Mapping Time and Space in Social Interactions with the Mirror and Rock-Paper-Scissor Games

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Introduction. During social interactions, individuals tend to fall into synchrony (i.e., temporal matching) and imitate each other (i.e., spatial matching). While synchrony and imitation have attracted considerable attention due to their association with affiliative tendencies, they are seldom investigated simultaneously. Furthermore, although often regarded as markers of “successful” interactions, being temporally and spatially matched is not always optimal for “efficient” interactions. Consequently, this study investigated the association between synchrony and imitation using two social interaction games known to elicit these behaviors: the Mirror and Rock-Paper-Scissors (RPS) games.

Methods. Twenty-six dyads completed the Mirror and the RPS games under three visual coupling conditions: (i) OPEN, where both participants could see each other; (ii) MIXED, where only one participant could see the other; and (iii) CLOSED, where neither could see the other. The OPEN and CLOSED conditions were counterbalanced across dyads to control for order effects. Movements were recorded using infrared cameras, and participants completed self-report measures of affective state and self-other overlap before and after each interaction

Results. Visual coupling influenced emotional arousal, perceived self-other overlap, and behavioral matching. When participants could see each other, they reported feeling more connected and aroused, and demonstrated increased spatiotemporal alignment in both the Mirror and RPS games. Notably, behavioral synchrony during the Mirror Game predicted imitation tendencies in the subsequent RPS game.

Conclusion. These findings suggest a robust link between temporal and spatial alignment, even in competitive contexts. Participants who exhibited stronger behavioral synchrony in the Mirror Game were more likely to adopt similar RPS strategies, indicating that coordinated movement may foster shared cognitive patterns. Ongoing analyses of EEG synchrony and inter-individual differences may further elucidate the neural and dispositional underpinnings of this association between acting and thinking together.

Keywords: Behavioral Matching, Synchrony, Imitation, Mirror Game, Rock-Paper Scissor Game