advanced but accessible.