

Children's Knowledge of Disjunction

Introduction: Recently, it has been claimed that, in contrast to adults, young children derive free choice inferences (FCIs) in upward entailing contexts, just as they do, for example, in sentences in which disjunction is combined with a deontic modal (Singh et al., 2015). According to this proposal, children interpret sentences like (1a) to generate the inference (1b), just as they interpret (2a) to generate the inference (2b). However, the task used in previous studies presented disjunctive statements as descriptions of events in which the outcome was apparent, making the use of disjunction infelicitous. For example, sentence (1a) was presented as a description of a picture in which Jack was just holding an apple, making the use of disjunction an instance of Weakening.

- (1) a. Jack is holding an apple or a banana.
b. Jack is holding an apple and Jack is holding a banana.
- (2) a. Jack is allowed to drink beer or wine.
b. Jack is allowed to drink beer and Jack is allowed to drink wine.

The present study investigated Mandarin-speaking children's interpretation of disjunctive sentences with modals, such as (3) and ones without modals, such as (4) in a within-subject design.

- (3) a. Dagou keyi chi chaofan huozhe zhuroutang
Big dog may eat fried rice or pork soup
'The big dog is allowed to eat fried rice or pork soup.'
b. The big dog is allowed to eat fried rice and the big dog is allowed to eat pork soup.
- (4) Wo cai qi e hui xuanze fenhongse huozhe huangse de qiqiu.
I guess penguin will choose pink or yellow balloon
'I guess the penguin will choose the pink balloon or the yellow balloon.'

Hypothesis: Based on previous work (Zhou et al. 2013), we anticipate that Mandarin-speaking children will draw FCIs in response to sentences like (3). The question is whether or not the same children also draw FCIs from sentences like (4). If so, children are expected to judge sentence (4) to be true only if the penguin ends up choosing both the pink balloon and the yellow balloon. The alternative hypothesis is that children will judge (4) to be true when the penguin ends up choosing just the pink balloon, or just the yellow balloon, as well as when the penguin chooses both balloons.

Experiments: In Experiment 1, 20 adults and 22 4-5 year-old were presented with sentences like (3) in a Truth Value Judgment Task in the Description Mode (Crain & Thornton, 1989). In Experiment 2, we presented the same subjects sentences like (4) using a Truth Value Judgment Task in the Prediction Mode. There were 4 test trials in Experiment 1, and 2 in Experiment 2.

Results & Discussion: As in previous research, children drew FCIs in response to sentences like (3) 95% of the time (adults = 98%). Participants rejected sentences like (3) when the big dog had been given permission to eat just one of the dishes. By contrast, children accepted sentences like (4) 86% of

the time (adults = 98%) when just one of the disjuncts was true, as well as when both of the disjuncts were true (children = 98%; adults = 75%). The findings provide compelling evidence that 4-to-5-year-old Mandarin-speaking children and adults draw free choice inferences from disjunctive statements with modals, but not in upward entailing sentences. In that case, children accept and reject disjunctive statements using the basic inclusive-*or* meaning of disjunction. The findings do not conform to the proposal by Singh et al.

References

1. Crain, S., & Thornton, R. (1998). *Investigations in universal grammar: A guide to experiments on the acquisition of syntax and semantics*. Cambridge, MA: MIT Press.
2. Singh, R., Wexler, K., Astle, A., Kamawar, D., & Fox, D. (2013). *Children interpret disjunction as conjunction: consequences for the theory of scalar implicature*. Carleton University, ms.
3. Zhou, P., Romoli, J., & Crain, S. (2013). Children's knowledge of free choice inferences. In T. Snider (Ed.), *Proceedings of Semantics and Linguistic Theory* (pp. 632-651). Santa Cruz, USA: Cornell University.