

Concepts, Meaning, and the Lexicon: Philosophy of Language Meets the Syntax-Lexical Semantics Interface

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Words and Concepts I

- We have (I shall assume) *concepts*.
 - ▶ Assume they are something like mental representations.
 - ▶ Assume they are not part of the language faculty proper.
 - ★ Enter into wider cognitive processes (e.g. metaphor comprehension).
 - ★ Some animals (non-verbal creatures!) appear to have something like concepts (though perhaps not just like ours) (e.g. Gallistel, 1990).
 - ▶ A relatively weak thesis: not (yet!) trying to take a stand on issues of how much language-like structure concepts have, or on the priority of thought and language.
- The language faculty includes a *lexicon*.
 - ▶ Lexical entries include semantic, syntactic, and phonological information.
 - ▶ Include meanings of words.
 - ▶ Determine a wide range of syntactic properties, including what used to be known as D-structure.

Words and Concepts II

- The two relate.
 - ▶ Our grasp of concepts and our grasp of word meanings tend to go together.
 - ▶ Our words are naturally assumed to express our concepts.
 - ▶ Thus, natural to suppose that concepts are in effect meanings.
 - ▶ Hence, expect concepts to play an important role in the semantic portion of the lexicon.
- Themes for today.
 - ▶ The grammatical aspects of the lexicon put a surprising amount of space between our ordinary concepts and the semantics encoded in the lexicon.
 - ▶ Though concepts do play an important role in the lexicon, there is an equally important role for the linguistic *packaging* of concepts.
 - ▶ Shows how word meaning can relate to concepts, but still be distinctively linguistics.
 - ▶ Raises some old and hard questions about *linguistic relativism* for concepts.

The Plan

- 1 The Lexicon: Grammar and Packaging of Meaning
- 2 Roots and Concepts
- 3 Word Meaning, Understanding, and Grammar
- 4 Language and Concepts Revisited

Some Big Facts about Word Meaning I

- Variety and idiosyncrasy.
 - ▶ Not really important, but *Webster's Third* contains over 45,000 entries.
 - ▶ More important: lexical categories are *open classes*.
 - ▶ Lexical categories host idiosyncrasy in what we can express.
 - ▶ Presumably, derived from some idiosyncrasy in what concepts we form, or how we think about the world.
 - ▶ Fits well with the idea that the meanings of genuinely lexical items are closely tied to our concepts.
- Structure.
 - ▶ Some reasonably coherent classes, e.g. aspectual classes or semantic classes (mostly for verbs) like sound emission (*buzz*), contact by impact (*hit*), psych verbs (*frighten*, *fear*), etc. (cf. Levin, 1993).
 - ▶ Limited number of thematic roles.
 - ▶ Restrictions on organization, e.g. thematic hierarchies.

Some Big Facts about Word Meaning II

- ▶ Some aspects of structure could apply to concepts too, e.g. no surprise that concepts can be grouped in terms of categories like sound emission, contact by impact, etc.
- ▶ Some aspects of structure seem to indicate distinctively linguistic constraints, e.g. the limited number of thematic roles contrasts with our extensive ability to conceptualize participation in events in many different ways.
- Interactions with grammar.
 - ▶ Relatively uncontroversial that there are some, though very controversial just what, and how meaning and grammar interact.
 - ▶ Example: telicity correlates with temporal modifier selection:
 - (1) a. John was happy for an hour/*in an hour.
b. Max found Mary in an hour/*for an hour.

Some Big Facts about Word Meaning III

- Example: properties of argument realization. Much-discussed case from Fillmore (1970).
 - ▶ *Break* class: bend, fold shatter, crack, . . .
 - ▶ *Hit* class: slap, strike, bump, stroke, . . .
 - ▶ Break verbs but not hit verbs enter into the causative alternation:
 - (2) a. i. The boy broke the window.
ii. The window broke.
 - b. i. The boy hit the window.
ii. * The window hit.
 - ▶ Similar surface syntactic properties in transitive occurrences, but different semantic properties, e.g. Rappaport Hovav & Levin (1998) take *hit* to be a manner verb, while *break* is a ‘result’ verb.
- Some grammatical interactions might derive from interactions with associated concepts, but hard to see how e.g. the *hit/break* contrast would (though NB categories of ‘contact by impact’ and ‘change of state’).

Some Big Facts about Word Meaning IV

- Variation across languages.

- ▶ *Blush* (English) versus *arrossire* (Italian) (Levin & Rappaport Hovav, 1995; McClure, 1990). Near synonyms, but:

- ★ *Blush* an activity. Atelic.

- ★ *Arrossire* is an achievement. Telic. Something like ‘become red in cheeks’.

- ▶ Counterpart of *hit* in Lhasa Tibetan obligatorily takes a locative marker on the argument for the contacted object (Levin & Rappaport Hovav (2005) citing DeLancey MS):

(3) shing*(-la) sta=re-s gzhus-pa
tree-LOC axe-ERG hit

Hit the tree with an axe.

- ▶ Insofar as concepts like BLUSH and HIT are presumably similar for speakers of Italian, English and Tibetan (*pace* Whorf and Sapir), this is hard to explain simply in terms of associated concepts.

The *Packaging* Approach

- The ‘big facts’ reveal a combination of idiosyncrasy and structure associated with word meaning, both within and across languages.
- An approach to the big facts: *Packaging* meaning.
 - ▶ Meanings are a combination of some idiosyncratic content and structural elements.
 - ▶ The structural elements ‘package’ the idiosyncratic content.
 - ▶ Can do so differently, e.g. *blush* and *arrossire* package the same idiosyncratic content of ‘reddening of cheeks’ in different ways.
 - ▶ Limited range of structural elements should provide some explanation of structure within a lexicon.
 - ▶ Structural elements have substantial *linguistic* properties, including grammatical ones, providing a basis for explaining interactions with grammar.
- Ordinary concepts connect most closely to idiosyncratic content, not linguistic structural elements.

Big Facts, Big Questions

- The packaging view invites some big questions.
 - ▶ What is the nature of the idiosyncratic elements?
 - ▶ What is the nature of the structural elements?
 - ▶ How do they combine?
- These are all a mix of foundational and empirical issues.
- Goal today is to shed some light on their foundational aspects.
 - ▶ Ask how the idea of packaged meanings relates to our ordinary concepts.
 - ▶ Argue it shows surprising space between such ordinary concepts and the meanings our words actually have.
 - ▶ Argue it shows that substantial structural articulation, even syntax-like structure, must be part of word meaning even if it is not part of the intuitive concepts related to those words.
 - ▶ Thus, affirm a somewhat Fregean idea that ‘only in the context of a sentence does a word have a meaning’.
 - ▶ Ask if the relation between ordinary concepts and word meanings indicates a form of linguistic relativism.

Two Views of Packaging

- To do this, consider two examples of approaches to the lexicon and its role in grammar.
- Structure in lexical entries.
 - ▶ Structural and idiosyncratic elements combine in the lexicon.
 - ▶ Word meanings are rich articulated structures.
- Structure in syntax.
 - ▶ Simple lexical entries: word meaning has minimal linguistic structure.
 - ▶ Structure is determined by syntactic processes, fixing the environment in which an expression appears.
- Will not try to decide between these (it is substantially an empirical matter).
- Will use them to help isolate enough features of idiosyncratic and structural elements to address our foundational questions.

Structure in Lexical Entries

Following Levin & Rappaport Hovav (1995); Rappaport Hovav & Levin (1998); Levin & Rappaport Hovav (2005). Widespread idea, cf. Bierwisch & Schreuder (1992), Pinker (1989), Wunderlich (1997), etc.

- An event decomposition approach.
- Predicate decomposition within the lexical entry describes decomposition of an event into structural components.
- Example, *open*: ‘externally caused change of state’.

(4) a. *open*

b. $[[x \text{ ACT}] \text{ CAUSE } [y \langle \text{OPEN} \rangle]]$

- Features of the analysis: packaging within the lexicon.
 - ▶ A root element $\langle \text{OPEN} \rangle$.
 - ▶ An event-structural frame, built from elements including CAUSE and BECOME.
 - ▶ Decomposes the meaning into a two-part event structure.
- Not going to worry about whether the details are correct.

A Little about Argument Realization I

- Semantic structure in the lexicon determines grammatical behavior of expression.
- Main example: determines how arguments are projected in syntax.
- Does so via some interface ‘linking rules’.
- For example: lexical entry for *open* predicts usual transitive argument structure of agent subject and theme object.
 - ▶ Argument structure present in lexical entry via variables and the subevents they are in.
 - ▶ Argument XPs in syntax correlate with these.
 - ▶ Linking rule: immediate cause variable projected as external argument.
 - ▶ Linking rule: variable for object undergoing change projected as direct internal argument (Levin & Rappaport Hovav, 1995).
- Semantic structure does most of the work of fixing argument realization, supplemented by linking rules.

A Little about Argument Realization II

- Need to explain causative alternation:
 - (5) a. Mary opened the door.
 - b. The door opened.
- One option: binding of external cause within the lexicon (Levin & Rappaport Hovav, 1995).
- Maybe via existential-quantifier like operation in the lexicon, operates on lexical entry to provide modified structure for linking rules.
- Something like $[[\exists x(x \text{ ACT})] \text{ CAUSE } [\text{BECOME } [y \langle \text{OPEN} \rangle]]]$.
- Unaccusative structure results: only internal argument is projected.

A Little about Argument Realization III

- Another possibility: really an argument projected, typically realized by some morpheme, but not overt in English.
- Reflexive morphemes in Romance (cf. Chierchia, 2004):

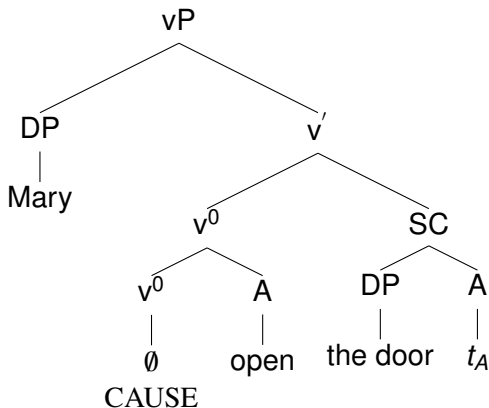
(6) La porta si è aperta.
The door REFL is opened.

A Syntactic Analysis I

The tradition from Larson (1988), Baker (1988), Chomsky (1995), Hale & Keyser (1993, 2002), Kratzer (1996), and Marantz (1997). I am following a version presented by Harley (2007).

- 'Little v' analysis, causative variant:

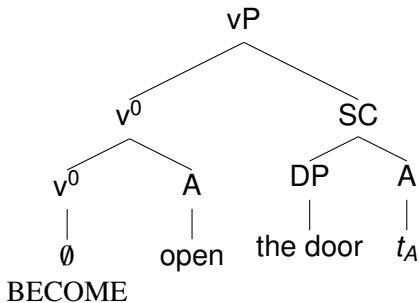
(7)



A Syntactic Analysis II

- 'Little v' analysis, inchoative variant:

(8)



A Syntactic Analysis III

- Important features.

- ▶ Roots are elements of syntax, frequently non-verbal (Hale and Keyser emphasize the role of *adjectival* roots in creating causatives. Marantz thinks in terms of acategorical roots.)
- ▶ Structural elements like CAUSE are added by distinct syntactic positions.
- ▶ The intuitive verb is created by a syntactic process involving the root and v, such as incorporation.
- ▶ Packaging is thus articulated in syntax, not in the lexicon itself.
- ▶ Argument structure is determined by syntax, e.g. external argument is Spec of v.

A Syntactic Analysis IV

- Some issues to put aside.
 - ▶ The version sketched (Marantz, 1997; Harley, 2007) assumes difference between causative *v* projecting a specifier and inchoative *v* not.
 - ▶ Then not clear how to explain why some verbs fail to alternate, require agentive external arguments, etc.
 - ▶ Original Hale & Keyser (1993, 2002) version is even more syntactically based. (Verbal heads are typically empty. Assume *A* requires its verbal host to project a specifier. Allows embedding under a higher verb, and then the EPP requires adjoining an external argument.)
 - ▶ Syntax for Hale and Keyser is *I*-syntax, within the lexicon.
 - ▶ Meaning is located in a syntactic ‘construction’. Some relations construction grammar (Goldberg, 1995), but also important differences.

Similarities and Differences

- On both views, roots are relatively simple in linguistic structure.
- Both package roots.
- One does so by articulating structure in the lexicon.
- The other via syntactic structure.
- Genuinely distinct positions on nature of the lexicon and on mechanism of argument realization.
- But enough similarity across the views that deciding between them can be a complex matter.
- I shall not try to argue for one over the other.

Where Are We?

- So far, we have:
 - ▶ Seen the idea that lexicon involves roots and the packaging of roots with distinctively linguistic items.
 - ▶ Seen that it addresses some of the big facts about meaning.
 - ▶ Seen two examples of what packaging might be like.
- Now, on to:
 - ▶ Argue roots are concepts.
 - ▶ Argue that they are not the ordinary concepts that correspond to a verb's meaning.
 - ▶ Thus, show there is more space between our ordinary concepts and our lexicon that a view embracing concepts might have lead us to expect.
 - ▶ Wonder what we should conclude from this about grasp of meaning.
 - ▶ Wonder what we should conclude from this about our concepts.

Where Are We?

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2 Roots and Concepts

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What Are Roots? I

We have seen two uses of a notion of root. Both suppose:

- Roots are sources of idiosyncratic meaning.
- Roots are source of openness of lexical categories.
- Roots (tokens!) are linguistically more or less atomic (Grimshaw, 2005): few if any linguistically significant properties of lexical entry determined by the root.
- Rather, linguistic properties like argument structure are determined by the configurations (syntactic or semantic) in which roots appear.
- Roots are typed.
 - ▶ Rappaport Hovav & Levin (1998): types include STATE, MANNER, LOCATION/THING, etc.
 - ▶ Hale & Keyser (2002): types are associated with syntactic categories Noun, Adjective, Preposition, and sometimes Verb .
 - ▶ Some persistent match-ups: e.g. STATE corresponds to Adjective.

What Are Roots? II

- ▶ Some cross-cutting of frameworks. Many manner verbs are analyzed as denominal by Hale and Keyser. *Run* is the incorporation of a nominal root with a verbal head, but has a frame $[x \text{ ACT}_{\langle \text{RUN} \rangle}]$ for Levin and Rappaport Hovav.
- The root type determines what structures it can appear in.
 - ▶ Frames select types for Levin and Rappaport Hovav, e.g. $[y \langle \text{STATE} \rangle]$.
 - ▶ Syntax imposes restrictions on configurations for Hale and Keyser. Categorical properties of root types (selectional properties) determine which syntactic configurations they appear in.
- Care about linguistic atomicity:
 - ▶ Root type is linguistically significant for determining which structures a root can figure in, but it does not generate these structures.
 - ▶ Linguistic explanations e.g. of argument structure, run off the structural configurations, not the root types.

What Are Roots? III

- Root types have core semantic properties.
 - ▶ STATE/Adjectives are fundamentally predicates of individuals.
 - ▶ THING/Nouns (not DPs) pick out kinds of things, e.g. shelf, oil. (NB for Hale and Keyser get only external arguments, to account for unergative structure.)
 - ▶ MANNER/Verbs/Nouns characterizes kinds of events.
- Core semantic property of roots is predicational/categorizing nature.
- So roots are:
 - ▶ Elements with content.
 - ▶ Contents are predicative.
 - ▶ Contents are groupable according to type.
 - ▶ Types determiner linguistic configurations in which roots can occur.

Roots Are Concepts?

- Invites the idea that roots are concepts.
- Concepts are typically predicative, in that they classify elements that can fall under them.
- Concepts can be grouped into types according to their kinds of contents.
- Explained if lexicon contains elements built from concepts:
 - ▶ Open-ended and idiosyncratic aspects of the lexicon.
 - ▶ Typing of roots.
 - ▶ Linguistic atomism of roots: they are outside the language faculty, and so no substantial generalizations about language apply.
- Controversial, but some empirical support from a role for concepts in acquisition (e.g. Bloom, 2000).
- The interface picture:
 - ▶ Roots are points of interface between the language faculty and the wider cognitive makeup of the person.
 - ▶ Function like *pointers* to concepts outside of the language faculty proper.

Roots Are (Usually) Monadic!

- For Levin and Rappaport Hovav, they are typically monadic elements of types like STATE, THING, MANNER.
- For syntactic approach, they are typically monadic elements like Nouns or Adjectives, which take at most one argument.
- Not an accident: the systems we have looked at build complex configurations which provide argument positions for verbs. They are built around simple roots, which are typically monadic.
- For instance, in the form of the syntactic approach we looked at, arguments are invariably specifiers.
- Some complications:
 - ▶ For Hale and Keyser's own approach, P roots are relational.
 - ▶ For Levin and Rappaport Hovav, can have e.g. manner roots like *⟨SWEEP⟩*. Tokens determine additional argument position, but not one corresponding to an event structure position.
 - ▶ Might get an extra event argument, but not counting that.
- Even so, monadic roots are fundamental for and pervasive in lexical entries on both approaches we have considered.

Many Ordinary Concepts are Polyadic! I

- We appear to possess some genuinely polyadic concepts (e.g. Pietroski, forthcoming).
 - ▶ Not always easy to fix the adicity of a concept: e.g. TRIANGLE can be monadic (x is a triangle) or triadic (lines x, y, z form a triangle) (Pietroski, forthcoming).
 - ▶ Even so, natural to assume that some familiar concepts are at least dyadic, e.g. HIT, BREAK, etc.
 - ▶ Many of our concepts appear to involve agency or causality, as well as an affected object.
- Empirical support?
 - ▶ Studies of reorientation in rats suggest they rely on geometric relations (e.g. Gallistel, 1990). Likewise for children at 1.5–2 years (e.g. Spelke, 2002).
 - ▶ Long tradition (from Michotte, e.g. 1963) of studying the perception of causality indicates perception of causality in adults and in infants as young as four months (e.g. Scholl & Tremoulet, 2000; Saxe & Carey, 2006).

Many Ordinary Concepts are Polyadic! II

- ▶ These suggest we find relational concepts, even in non- or pre-linguistic creatures.
- ▶ But, the empirical situation remains murky, and many of the results can support multiple interpretations.

Roots Are Not the Concepts We Thought They Were

- Roots (often) cannot be the concepts naturally seen to correspond to verbs.
 - ▶ Concepts like BREAK are polyadic.
 - ▶ But the root of *break* is monadic, on both approaches we have considered.
- Moreover: Roots never encode agency or causality, while many concepts do.
- Roots can still be pointers to concepts, but not the ones we expected.
- Lexical items are thus not the linguistic packaging of intuitively corresponding concepts. The lexical entry for *break* does not simply package BREAK.
- A feature of the interface.
 - ▶ Interface between lexicon and wider conceptual abilities (substantially) constrained to pointers to monadic concepts.
 - ▶ Typing of roots and other aspects of packaging rely on this.

No Easy Way Out I

- An easy way to get monadic concepts: suppress additional arguments.
 - ▶ Might seem like a device available in lexicalization, for fitting polyadic concepts into frames requiring monadic roots.
 - ▶ Allows the mapping of words to concepts to remain fairly tight.
 - ▶ Existential quantification as the natural mechanism:
 $BREAK(x, y) \rightarrow \exists x BREAK(x, y) = \langle BROKEN \rangle?$
- Intuitively seems wrong: $\exists x BREAK(x, y)$ is not a state, whereas the lexical entry seems to call for something stative.
- Overgeneration? Predicts the existence of verbs that seem somewhat dubious.
 - ▶ If existentially binding arguments in concepts yields state-like roots for the lexicon, expect it could apply to either argument of a dyadic concept.
 - ▶ Hence, we should also expect to have things like $\exists y BREAK(x, y)$, yielding a root $\langle BREAKER \rangle$.

No Easy Way Out II

- Are there verbs like:
 - ▶ $[[x \text{ ACT}] \text{ CAUSE } [\text{BECOME } [y \langle \text{BREAKER} \rangle]]]]$.
 - ★ Requires agentive object? Not an experiencer. Seems unlikely?
 - ▶ $[\text{BECOME } [x \langle \text{BREAKER} \rangle]]$.
 - ★ Something like an internally caused change of state verb, but change of state is itself a causal one?
 - ▶ Not really sure, but these seem rather dubious.
- $\exists x \text{BREAK}(x, y)$ predicts wrong meaning.
 - ▶ Assume agentive root. Then frame describes x doing an act of causing there to be someone who breaks y .
 - ▶ Seems to count, e.g. contributing to the delinquency of a minor as breaking a window.
- Seems we cannot just force ordinary concepts into the lexicon in any such simple way.

The Causal Case I

- Roots for causative verbs tend to describe result-states.
- Often adjectival (in the Hale-Keyser system).
 - ▶ (*Break* is less clear: interpreted as a result-state causative, but zero-related nominal *break*. Hale & Keyser (2002) gloss it as a denominal verb.)
- Result states in Levin and Rappaport Hovav's lexical entries (Rappaport Hovav & Levin, 1998):
 - ▶ *Open*: [[*x* ACT] CAUSE [BECOME [*y* <*OPEN*>]]]
 - ▶ *Break*: [[*x* ACT] CAUSE [BECOME [*y* <*BROKEN*>]]]
 - ▶ Contrast with *run*: [*x* ACT <*RUN*>]
 - ▶ Contrast with *hit*: [*x* ACT <*HIT*> *y*].
- Rather than select a concept corresponding to the act in question, selects one capturing the result state of the act.
- Rebuilds causal and agentive aspects in purely linguistic terms.

The Causal Case II

- Indicates a lexicalization process much more complex than merely mapping to concepts.
 - ▶ Select a specific type of monadic concept, e.g. result state.
 - ▶ Related to the ordinary concept associated with a verb, but not always the most directly connected one.
 - ▶ Use that as a root.
 - ▶ Package the root in a way that reconstructs key aspects of the ordinary concept, within a linguistically determined frame.

Why Do That? I

A few speculations.

- Much discussed points from the acquisition literature: learning verbs is *hard* (cf. Poulin-Dubois & Graham, 2007).
 - ▶ Many possible verbs meanings apply to events children observe (cf. Fisher et al., 1994; Gleitman, 1990).
 - ▶ Delay between event and description.
 - ▶ Bias towards nouns in early vocabulary (some controversy).
- Perhaps(!) selecting certain sorts of roots, e.g. result states, helps simplify this process.
- Might be a form of ‘linguistic bootstrapping’ (using linguistic sources of information to help in the task of learning words or other aspects of language).
 - ▶ The Hale and Keyser approach might be closer to ‘syntactic bootstrapping’ (Fisher et al., 1994; Gleitman, 1990).
 - ▶ The Levin and Rappaport Hovav approach also builds in some elements closer to ‘semantic bootstrapping’ (Pinker, 1989, 1994).

Why Do That? II

- Might reduce choices if e.g. constrained to find result states rather than any number of causal concepts associated with an event?
- Uniform monadicity is generally a simplification in complexity (Hurford, 2007; Pietroski, forthcoming).
- Might simplify other aspects of lexicon to have monadic roots and a few elements to package them into polyadic constructions, and so simplify the wider task of language acquisition?

Where Are We?

- So far, we have:
 - ▶ Seen that roots are concepts.
 - ▶ But they are not the concepts we should expect.
 - ▶ They are typically monadic concepts, like result states, etc.
 - ▶ The lexicon packages these in ways that recover features of our ordinary concepts, like causality.
- Now, on to:
 - ▶ Argue that our grasp of meaning reflects the complex packaging in the lexicon.
 - ▶ Hence, grasp of meaning, even if derived from our concepts, is grasp of complex linguistic structure.
 - ▶ Note this indicates a sort of ‘context principle’.
 - ▶ Then ask what it might tell us about our concepts.

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Fine, but I Want to Know about MEANING

- Much of the motivation for the sorts of highly structured lexical entries we have been exploring is grammatical (often syntactic).
- How does this relate to the philosophical idea of meaning: something like what I understand when I understand a word, what I am trying to convey to my hearer, etc.?
- It appears the meaning of a verb in this sense cannot simply be the root.
 - ▶ Clear that we recognize causal or agentive aspects of many causative verb meanings: *open* and *break* do not have meanings simply providing result states, but indicate that an act of opening or breaking was carried out.
 - ▶ Thus, the only place in the lexicon we will find these aspects of meaning is in the contribution of the frame, especially the CAUSE element.
- But do we actually grasp the frame elements, or import the idea of causation from e.g. the ordinary concept, rather than the lexicon?

Meanings from Structural Elements I

- Claim: the abstract element CAUSE is part of our grasp of the meanings of many causative verbs.
- Argument (from best explanation).
 - ▶ Common feature of a wide range of verbs entering into the causative/inchoative alternation, including, among many: *abate*, *decrease*, *expand*, *grow*, *soak*, *topple*, as well as *drop*, *break*, *bend*, etc (cf. Levin, 1993)
 - ▶ Common feature is a feature of our grasp of these words.
 - ▶ Common element can be glossed as a very abstract notion akin to causation: all of these involve something like an agent doing something like bringing about a change into a result state.

Meanings from Structural Elements II

- ▶ In many cases, CAUSE is not strictly causation:
 - (9) a. Dissension toppled the government.
 - b. Time abated the damage.
 - c. John broke the window.

- ★ Some of these (e.g. *break* might involve canonical instances of causation.
- ★ Many, like *topple* and *abate* involve a much more abstract and inclusive notion of ‘bringing about a change of state’. (Dissension does not enter into genuine causal relations!)
- ★ Likewise a very extended sense of agency.
- ★ Figurative language? Not obviously, though if so, the figure would have to stem from some cause-like notion anyway, so not a worry. (Possibility of figurative extension of causal aspects is further evidence that the abstract elements make their way into our understanding.)

Meanings from Structural Elements III

- ▶ Frequently noted point that in certain ways, CAUSE is more restricted than causation (e.g. Dowty, 1979; Parsons, 1990; Pietroski, 2005):
 - (10) a. I caused the window to become broken, by hiring a kid to throw a brick through it.
 - b. # I broke the window, by hiring a kid to throw a brick through it.

Common suggestion that CAUSE is restricted to 'direct' causation (cf. Fodor, 1998).

Meanings from Structural Elements IV

- Common aspect of our grasp of meaning explained if it is the abstract notion of CAUSE contributed by the structural frame in the lexicon.
- Conclude that we indeed grasp that highly abstract notion as part of our understanding of a wide range of causative verbs.
- We presumably infer real causation in cases like *break* from our worldly knowledge of how things become broken.

Meanings from Structural Elements V

- Further evidence: we recognize other event-structural aspects of verb meaning.
 - ▶ Consider again an inchoative (and apparently unaccusative) like *open*:

(11) The door opened.
 - ▶ Our grasp of the meaning of the verb here includes a sense of *change of state*, witnessed by our willingness to infer that the door was previously not open.
 - ▶ Grasp of content not exhausted by the root ⟨*OPEN*⟩, which is purely the *state of being open*.
 - ▶ Again, explained if we attribute grasp of the structural elements to speakers.
 - ▶ Again, captures a pattern across a wide range of verbs.

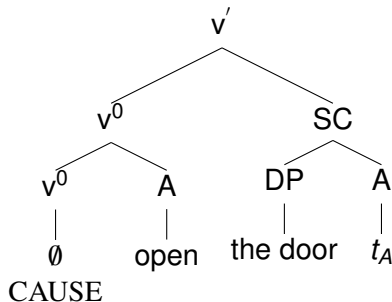
Grasp of Structures I

- If this is right, grasp of the meaning of a verb is grasp of not simply of a concept, but of a highly structured linguistic object.
- Might be a highly structured lexical entry, like:

(12) $[[x \text{ ACT}] \text{ CAUSE } [\text{BECOME } [y \langle \text{OPEN} \rangle]]]$

- Grasp includes that of root concepts like $\langle \text{OPEN} \rangle$ and of structure of frame.
- Might be a syntactic structure, like:

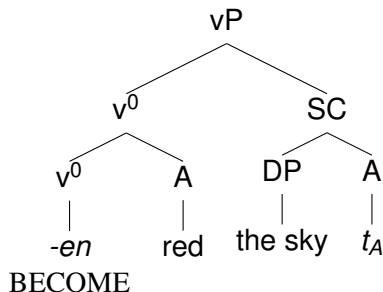
(13)



Grasp of Structures II

- Grasp includes terminal nodes, and structure of the syntactic configuration.
- Is it strange to have grasp of meaning include so much structure, maybe even so much *syntactic* structure?
- Not really, if you remember the role of morphology. Grasp of inchoative *open* becomes like our grasp of *-en* verbs like *redden*:

(14)



A Context Principle? I

- Frege instructs us that “It is only in the context of a sentence that words have any meaning.”
- Many reject this: makes no sense of how we build meaningful sentences out of words compositionally, how words encode concepts, how words are acquired, etc.
- A modified principle: Only in the context of a grammar (language, faculty, etc.) does a word have a meaning.
- Grasp of word meaning is grasp of something grammatically complex (but not necessarily a sentence).
 - ▶ Grasp of word meaning is grasp of complex lexical items.
 - ▶ Only exist within a grammar that provides the packaging elements, and combines them in linguistically acceptable ways.
 - ▶ Can be syntactically structured configurations, or purely lexical ones.
 - ▶ Regardless, cannot have the needed grasp without having the grammar.

A Context Principle? II

- Still a role for concepts.
 - ▶ Still provide idiosyncratic content.
 - ▶ Provide roots in the lexicon.
 - ▶ Form cores of meanings of words.
- Still have a substantial role for compositional construction of meaning.
 - ▶ Sentence meaning is built up from lexical entries plus syntax.
 - ▶ Speaker can have independent grasp of those meanings, and use them to compose a sentence whose meaning is thereby grasped.
- But, see word meaning as built up from selected concepts by grammatical processes.

Where Are We?

- So far, we have:
 - ▶ Argued that word meanings are not simply the corresponding ordinary concepts.
 - ★ Roots are concepts, but they are packaged by distinctively linguistic structure in the lexicon.
 - ★ The roots packaged are monadic, while ordinary concepts are frequently polyadic.
 - ★ Packaging provides linguistic reconstructions of features like cause or agency.
 - ▶ Argued that our grasp of our words includes grasp of the the structural components of lexical entries.
 - ★ Hence, grasp of meaning is in part grasp of complex linguistic structure.
 - ★ Implies a modified 'context principle'.
- Now, on to:
 - ▶ Reconsider the status of ordinary concepts in light of our conclusions about grasp of word meaning.
 - ▶ Reconsider the relation of concepts to language.
 - ▶ Fret about linguistic relativism.

Where Are We?

1 The Lexicon: Grammar and Packaging of Meaning

2 Roots and Concepts

3 Word Meaning, Understanding, and Grammar

4 Language and Concepts Revisited

A Puzzling Consequence

- Conclusion reached so far suggests we have parallel elements:
 - ▶ Ordinary concepts like BREAK.
 - ▶ Complex lexical entries like
[[x ACT] CAUSE [BECOME [y <BROKEN>]]] (or syntactic version).
- Have argued we do grasp complex lexical structures.
- If so, we seem to have in our cognitive repertoire two distinct *break* elements.
- This might seem intuitively odd, or dubious from our introspective access to how many concepts we have.

Options I

- ① Conclude that structural aspects of the lexicon really reflect our wider cognitive abilities (various forms of cognitive grammar, Jackendoff's (e.g. 1990) conceptual semantics?).
 - ▶ Conclude that the lexicon really provides an articulation of our ordinary concepts.
 - ▶ Have been implicitly arguing against this:
 - ★ Argument that CAUSE is distinctively linguistic.
 - ★ Role of argument projection and other aspects of grammar in determining structural elements.
 - ★ Restricted range and distribution of structural elements.
 - ★ Documented variation across languages of some features of packaging.
- ② Reject the supposition that our ordinary concepts like BREAK lack distinctively linguistic structure.
 - ▶ Never really had such concepts prior to language development?
 - ▶ Had prototypical versions that are replaced by lexical ones?
 - ▶ Implies some degree of linguistic relativism.

Options II

- ③ Accept the consequence and minimize the oddness.
 - ▶ Motivate parallel lexical and ordinary conceptual elements.
 - ▶ Minimize the differences: both have core conceptual elements in common.
 - ▶ The position that has been implicitly adopted up till now.
- ④ I shall briefly explore the second two options.

Option 2 and Linguistic Relativism I

- Suppose our seemingly ‘ordinary’ concepts are really articulated lexical entries with distinctively linguistic structure.
- That structure can vary across languages.
- Thus suppose we only have the concepts we have in virtue of having language, and which language determines which concepts we have.
- The specter of the Whorf-Sapir hypothesis (Carroll, 1956) raises its head!

Option 2 and Linguistic Relativism II

- But, an extremely mild form of linguistic relativism (not really Whorfian).
 - ▶ Concepts could share root elements.
 - ▶ Variation only across a limited range of packaging options.
 - ▶ Does not indicate radical differences in ways of conceptualizing the world or kinds of thoughts. (No claim e.g. that one group has a fundamentally different concept of time.)
 - ▶ Only indicates small differences in just how we conceptualize events (e.g. for *blush*, change to state versus enduring state).
- Not obviously unacceptable, or vulnerable to the many objections raised to Whorf and Sapir.

Option 2 and Linguistic Relativism III

- A somewhat more ‘Vygotskian’ (1962) model: language involved in “shaping” concepts as they develop.
 - ▶ Might start with some coarsely individuated concepts (“vague conglomerations of individuals”).
 - ▶ Refine via development of more structured lexical entries.
 - ▶ In effect replace primitive concepts.
- Still implies modest linguistic relativism, but not in the basic sources of thought.
- An updated version.
 - ▶ Start with coarsely individuated concepts, e.g. conceptual roles, causal covariation, etc.
 - ▶ Not fine-grained enough to determine particular predicates of events.
 - ▶ Rely on linguistic structure to provide additional grain and fix event predicates.
 - ▶ Fully articulated predicates of events replace coarse-grained concepts when available.

Option 2 and Linguistic Relativism IV

- The updated version allows:
 - ▶ Us to grant that at a certain level of abstraction we have the same thoughts.
 - ▶ Us to hold that fully articulated concepts can depend on language.
 - ▶ For mild linguistic variation in fully articulated concepts.
- Might render option 2 acceptable?
 - ▶ Updated Vygotskian view allows us to better capture a sense in which thought is not language-relative.
 - ▶ But avoids the parallel conceptual repertoires.
 - ▶ Evidence on way or another? Perhaps from pre-linguistic children or non-linguistic animals?

Option 3 and Lexicalization I

- Option 3 proposes it is not so odd to have ordinary concepts and word meanings come apart.
 - ▶ Only in certain respects: linguistic packaging and root selection.
 - ▶ Makes word meanings not simply the concepts closely linked to those words.
- Much like the Vygotskian alternative of option 2, but without the ‘replacement thesis’.
 - ▶ Have ordinary concepts characterized by e.g. functional role or causal covariation (or whatever else you like).
 - ▶ Have lexical entries that are more finely individuated, e.g. predicates of events (for verbs).
 - ▶ The latter need not supplant the former.

Option 3 and Lexicalization II

- Probably a fair bit of our most sophisticated thinking makes direct use of lexical items.
 - ▶ When you avoid breaking something, you can rely on BREAK.
 - ▶ If you ask if breaking involves two events or one, or if the inference in the causative alternation is valid, you may be making use of the lexical entry for *break*.
- Makes *lexicalization* semantically as well as syntactically substantial.
 - ▶ Produces new highly articulated elements of cognition whose contents we grasp.
 - ▶ These differ in content from ordinary concepts (though in small and subtle ways).
 - ▶ They encode linguistic as well as root conceptual structure.

Which Option to Choose?

- Already noted I have in passing provided reasons not to take option 1.
- Options 2 and 3 both seem viable.
- I prefer option 3:
 - ▶ Do not see any direct support for the replacement thesis.
 - ▶ Do see a role in cognition for ‘ordinary’ concepts.
 - ▶ See a parallel role for lexical items in sophisticated thought.
- But not clear to me what tests would conclusively favor one over the other.
 - ▶ Can observe the role of a concept in an agent’s non-linguistic life.
 - ▶ But, not clear if we can probe for the sorts of fine-grained differences in concepts involved without relying on word meanings?
 - ▶ So, not clear what would tell us whether an ordinary concept was replaced, rather than merely that a word meaning was under scrutiny.
- So, conclude by asking which of these options we should really choose.

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