

Foundations of Semantics

LING 130

Fall 2005

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Thanks to Dan Wedgewood of U. Edinburgh for use of some slides

The study of meaning

- What does 'meaning' mean?
- To what extent is it a *linguistic* matter?
- What kind of theory of meaning is best suited to the linguistic facts?

Two Views of Meaning

- Mentalistic Theory
 - Focuses on how expressions map to concepts
- Referential Theory
 - Focuses on how expressions map to world

Place of Semantics in Linguistics

- Expressions are built up with structure
 - Syntax
- Expressions refer to things
 - Semantics
- Expressions are uttered in context
 - Pragmatics

Properties of the Utterance

- Intention behind u
- Context of use of u
- The speaker and hearer of u
- Structure of u

Reference and Meaning

- **Referring Expressions:** a specific referent is picked out
 - I want **that** cookie.
- **Non-Referring Expressions:** a generic interpretation
 - I want **a** dessert. I don't know what, just anything

Extensions and Referents

- Referent: the thing picked out by uttering the expression u in a specific context
- Extension: the set of things which are possibly referred to by the expression u.
- Denotation: the relationship between an expression u and its extension.

Names and Noun Phrases

- Description Theory
 - Names are shorthand descriptions for knowledge about the referent
- Causal Theory
 - Names are socially inherited from a chain of uses going back to a grounding.

Kinds of Denotation

- Proper Names denote individuals
- Common nouns denote sets of individuals
- Verbs denote actions
- Adjectives denote properties of individuals
- Adverbs denote properties of actions

Structure of Utterance

- Individual Word Meanings
 - Lexical Semantics
- Word meanings in combination
 - Compositional Semantics

Necessary and Sufficient Conditions

- X is an A if and only if P and Q and ...
- What properties are **necessary**?
- What properties are **sufficient**?
- E.g., **bird, game, book, ground rule double**

Meaning and the lexicon

- Componential analysis
bachelor = [+male, -married, +adult]
- Sense relations
synonymy, antonymy, hyponymy ...

Meaning and Grammar

Compositional meaning:

1. The cat chased the dog.
2. The dog chased the cat.
3. The cat ate the hat.

Semantics and Grammar

- Linguistic semantics: the output of combining words through the syntax
- ...though syntax can produce meaningless grammatical structures too:

Colorless green ideas sleep furiously.

The Principle of Compositionality

The meaning of an expression is a function of the meaning of its parts and the way they are put together.

-Gottlob Frege

The Principle of Compositionality

The syntax-semantics relationship isn't always straightforward:

- a white rabbit
- a beautiful dancer
- a criminal lawyer

Where do the differences originate?
The lexicon? Syntax? Semantics?
Pragmatics (i.e., world knowledge)?

Constraining linguistic semantics

- We want to account for the linguistic contribution to meaning
- *Competence*-based approach: we aim to characterize the *knowledge* that language users have (just as in syntax).
- ...specifically, knowledge of how language contributes to meaning

Approaching linguistic semantics

Not all meaning that arises in 'performance' is part of semantics (as a branch of linguistic competence):

{11:45 am}

John: Want to join us for lunch?

- Mary: a. I have a class at noon.
 b. I have a class at 3:00 pm.

Semantics v. pragmatics (I)

One view:

- Meaning from the **language** = **semantics**
- Meaning from the **context** = **pragmatics**
(identity of / relationship between speaker and hearer, situation, beliefs, intentions ...)

But what *is* meaning?

- So we're restricting ourselves to linguistically-determined meaning
- But what is it to know that some piece of linguistic structure affects meaning?
- We need a theory of what it means to say that a sentence 'means something'

Knowledge of Linguistic Meaning

Some things we know about meaning:

- **Paraphrase** : *P is true, if **and only if** Q is true*
P: Bill was killed by Phil.
Q: Phil caused Bill to die.
- **Contradiction** : *if P is true, then Q is false*
P: Phil is a murderer.
Q: Phil has never killed anyone.
- **Entailment** : *if P is true, then Q is true*
P: Phil killed Bill.
Q₁: Phil killed someone.
Q₂: Someone did something in the past.

(cf. synonymy, antonymy, hyponymy)

Semantics and Truth

Note that all these meaning relations depend on the *truth* (or *falsity*) of each sentence

- So can we define meaning in terms of *truth*?

Semantics vs. Pragmatics

A different criterion: truth conditions

To know what a sentence means is to know the circumstances under which it is true (=its *truth conditions*)

Semantics vs. Pragmatics

A different criterion: truth conditions

- Semantics (of a sentence)= *what must hold true in the world for the sentence to be judged true*
- Pragmatics = *all speaker or context related meaning*

Language and truth-conditions

We've considered two definitions of semantics: (i) what linguistic forms encode and (ii) truth conditions

- Both are ways to get at the *invariant meaning of a sentence*.

(Sentence meaning, as opposed to utterance meaning)

Propositions

- "A sentence has truth conditions" – equivalently, it conveys *propositional content*
- A proposition has a *truth value* (T or F)
It is a statement that certain truth conditions hold
Often thought of as a state of affairs in the world

Language and Truth-Conditions

We will continue to treat a sentence as 'having truth conditions'

- Enables discussion of semantic knowledge
 - paraphrase, contradiction, entailment
- Connects linguistic meaning to the world
- But truth depends also on *context*

Propositions

A proposition is usually expressed as the meaning of a sentence:

- *The Red Sox won the World Series last year.*
 - That sentence contains nine words. (*Sentence*)
 - That sentence is true (*Proposition*)

Another possibility would be to express propositions in a formal *metalanguage*