

# Robustness of Prediction-Based False Memory

Olya Bulatova & Keisuke Fukuda  
University of Toronto Mississauga



## Introduction

False memories can be induced from future-oriented thinking, such as planning to perform an action.<sup>1</sup>

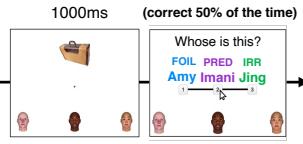
### Research Questions

1. Can predictions, another form of future-oriented thinking, induce false memory?
2. What are the modulatory effects of confirmations and rebuttals on prediction-based memory?

## Methods

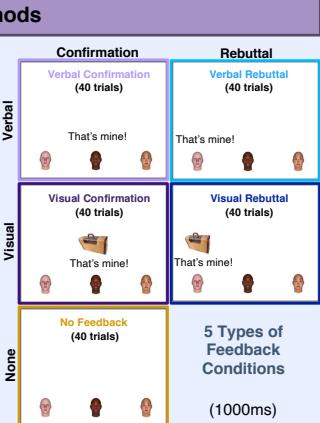
### Encoding task (200 trials)

"Predict who the item will belong to."



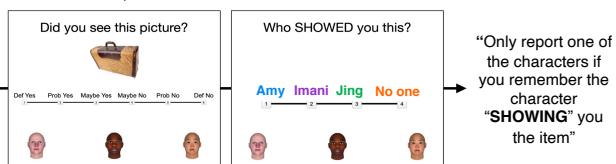
Exp. 1: "Remember who HAD the item?"

Exp. 2: "Remember who SHOWED you the item?"

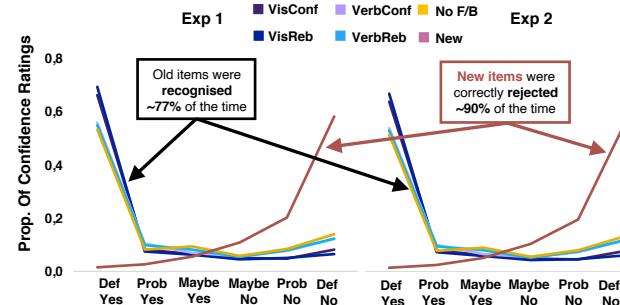


### Recognition task (300 trials)

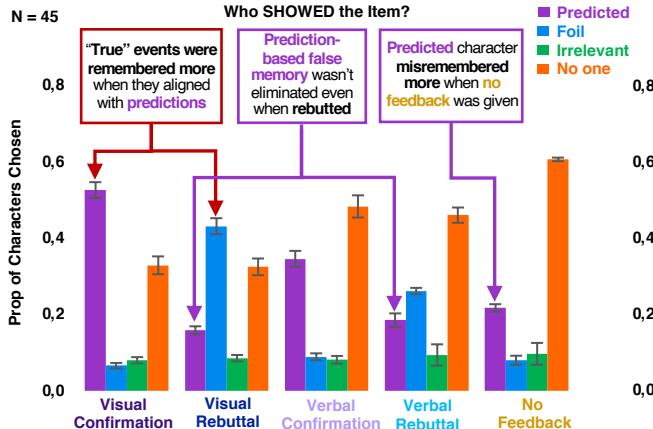
200 old items; 100 new items



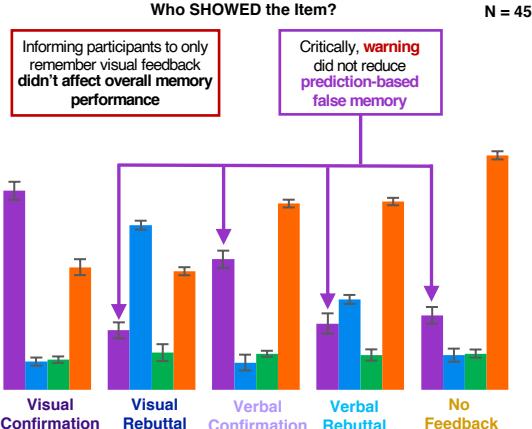
## Did Participants Correctly Recognise Old Items?



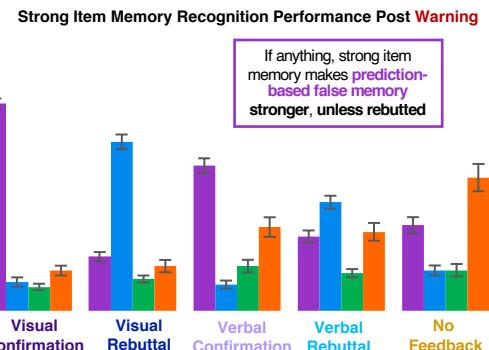
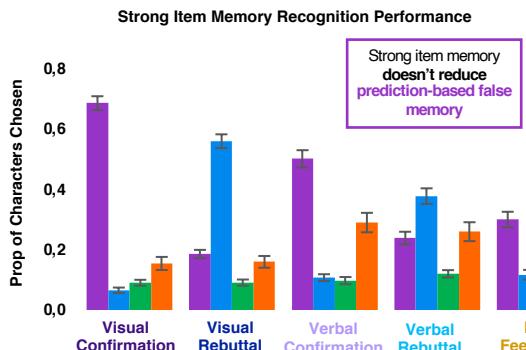
## EXP. 1: Stability of Prediction-Based False Memory



## EXP. 2: Does Warning Reduce False Memory?



## Does Prediction-Based False Memory Result From "Fuzzy" Item Memories?



## Discussion & Future Directions

- Predicted characters are more likely to be misremembered as the owners of the items than other characters
- False memory was strengthened by verbal confirmation and was not eliminated even when the prediction was directly rebutted by visual and verbal feedback
- Does the prediction accuracy change the strength of prediction-based false memory?
  - Experiment 3: Explores the robustness of prediction-based memory by manipulating probability of predictions being correct<sup>2</sup>
- Future studies should investigate whether the effect of predictions on memory is due to the act of prediction or due to the initial reasoning that resulted in the prediction in the first place

## References

1. Cohen, A., Silverstein, M. J., Derkson, D. G., Hamzagić, Z. I., Bernstein, D. M., & Stephen Lindsay, D. (2020). Future planning may promote prospective false memories. *Journal of Applied Research in Memory and Cognition*, 9(2), 242-253.
2. Schacter, D. L. (1999). The seven sins of memory: Insights from psychology and cognitive neuroscience. *American Psychologist*, 54(3).