



# Do Self-Advantages in Memory vs. Attention Share Common Psychological Mechanisms?

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## Introduction

### Incidental Self-Reference Effect (iSRE; Turk et al., 2008)

- A memory advantage for items co-presented with self-relevant vs. other-relevant information (e.g., one's own name vs. another person's name) in the absence of a task demand to evaluate the item's self-relevance
- Suggested to arise due to preferential attentional responses to self-relevant vs. other-relevant information
  - Yet, this proposal has not been empirically tested.

### Three Attentional Networks (Peterson & Posner, 2012)

- **Alerting:** Achieving and maintaining a state of optimal readiness to process and respond to incoming stimuli
  - Associated with the activation of thalamic, frontal, and parietal regions
- **Orienting:** The selection of information from sensory input
  - Associated with the activation of superior and inferior parietal regions
- **Executive Control:** Monitoring and resolving conflict among responses, thoughts, and feelings
  - Associated with the activation of the anterior cingulate cortex and lateral prefrontal cortex

### The Attention Network Test (ANT; Fan et al., 2002)

- A task that allows the assessment of all three attentional networks in a single test setting

## Research Question

### Is a self-advantage in memory (i.e., the iSRE) related to self-advantages in attention?

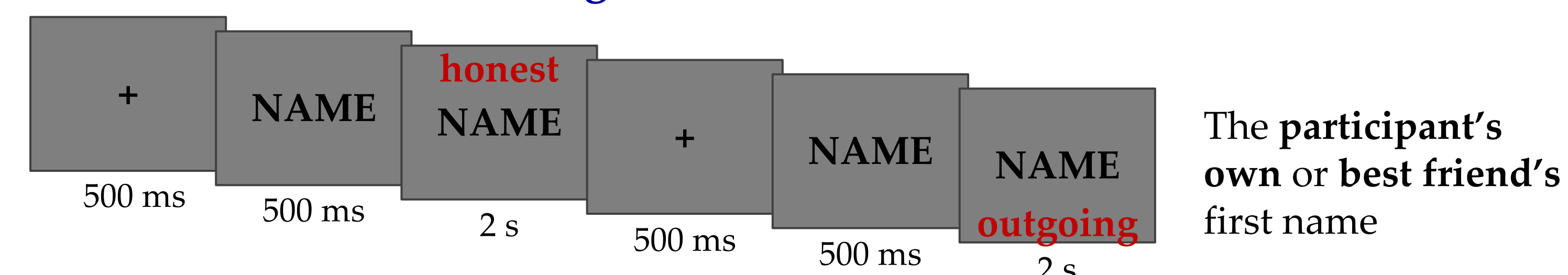
- Does the magnitude of the iSRE correlate with the magnitudes of self-advantages in any of the three attentional networks?

## Procedure

**Participants:** 115 participants (60 females;  $M_{age} = 19.56$ ) performed both the iSRE memory task and the ANT in a counterbalanced order.

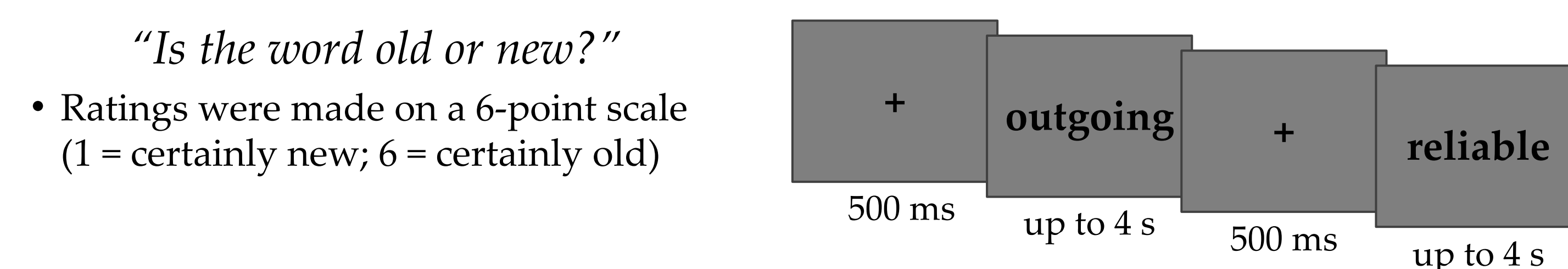
### iSRE Memory Task:

#### Phase 1: Incidental Encoding

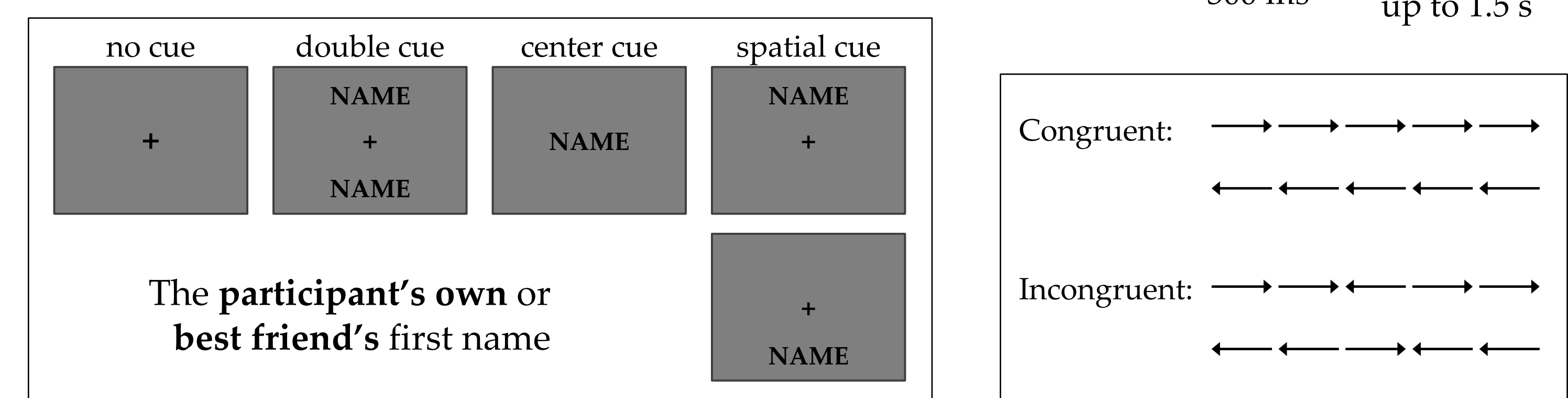
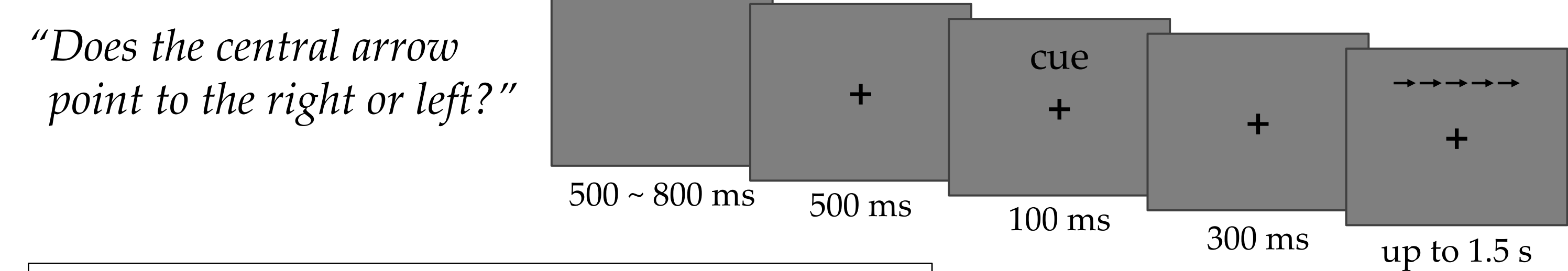


"Does the word appear above or below the name in the middle?"

#### Phase 2: Recognition Memory Test



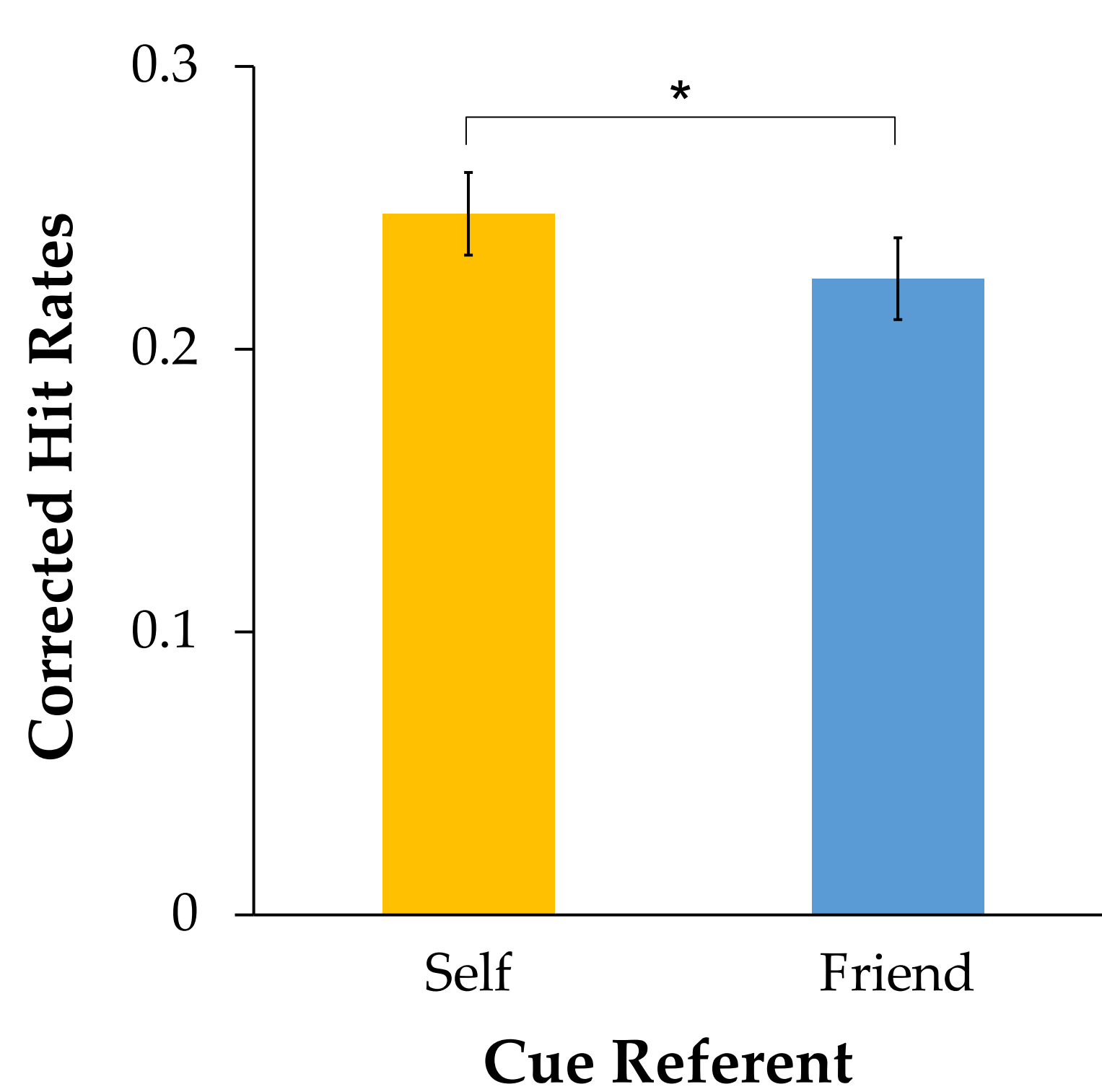
### ANT:



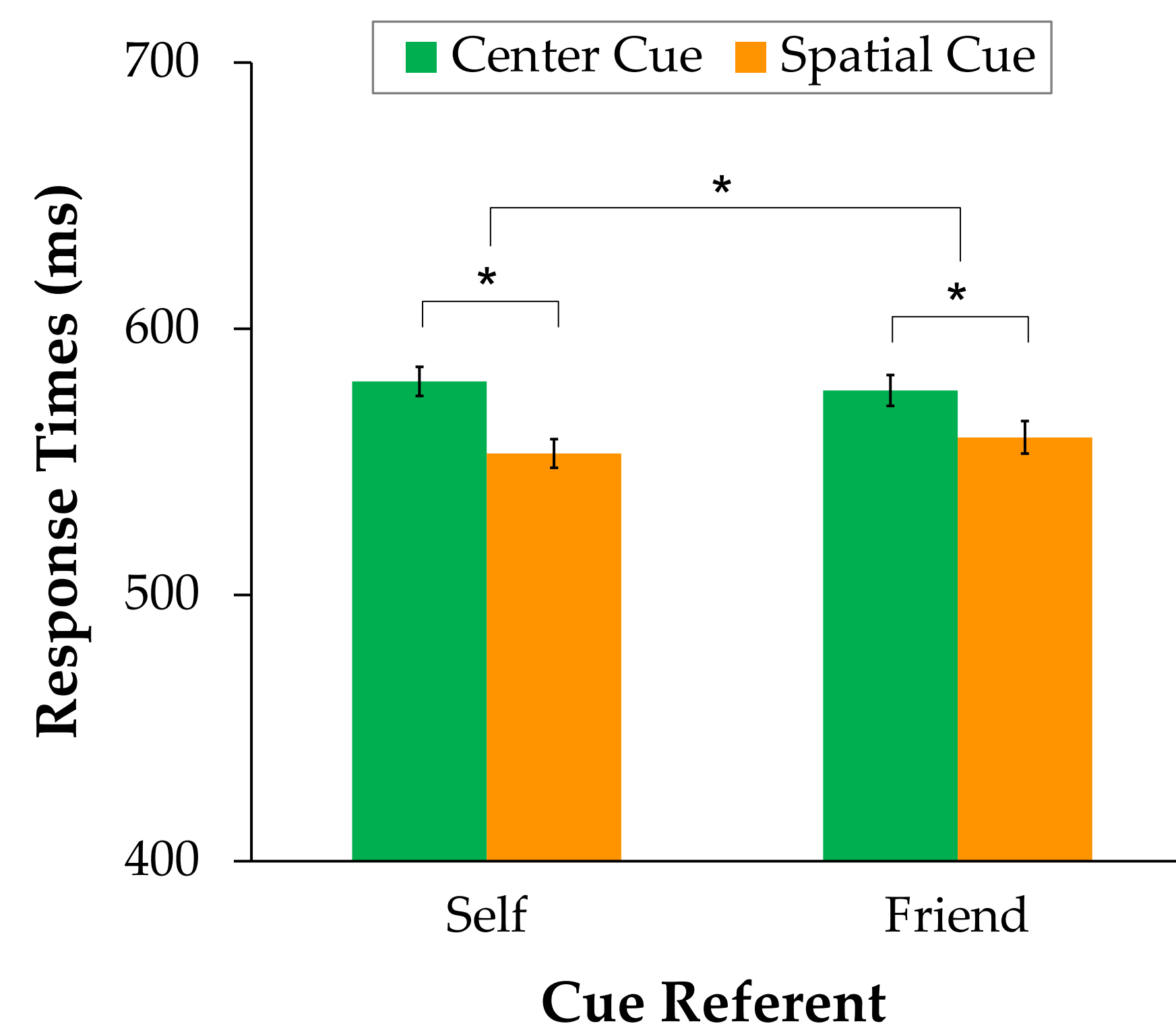
- **Alerting:**  $RT_{no\ cue} - RT_{double\ cue}$
- **Orienting:**  $RT_{center\ cue} - RT_{spatial\ cue}$
- **Executive Control:**  $RT_{incongruent} - RT_{congruent}$

## Results

### Self-Advantage in Memory (iSRE)

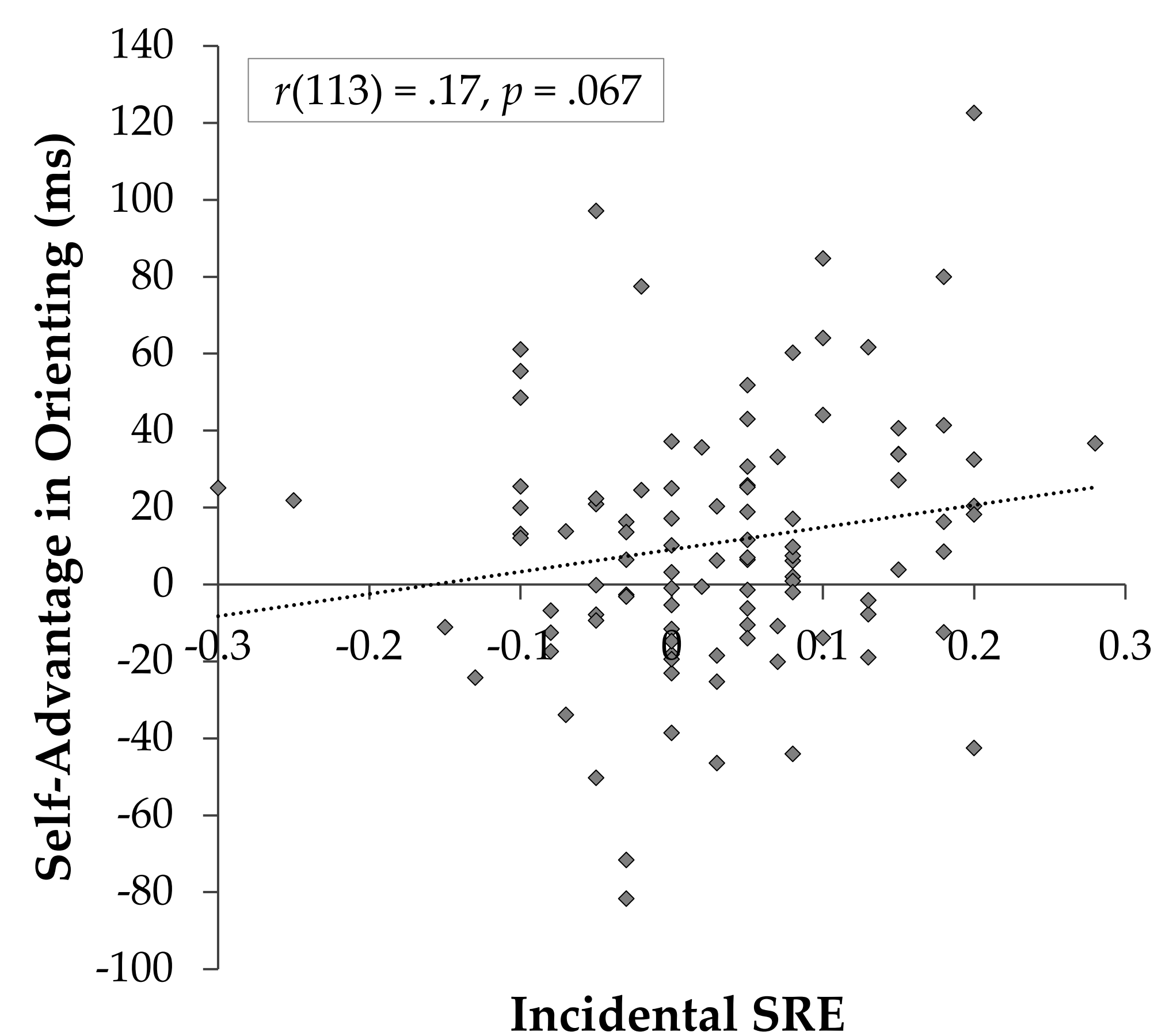


### Self-Advantage in Attentional Orienting



• No self-advantage in the alerting or executive control

### Correlation between the iSRE and Attentional Self-Advantage



## Conclusion

- For memory, participants showed a significant self-advantage, replicating previous findings of the iSRE.
- For attention, participants showed a significant self-advantage in orienting network, but not in alerting or executive control network.
- There was a marginally significant positive correlation between the magnitude of the iSRE and the magnitude of the attentional self-advantage in orienting network.
  - Though preliminary, these findings suggest that memorial and attentional self-advantages may operate via common psychological mechanisms.

## References

- Fan, J., McCandliss, B. D., Sommer, T., Raz, A., & Posner, M. I. (2002). Testing the efficiency and independence of attentional networks. *Journal of cognitive neuroscience*, 14(3), 340-347.
- Petersen, S. E., & Posner, M. I. (2012). The attention system of the human brain: 20 years after. *Annual Review of Neuroscience*, 35, 73-89.
- Turk, D. J., Cunningham, S. J., & Macrae, C. N. (2008). Self-memory biases in explicit and incidental encoding of trait adjectives. *Consciousness and cognition*, 17(3), 1040-1045.