Lexicon, Syntax, Semantics IIb: Modeling Meaning

Cognitive Semantics

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May 14, 2020

Info for Final Exam

- Handout for Final Exam available online here
- Summary of the deadlines:
  - May 22: Finalize topic selection
  - June 5: Selection and approval of literature and material
  - June 17: Summary of practical study relevant to topic selection

Just to be clear. . .

1. **Psycholinguistics**
   - "Psycholinguistics is the study of cognitive processes that support the *acquisition* and *use* of language. The scope of psycholinguistics includes language performance under normal circumstances and when it breaks down . . ." (De Bot, et al., 2010)

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2. **Cognitive Linguistics**
   - Aims to interpret language in terms of concepts which underlie its forms.
   - It is closely associated with linguistics but distinct from psycholinguistics, which draws on empirical findings from cognitive psychology in order to explain the mental processes underlying acquisition, storage, production and understanding of speech and writing.

Cognitive Linguistics

- View that there is no separation of linguistic knowledge from general thinking or cognition
- Linguistic behavior another part of the general cognitive abilities which allow learning, reasoning, and so on.
  - $\longrightarrow$ Linguistic knowledge is part of general cognition

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- For ex, **generative grammar** (Chomsky, 1988), model-theoretic semantics, etc.

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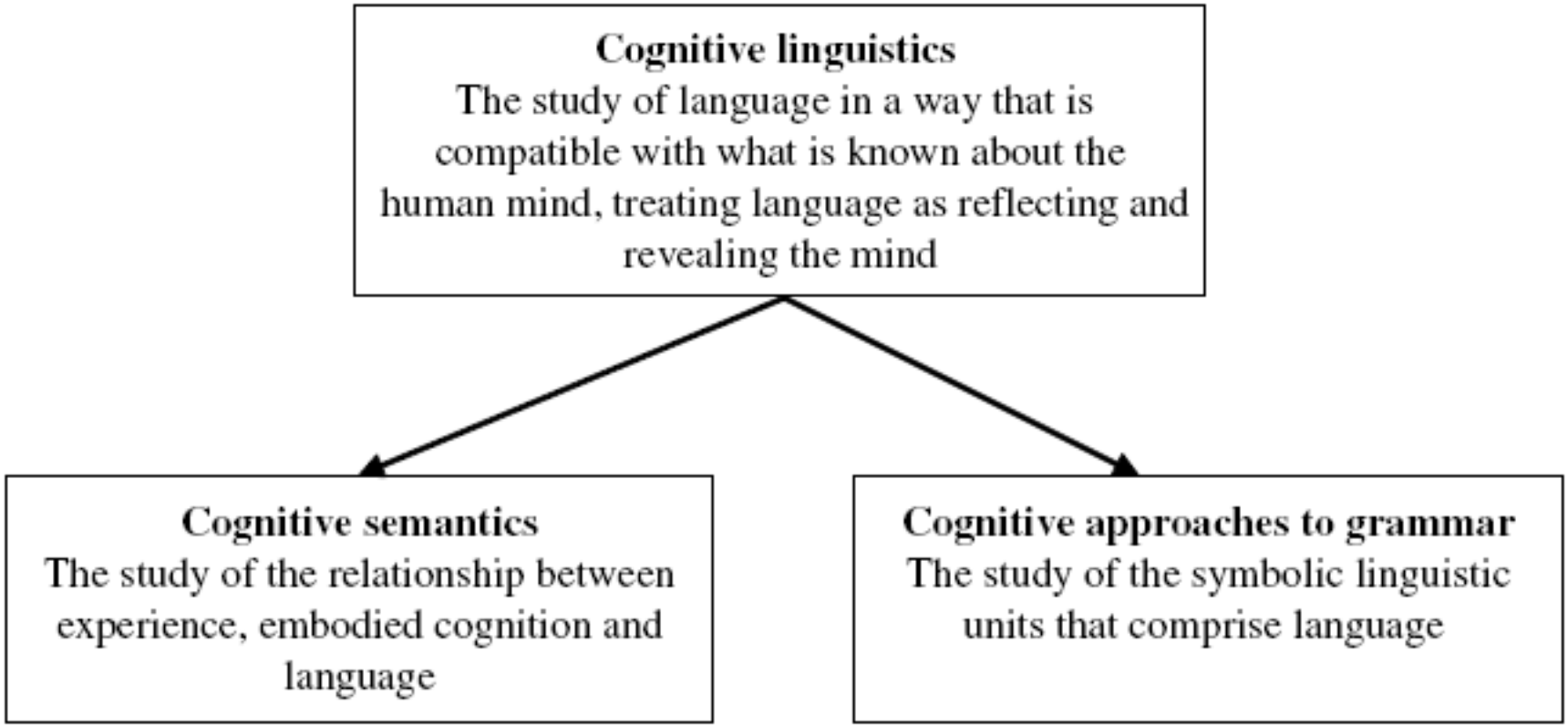
- Internally: explanation must cross boundaries between levels of analysis
- Distinguishing linguistic levels of analysis (while practically useful) is potentially harmful to our conceptions of language
- Explanation of grammatical patterns cannot be given in terms of abstract syntactic principles, but only in terms of speaker's intended meaning in particular contexts of language use.

Three Hypotheses Guide to Cognitive Linguistics

1. Language is not an autonomous cognitive facility
2. Grammar is conceptualization
3. Knowledge of language emerges from language use

- These hypotheses present (contemporary) alternatives to generative syntax and truth-conditional semantics



(Evans & Green, 2007, p50)

Cognitive Semantics: Rebels

- Rejection of **objectivist semantics**
  - Truth-conditional meaning: meaning is based on reference and truth
  - Correspondence theory of truth: truth is correspondence between symbols and states of affairs in the world
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- So how do they define *meaning*?
  - $\longrightarrow$ Meaning is based on conventionalized conceptual structures.

Cognitive Semantics

- Linguistic truth and falsity relative to way observer construes a situation, based on their **conceptual framework**
- No linguistic vs. real-world barrier: Words are labels for conceptual categories
- **Meaning potential** (Allwood, 1999): Meaning of a lexical concept only becomes determinate in context
  - combination of all kinds of knowledge, including memory of previous uses
  - meaning is constructed in context by the process of assessing and integrating knowledge

Lexical concepts and cognitive models (LCCM)

Evans (2009)

- Meaning is a property of individual uses of words in context rather than of the lexical concepts themselves.
- Activation process integrate lexical and general knowledge into a once-off situated meaning.

(a) *France votes no.* (knowledge of state, political system, and electorate)

(b) *France is beautiful.* (encyclopedic knowledge of physical landmass)

- Use of word in context activates and is integrated with certain parts of cognitive model associated with it

Lexical concepts and cognitive models (LCCM)

Evans (2009)

(a) *The book wouldn't fit on the shelf.* (physical object)

(b) *The book was made into a movie.* (content)

(c) *A book is handy on a long flight.* (activity of reading)

- Lexical concepts are conceptual structures designed for communication
- They interact with other forms of knowledge to create meaning in individual speech events
- How is the selective activation of conceptual information organized?
  - This investigation is important topic in psychology and neuroscience. See Yee et al. (2013) and Mahon and Caramazza (2013)

Embodiment

- **Embodiment**: The relationship between conceptual structure and the external world
  - Important assumption of cognitive semantics: conception is embodied (Anderson, 2003)
  - Because of our physical experience of being and acting in the world, we form basic conceptual structures which we then use to organize thought across a range of more abstract domains

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- The CONTAINER **image schema** is projected onto the abstract conceptual domain of STATES
  - "If I am *in* bed, and my bed is *in* my room, then I am *in* my room."
  - $\longrightarrow$ metaphorical mapping

Metaphor

- The 'fundamental roots of language are figurative' (Carter, 2004)
- Metaphors are everywhere
- Metaphors are systematic and culture-specific
- Metaphors are *not* just literary devices, they are pervasive: **conceptual metaphor**
- Metaphors can be described as *mappings* from a **source** domain to a **target** domain.

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- These are **conventionalized** (aka 'dead') metaphors.
- We are not consciously aware of the metaphorical nature.

Class Activity: Comparing metaphors

1. Give examples of use for the following metaphors:
   (a) LOVE IS A JOURNEY
   (b) IDEAS ARE OBJECTS
   (c) TIME IS MOTION
2. Establish the systematic correspondences between the two concepts in the metaphors above
3. For any two languages you know, discuss similarities and differences in conventionalized metaphors of body parts (e.g. HEAD OF A BED, EAR OF CORN, HAND OF A WATCH)

Meaning as conceptualization

'Linguistic units' as **conceptualization**

- Morphemes, words (open- and closed-class), constructions (e.g. active vs. passive) all have meaning and refer to concepts in the mind (vs. objectivism)
- However, such concepts relate to our interaction with the external world (vs. subjectivism)
  - *bachelor*: unmarried adult male
- Such concepts may be difficult to define (vs. dictionary view)

Mental Spaces

- **Mental Spaces**: conceptual structures to describe how language users assign and manipulate reference, including use of names, definite descriptions, and pronouns (Fauconnier, 1994, 1997).
- can be seen as cognitive parallel to notion of possible worlds in formal semantics since it is assumed that speakers can partition off and hold separate domains of reference
- e.g. talking of the world of Charles Dickens' *A Tale of Two Cities* and refer to individuals in that novel, vs. counterfactuals that shift from the real to the non-real domain, as in *If I were you, I'd go on the trip*

Conceptual Integration Theory

Conceptual integration theory, or **conceptual blending**: development of mental spaces theory which seeks to account for speakers' abilities to create and develop extended analogies.

- Ability involves speakers taking knowledge from different domains of experience (mental spaces) and combining them to create a new analogy
- *If Clinton had been on the Titanic, the iceberg would have sunk.*

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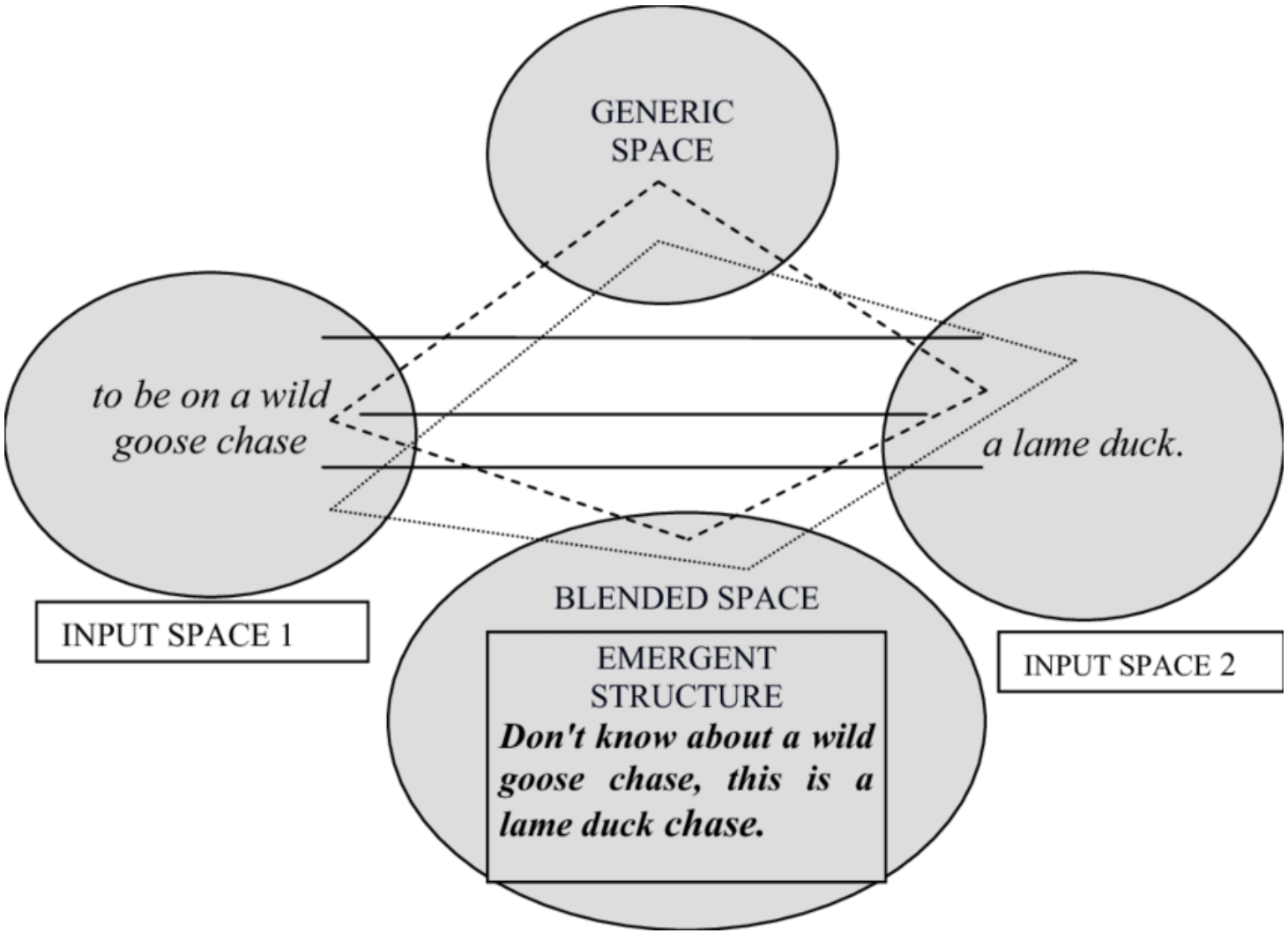

(Example from Delibegovic Dzanic, Nihada. (2007). Conceptual Integration Theory)

Language, Cognition, and Computation

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  - goal of optimizing system performance on tasks rather than any explanatory adequacy of their methods.

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- BUT... Most architectures in computational language tasks are very distant from any consideration of cognitive plausibility
- Times, they are achanging: natural relationships need to be made stronger

Open Discussion

- Metaphor: Formal vs. Functional approaches
  - Differences, advantages, and difficulties
  - Computational implications
- Concrete vs. abstract concepts
- Language, Cognition, and Computation: Why work together? Why now?

Recommended Readings

- Evans, V. & Green, M. (2005). *Introduction to Cognitive Linguistics*. Chapter 1. pp. 1-33
- Allwood, J. & Gärdenfors, P. (1999). *Cognitive Semantics: Meaning and cognition*. John Benjamins Publishing Company, Amsterdam/Philadelphia. pp. 1-36
- Flohr, B. (1998). *The Relationship between Thought and Reality in Cognitive Semantics*. Essay for King's College London, March 1998.

For next class (May 28)...

1. Readings:
   - Turney, P. D. & Pantel, P. (2010). *From frequency to meaning: vector space models of semantics*. Journal of Artificial Intelligence Research (JAIR), 37 (1), pp. 141-188, January 2010.
   - Baroni, M. & Lenci, A. (2010). *Distributional memory: A general framework for corpus-based semantics*. Computational Linguistics, 36 (4), pp. 673-721, 2010.
2. Submit final exam topic **by May 22nd** via email (evamariavecchi@gmail.com), details on course website.