

Number's OK but Maximality's Not
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This paper argues (following first mention in Wexler (in press)) that children have difficulty with the understanding of the presupposition of *maximality* that is integral to the understanding of determiners and other expressions. For example, the use of *the N* presupposes (according to standard semantic theory) that there is a “context set” *C* of *N*'s that is maximal. If *N* is singular in *the N*, the implication of maximality is that *C* has exactly one element (uniqueness). If *N* is plural, the entailment of maximality is that *the N* refers to a maximal set *C* of size at least 2. (See Heim 1991 for a summary of this standard semantic theory).

A classical result is that children until about age 5 or 6 often use *the* instead of *a*. I show on the basis of experiments in the literature that does not happen in *de dicto* contexts, that is, when there is no presupposed discourse set. It only happens when *a N* should be used because there is more than one *N* in the discourse set. Thus, if children lacked the presupposition of maximality, *the N* would be used when there was a set (of size 1 or greater). This accounts for the bulk of experimental results in the literature. Much of the discussion will involve a thorough review of many studies in the literature, showing how they are accounted for (sometimes in quantitative detail) by the assumption. These include the experiments of Warden (1974, 1976), Maratsos (1976) and Karmiloff-Smith (1979) as well as more modern studies such as those of de Villiers and Shafer, Matthewson and Roeper, and the child processing studies of Trueswell et al 1999, Hurewitz et al 2000). An argument is given that the deficit is indeed semantic and not “theory of mind”/egocentric driven. The egocentric theory adopted by the previous authors would not allow *the* to be used when the child had no properties to individuate the particular object/person under discussion, but *the N* is often used by children in these contexts (experiments by Maratsos and by Karmiloff-Smith). Further, I show on the basis of experiments in the literature that the child will always refer to sets of size greater than 1 when *N* is plural in *the N*, showing that the child knows number and its properties, but that the child will also often refer to a plural subset of the context set, showing that she has difficulty with maximality.

The ideas are cashed out in terms of a particular formal semantic definition of *theC*, the child's version of *the*, similar to Heim (1991's) definition of *the*, but lacking the maximality presupposition:

(1) Regardless of the utterance context, [*theC* *x*] *P* expresses that proposition which is:

---true at an index *i*, if there is an *x* at *i*, and it is *P* at *i*

---false at an index *i*, if (i) there is an *x* at *i*, and there is no *x* such that *x* is *P* at *i*

---truth-valueless at an index *i*, if there is no *x* at *I*

The predictions are extended to other constructions, including free relatives and the question of exhaustivity, where maximality plays a similar role. It is shown that what empirical findings on children of this age exist are predicted by the failure of maximality. At this age, number is not a problem, but the calculation of the maximal set is. One can see that number (and quantificational elements like *every*) do not involve the notion of maximality. But maximality, involving a particular comparison of sets, is a problem.

References

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