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) (Noveck, 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 (NotEvery)*
  c. ⇝ *None of the pigs carried all of his rocks (None)*

- Adults access **both** interpretations of *EverySome* sentences containing *NotEvery* inferences **and** interpretations containing *None* inferences (Chemla & 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?

Experiment 1

Method: **Truth Value Judgment task** (Crain & Thornton, 1998) with **20 English-speaking children** (4;00-5;11, M = 5;04) 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).

Fig. 1: Exp. 1 test

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.

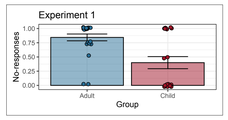

Fig. 2: Mean *no*-responses (i.e. inference-based interpretations).

Experiment 2

Method: **Same** paradigm as Ex. 1, with **31 children** (4;00-5;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.

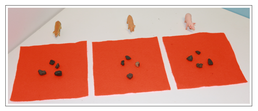

Fig. 3: Experiment 2 test item.

Condition	Context	Consistent with
3Some	2/4, 2/4, 2/4	Literal & NotEvery & None
2Some-1All	2/4, 2/4, 4/4	Literal & NotEvery
3All	4/4, 4/4, 4/4	Literal
3None	0/4, 0/4, 0/4	

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.

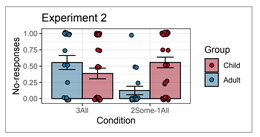

Fig. 4: Mean *no*-responses.

Experiment 1 vs. Experiment 2

- **Group** was significant.
- Each group derived inference-based interpretations at **similar** rates across sentences (i.e. (1) vs. (2)).

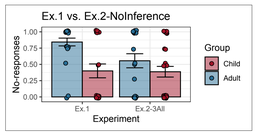

Fig. 5: Mean *no*-responses.

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 'subset' 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 **charitably** by preferring interpretations containing the **weaker** *NotEvery* inference (i.e. (2-b)).

References

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- Chemla, E., & Spector, B. (2011). Experimental evidence for embedded scalar implicatures. *Journal of Semantics, 28*(3), 359-400.
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Appendix

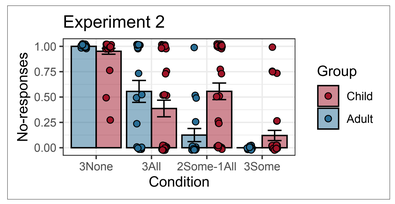

Fig. 6: Results from all of Experiment 2's conditions.