Imagine the future!
Episodic future simulation in prospective memory

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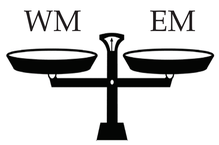
Background

Episodic simulation of a future goal state can enhance the success of associated action, esp. given high WM load during intermediate states (1).

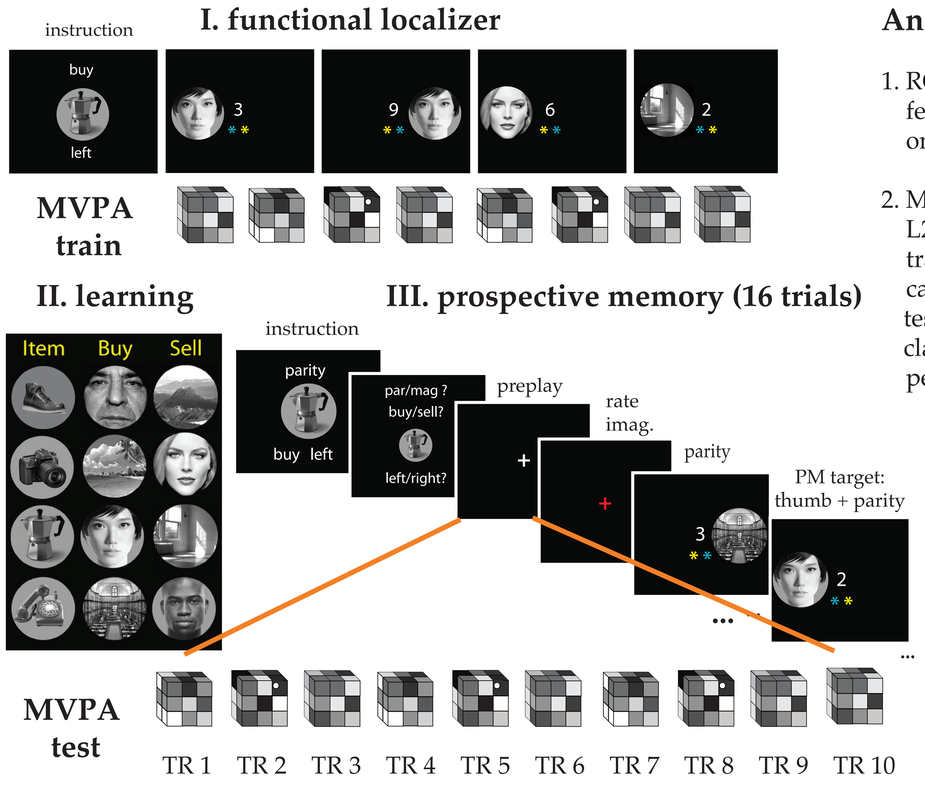
What mechanisms are involved?



Hypothesis
Episodic future simulation of, or preplaying, a future goal target can enhance the EM links between the target state and intended action.

Prediction: MVPA evidence of preplay would predict PM success under high WM load

Design and methods



Analysis

1. ROI
   feature selection on localizer (ANOVA)

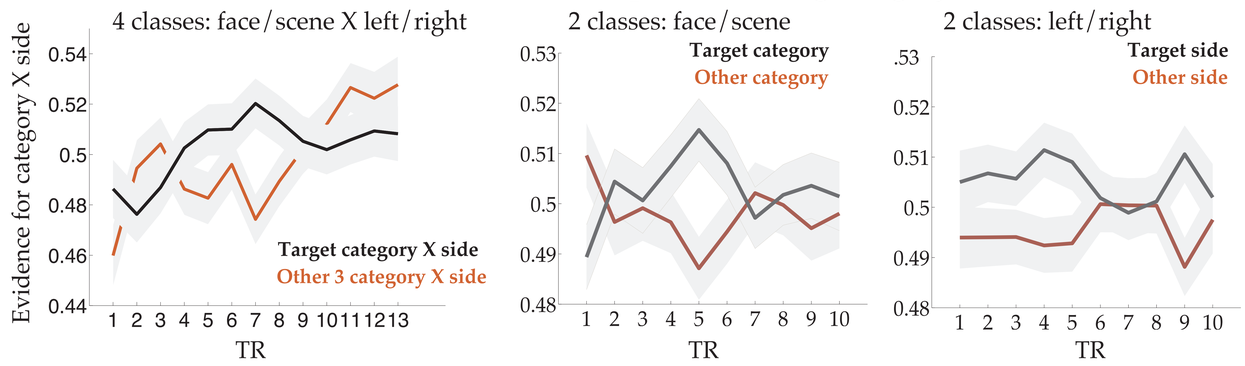
2. MVPA
   L2 logistic regression training on localizer: category X side TRs
   test on imagery: classifier evidence per TR

Question

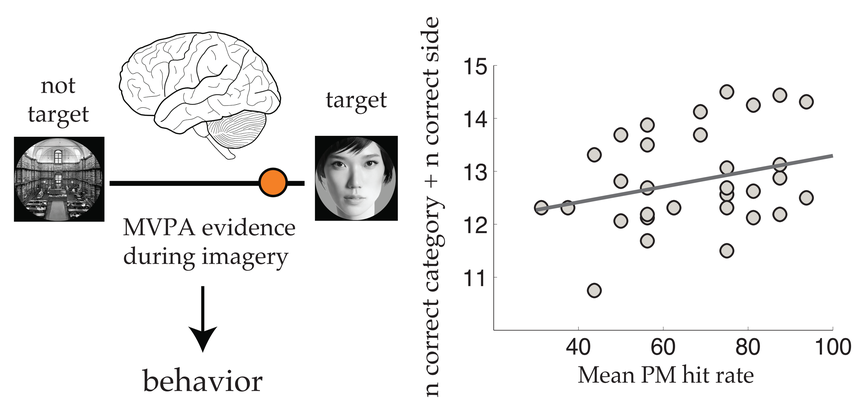
Does evidence for correct target during imagery predict the success of prospective remembering?

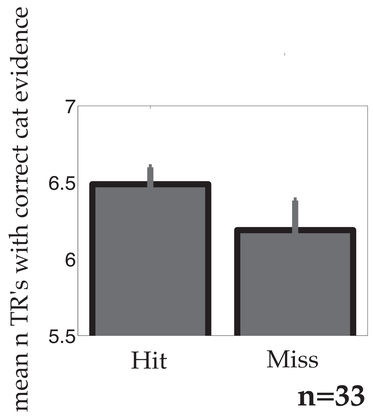
Preliminary Results

Mean MVPA evidence per TR during imagery



Classifier accuracy during imagery and prospective memory hit rate





Conclusions and ongoing

MVPA evidence of preplaying a future goal state may predict the success of intended actions in the prospective goal state. How? Pre-play can enhance episodic memory associations between goal/target state and intended action in goal state. Higher EM association enables a spontaneous retrieval strategy that is less taxing on and more robust to WM load. Further analysis and computational modeling is ongoing to further test this hypothesis.

References and acknowledgments

1. Brewer and Marsh, 2009
2. Lewis-Peacock, Cohen, Norman, in prep.
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