Children's Comprehension of Epistemic Modality

Previous work shows that children by the age of five understand the relative strength of epistemic modals if these are presented contrastively (e.g. they know that a speaker who uses *must* is to be believed over one who uses *may*; Hirst & Weil, 1982; Noveck, Ho & Sera, 1996). Nevertheless, not much is known about how children interpret epistemic modals outside these contexts. In two experiments we explore the scope and limitations of children's knowledge of epistemic modality.

Experiment 1 presented 5-year-olds with a task where an animal decided to hide in one of two boxes on a stage (e.g. either a yellow or a blue box) while the stage curtains were lowered. Once the curtains were raised, one box was opened. In half of the stories, no animal was revealed; in the rest of the stories, the animal was found inside the first box. Two puppets took turns in guessing where the animal was:

A. NECESSITY CONDITION	B. POSSIBILITY CONDITION
(1) The animal has to be in the yellow box.	(1') The animal may be in the yellow box.
(2) The animal has to be in the blue box.	(2') The animal may be in the blue box.

Participants were randomly assigned to either the Possibility or the Necessity condition. Children accepted correct necessity statements 95% of the time (e.g. (1) if the blue box had been shown to be empty) and rejected false necessity statements 77.5% of the time (e.g. (2) if the blue box had been shown to be empty). Similarly, children accepted true possibility statements 75.6% of the time (e.g. (1') if no box had yet been opened) and rejected false possibility statements 90 % of the time (e.g. (2') if the blue box had been opened and no animal was in it). However, children without exception accepted modal statements that were weaker than their state of knowledge (e.g. (1) if the animal had been shown to be in the yellow box).

Experiment 2 tested the same children on a modified version of this task. Participants had to attribute a modal statement (e.g. 'There may be a butterfly in the box') to one of two characters depending on whether the characters had seen the contents of the box, or could infer what could be or had to be in the box. Children correctly attributed a weak modal statement to the uninformed character only 55% of the time. Taken together, results from these two studies show that young children have acquired the correct semantics for epistemic modals such as *may* and *have to* but have trouble calculating pragmatic inferences (specifically, scalar implicatures) from the use of such terms. Our data are consistent with recent findings demonstrating early difficulties with conversational inference (Noveck, 2001; Papafragou & Musolino, 2003). We conclude that, even though children recognize the relative strength of epistemic modals in contrastive contexts, they cannot spontaneously infer the speaker's epistemic stance from modal statements.

References

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