



Contextual similarity influences memory organization

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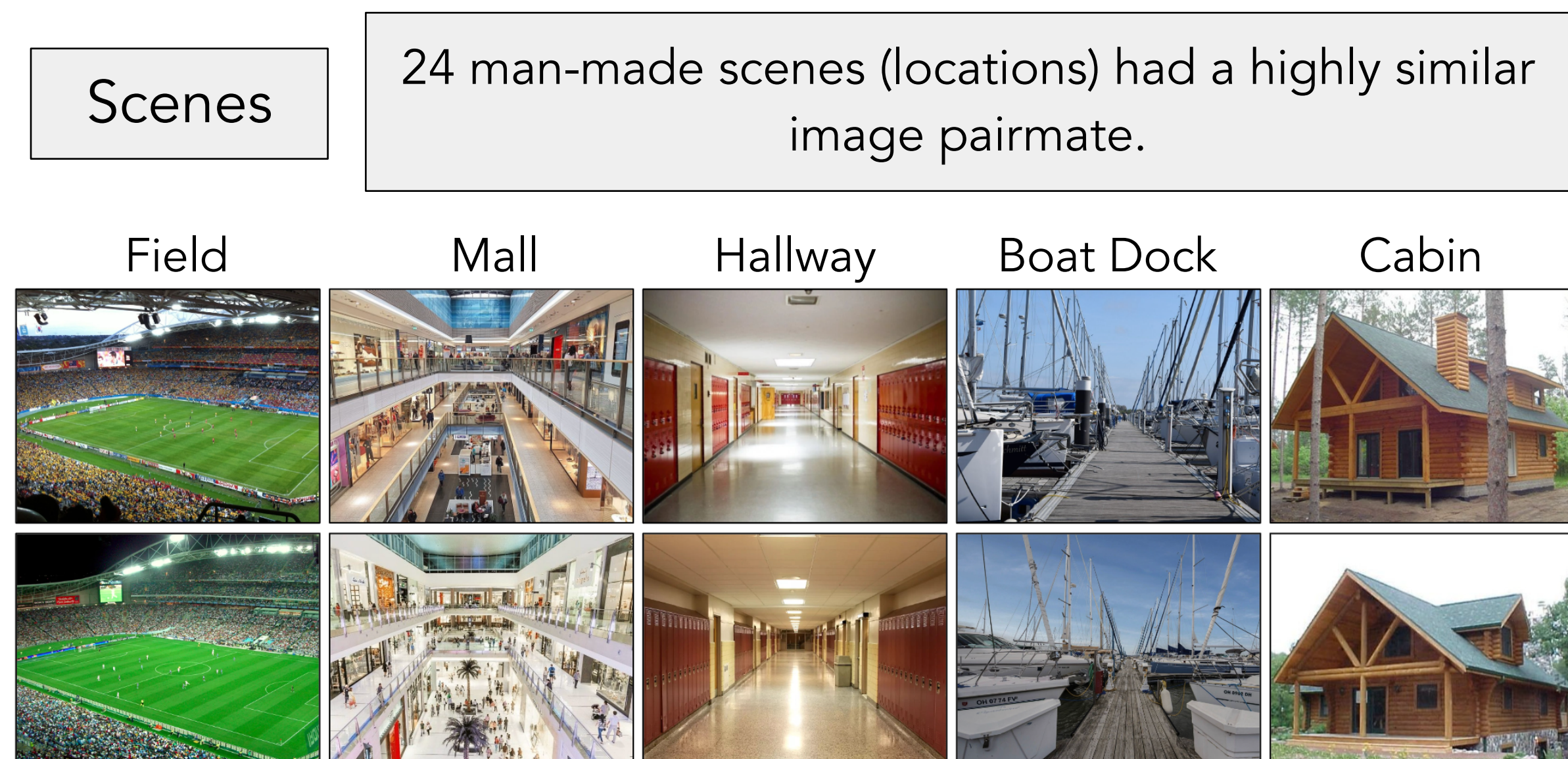
Introduction

- Free recall paradigms allow for measuring the order that items were recalled from memory – **how memories are organized**¹.
- Our memories are bound to **contexts**² (where/when an experience takes place), which frequently share similarities.
- Memories that share a common context during encoding **tend to be grouped together** during free recall^{3,4}.

Research Question

How does contextual similarity influence the organization of free recall?

Stimuli



Generated a Word List

Word Criteria

- Two-syllable nouns
- Unique
 - Ex. "LILY" was omitted because it was similar to "DAISY"
- Not depicted in any scene
- Sounded different when read aloud

128 Total Unique Words

Words

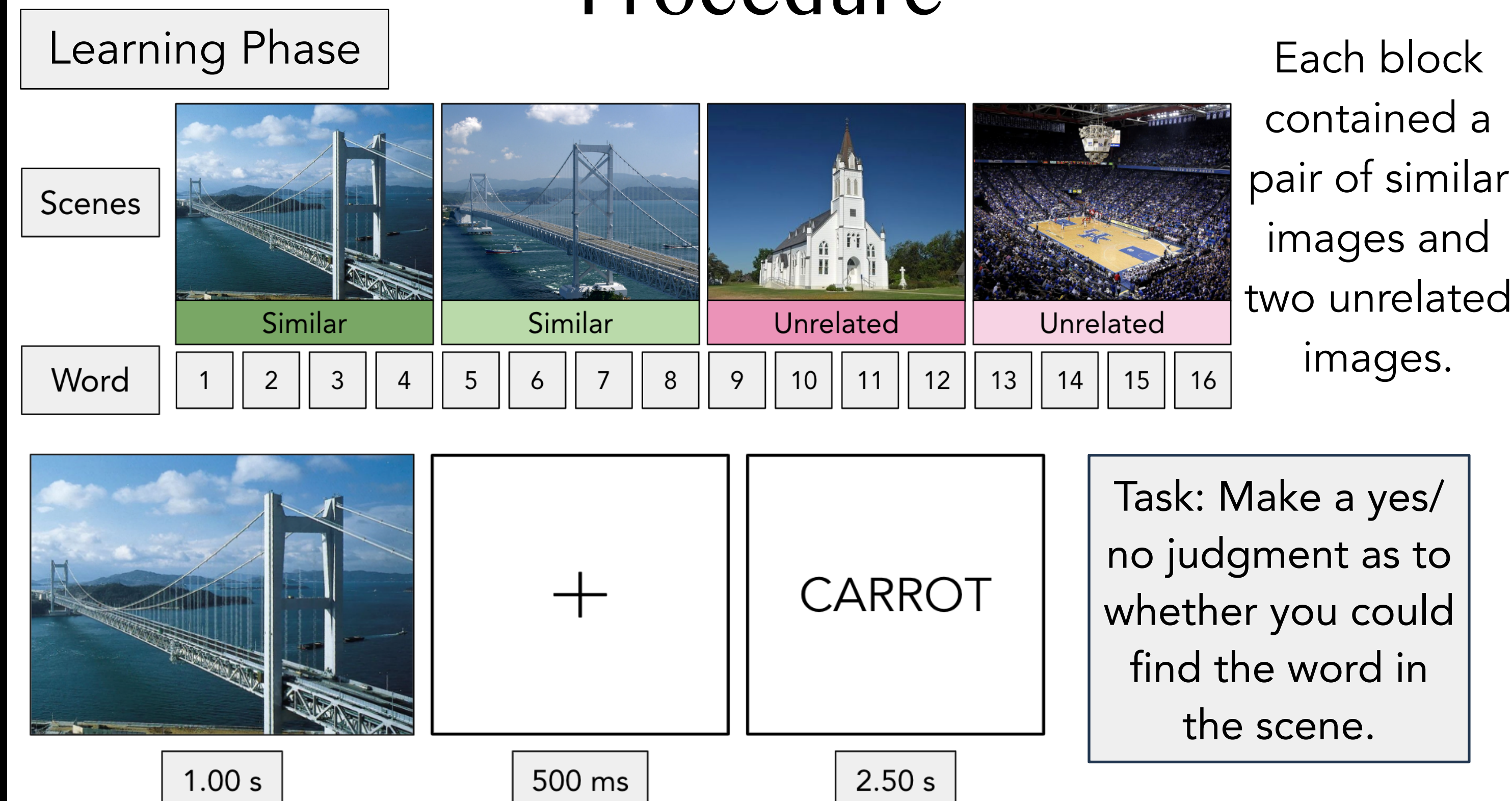
ACORN
BOTTLE
CELLO
DAISY
FOSSIL
HONEY
JELLY
LEMON
MARBLE
OATMEAL
PENGUIN
RAILROAD
...

Individuals (n=35) were recruited from an online sample (Prolific) for a within-subjects design.

16 items per block

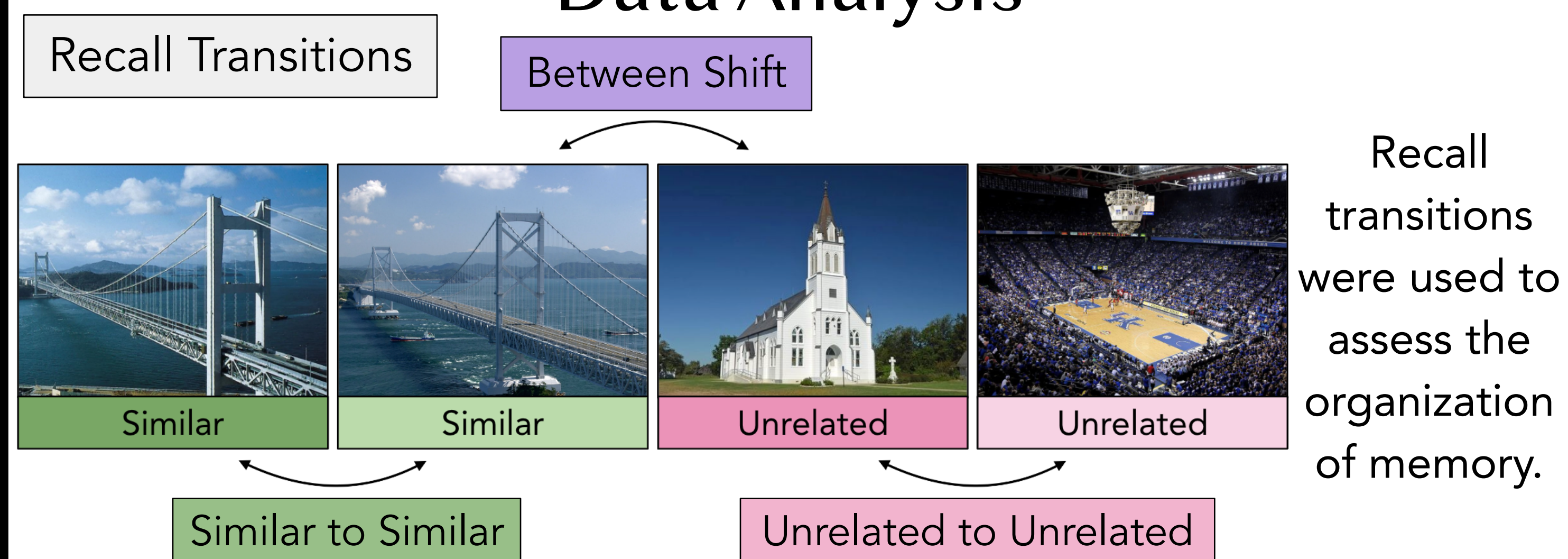
8 blocks per study-test

Procedure

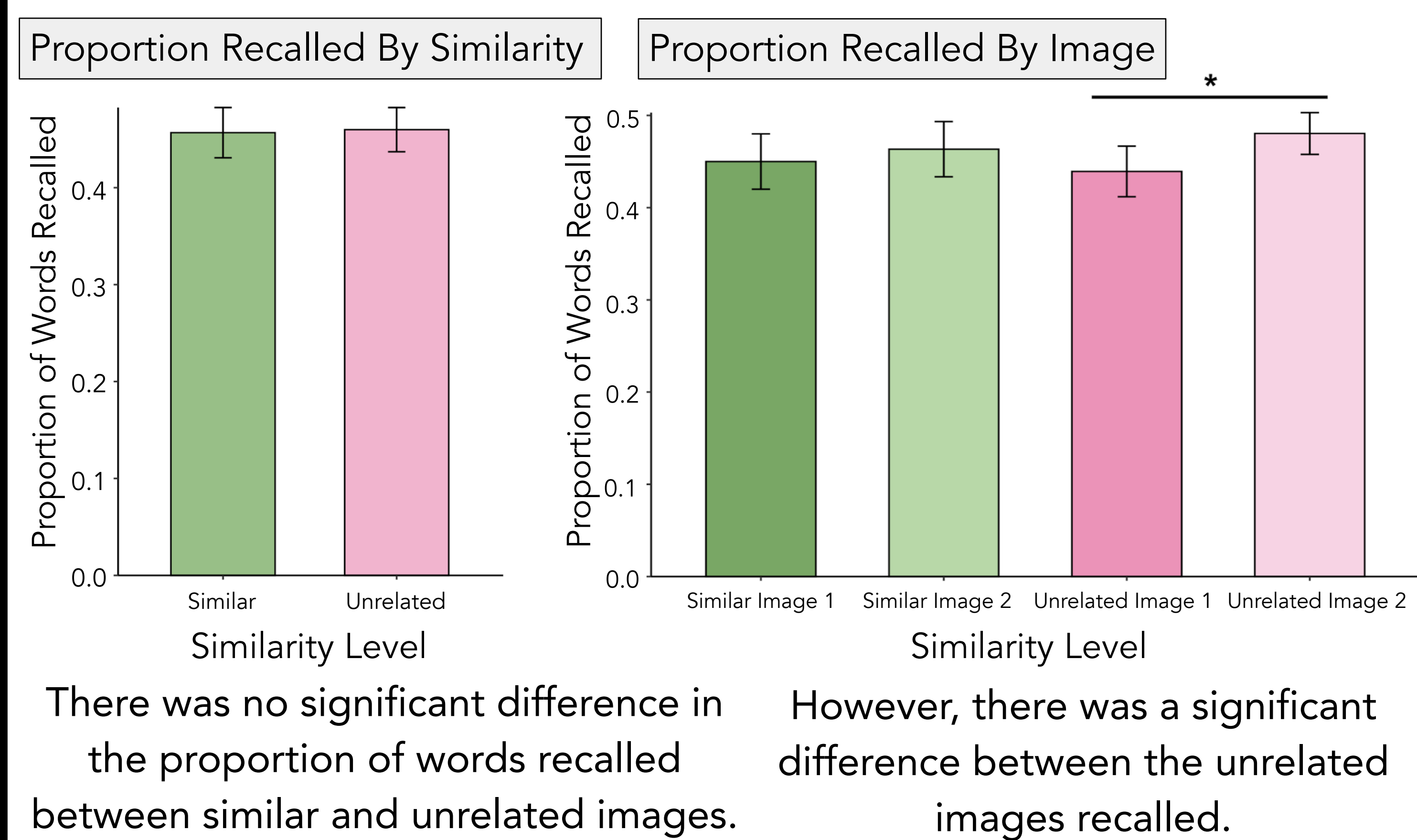


Each block contained a pair of similar images and two unrelated images.

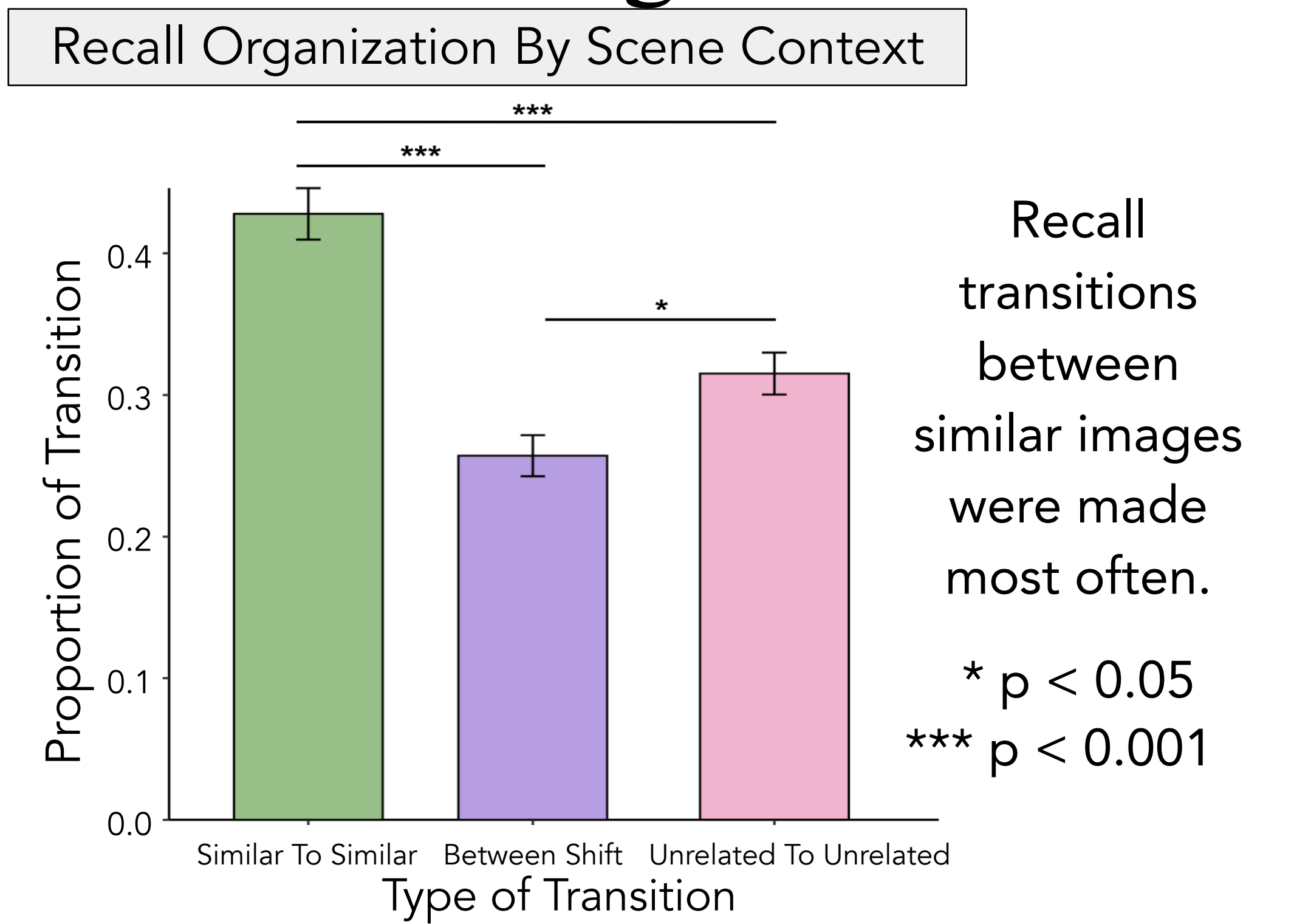
Data Analysis



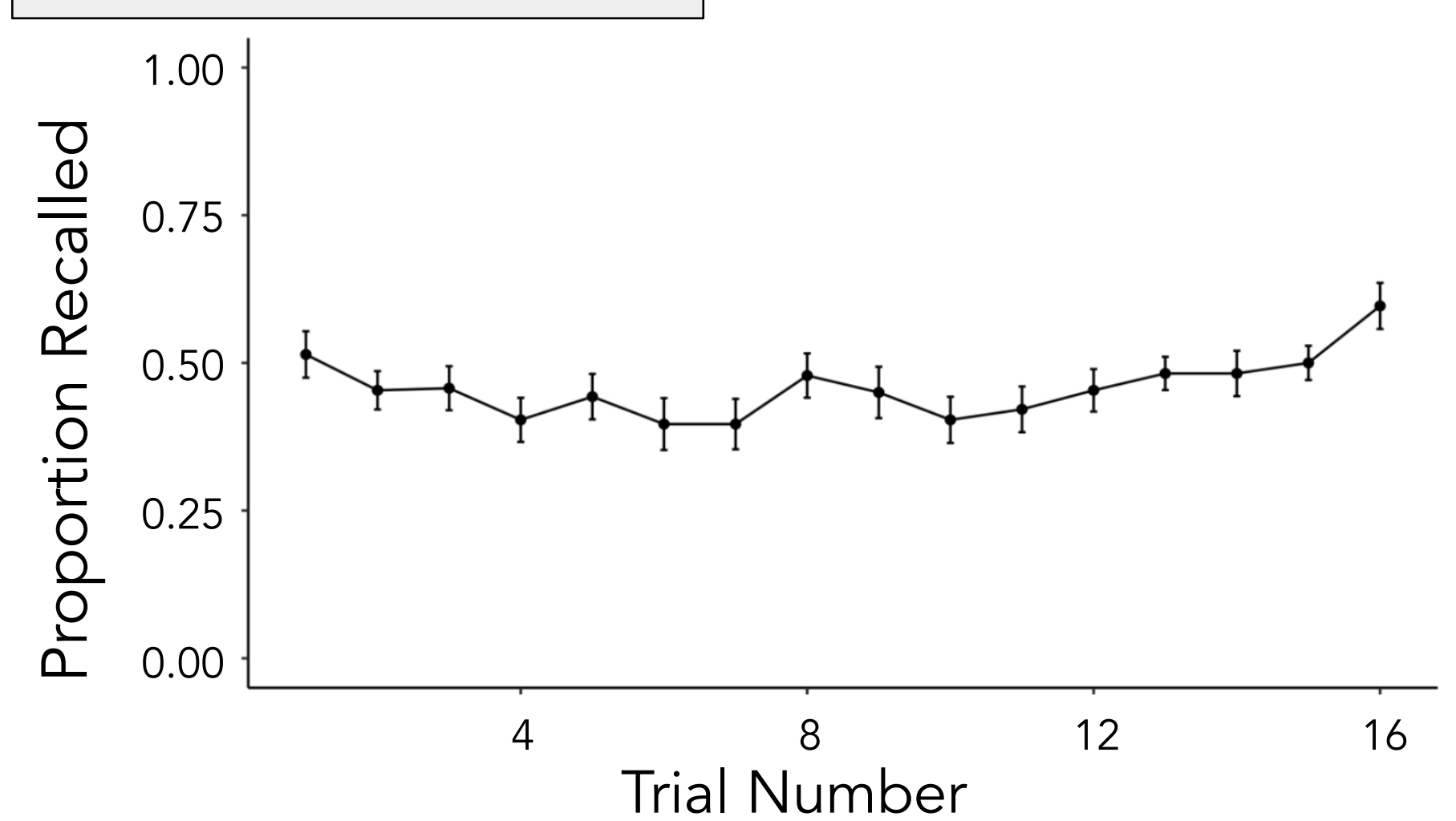
Recall Performance



Recall Organization



Serial Position Curve



Conclusion

- The level of contextual similarity does not influence recall performance.
- Contextual similarity does influence recall organization.
- Events that are experienced in similar contexts are grouped together in memory.
- Future research will investigate whether increased experience with similar contexts can lead to separation of items in memory.

References

- Polyn, S. M., Norman, K. A., & Kahana, M. J. (2009). A context maintenance and retrieval model of organizational processes in free recall. *Psychological review*, 116(1), 129.
- Lohnas, L. J., & Healey, M. K. (2021). The role of context in episodic memory: Behavior and neurophysiology. In *Psychology of Learning and Motivation* (Vol. 75, pp. 157-199). Academic Press.
- Lohnas, L. J. (2022). Free recall and memory search. *The Oxford Handbook of Human Memory: Foundations and Applications*. Oxford University Press.
- Polyn, S. M., Norman, K. A., & Kahana, M. J. (2009). Task context and organization in free recall. *Neuropsychologia*, 47(11), 2158-2163.

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