Social cognition research has focused almost exclusively on dyadic interactions or passive judgements of social stimuli. This study moves beyond this 'dyadic default' by investigating 'task co-representation' (mental representation of a partner's task) in groups and assessing the efficiency of this cognitive process when faced with multiple mental states in a single interaction.

Groups of three participants took part in a Joint Simon task and an Individual Go No-go control. Compatibility effects were found in the Joint but not the Individual task (p = .034, $\eta p2$ = .214), suggesting participants were able to co-represent at least two co-actors, supporting views that this is a cognitively efficient mechanism. Further, there was no influence of spatial proximity between actors within each group, strengthening Co-representation over Referential Coding accounts. Testing participants in groups enables investigation of the limits of social cognition and provides a more ecologically valid model of real-world social interaction.

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