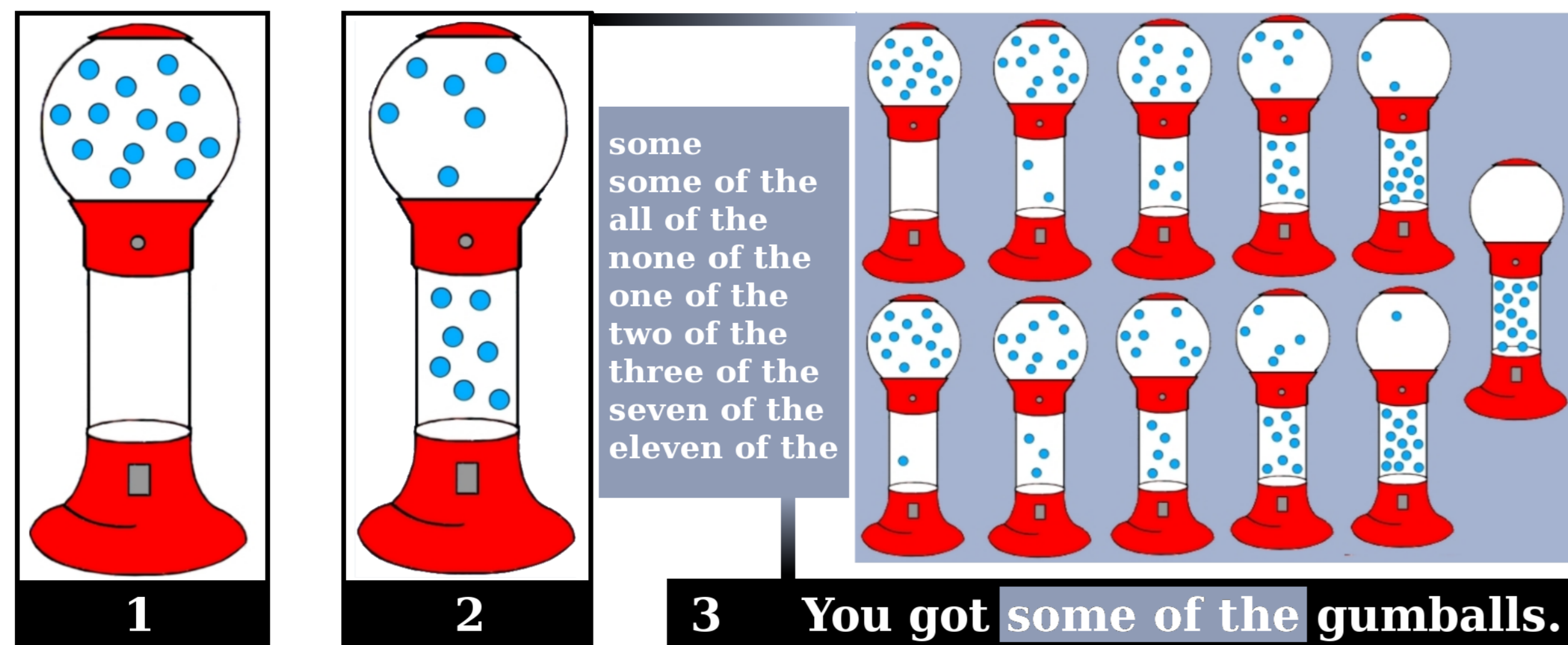


Abstract

We provide evidence from naturalness, response time, and eye-tracking studies that the likelihood and speed of scalar implicature computation (from *some* to *some but not all*) depend on the **naturalness of available lexical alternatives**, the scalar item's **syntactic context**, and **speaker competence** wrt the stronger alternative.

Experiments 1 & 2

Materials and procedure



112 trials, manipulated **quantifier** construction and **set size** in lower chamber

Experiment 1

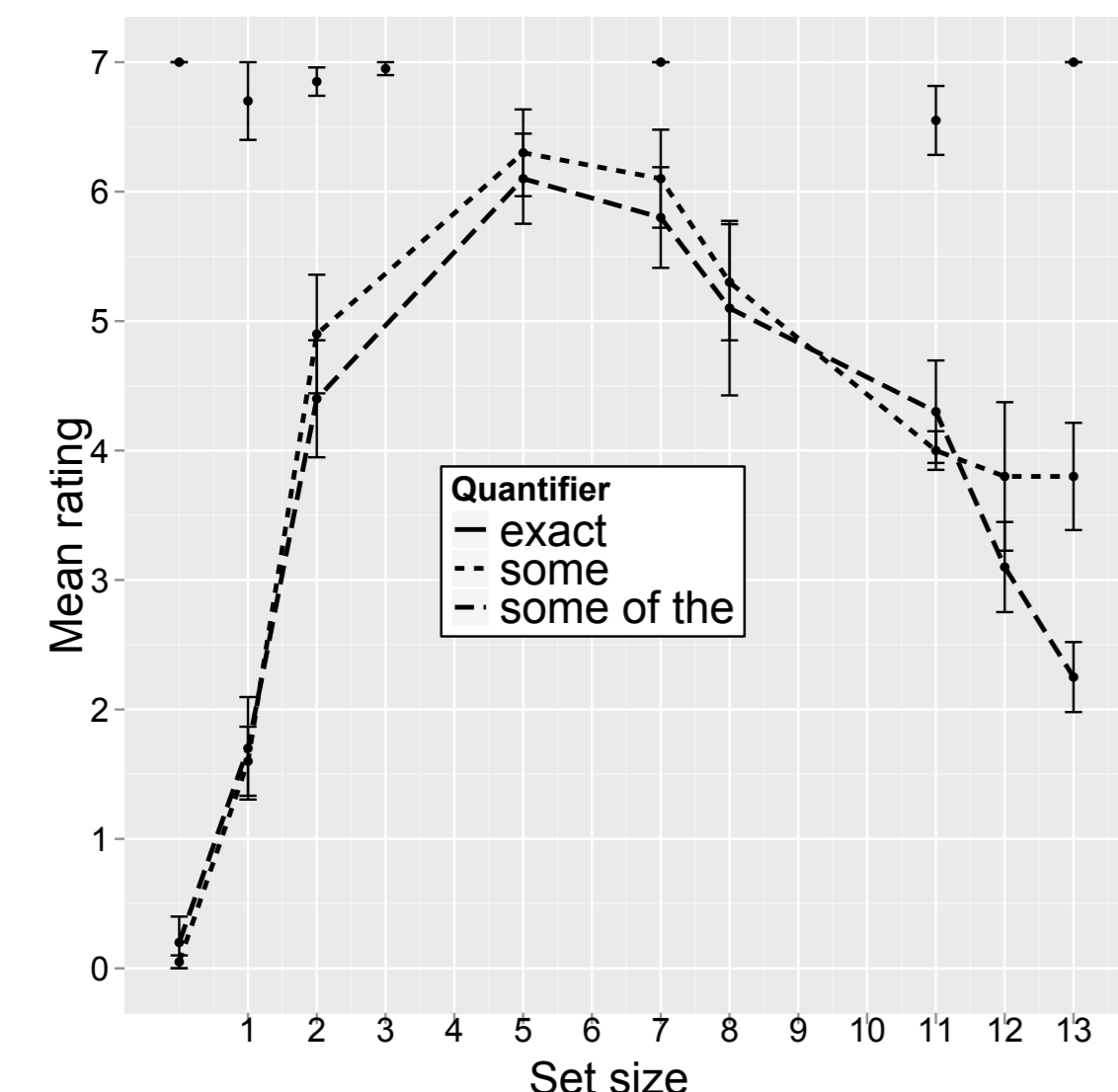
20 participants.

Task: Rate naturalness of statement as description of scene (7-point scale)

Predictions

- decreased naturalness of *some* in subitizing range (where number term readily available) and for unpartitioned set (where *all* is available)
- for unpartitioned set, simple *some* more natural than partitive

Results



- some* less natural in each comparison, but lowest in subitizing range (1-4 gumballs, $\beta = 3.68$, $SE = 0.48$, $p < .001$) and for unpartitioned set (all gumballs, $\beta = 3.98$, $SE = 0.47$, $p < .001$)
- partitive less natural than simple *some* when used with unpartitioned set ($\beta = 1.55$, $SE = 0.39$, $p < .01$)

Experiment 2

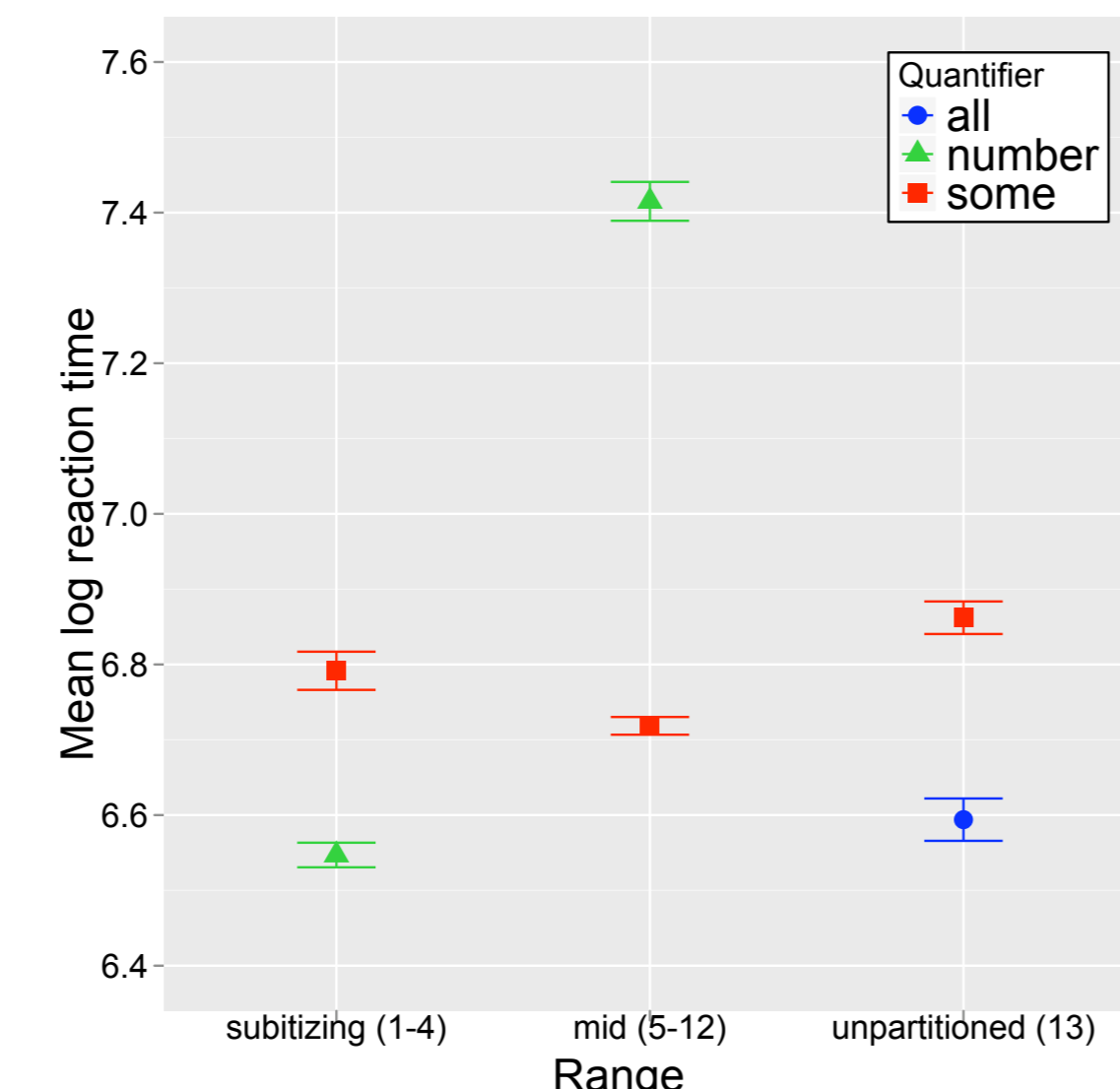
27 participants.

Task: 2-alternative forced choice agree / disagree task

Predictions

- where more natural alternatives available, slower responses to *some* (regardless of whether or not an implicature is computed)
- more implicatures for partitive than simple *some*

Results



- pragmatic interpretation slower than semantic ($\beta = .14$, $SE = .06$, $p < .01$)
- AGREE responses: increased RTs for *some* in subitizing range and for unpartitioned set
- judgments for unpartitioned set:

	all of the	some	some of the
% AGREE	99	91	58

Conclusion

Speed and probability of scalar implicature depend on multiple cues

- differing effects of syntactic form, naturalness of available lexical alternatives, speaker competence
- implicature may be computed with speed associated with default inferences if strongly supported by probabilistic constraints, but may require more processing effort if constraints are weak/in competition

Introduction

Default or context-driven inferences?

Conflicting evidence (Bott & Noveck, 2004, Huang & Snedeker, 2009, Grodner et al., 2010)

Possible synthesis in constraint-based framework (Trueswell et al., 1994)

- robustness and speed of scalar implicature depend on multiple probabilistic cues which are integrated depending on their strength and reliability as soon as they become available
- predicts rapid implicatures when supported by cues, slower with increasing cue conflict

What are (some of) the cues?

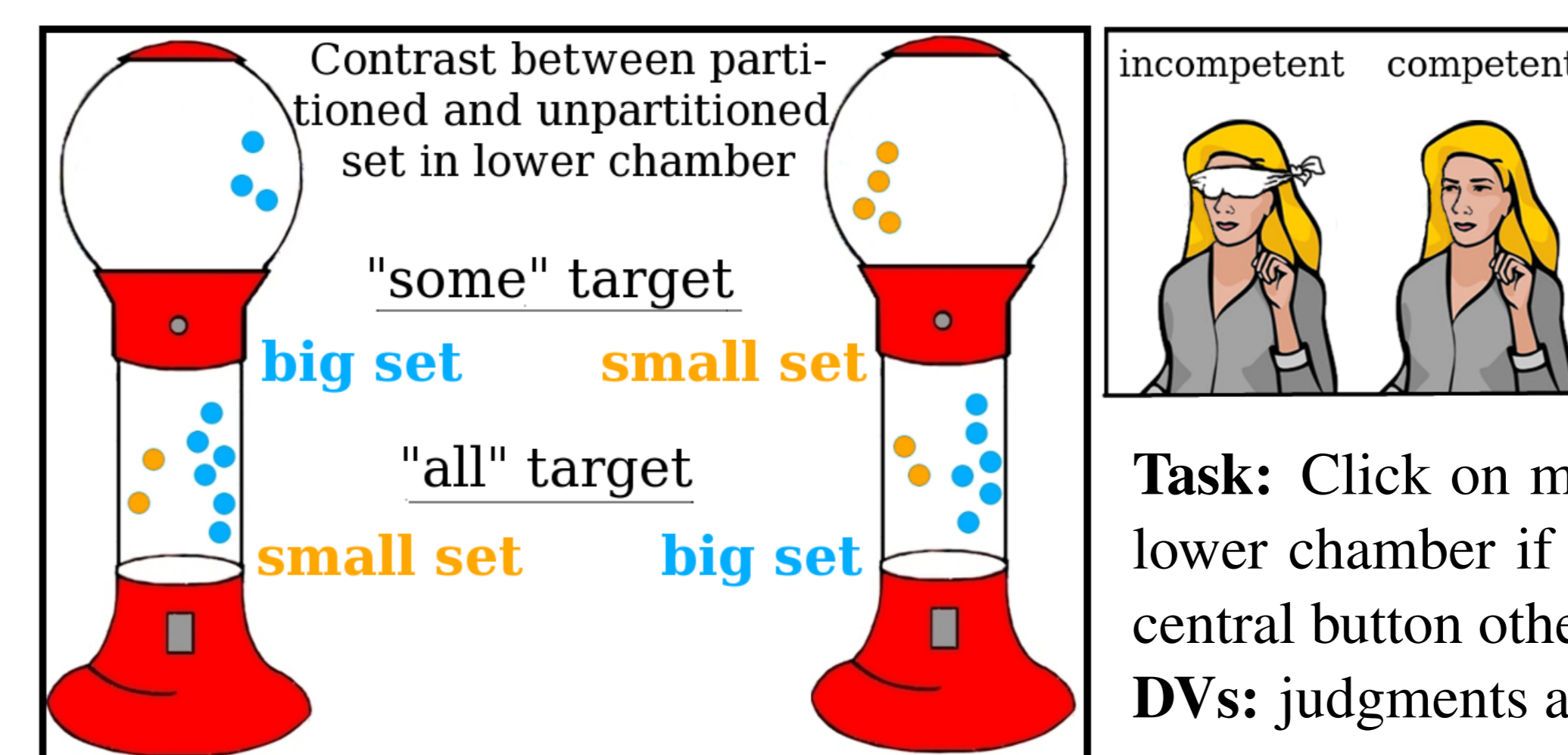
- naturalness of lexical alternatives** (Exp 1, 2, 3): interference predicted with interpretation of *some* if more natural lexical alternatives are available (independent of implicature). Previous visual-world studies used stimuli with set sizes in subitizing range (Huang & Snedeker, 2009, Grodner et al., 2010). If number terms more natural than *some* in subitizing range, interference expected. Similar for unpartitioned set (where *all* is alternative).
- syntactic context** (Exp 2): partitive vs. simple *some*. More implicatures expected with partitive (Partitive Constraint: embedded NP should discourse accessible (Reed, 1991))
- speaker competence** (Exp 3) wrt stronger alternative is required for factual implicature. Interference predicted when comprehenders believe that speaker is incompetent.

Scalar implicature

Alex: Did you submit your paper?
Thomas: Some of the sections are written.
~> Not all of the sections are written.

Experiment 3

Materials and Procedure



IVs

- target size
- quantifier
- competence
- contrast presence

Task: Click on mentioned gumballs in lower chamber if statement correct, on central button otherwise.

DVs: judgments and eye movements

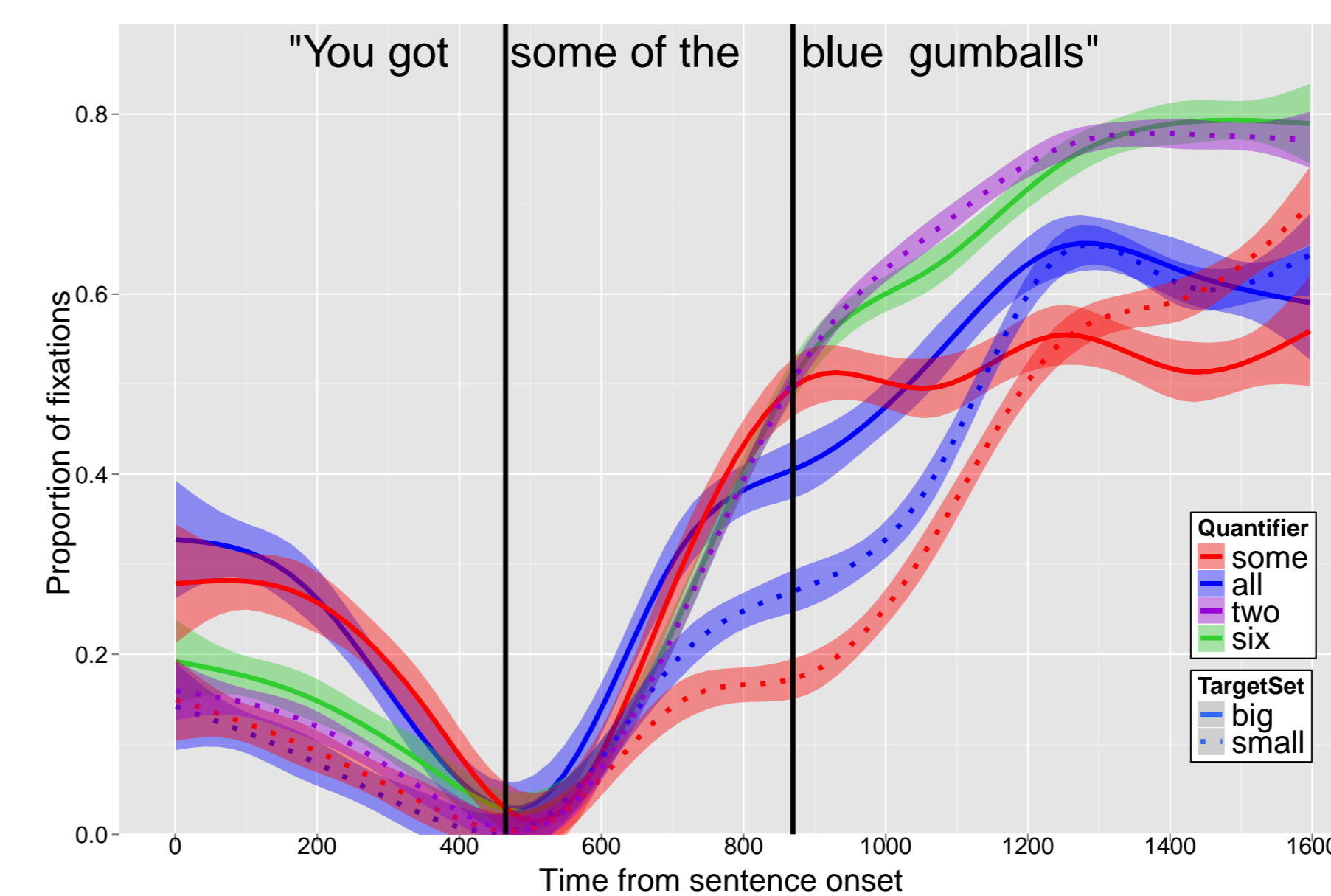
You got some/all/two/six of the blue/orange gumballs.

24 participants, 120 trials. Included *garden-path* trials (*some* used with unpartitioned set) to assess implicature rates

Predictions

- fast convergence on target for number terms (Huang & Snedeker, 2009)
- delayed implicatures relative to *all* / number terms for set sizes in subitizing range (where number terms are more natural alternatives), but not for larger sets
- delayed implicatures for incompetent compared to competent speaker trials for *some* but no other quantifier

Results



- Judgments**
54% implicatures
- Eye movements**

– analysis: mixed effects logistic regression on subset of data in contrast condition with off-target looks at quantifier onset; predicting target looks; subject and item random intercepts

– delay in convergence on target for *some* compared to *all* and number terms for small but not for big set ($\beta = 1.12$, $SE = 0.56$, $p < .05$)

– delay in convergence on target for incompetent compared to competent *some* ($\beta = 0.42$, $SE = 0.14$, $p < .05$), but no difference for any other quantifier

