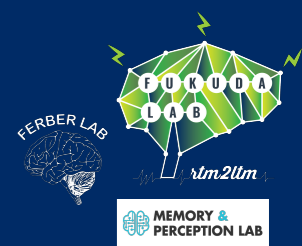


# Perceptual comparisons are necessary and sufficient for the persistence of memory biases across time

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## A. Background & Research Question

**Test a Witness's Memory of a Suspect Only Once**

John T. Wixted<sup>1</sup>, Gary L. Wells<sup>2</sup>, Elizabeth F. Loftus<sup>3,4</sup>, and Brandon L. Garrett<sup>5</sup>

Applied research describes **pervasive unreliability of memories** that were compared to novel percepts<sup>1,2</sup>

Psychophysical studies show that perceptual comparisons **enhance perceptual interference**<sup>3-5</sup>

Is a single perceptual comparison **necessary & sufficient** to produce biases that persist over time?

## B. Hypotheses

If a single comparison is **necessary**...

1 Bias persistence should be **task-dependent & not purely stimulus-driven**

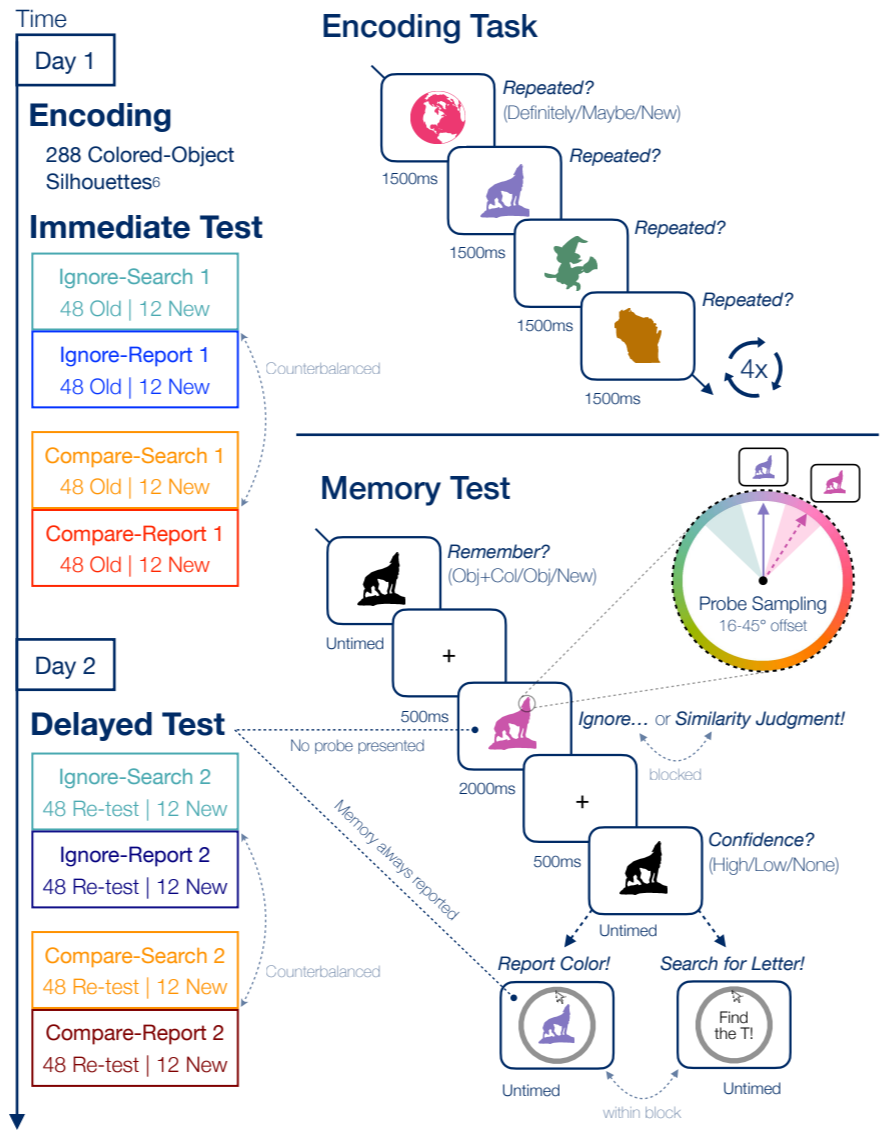
If a single comparison is **sufficient**...

2 Biases should persist even when processes tied to **memory reports are removed**

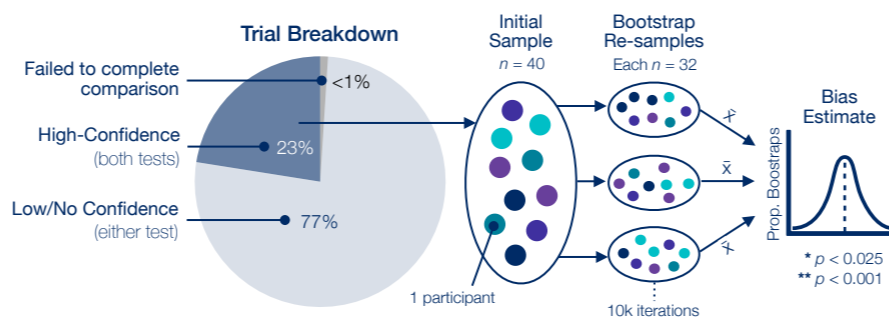
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## C. Method & Procedure

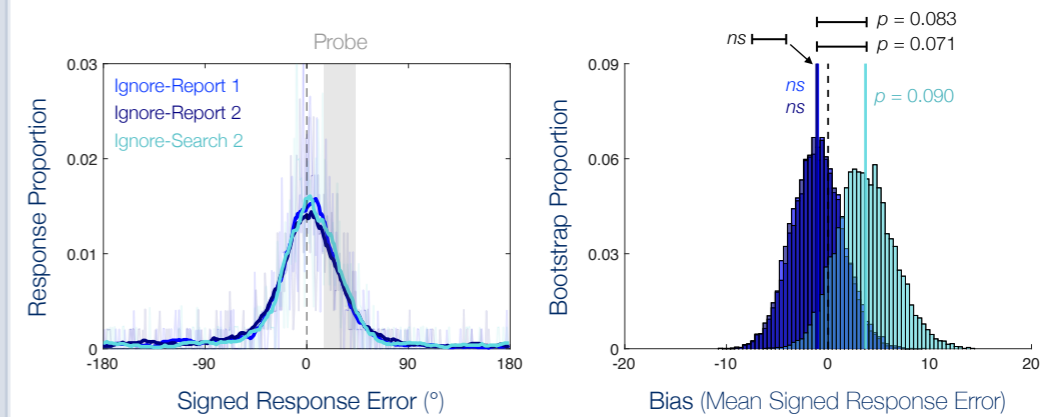


## D. Analysis



## E. Are comparisons **necessary** to produce persistent biases?

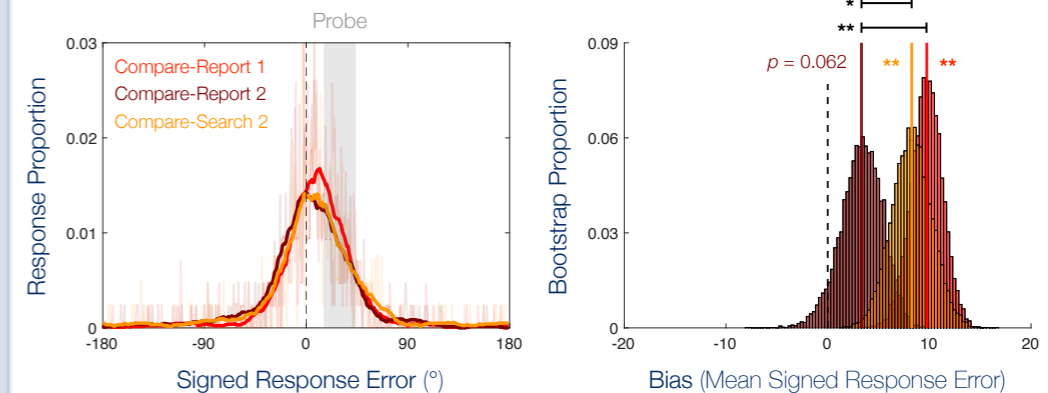
### Passive Interference — “Look at, but ignore the probe”



**No evidence of a reliable bias** following passive interference across conditions or tests, suggesting that **performing a comparison was necessary!**

## F. Are comparisons **sufficient** to produce persistent biases?

### Perceptual Comparison — “Is the probe similar to memory?”



**Biases persisted following comparisons**, but only when the target was not reported initially, suggesting that **performing a comparison was sufficient!**

## G. Conclusions & Future Directions

- A single perceptual comparison is necessary & sufficient to produce a persistent memory bias, indicating a **bona fide cognitive mechanism** that may contribute to real-world distortions
- Memory reporting **weakens bias persistence**—why? An **updated decision-making prior**? For example:

$$\text{Report 1 Bias} = \text{Target} * \text{Probe} \quad | \quad \text{Report 2 Bias} = \text{Target} * \text{Report 1} (* \text{Probe})$$