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# **Your Obstacle on My Mind: Task Co-representation in Coordination is Modulated by External Timing Cues**

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**Abstract:** When acting in a social context, people have an automatic tendency to represent another person's task – to the extent that another's task constraints may influence one's own movement performance. Task co-representation will also affect co-actors' performance in joint action coordination; however, how exactly movement parameters are influenced is unclear. We investigated this question in four experiments. Pairs of participants performed arm movements back and forth between two targets, instructed to synchronize their landing times while external metronome tones provided timing cues. We predicted that actors would represent their co-actors' task constraints such that when the co-actor moved over an obstacle the actor without obstacle would move higher as well. Results confirmed this prediction, suggesting that joint action partners co-represented each other's task constraints. Moreover, this obstacle effect increased significantly when timing cues were removed, indicating a stronger need for co-representing the partner when demands on interpersonal coordination are amplified.