



# Re-examining the Director Task as an Individual-Differences Measure of Theory of Mind: What Could the Conditional Differences Tell Us

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## INTRODUCTION

**Theory of Mind (ToM)** refers to the ability to reason about others' beliefs and perspectives.

- It was initially investigated in children (Wellman, 2001).
- Later research indicated potential individual differences in neurotypical adult populations (Keysar, 2003).

### The Director Task

- Commonly used as a measure of the cognitive aspect of ToM (perspective taking)
- Participants move objects based on instructions from a "director."
- Some objects are *hidden from the director's view*, requiring inhibition of egocentric perspective to make the correct choice.
- Although widely used, it is unclear whether this experimental task captures *individual differences* in perspective-taking ability.

**This study examines whether certain DT performance reflects distinct individual differences in ToM.**

## HYPOTHESES

H1: Trial Type interacts with Instructor Condition on response accuracy (and RT), with instructor experimental trials being the most demanding.

H2: The theory-guided difference scores (cognitive process scores) have better criterion validity than conventional DT scores.

## METHODS

### Participants

- College Samples N1 (78) + N2 (77) = 155

### Task

- Filler, Control, Experimental Trials
- Instructor vs No Instructor

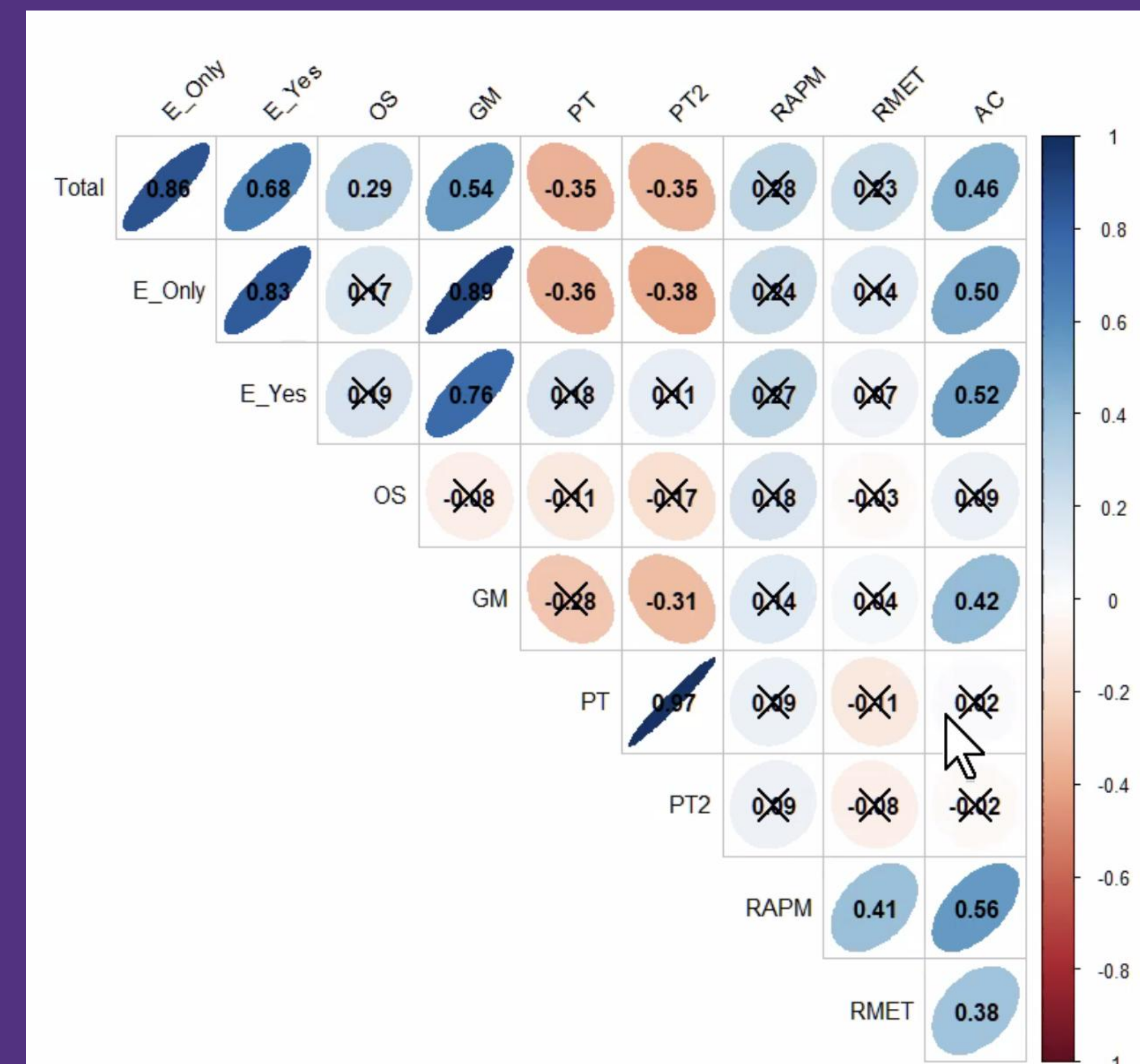
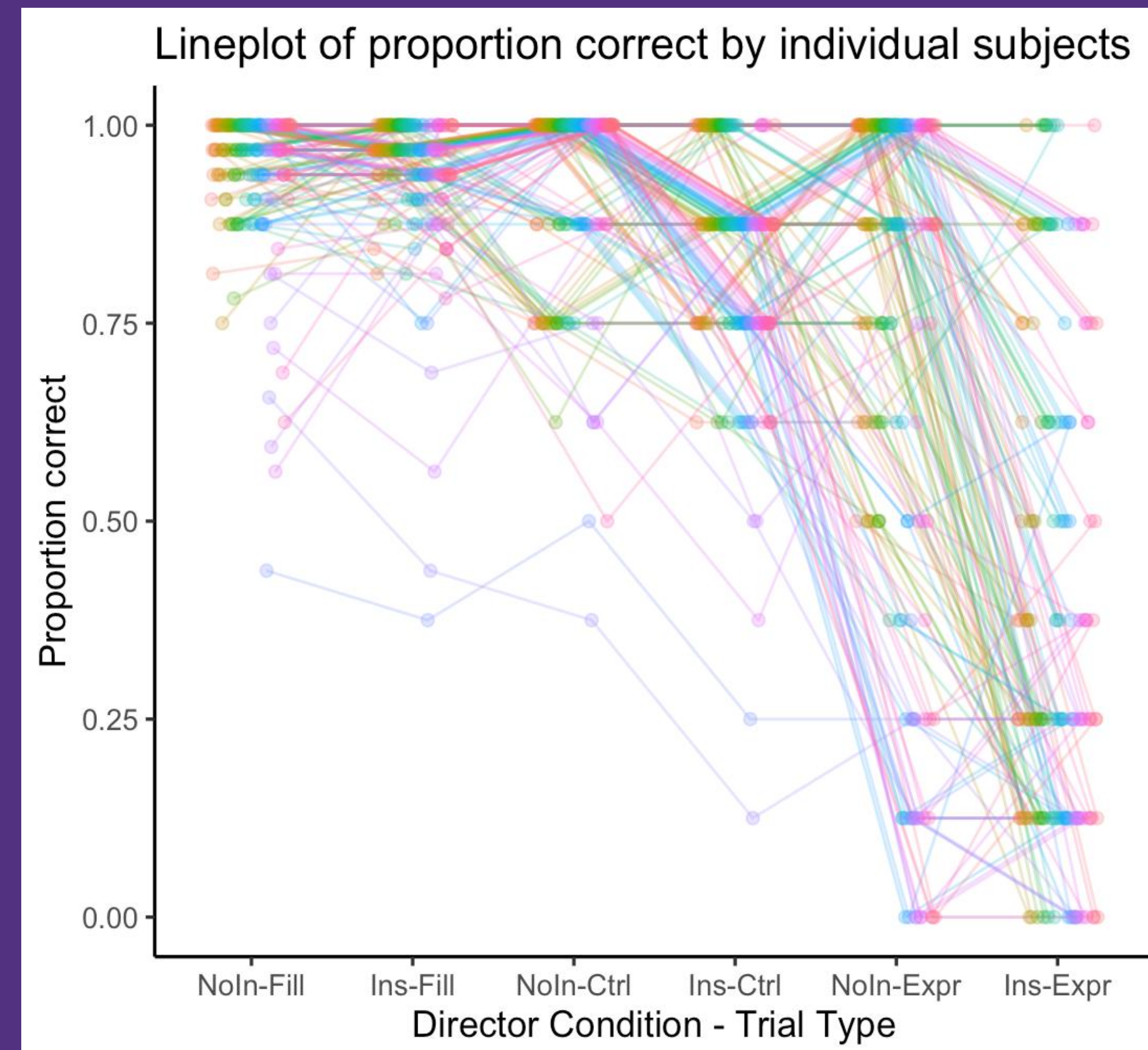
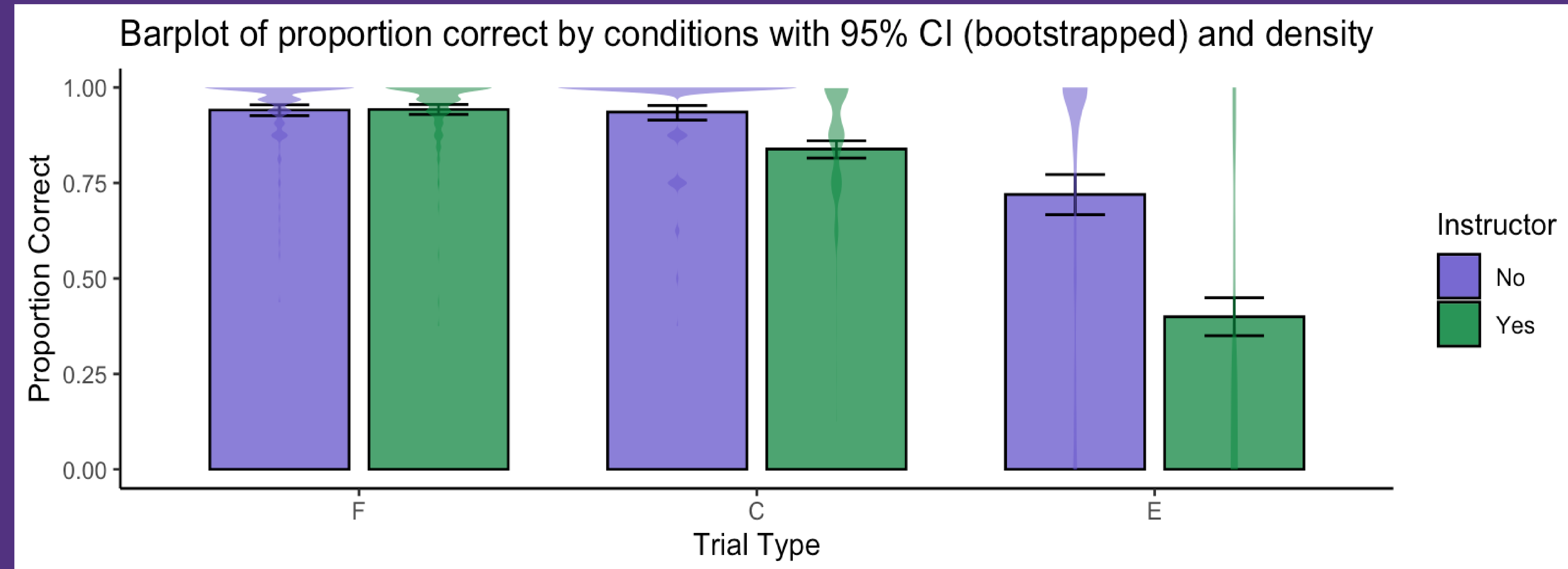
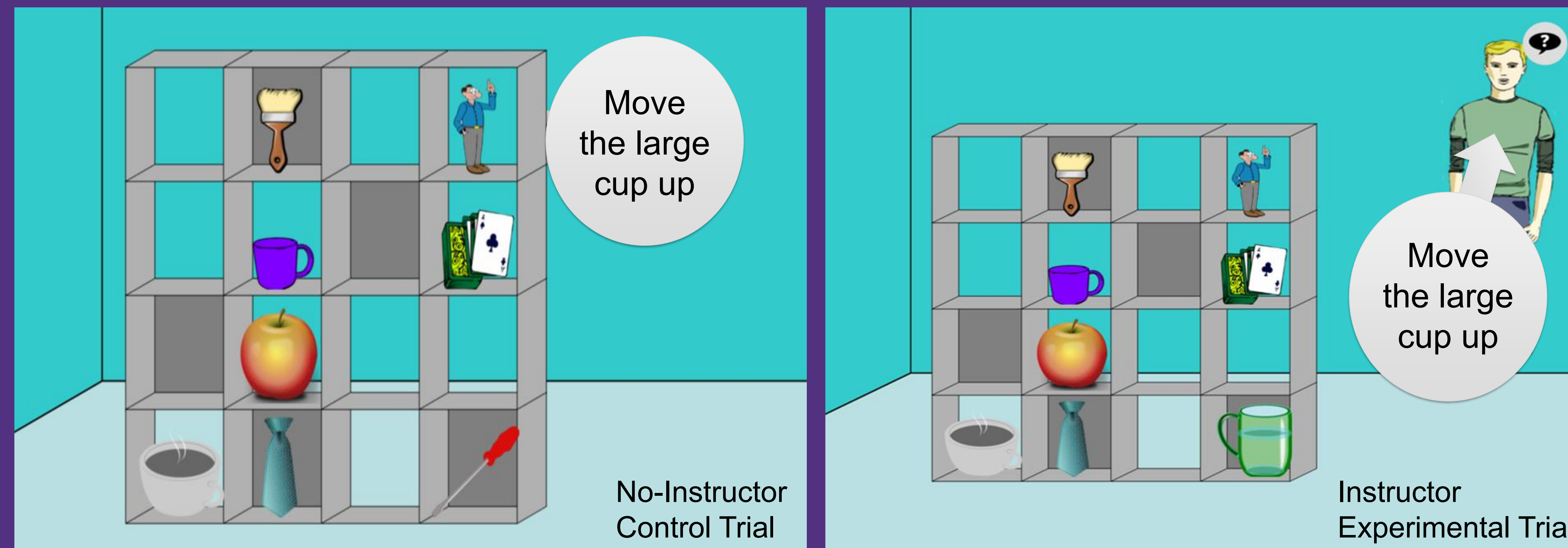
### Additional Measures

- Reading the Mind in the Eyes (RMET)
- Raven's Progressive Matrices (RAPM)
- Attention Control

### Analysis

- Conditional accuracy and "process composites"
- ANOVA, correlations, post hoc comparisons

## RESULTS



## RESULTS

### Accuracy Differences

- Interaction confirmed that both Trial Type and Instructor presence have a significant effect on participant accuracy
- Instructor presence caused a *significant difference* in control and experimental trials

### Cognitive Process Scores

- Cognitive components were estimated using conditional differences:
  - **Object Search:** Filler – Control
  - **Goal Maintenance:** Control – Experimental
  - **Perspective Taking**
    - Difference between Goal Maintenance in instructor vs. no-instructor conditions

### Correlations

- No significant correlations were found between cognitive process scores and RMET, RAPM, or AC.

## DISCUSSION

The Director Task shows a decrease in accuracy as conditional demands increase, indicating that differences in condition are measured effectively. Individual differences in performance across different conditions were not consistent, and it was not clear how the conventional task-level scores reflect ToM. Two possible theories that would explain the weak criterion validity of the process scores were:

- The tests used in this study may not have enough trials to fully assess individual differences in cognitive ability
- Process Overlap Theory

The results of this study suggest the need for further evaluation of the Director Task as a measure of individual differences in perspective-taking. Modifications may be necessary for the task to be considered an effective measurement of ToM

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