

Opposing mnemonic and decision-making biases in recognition memory judgments



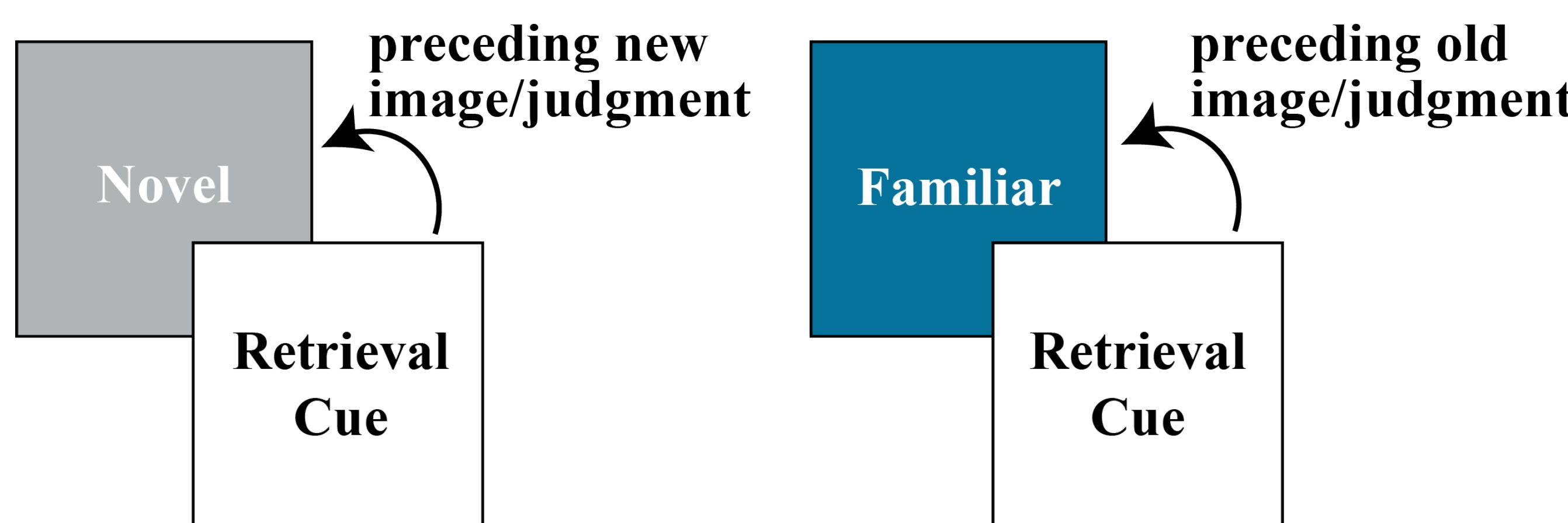
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Introduction

Memory investigations measure **decisions about memory** rather than memory itself.¹

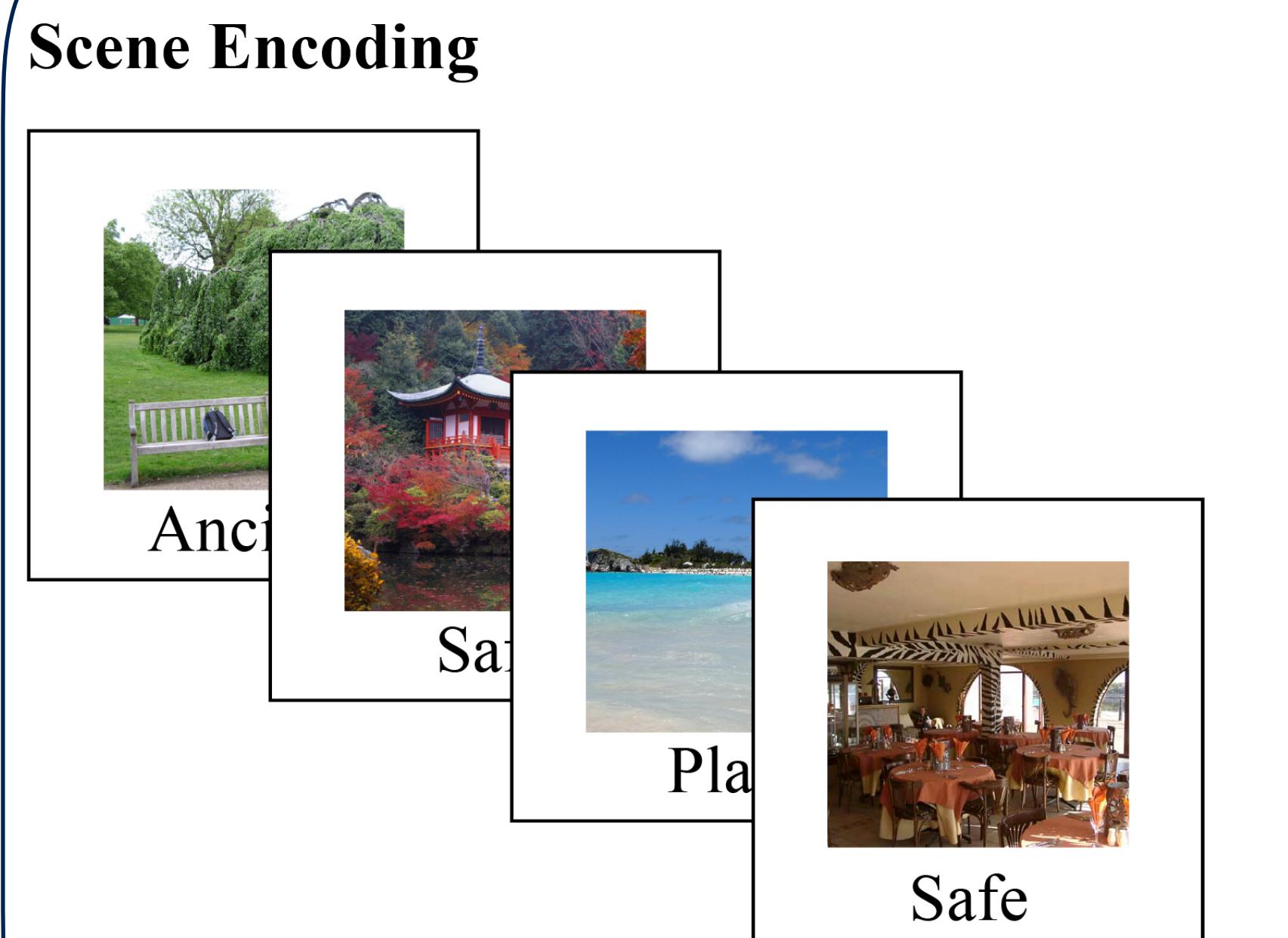
Decision-making biases may introduce **sequential dependencies** in behaviour, which are ubiquitous in cognition² but understudied in memory.³



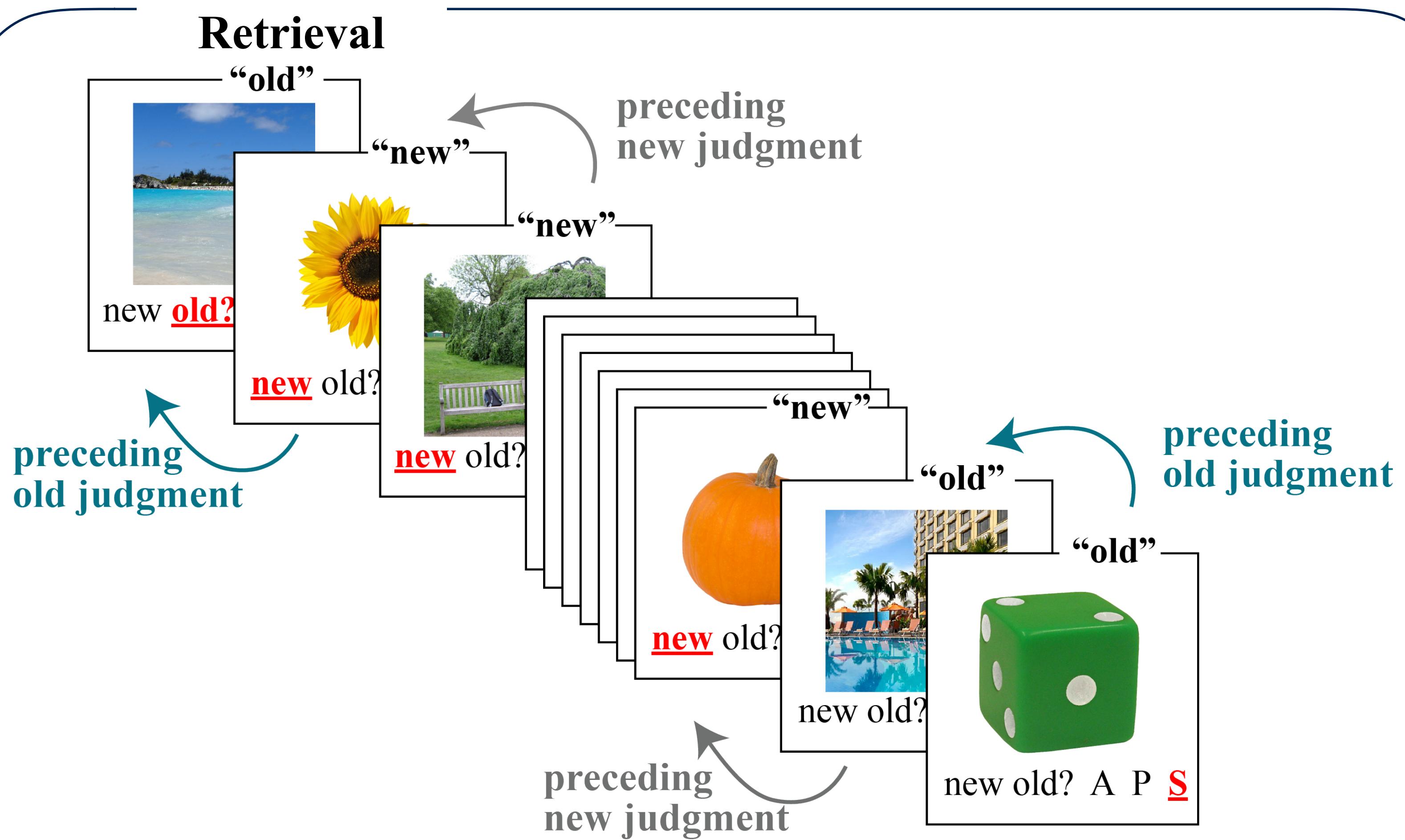
Question 1: How do recent memory decisions impact recognition judgments?

Experiment One

Associative Encoding



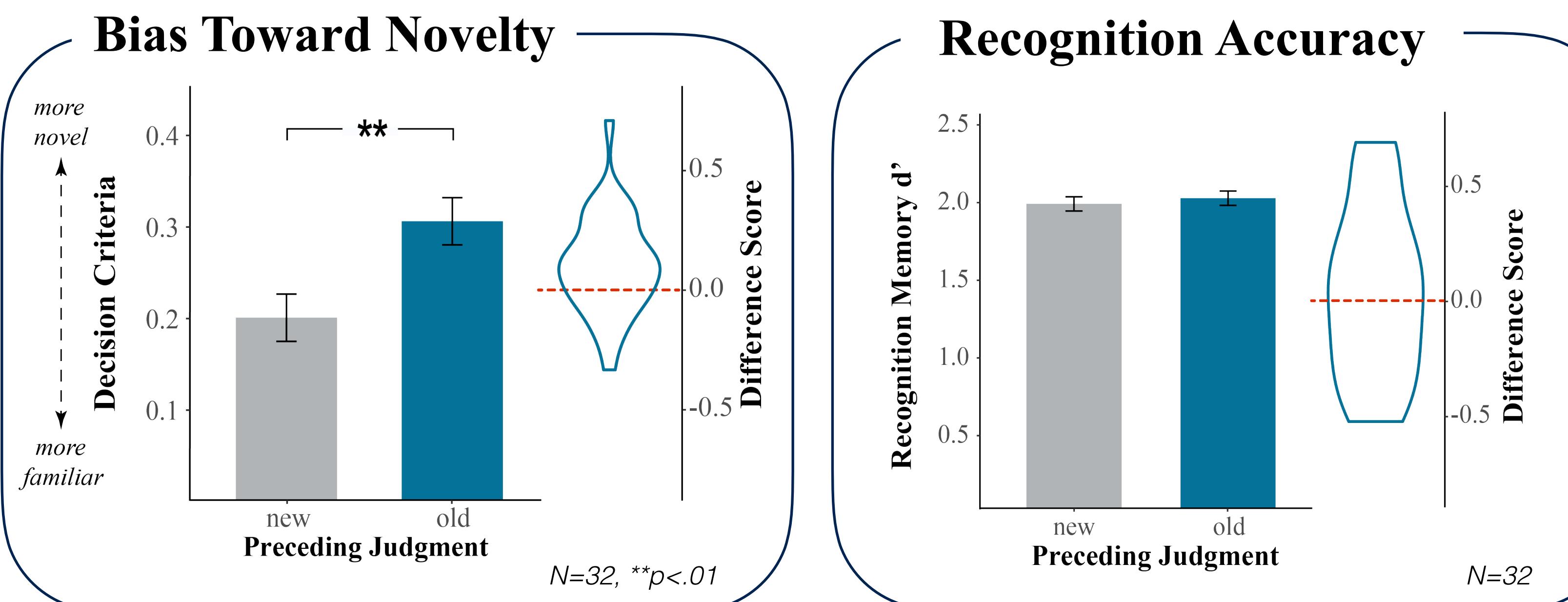
Participants studied an image paired with one of three repeating words.



Participants made familiarity- and recollection-based judgments. Recollection-based trials were discarded.

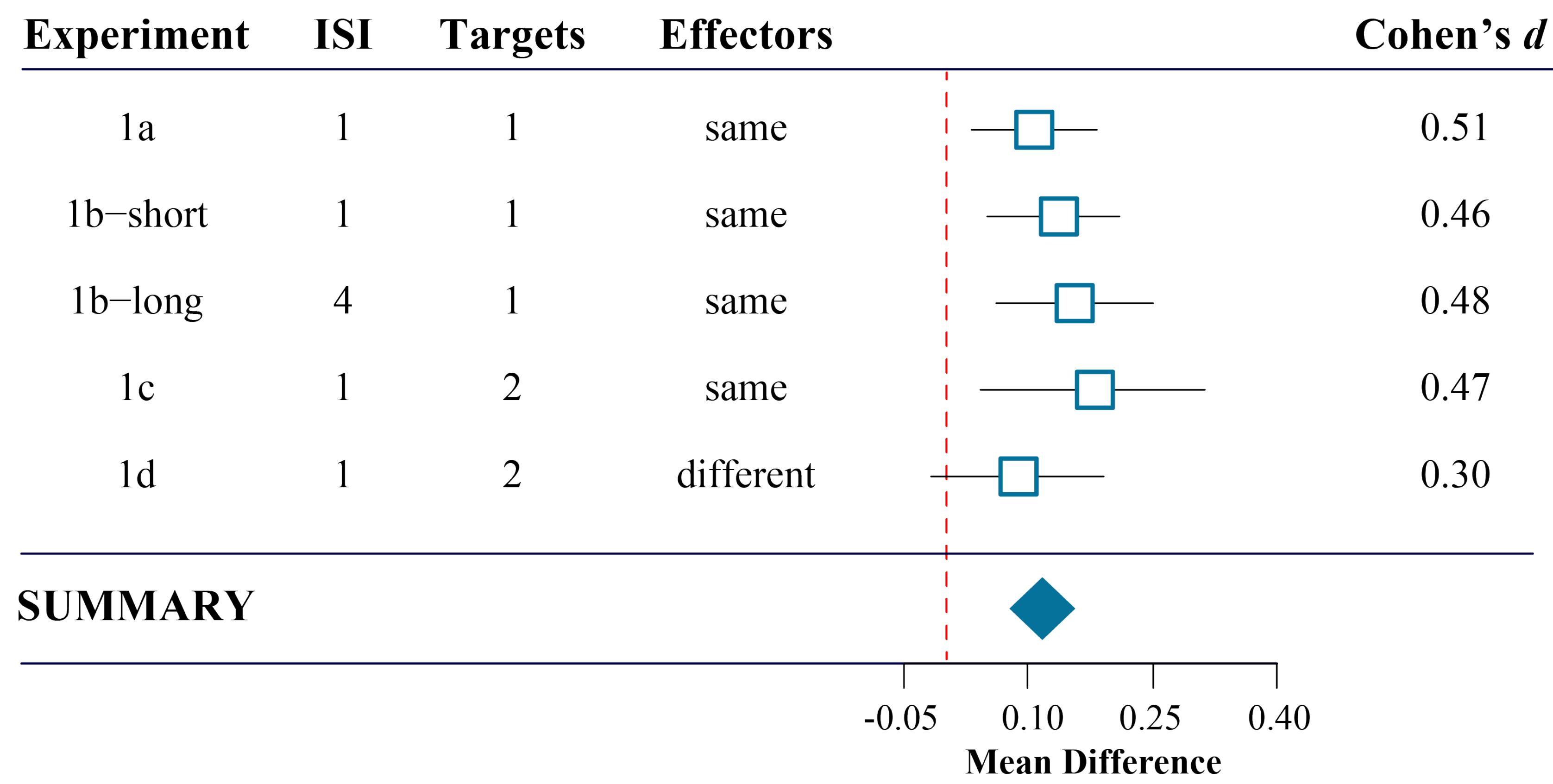
We directly measured the influence of recent familiarity on recognition judgments by manipulating whether these judgments occurred following a novel or familiar image.

Biases in Recognition Judgments



Recent detection of familiarity made participants less willing to judge subsequent images as "old."

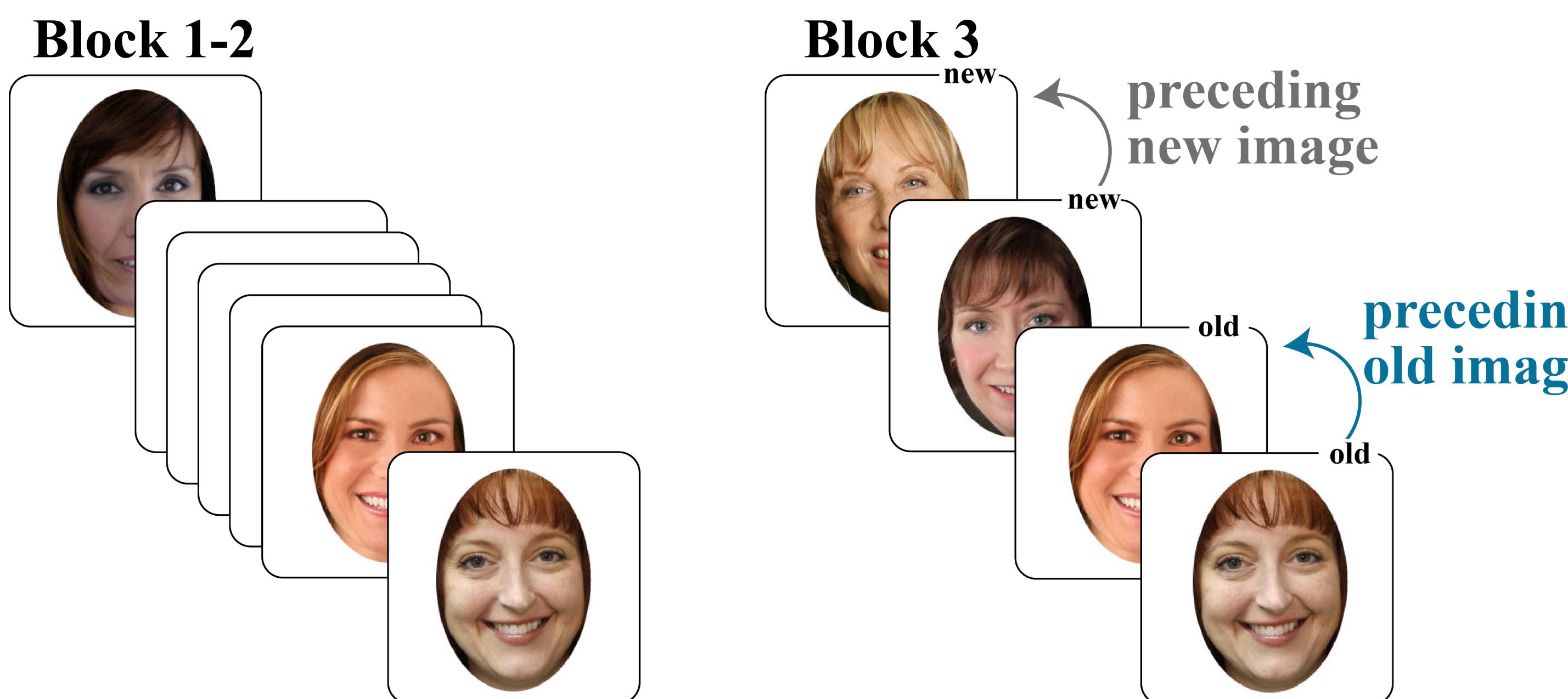
Decision Criterion Bias Replicated Across Experiments



Question 2: Are recognition biases driven by decision-making or mnemonic processes?

Experiment Two

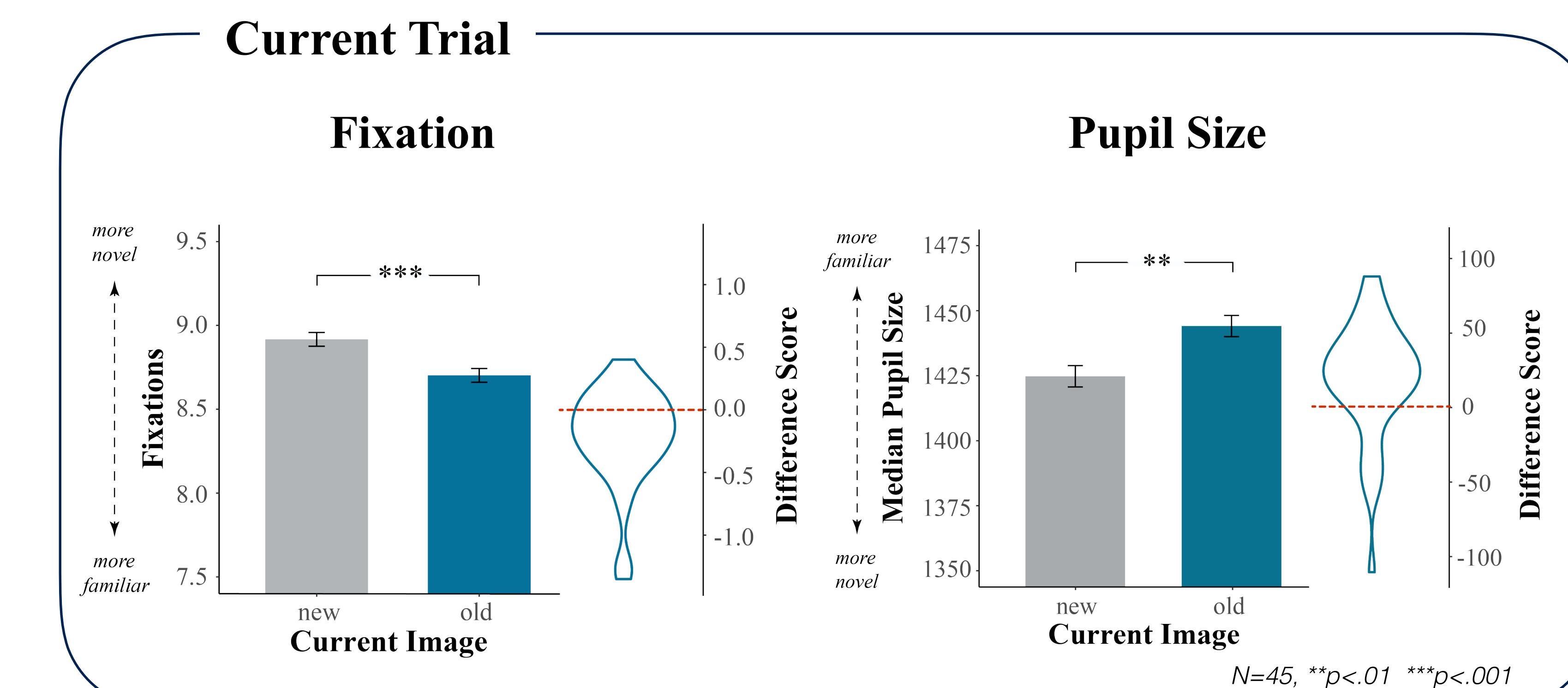
Eye-Tracking Paradigm



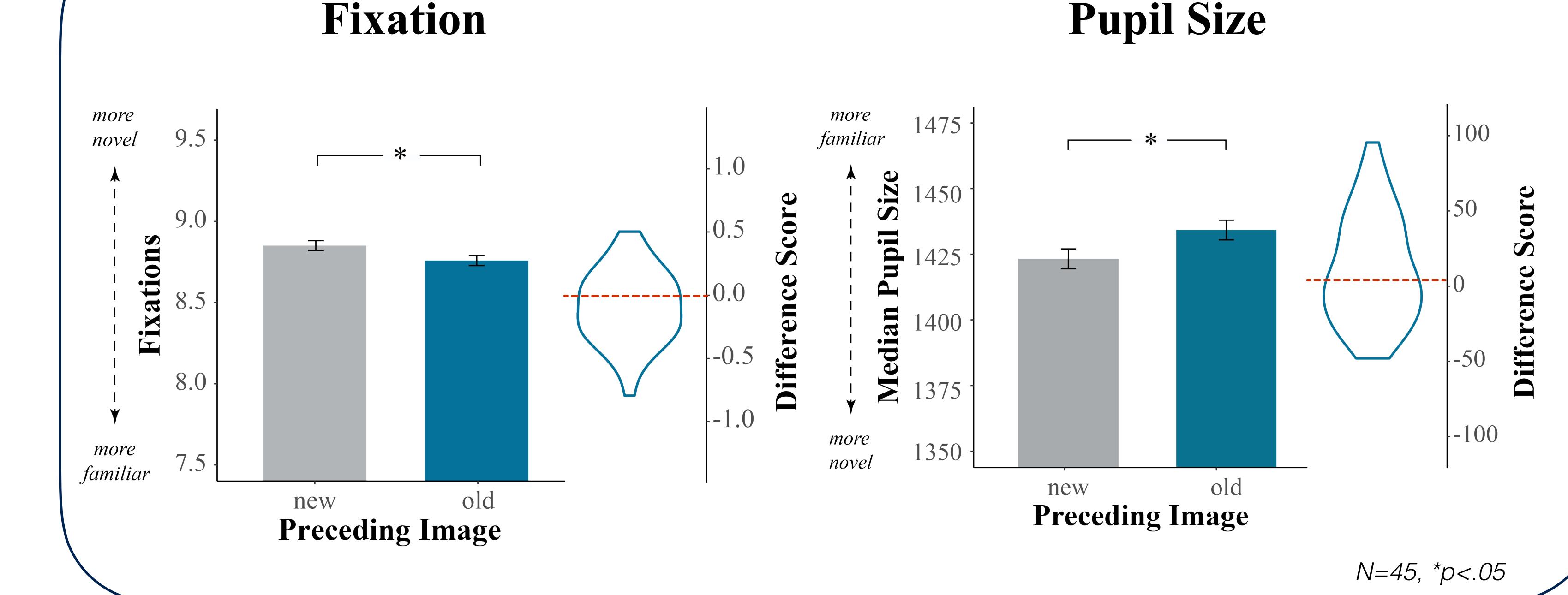
Past research has indicated that participants fixate more on novel images⁴ and that pupil size is larger for familiar images ~850 ms after image onset.⁵

We used eye-tracking to indirectly measure memory. We manipulated whether participants viewed an image following a novel or familiar image.

Biases in Eye Movements



Preceding Trial



Participants viewed faces as familiar if they were preceded by familiar rather than novel faces.

Summary

We investigated sequential dependencies in recognition memory judgments using a **direct and indirect test of memory**.

Recent novelty versus familiarity had **opposing biases in decision-making and mnemonic processes**: even though participants are more likely to judge an image as "new" after detecting familiarity, they treat images as being more familiar.

Taken together, these results suggest that decision-making biases have such a strong influence on recognition decisions that they can **mask opposing biases** in the mnemonic processes itself.

References

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