

# Enacting Interpersonal Space: the Role of the Body in Social Cognition

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## Abstract

Simulation Theory (ST) and ‘Theory of Mind’ theory (ToM) are the traditional approaches to social cognition. A recent alternative to ST and ToM is the Interaction Theory (IT). IT grounds social cognition in embodied interactive processes. In this perspective, Krueger introduced the notion of ‘we space’ to mean a ‘body-centered action-space’, encompassing spatial representations in neuroscience. However, Krueger intend the “we space” as the “reciprocal and joint actions between individuals” (i.e. coordination); Thus, the spatial representation occurring between individuals is overlooked.

In neuroscience, the concept of Peripersonal Space (PPS), i.e. the space around the body, captures the idea of a multisensory interface for interactions. However, most research in this field focuses on the representation of one’s own body, whereas little is known about spatial representations between two bodies, between the Self and the Other.

The research discussed in the article aims to demonstrate the following hypotheses:

- 1) PPS representation varies as a function of the presence of other people (co-presence).
- 2) PPS representation varies as a function of (even high level) social interactions.

In order to test these hypotheses, we proposed two experiments where PPS representation was measured. In Experiment 1, we show that the boundaries of PPS changes when subjects observe another individual placed in far space, rather than a dummy. In Experiment 2, we demonstrate that cooperative interactions extend the boundaries of PPS between the self and the other. Such new findings suggest a link between high-level cognition, such as social cognition, and low-level sensorimotor representations, such as PPS.

**Key Words:** social cognition, interaction theory, peripersonal space, we space, co-presence, bodies-centred action-space, cooperative and uncooperative behaviours.