Introduction

- Comprehension of utterances in context involves a variety of inferences, which are based either on conventionally encoded linguistic meaning or pragmatic general reasoning.
- Our study focused on two such inferences: scalar implicatures, and presuppositions.

Sentence | Inference | Type
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1 | Some giraffes have scarves | Not all giraffes have scarves | Direct Scalar Implicature (DSI)
2 | Not all giraffes have scarves | Some giraffes have scarves | Indirect Scalar Implicature (ISI)
3 | The giraffe didn't win the race | The giraffe participated in the race | Presupposition (P)

- DSI, ISIs, and Ps, while distinguished terminologically, are treated uniformly. Ps, on the other hand, are traditionally assumed to be of a different nature to scalar implicatures.
- Both types of inferences are optional, but in different ways: implicatures are a form of pragmatic enrichment (that can be cancelled, or fail to arise in the first place). Presuppositions can be interpreted locally relative to negation (NOT [The giraffe participated in the race]).

The acquisition of scalar implicatures and presuppositions

- The acquisition of DSI has been studied extensively: a common result is that children are less likely than adults to compute DSI (Novick, 2001 and subsequent work).
- ISIs have been studied less, but recent studies have found a similar pattern to DSI (Musolino & Litz 2006; Katsos et al. 2011). However, these studies were not designed to compare the two types of scalar implicature directly.
- Little research on children’s computation of Ps (other than definite descriptions).

Our Study

- Presuppositions (as a type of Impl[icatures] [P as Imp]):
  - While traditionally Ps and ISIs have been treated separately, recent proposals have brought these inferences closer. In particular, Chemla (2009) and Romoli (2012, 2014) have proposed a unified account of ISIs and Ps.

Predictions

- [P as Imp] theories predict that, everything being equal, the responses of each age group will be parallel for ISIs and Ps.

Aim:

- Investigate the explanatory power of these recent, [P as Imp] theories by comparing the way adults and children interact with these three inferences (DSIs, ISIs, & Ps).

Method

Participants: 20 adults, 14 4-5 year-olds, and 14 7-year-olds.

Procedure: Sentence Picture Matching Task

- Sequential presentation of a) one context picture and b) two critical pictures
- Covered Box Design: One critical picture was ‘hidden’ from sight.
  - Participants were told that only one of the two critical pictures would match the sentence.
  - If a reading compatible with the overt picture exists, they should choose it.
  - Otherwise, they should choose the covered picture.
- Experimenters produced a short description of the context picture (designed to make the test sentence felicitous), and then a test sentence, which was understood to be describing one of the two critical pictures (visible or covered).
- The participant chose which critical picture they thought was the test sentence was describing.

Properties of Overt Target Pictures:

- Visible picture was only consistent with the ‘bare’ meaning of the sentence, without the inference in all critical conditions.
- Rejection of overt picture (via selection of the covered picture) is indicative of choosing a reading that includes the inference.
- Controls included target pictures consistent with a reading that included the inference.

Results: Proportion of covered picture choices

Rate of covered picture choices (indicating presence of inference) varied, based on both age and type of inference, with 2x2 cross-over interactions between pairs of factor levels.

Key significant effects:

- Interaction between P and ISI (& DSI) for adults vs. children (for both groups).
- Planned Comparisons for Children (4-5 & 7):
  - Age: between all three inference types, in the following pattern: P > ISI > DSI
  - Age effect in presupposition condition: 4-5 > 7
- Planned Comparisons for Adults:
  - Reverse pattern from that found in children: DSI > ISI > P.

Additional Finding:

- Interaction between DSI / ISI and children (ISI > DSI) / adults (DSI > ISI)

Discussion

- Parts of results consistent with previous work:
  - Adults were more likely than children to compute DSI and ISIs (Novick, 2001; Moulinot & Litz, 2006).
  - Children do not appear to be interpreting presuppositions locally.
- Evidence against [P as Imp] theories (Chemla, 2009; Romoli, 2012, 2014) aligning Ps with ISIs: strong difference between ISIs and P (_cross-over interaction)_.
- Results more compatible with traditional perspective: ISIs and Ps as two separate inferences based on distinct mechanisms.
- Differences between DSI and ISIs is a puzzle for all theoretical accounts we are aware of:
  - Perhaps caused by ISIs being a different type of scalar implicature, namely, an ‘obligatory scalar implicature’ (Spector, 2007 a. o).
- Recent results in the adult sentence processing literature have also investigated differences between these two types of SI, with conflicting results (Schwarz & Romoli, 2014; Cremers & Chemla, 2013).

References