Introduction: Methods and issues

Janina Radó

`janina@sfs.uni-tuebingen.de`

Linguistic theories are typically based on

- introspective data
- off-line end-of-sentence judgments
- paraphrases

Semantic theories make predictions about

- the possible interpretations of a phrase/sentence
- the relative preferences for the interpretations
- the process of interpretation

Processing data provide

- larger database

- finer distinctions

- evidence about the time course of interpretation

- anomaly: the occurrence of something other than what the processor "expected"

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- activation

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(1) a. Which doctor / did / John / remind / Mary / to see

    b. Which movie / did / John / remind / Mary / to see

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- neurophysiological measures (ERP)

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- reading time measures

  self-paced reading, eye-tracking

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(2) a. Since Jay always jogs a mile seems like a short distance to him.

  b. Since Jay always jogs a mile it seems like a short distance to him.

Processing load tasks

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  self-paced reading, eye-tracking

(2) a. Since Jay always jogs a mile seems like a short distance to him.

    b. Since Jay always jogs a mile it seems like a short distance to him.

(3) a. The girl hit the boy with the stick.

    b. The girl hit the boy with the scar.

Processing load tasks

- dual-task paradigms
  - primary task: reading or listening to a sentence
  - secondary task at the point where processing difficulty is expected

  word monitoring, tone detection, lexical decision

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(4) a. The reporter that the attorney accused admitted the error.

   b. The reporter that the attorney that the congressman questioned accused admitted the error.

Activation level: priming

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- dual task: reading/listening + lexical decision/word recognition

  (5) The policeman saw the boy that the crowd at the party accused $\#$ of the crime.

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(6) a. The boxer told the skier that the doctor for the team would blame himself $\#$ for the recent injury.

   b. The boxer told the skier that the doctor for the team would blame him $\#$ for the recent injury.

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(7) a. If you walk too near the runway, landing planes IS/ARE

b. If you've been trained as a pilot, landing planes IS/ARE

- fast
- automatic
- incremental

The big issues:

- does the parser compute a single (serial) analysis or multiple (parallel) syntactic analyses?

- is the initial syntactic analysis fully determined or underspecified?

- what principles govern decisions at choice points?

- why does the parser adopt particular principles?

- how does syntactic information interact/fail to interact with nonsyntactic information?

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- unbiased vs. weighted

Typical data:

- structurally ambiguous sentences

- hard-to-process sentences

- sentences with anaphoric dependencies

Permanent ambiguity:

(8) The cop saw the man with the binoculars.

(9) Mike told the girl that Bill liked the story.

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Temporary ambiguity:

(10) The janitor told the cop *that he had noticed* (about) the fi re.

(11) John put the candy *on the table* (into his mouth).

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- parallel analyses with different activation levels

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$\rightarrow$ may also explain serial/limited parallel parsing

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(15) a. The man told the judge that/why the young secretary had seen $\#$ about the business.

   b. The receptionist informed the doctor that/why the enthusiastic journalist had phoned $\#$ about the events.

   probe: JURY

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higher activation in (a) than in (b)

$\rightarrow$ the less preferred structure *is* available

- what determines the initial/preferred analysis?
- what kind of information is available to the parser?

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Modularity

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- lexical, thematic, etc. information acts as a filter
- motivation: memory restrictions

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b. The woman positioned the dress on that rack.

(17) a. The tourists objected to the guide that they couldn't hear.

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- modifier analysis should succeed if multiple horses are salient in the context

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- effects shown only when syntactic ambiguity derives from lexical ambiguity

Is semantic interpretation

- immediate and incremental?

- serial or parallel?

- influenced by non-linguistic factors?

- performed by the same parsing mechanism as syntactic parsing?

Topics of upcoming sessions

- quantifier scope

- bound variables

  donkey pronouns

- contrasitive focus

  focus alternatives