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Behind the Bar: Coordinated Collision Avoidance in a Goal-Directed Joint Action Task

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Abstract

The current study explores the dynamics of interpersonal collision avoidance during an everyday coordination task. The task was a full body adaptation of the collision avoidance arm-movement task employed by Richardson et al. (2015) and required pairs of co-actors to avoid colliding into one another as they moved back and forth within a collaborative workspace. Specifically, participants were required to serve drinks to humanoid customers in a virtual bar where they needed to move back and forth between drink service and refill stations. As expected, stable patterns of movement coordination emerged between co-actors, with one participant in a pair exhibiting a more circular movement trajectory between the service and refill locations, while the second participant in a pair exhibited a more straight-line trajectory between the two locations. Consistent with the results of Richardson et al., (2015), this pattern was observed across nearly all pairs, indicating that the same dynamical processes governing simple hand-arm coordination tasks also regulate more complex, full-body and naturalistic goal-directed interpersonal coordination tasks.