

The Meaning of Words

Common-Sense Word Semantics

- Defining word meaning in everyday life:
 - Point out
 - Demonstrate
 - Equivalent word
 - In same language (synonym)
 - In another language (translation)
 - Use the word in a context
 - Define: W means

Word Meaning

- Lexeme
 - The lexeme is the abstract unit which unites all the morphological variants of a single word
- Example
 - **go** – *go, goes, went, have gone...*

Word Meaning

- Words – Concepts - Referents
 - Words – e.g. "horse"
 - Concepts – e.g. <horse>
 - Referents – real horses in the world
- The semiotic triangle (Ogden & Richards)
- See page 13 in Riemer

What is "a meaning"?

- Something physical?
- Something mental?
- Something abstract?
- Do you know the difference?

More terminology

- Sense
- Reference
- Denotation
- Konnotation

Word – Reference/Denotation/Extension

- "Paris" refers to Paris, France
- "horse" denotes the set of all horses
- "brown" denotes the set of all brown things



- Extension
- Problem: non-existent entities

Lexical - Compositional

- In the lexicon or not?:
 - "rain"?
 - "cat"?
 - "dog"?
 - "and"?
 - "the cat was chasing the dog in the rain"
 - "raining cats and dogs"

The Meaning of Sentences/ Utterances

Common-Sense Sentence Semantics

- Defining sentence/utterance meaning in everyday life:
 - Point out
 - Demonstrate
 - Equivalent sentence/utterance
 - In same language (paraphrase)
 - In another language (translation)
 - Figure out the meaning of the whole from its parts (all the way down to words)

Utterance Meaning

- Utterances – Propositions - Facts
 - Utterances – e.g. an utterance of "I am hungry"
 - Propositions – e.g. <Torbjörn is hungry on Tuesday at 14.15, 4/2 2003 >
 - Facts – the state-of-affairs that makes the above proposition true or false

An Important Tradition

Natural language

- We use language to talk about the world
- Semantics is something that relates sentences (or utterances) of language and the outside world
- There are other ideas about meaning, but in this tradition we don't believe in them!

The outside world

Truth Conditional Semantics

Natural language

- Meaning = Truth conditions
- Examples:
 - "John whistles" is true iff John whistles
 - "John visslar" is true iff John whistles
 - "Ogul fautu seq" is true iff...

The outside world

Compositional semantics

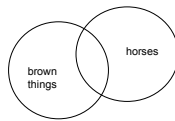
Natural language

- The Compositionality Principle:
 - The meaning of the whole is a function of the meaning of the parts and the mode of combining them.
 - The meaning of a complex expression is uniquely determined by the meaning of its constituents and the syntactic construction used to combine them.

The World

Compositional semantics

- Three brown horses



How to Describe Meaning?

- Distinction
 - Object language
 - E.g. English, Swedish, First order predicate logic
 - Meta language
 - E.g. English, Swedish, First order predicate logic
- Also, note that what we need – at least for the description of the meaning of utterances – is a finite description of something infinite

Use – Mention

- Use - mention
 - horses are nice animals
 - "horses" is a noun
- Self-reference
 - "denna sats innehåller ett verb"
 - Affisch-exemplet...
- Paradoxes
 - Jag ljugar nu
 - Denna sats är falsk



Semantics - Pragmatics

- Meaning – Content
- Semantics
 - Sentences are *abstract* entities
 - Sentences have meaning
- Pragmatics
 - *Utterances* are *concrete* manifestations of sentences
 - Utterances have *content*
 - Meaning + *Context* = Content

Context

- Context – sender, receiver, situation (time, space)
- Co-text – the surrounding text/spoken utterances

Meaning as Use

- Linguistic expressions as tools
 - The *use* of language
 - "How to do things with words"
 - Performatives, e.g. "I hereby pronounce you husband and wife"
- Language games
- What is the meaning of "thank you"?
- What is the meaning of "horse"?

Why Semantics?

Why Semantics?

- Important part of a general theory of language and communication
- Nice to have when solving semantic puzzles ☺
- Computational Linguistics/NLP

Applications of Computational Semantics

- Information Retrieval
- Information Extraction
- NLU systems
 - Semantics + 'World knowledge' --> 'understanding'
- Machine translation
 - Semantic representation - interlingua
- Dialogue Systems

Semantic Components

- Lexica containing semantic information
- Word sense disambiguator
- Semantic interpreter

Semantic Puzzle

- What's wrong with the following argument?:

"Nothing is better than a long and prosperous life. A ham sandwich is better than nothing. Therefore, a ham sandwich is better than a long and prosperous life."

- Make that your homework for next time!