The nature of the semantic stimulus: quantifier learning as a case study

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Language acquisition involves making sense of unanalyzed input: the child brings to the task a hypothesis space, each point in which represents a grammar, and she chooses a point in that space that can generate the input. If two grammars G, G' are compatible with the input and the child ends up converging on G, we can draw interesting conclusions regarding acquisition: it could be, for example, that G' is outside of the child's hypothesis space, or that the child is biased towards choosing G over G'. The literature on acquisition in syntax and phonology has identified cases where the input is not rich enough to eliminate alternatives to the adult grammar, suggesting that learning in those domains is non-trivial.

Our goal is to evaluate the richness of the input in semantics, and our case study is the acquisition of quantificational determiners. We address the following question: are there logically weaker or logically stronger alternatives to quantifier meanings that are compatible with the child's input, or is the input rich enough to eliminate competing hypotheses? We report our preliminary conclusions from a study of several English CHILDES corpora:

1. Systematic truth-conditional evidence for ruling out logically weaker meanings does not seem to be available. Obvious candidates for providing such evidence like the direct rejection of a child's utterance and the use of quantifiers in downward-entailing environments were either absent from most corpora or consistent with weaker meanings.

2. Contextual evidence for ruling out logically weaker meanings is available. We identify contexts where a weaker meaning for a quantifier would violate some pragmatic constraint. If children can use this contextual evidence early enough, then logically weaker meanings would be incompatible with the input.

3. With respect to logically stronger alternatives, the situation is quite different. We construct classes of quantifiers with complex, logically stronger meanings designed to be consistent with any finite number of utterances. If such quantifiers are in the child's hypothesis space, then converging on adult meanings would require non-trivial induction.