

Effects of priming and grounding on overhearers' choices of referring expressions



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Competing processes governing the choice of referring expression?

Various factors have been argued to influence the choice of expressions used to refer to objects in referential communication tasks: e.g.

- ⇒ **grounding** (Clark and Marshall 1981, i.a.): reasoning about the knowledge state of the hearer
- ⇒ **egocentrism** (Keysar 2007, i.a.): speakers use their preferred expressions unless this leads to failure
- ⇒ **Interactive Alignment** (Pickering and Garrod 2004): reuse of contextually activated expressions

Experiment (Behnel et al., in prep.) investigates these factors by manipulating *involvement*, *task-awareness*, and *common ground*.

Confederate scripting paradigm: testing the theories using overhearers

Participants overhear an interaction in which confederates use particular referring expressions.

In our experiment, this was a task involving the identification of 15 tangram figures.

(The **director** describes the figures; the **matcher** identifies them from cards. Both are confederates.)

The tangram figures were pre-tested: the selected ones had a common and a dispreferred description; the confederate used the dispreferred description (spontaneously used 5-15% of the time, mean 8.3%).

After overhearing the interaction, participants then acted as director for the same task ("phase 2").

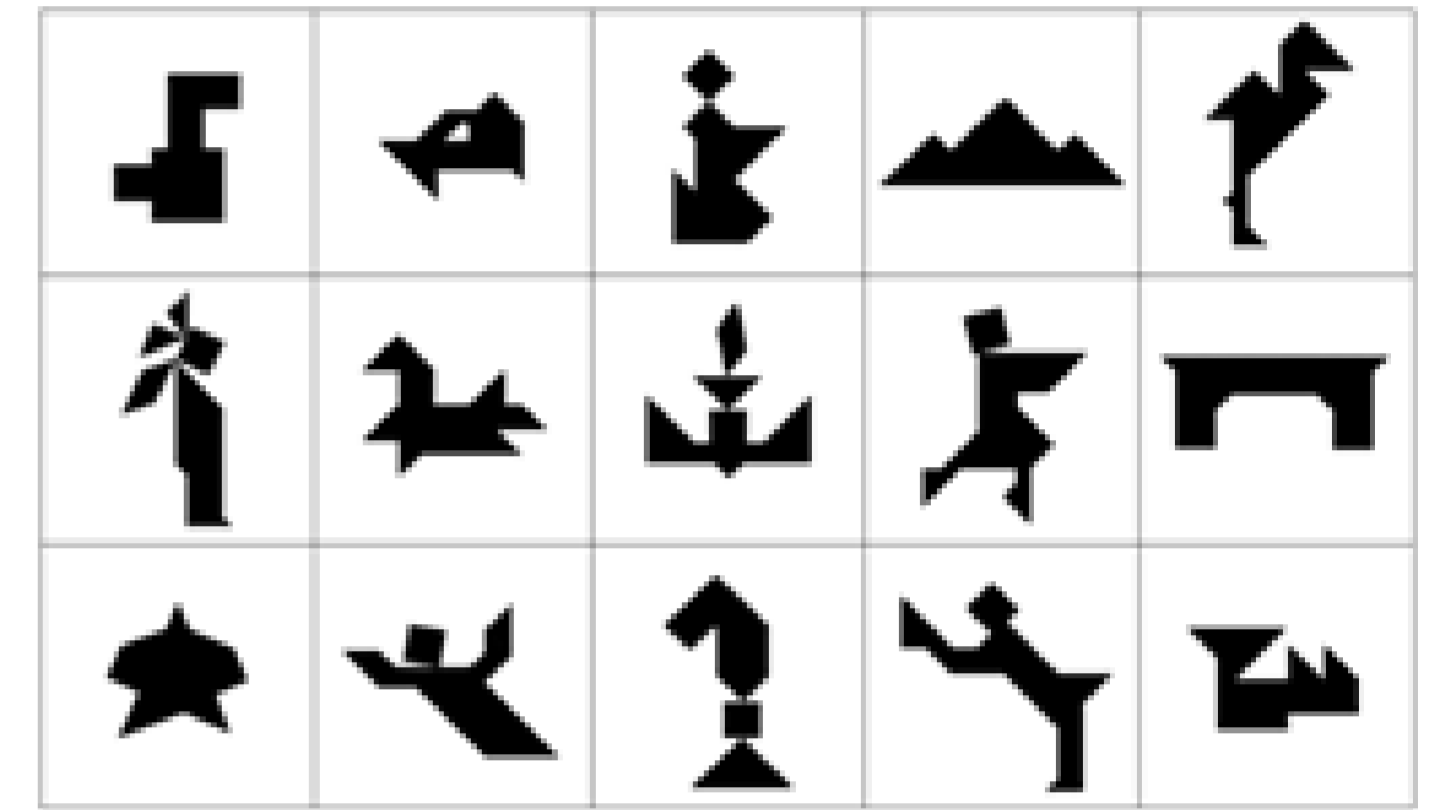
We measure **uptake of the dispreferred referring expressions** (i.e. the rates at which these are used by the participant).

Three independent manipulations:

Involvement: *high* or *low*. High = participants see pictures of set of tangrams while overhearers. Low = participants just listen.

Task-awareness: *high* or *low*. High = participants are told that they will be directors in the next phase. Low = participants are not told.

Common ground: *high* or *low*. High = original director becomes matcher in phase 2. Low = matcher in phase 2 is new confederate.



Predictions from the theories

Grounding: Uptake only in high involvement condition, as dependent on participants knowing that the expressions "work". High common ground also likely to facilitate uptake.

Egocentrism: Little reason for uptake: no evidence that speaker's own preferred referring expression will be misunderstood. Hence little effect is predicted to arise as a consequence of overhearing.

Interactive Alignment: Uptake expected under all conditions due to priming; may be stronger in high involvement/task-awareness conditions due to engagement of production mechanisms.

Participants

Tangram pre-study: online elicitation task with 331 participants recruited from Universität Bielefeld's experiment contact list. All were students and native speakers of German.

Main study: 170 participants, all native speakers of German, recruited from within Universität Bielefeld. Mean age 26.1 years; 96 female. Participants were arbitrarily assigned to conditions.

Results and analysis

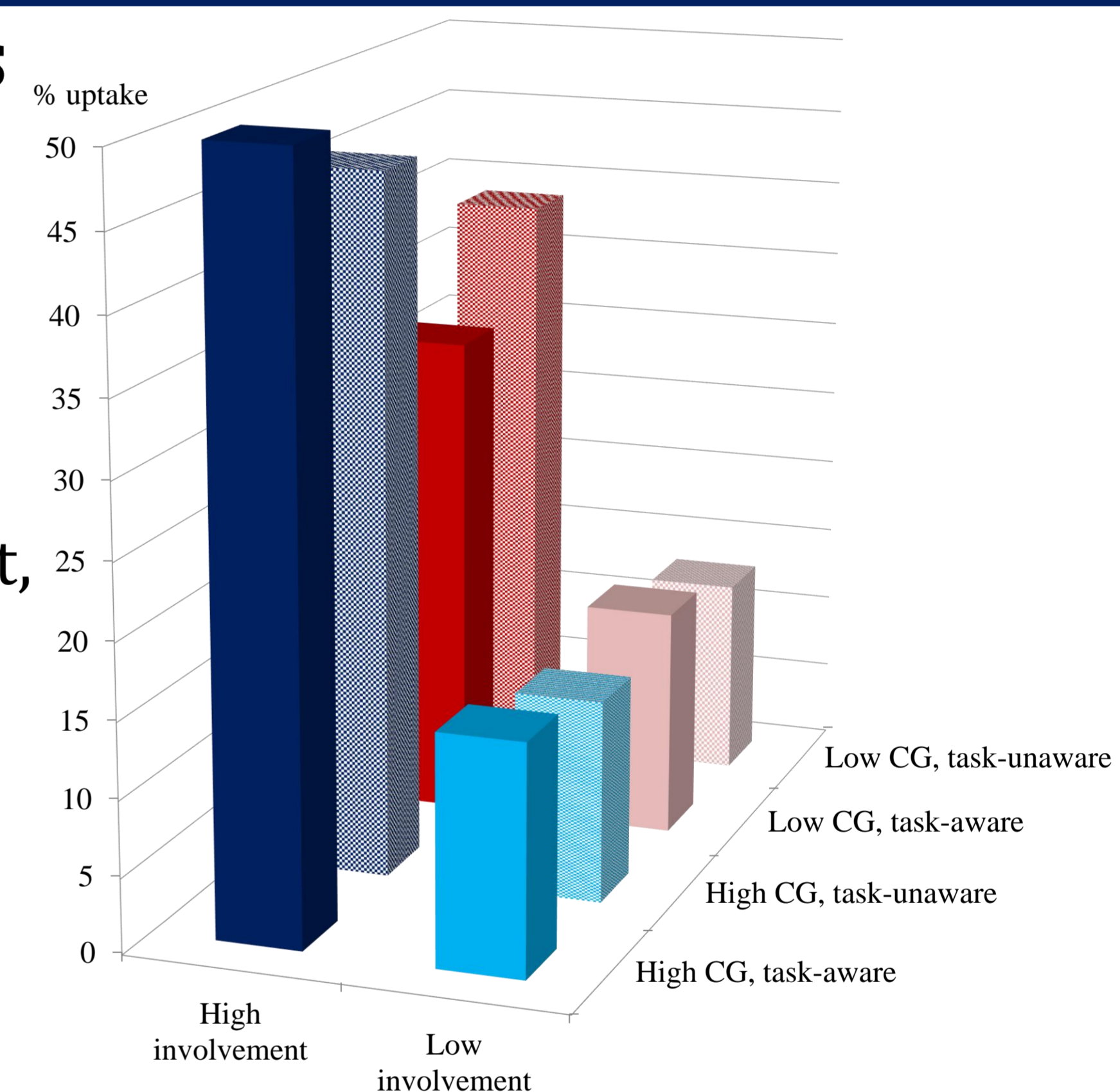
Rates of uptake 13-53%:

all above baseline

(all binomial $p < 0.001$).

Logistic mixed models implemented with posited main effects of involvement, common ground and task-awareness.

(Random effects of participant and item, random slopes.)



Main effect of **involvement** ($\beta=1.88$, $Z=7.77$, $p < 0.001$)

and **common ground** ($\beta=0.420$, $Z=2.67$, $p < 0.01$);

no effect of task-awareness ($\beta=0.085$, $Z=0.542$, n.s.).

Extending model disclosed **interaction between involvement and CG** ($\beta=0.679$, $Z=2.16$, $p < 0.05$); main effects held.

Conclusions

The strong effect of involvement and common ground (particularly in conjunction) supports the predictions of the **grounding** approach. The uptake of dispreferred expressions across conditions also suggests a (weak) priming effect, as predicted by **Interactive Alignment**.

Contrary to egocentrism's predictions, participants readily used generally dispreferred expressions; however, this could be explained as a consequence of priming effects influencing participants' preferences about how to encode object reference.

Open questions

How strong are priming effects? The low uptake of primed expressions in low-involvement/low-CG conditions could be attributed to overhearers not engaging production systems (cf. Pickering and Garrod 2004). Alternatively, priming may lead to relatively weak changes in preference compared to higher-level strategic processes such as common ground driven calculation.

What kind of grounding is taking place? Participants demonstrated a strong tendency to take up dispreferred expressions when they were able to look at the tangram pictures while listening to the interaction. This could reflect some form of one-shot learning of object names, in which case their subsequent referential behaviour might reflect awareness of a supposed convention rather than strategy.

References

- Clark, H. H., & Marshall. C. (1981). Definite reference and mutual knowledge. In A. Joshi, B. Webber, & I. Sag (eds.), *Elements of Discourse Understanding*. New York: Cambridge University Press.
- Keysar, B. (2007). Communication and miscommunication: The role of egocentric processes. *Intercultural Pragmatics*, 4, 71-84.
- Pickering, M. J., & Garrod, S. (2004). Toward a mechanistic psychology of dialogue. *Behavioral and Brain Sciences*, 27, 169-226.