Lexical Semantics
Week 1: Introduction

Prerna Nadathur

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1 Language and meaning

1.1 Non-natural meaning

Some 'natural' ways of meaning (Grice 1957):

(1) a. "Those spots mean measles."
b. "The recent budget means that we will have a hard year."

- natural meaning can't be cancelled:

(2) a. #Those spots meant measles, but he hadn't got measles.
b. #The recent budget means that we will have a hard year, but we won't.

- natural meaning involves rigid signalling, which isn't separable from the sign:

(3) a. ?/#What was meant by those spots was that he had measles.
b. ?/#What is meant by the budget is that we will have a hard year.

This contrasts with **non-natural meaning:**

(4) a. Those three rings on the bell mean that the bus is full.
b. That remark 'Smith kicked the bucket,' means that Smith died.

- non-natural meaning can be valid even if it is false or factually incorrect:

(5) Those three rings on the bell mean that the bus is full, but it's actually quite empty.

- non-natural signs have meanings separable from actuality:

(6) What was meant by 'Sam kicked the bucket' is that Sam died.

- These signs mean what they mean on the basis of established or shared language/communication **conventions.**

- no essential connection between the sign and the agreed-upon meaning
- *meaning*, in this case, occurs only by way of the sign, and by means of its deliberate use

Grice (1957): conventional, intentional **non-natural meaning** ($\text{meaning}_{\text{NN}}$) is the basis of linguistic meaning

(7) Individual A $meant_{\text{NN}}$ ϕ by p:
A intends to induce by p a belief ϕ in an audience, and A must also intend utterance p to be recognized as so intended.

- the conventions making non-natural meaning possible may be pragmatic or cultural – certain verbalizations, hand gestures, facial expressions, etc
- a certain set of basic conventions constitute knowledge of a language: i.e., what certain words (or sequences of sounds) are taken to indicate in a language community, what the rules of combination are
- knowledge of a language comprises two types of knowledge:
  i. rules for construction/deconstruction of sentences and expressions (syntax, the syntax-semantics mapping)
  ii. the meanings of individual expressions or **lexical items**

1.2 Compositional semantics

(8) **Principle of compositionality.** [adapted from Szabó 2008]
The meaning of a complex expression is determined by its structure and the meanings of its constituents.

- the compositional rules (of a particular language) specify the mappings between structure and functional application

(9) a. The dog bites the man. $\equiv \underline{\text{bite}}(\text{dog, man})$
b. The man bites the dog. $\equiv \underline{\text{bite}}(\text{man, dog})$

- syntactic structure determines the difference in meaning between (9)a and (9)b
- **compositional semantics** focuses on identifying these mappings

> "To obtain [...] semantic interpretations, each lexical item in a string of formatives must receive a meaning on the basis of semantic information in the dictionary. The projection rules then combine these meanings in a manner dictated by the syntactic description of the string to arrive at a characterization of the whole string and each of its constituents."
>
> Katz and Postal (1964).

1.3 Lexical semantics

Lexical semantics is concerned with the meanings of individual words and/or *lexical items*, and on the consequences of these meanings for compositional and sentential meaning.

- what kinds of information are encoded in the **lexicon**
- what are the building blocks/atomic units of lexical meaning
  - e.g., CAUSE, BECOME, DO (Dowty 1979)
- how lexical meaning is to be represented

  (10) *x kill y* :=[x CAUSE [y BECOME *dead*]]
- meaning relations between different words (and different types of words)
  - derivational relations, within and across categories: *activate* vs. *deactivate*, *red* vs. *redden*
  - antonymy: *hot/cold, fast/slow*
- how is lexical meaning connected to morphological or word-internal structure
- what restrictions does lexical meaning place on compositional meaning
  - predicate valency

    (11) a. Suzy broke the bottle (with a rock).
    b. The bottle broke (*with a rock).
  - argument selection (features of the allowable arguments – e.g., volitionality, agency)

    (12) ?The tree bit the dog.
- inferential properties tied to lexical meaning

  (13) Factive verbs:
  a. George *realized* he was talking to the Prime Minister.
  → George was talking to the Prime Minister.
  b. George did not *realize* he was talking to the Prime Minister.
  → George was talking to the Prime Minister.

  (14) Implicative verbs:
  a. Solomon *managed* to build the temple.
  → Solomon built the temple.
  b. Solomon did not *manage* to build the temple.
  → Solomon did not build the temple.

2 Some basics

(15) **Lexeme.** A pairing of a lexical form with a conventionally determined, *non-compositional* meaning

- lexemes are the atomic units of meaning in a language
- they can't be decomposed into other lexemes
- *question:* what is specified in the mental representation of a lexeme? (e.g. category, part of speech)
- lexemes often correspond to more than one word
  - a lexeme is associated with the set of forms of a root word

    (16) DOG ↔ dog (sg.), dogs (pl.)

    (17) EAT ↔ eat, eats, eating, eaten
  - different forms of a lexeme are related via **inflection** (person/number agreement, etc)
- lexemes can be related to one another via **derivation/derivational morphology**
  - e.g. *activate* ↔ *deactivate*, *lock* ↔ *unlock* ↔ *unlockable*)
  - NB: we will be interested in the meanings of derivational morphemes (*de-, re-, un-, -able*), but these are *not* themselves lexemes: they are only defined in reference to the lexemes they attach to/modify
- idiomatic meanings can represent lexemes (e.g., *kick the bucket*)
- there is no one-to-one correspondence between lexemes and words

The lexicon:

- collection of all of the lexemes in a language
- plus:
  - relations between lexemes based on meaning
  - derivational rules
  - grammatical/inflectional information
- a network or flow chart, rather than simply a list

Some additional terms:

(18) **Referent.** Entity (object, person, event, state of affairs) in the world which is picked out by a lexical item or linguistic expression in a particular context

(19) **Sense.** The features or properties which define a linguistic expression (content independent of reference/context; also *intension* or *denotation*

(20) **Extension.** The set picked out by a lexeme/expression.

2.1 Topics in this course

- Lexical representation, formal relations between lexemes
  - what kinds of information can be encoded?
  - what are some plausible conceptual primitives?
  - properties of different kinds of lexical items:
    - nouns: natural kinds, mass/count
    - adjectives: properties, scalarity, gradability, vagueness
- Lexical meaning and its consequences for grammatical structure
  - how does a particular lexical item constrain the structure and interpretation of the sentence around it?
    - argument valence (number of arguments)

      (21) The dog bit.

    - argument structure: types and features of arguments to a given predicate

      (22) a. The dog bit the man.
      b. #The tree bit the dog.

    - what kinds of features do lexical items (verbs) care about? How are these features encoded or reflected in grammatical structure?
    - event structure and argument alternations

      (23) a. Suzy broke the bottle (with a rock).
      b. The rock broke the bottle (*with a stick).
      c. The bottle broke (*with a rock).
- Events, aspectual classes, temporal structure of predicates

  (24) a. I swam for an hour/*in an hour.
  b. I ran a mile in an hour/*for an hour.

  - event culmination/completion (telicity):

    (25) Solomon built a temple, ?but he did not finish it.
- Inferential properties of words, as encoded
  - presupposition, entailment
  - implicature: scalarity, vagueness, alternatives
    - what does the choice of one word over another tell us?

3 Types of inference

(26) a. George Mallory managed to get to the top of Mount Everest.
→ Mallory got to the top of Mount Everest.
b. George Mallory failed to get to the top of Mount Everest.
→ Malloy did not get to the top of Mount Everest.

- (26a) is false, (26b) is true
- not coherent (contradictory):

  (27) #Mallory failed to get to the top of Everest, but he eventually got there.

- *fail* always leads to the conclusion that its complement is false, regardless of context: *fail* **entails** its complement's negation
- *manage* entails its complement's truth
- entailments reverse under negation

  (28) Mallory did not manage to get to the top of Everest.
  → Mallory did not get to the top of Everest.

Other inferences from *manage, fail*:

(26a) George Mallory managed to get to the top of Mount Everest.
→ Mallory tried to get to the top of Mount Everest.
→ It was unlikely that Mallory would get to the top of Everest.
→ It was difficult/effortful for Mallory to get to the top of Everest.

- these inferences do not reverse under negation

  (28) Mallory did not manage to get to the top of Everest.
  → Mallory tried to get to the top of Mount Everest.
  → It was unlikely that Mallory would get to the top of Everest.
  → It was difficult/effortful for Mallory to get to the top of Everest.

- candidates for **presupposition**:
  - preconditions for the use of *manage* (or *fail*)
  - facts about the background context
  - *question:* how is presuppositional material encoded in the lexicon?

Implicature:

(29) Some of the students did well on the exam.
→ Not all of the students did well on the exam.

- the use of *some* instead of the stronger *all* suggests that the speaker does not want to convey *all*

- pragmatic implicature is defeasible:

  (30) Some of the students did well on the exam. In fact, they all got good marks!

All of these kinds of inference are predictable, tied to word meaning, and are either governed by or govern facts about the world/context of utterance.

Next time: sense relations (synonymy, antonymy, hypo- and hypernymy) and *polysemy*

- Reading for next time:
  - *Optional but recommended:* Barker 2006
    - overview of lexical semantics and many of the ideas we'll come back to
  - *Required:* Cruse 1995, Dölling (to appear)
- Readings available on course webpage: `pnadathur.github.io/lexsem-winter19.html`, password `aktionsart`.

4 References

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7. Szabó, Z. 2017. Compositionality, *The Stanford Encyclopedia of Philosophy* (Summer 2017 Edition), E.N. Zalta (ed.), `plato.stanford.edu/archives/sum2017/entries/compositionality/`