

## Introduction

Statistical learning induces working memory (WM) encoding bias (Umemoto, Scolarì, Vogel, & Awh, 2010)

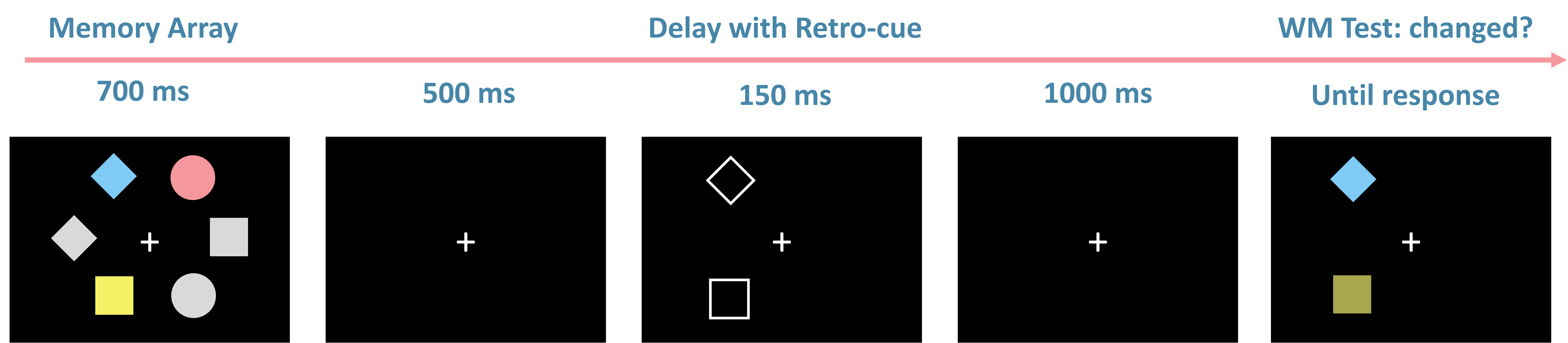
Distractor suppression is facilitated when distractors appear frequently in a specific location (Wang & Theeuwes, 2018)

What if you try to inhibit something in a specific location frequently in your mind?

## Research Question

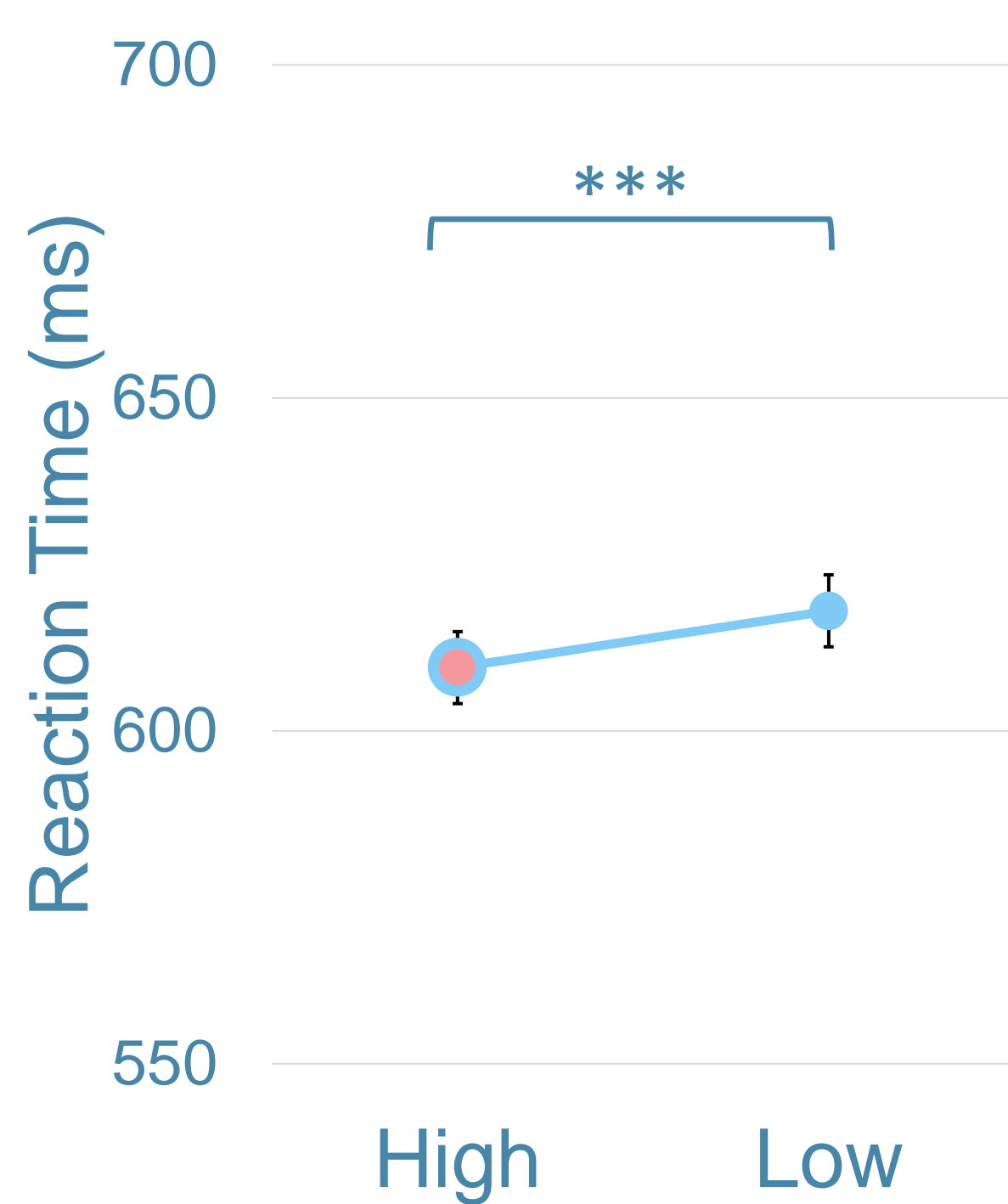
Can statistical regularity benefit active inhibition within working memory representation?

### Experiment 1



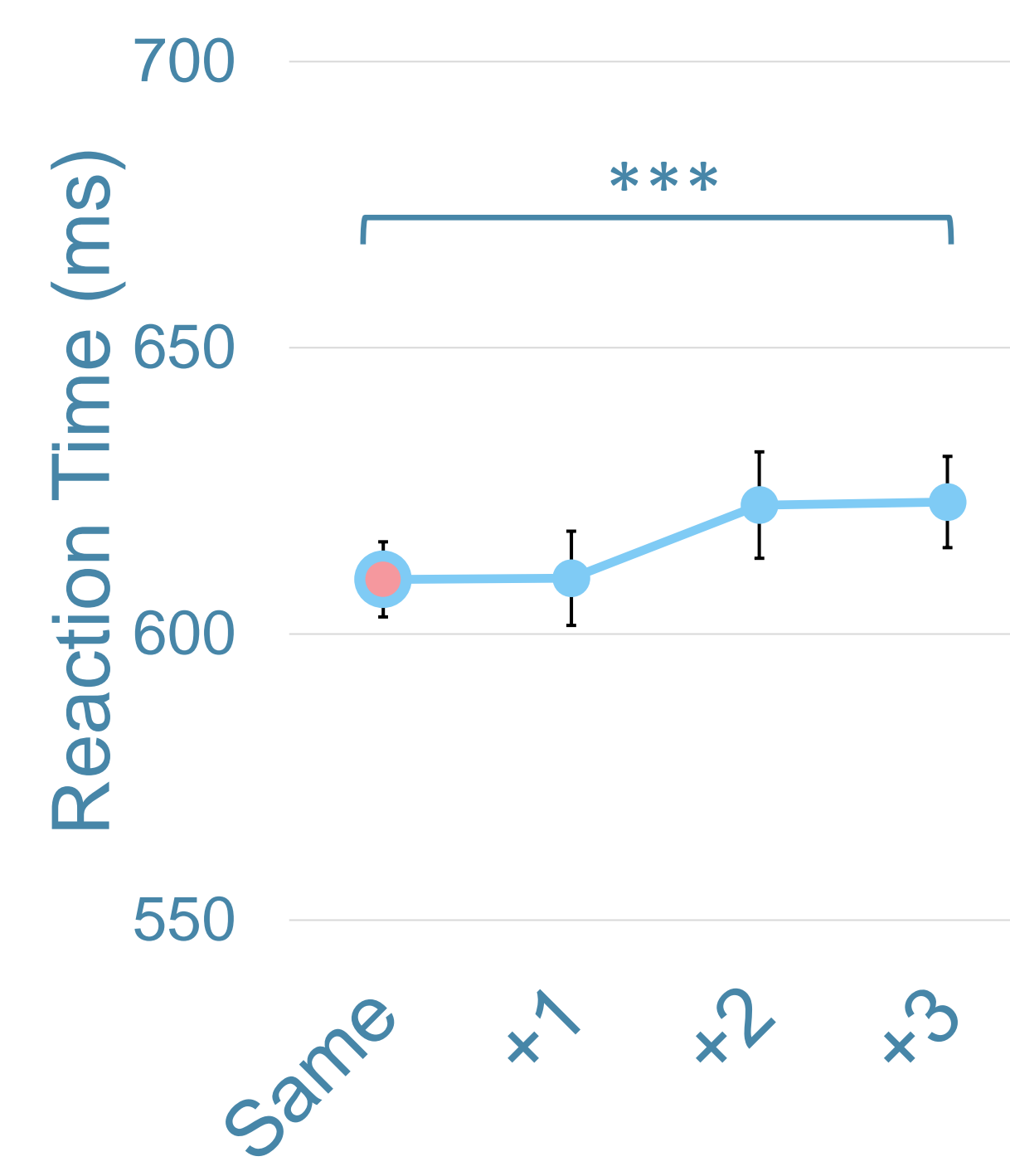
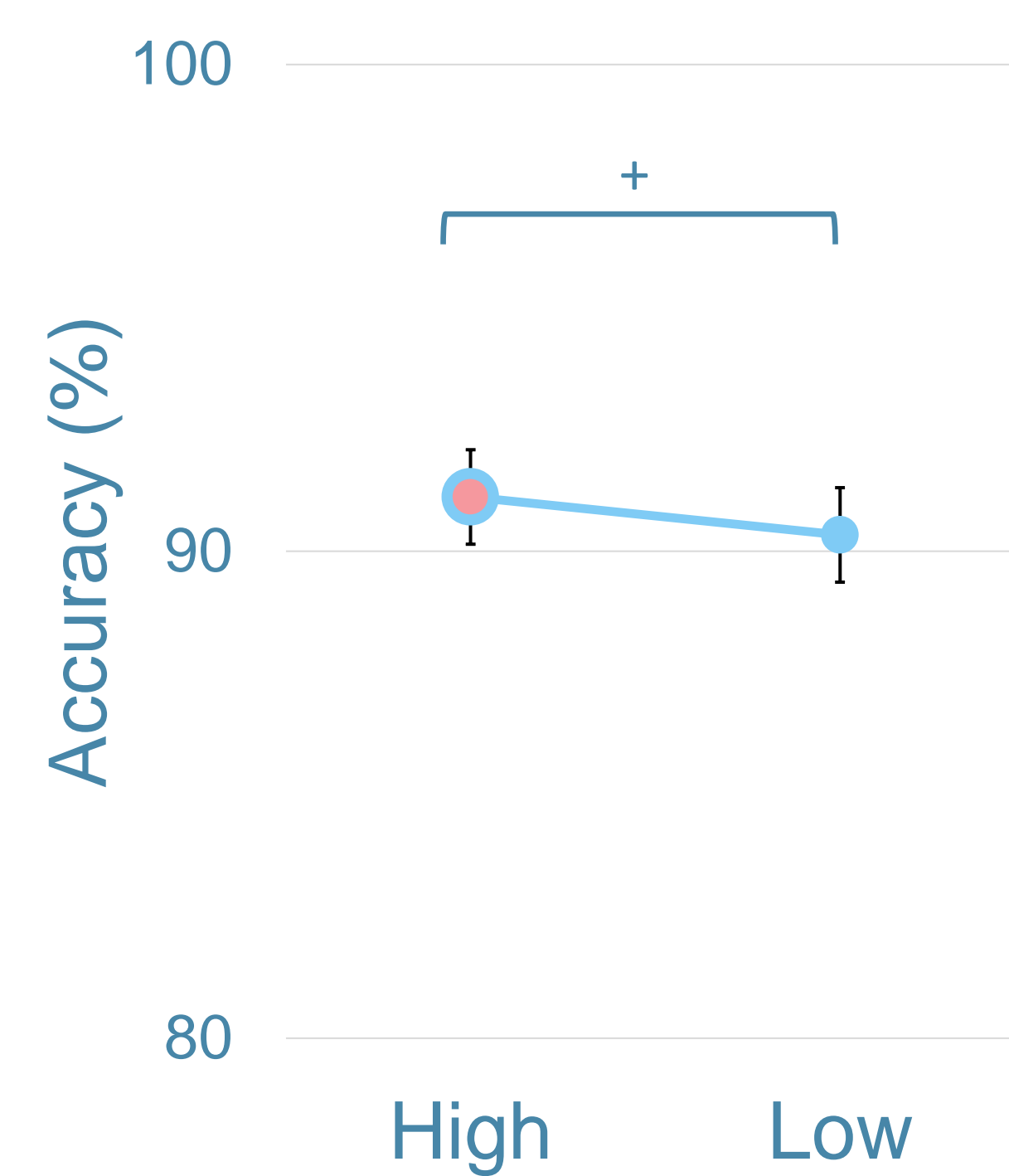
#### Manipulation

- ✓ Locations of WM items were randomly chosen (equally encoded)
- ✓ However, a stimulus that appeared in one specific location was more likely to be suppressed during the delay period than stimuli in other locations (High vs. Low probability of suppression within working memory)



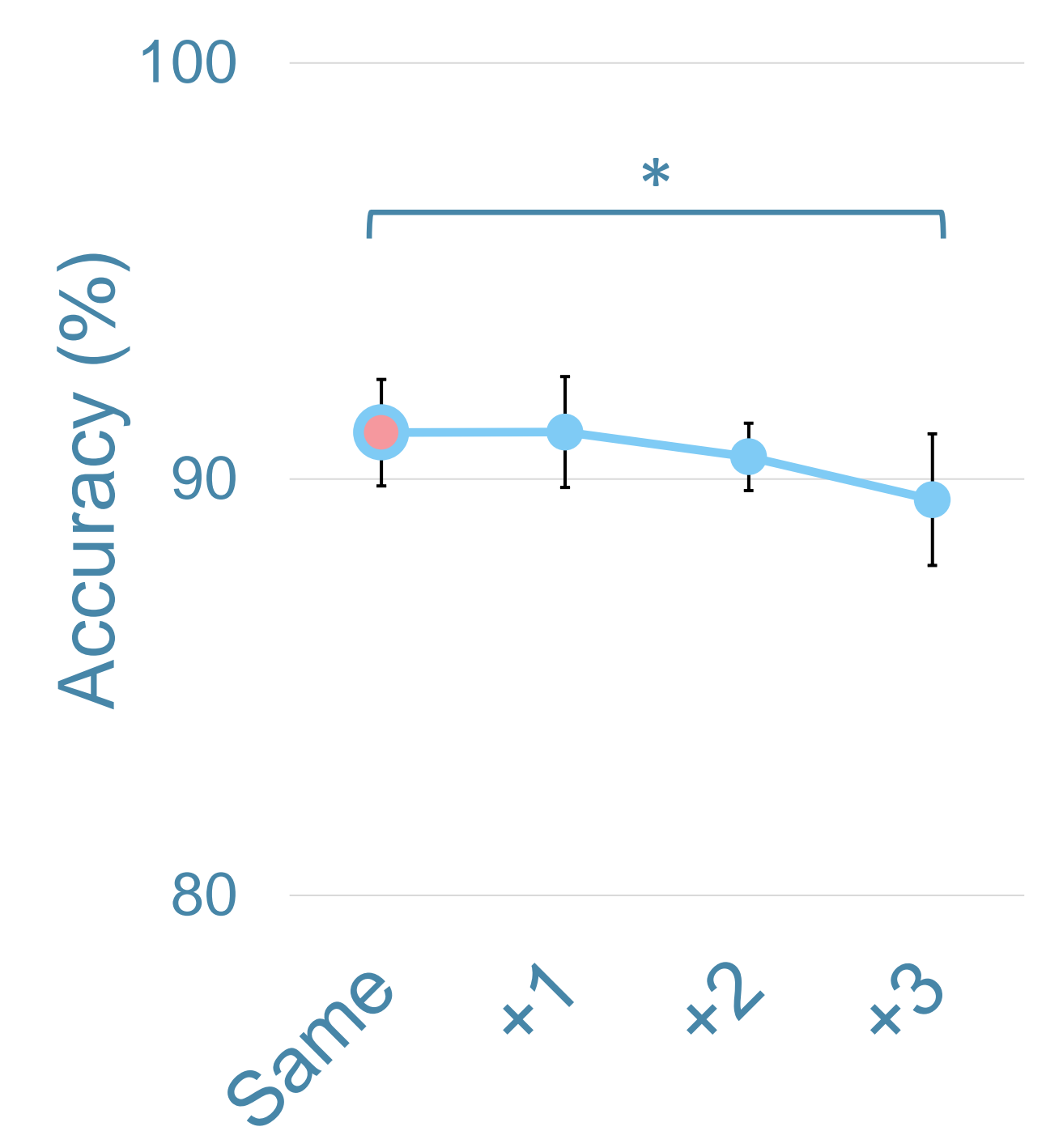
High vs. Low probability of suppression within working memory

- ✓ WM performance was faster and more accurate when the to-be-suppressed item was presented at a high probability location than at a low probability location



Distance between the high probability location and the to-be-suppressed item

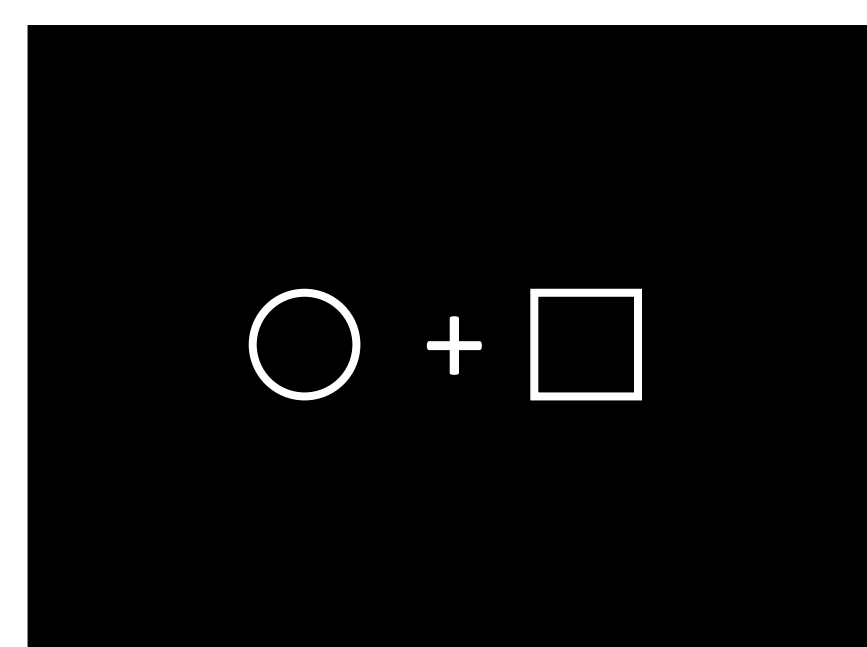
- ✓ The response became slower and less accurate when the to-be-suppressed item appeared further from a high probability location



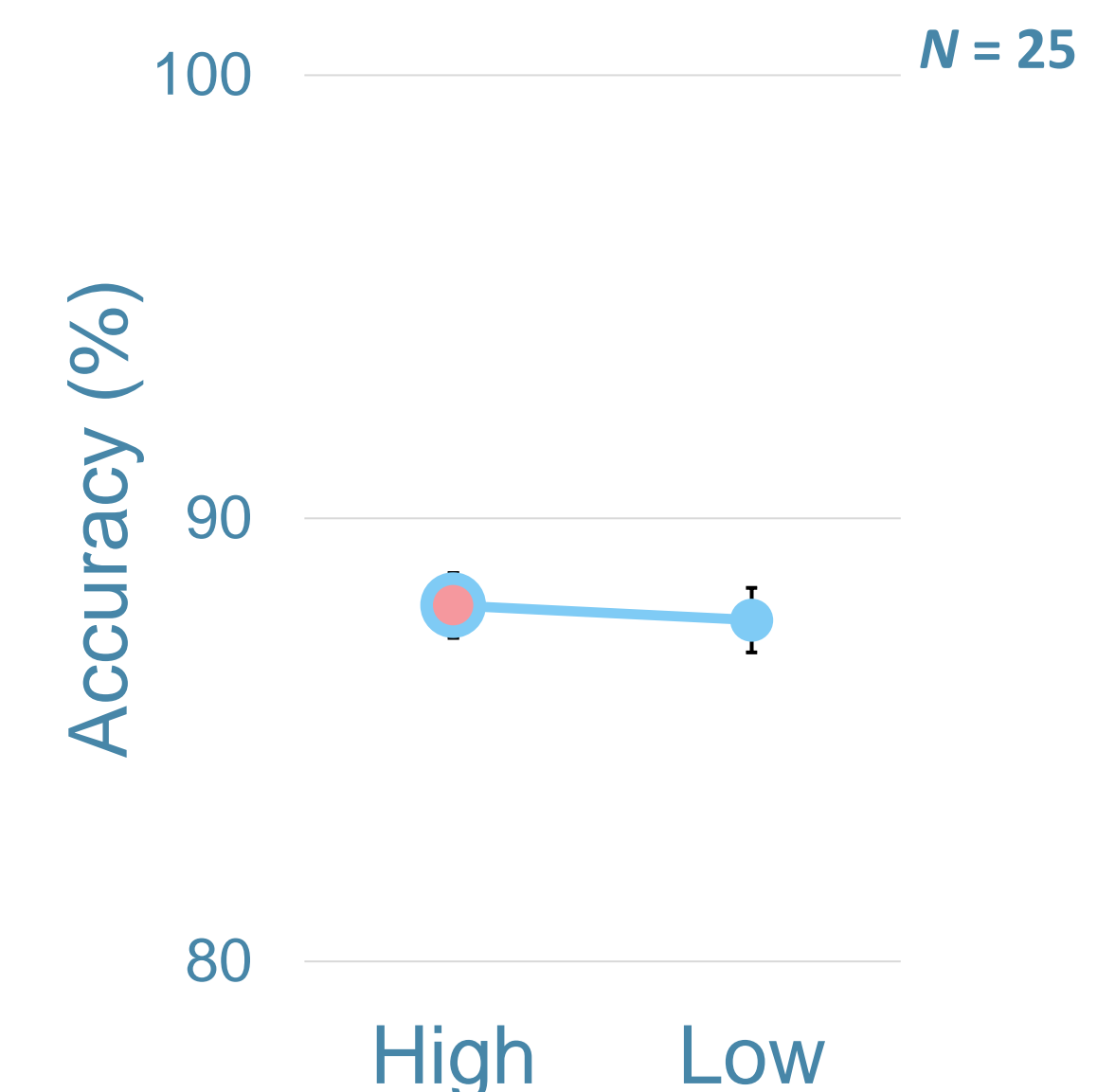
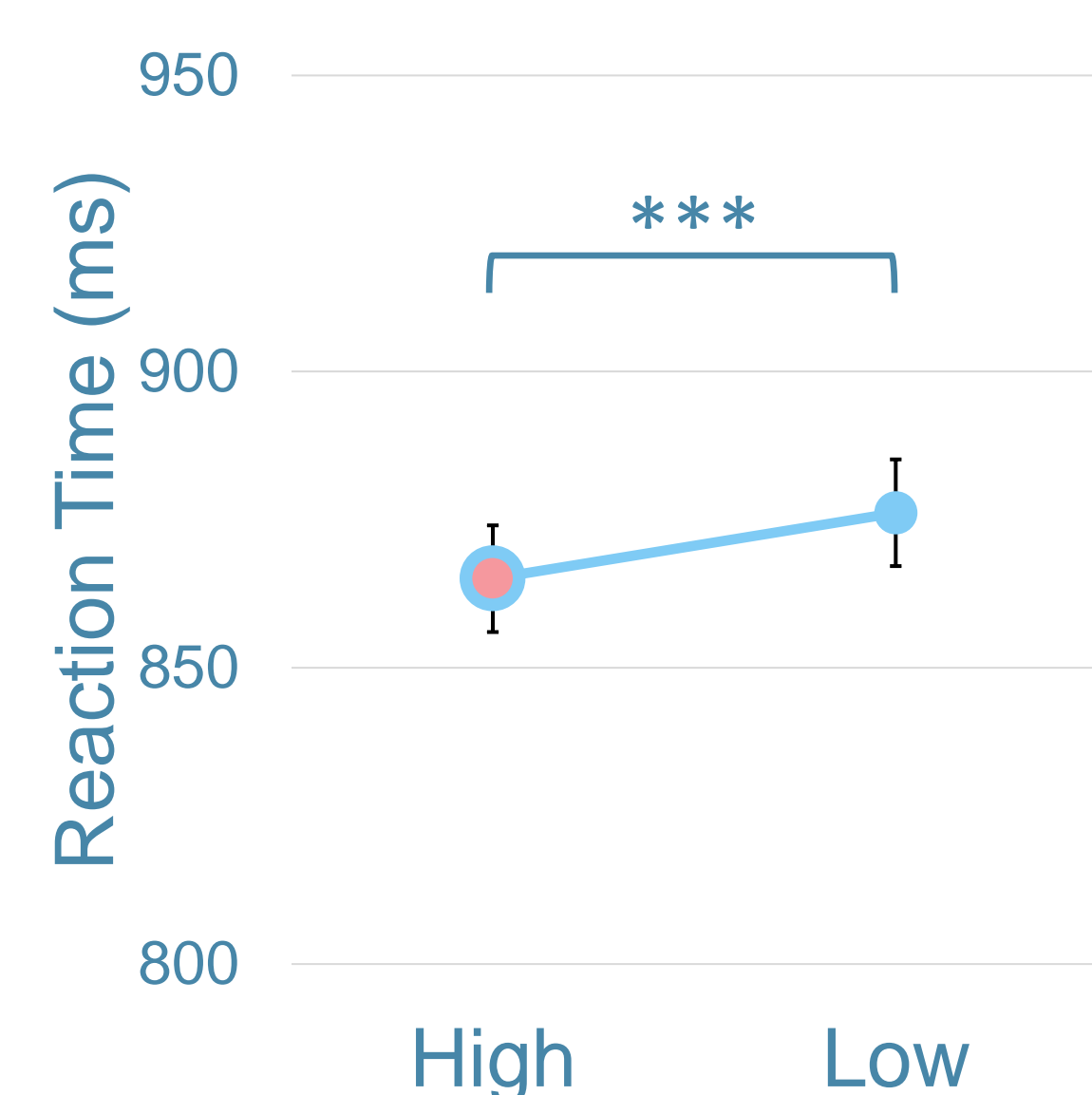
N = 25  
+p < .1, \*p < .05, \*\*\*p < .001  
Error bars indicate 95% confidence interval

### Experiment 2

#### Delay with Retro-cue



- ✓ To exclude the possibility that uneven spatial selection following retro-cue induced the encoding bias, the retro-cue was presented without spatial information



Results of Experiment 1 were replicated in RTs

## Conclusion

- Inhibition within WM can be boosted by statistical learning based on prior experience of suppression
- The selection of internal representation operates similar to a perceptual selection mechanism
- Future study is needed to reveal whether statistical regularities affect the encoding period or facilitate suppression within encoded representations