

Perceptual Comparisons Induce Lasting Memory Distortions

Joseph M. Saito¹ & Keisuke Fukuda^{1,2}

¹University of Toronto, ²University of Toronto Mississauga



Research Question

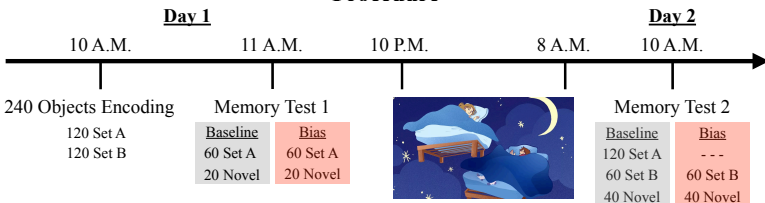
Recent work* suggests that perceptual comparisons using an active VWM representation can induce systematic memory biases in the representation

Are LTM representations vulnerable to **similarity-induced bias**?
Do similarity-induced biases permanently distort memory?

*See poster *Recognition-induced memory bias (RIMB) in visual working memory* (Fukuda et al.)

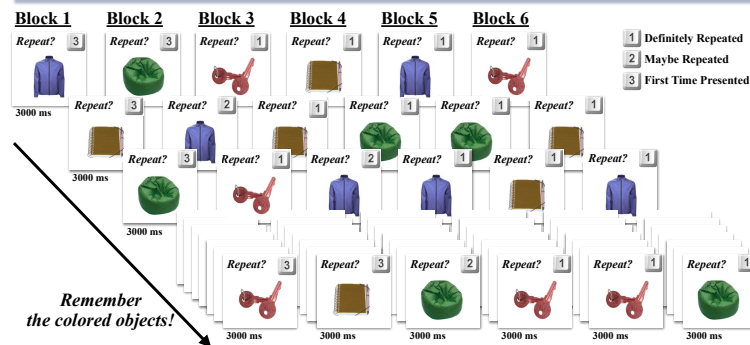
Method

Procedure



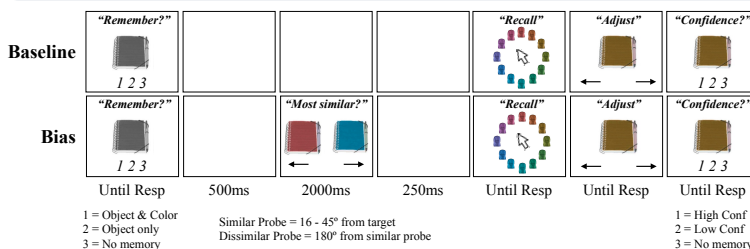
Encoding Task

Participants encoded 240 objects presented 6 times across 6 blocks (1x/block)
Participants indicate when they remembering seeing object presented previously



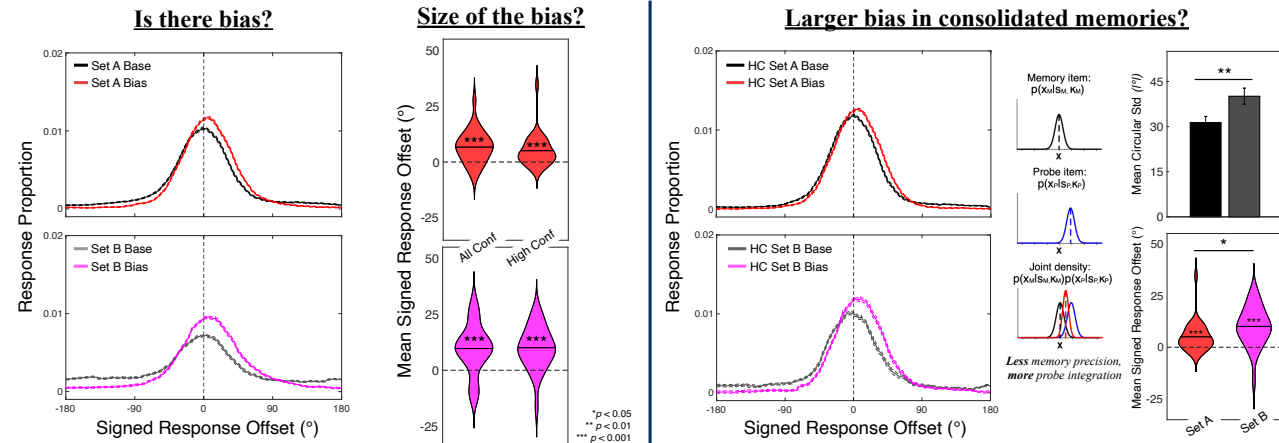
Memory Test

Participants recall object and report its color with a confidence rating
Complete similarity judgment during maintenance by selecting more similar object



Results

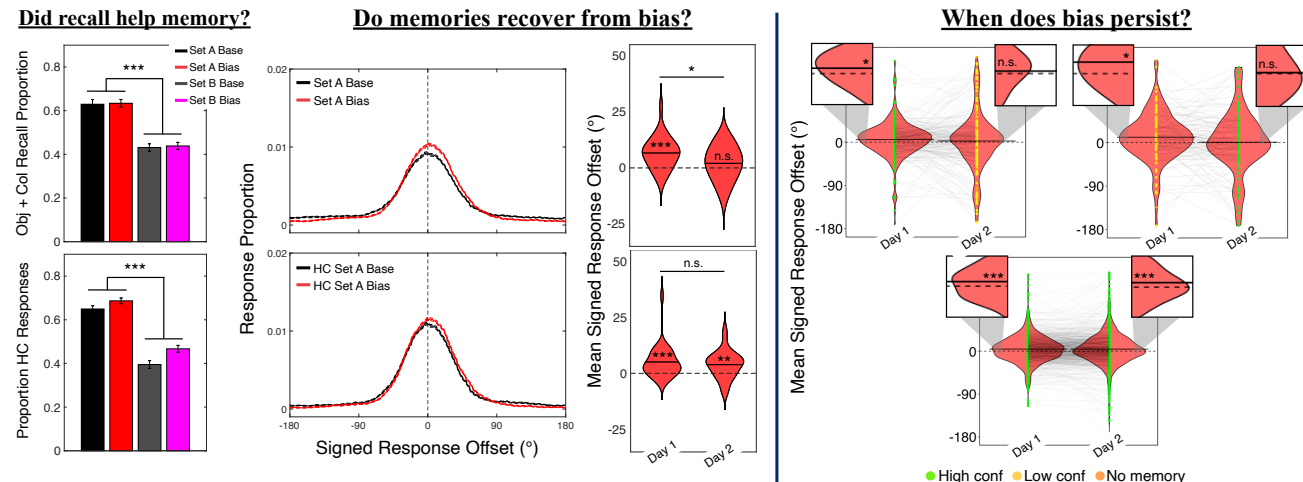
How do task-relevant perceptual comparisons affect retrieved LTM representations?



Ecologically-valid stimuli encoded into long-term memory are susceptible to **bias before and after consolidation**

Consolidated memories prone to more severe bias, which may be attributable to less precision in their representation

Does similarity-induced bias permanently distort LTM representations?



Despite **reliable benefits in memory confidence** following recall practice, subsequent recall episodes show **mixed evidence of bias recovery**

Bias is preserved **in memories recalled confidently over multiple retrieval episodes**

Future Directions

How does a similarity judgment change a memory's representational space?

Can integration mechanisms be biased towards memory differentiation instead?

Are biases produced by similar percepts driven exclusively by post-perceptual processes?