

The Influence of Retrieval Practice on Real-Life Event Memory

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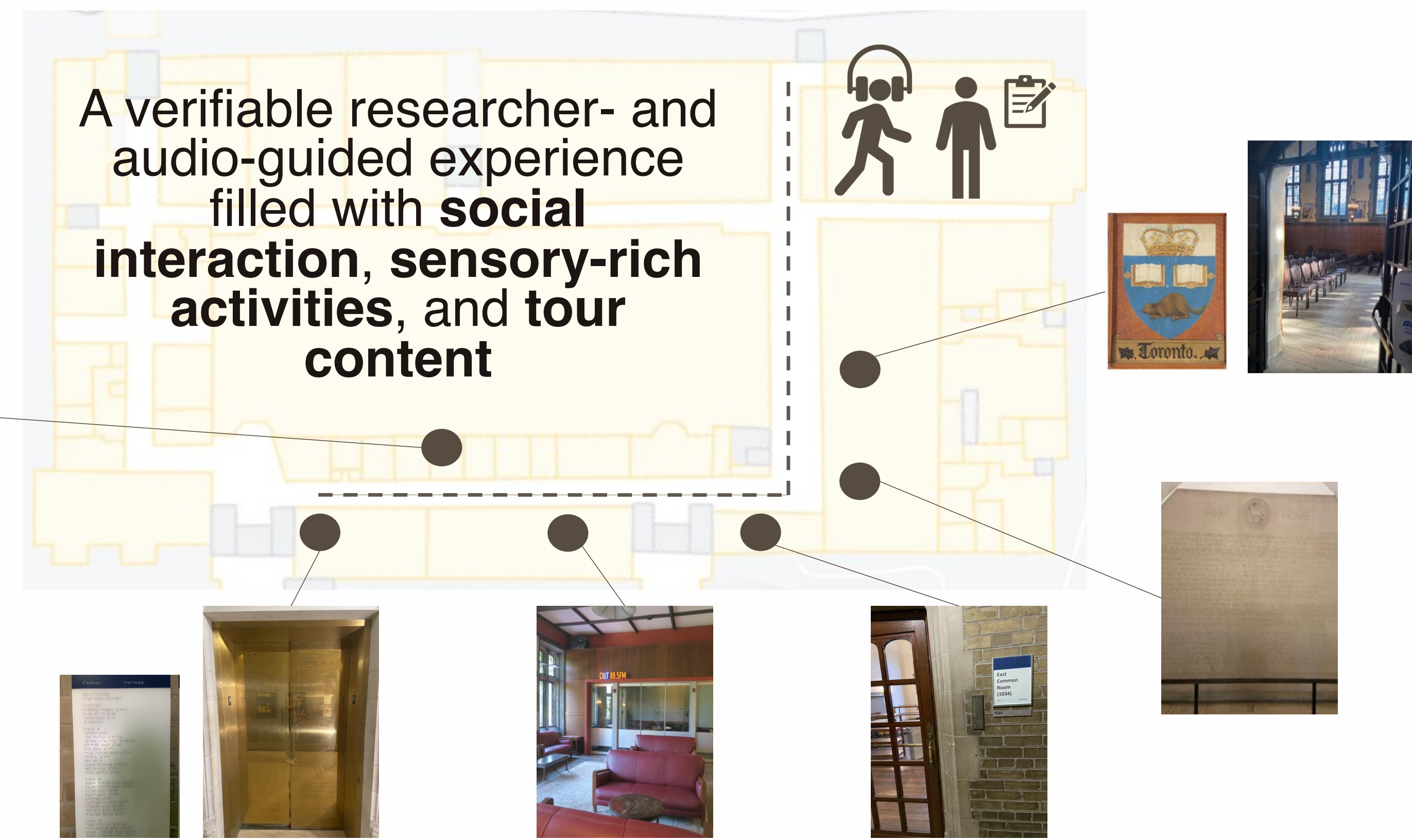
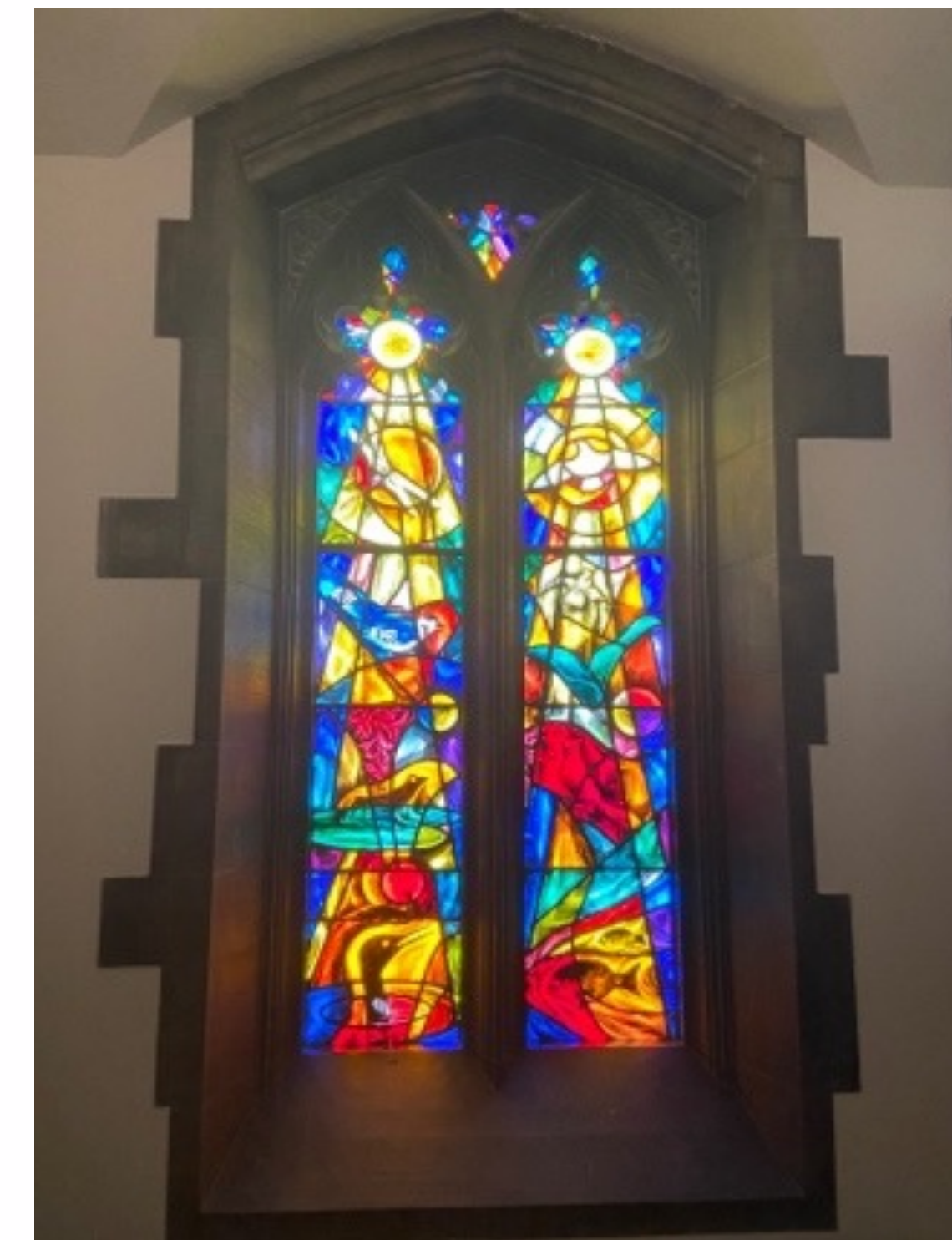
Introduction

- Retrieving information from memory (**retrieval practice**) enhances memory for retrieved information (**the testing effect**), even when no feedback is given and when compared to reviewing (**restudying**) the same material¹
- Benefits of retrieval practice can extend to unretrieved—albeit related—information (**retrieval-induced facilitation**)²
- Retrieval practice may act as a **rapid consolidation mechanism** and may promote **memory integration** and **differentiation**^{3,4}

How does **retrieval practice** versus **restudy** influence memory for a naturalistic staged event?

Methods

1 Staged Event: The Hart House Tour



2 Tour Review Sessions

Retrieve Group (n = 26)

Retrieved tour details without feedback

Sample Questions:

- What did the researcher forget near the stained-glass tour stop?
- If you are facing the stained-glass window, where was the wall fixture stop in reference to you?
- What scene did the stained-glass window depict?
- How many large panels were on the stained-glass window?

- Researcher action
- Spatial location
- Tour audio content
- Perceptual detail

Restudy Group (n = 26)

Reviewed, but did not retrieve, exact same tour details

Sample Questions:

- What did the researcher forget near the stained-glass tour stop? Answer: their bag
- If you are facing the stained-glass window, where was the wall fixture stop in reference to you? Answer: behind-to the right
- What scene did the stained-glass window depict? Answer: wildlife
- How many large panels were on the stained-glass window? Answer: 2

Review sessions occurred three times: immediately, 24 hours, and 5 days post-tour

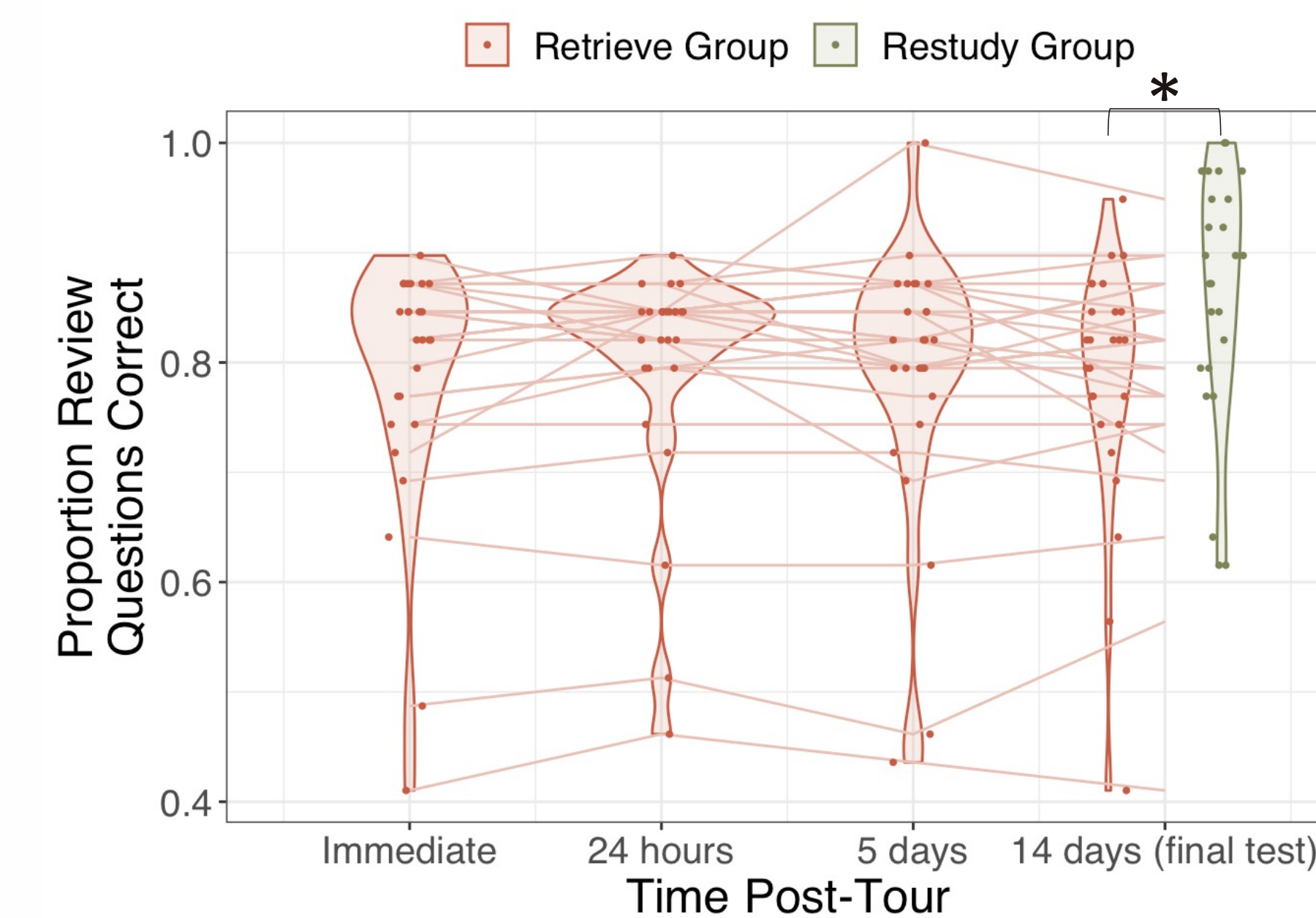
3 Final Memory Assessment Two Weeks Post-Tour

Results

A testing effect observed 9 days after the final review session

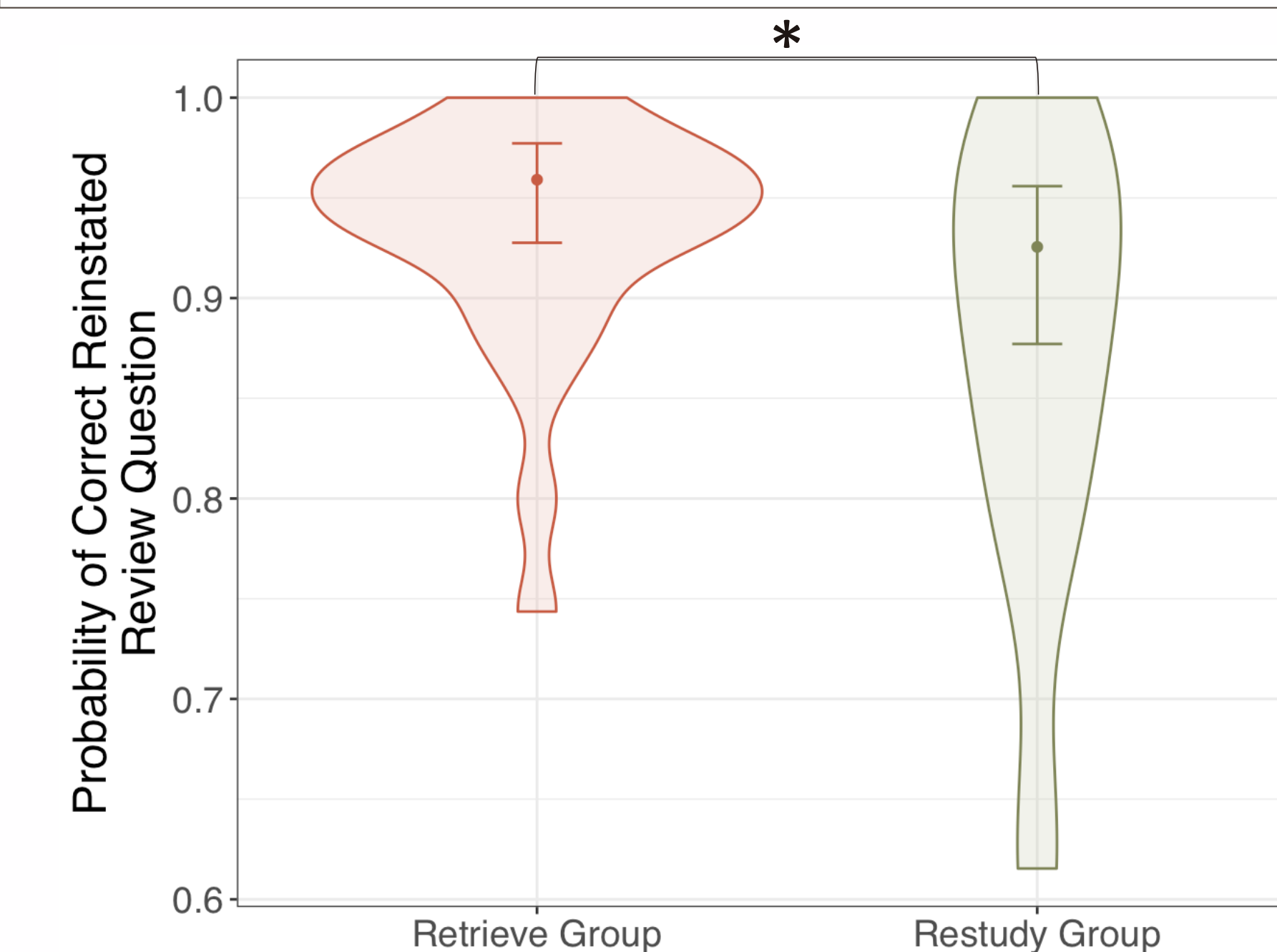
Answered exact same cued-recall questions from review sessions (**reinstated review questions**)

Restudy group did better on reinstated review Qs when initial retrieval success was not considered



Lines connect participants (in the retrieve group) across review sessions (and the final). Dots represent participants.

Retrieve group did better on reinstated review Qs so long as details were initially retrievable

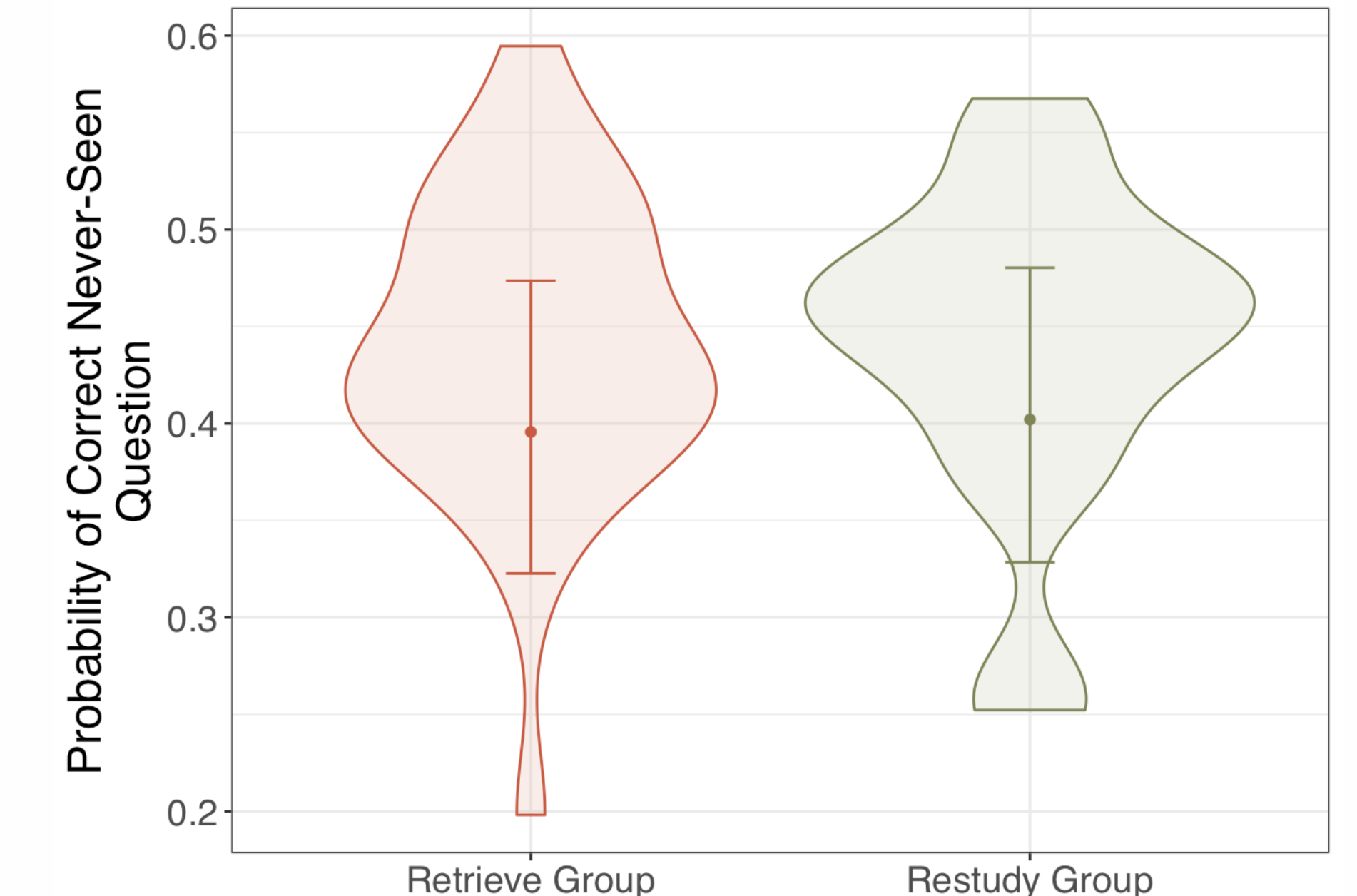


To match the restudy group, Qs were only included for retrieval group participants if they responded correctly on all three review sessions.

No retrieval-induced facilitation effect

Answered new cued-recall questions about verifiable tour details (**never-seen questions**)

No evidence of a difference between groups on never-seen Qs



Hint at retrieval benefits in free recall

Free recall narratives scored for the **number of tour events recalled**

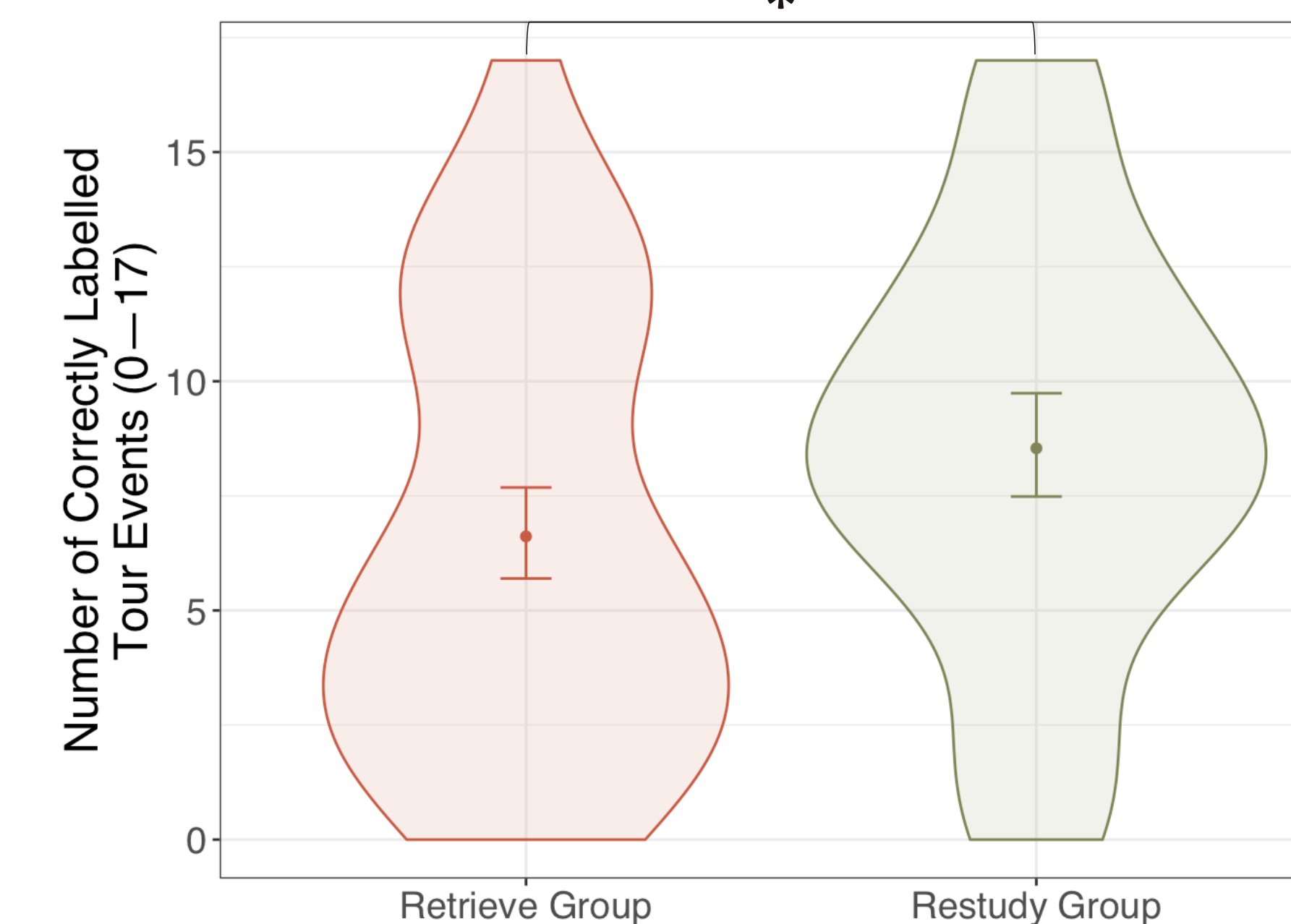
Although nonsignificant, **Retrieve group** recalled more events in free recall narratives



Temporal disorganization after retrieval

Tour event sequencing task scored for the number of correctly labelled tour events

Restudy group performed better on tour event sequencing task



Similar temporal dynamics in free recall

Lag-conditional response probability curves constructed from free recall narratives

Forward asymmetry and temporal contiguity patterns statistically similar between groups



Next step: Scoring key metric free recall narratives for detail types, accuracy, memory coherence, and semantic clustering

Conclusions

- We replicate a testing effect for real-life event memories, so long as tested details were initially retrievable
- Using traditional metrics, we find **no evidence of retrieval-induced facilitation**; however, we find **indications of broader retrieval practice benefits in free recall narratives**
- **Temporal disorganization after retrieval practice** could reflect **integration** of event components in memory
- Planned investigation of free recall narratives is ideal for thoroughly examining how retrieval influences event memory

