



# Directed Forgetting of Probable and Improbable Visual Scenes

CONTEXT, MEMORY, & FORGETTING LAB



Yi-Pei Lo<sup>1</sup>, Dillon A. Quiñones<sup>2</sup>, Diane M. Beck<sup>1,3</sup>, and Lili Sahakyan<sup>1,3</sup>

<sup>1</sup>University of Illinois Urbana-Champaign, <sup>2</sup>University of South Dakota, <sup>3</sup>Beckman Institute of Advanced Science and Technology

## Introduction

- Never encountered information, such as fractal images and nonwords, is harder to intentionally forget compared to meaningful items (Lo et al., 2024)
- Although schema-consistent items are easier to remember (Brewer & Treys, 1981), distinctive items can be easier to remember (Poppenk, Köhler & Moscovitch, 2010).

Does the magnitude of intentional forgetting differ for probable and improbable images?

- Episodic familiarization (preview) makes information harder to intentionally forget (Lo et al., 2024)

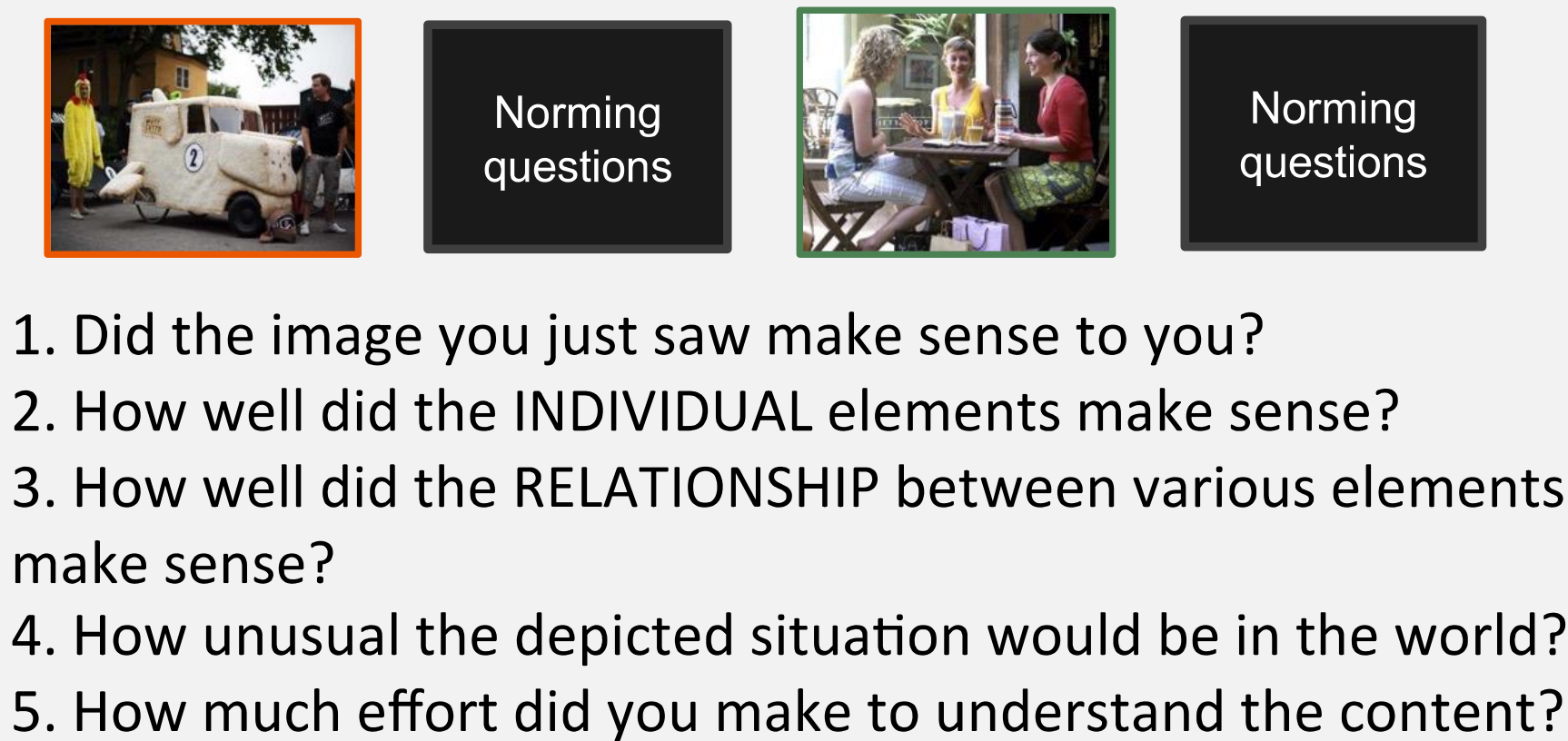
Does preview impact intentionally forgetting for probable and improbable images?



Stimuli: 48 pairs of images adopted from Greene et al. (2015). Each pair was matched visually and semantically.

### No Preview Condition

N = 71



### Preview Condition

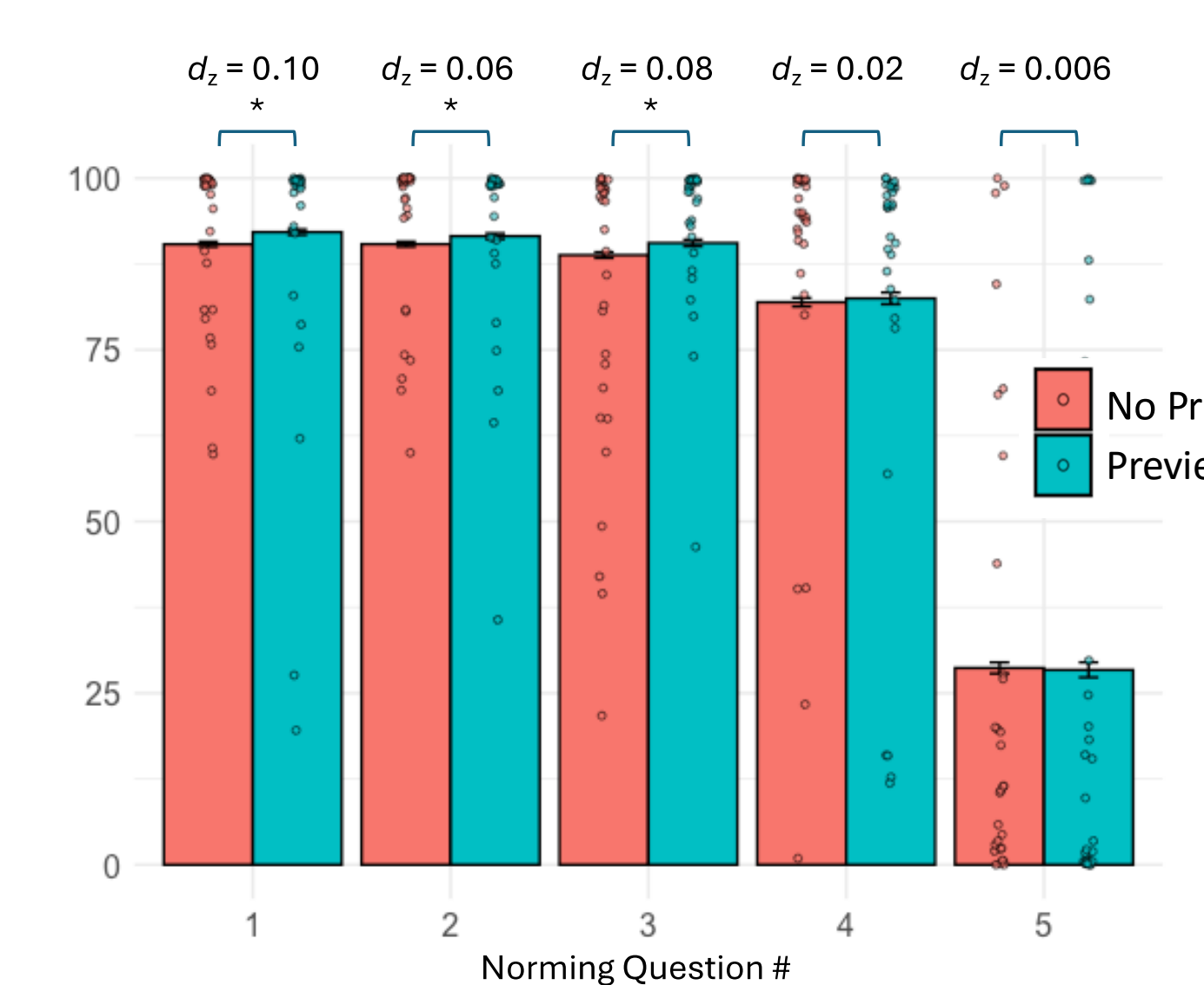
N = 63

Preview

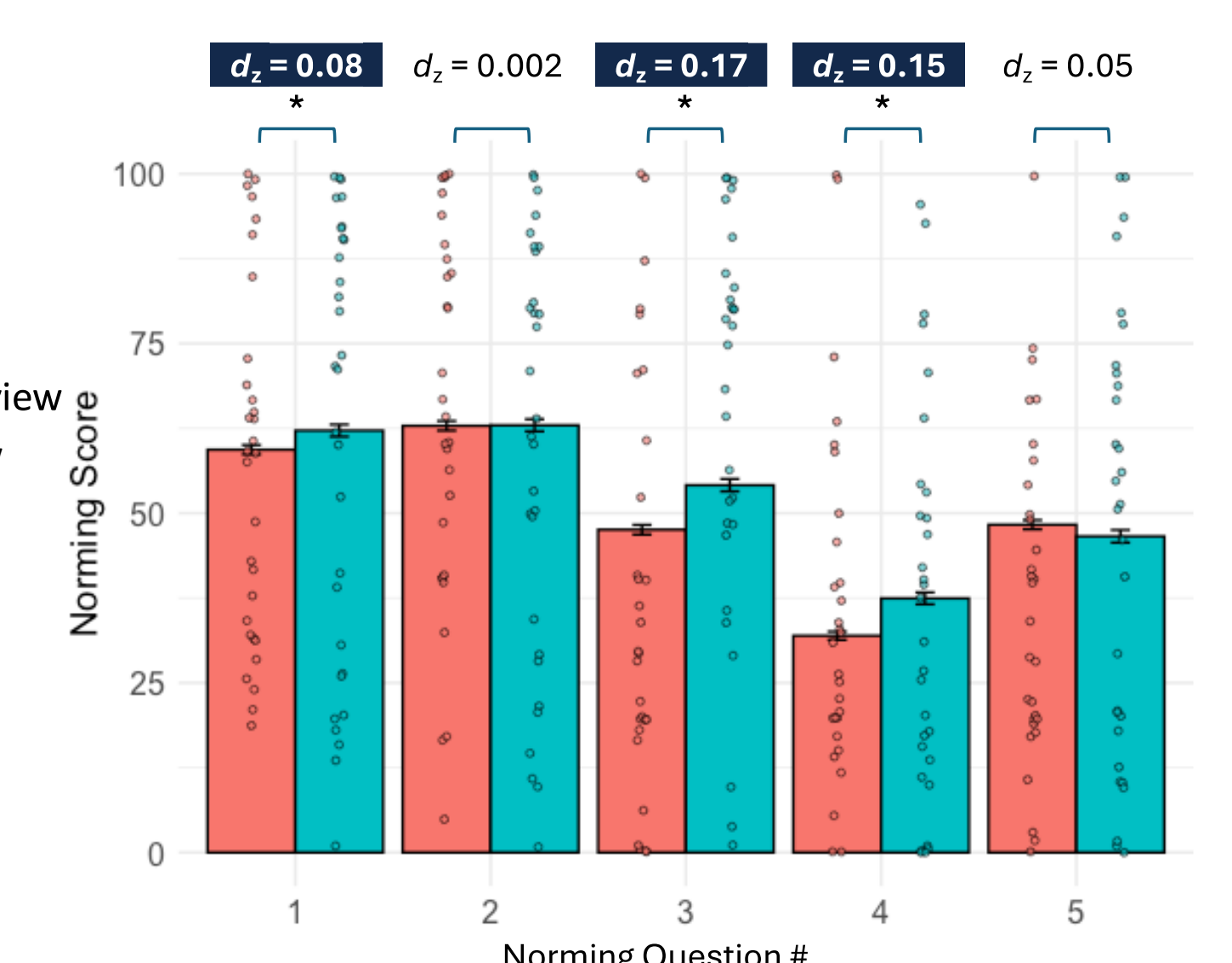
Norming Phase the same as No Preview Condition

## Experiment 3: Image Norming

### Norming Scores for Probable Images



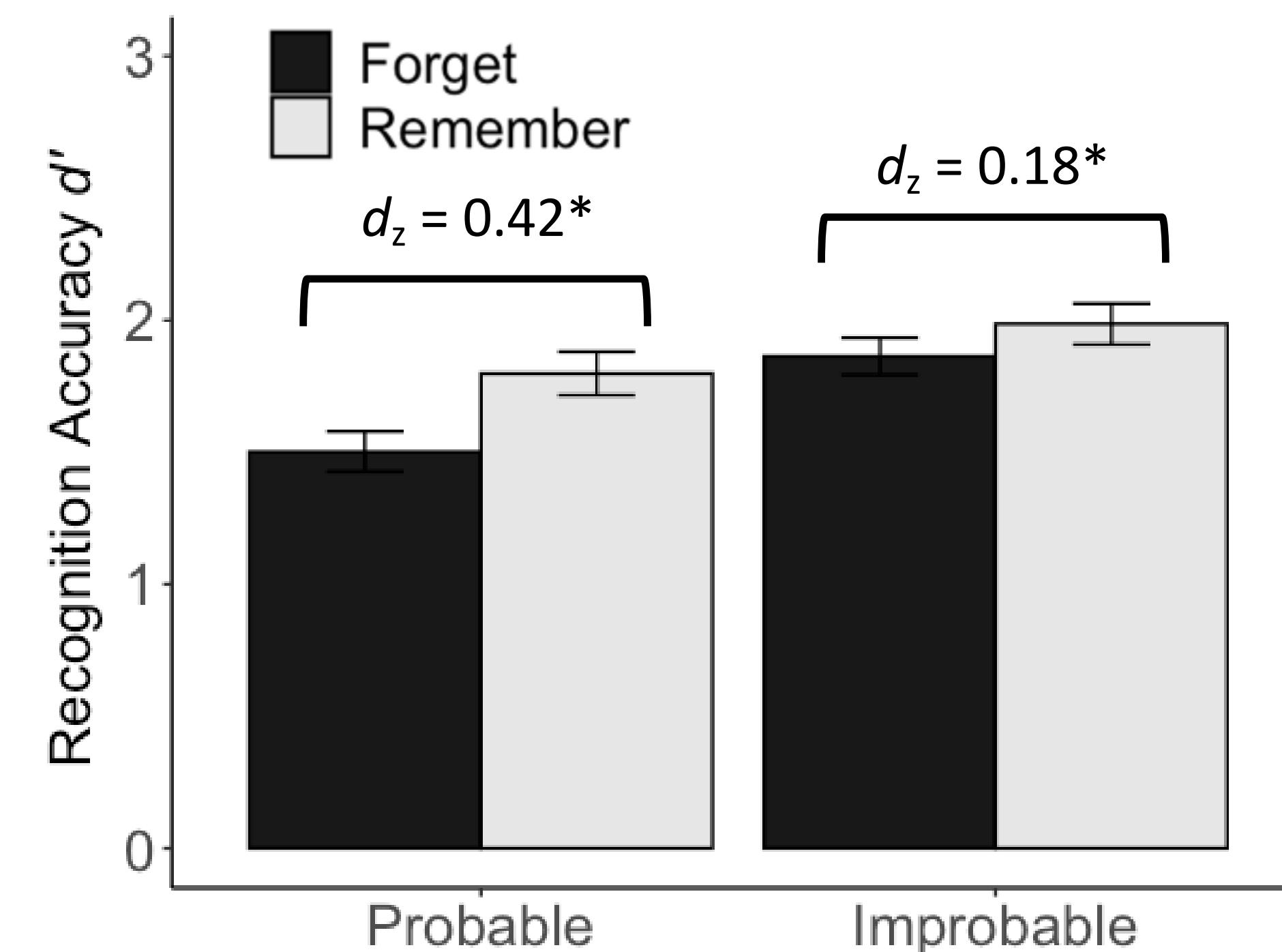
### Norming Scores for Improbable Images



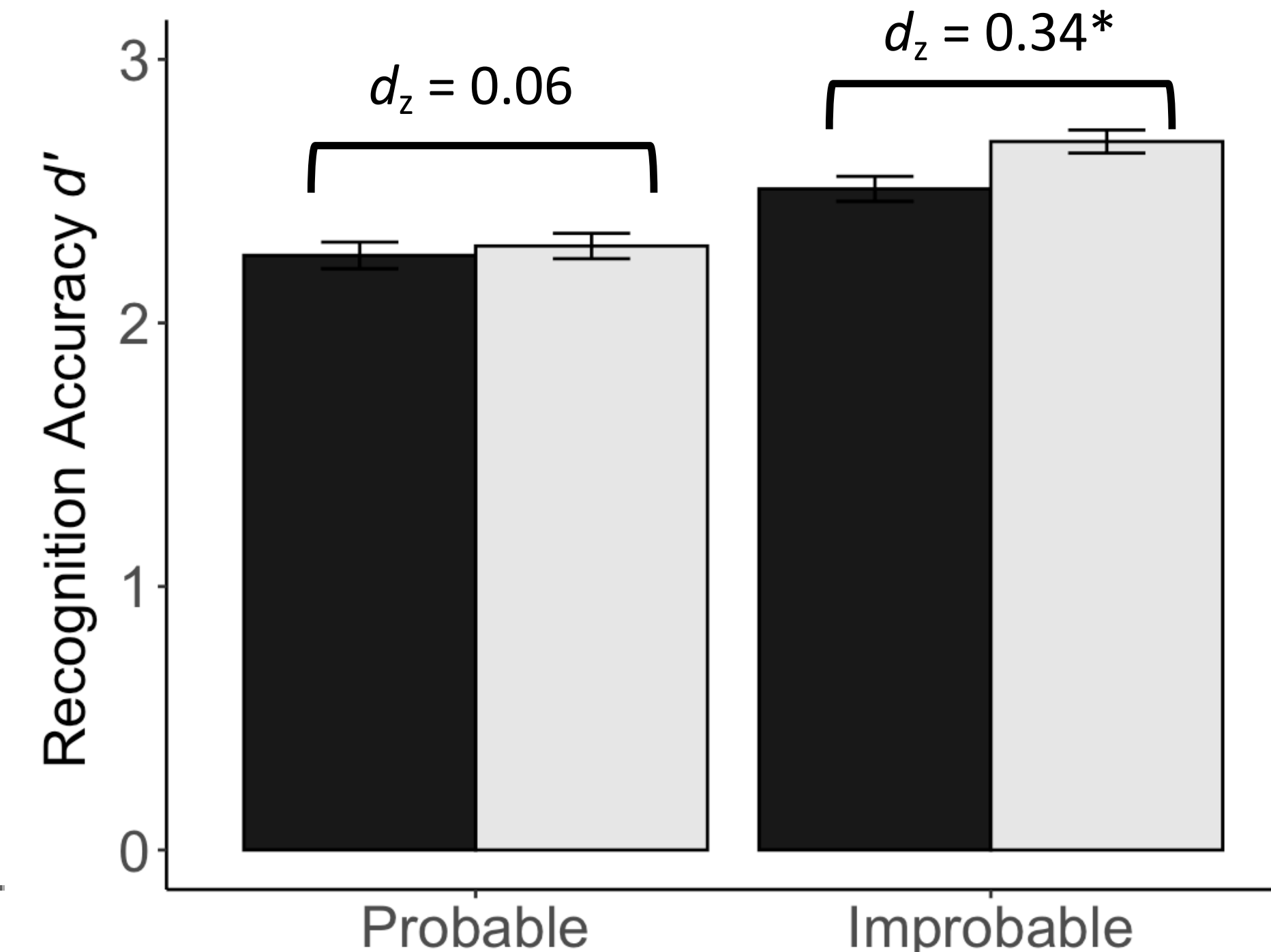
## Experiment 1 and 2: Directed Forgetting



Experiment 1 (once presented) N = 168

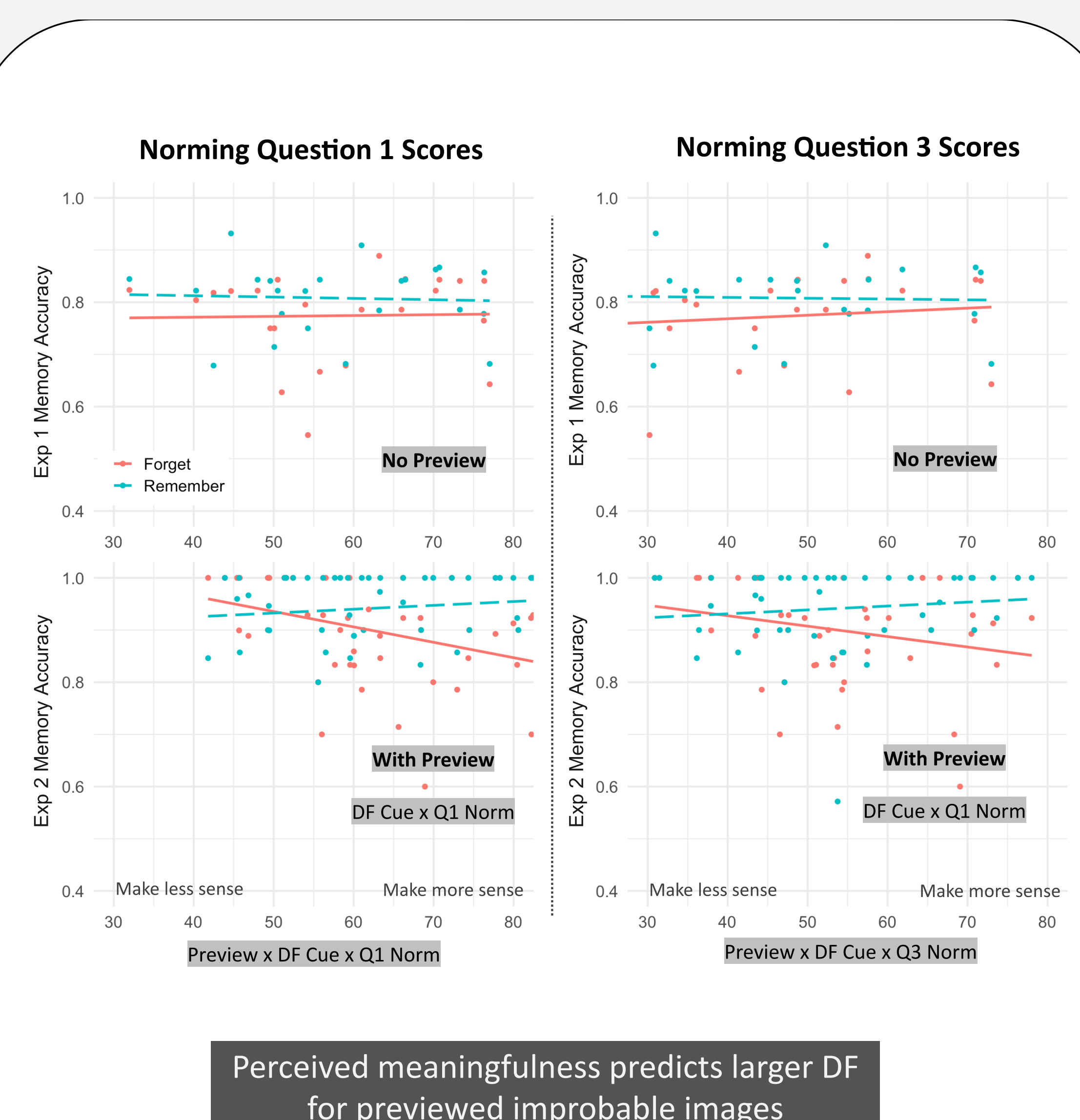


Experiment 2 (twice presented) N = 218



## Does norming score predict DF Effect?

Relating norms (Exp 3) to DF experiments (Exp 1 & 2)



## Conclusions

- Probable images are easier to intentionally forget than improbable ones
- After previewing, probable images become harder to intentionally forget, consistent with Lo et al., 2024; however, improbable images become easier to forget after previewing
- Image norming suggests that previewing reduces the perceived unusualness of improbable images
- Higher meaningfulness ratings after previewing predict larger intentional forgetting of those improbable images observed in Exp 2

## References

- Brewer, W. F., & Treys, J. C. (1981). Role of schemata in memory for places. *Cognitive psychology*, 13(2), 207-230.
- Greene, M. R., Botros, A. P., Beck, D. M., & Fei-Fei, L. (2015). What you see is what you expect: Rapid scene understanding benefits from prior experience. *Attention, Perception, & Psychophysics*, 77(4), 1239-1251.
- Lo, Y. P., Ding, H., Whitlock, J., & Sahakyan, L. (2024). The role of prior familiarisation and meaningfulness of verbal and visual stimuli on directed forgetting. *Memory*, 32(7), 845-862.
- Poppenk, J., Walia, G., McIntosh, A. R., Joanisse, M. F., Klein, D., & Köhler, S. (2008). Why is the meaning of a sentence better remembered than its form? An fMRI study on the role of novelty-encoding processes. *Hippocampus*, 18(9), 909-918.

## Further Information

Scan QR code or email  
yipeilo2@illinois.edu

