Do listeners model speakers in on-line sentence comprehension?

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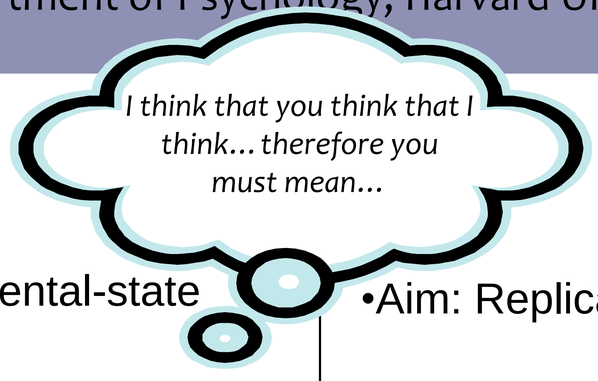


Pragmatic Inferences

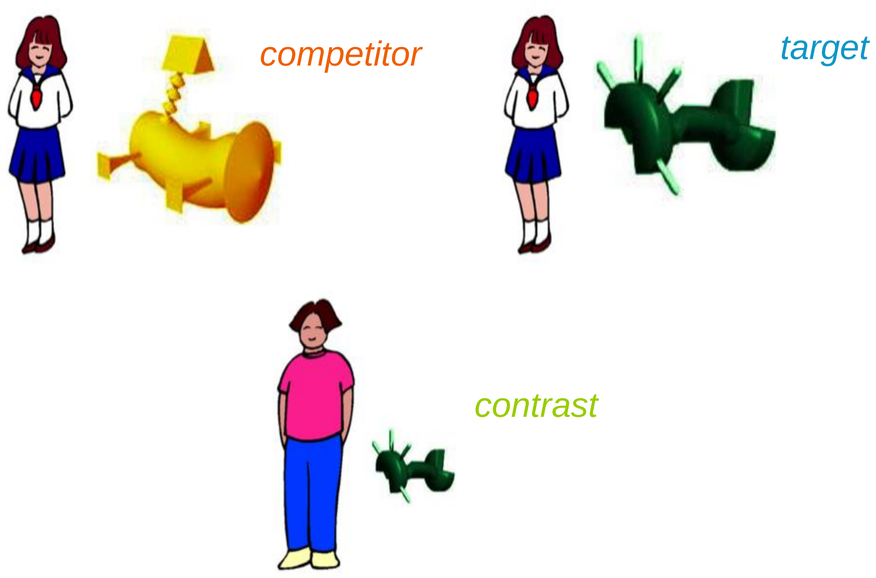
•Are inferences conventionalized or based on mental-state modeling?
•Evidence for on-line speaker-modeling
  •Inferences made in on-line processing disappear if listeners believe the speaker is socially/linguistically unusual
    •Adjectives (Grodner & Sedivy, in press)
    •Disfluency (Arnold, Hudson-Kam & Tanenhaus, 2007)

Question

To what extent do pragmatic inferences depend on beliefs about the speaker?

•Evidence so far is consistent with slower processing of the same inferences or with canceled inferences
  •Previous studies look at prediction, not interpretation
  •Instructions always disambiguated reference
•If speaker impairments truly cancel inferences, interpretation in a globally ambiguous sentence should be affected

Design



Click on the girl with the big dax

•Visual world; TOBII eye tracker
•Novel objects, novel words – globally ambiguous instructions
  •Similar to Nadig, Sedivy, Bortfeld, & Joshi (2003)
•Unique referent only if contrast is inferred from the adjective

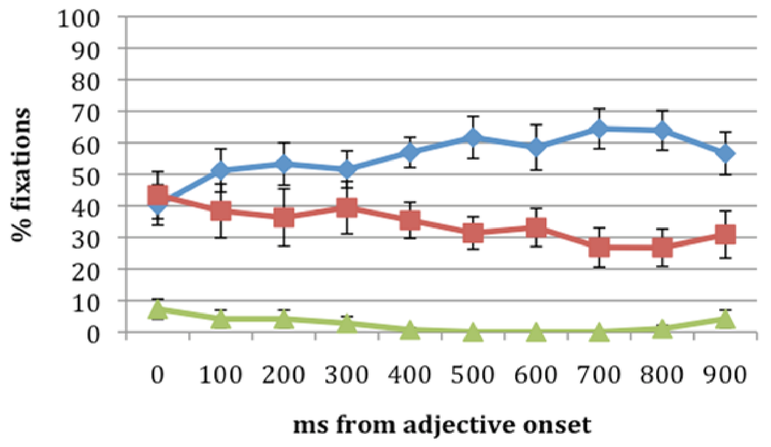
•**Speaker manipulation:** described as another student (*reliable*) or someone with social/linguistic impairments (*unreliable*); based on Grodner & Sedivy (in press)

Predictions

•**Reliable Speaker:** look at and choose target more than competitor
•**Unreliable Speaker:**
  •On-line processing: look equally to target and competitor
  •Final Interpretation:
    •*Canceled inference:* choose target and comp. at chance
    •*Slower inference:* choose target more than competitor

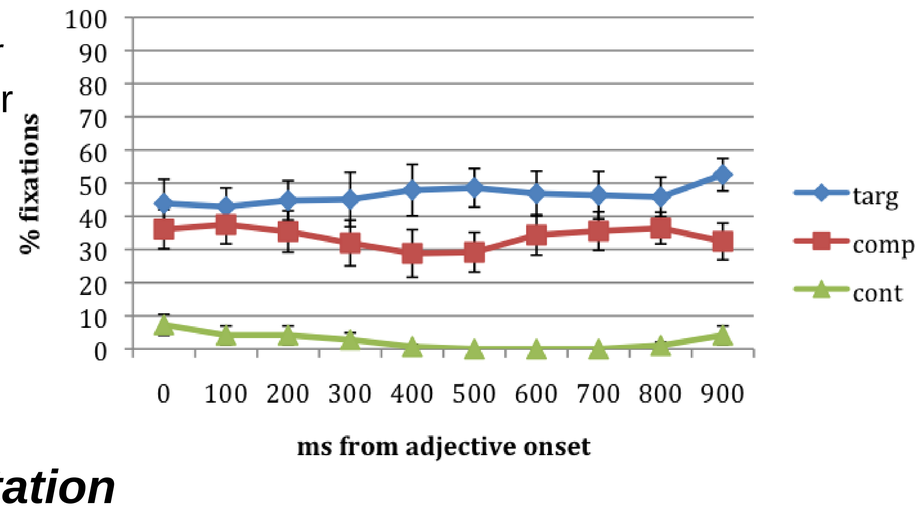
Experiment 1: Eye movement data

•Aim: Replicate unreliable-speaker effect from Grodner & Sedivy



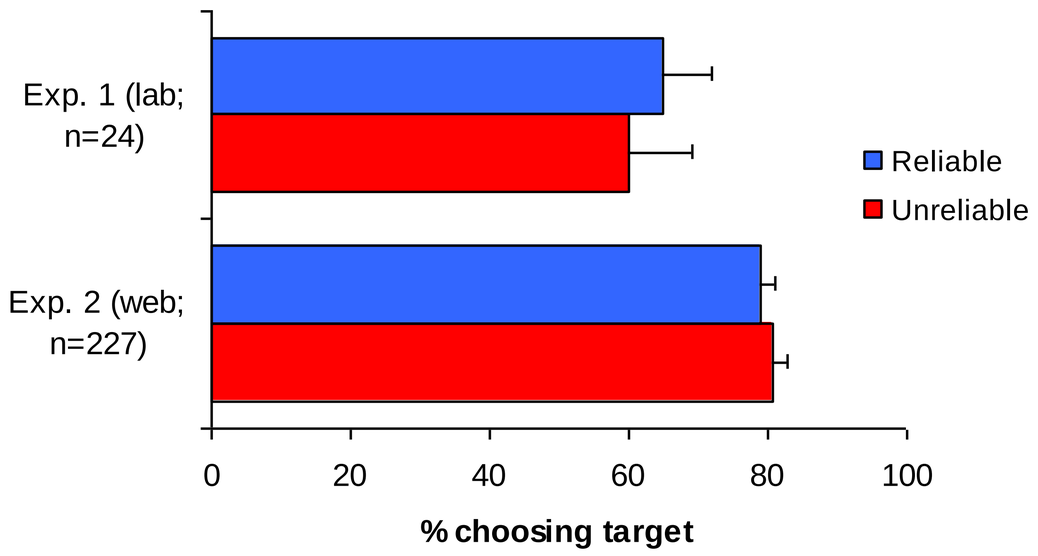
Reliable speaker
•Target>Competitor by 400ms, $p < .05$

Unreliable speaker
•Target>Competitor by 900ms, $p < .05$



Final Interpretation

•What people clicked on in Experiment 1
•Additional data from web-based sample, Experiment 2, n=227



•All groups chose target (item with a contrast object) above chance, p's < .05
•No sig. difference between reliable and unreliable speaker conditions, p's > .05

Summary

•Knowledge that a speaker is atypical affects online processing but does not necessarily block inferences

Future Directions

•Need to explore other types of pragmatic inferences
•Other types of speaker manipulations

References
Arnold, J., Hudson-Kam, C., & Tanenhaus, M.K., (2007). If you say thee… uh… you are describing something hard: The on-line attribution of disfluency during reference comprehension. *Journal of Experimental Psychology: Learning, Memory and Cognition, 33,* 914-930.
Grodner, D. & Sedivy, J. (In press). The effects of speaker-specific information on pragmatic inferences. In N. Pearlmutter & E. Gibson (eds). The Processing and Acquisition of Reference. MIT Press: Cambridge, MA.
Nadig, A., Sedivy, J., Joshi, A. & Bortfeld, H. (2003). The development of discourse constraints on the interpretation of adjectives. Proceedings of the 27th annual Boston University Conference on Language Development. Somerville, MA: Cascadilla Press.