Scalar Implicatures in Child Language: failures or skilful strategies?

The Problem
Recent studies proposed that young children are not as prone as adults to reject sentences containing a weak scalar item in contexts in which the stronger element in the scale would be more appropriate, e.g. accepting underinformative statements with some much more frequently than adults (Chierchia et al., 2001; Noveck, 2001; Papafragou&Musolino (P&M), 2003; Doitchinov 2003). It seems that there’s general agreement on the fact that children have some difficulties with pragmatic inferences and that they tend to respond in a differentiated manner to different scalar items. We intend to address the problem of children’s inability in deriving SIs presenting a new experimental study conducted on Italian children adopting a novel experimental design. We will argue that, to a large extent, children’s problems with SI computation are in fact an artefact of a methodological problem. Every study so far adopted a between subject experimental design; we will show that, by adopting a within subject design instead, children’s performance improves dramatically, much more than with any other experimental manipulation previously attempted.

Our study
We’ll first show that, when tested with the same method as P&M, children at 5 fail to compute the SI associated to some. With a Truth Value Judgement method (Crain&Thornton, 1998) we tested 12 5-year-old children on some adopting a between subject design: each subject was shown 5 critical statements of the same kind, e.g. a sentence like “Some Smurfs are going on a boat” to describe a situation where all Smurfs are going on a boat (plus fillers). While adults accepted the underinformative statements less than 15% of the time, children accepted them more than 50% of the time. The mean percentage of children answers could suggest that they responded at chance level, but interestingly, their answers held a bimodal distribution, with roughly half of children always accepting the critical statements and the other half always rejecting them. Children didn’t behave at chance at all, but were in fact consistent in judging the puppet’s statement: the answer (yes or no) given to the first target item was maintained for all the other target structures. This suggested that a strategy may be used in solving the task, and this could explain their difference from adults.

To address the issue that “skilful strategies” may be responsible for children’s poor performance, we carried out a second experiment with 40 children (Mean Age: 5.5) and 40 adults on 3 different scalar items: some (SI=not all) in subject and object position; two (SI=not three), a piece of (SI=not whole).

The task was always a Truth Value Judgement, but this time we used a different experimental design, a within subject design. Each subject was randomly assigned to one of four conditions and was shown a video with 12 stories containing only 1 version of each critical item (not 5 versions of the same item as before) and 8 control items (to check - within each subject - her knowledge of the items involved in the scale). As in previous studies, we found a difference between children and adults, although not as wide as before and a difference in children’s responses across scalar items: as in P&M, the SI associated to numbers seems more readily derived than other items. Interestingly, however, children’s rate of derivation of SI rose significantly with respect to previous studies: numerals = 98% (vs. 65% in P&M); some overall = 72.5% (12.5% in P&M with no training); a piece of = 62.5%. In addition, children responses did not hold a bimodal distribution and the response given to the first target statement was not necessarily reiterated in the others, suggesting the use of a different strategy.

These results strongly suggest that, even when children understand the task, they do not necessarily activate the same strategy as in normal conversational exchanges. If, as in the between subject design, they’re presented with the same kind of statements for 4 or 5 times in a session (though applied to different stories) they appear to adopt a different strategy than the one normally adopted in adult conversations, possibly because the experimental task requires a different level of activation of the conversational norms and a less active participation in the exchange. In the within subject design, instead, the kind of stories presented and the descriptions provided varied a lot across items, requiring a more active participation and a higher degree of attention, factors that seem to be crucial in the process of deriving implicatures. In light of these findings, we need to reconsider previous results and claims about children’s pragmatic competence need to be reassessed: such competence appears to be more adult-like than previous experimental designs seem to suggest.