Causation in Semantics and Grammatical Structure
Week 1: Overview and background

Prerna Nadathur

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1 Course overview

Expanded course description:
The ability to reason about causal relationships in the world around us is a key component of the human cognitive system: we draw on our knowledge of causation in such everyday tasks as deciding how to react to an event, or considering the consequences of our actions. Language provides a primary means of encoding and communicating causal information: thus, the linguistic expression of causation is of interest to linguists, philosophers, and cognitive scientists seeking to understand how causal information is structured and represented in cognition.

Our languages employ a wide variety of overtly causal language, encoding relationships like causing and enabling which differ from one another in subtle but important ways. The study of causal vocabulary, and the distribution of causal primitives in the lexical semantics of this vocabulary represents a long tradition of research in linguistics. More recently, linguists have also begun to investigate a role for causal meaning in less-obviously causal areas of language, including the underlying structure of accomplishment predicates like build a wall, semantic and pragmatic inferences in the interpretation of counterfactual conditionals, and even a role for causation in the logic of necessity and possibility (modality). This course surveys literature on the semantics and grammatical structure of causation, examining both the expression of causation in a cross- linguistic perspective as well as theoretical approaches for modeling and representing different types of causal connections. Topics include lexical and analytic causatives, causative morphology, agentive and non-agentive causation, the structure of causal events, and causal modeling approaches to counterfactual reasoning and semantic inference.

Questions:

- how is causation encoded in language (at the lexical level as well as the sentential level)?
- *where* is causation encoded:
  - 'causal' verbs: *cause, make, get, have*:

    (1) a. Global warming **caused** Houston to flood.

b. The policeman **made** me cross the street.
c. I **had** the cobbler repair my shoes.
d. The car dealer **got** me to buy a fancy entertainment system I didn't really need.

∗ also: *force, prevent, enable, let*
∗ NB: *lassen* has uses that can be translated as *make, get,* and *let*

– counterfactual conditionals:

(2) a. If it were not for the alarm, I would have died in the fire.
b. The alarm **saved** me from the fire.

– dispositions:

(3) a. The vase is **fragile.** → *capable of being broken*
b. The pill is **water-soluble.** → *capable of being dissolved*

- can we define causation/causal relationships?
- what is the structure of a causal event?
  – Syntactic effects:

(4) a. Global warming caused Houston to flood.
b. ?/#Global warming flooded Houston.

– Semantic effects:

(5) a. The vase is fragile, but it didn't break when I dropped it.
b. I broke the vase, #but it didn't break.

(6) a. Harry insulted Ursula by calling her stupid. ⇝ Ursula was insulted/offended.
b. Harry insulted Ursula by calling her stupid, but she wasn't offended.

(7) a. The low salary insulted Ursula. → Ursula was insulted/offended.
b. The low salary insulted Ursula, #but she wasn't offended.

1.1 Overview of topics

A. Lexical decomposition

- generative semantics and lexical semantics more generally is focused on the representation of core meanings (the meanings of words or lexical items) — establish what the atomic units of meaning are
- decompositional analysis aims to break down word meanings into component pieces, and then predict their semantic/syntactic behaviour in sentences and utterances based on regularities in the components

- Some alternations:

  (8) a. The vase broke [when I dropped it].
  Something happened to change the vase.
  b. I broke the vase [by dropping it].
  I did something to cause or bring about a change.

  (9) a. The ice melted.
  b. The sun melted the ice.

  (10) a. Caesar died on March 15th.
  b. Brutus killed Caesar on March 15th.

- Dowty (1979):
  - the change of state in the first of each pair can be represented with a lexical atom BECOME: this encodes a point of change and a result state
  - to get the second pair, we might add a lexical atom CAUSE: then we'd expect to get the point of change, the result, and something 'leading up' to it
- are there differences between the *break, melt, kill* examples?
- Lexical decomposition opens up a number of questions about causation:
  1. Can we define an atomic unit of meaning CAUSE?
     - Lewis (1973): causation can be defined counterfactually

       (11) a. The recession caused Jerry to lose his job.
       b. All things being equal, Jerry would not have lost his job if the recession had not happened.

     - There are some well-known problems with this: suppose Suzy is waiting to throw a rock at the vase I'm holding. I drop the vase, so it breaks, but if I hadn't dropped it, she'd have broken it with the rock.

       (12) a. I broke the vase (by dropping it)./I caused the vase to break (by dropping it).
       b. #If I hadn't dropped the vase, it would not have broken.

     - should CAUSE and *cause* be defined the same way?

  2. Is there only one kind of cause?
     - Woodward (2003), Wolff (2007), Lauer & Nadathur (2019): different causal predicates might talk about different kinds of causal relationships

       (1) a. Global warming **caused** Houston to flood.
       b. The policeman **made** me cross the street.
       c. I **had** the cobbler repair my shoes.
       d. The car dealer **got** me to buy a fancy entertainment system I didn't really need.

3. Causal event structure:
   - are 'embedded' causatives all the same?

     (13) I broke the vase.

     (14) Solomon built a temple.

   - what distinguishes lexical and periphrastic causatives? (direct and indirect causation)

     (15) a. Brutus killed Caesar on March 15.
          b. Brutus caused Caesar to die on March 15.

B. Typology:

- Comrie (1981): different ways of expressing causal meaning

  (a) periphrastic or analytical causatives:

  (1) a. Global warming **caused** Houston to flood.
      b. The policeman **made** me cross the street.
      c. I **had** the cobbler repair my shoes.
      d. The car dealer **got** me to buy a fancy entertainment system I didn't really need.

  (b) lexical causatives:

  (8) a. The vase broke [when I dropped it].
      Something happened to change the vase.
      b. I broke the vase [by dropping it].
      I did something to cause or bring about a change.

  (c) morphological causatives:

  (16) a. Raam siikhtaa hai. [Hindi]
       Ram learns.
       b. Ravi Raam ko sikhaataa hai.
       Ravi teaches Ram.

- morphological causatives often involve a *causativization* strategy
- certain languages also involve *anticausativization*, moving from a basic word with a causal meaning to one without
- for alternations like the one in (8), this raises the question of which meaning is more fundamental

C. Parameters of variation in causal constructions:

- direct vs. indirect causation: *kill* vs. *cause to die*
- internal vs. external causation: *melt* vs. *break*
- agentive causation: *insult, offend, tell*
  - when can we talk about causal events not being completed?

D. Causal event structure: agentivity, result status (does CAUSE have to embed BECOME?

E. Beyond CAUSE: alternative approaches:

- other ways of modeling causation: probabilistically, structural equation models, force dynamics
- causal pluralism
- applications of these approaches to causation beyond overtly causal language: implicative verbs, ability predicates, accidental interpretations of causatives, evidentials

2 Background to lexical decomposition approaches

2.1 Lexical decomposition and derivation

Early decomposition is about conjunction:

- Katz (1972):

  (17) *chair* := object + inanimate + furniture + portable + ...

- sometimes a bit more useful than this:

  (18) *bachelor* := unmarried + male + adult

  captures the relationship between saying that someone is a *bachelor* and conveying these other pieces of information

Lakoff, G. 1965. *On Syntactic Irregularity*:

- notices systematic paradigms

  (19) a. The board is wide. [X be ADJ]
  b. The board widened. [X become ADJ]
  c. The builder widened the board. [Y cause X to become ADJ]

- at the time, the idea was that these kinds of constructions were represented in *deep structure*, and then different languages encode lexicalization processes in different ways

Dowty 1979: a principled approach to this kind of decompositional approach

- what is the right way of dealing with subregularities?
- can we explain certain semantic features (including temporal/durational properties) in terms of the decomposition?

- do the lexicalization processes in different languages predict differences?
- what are the basic concepts available to us?

Next time:

a. Dowty's approach to decomposition and the aspect calculus

b. Differences between *kill* vs. *melt/widen/break* types of causatives

Reading:

1. Dowty 1979, Ch. 2 (2.1, 2.3, 2.2 recommended)
2. Fodor 1970
3. McCawley 1978

All readings can be downloaded from the course webpage at:
`pnadathur.github.io/causation-winter19.html`