

# Directed Forgetting of Stimulus-Action and Stimulus-Classification Associations

Hannah Dames, Marco Ragni, Andrea Kiesel, & Christina U. Pfeuffer  
University of Freiburg

## MOTIVATION

### Stimulus-response (S-R) associations:

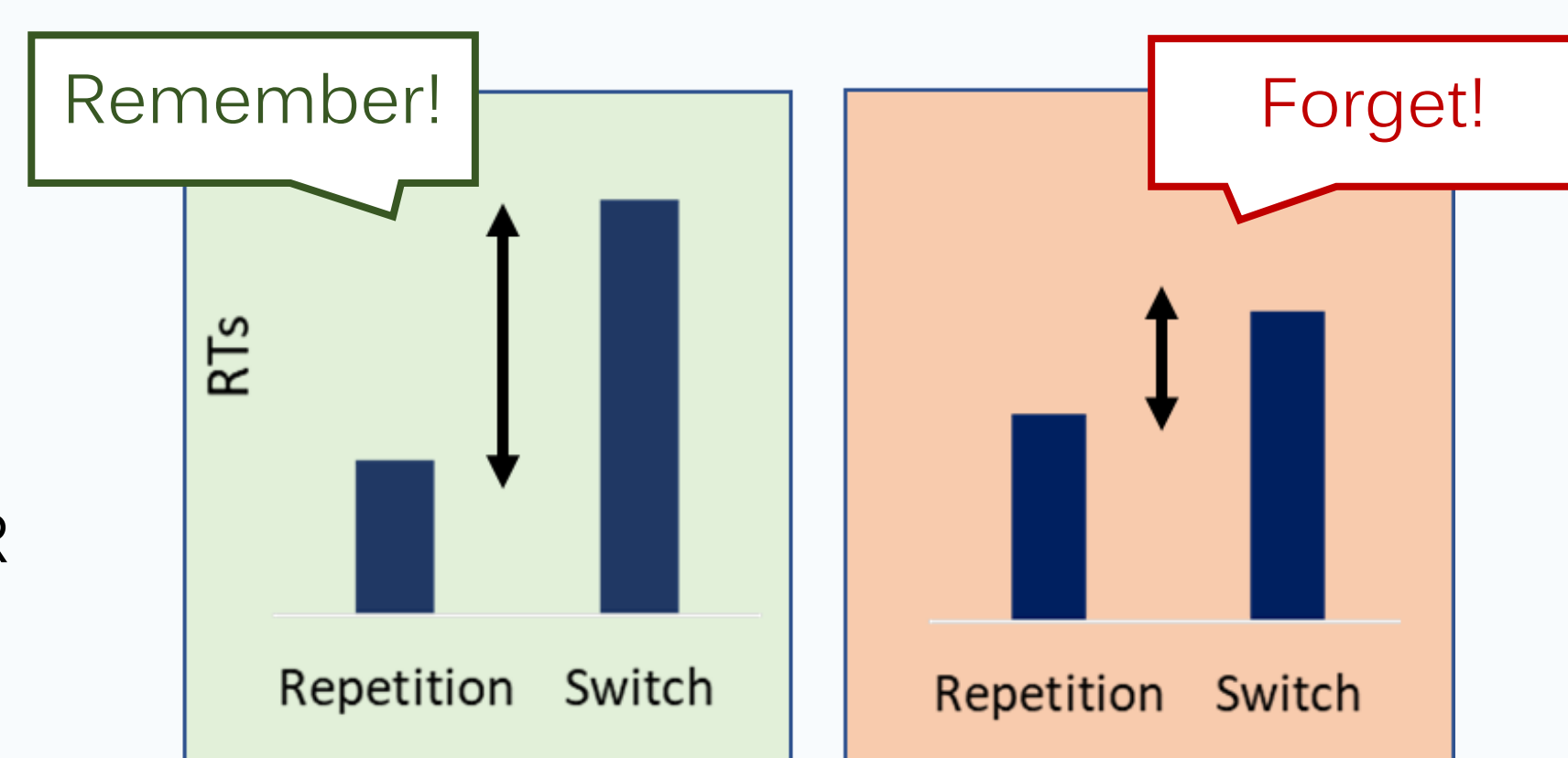
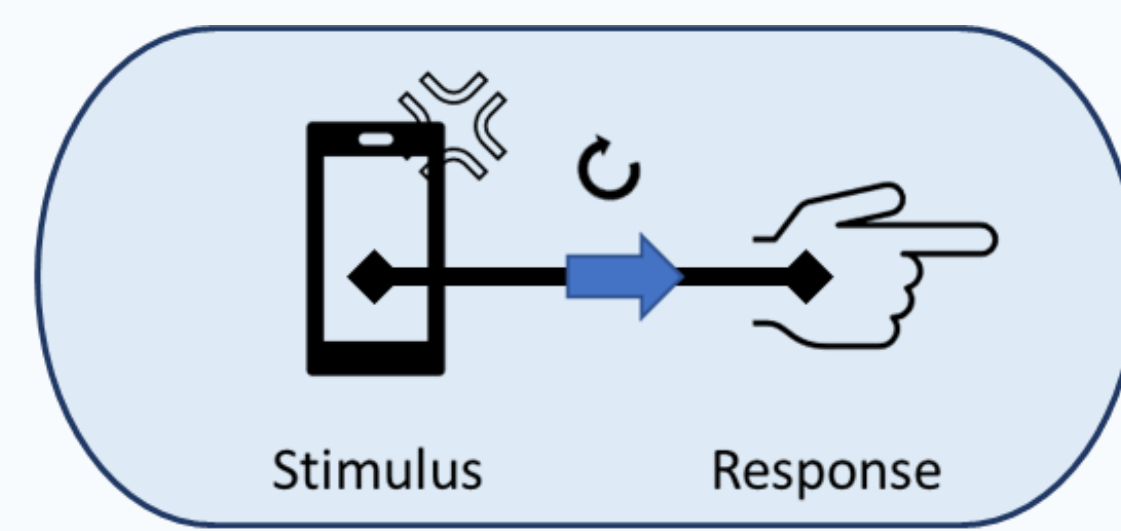
Stimuli are able to automatically trigger the retrieval of associated responses (e.g., Henson et al., 2014; Hommel, 1998; Logan, 1988)

### Research Questions: Can the instruction to forget disrupt

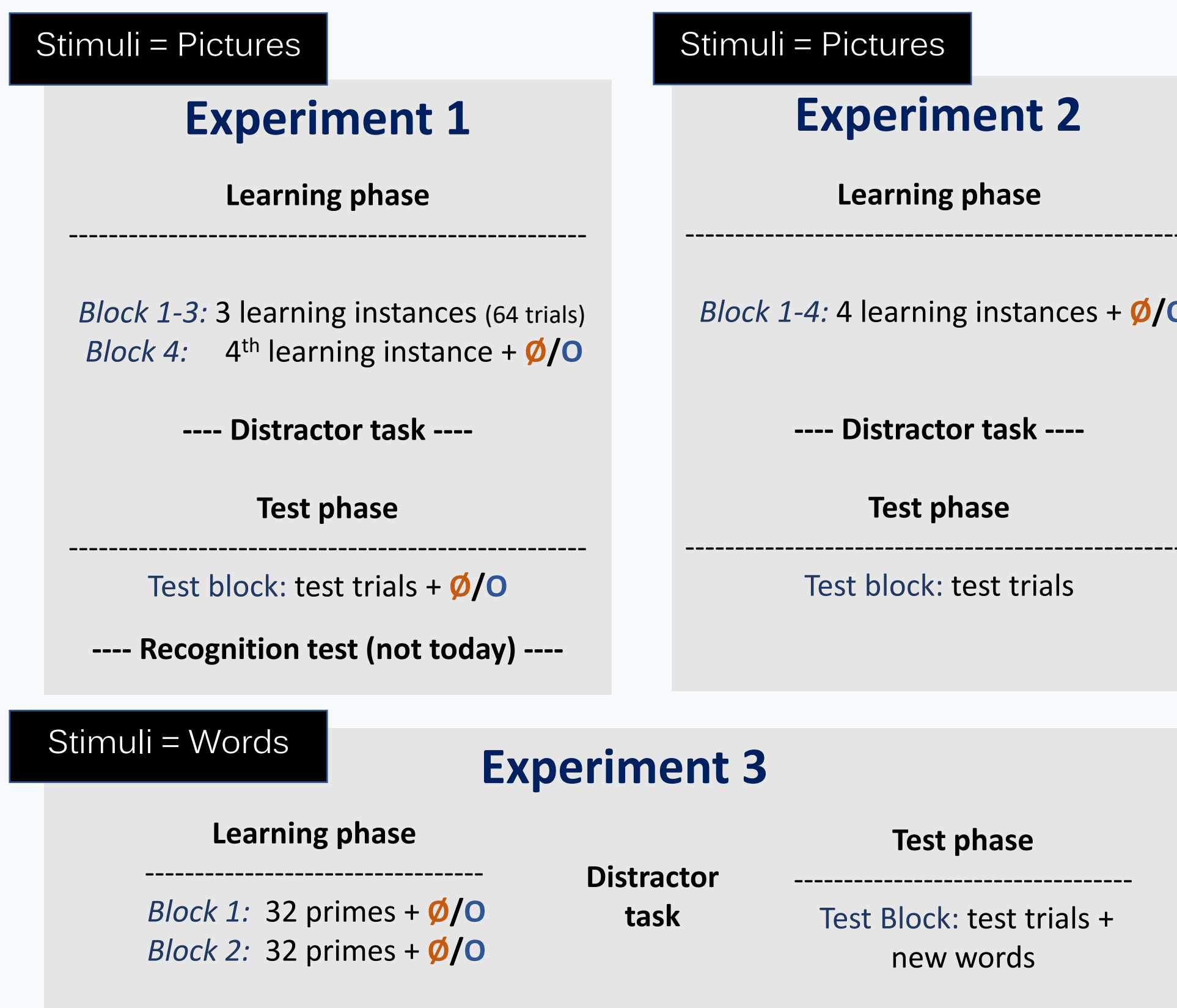
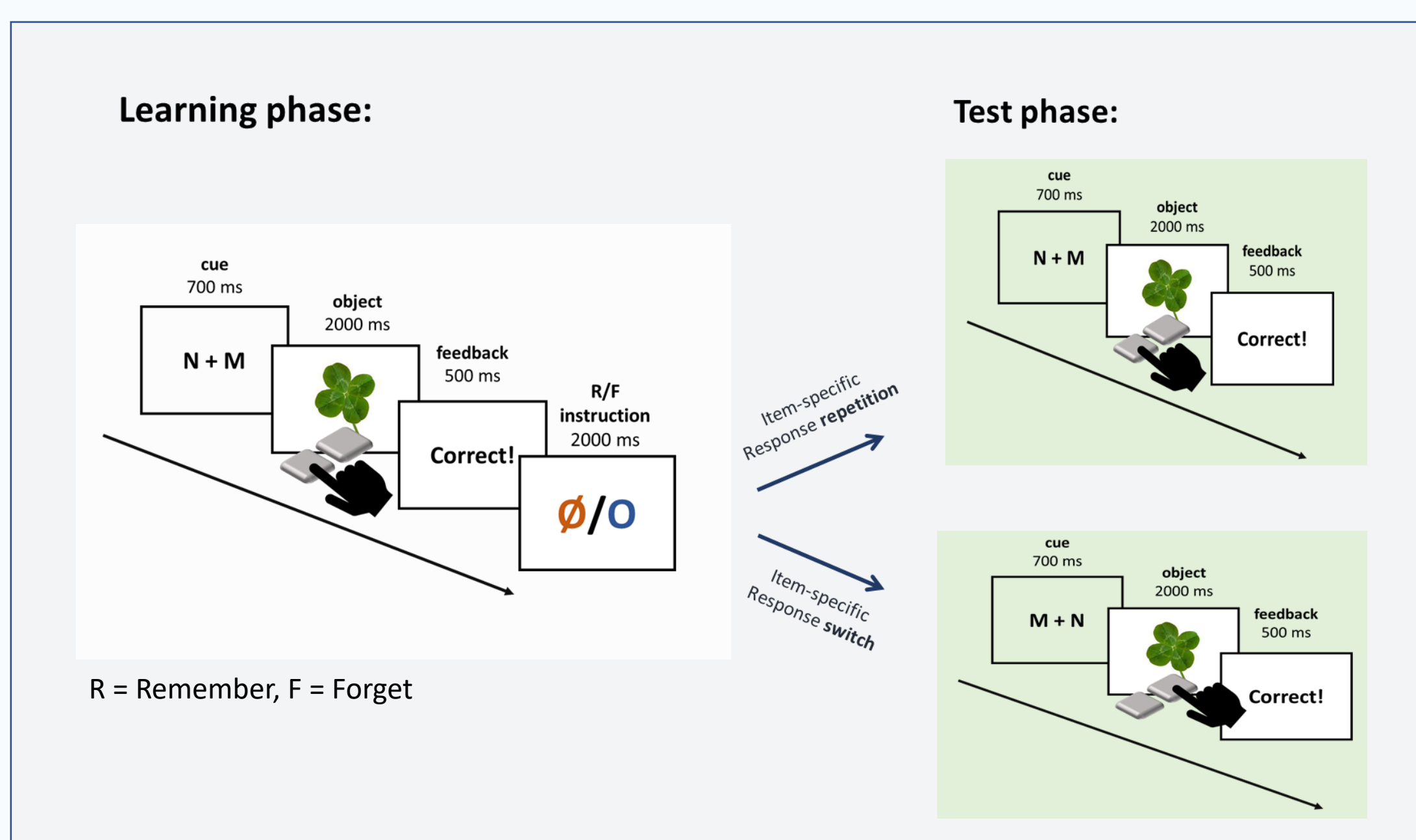
1. (the retrieval of) existing S-R associations?
2. the learning of novel S-R associations?

### Paradigm:

Directed-forgetting item-method (see MacLeod, 1998) + item-specific S-R priming (e.g., Horner & Henson, 2009; Pfeuffer et al., 2017)



## METHOD

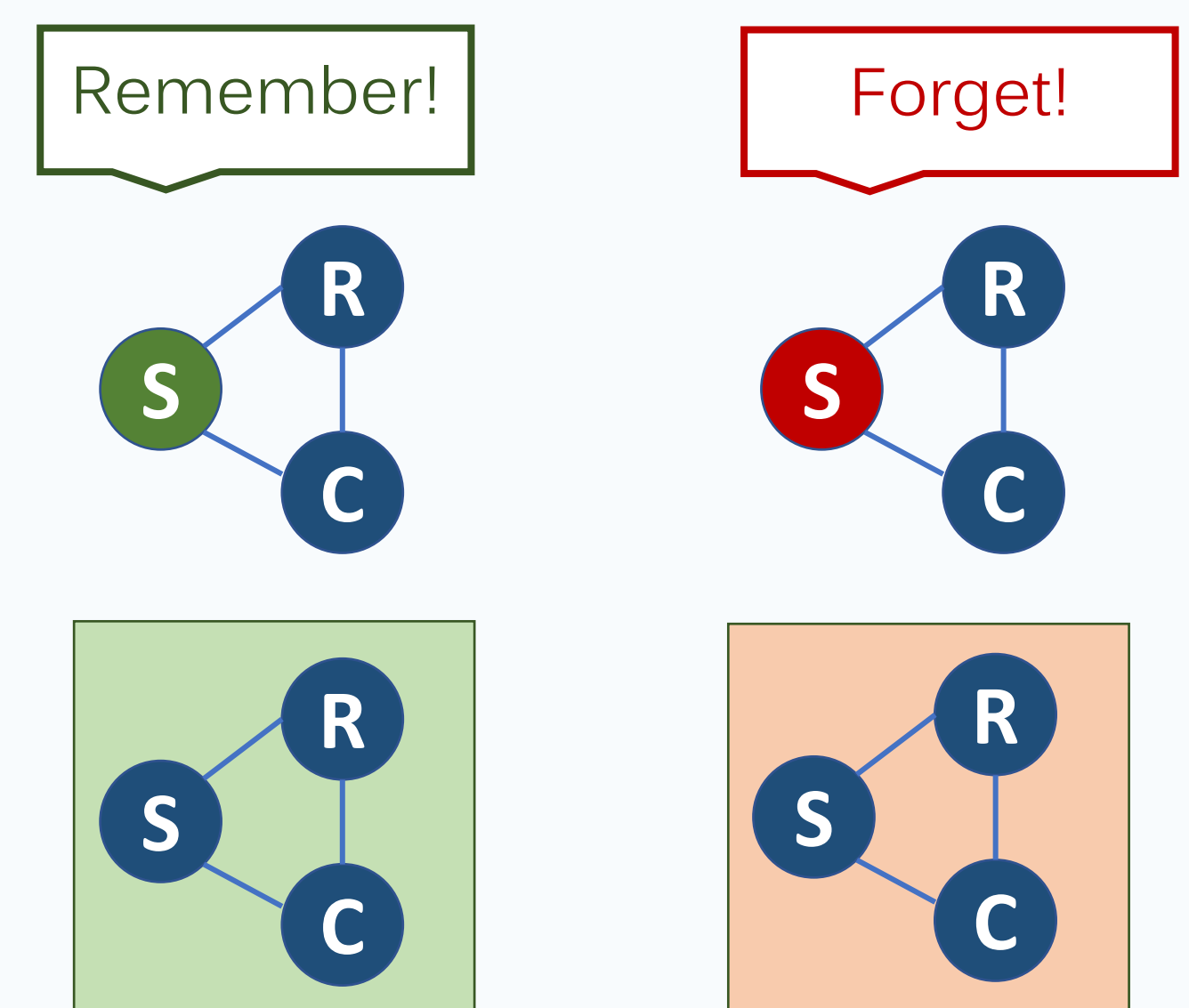


## Implications & Questions

1. The intention to remember does not strengthen incidentally learned S-R associations
2. Experiment 3: additional instruction to remember disrupts the formation of S-R associations  
→ Declarative memory instruction influences the formation of procedural bindings?

## Presenter Bar Supporting Tables & Figures

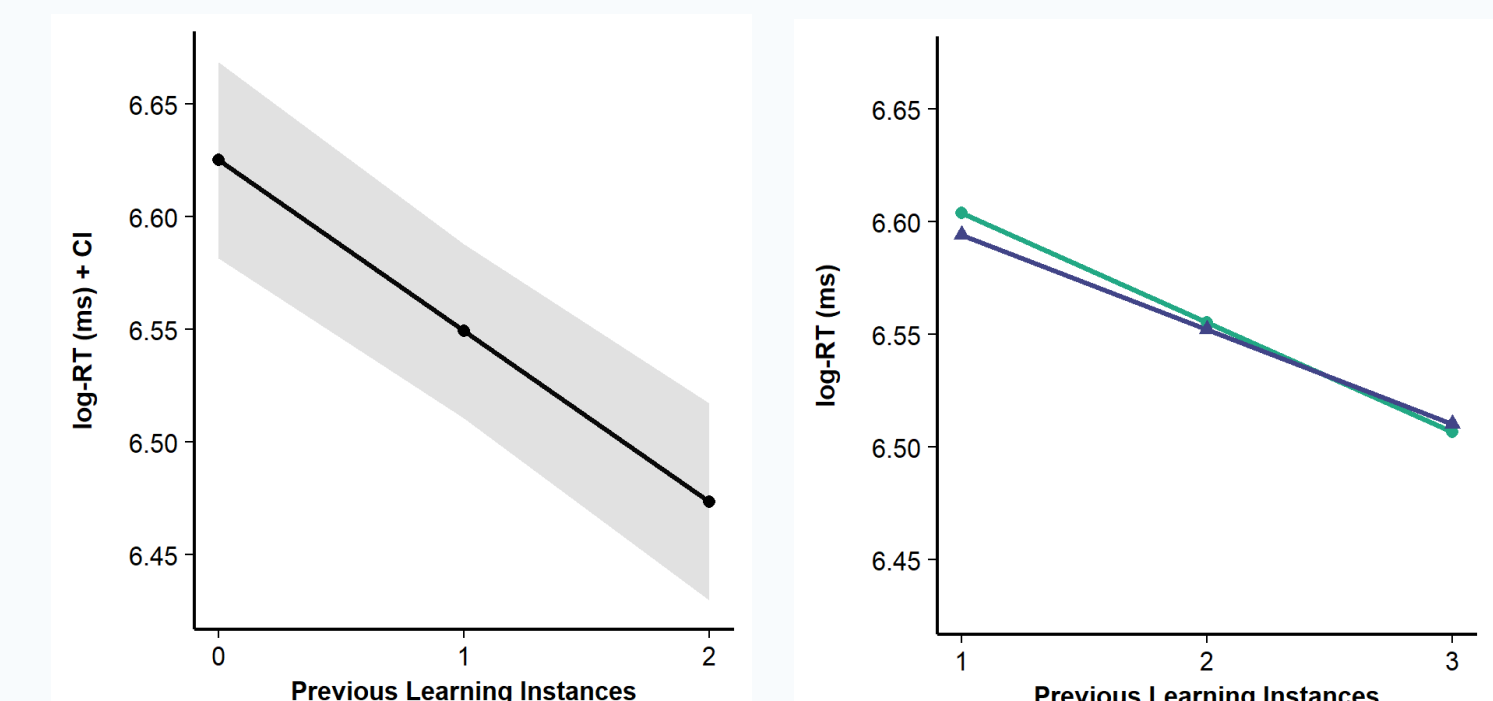
Discussion: Which memory representations are affected by the instruction to remember/forget?



## Learning Analyses

Experiment 1 (n = 74)

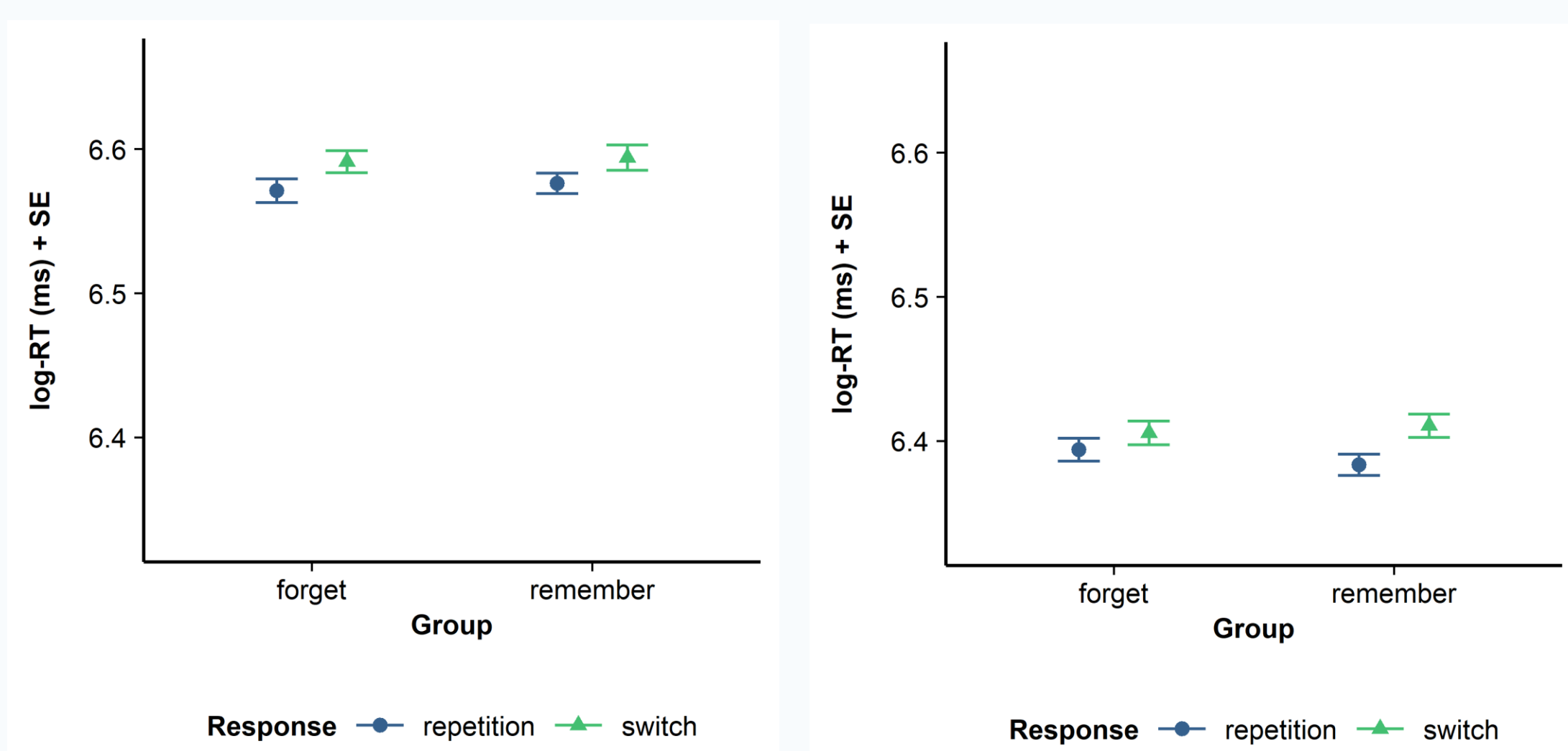
Experiment 2 (n = 75)



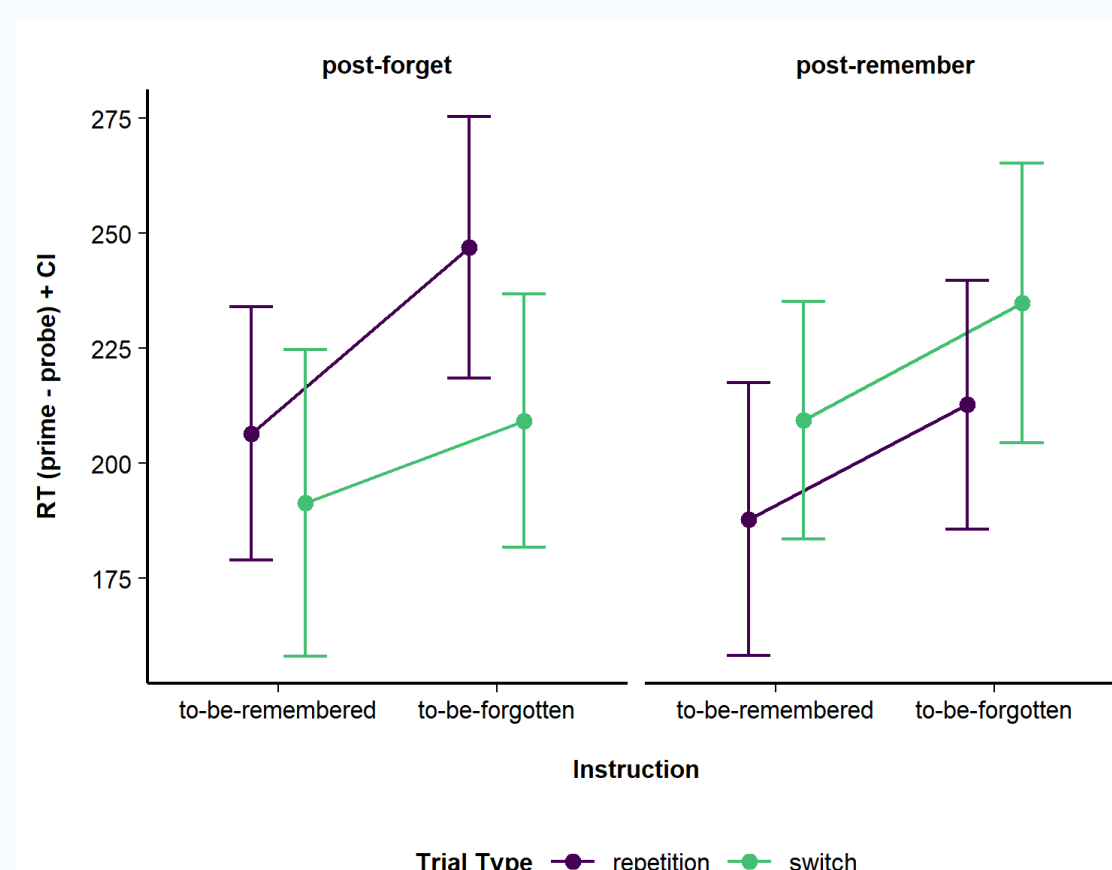
## RESULTS

Experiment 1 (n = 74)

Experiment 2 (n = 75)



Experiment 3 (n = 74)



## Bayesian mixed models

- Bayes Factors against:
- Response (switch vs. repetition):  $BF_{01} = 108$
  - Instruction (forget vs. remember):  $BF_{01} =$
  - Response x Instruction:  $BF_{01} = 104$

## Linear mixed models

- Factors experiment 1:
- Response (switch vs. repetition)
  - Instruction (forget vs. remember)
  - Response x Instruction

- Factors experiment 2:
- Response (switch vs. repetition)
  - Instruction (forget vs. remember)
  - Response x Instruction

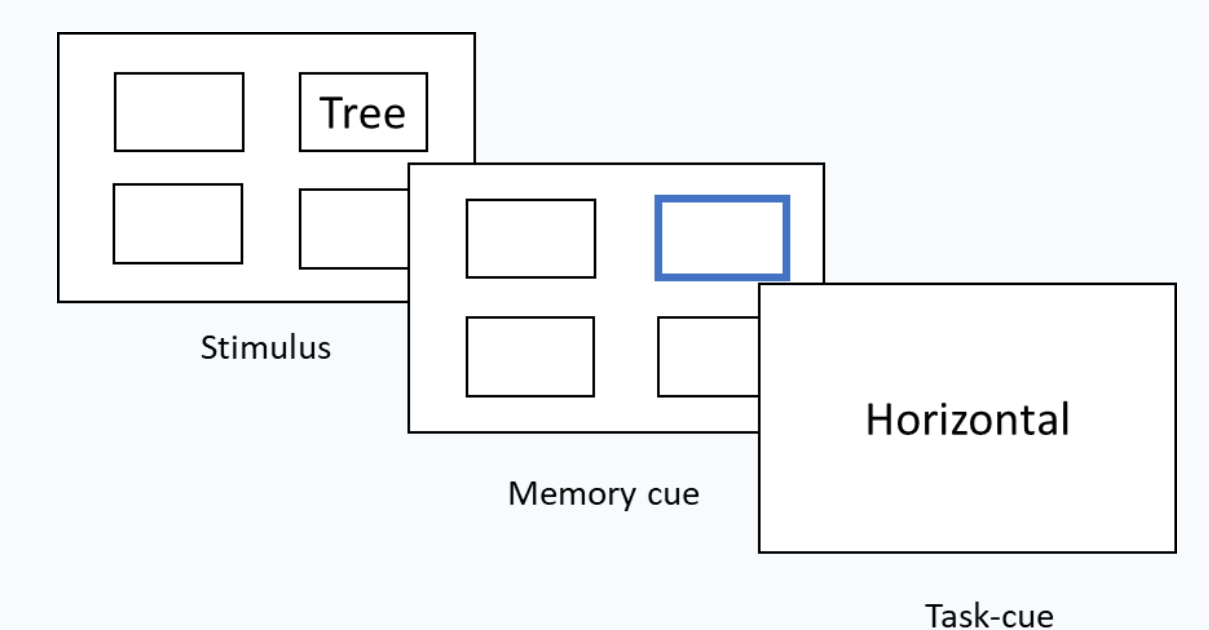
Significant – not significant

## Conclusion

Does the intention to remember/ forget a stimulus strengthen/ disrupt the retrieval of S-R associations?

Intention to **remember** does not strengthen formation and/or enhance retrieval of S-R associations

## Future Work



## Experiment Working Memory

- Prime phase: 8 trials  
Probe phase (50%): 8 trials
- Prime phase: 8 trials  
Word test (50%): 8 trials

References  
Henson, R. N., Eckstein, D., Waszak, F., Frings, C., & Horner, A. J. (2014). Stimulus-response bindings in priming. *Trends in Cognitive Sciences*, 18(7), 376-384.  
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Cognition, Action, and Sustainability Unit  
Department of Psychology  
Cognitive Computation Lab  
Department of Computer Science  
University of Freiburg, Germany



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