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Interacting Minds: Gaze Synchronization and Representational Change in Dialogue

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Abstract

We know that communicating with others can lead to mutual adaptations in the signals adopted. It is less clear whether successful communication also requires interlocutors to converge in how they represent communicative referents. By tracking eye movements during dialogue and probing interlocutors' representations of a set of referents before and after interaction, we aimed to capture the attentional dynamics underpinning mutual representational adaptations. In this exploratory study, we investigated the relationship between dyads' gaze dynamics during a communication game, the Tangram task, and interaction-related changes in their representation of a set of referents. A cross-recurrence analysis of participants' gaze showed, in replication of Dale, Kirkham, and Richardson (2011), that interlocutors' gaze became increasingly synchronized as the task progressed. We further operationalized events of mutual understanding using gaze coherence and explored the semantic and pupillary dynamics leading to these moments of mutual understanding.