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Distinct rhythms of joint and individual action: Evidence from an auditory sequence production paradigm

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Abstract

Many joint actions such as group dance and music performance require that partners take turns producing actions at specific temporal intervals. Here we assessed whether turn-taking partners can co-produce temporal intervals with the same levels of accuracy and precision as individuals. Participants learned to tap a piano key at the rate of a metronome cue, either alone (Individual) or in alternation with a partner (Joint). Findings revealed that partners did not achieve individual coordination levels: Temporal accuracy (deviation from the cued tapping rate) and precision were reduced in Joint relative to Individual sequences, though partners displayed learning across the experiment. Critically, partners appeared to group temporal intervals according to the turn-taking structure; no such grouping patterns were observed in Individual sequences. Together, co-production of temporal intervals with a turn-taking partner poses challenges to coordination and partners attempt to overcome this challenge by rhythmically grouping intervals according to the turn-taking structure.