Alignment in rate of speech: Evidence from a corpus of dialogue
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It has long been known that conversational partners tend to re-use each others’ syntactic structures, referring expressions, and words, aligning on common ways of talking about the world (see Pickering & Garrod, 2004). There is increasing evidence that alignment extends beyond what is said to encompass the manner in which it is said. For example, Jungers and Hupp (2009) show that the rate of speech in monologues can be primed; and Street (1984) shows convergence of a variety of prosodic features.

In this paper, we investigate whether articulation rate aligns in natural dialogue, by analysing dialogues transcribed from the Map Task Corpus (Anderson et al., 1991). By establishing the articulation rate in syllables per second of each dialogue turn across 128 dialogues between 64 participants, we were able to test whether speakers tended to converge on a common articulation rate over the duration of the dialogue, and whether the articulation rate of a given dialogue turn could be predicted by that of the interlocutor’s preceding dialogue turn. Our analyses controlled for each member of the conversation’s experience both with the map being discussed and the task in general; as well as the length in words of both their own and their partner’s turn.

Our analyses show that the absolute differences between interlocutors’ articulation rates decreased consistently across the lengths of the dialogues they were engaged in, showing that the speed at which interlocutors spoke converged as each dialogue progressed. Moreover, speakers’ articulation rates were related to their interlocutors’ articulation rates in the previous dialogue turn, suggesting that the mechanism by which dialogue rates converged appeared to be local priming, similar to that found for syntactic structures (e.g., Bock, 1986). Since each speaker in the Map Task interacted with three different speakers, our findings appear to generalise well as a general property of dialogue.

Taken as a whole, our findings provide clear evidence that partners in conversation are primed by each other’s articulation rates. Across the course of the conversation, the consequence of this continued priming is that partners’ rates of speech tend to converge. This process of priming and convergence provides strong support for the idea that, when engaged in conversation, speakers align on more than just the content of what is being said.

References