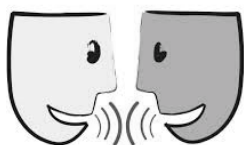


PHIL 371
Week 10: Language

Please turn off and put away all electronics.



1

Approaches to Language

Syntax first (Chomsky, logic, computers)

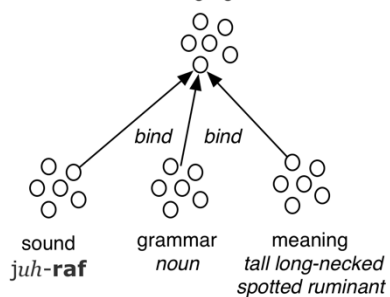
Cognitive linguistics: integrate syntax with semantic (meaning) and pragmatics (purpose, context)

Semantic pointers can handle semantics (shallow and deep), syntax (bindings into complex grammar), and pragmatics (goals, emotions)

2

Words

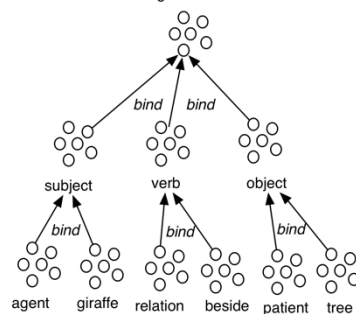
word, e.g. "giraffe"



3

Sentences

Sentence: The giraffe is beside the tree.



Meaning

1. Not by definitions, which are rigid and circular.
2. Words get their meanings from associated concepts (examples, features, explanations).
3. Sentences get meanings by convolution of words/concepts.
4. Multidimensional: upwards (innate), downwards (world), sideways (other words)

5

Metaphor and Metonymy

Metaphors depend on underlying analogies, with meanings furnished by concepts.

Embodied and transbodied.

Metonymy, e.g. the heart wants what it wants.

6

Discussion Questions

1. Can semantic pointers explain key features of language such as metonymy?
2. Can syntax, semantics, and pragmatics be integrated?

7

How Siri Works

Representations: Sound waves, natural language

Procedures:

1. Speech recognition: Input sound waves and output query in natural language.
2. Question answering: Input query and output answer. Lookup + Internet search.

8

How Google Translate Works

Representations: 90 natural languages + data bases of past translations.

Procedures:

1. Input sentence from language 1 and find statistically best match from language 2 using data bases.
2. If no direct translations exist, then use third language such as English.

9

Siri & Google Translate Versus Humans

1. Advantages of computers: many languages, huge data bases, fast search
2. Advantages of humans: understand meaning, context, purpose

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