Processing Syntax

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Parsing

- Syntactic processing is often phrased in terms of **parsing:** when we analyze and understand grammatical structure in a sentences

- This typically comes from argument structure around a verb
  - This can be used to assign thematic and grammatical roles to the nouns
    - What are the nouns
    - What are the grammatical roles of the nouns (subject, object, etc.)
    - What are the thematic roles of the nouns (agent, theme, etc.)

  - And from there we've got our meaning of a sentence

Parsing – familiar themes

- Is syntactic parsing interactive or modular?
  - Are there syntax-specific mechanisms that process syntax only? Or is parsing influenced by other (e.g., semantic, pragmatic) streams of information
- Is syntactic parsing one-stage or two-stage?
  - One stage with syntactic and semantic information
  - Or one stage with syntactic information, then a second stage with semantic information
- Is syntactic parsing serial or parallel?

- To what extent can we draw generalizations across languages that use different syntactic systems?

Parsing – familiar themes

- Parsing is **incremental** – we don't wait until the end of the sentence to construct our representation of its structure, we build it in real time as information comes in

Ambiguity

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- Easier to observe what happens when something in the sentence goes wrong
- For that reason, experiments on parsing will present sentences with structural errors or ambiguity

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- Phil took a picture of the weasel with his phone.

- Old men and women leave first.

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- Old men and women leave first.

- Ryan said that Maria finished it yesterday.

- I saw the Hudson River flying into New York City.

Ambiguity

- How do we process ambiguity?
- Options:

- We construct a syntactic representation, then use semantic information to decide whether it makes sense; if not, we go back and try again
- We construct all possible syntactic representations, then use semantic information to select the best one
- We use semantic information to build the best syntactic representation from the start
- We construct all possible syntactic representations and the activation level of the possibilities is a function of semantic information