

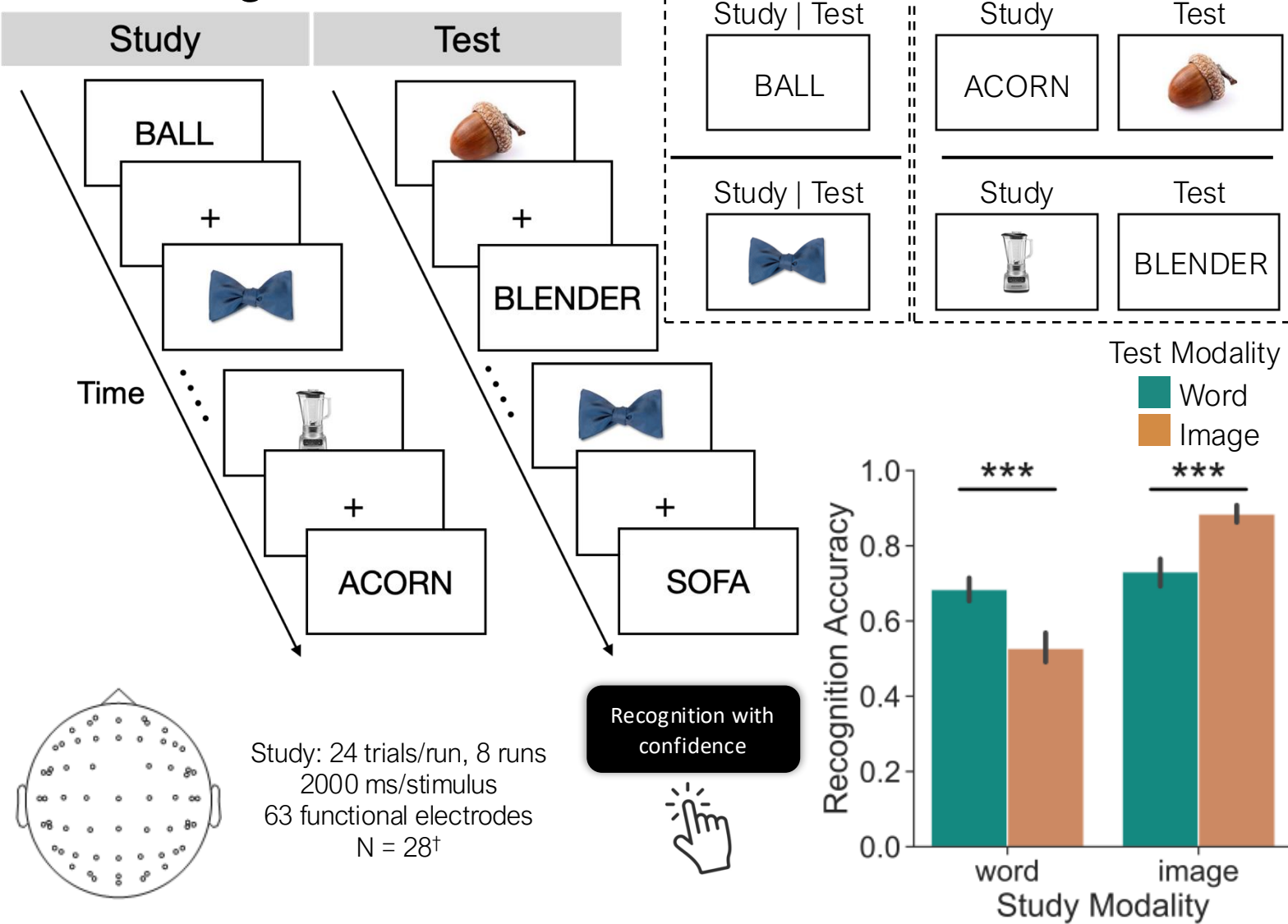
Introduction

- Memory and attention are interdependent, with overlapping neural mechanisms (e.g. Cabeza, 2008)
- Memory encoding and retrieval brain states can be decoded from whole-brain activity patterns (Long & Kuhl, 2019; Smith, Moore & Long, 2022)
- Prior work suggests a link between the retrieval state and internal attention (Han & Long, 2025)
- Subsequent memory effects refer to event processing at study that leads to successful retrieval at test (e.g. Kim, 2011)

Hypothesis

- The encoding state reflects the degree to which attention is directed externally
- Alternative: The encoding state tracks successful memory formation

Task design



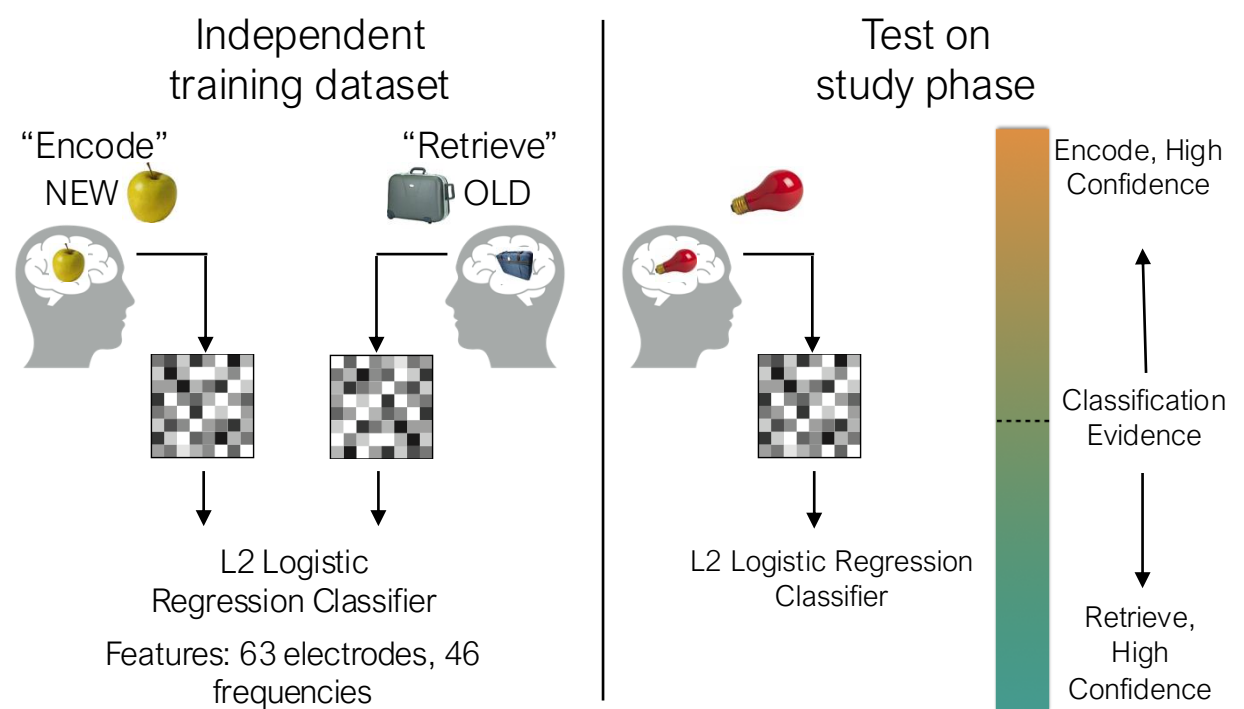
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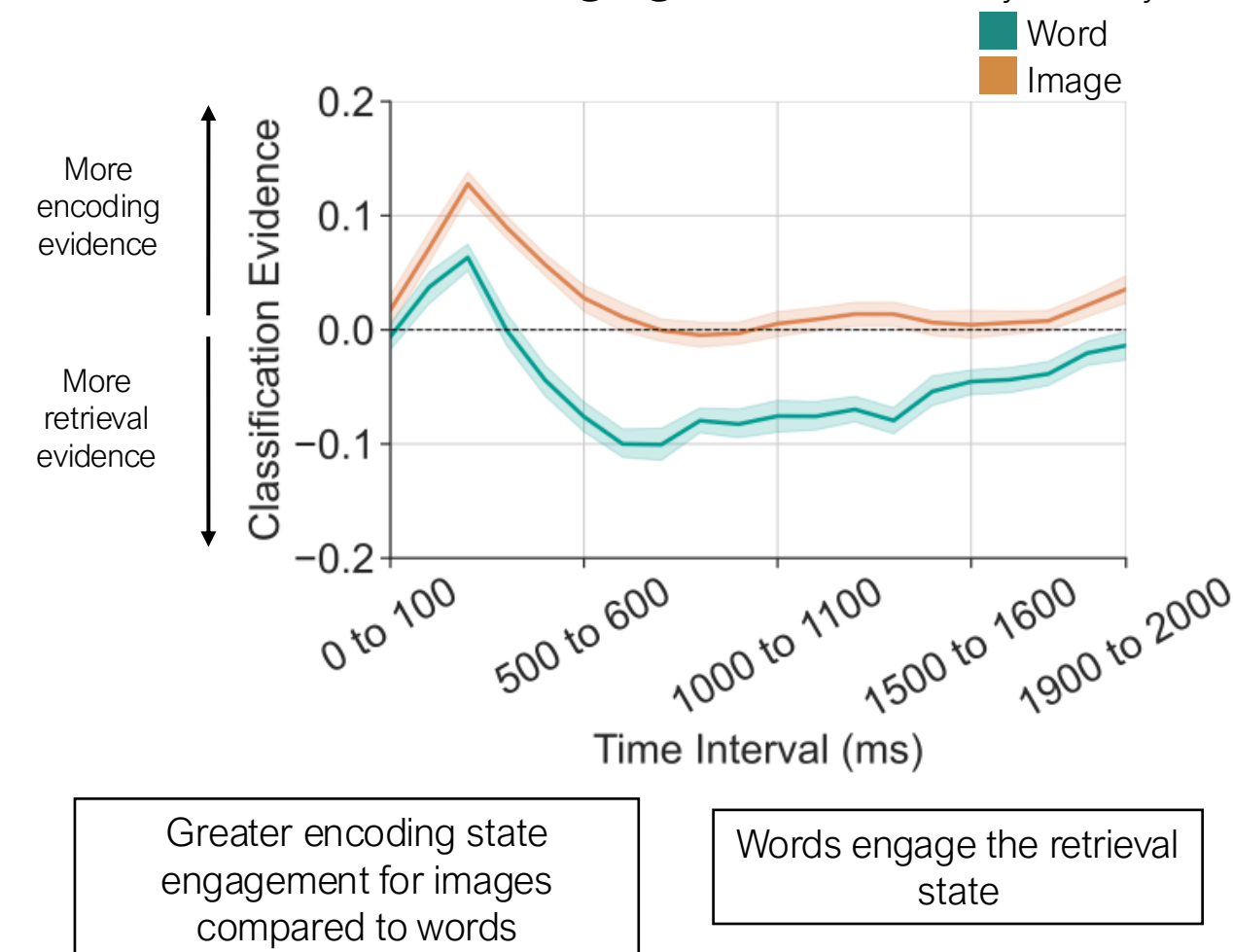
Acknowledgements

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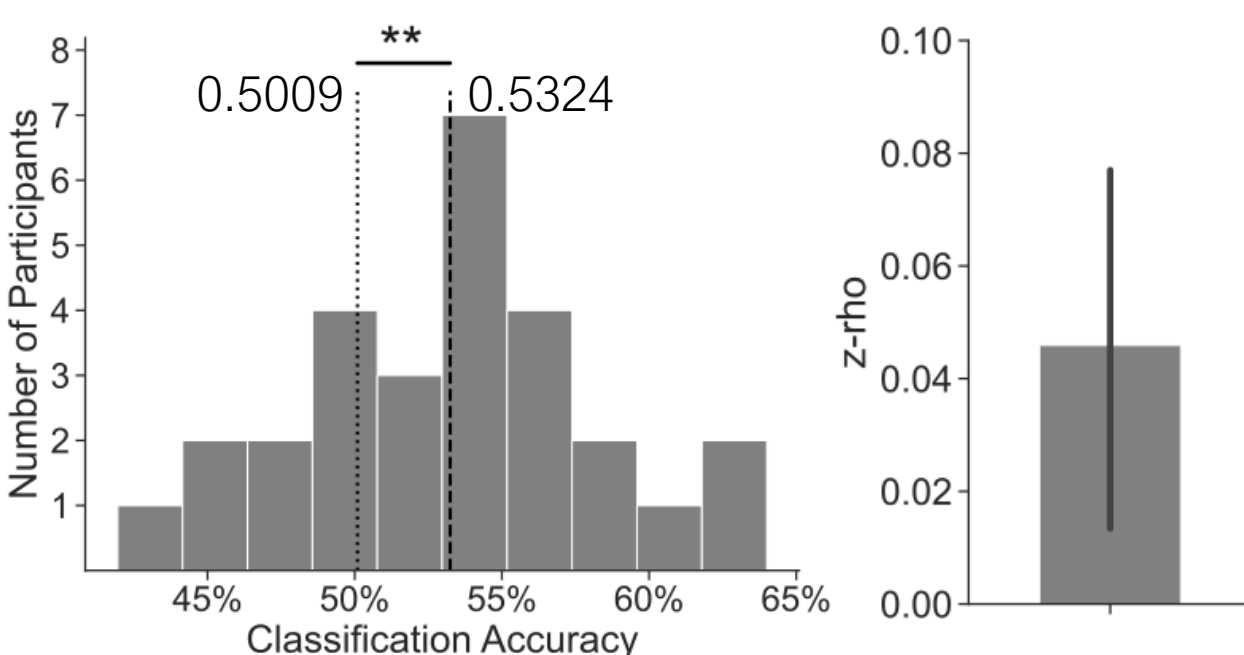
Cross-study multivariate pattern analysis (MVPA) approach



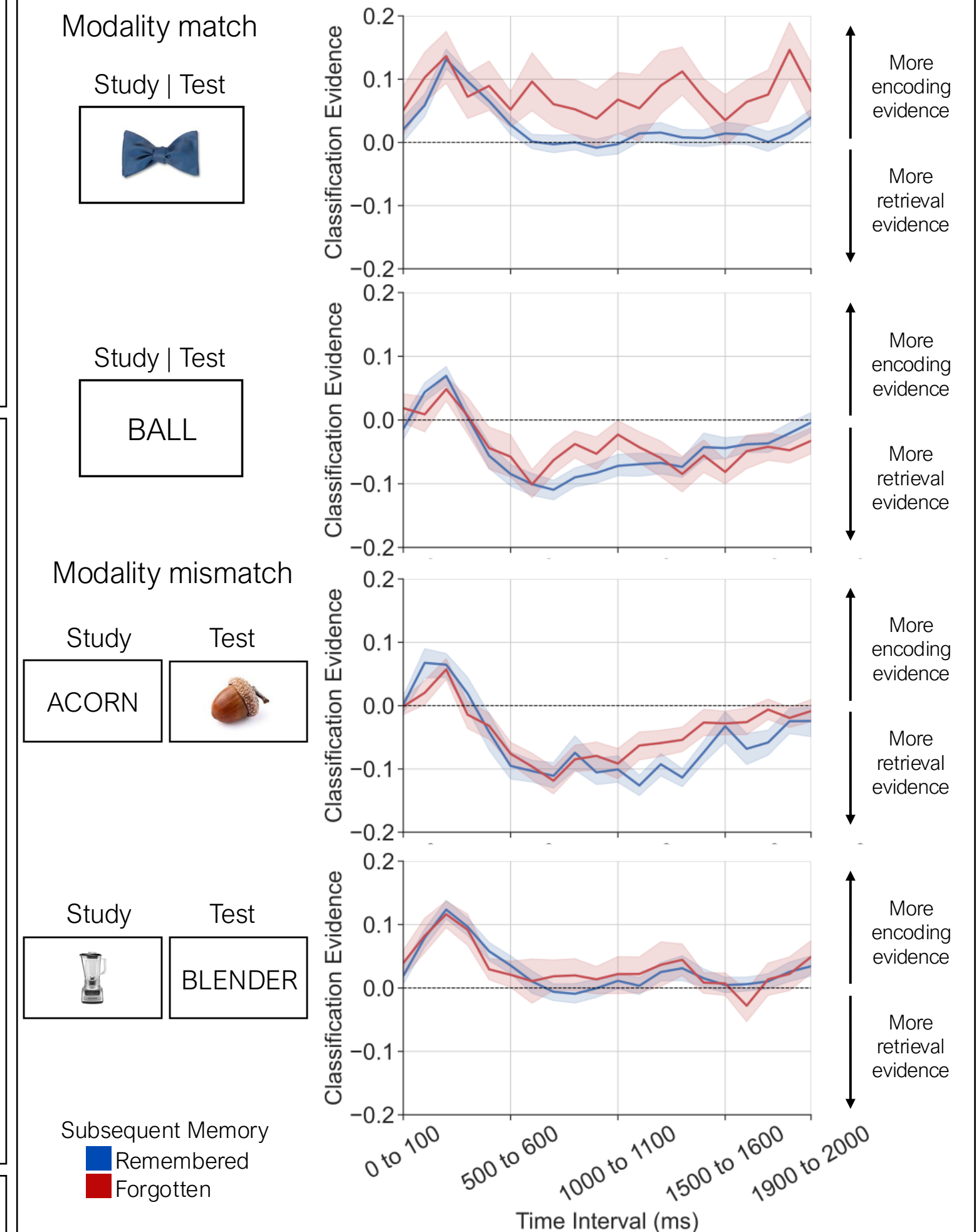
Stimulus modality influences memory state engagement



Relationship between encoding evidence and evidence for subsequent memory effects



Subsequent memory affects memory state engagement



Summary

- Participants remember images better than words, and study-test modality matched items better than mismatched items
- Images recruit greater encoding evidence compared to words
- The encoding state is not modulated in a way that is consistent with successful memory formation
- The results support the hypothesis that the encoding state reflects externally directed attention

Future directions

- Explore how encoding and retrieval states influence memory-based decision-making