

## Background

### Judgment of Learning (JOL)

How likely am I to remember this information on a later test?

- Measure of metacognitive monitoring
- Often improves later test performance if done while studying, JOL reactivity
- In word pair learning, benefits cued recall of related, but not unrelated word pairs<sup>4</sup>



- **Cue-Strengthening Hypothesis:** JOLs enhance pre-existing cue-target association<sup>4</sup>
- Cue-Strengthening is compatible with:
  - Covert Retrieval<sup>1</sup>
  - Spreading Activation<sup>2</sup>
- If JOLs trigger spreading activation, then we should expect JOLs to be associated with more false memories

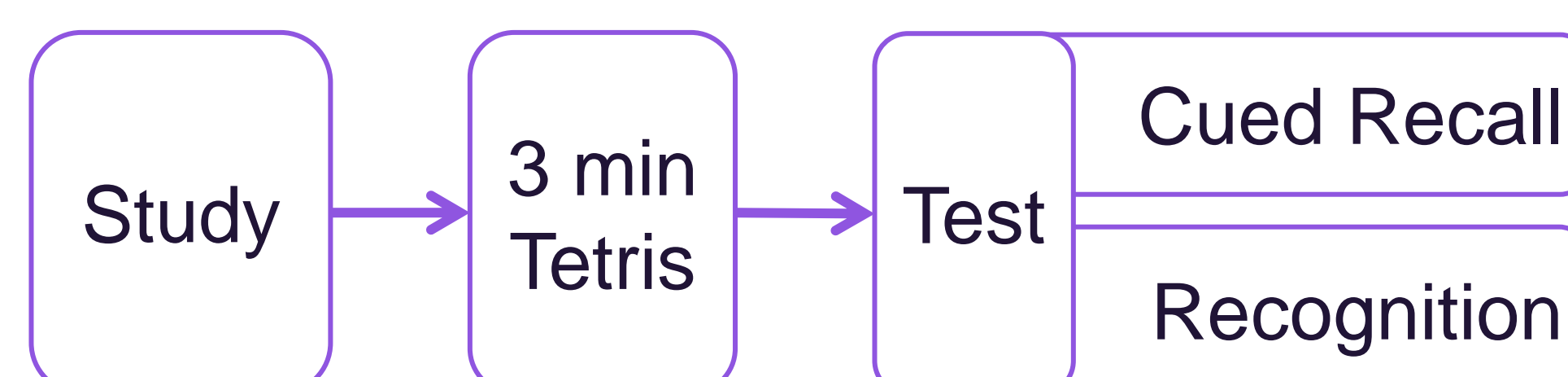
Do JOLs increase the likelihood of a false memory occurring?

- We seek to answer this question by:
  - Replicating prior work on cued recall, and
  - Adding an associative recognition test

## Methods

- This experiment is a partial replication of Soderstrom et al.'s (2015) experiment 1b<sup>4</sup>
- Participants studied 60 cue-target word pairs
  - Thirty unrelated,  $FAS = 0.00$
  - Thirty related,  $0.40 < FAS < 0.75$
  - Each presented for 8s
- Sixty cued recall trials
- Ninety-six associative recognition trials
  - 12 Intact
  - 16 Recombined
  - 16 Old-New
  - 16 New-Old
  - 36 Unpresented

- 3-minute retention interval (Tetris)
- Cued recall procedure
  - 8s study time is constant
  - JOL learners take 4s to type a JOL between 0 (Sure I won't remember) and 100 (Sure I will remember)
- Recognition procedure
  - Each pair presented for 8s
  - Indicate if each pair was old or new



- Sensitivity ( $d'$ ) computed using Intact vs. Recombined pairs
- Hit rates and false alarm rates were log transformed as follows:

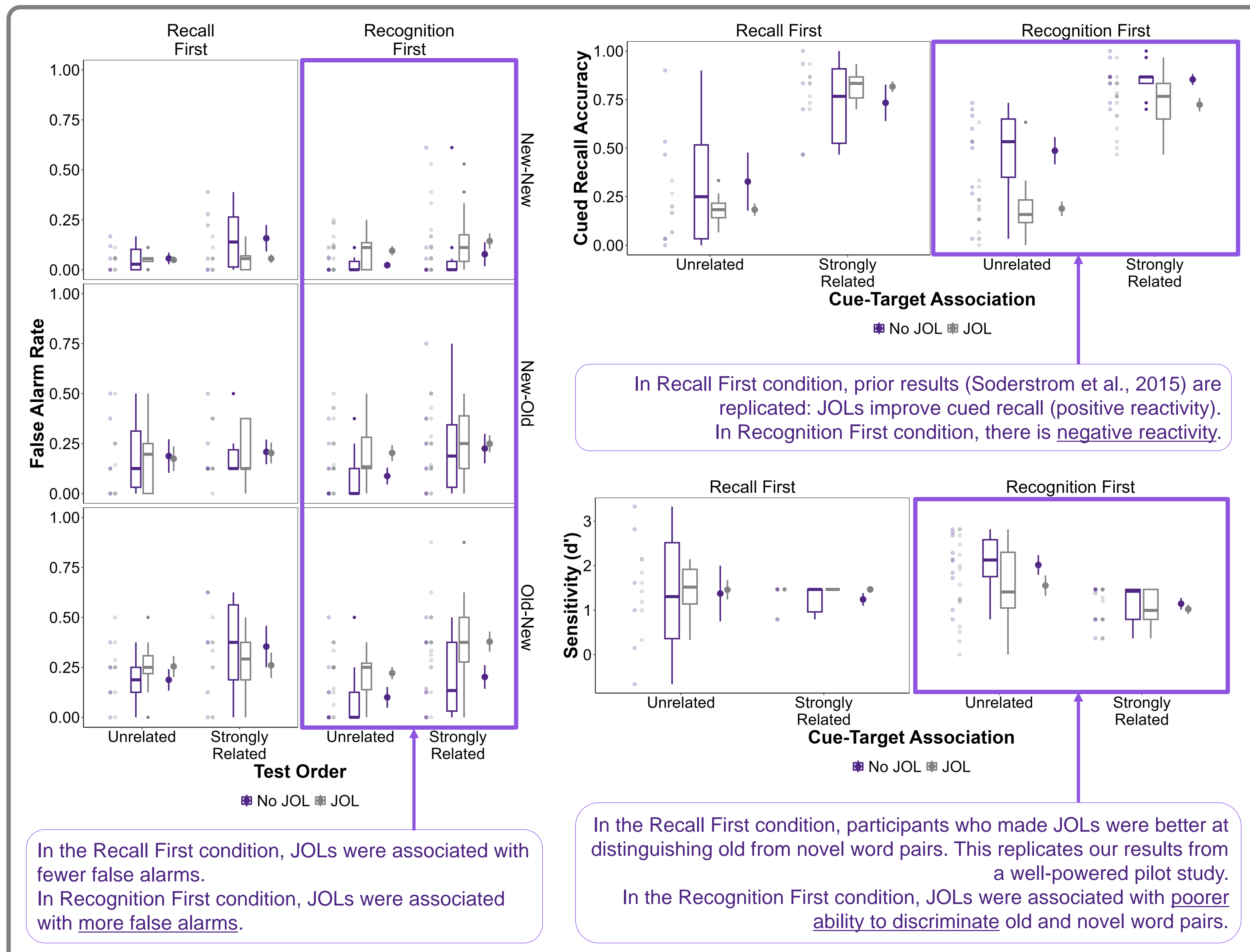
$$H = P("old"|old) = \frac{N_{old} \& old + 0.5}{N_{old} + 1}$$

$$FA = P("old"|new) = \frac{N_{old} \& new + 0.5}{N_{new} + 1}$$

$$d' = z(H) - z(FA)$$

- Learning conditions: JOL vs. No JOL
  - 8s study time is constant
  - JOLs: In last 4s, between 0 (Sure I won't remember) and 100 (Sure I will remember)
- Test order varied between participants
- Data collection ongoing (Target  $N = 120$ )

## Results



## Conclusions

- Positive JOL reactivity is observed in both memory tests when cued recall occurs first
- Cue-Strengthening and similar hypotheses cannot fully account for this positive JOL reactivity
  - Improved recognition performance does not depend on cue-target association
  - Distinct mechanisms may lead to improved familiarity and recollection following JOLs
- When recall test occurs before recognition, false memories may be resolved via *recall-to-reject*<sup>6</sup>
- When a recognition test occurs before cued recall, JOLs elicit *negative reactivity*

JOLs increase the likelihood of a false memory occurring.

- Further analysis will be conducted on intrusion errors during cued recall
- Future research will explore this effect in word list learning and prototype category learning

### References

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