Linguistic Alignment and Memory for Conversation in a Socially Adverse Context

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In conversation, speakers tend to re-use linguistic forms (i.e., lexical or syntactic alignment) and express similar meanings (i.e., semantic/conceptual alignment) [1], [2]. Prior work has suggested that the type of linguistic alignment (lexical, syntactic, or semantic) present may be determined by the goals of the conversation [3], [4]. Further, prior work indicates that syntactic alignment is modulated by social factors (e.g., likeability, accent; [5], [6]). However, it is unclear how social dimensions influence lexical and semantic alignment and whether they have downstream effects on mutual understanding. Here, we investigate the effect of disrespect during a linguistic interaction by examining multiple forms of linguistic alignment during a referential communication task as well as encoding of the content of conversation, measured by performance in a later recognition memory task.

Methods: 60 English-speaking participants completed a referential communication task with an experimenter for 32 trials. In each trial, one person instructed the other to arrange 4 abstract images [7] in a 2x2 grid. The participant and experimenter took turns giving instructions. Linguistic markers of respect or disrespect were introduced by the experimenter in a between-subjects manipulation. The experimenter operationalized these markers using a prewritten script to remain consistent across experimental conditions. These markers were selected based on an analysis of language used during police officer traffic stops [8]. Examples of respectful linguistic markers included saying please, addressing participants by name, apologizing when a mistake was made, and saying thank you at the end of a trial. Disrespectful linguistic markers included addressing participants with informal titles such as kid or dude, and giving commands such as “listen up”, “pay attention”, or “focus”. After the referential communication task, participants completed a digit span filler task for 15 minutes followed by a recognition memory task using the images from the referential communication task as targets.

Results: *Alignment.* Lexical, syntactic, and semantic alignment were measured using the ALIGN package [9]. We obtained cosine similarity values for lexical, syntactic, and semantic alignment at the conversation level within dyads. We found that alignment was not directly modulated by the experimenter’s use of disrespectful linguistic markers (*t*s<2). *Memory.* D-prime scores (d’) were calculated for each participant based on their ability to distinguish images presented during the referential communication task from novel images. The respect condition did not significantly impact recognition memory ($\beta = -.04$, $p = .94$). Further, in the case of lexical ($\beta = 1.65$, $p = .196$) and semantic alignment ($\beta = 30.85$, $p = .174$), there was no impact of alignment on memory performance. However, increased syntactic alignment ($\beta = 5.47$, $p = .014$), was associated with greater d’ in the disrespectful condition but not the respectful condition (though the interaction was not statistically significant; Fig. 1).

Discussion: Subtle linguistic cues of disrespect did not appear to have an overall impact on lexical, syntactic, or semantic alignment during a referential communication task. However, greater linguistic alignment was associated with increased memory for the referents in the disrespectful condition. Specifically, participants with higher levels of syntactic alignment with the disrespectful experimenter seem to have better memory for what was discussed. We can speculate that subtle disrespect markers may have elicited more variability in alignment across participants — some participants may have attempted to align with the experimenter and others may have attempted to differentiate their utterances from the experimenter’s — relative to when the experimenter was respectful (as is typical). This increased variability in alignment may have made it possible to observe the mnemonic benefits associated with greater alignment. The current results however, are unable to determine if increased alignment leads to better memory or if increased alignment is a sign of higher engagement from a participant which in turn leads to better memory. More broadly, this work begins to shed light on how mutual understanding in conversation is affected by socially adverse situations.

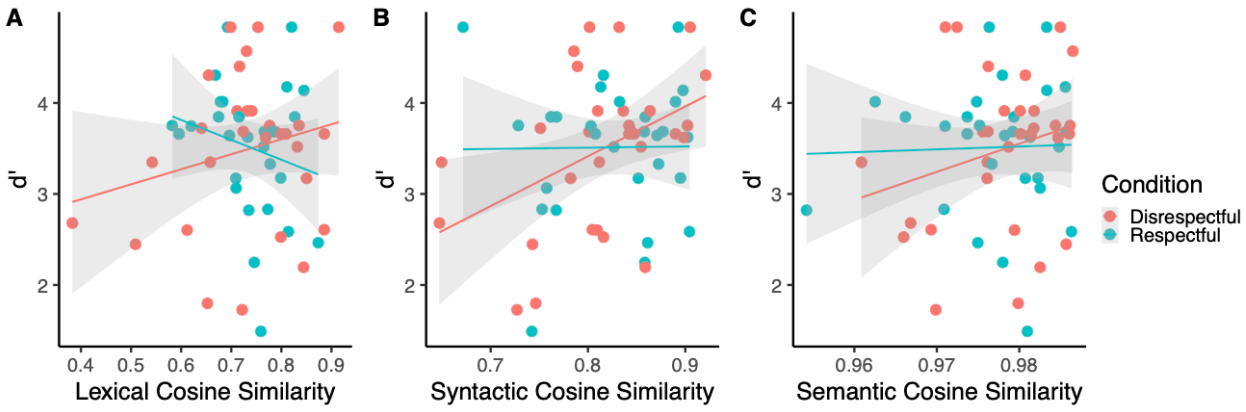

Figure 1. The relationship between recognition memory (d') and (A) lexical, (B) syntactic, and (C) semantic alignment during the referential communication task by respect condition. The colored lines represent the linear model fit for the disrespectful and respectful experimental conditions. The points represent the cosine similarity values at the level of the entire conversation for each dyad.

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