Is children's referential communication affected by a conversational partner's helpfulness?

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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?

Methods

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

The sticker is in the purple bin.

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.

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.

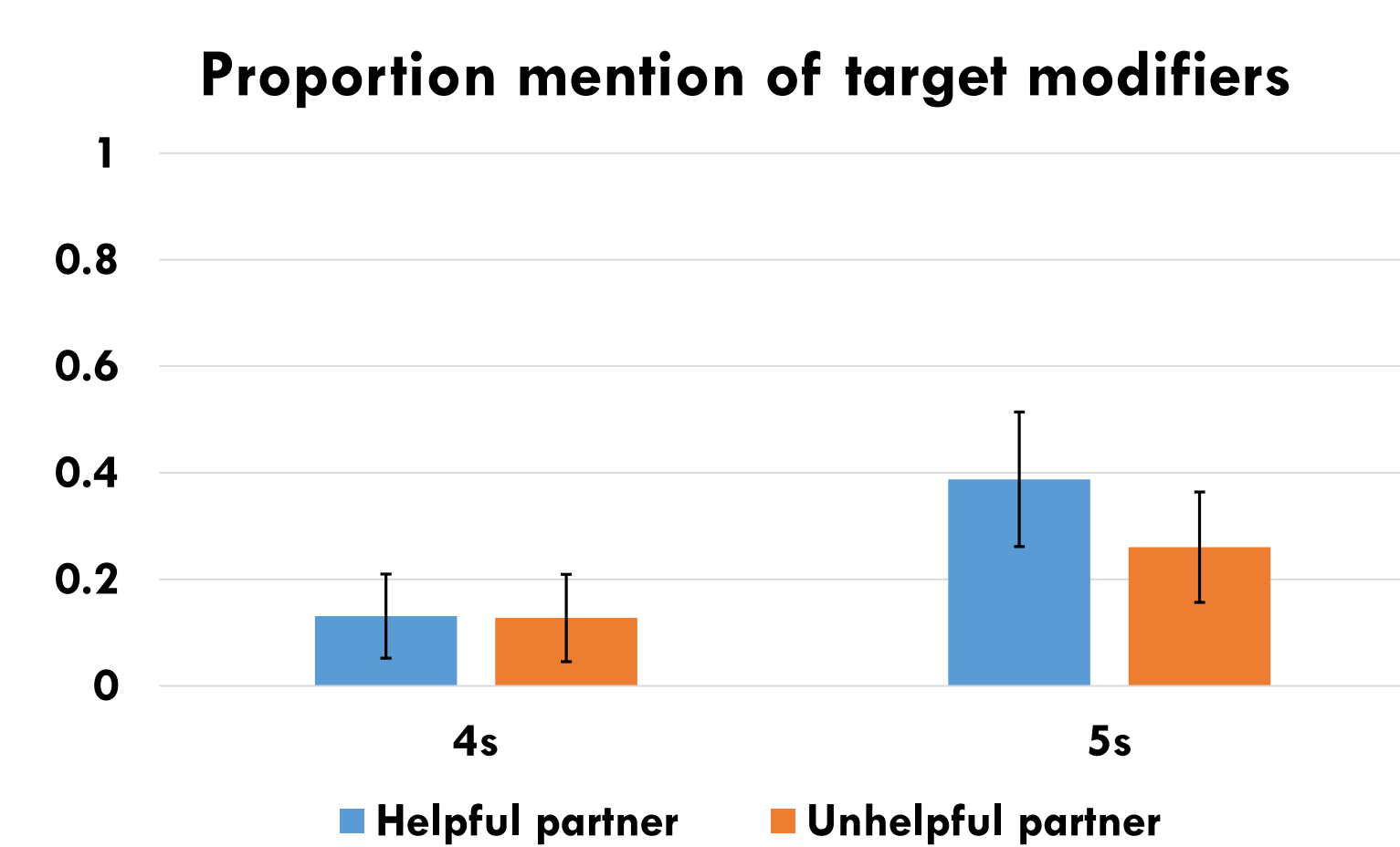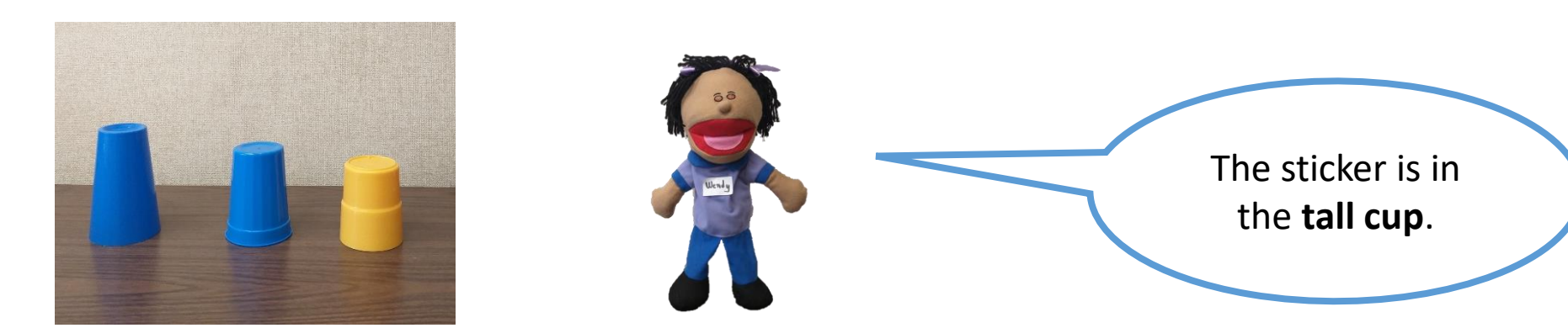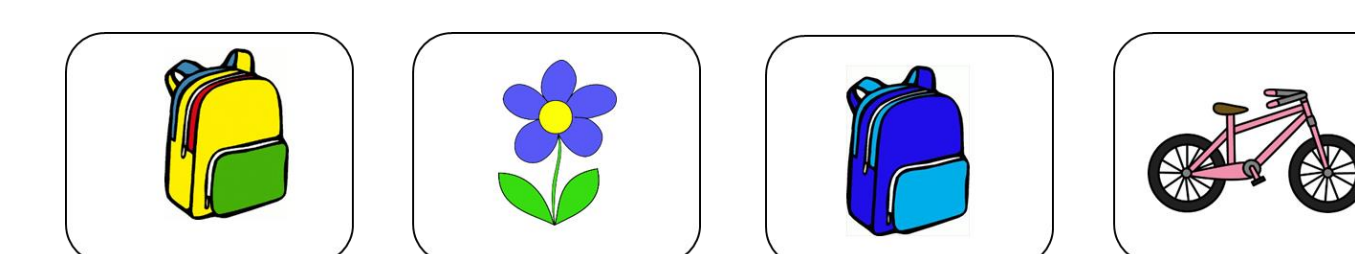| reward	Informative puppet		Under-informative puppet		Total
	big 🍓	**small** 🍓	**big** 🍓	**small** 🍓	
4s	**30*****	3	9	**23***	33
5s	**32*****	1	7	**26****	34

* $p < .05$, ** $p < .01$, *** $p < .001$

• Both 4- and 5-year-olds were more likely to give the appropriate reward to the informative rather the under-informative puppet (β=-15.78, SE=4.93, z=-3.20, p=.001).

• Based on 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.

Proportion mention of target modifiers

■ Helpful partner ■ Unhelpful partner

Age : β= 1.77, SE= 0.63, z= 2.81, p=0.005
Age : Partner (helpful vs. unhelpful): β= -2.06, SE = 1.24, z= -1.66, p= 0.097

Analysis with pragmatic sensitivity as a fixed factor
Age : β= 1.57, SE= 0.74, z= 2.10, p=0.035
Partner ((helpful vs. unhelpful): β= 16.19, SE = 7.56, z= 2.14, p= 0.032
Age : Partner (helpful vs. unhelpful): β= -3.36, SE = 1.5, z= -2.24, p= 0.024

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.

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.
  • Children were more likely to give the appropriate reward to the informative rather the under-informative speaker.

➢ Older preschoolers **used this partner-specific information to guide their communicative behavior** in subsequent interactions with these partners.
  • Older 5-year-olds were more likely to use target modifiers when communicating with a helpful (vs. an unhelpful) partner.
  • However, younger children produced the same amount of modifiers, independently of the partner's helpfulness.

➢ Children's linguistic behavior is guided by **broader rationality expectations** (i.e., reciprocity) that are also active in the social domain.