

Papafragou & Musolino (2003)

Huang & Snedeker (2009b)

Barner, Brooks, & Bale (2011)

Mike Frank

Psych/Ling 236

4/30/12

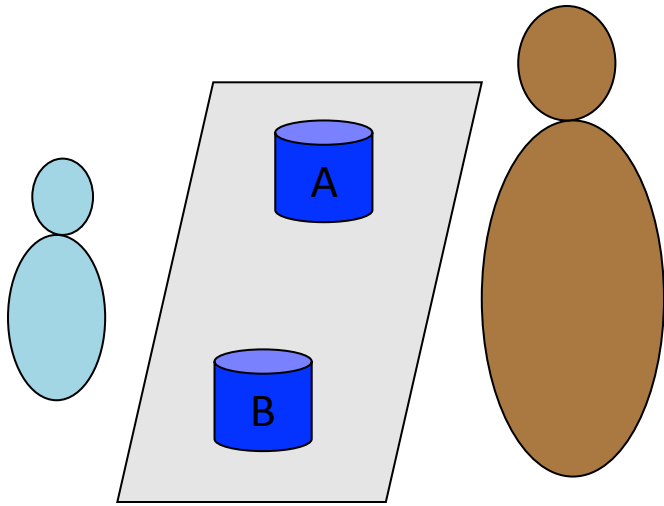
General motivations for devo work

- Understanding pragmatic development
 - Children are great at learning words by thinking about other people
 - But terrible (?) at making inferences about what people say
- Understanding the nature of scalar inferences
 - Perhaps differences in development will reveal important theoretical differences in mechanism

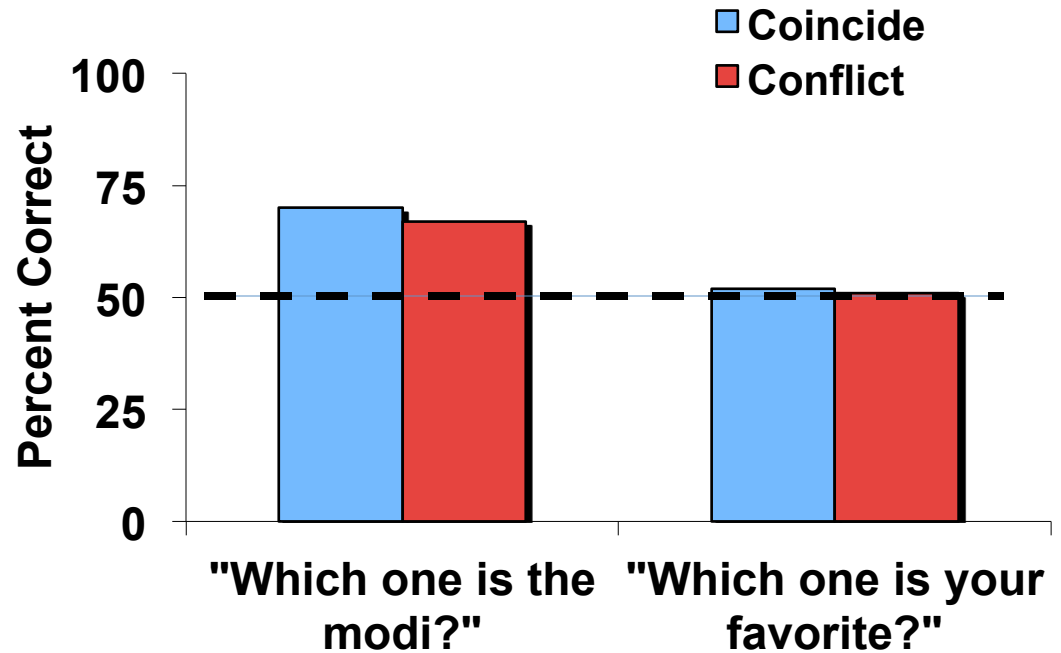
Pragmatics: A developmental puzzle

- Children are experts at pragmatic word learning, but terrible at scalar implicature
- Pragmatic word learning requires intention reading (Bloom, 2002), knowledge of discourse status (Akhtar et al., 1996), and some type of perspective taking (Baron-Cohen, Baldwin, & Crowson, 1997)
- All of these are Grice-relevant abilities; what's missing?

Social learning



- **Coincide:** child looks at A, exp. names A
- **Conflict:** child looks at B, exp. names A



Children represent speakers' intentions!

Baldwin (1993)

Disambiguation/mutual exclusivity



- What causes this kind of inference?
- Lexical principle of mutual exclusivity (Markman)
- Pragmatic inference (Clark)
 - Conventional form: “ball”
 - Contrast in meaning
- Note inferential similarity to scalar implicature

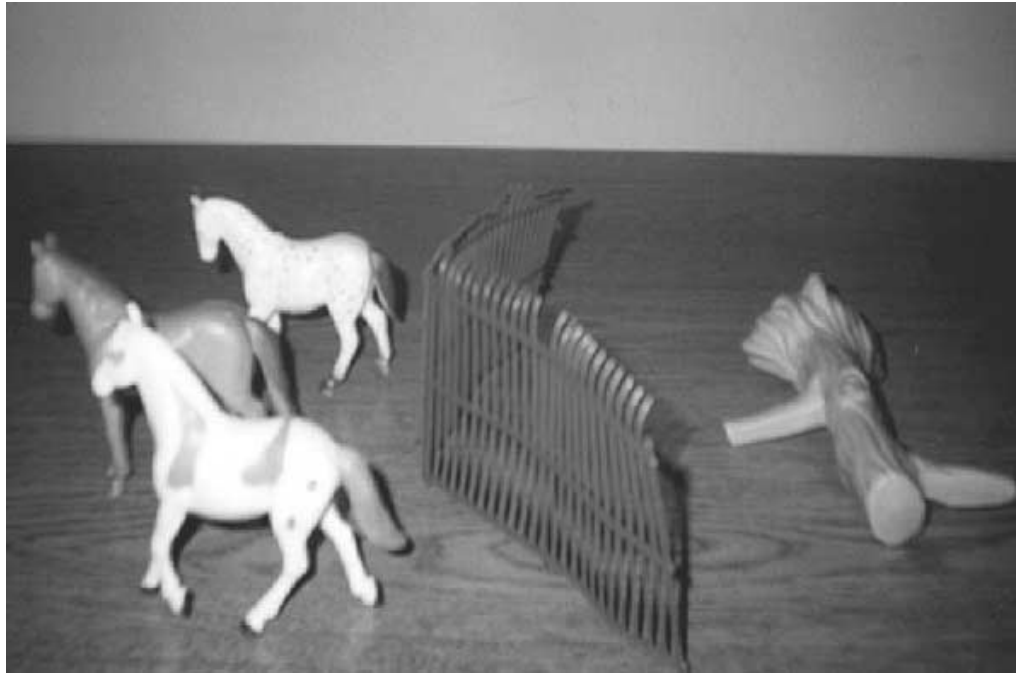
Markman & Wachtel (1988)

Searching for dissociations

Phenomenon	Grice 1975	Horn 2006	Sperber and Wilson 2004	Bach 1994	Levinson 2000
Underspecification	Said	Said	Explicature	Implicature	Presumptive
Numeral upper-bounds	GCI	Said	Explicature	Implicature	Presumptive
Ordering with <i>and</i>	GCI	CI	Explicature	Implicature	Presumptive
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Particularized inferences	CI	CI	CI	CI	CI

- The project of distinguishing these theoretical classes is finding phenomena that dissociate them
 - E.g. numerals are fast, lexical SIs are slow (Huang & Snedeker, 2009a)
- Differences in processing and development, as well as linguistic properties, can provide dissociations

Papafragou & Musolino (2003) E1



Some of the horses jumped over the log

some / two / started

Papafragou & Musolino (2003) E1

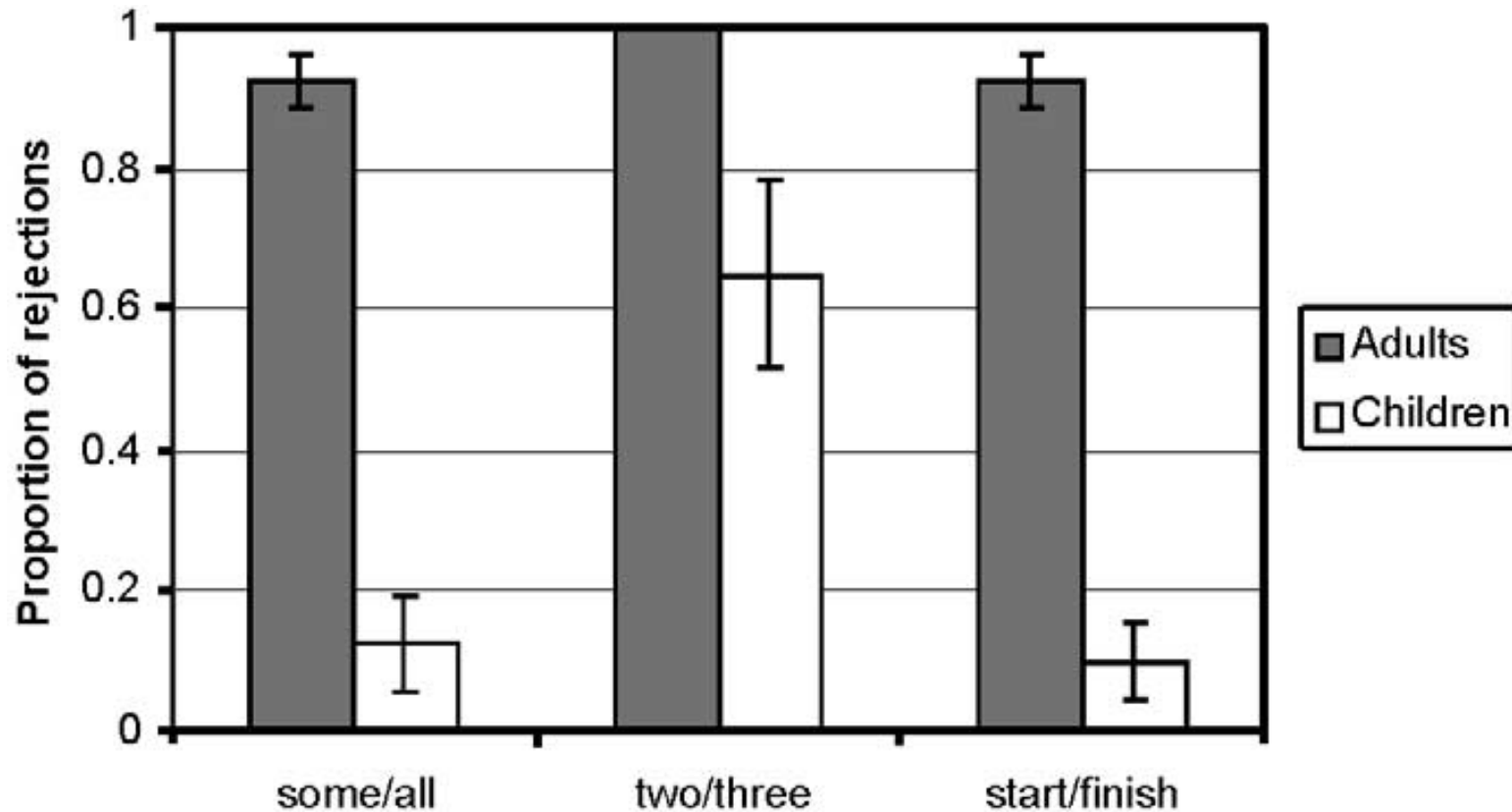
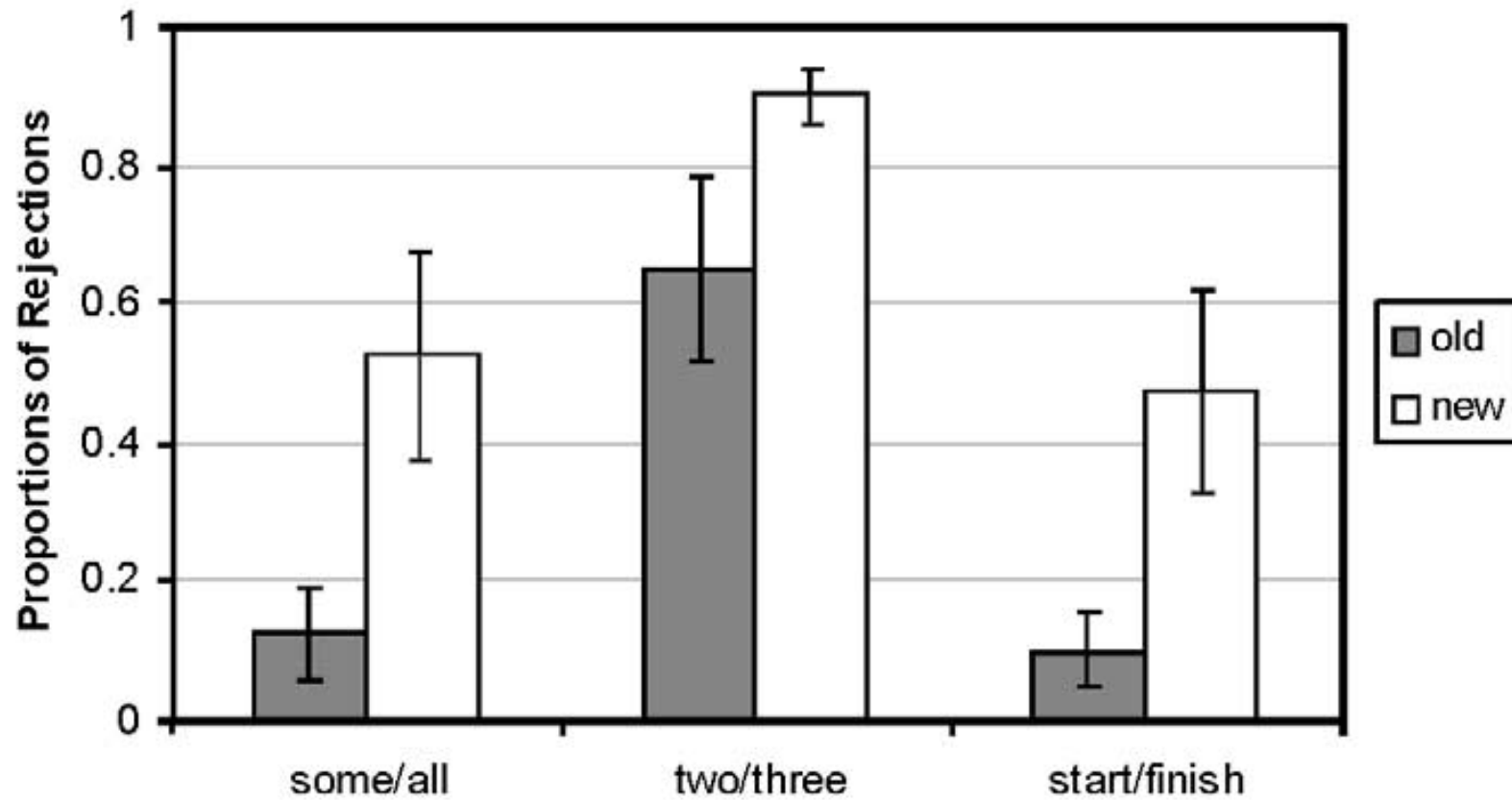


Fig. 3. Subjects' performance on critical trials (experiment 1).

Papafragou & Musolino (2003) E2

- TVJT focused on pragmatic felicity rather than strict truth
 - May not have been obvious to children
- Modify paradigm to make it more obvious
 - Training on puppet who says infelicitous things
 - All situations competitions, puppet comments on the result of the competition

Papafragou & Musolino (2003) E2



Katsos & Bishop (2011) – brief interlude

Table 1

Proportion of type of response in experiment 2.

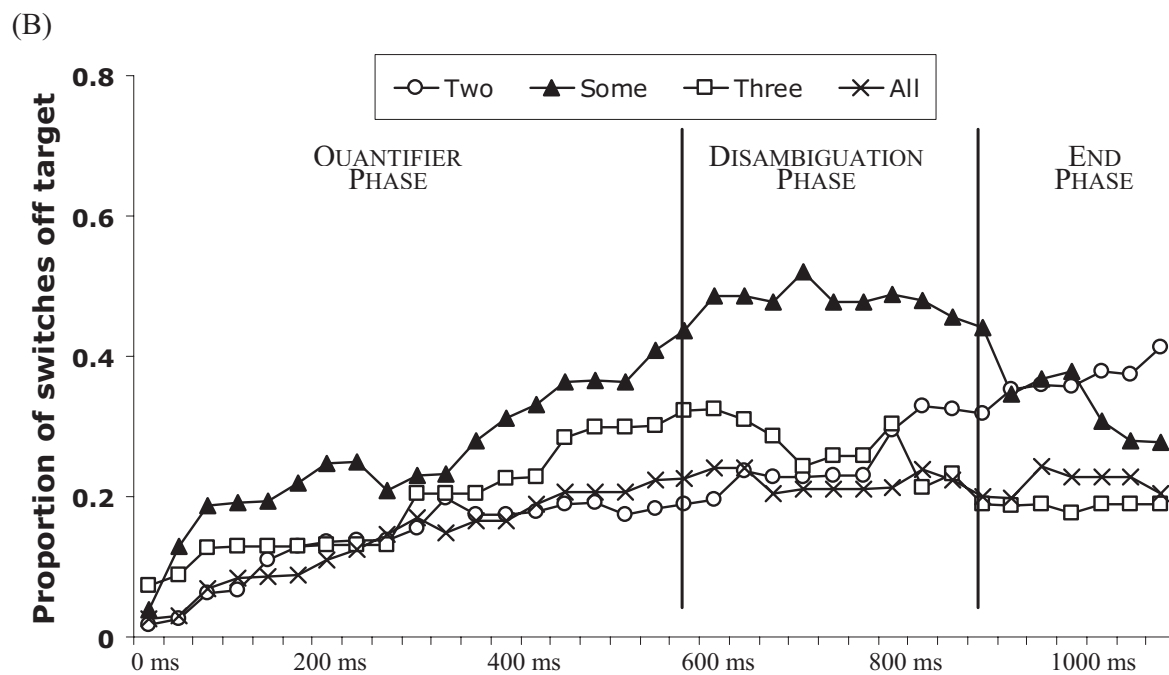
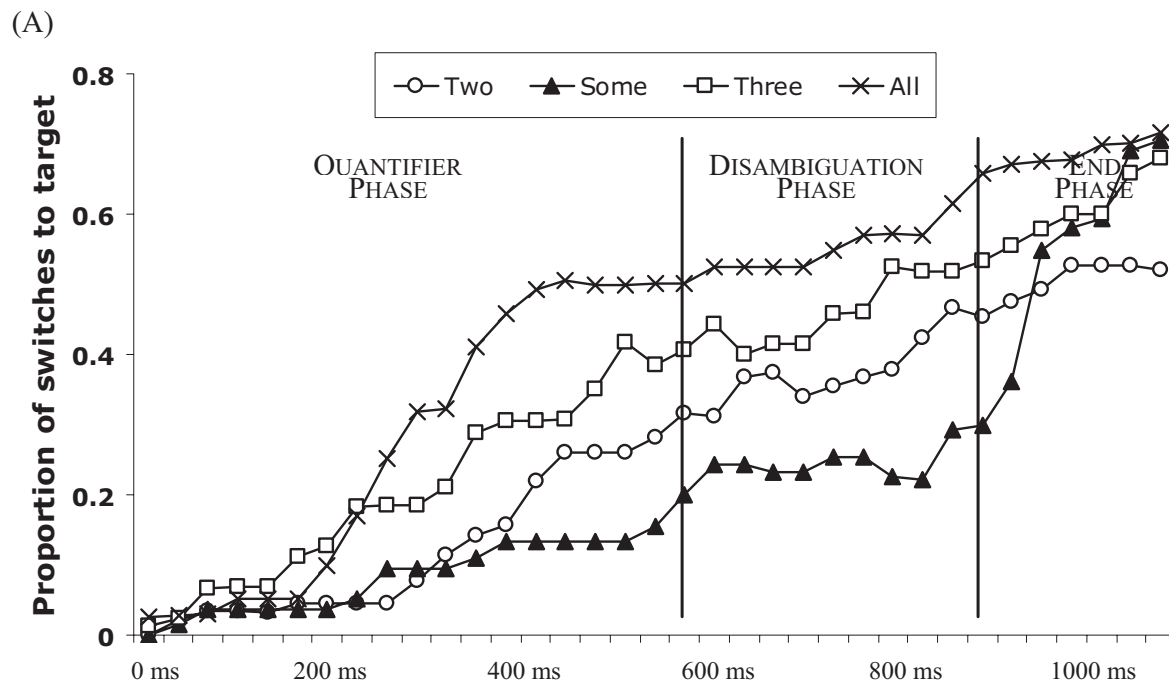
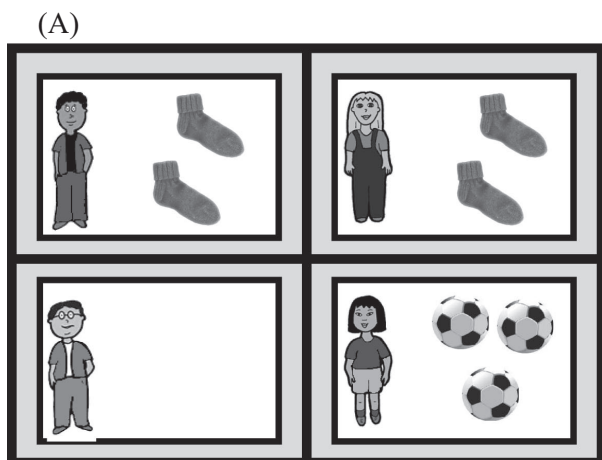
Type of utterance	Type of response	Scalar	Non-scalar	Total
Optimal	3 – ‘huge’	85	100	92.5
	2 – ‘big’	0	0	0
	1 – ‘small’	15	0	7.5
Underinformative	3 – ‘huge’	0	6	3
	2 – ‘big’	89	85	87
	1 – ‘small’	11	9	10
False	3 – ‘huge’	5	0	2.5
	2 – ‘big’	0	0	0
	1 – ‘small’	95	100	97.5

Children detect underinformativeness when given the option (though this doesn’t mean they compute SIs)

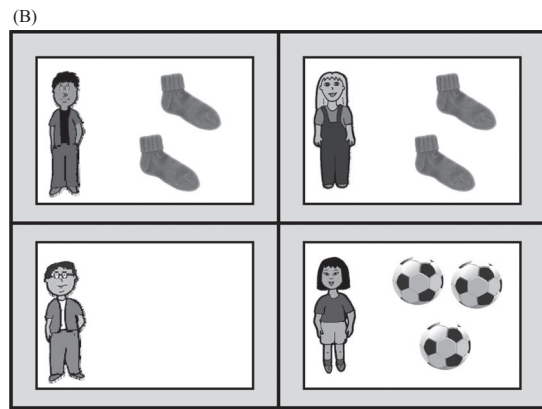
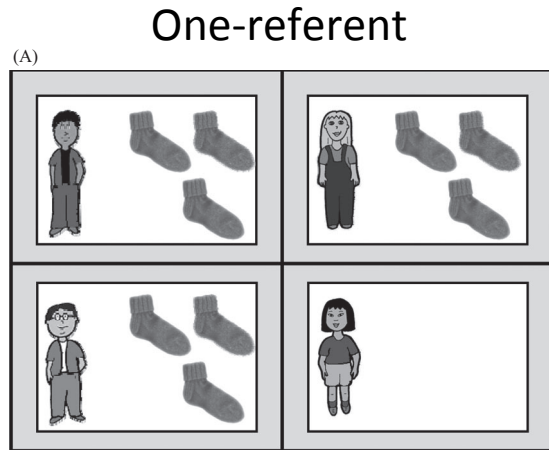
Huang & Snedeker (2009b)

- Comparison of children with adults
- E1: some / all / two / three
- E2: will “some” always be slow? Or only in cases where implicature is necessary?
- E3: will children ever notice implicature inconsistent material?

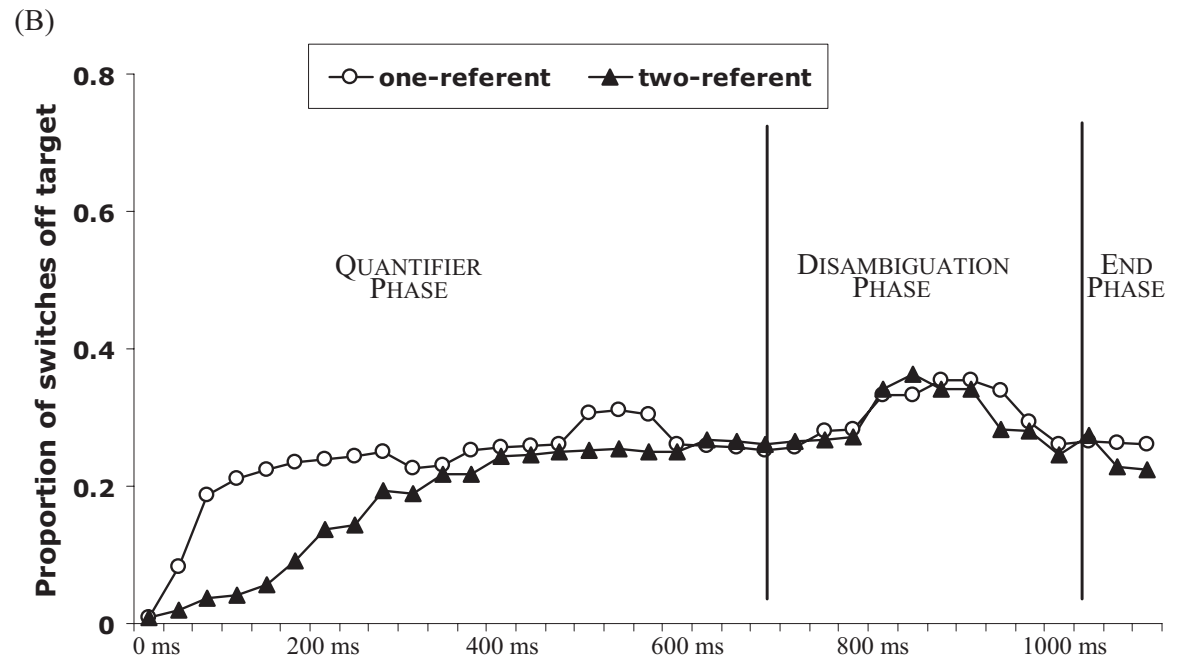
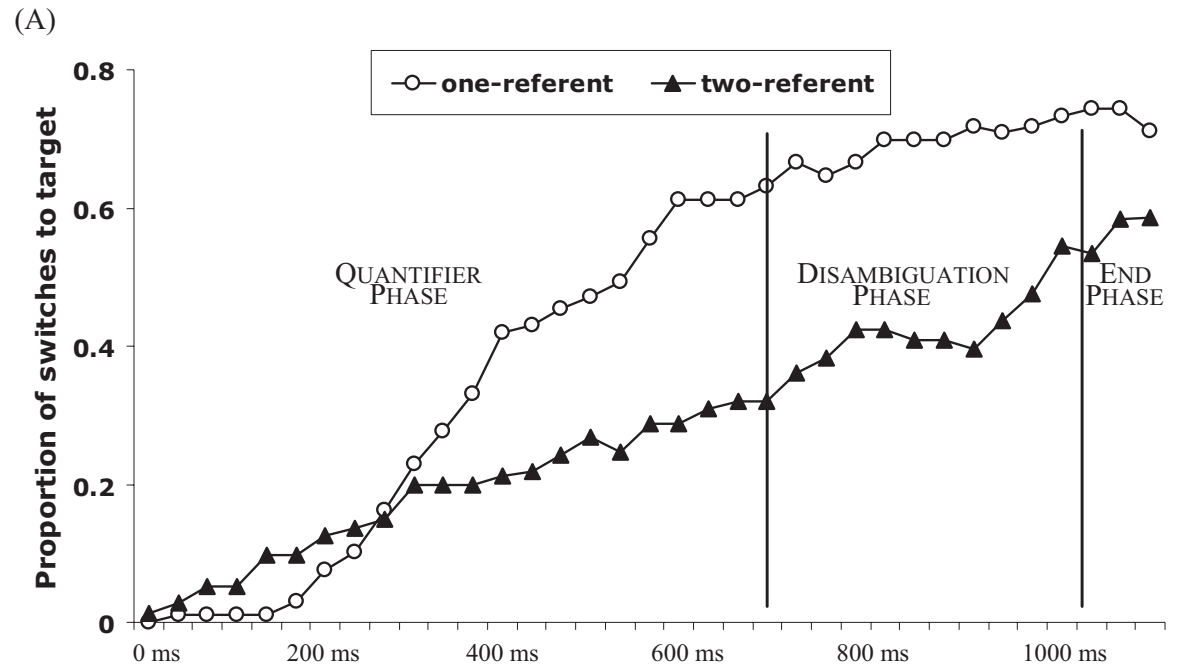
E1



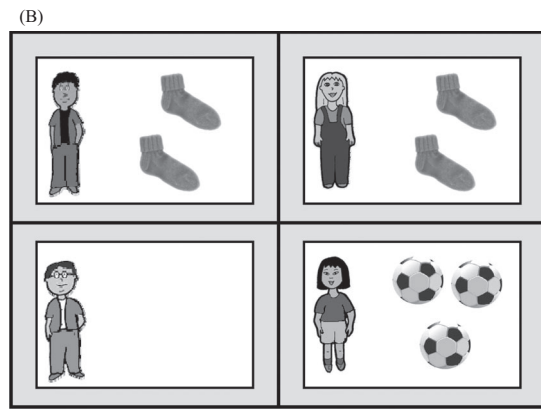
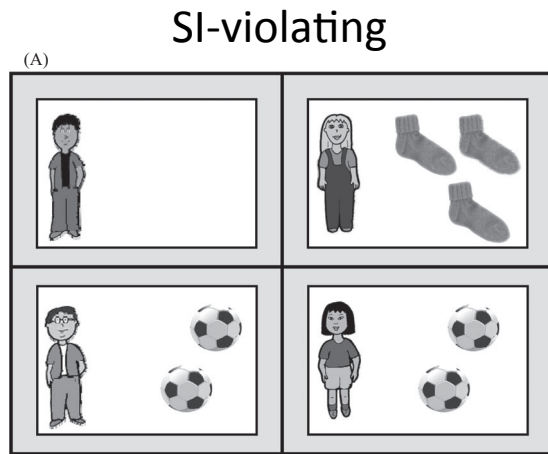
E2



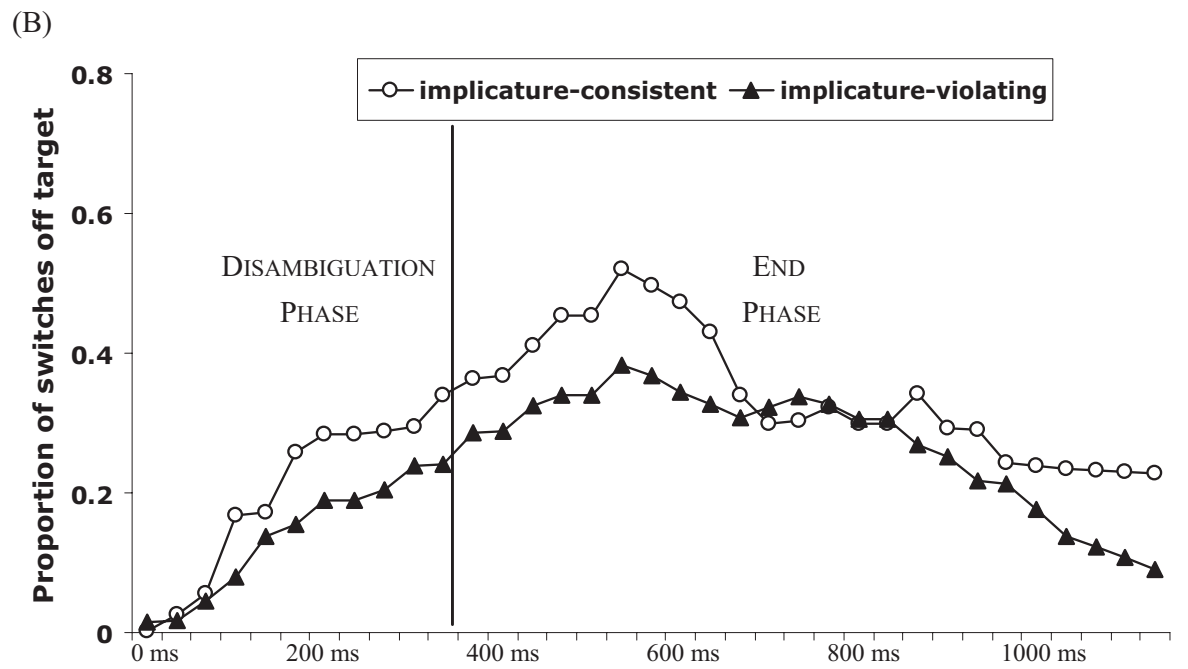
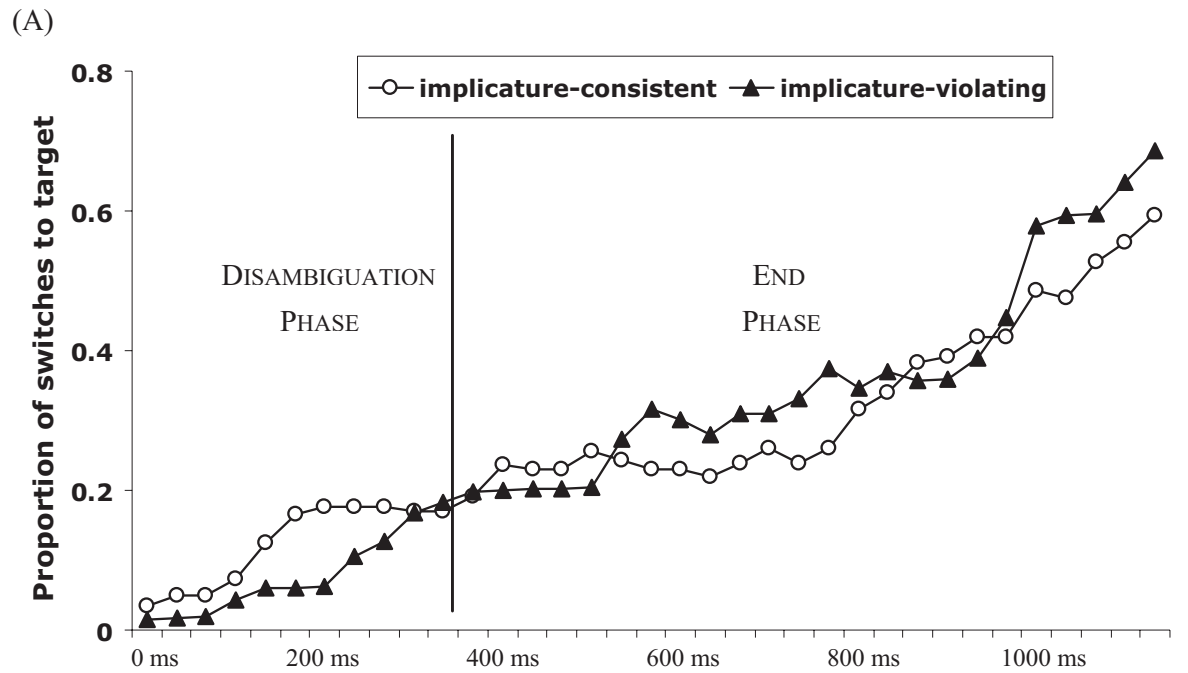
Two-referent



E3



SI-consistent



Papafragou & Tantalou (2004)

- Quantifier
 - Q: “Did you eat the oranges?” Tiger: “I ate some.”
 - Does Tiger get the prize for eating all?
- Encyclopedic (based on world knowledge)
 - Q: “Did you eat the sandwich?” A: “I ate the cheese.”
- Ad-hoc (based on specifics of situation)
 - Q: “Did you wrap the gifts?” A: “I wrapped the parrot.”

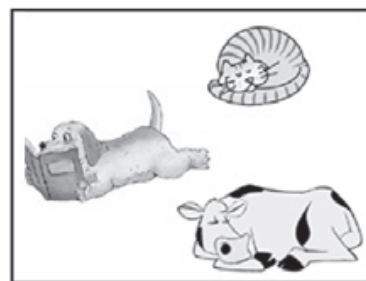
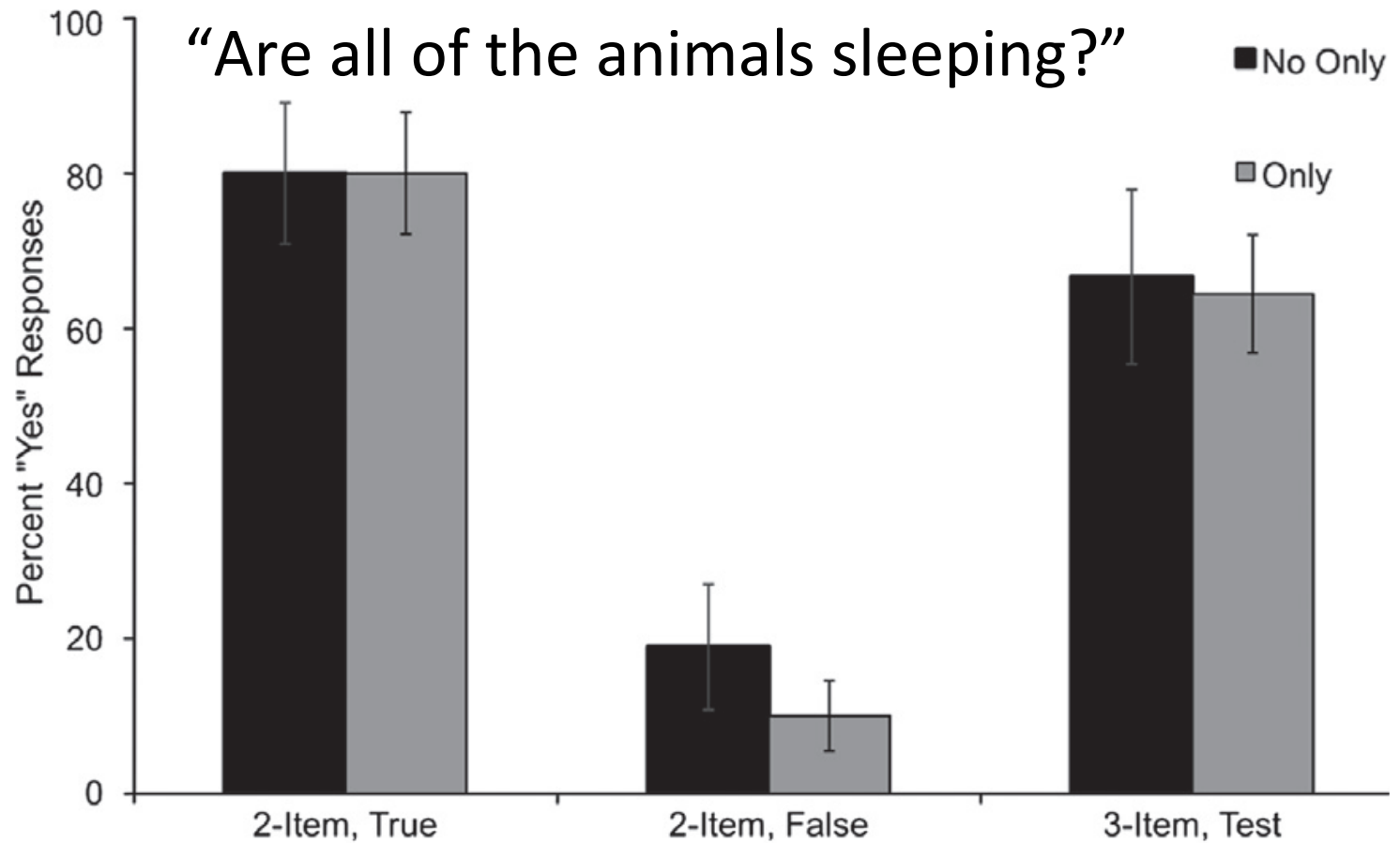
Condition	Test trials	Control trials
Quantifier	77.5%	97.5%
Encyclopedic	70%	100%
Ad hoc	90%	92.5%

Barner, Brooks, & Bale (2011)

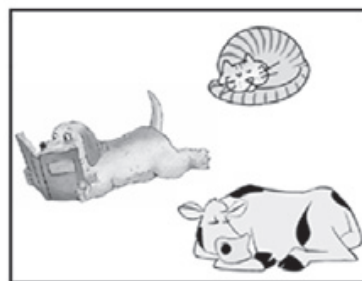
- I. Compute basic meaning of a sentence S containing L , a scalar item.
- II. Generate a set of alternatives (a_1, a_2, \dots, a_n) to S , called S_{alt} . These are all the sentences that can be generated by replacing L with its scalar alternatives.
- III. Restrict the alternatives in S_{alt} by removing any alternative that is entailed by the original utterance S . Call this restricted set S^* .
- IV. Strengthen the basic meaning of S (containing L) with the negation of all of the members of S^* .

- Step 2 seems to be the problematic one, test this by A) providing alternatives and B) restricting them using only
- Failure modes:
 - Not knowing the alternatives
 - Not being able to hold them in mind (working memory)

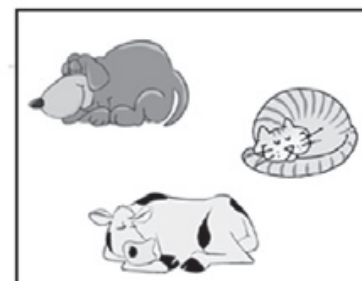
Barner, Brooks, & Bale (2011)



Some/Only some?



All?

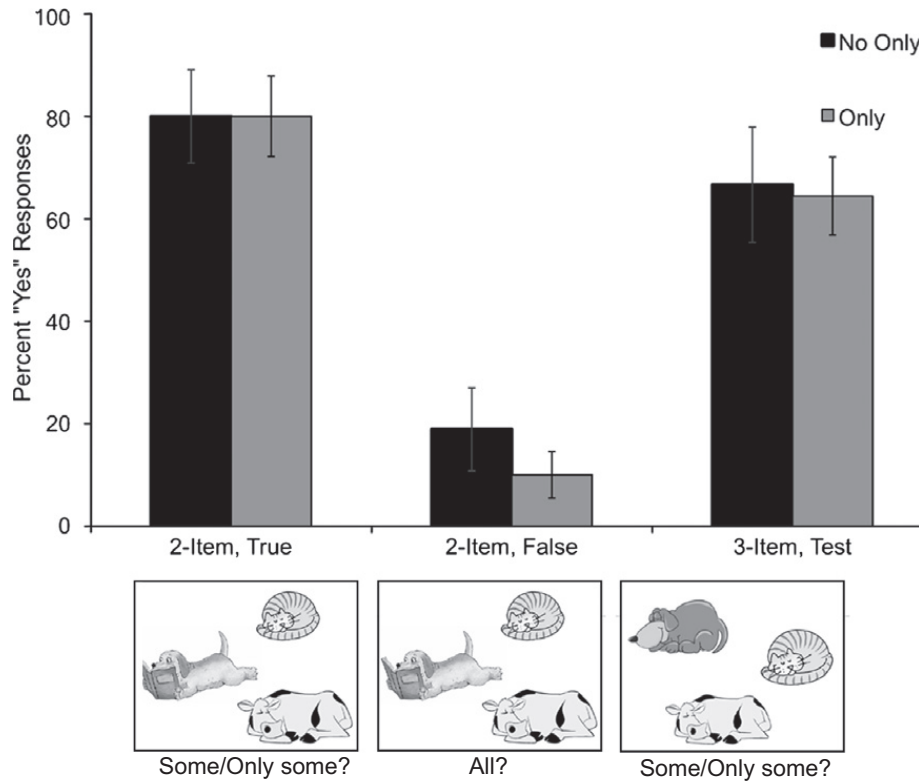


Some/Only some?

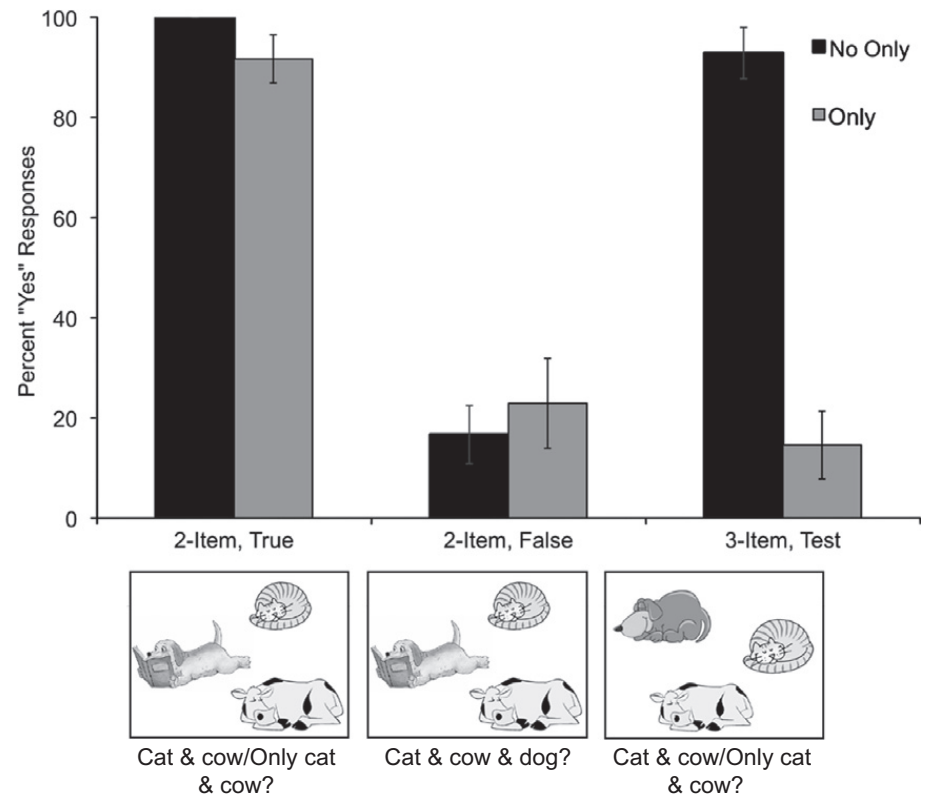
4-5 years

Barner, Brooks, & Bale (2011)

Context-independent alternatives



Contextually-defined alternatives



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- The project of distinguishing these theoretical classes is finding phenomena that dissociate them
- **What distinctions can we make?**