

## Group membership impact on pragmatic inferences

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Understanding the meaning of non-literal language involves linguistic, cognitive and social processes, including using our knowledge about the speaker's identity. Previous research highlighted the importance of the social characteristic of either the speaker or the listener (e.g., occupation, social rank, accent, etc.), but group membership effects on pragmatic processing have been largely overlooked. This is despite their theoretical likelihood, because both group membership (e.g., Hackel et al., 2014) and pragmatic processing (e.g., Fairchild & Papafragou, 2021) have been tied to Theory of Mind and executive functions. In this study, we asked whether high threat intergroup settings impacted the interpretation of a well-studied pragmatic phenomenon, scalar implicatures (SI). SIs concern sentences with weak scalar terms (e.g., *some*), for which listeners typically assume the speaker cannot use the more informative expression *all*, leading them to reject the logical meaning (*some and possibly all*), and adopt the pragmatic interpretation (*some but not all*).

We conducted an online experiment (N=180) using a simple judgement task. Participants were American native English speakers who identified themselves as either Democrats or Republicans. To avoid intergroup task effects, we divided the participants into three groups: (i) an ingroup condition where the participants were exposed to members of their own group, (ii) an outgroup condition where the participants were exposed to members of the other group, (iii) a control group, to serve as a baseline. The number of Democrats and Republicans was balanced across the groups.

In the experimental groups, participants first had to indicate their political affiliation by clicking on the appropriate party logo and answered a group identification questionnaire (adapted from Leach et al., 2008). In the control group, participants were asked general personality questions not concerned with group (adapted from Chang et al., 2016). All the participants were then told they will play a “game” with other (virtual-decoy) players in the game (4 in total, gender balanced). In the experimental groups, the party affiliation of the speakers was constantly highlighted (Fig 1). The “game” was a simple judgment task where the participants were asked to decide whether a statement given by one of the other players matched a picture shown on screen. The 8 critical trials (of a total of 24) included statements with the scalar term *some* with a picture where all the entities in the picture shared the relevant trait (Fig 2). A 'matching' response was categorized as logical, and 'not matching' response as pragmatic.

In a mixed-effects model, we modelled the rates of pragmatic responses with a fixed effects of group (control/ingroup/outgroup) and a random effect of party affiliation (without a random slope). The model revealed an effect of group, and follow-up pairwise comparisons showed significant difference between all groups ( $p < 0.001$  for the control vs. ingroup and the control vs. outgroup comparisons, and  $p=0.019$  for the ingroup vs. outgroup comparison; Fig 3), so that the control condition had the highest percentage of pragmatic response, followed by the outgroup condition and then the ingroup condition. We further examined the relation between

pragmatic responses in the ingroup and outgroup conditions with the scores of the group identification questionnaire, but found no significant correlation.

We showed that a high-threat intergroup setting impacted the interpretation of SIs and generally increased logical interpretations. We assume that this effect originates from different reasons in the two groups. Because both “yes” and “no” responses are acceptable with underinformative statements, participants in the ingroup condition were likely to present ingroup favoritism, and tended to agree with the speaker from their own group (meaning to say the picture 'matched' the statement), leading to many logical responses. This could not be true for the outgroup condition. We therefore hypothesis that in this group the effect may be the result of resource depletion due to the need to inhibit attitudes in intergroup settings, or of difficulty in mentalizing. To elucidate these results, we are currently conducting a version of this study without direct judgment to control for the ingroup favoritism.



Fig 1 – Example of a speaker's introduction before each statement

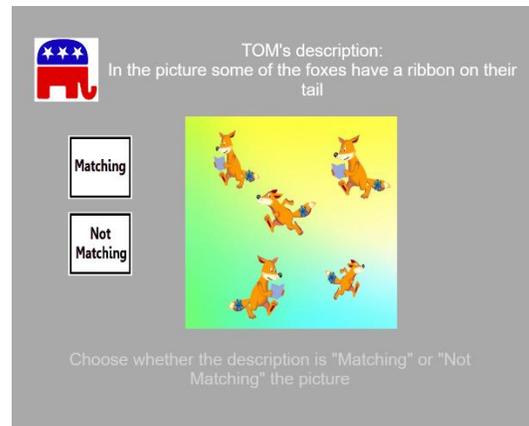


Fig 2 – Example of a critical trial in the experiment. The speaker uses 'some' to describe an 'all' situation

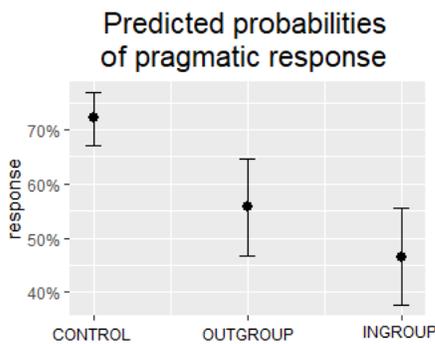


Fig 3 – The predicted probabilities plot of a pragmatic response (*some but not all*) to SI by group type (control/outgroup/ingroup)

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