Children’s interpretations of Every...some sentences

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When interpreting Every...some sentences, children derive stronger scalar inferences than adults.

Introduction

Children derive fewer scalar inferences than adults

- Children derive fewer scalar inferences than adults. For example, children’s interpretations of Some sentences like (1) are less likely than adults to include, in addition to the literal meaning in (1-a), the scalar inference in (1-b) (Novick, 2001).

(1) The pig carried some of his rocks.
   a. The pig carried at least one of his rocks.
   b. The pig didn’t carry all of his rocks.

EverySome sentences have multiple scalar inferences

- EverySome sentences, where the scalar term some is embedded under the universal quantifier every (i.e. (2) have the literal meaning in (2-a), and have been associated with both the NotEvery inference in (2-b), and the None inference in (2-c).

(2) Every pig carried some of his rocks.
   a. Every pig carried at least one of his rocks.
   b. Not every pig carried all of his rocks.
   c. None of the pigs carried all of his rocks.

- Adults access both interpretations of EverySome sentences containing NotEvery inferences and interpretations containing None inferences (Chen & Spector, 2011).
- No previous work has investigated children’s interpretations of such sentences.

Research Question: Do children derive inference-based interpretations of EverySome sentences, and if so, which of the two possible inferences are such interpretations based on?

Results

- We conducted a mixed-effect logistic regression analysis, following Barr et al. (2013).
- There was a significant effect of group. Children computed fewer scalar inferences than adults.
- Consistent with previous work.

Experiment 1

Method: Truth Value Judgment task (Crain & Thornton, 1998) with 20 English-speaking children (4-0.5-11; M = 5.84) and 24 adults. In test items a character had a set of 4 objects they could act upon (see Fig. 1). They acted on all 4 objects making the context consistent with the literal meaning of (1) (i.e. (1-a)), but inconsistent with the associated scalar inference in (1-b).

Condition | Context | Consistent with
---|---|---
2SOME | 2/4, 2/4, 2/4 | Literal & NotEvery & None
2SOME-1ALL | 2/4 2/4, 2/4 | Literal & NotEvery
3ALL | 4/4, 4/4, 4/4 | Literal
3NONE | 0/4, 0/4, 0/4 | None

Results

- Mixed-effect logistic regression analysis.
- Significant interaction between Group and Condition.
- The groups derived inference-based interpretations at similar rates in the 3ALL condition, but children derived more in the 2SOME-1ALL condition.

Discussion

Same rate of inference derivation across sentences

The similar (within-group) rates of inference-based interpretations across both sentence types suggests that the ease of deriving such interpretations is not affected by any of the differences between these sentences (e.g. structural complexity).

Children prefer interpretations with stronger inferences

- While adults preferred interpretations of EverySome sentences containing NotEvery inferences, consistent with previous work, children preferred those with None inferences. Why?
- It has been suggested that in order to acquire the range of possible meanings in a target language, children (unlike adults) are guided by a preference for stronger or ‘set best’ meanings (Crain, Ni, and Conway 1994). This could explain why children preferred interpretations containing the stronger None inference (i.e. (2-c)), whereas adults were free to respond characteristically by preferring interpretations containing the weaker NotEvery inference (i.e. (2-b)).

References


Appendix

Experiment 2

Method: Same paradigm as Ex. 1, with 31 children (4-0.5-10; M = 4.05) and 18 adults. In the test items 3 characters had a set of 4 objects each they could act upon (see Fig. 3). The following table presents the contexts in the different conditions and the interpretations of EverySome sentences that they were consistent with.

Condition | Context | Consistent with
---|---|---
3ALL | 3/4, 3/4, 3/4 | Consistent with
3NONE | 3/4, 3/4, 3/4 | Consistent with

Results

- Mixed-effect logistic regression analysis.
- Significant interaction between Group and Condition.
- The groups derived inference-based interpretations at similar rates across sentences (i.e. (1) vs. (2)).