

What Things Mean
LING 255
January 22, 2008

You will not find in semantics any remedy for decayed teeth or illusions of grandeur or class conflict. –Alfred Tarski



(used with permission of the artist)

1. THE GOAL OF SEMANTICS

Linguistics as an empirical science: we should be able to model language like any other natural phenomenon.

That includes finding models for its sound patterns (“phonology”)...

- *brick / blick / bnick*
- [ɪm]possible / [ɪm]tolerable / [ɪŋ]coherent

...and its structures (“syntax”)...

- *Who brought what to the potluck? / What did who bring to the potluck?*
- *Who do you believe (that) Sue likes? / Who do you believe (that) likes Sue?*

...but for our purposes, the important part is modeling its meaning.

(1) I saw her duck.¹

Question: What does (1) mean?

(2) Sarah has managed to beat his brother at chess.

Question: What does (2) *mean*? What meaning is conveyed by the sentence?

1. _____
2. _____
3. _____
4. _____
5. _____

(and probably many other things)

¹ A quick word about some conventions. In linguistics, example sentences—i.e., our data—are numbered for convenient reference. An asterisk before the sentence indicates that the sentence is ill-formed...

(i) *What did who bring to the potluck?

...and often a pound sign before the sentence indicates an anomalous meaning.

- (ii) #Colorless green ideas sleep furiously.
- (iii) #My buxom neighbor is the father of twins.

The goal of semantics in particular: “what is said”, or, the literal meaning of the sentence (as distinguished from, e.g., what a speaker might suggest with the sentence, why the speaker might say it, and so on).

- (3) A: I am out of gas.
B: There’s a gas station around the corner.

1.1. A Vital Digression: Simplicity vs. Explanatory Power

Possible descriptions of syntactic structure:

- X is a sentence of English if it’s a string of English words.

Advantage: Very few rules; rules simple in nature.

Disadvantage: Describes any string of words. Too powerful.

- X is a sentence of English if it’s accepted by finite state machine E_1 .

Advantage: Clear criterion for acceptance.

Disadvantage: Fails to describe many sentences. Not powerful enough.

- X is a sentence of English if it is assembled in the following fashion:
 - X consists of etc., etc., ...
 - ...
 - Movement can only cross a clause boundary from the specifier position.
 - ...

Disadvantages: Many rules; requires precise (complex?) definitions of terms

Advantage: Describes X iff X is a sentence of English...the right amount of power.

Our general goals:

- Keep the tools/mechanisms/rules to a minimum. **Simplicity**
- Describe all, and only, sentences of language. **Power**

But of course, these are often in conflict. We’ll need to make choices....

2. THE ELEMENTS OF MEANING

So, literal meaning; “what is said”, etc. Well and good, but: how can we (as linguists) tell what the literal meaning is?

2.1. *Compositionality*

It is astonishing what language accomplishes. With a few syllables it expresses a countless number of thoughts, and even for a thought grasped for the first time by a human it provides a clothing in which it can be recognized by another to whom it is entirely new. This would not be possible if we could not distinguish parts in the thought that correspond to parts of the sentence, so that the construction of the sentence can be taken to mirror the construction of the thought. [...] If we thus view thoughts as composed of simple parts and take these, in turn, to correspond to simple sentence-parts, we can understand how a few sentence-parts can go to make up a great multitude of sentences to which, in turn, there correspond a great multitude of thoughts. The question now arises how the construction of the thought proceeds, and by what means the parts are put together so that the whole is something more than the isolated parts.

Gottlob Frege, “Logische Untersuchungen. Dritter Teil: Gedankengefüge”

...which is to say...

(4) African zebras gallop tentatively.

The Principle of Compositionality:

The meaning of a complex expression is determined by the meaning of its parts and the way those parts are combined.

...*the meaning of its parts*...

(5) Elizabeth likes the Ratty.

(6) He returned to Philadelphia on January 6th, 2008.

...*the way those parts are combined*...

(7) a. Oswald shot Kennedy.

b. Kennedy shot Oswald.

- (8) a. Agnieszka is the responsible person.
(...so you should ask her to file those papers.)
- b. Agnieszka is the person responsible.
(...so you should yell at her for the mess those papers are in.)

So we will need:

- A theory of what sentences mean.
- A theory of what words mean.
- A theory of how the latter can be put together to create the former.

2.2. *Towards a theory of meaning*

Courtesy of Alfred Tarski: the deepest thought you may see all semester.

- (9) **Snow is white** is true if and only if snow is white.

Typographical convention henceforth: in linguistics, we have an *object language* (the thing we're studying) and a *metalanguage* (the language we use to talk about the thing we're studying). Unfortunately, since both of them are English, it can get confusing. Thus, expressions in the object language will, from here on, be written in the bold sans-serif font used here, i.e. **this one**.

For example, only one of the following is true:

Beethoven's Fifth Symphony begins with a B.

Beethoven's Fifth Symphony begins with a B.

A few variants of (9):

- (10) a. **Irina has written a letter** is true iff Irina has written a letter.
- b. **Irina hat einen Brief geschrieben** is true iff Irina has written a letter.

So what does (9) really tell us?

- To know the meaning of a sentence is to know the conditions that make it true.
 - To know the meaning of a sentence is to know the situations in which it is true.
 - The meaning of a sentence is the situations in which it is true.
- or: The meaning of a sentence is "true" in situations in which it is true, and "false" in situations in which it is false.

3. NOT JUST SEMANTICS: *FORMAL SEMANTICS*

[as opposed to *lexical semantics*—zebras, birds, chairs, water², etc.]

- **Denotation**

The denotation of a linguistic expression x is [in some way] the thing in the real world that x corresponds to.

- **The interpretation function**

[[...]] is a function that takes a linguistic expression and returns its denotation.

[[**Snow is white**]] = _____ ?

[[**Will Russell**]] = _____ ?

[[**green**]] = _____ ?

[[**fall**_{verb}]] = _____ ?

[[**the**]] = _____ ?

Homework #1

Due Thursday!

Write down three sentences you hear over the next day or two. (Set an alarm on your favorite portable electronic device to go off at 4pm, say, and write down the next thing someone says.)

For each sentence, write down—in the senses discussed above—what the sentence means. Distinguish between (a) “what is said” (the literal meaning, the way the world must be for the sentence to be true); and (b) other things communicated (things the speaker implies, things the speaker takes for granted, etc.).

² It was pointed out to me that the H₂O/XYZ example that I attributed to Chomsky is in fact due to the philosopher Hilary Putnam (whose name, to add insult to injury, I may have just misspelled). Chomsky discusses this and other examples, and as a result, I lose track of whose they were originally. The debates between them contain many central issues in the philosophy of language, e.g. whether English is an objective thing that exists or something internal to its users.

A few other examples: suppose London were destroyed and an exact replica built ten miles south; would it be London? Suppose a ship named *Discovery* has, over time, all of its planks and nails replaced, so that at some point it shares not a single atom with the ship as originally built; is it still the *Discovery*? If the answer to either is “yes”, the word “London” or “*Discovery*” doesn’t refer to a particular physical object, so what does it mean? Again, both of these thought experiments appear somewhere in Putnam’s lectures and Chomsky’s responses, but I can never recall which.