The Power of Linguistic Similarity for Unlocking Cooperation - Evidence from Syntax and Pitch Experiments

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It is important to know who is a good cooperation partner, and current research highlights how language can be a key signal of cooperativeness (Henrich & Henrich, 2007; Matzinger et al., 2023). In particular, low-level linguistic mechanisms such as subconsciously matching others' language have been proposed to be particularly honest signals utilized to assess others' cooperative potential (Wacewicz et al., 2017). One of the big questions at the moment is why these mechanisms are used to select others as cooperation partners. Two possible explanations have been proposed: on the one hand, low-level linguistic similarity (i.e., continuous "*alignedness*" from the start of a conversation) can indicate group members (Dunbar, 1996; Axelrod et al., 2004), and it is known that in-group cooperation is less risky and more successful (e.g. Balliet et al., 2014). On the other hand, adapting to others' linguistic choices (i.e., progressive "*alignment*" throughout a conversation) can indicate others' willingness to cooperate, since it can signal an initial cognitive investment in the cooperation (Kulesza et al., 2014; Chartrand & Bargh, 1999).

To explore how people tend to cooperate with linguistically similar conversation partners, we conducted an experiment on the effect of syntactic similarity on people's choice in cooperation partners (Matzinger et al., 2023). In this picture-description experiment (cf. Bock, 1986), 100 participants communicated with conversation partners, who were in fact bots, that either did or did not match the participants syntactic choices. Based on this language use, the participants then had to decide with whom to cooperate in a subsequent cooperative task. Crucially, half of the participants could freely use their naturally

preferred constructions (e.g., “X lends Y to Z”), while the other half were assigned a construction that was not their natural preference (e.g., “X lends Z Y”).

In a logistic regression model, we found that when participants could communicate in their own preferred structures, they predominantly chose linguistically similar conversation partners as cooperation partners (77.0%, 95%-confidence interval [69.0;85.0]). However, when participants were restricted in their language use, they preferred those partners that matched their actual linguistic preference (59.3% 95%-confidence interval [50.2;68.5]), instead of the ones that were similar to their overt linguistic use. We take this to mean that the sheer act of adapting to someone’s linguistic production is not as crucial for choosing cooperation partners, even if it involves an initial investment. Rather, the decisive factor is sharing someone’s linguistic preferences and thereby indicating social group membership. This highlights that the influence of *alignedness* vs. *alignment* needs to be disentangled further in cooperation research.

Therefore, we will expand this research in a follow-up study that hones in on this distinction and tests perceived cooperativeness in a more natural and revised setting. Most importantly, we will focus on pitch instead of syntactic similarity to eliminate the potential confounding factor of priming (Pickering & Garrod, 2004): Alignment does not need to be a conscious investment on the side of the speaker, but can also be a result of purely mechanistic and automatic priming and may, therefore, not be taken as a signal of cooperativeness by the listener. While syntax primarily targets priming, continuous phonological features such as pitch, which are harder to match automatically, have been shown to be less prone to priming and may be a better indicator of active cooperative intentions (Gijssels et al., 2016). Therefore, pitch similarity is particularly well-suited to teasing apart the role of socially-motivated *alignment* vs. *alignedness* in cooperative encounters.

In our talk, we will present theoretical considerations on disentangling the role of *alignedness* and *alignment* for cooperation and set these insights in relation to the results of our study on syntax. We will supplement this with the first findings of our follow-up experiment on the perceived cooperativeness of conversation partners speaking with a pitch that is a) aligned from the start of the conversation, b) aligning throughout the conversation, and c) dissimilar throughout the conversation. In line with the results on syntactic alignment, we predict that interlocutors in group a) will be considered as most cooperative, followed by group b), while group c) will be assessed as least cooperative.

Ultimately, understanding the relationship between language and cooperation in social groups will help us shed light on the evolution and stabilization of both of these traits, which are particularly prominent in humans.

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