

Does implicit mentalising involve the representation of others' mental state content?

Examining domain-specificity with an adapted Joint Simon task: A registered report

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Introduction

- **Implicit mentalising**: Automatic awareness of others' perspectives.
- Occurs even when **detrimental to task-performance**; e.g., Visual perspective-taking.
- **Joint Simon Effect (JSE)**: Spatially-defined response to non-spatial stimuli features (**spatial compatibility effect; SCE**) is **stronger** in **Joint Simon** (task-sharing) vs. **Individual** go/no-go task.
- Result of **implicit mentalising** during **task-sharing**, re-establishing SCE?
- **Domain-Specificity** of JSE has been hotly debated.
- Is JSE driven by **social domain-specific mechanisms**, or does it recruit **non-social, domain-general processes**?
- No consensus in literature; possible insight from examining **what is being co-represented** during task sharing, operationalised through an adapted Joint Simon and incidental memory tasks?

Research Aims

1. Validate if adapted Simon Task elicits JSE.
2. Examine contents of co-representation.
3. Examine effect of interpersonal closeness on JSE & content co-representation.

Participants

Study 1: Undergraduate students, $N = 52$ ($M = 18.80$ years, $SD = 2.32$; 40 females)
 Study 2: 3.5-5-year-old children (In Progress)

Phase 1: Adapted Simon Task

- Participants are assigned one colour (blue/orange) to respond to, regardless of stimuli location (left/right).
- Critical novel manipulation: **Replaced** typical Simon task geometric stimuli with unique sets of coloured **animal silhouettes** (blue/orange).
- 2 between-pt (**Task Condition**: Joint vs. Individual) x 2 within-pt (**Compatibility**: Compatible vs. Incompatible) design.
- Measured *Response Time (RT)* as the DV.

Phase 2: Surprise Recognition Task

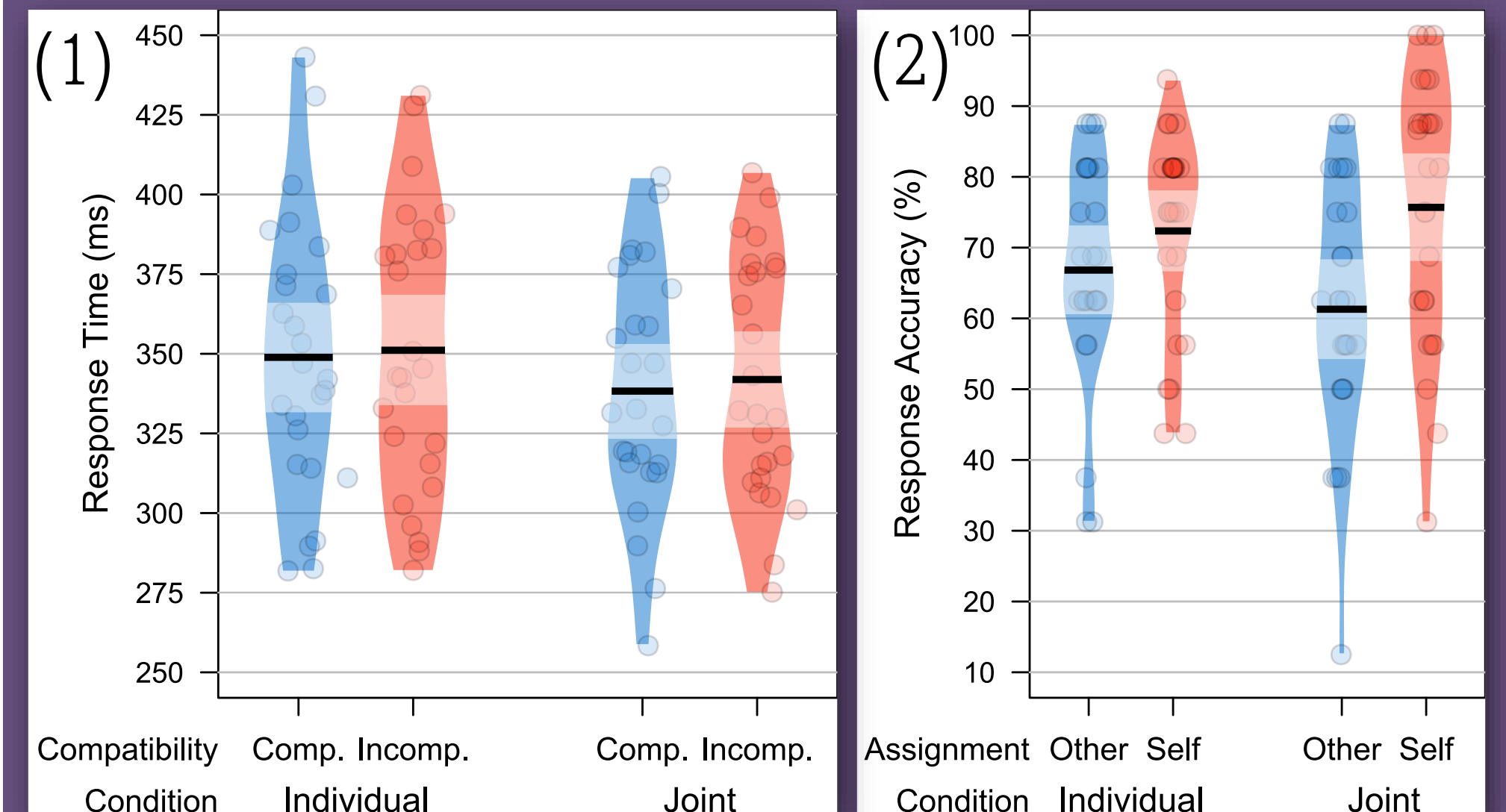
- Asked if participants recall seeing certain animal silhouettes appearing in the Phase 1 (new silhouettes were mixed in as foils).
- 2 between-subject (**Task Condition**: Joint vs. Individual) x 2 within-subject (**Assignment**: Self-assigned vs. Other-assigned) design.
- Measured *Recognition Accuracy* as DV – Proxy for **degree of incidental processing & encoding** of stimuli in the Simon task.

Phase 3: Interpersonal Closeness

- Inclusion of the Other in the Self (IOS) scale assessed **interpersonal closeness of partners** in the Joint Task Condition.
- 6-point scale, with increasingly overlapping circles of "self" (i.e., the participant) and "other" (i.e., task partner).

Key Results

1. No significant Task Condition x Compatibility interaction ($p=.053$, $BF_{10}=0.019$).
2. No significant Task Condition x Assignment interaction ($p=.052$, $BF_{10}=0.154$).



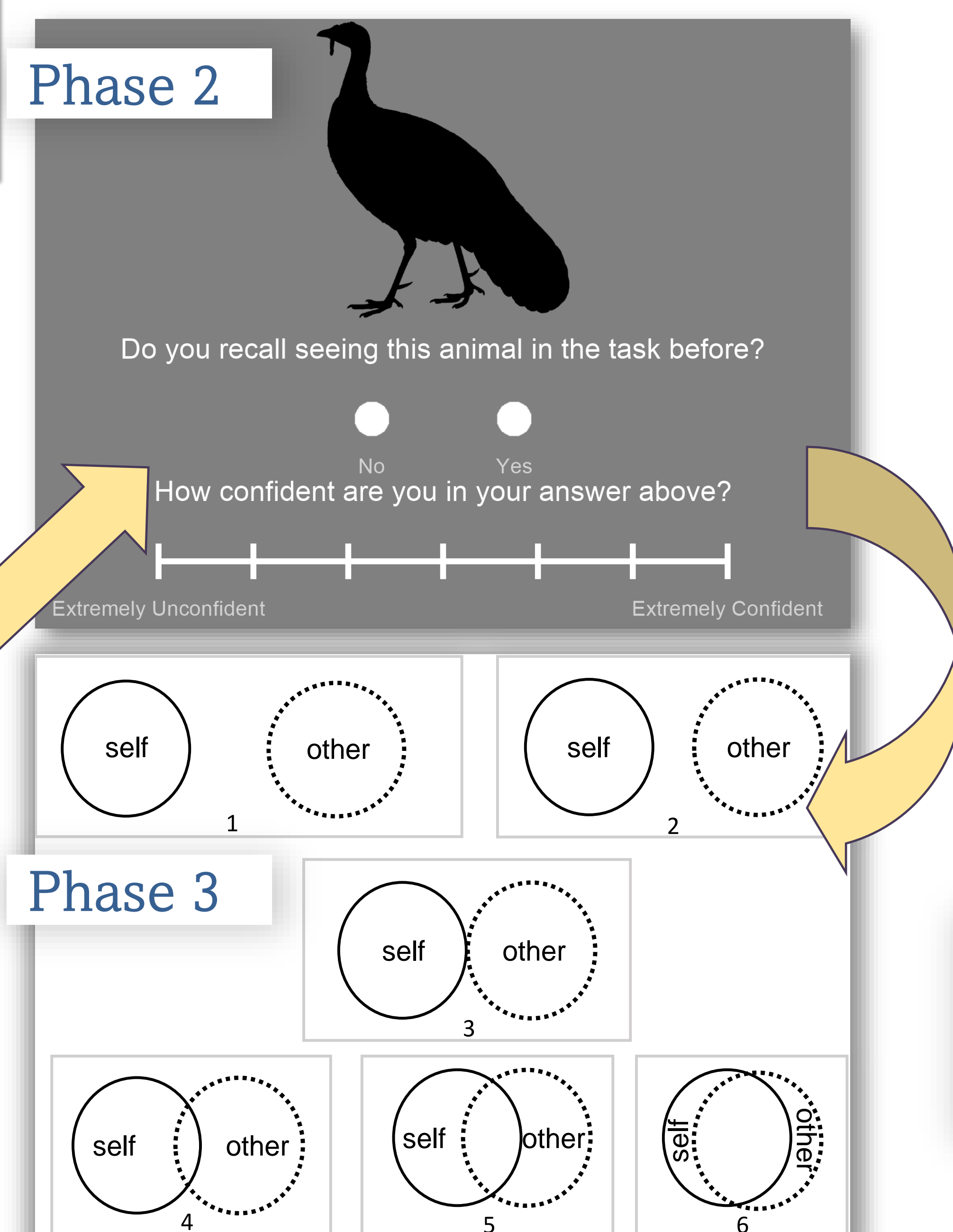
3. No significant IOS x Assignment interaction ($p=.088$, $BF_{10}=0.154$).

Conclusions

- Present study **did not elicit the JSE** – possibly due to experimental alterations, and/or changes to analyses methods.
- Raises **concerns** regarding the **robustness of the JSE** (to methodological alterations & more broadly).
- Bayesian evidence indicates that **Joint Condition** participants **did not recognise Other-assigned stimuli better than** participants in the **Individual Condition**.
- IOS did not predict Recognition Accuracy.
- Demos potential **utility of surprise recognition task**; taps self/other assignment

Upcoming Studies

- Confirm the **reason for failing to replicate the JSE** using the current paradigm.
- Expand population to **younger children** to test if the **present findings** are **consistent from childhood to adulthood**.
- Account for **individual differences in explicit Theory of Mind (ToM), EF, vocab.**
- ToM rapidly matures from 4+ years; may be informative to test if those **individual differences positively predicts the strength of JSE and/or Recog. Accuracy**.
- An effect of ToM may suggest that **implicit mentalising is influenced by domain-specific mechanisms** (at least in children).



Registered Report
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