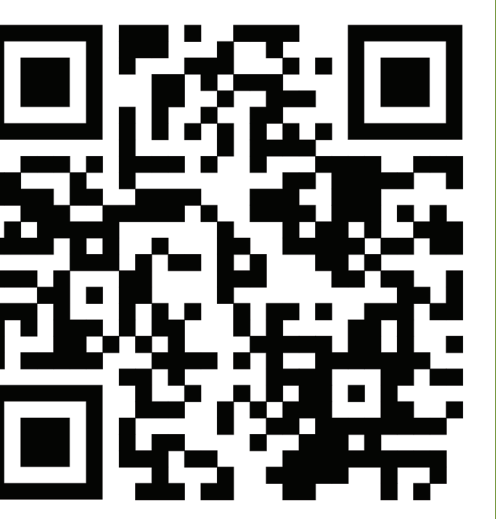


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<sup>a</sup>University of Texas at Austin; <sup>b</sup>MRC Cognition & Brain Sciences Unit; <sup>c</sup>University of Illinois Urbana-Champaign



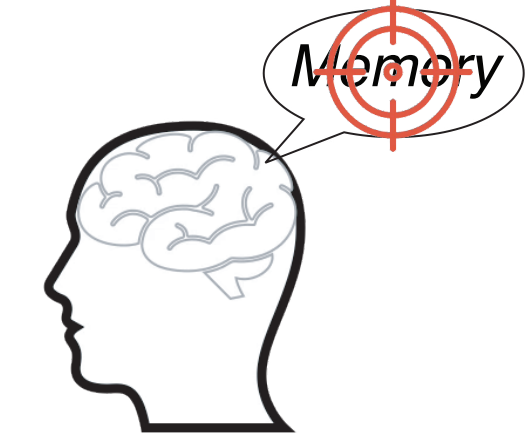
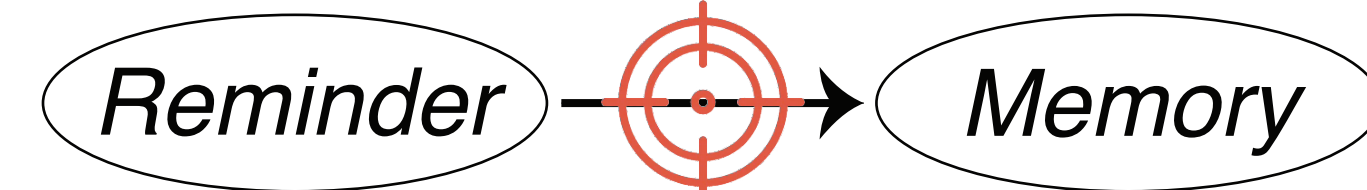
## 1 INTRODUCTION

### Background

- Inhibitory control can be exerted over memory representations at different stages of processing<sup>1,2</sup>.

**Long-Term Memory**  
("Retrieval Suppression")

**Working Memory**  
("Maintenance Suppression")

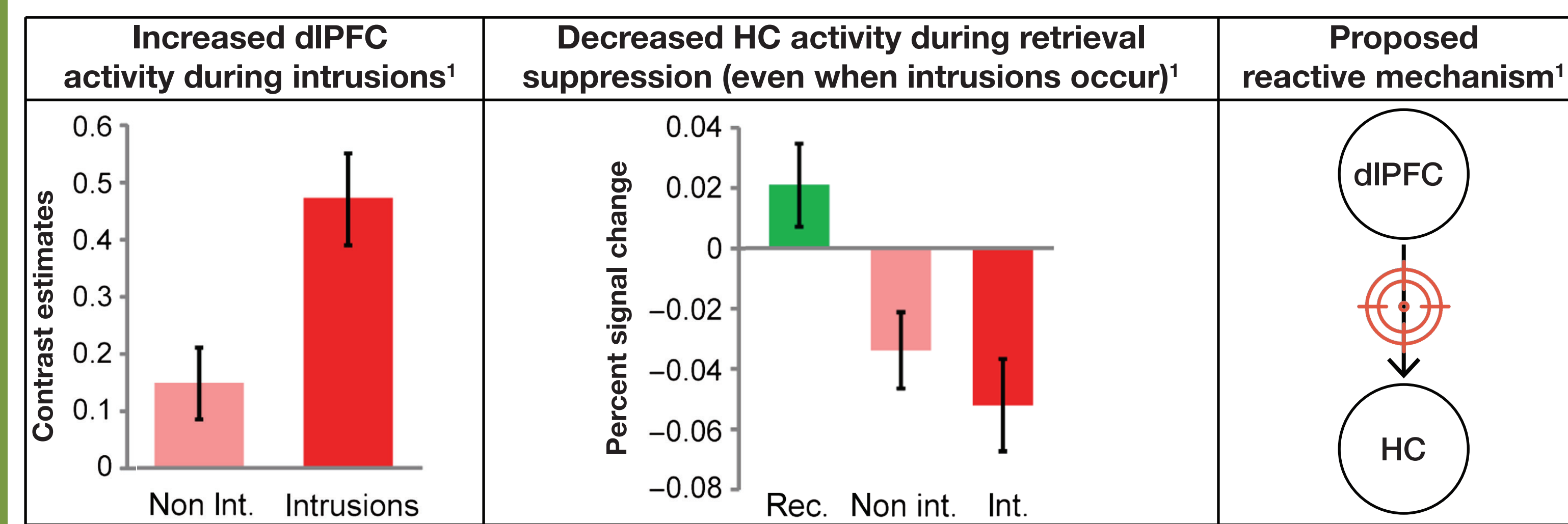


- Both processes engage top-down control from the PFC, specifically the dlPFC<sup>1,3</sup>.

- Reduces access to information, either in the long term<sup>1</sup> or short term<sup>3</sup>.

### When retrieval suppression fails...

- Unwanted memories intrude into awareness, creating a demand for a reactive control process.



- However, once a memory intrudes into awareness, reactive control may engage additional processes to recover from intrusions.

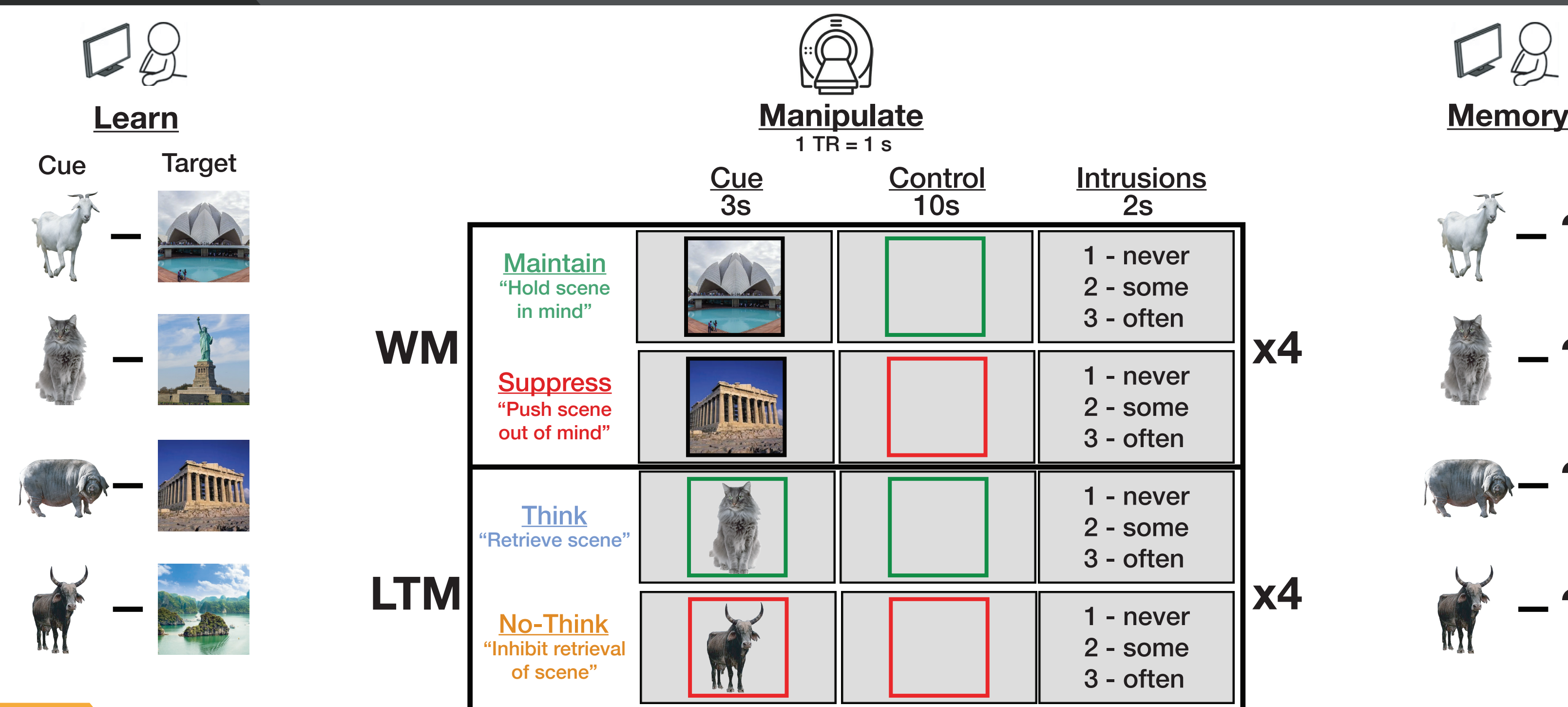
## RESEARCH QUESTION

*How do maintenance suppression and retrieval suppression interact to regulate intrusive thoughts?*

## Hypotheses

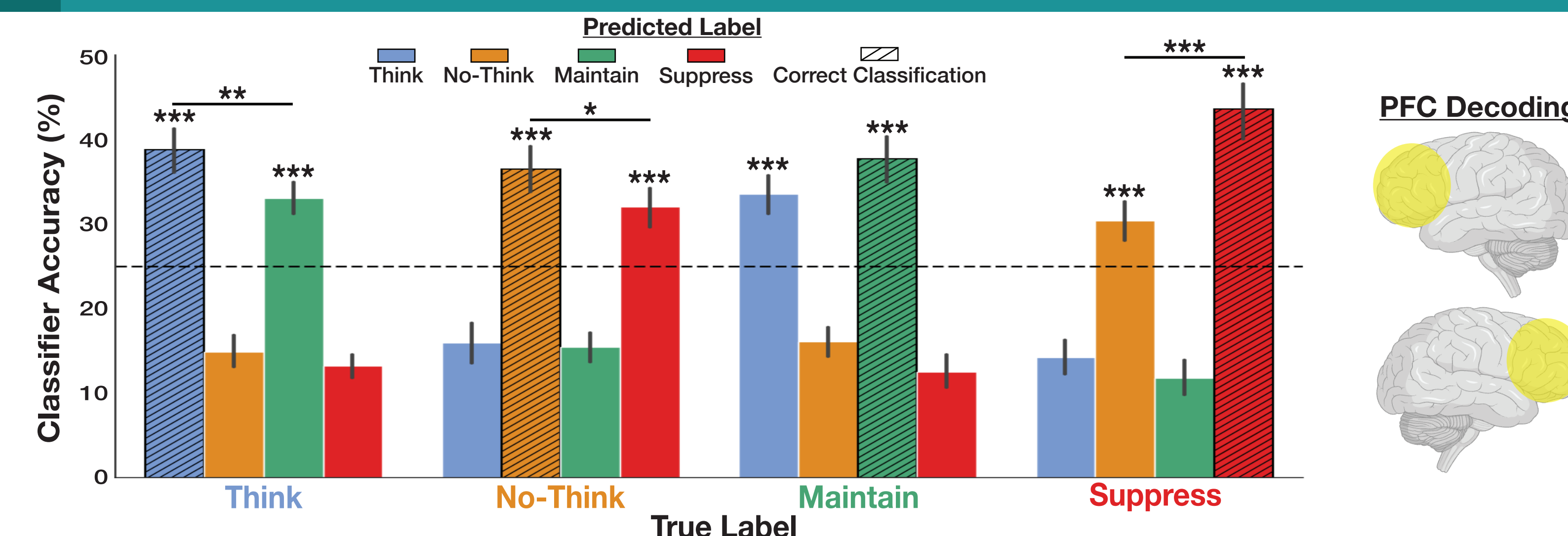
- Maintenance suppression and retrieval suppression may be distinct processes that share overlapping mechanisms.
- Maintenance suppression may be a specific reactive mechanism that is engaged to overcome retrieval suppression failures.

## 2 EXPERIMENTAL APPROACH (N = 45)

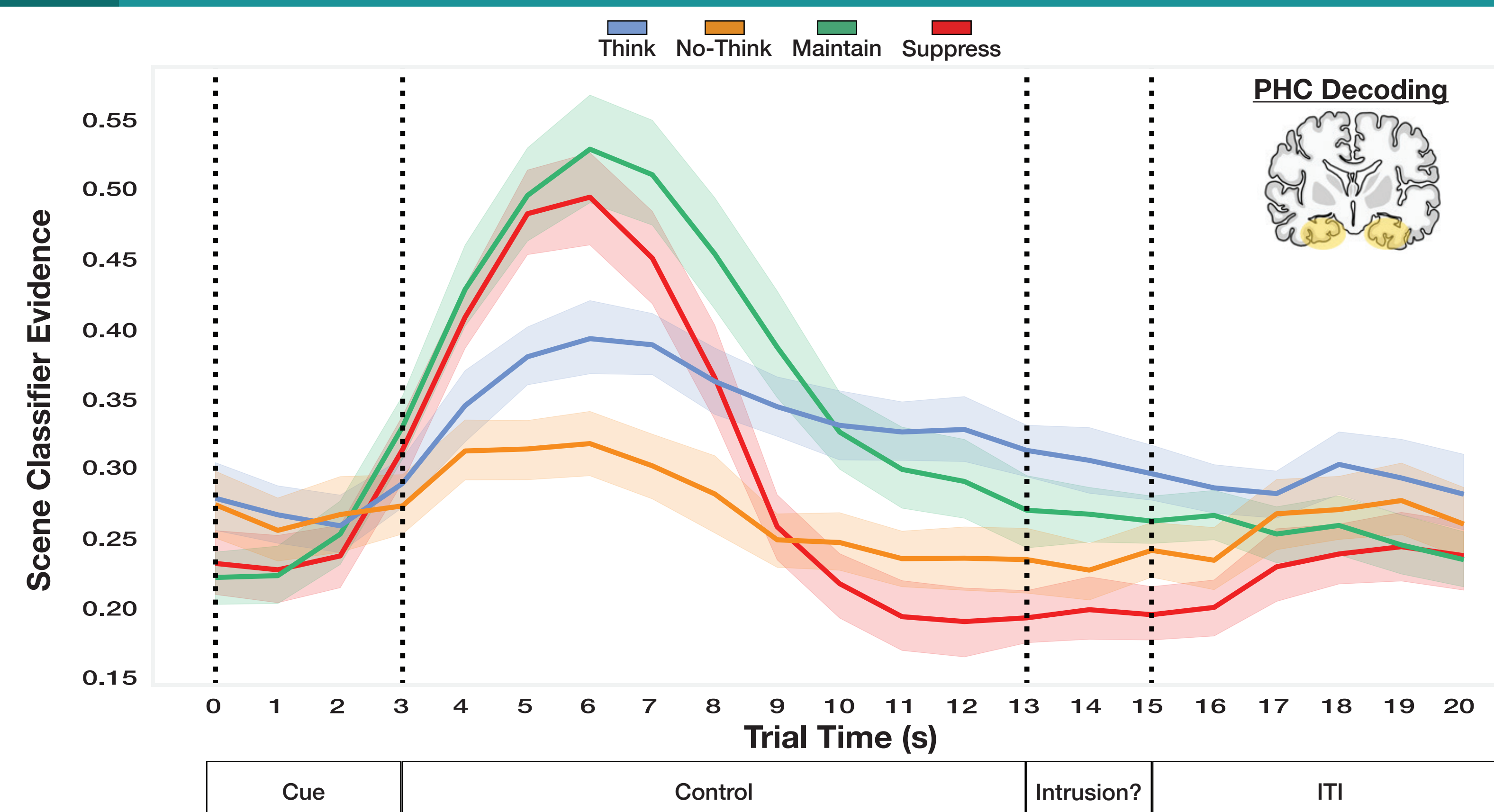


## 3 DECODING MEMORY CONTROL

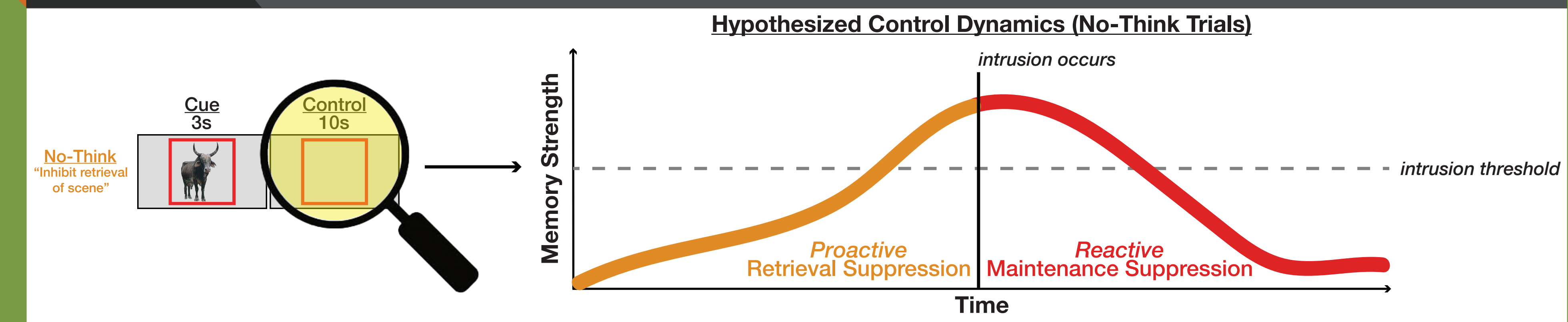
### Distinct control strategies share common mechanisms



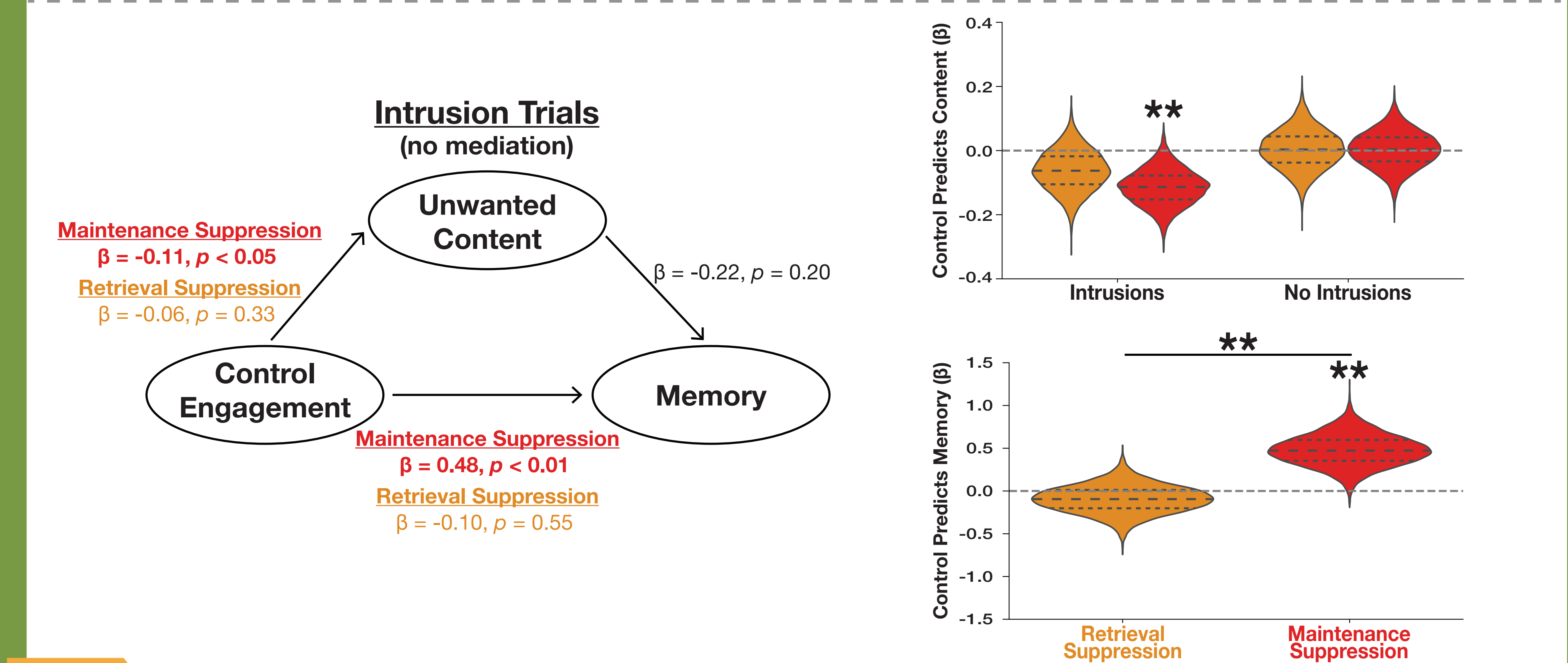
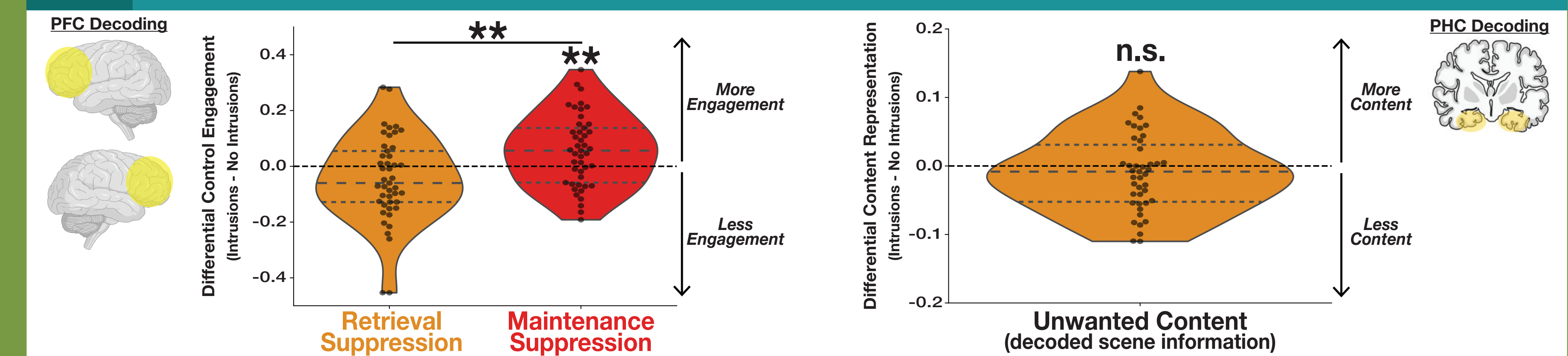
### Control shapes content representations in WM



## 4 RECOVERING FROM INTRUSIONS



### Intrusions engage maintenance suppression



## 5 DISCUSSION

- When retrieval suppression is unsuccessful, a process consistent with maintenance suppression is reactively engaged.
- This reactive control dampens unwanted content in the moment, and is more engaged for highly memorable items.
- Effective memory control is dynamic—proactively limiting unwanted access when possible and reactively purging intrusive content if necessary.

### References:

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- Lewis-Peacock, J.A., Kessler, Y., & Oberauer, K. (2018). *Annals of the New York Academy of Sciences*
- Kim, H., Smolker, H.R., Smith, L.L., Banich, M.T., & Lewis-Peacock, J.A. (2020). *Nature Communications*