

Indirect scalar implicatures are neither scalar implicatures nor presuppositions (or both)

Introduction: Direct scalar implicatures (DSI) have been investigated extensively in both children and adults. In contrast to adults, children have generally been found to more readily accept sentences with ‘some’, such as (1) in contexts that would validate stronger statements, with ‘all’. A few studies have also investigated indirect scalar implicatures (ISI) such as (2), yielding a similar overall pattern of responses for children and adults (e.g., Musolino and Lidz 2006, Katsos et al. 2011). Previous studies have not, however, directly compared the two kinds of inferences. The null hypothesis, H1, is that children and adults should treat DSIs and ISIs in a uniform manner. More controversial is the status of presuppositions (P) in sentences like (3), since some (but not all) researchers have proposed that Ps are governed by the same mechanisms that are invoked in computing DSIs (and perhaps ISIs). In any case, recent findings (Bott & Chemla 2012) indicate that adults experience a processing cost in accessing an interpretation of (3) in a context in which the global presupposition is not satisfied - i.e., the bear didn’t even participate in the race. This leads to H2: children are expected to be even more likely than adults to reject (3) in contexts that fail to satisfy their global presuppositions.

	Sentence	Inference	Type
(1)	Some giraffes have a scarf	-> <i>Not all giraffes have a scarf</i>	DSI
(2)	Not all giraffes have a scarf	-> <i>Some giraffes have a scarf</i>	ISI
(3)	The bear didn’t win the race	-> <i>The bear participated in the race</i>	P

Experiment: 20 adults, 16 4-5 year-olds, and 14 7-year-olds were presented with sentences like those in (1-3) in a variant of the Covered Box paradigm (Huang et al. 2013). Each trial consisted of a context picture and two critical pictures, one visible and one covered. The experimenter produced a short description of the context picture followed by a test sentence that purportedly described only one of the two (visible or covered) pictures. The participants’ task was to decide whether the test sentence described the visible or the covered picture. The visible picture was only consistent with the literal meaning, absent the associated inference (e.g., for (1), all the giraffes had scarves in the visible picture). Therefore, selection of the covered picture was taken as evidence that the participant had generated the relevant inference. Following a training session, there were 4 test trials and 4 controls for each condition (DSI, ISI, P).

Results & Discussion Selection of the covered picture (indicating presence of inference) depended both on age and type of inference. Children (4-5yrs & 7yrs) were less likely to draw DSIs than ISIs, and most likely to draw Ps; adults exhibited exactly the reverse pattern. Logistic regression mixed effect models revealed significant interactions between Inference Type and Age Group. Within each group, all inference types differed significantly from one another. Within Inference Type, children significantly differed from adults for all types, and 7-year olds differed from 4-5 year olds in computation of presupposition interpretations. The presupposition results for adults are consistent with the processing results of Bott and Chemla’s (2012) and with traditional theories. However, the differences between the two SI conditions, for both children and adults, were not anticipated by any current theory that we are aware of. Also note that the crossover interaction indicates a double disassociation, which rules out a simple explanation of this difference (e.g. the presence of negation). And since the P responses also differ from both SIs, a three-way distinction appears to be required. We offer two possible interpretations of these results.

