

Children's expectations of reciprocity in referential communication

Myrto Grigoroglou & Patricia A. Ganea
m.grigoroglou@utoronto.ca

Background

- Communication is a collaborative process governed by **rational expectations**.¹
 - Listeners expect speakers to be appropriately informative, truthful, relevant and perspicuous.
 - However, in everyday talk exchanges, participants often **violate conversational expectations**.
E.g., Speakers violate expectations of **informativeness** by offering less information than listeners need.
 - Although non adult-like, **children appear sensitive to such violations**, across a variety of phenomena.²⁻⁴
E.g., Children give lower ratings to under-informative speakers (as opposed to fully informative ones)² and consider under-informative teachers as less helpful.³
- ### Current Study
- Is children's communicative behavior affected by whether a partner previously violated conversational expectations?
 - In the social domain, children do not share resources with uncooperative partners (defectors) who fail to reciprocate.⁵
 - In communication, would children adjust the amount of information they give to a conversational partner based on how informative (i.e., helpful) the partner was towards them in a prior interaction?

Results

Informativeness rating task

Table 1. Number of children who gave big or small rewards to the informative and under-informative puppets. Stars indicate statistically significant comparisons to chance (.5) in binomial tests.

reward	Informative puppet		Under-informative puppet		Total
	big	small	big	small	
4s	36***	2	8	29**	38
5s	34***	1	7	28***	35

** p < .01, *** p < .001

- Both 4- and 5-year-olds were more likely to give the appropriate reward to the informative rather the under-informative puppet ($\beta = -9.09$, $SE = 1.82$, $z = -4.97$, $p < .001$).

• Based on informativeness ratings, we coded children's **pragmatic sensitivity**:

- **Pragmatic responders:** Children who gave the big reward to the informative puppet **and** the small reward to under-informative puppet.

Referential communication task

Figure 1. Proportion mention of target modifiers by 4- and 5-year-old children in the helpful and unhelpful partner condition.

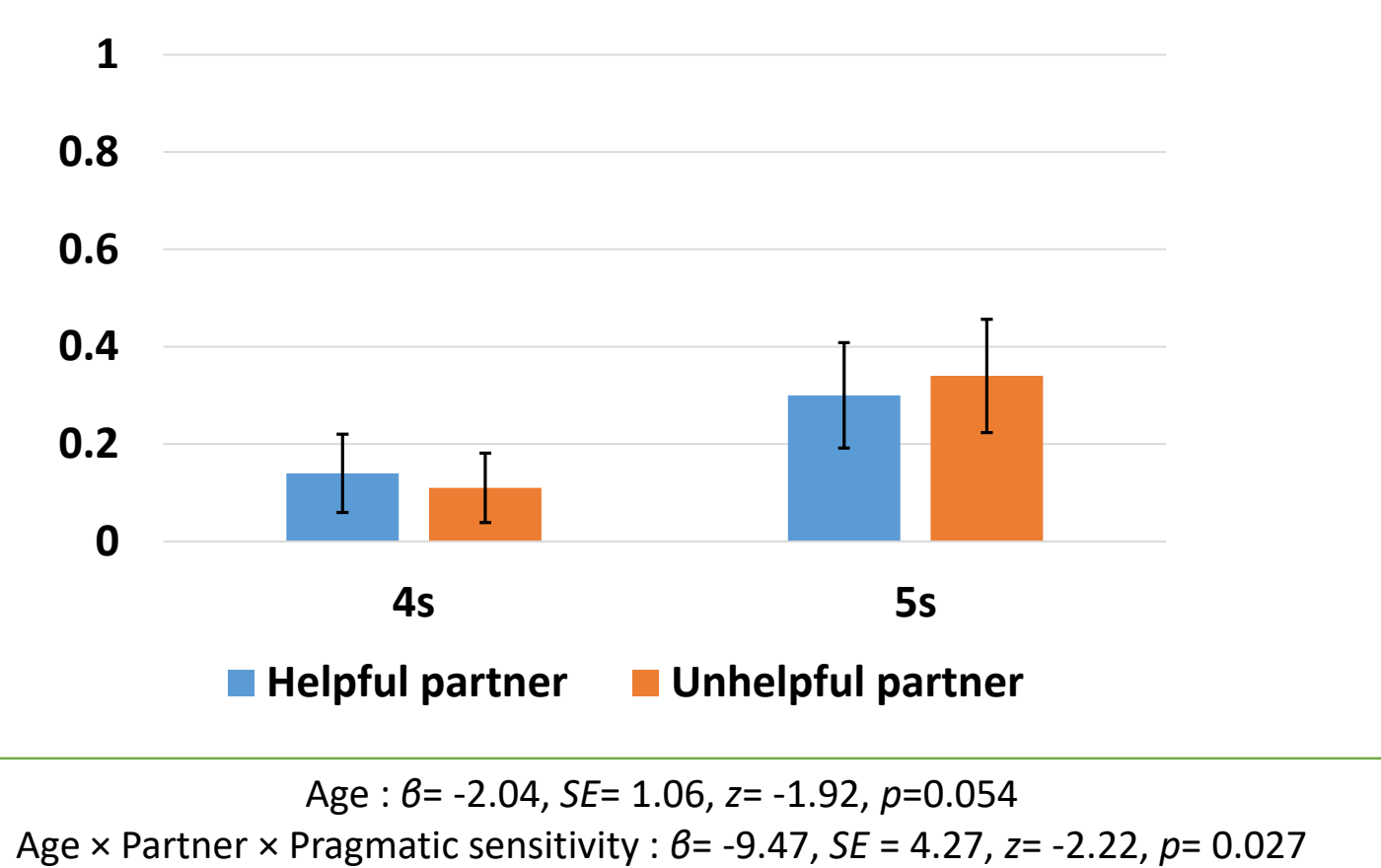
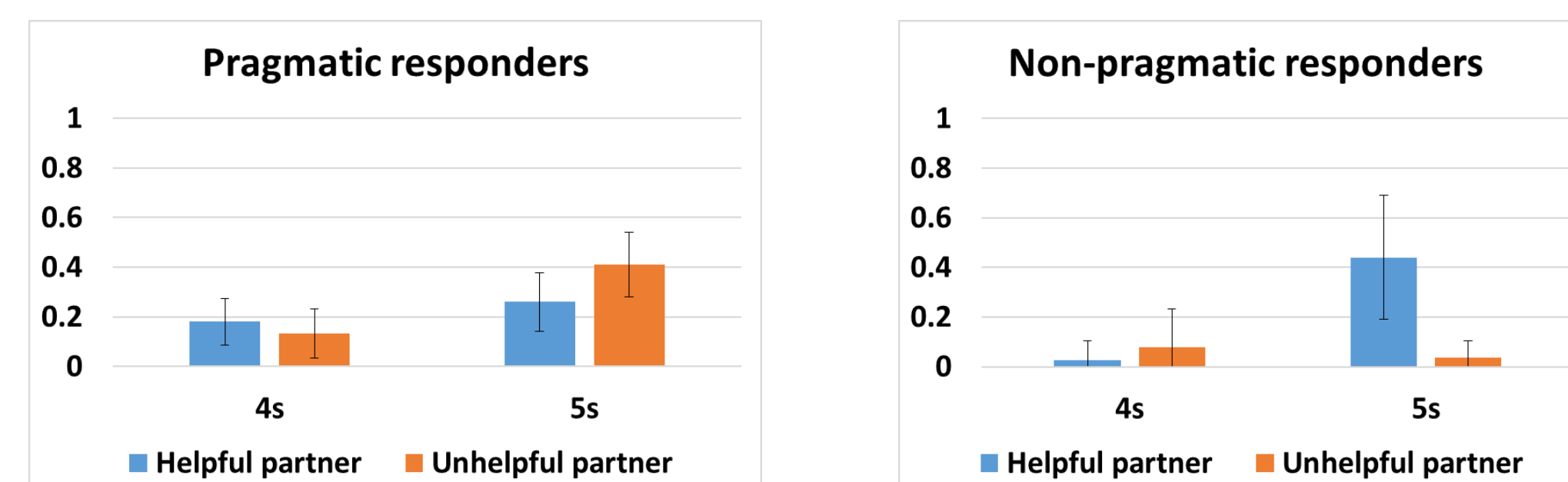


Figure 2. Results graphed for pragmatic and non-pragmatic responders separately.



References

(1) Grice, H. P. (1975). Logic and conversation. In P. Cole & J. L. Morgan (Eds.), *Syntax and semantics: Vol. 3. Speech acts* (pp. 41–58). New York, NY: Academic Press. (2) Katsos, N., & Bishop, D. V. M. (2011). Pragmatic tolerance: Implications for the acquisition of informativeness and implicature. *Cognition*, 120(1), 67–81. (3) Gweon, H., & Asaba, M. (2018). Order Matters: Children's Evaluation of Underinformative Teachers Depends on Context. *Child Development*, 89(3), e278–e292. (4) Morisseau, T., Davies, C., & Matthews, D. (2013). How do 3- and 5-year-olds respond to under- and over-informative utterances? *Journal of Pragmatics*, 59, 26–39. (5) Warneken, F. (2018). How children solve the two challenges of cooperation. *Annual Review of Psychology*, 69(1), 205–229.

Acknowledgement This work is supported by funds from the Natural Sciences and Engineering Research Council of Canada (NSERC, 2016-05603) awarded to P.A.G. and the Social Sciences and Humanities Research Council of Canada (Insight Development grant) awarded to P. A. G. and M.G..

Methods

Participants

38 4-year-olds (M = 4;6, range = 4;0 – 4;11) and 35 5-year-olds (M = 5;7 months, range = 5;1 – 6;0)

Informativeness rating task

Introduction



E1: I will hide some stickers and Wendy and Sally will help you find them. Then, we will tell Wendy and Sally how helpful they were, so that they can do a better job next time. If they do a very good job, we will give them a big strawberry. If they don't do a good job we will give them a small strawberry.

Example trial



Children are presented with 3 containers. E1 hides a sticker inside one container while the puppet watches. Puppet (enacted by E2) offers a clue.

n = 4 (2 per puppet)

Puppet rating

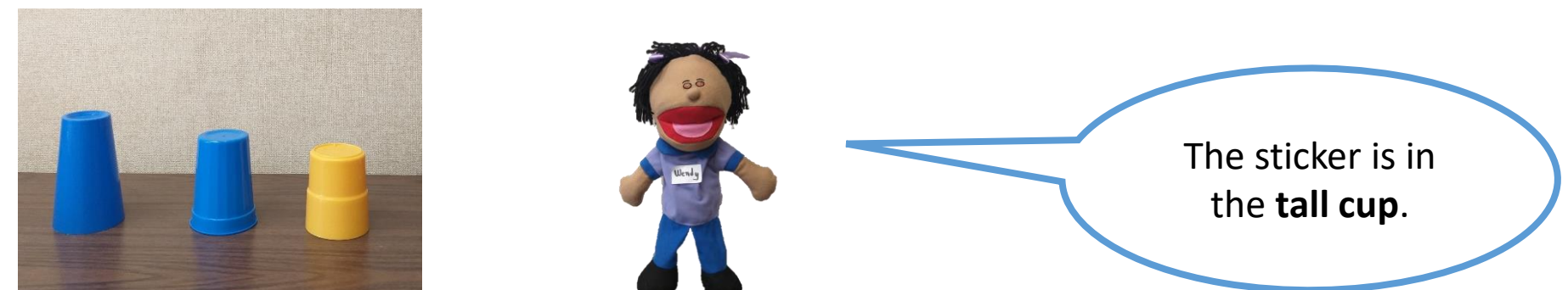


E1: Was the puppet helpful? Should she get a big or a small strawberry?

Each puppet was rated after 2 trials


2 within-subjects conditions

1. Informative/helpful puppet



The sticker is in the tall cup.

2. Under-informative/unhelpful puppet

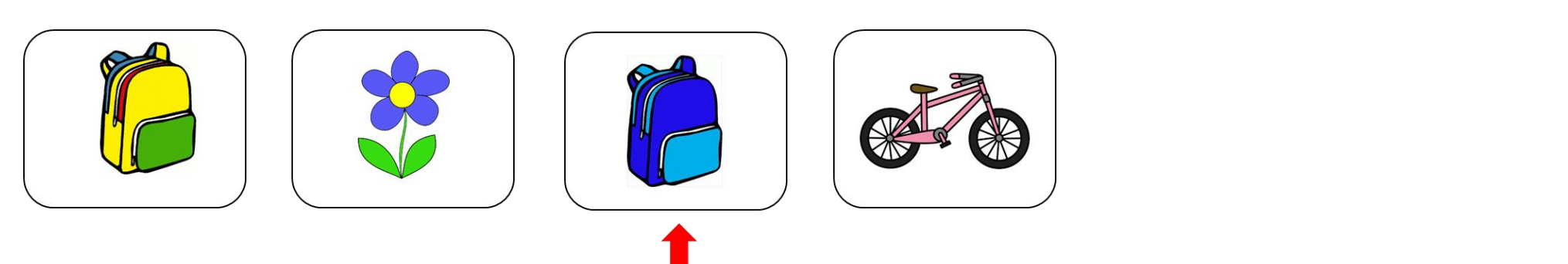


The sticker is in the blue cup.

Referential communication task

Task: Children had to uniquely specify the target card (indicated by a red arrow) for the puppet. The puppet had a binder with the same cards as the children. The puppet's goal was to identify the right cards so that she could complete a board game and win a treasure.


Example trial



E.g., "It's the blue backpack".


Total of 16 trials (10 Test trials)

2 between-subjects conditions



Helpful partner

Children described the pictures for the informative/helpful puppet.



Unhelpful partner

Children described the pictures for the under-informative/unhelpful puppet.

Conclusion

- Children were **sensitive** to speakers' violations of informativeness.²⁻⁴
 - Both 4- and 5-year-old children successfully awarded informative speakers with a big reward and penalized under-informative speakers with a small reward.
- Despite this sensitivity, preschoolers, overall, **did not tailor** their descriptions to **the informativeness of their partner** (with the exception of non-pragmatic responders).
 - Most 4- and 5-year-olds produced the same amount of modifiers, independently of the partner's helpfulness.
 - Contrary to our predictions, less (rather than more) pragmatically sensitive children produced more target modifiers for the sake of a helpful conversational partner.
- These findings leave open the possibility that **broad cooperation expectations** may **operate differently** in the communicative and non-communicative domains.
 - Perhaps children are more tolerant to violations of cooperation in conversation than other social interactions.