

## Some Basic Semantic Notions

### Core features of our semantic theory:

- (a) **truth-conditional:** to know the meaning of a sentence is to know what the world must be like in order for it to be true. While none of us may know whether the following sentence is true,

*A pink elephant is sitting on the roof of this building.*

we do know what the world would have to be like in order for it to be true: there must be an animal of a particular sort (an elephant), and a particular color (pink), and that animal must currently be located in a particular place (the roof of this building), with its body in a particular configuration (whatever amounts to “sitting”). In other words, competent speakers of English know the following:

The sentence *A pink elephant is sitting on the roof* is true just in case (description of what the world must be like for the sentence to be true)

So, the first goal of a theory of linguistic meaning is to pair sentences with their truth conditions. The meanings of smaller expressions (phrases, individual words) are explicated in terms of the contributions that they make to the truth conditions of the sentences in which they appear.

- (b) **compositional:** as competent English speakers, we are able to compute the meanings of sentences that we have never encountered before. Arguably, we are able to do this because: (i) we know the meanings of the individual words that appear in newly encountered sentences, and (ii) we know a set of rules (an “algorithm”) for combining the meanings of individual words to produce the meanings of more complex expressions, such as phrases and sentences. (“The meaning of the whole is a function of the meaning of its parts.”) So, the second goal of a theory of linguistic meaning is to show how the meaning of a complex linguistic expression is related in a predictable way to the meanings of the parts from which it is constructed.
- (c) **denotational:** The meaningfulness of language consists in its “aboutness”, its capacity to convey information about the world. Meaning is thus a relation between linguistic expressions and objects in the world (as opposed to, say, mental categories or concepts). This statement may appear a bit obscure, but the intuition behind it is rather simple. Words and phrases describe, or denote, entities in our world (objects, events, situations, etc.). Within a denotational theory of meaning, the meanings of words and phrases either are, or else are somehow constructed from, these real-world entities.

Some simple examples:

The proper name *Peter Alrenga* denotes the individual named Peter Alrenga.  
The proper name *Paul Hagstrom* denotes the individual named Paul Hagstrom.

The verb *smokes* denotes the set of individuals who are smokers.  
The verb *admires* denotes the set of pairs of individuals, where the first member of the pair admires the second member.

The sentence *Peter Alrenga smokes* is true just in case the individual denoted by *Peter Alrenga* is a member of the set denoted by *smokes*.

The sentence *Paul Hagstrom smokes* is true just in case the individual denoted by the name *Paul Hagstrom* is a member of the set denoted by *smokes*.

The sentence *Peter Alrenga admires Paul Hagstrom* is true just in case the pair consisting of the individual denoted by *Peter Alrenga*, followed by the individual denoted by *Paul Hagstrom*, is a member of the set denoted by *admires*.

Assuming that the facts of the world are as follows:

the set of smokers: { Peter Alrenga, Tom Brady, Rajon Rondo }

the set of admirer-admiree pairs: { <Peter Alrenga, Tom Brady>,  
<Tom Brady, Rajon Rondo>,  
<Rajon Rondo, Tom Brady>,  
<Peter Alrenga, Paul Hagstrom> }

Are the following sentences true or false?

*Peter Alrenga smokes* is

*Paul Hagstrom smokes* is

*Peter Alrenga admires Paul Hagstrom* is

If the facts of the world had been different, our sentences might have instead denoted different truth values. But we wouldn't want to say that the meanings of the sentences have also changed: supposing that I (finally) manage to quit smoking, do we really want to say that the sentence *Peter Alrenga smokes* has acquired a new meaning? That's why, even though a sentence denotes a truth value, its meaning ultimately resides in its truth conditions—those requirements that must be fulfilled in the world (however it may be) in order for the sentence to be deemed true.

**Entailment: A relation between sentence meanings**

Consider the following pairs of sentences:

- (1) a. Kate and Jaimie both got an A in this course.  
b. Kate got an A in this course.
- (2) a. Billy is a bachelor.  
b. Billy is unmarried.

For each pair, can you imagine a situation in which the (a)-sentence is true, while the (b)-sentence is false? In fact, it seems that such a situation is impossible. This is because in each pair, the meanings of the (a)-sentence and the (b)-sentence stand in a particular relationship, which we refer to as “entailment”:

A sentence *A* **entails** a sentence *B* just in case the truth of *A* guarantees the truth of *B*. (Whenever *A* is true, *B* must also be true.)  
If *A* entails *B*, then *B* is an **entailment** of *A*.

To say that a sentence *A* entails another sentence *B* is to say that the information that *B* conveys is, in some sense, “contained” in the that *A* conveys. This seems obvious enough in (1) and (2): in (1), the NP *Kate and Jaimie* literally contains the NP *Kate*, while in (2), the standard dictionary definition for the term *bachelor* (‘an unmarried man’) in fact contains the term *unmarried*.

Not all entailment relations can be identified so easily from the syntactic structure of the sentences and/or the particular words that they contain. In fact, syntactic structure is generally a poor indicator of entailment. This shouldn’t be surprising, given that entailment is a semantic relation, not a syntactic one:

- (3) a. Sally managed to leave on time.  
b. Sally left on time.
- (4) a. Sally tried to leave on time.  
b. Sally left on time.

Even though the examples in (3) and (4) are syntactically parallel, only in (3) does the (a)-sentence entail the (b)-sentence. (It’s perfectly possible to imagine a situation in which (4a) is true, while (4b) is false.)

- (5) a. Britney passionately kissed Madonna.  
b. Britney kissed Madonna.
- (6) a. Britney allegedly kissed Madonna.  
b. Britney kissed Madonna.

Again, the examples in (5) and (6) are syntactically parallel, but only in (5) does the (a)-sentence entail the (b)-sentence.

Luckily, we have reliable tests for identifying entailment relations:

- (a) If  $A$  entails  $B$ , then a speaker cannot assert  $A$  and subsequently deny  $B$  without contradicting himself. (**non-deniability of entailments**)
- (7) Sally tried to leave on time. But in fact, she didn't (leave on time).
- (8) #Sally managed to leave on time. But in fact, she didn't (leave on time).
- (b) If  $A$  entails  $B$ , then an assertion of  $A$  followed by an assertion of  $B$  will be redundant. (**non-reinforcement of entailments**)
- (9) Kim allegedly kissed Sandy. In fact, she did kiss Sandy!
- (10) #Kim passionately kissed Sandy. In fact, she did kiss Sandy!