A subject-object asymmetry in the online processing of ‘only’:
Evidence from eye-tracking

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Introduction

- Recent findings suggest online comprehension of subject-only sentences proceeds differently from that of object-only sentences
  - Evidence for incremental processing with (object-) only [Kim et al. 2008, 2015]
  - Failure to find such evidence with (subject-) only [Romoli et al. 2015]
  - Parallel offline asymmetry reported in developmental work with only [Cran et al. 1994; Paterson et al. 2003, 2006; a.u.]

Questions:

- How does the syntactic position of only influence online expectations? (Exp 1)
- How does discourse constrain alternatives for only? (Exp 2)

Materials & Design

- Visual World Eye-tracking study (Tobi T-60)
- 2 x 2 within-subject design
  - POSITION (Subject vs. Object)
  - CONDITION-TYPE (Only vs. Control)

Participants: 33 adult native speakers of English

Experiment 1

Goal: Investigate how position of only influences adults’ online predictions about upcoming referents

Hyp I: Optimal Observer
Adults correctly anticipate discourse-new target for subject-only, but discourse-given target for object-only

Hyp II: Processing Asymmetry with Subject-only
Selective failure to predict target with subject-only

Results

- Greater proportion of looks to Target in Object-Only condition relative to its Control (*p < 0.05)
- No difference in prop. Target looks between Subject-Only and Subject-Control

- Main Effect of only: Greater looks to 1-item quadrants (Target, Cohort) than 2-item quadrants (Pictorator) in Only Conditions relative to Controls (**p < 0.001)

Experiment 2

Late Window: No significant difference in prop. Target looks for either (i) Object-Only vs. Object-Control, or (ii) Subject-Only and its Control

Early Window:
- M.E. of only: Significantly greater looks to 1-item quadrants than 2-item quadrants in Only-conditions compared to Control conditions (**p < 0.01)

Summary: Experiment 1

- A Subject-Object Asymmetry with ‘only’: Adults process object-only sentences incrementally to make online predictions about target referent, but fail to do so with subject-only sentences.
  - Object-only results replicate Kim et al.’s (2015) Previous Mention effect
  - Subject-only failure replicates Romoli et al. (2015) finding
  - Could lack of discourse mention of subject-only target be driving these results? → leads to Exp 2
  - Unexpected Scality Effect in Early Window

Summary: Experiment 2

- Failure with Subject-only persists in Exp 2
- Previous Mention effect of object-only in Exp 1, completely disappears with context manipulation in Exp 2.
  - Helps rule out a recency-based explanation (confounded in prior work)
  - Scalary Effect from Exp 1 replicated

Conclusion

- Our results support a more nuanced picture of the processing of focus-sensitive operators such as only than previously available, in which syntactic and pragmatic constraints interact dynamically with lexically-encoded meaning to guide online comprehension.
- In ongoing work, we:
  - (1) extend these questions to kids (with very interesting results – ask me about it)
  - (2) investigate the nature and source of the Scalary Effect, and its implications for the semantics of only

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Selected References