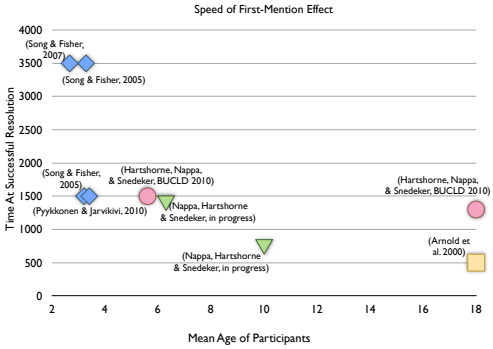
Not All Pronouns are Resolved Rapidly

Joshua K. Hartshorne & Jesse Snedeker

•Rapid order-of-mention effects are robust in adulthood and childhood.



"Sally$_1$ went to the store with Mary$_2$. She$_1$ bought some ice cream."

(From Hartshorne, Nappa & Snedeker, BUCLD 2010)

Implicit causality effects also rapid in adults. (Cozijn, Commandeur, Vonk & Noordman, 2011; Koornneef & van Berkum, 2006; Pyykkonen & Jarvikivi, 2010; Van Berkum et al. 2007)

subject-biased: "Sally$_1$ frightens Mary$_2$ because she$_1$ is is from Cambridge."
object-biased: "Sally$_1$ likes Mary$_2$ because she is from Cambridge."

BUT implicit-causality studies show resolving to 1st-mention is faster than resolving to 2nd-mention.
-Because of an overall first-mention bias?

Plan: 1) Replicate NP1 advantage
2) Control for order of mention.

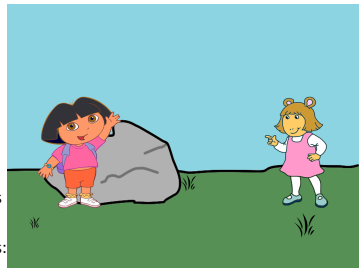
Experiment 1

Visual world paradigm (Tanenhaus et al., 1995).

Task
- Listen to stories while viewing scenes containing the mentioned characters
-Eye movements recorded (Tobii system)

Experiencer-object (subject-biased) verbs
confuse, frighten, scare, surprise

Experiencer-subject (object-biased) verbs:
admire, like, love, hate



"Dora likes D.W. very much, because she is such a nice girl. Can you point to her?"

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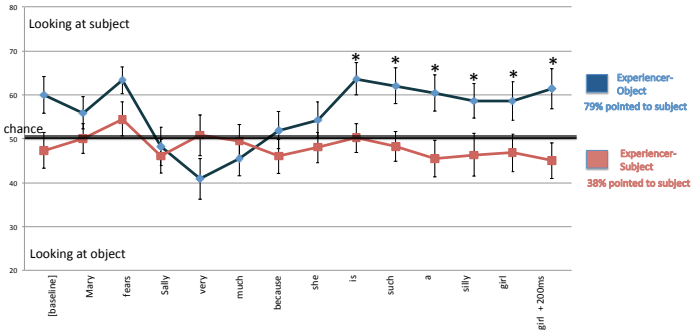

Result: Faster resolution for experiencer-object verb sentences (replicating previous findings).

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Experiment 2

Are experiencer-object verb sentences resolved more quickly?
or
Are is resolving to 1st-mention easier?

Design
Use passive sentences instead of active.
-"D.W.$_1$ is liked by Dora$_2$ very much, because she$_1$ is such a nice girl. Can you point to her?"

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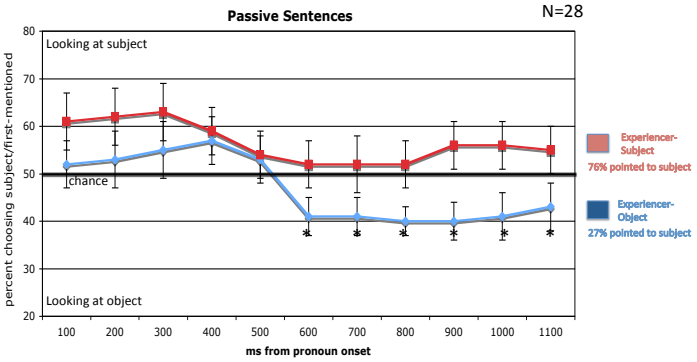

Result: 1) Resolving to 1st-mention does not make experiencer-subject verb sentences fast.
2) Experiencer-object verb sentences fast even when resolving to 2nd-mention.

BUT Maybe passives of psych verbs are unusual. (Maratsos et al., 1985)

Experiment 3

Implicit *Consequentiality* (Stewart, Pickering & Sanford, 1998)
object(ish)-biased: "Because Sally$_1$ frightens Mary$_2$, she$_2$ is really gonna..."
subject-biased: "Because Sally$_1$ likes Mary$_2$, she$_1$ is really gonna..."

Inference refers to *effect* not to *cause*.

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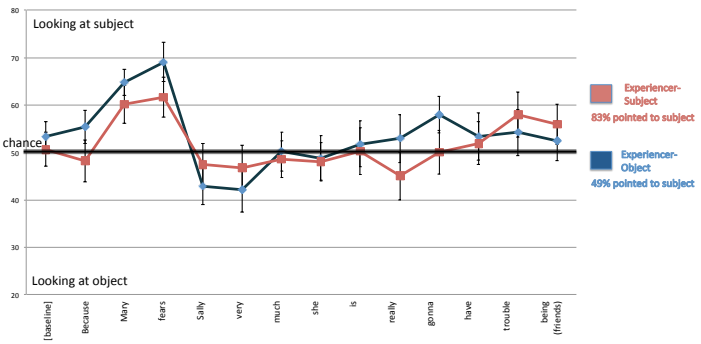

Result: 1) Slow for both verb types.
2) But no strong bias for experiencer-object verbs.
-Seems to be due to tense.

Conclusions

•Pronoun resolution is not always fast.
-Not even to the 1st-mention.

Remaining Questions

- Under what other conditions is resolution fast?
- Is resolution to NP2 ever fast?
- What distinguishes cases where resolution is fast and slow?
  - Frequency of relation/verb class combination?
  - Complexity of inference?
    - Pesetsky (1995) argues experiencer-object verbs encode cause but experiencer-subject verbs do not.