



Reactivation or Accumulation? Exploring Working Memory's Role in Event Segmentation

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Background

Humans segment continuous experiences into distinct **episodic memory** units, a process called event segmentation.

(Ezzyat & Davachi, 2011; Güler et al., 2023; Zacks & Swallow, 2007)

Segmentation is thought to rely on **working memory** (WM), which maintains a mental model of ongoing experience and updates it at meaningful boundaries (DuBrow & Davachi, 2013; Zacks et al., 2011; for a review see Güler et al., 2024)

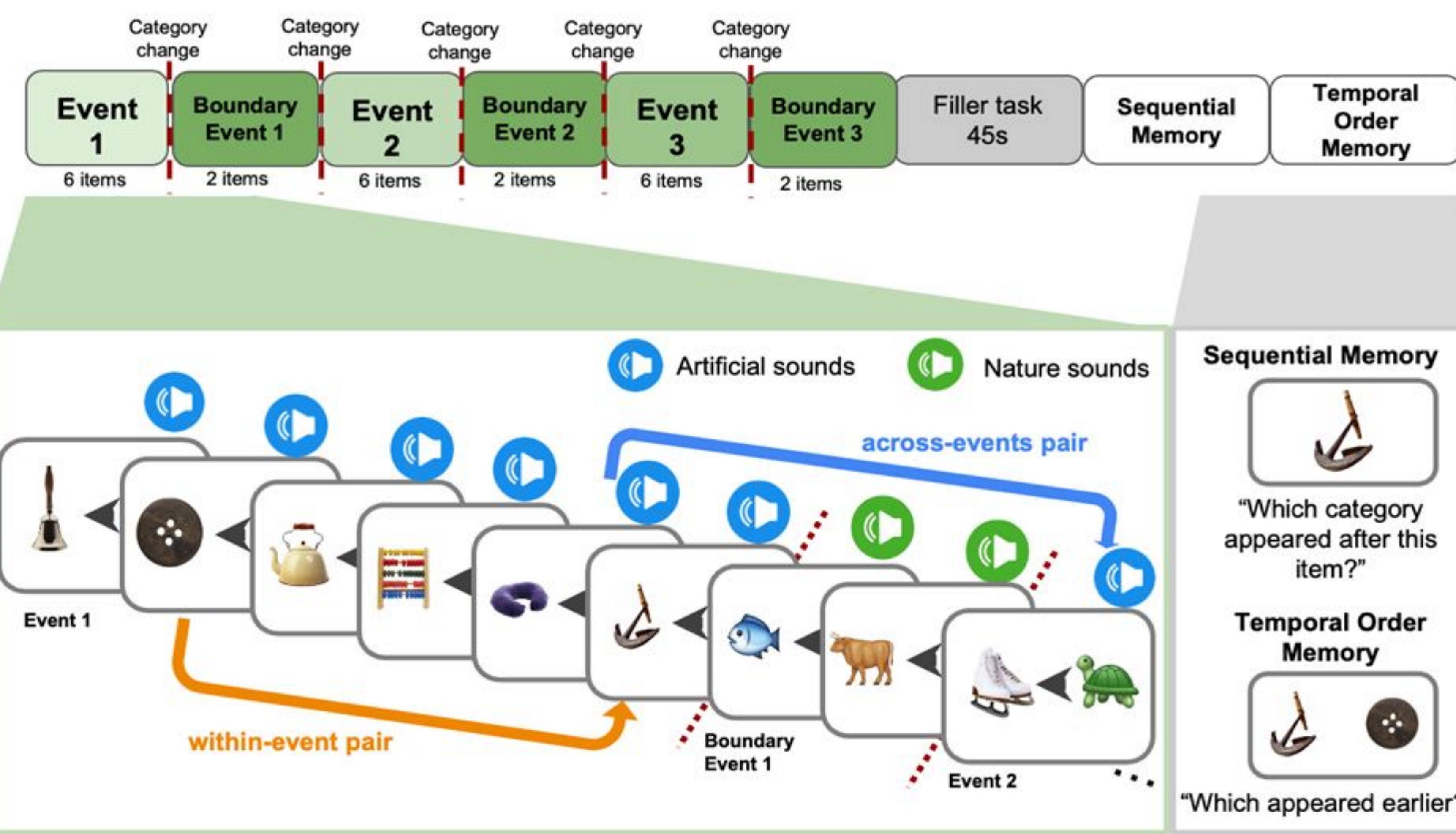
However, the **precise role of WM** in event segmentation remain unclear.

Previous research suggests that WM may;

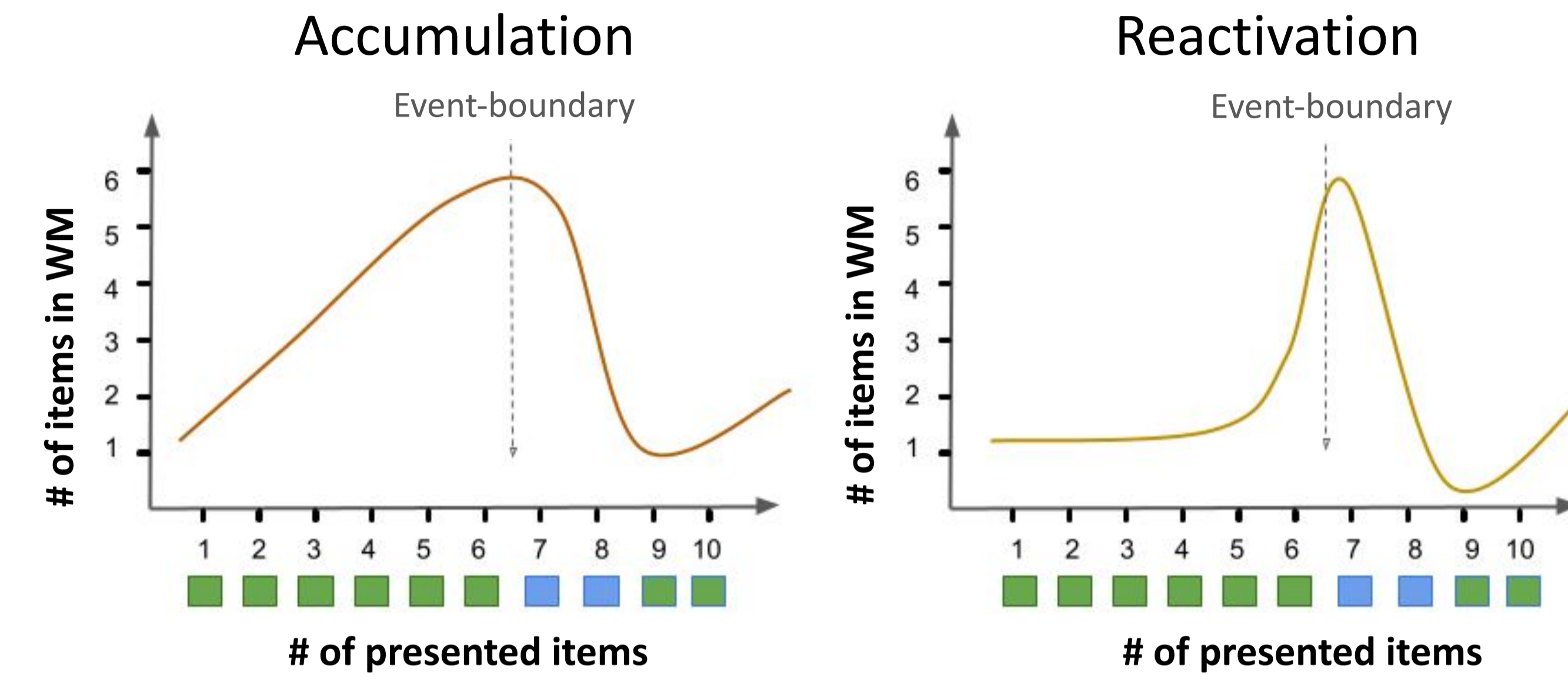
- (1) **accumulate** recently encoded information within events, or
- (2) **reactivate** previously encoded information at event boundaries.

This study uses **behavior and EEG** measures to clarify WM's role in structuring episodic memory.

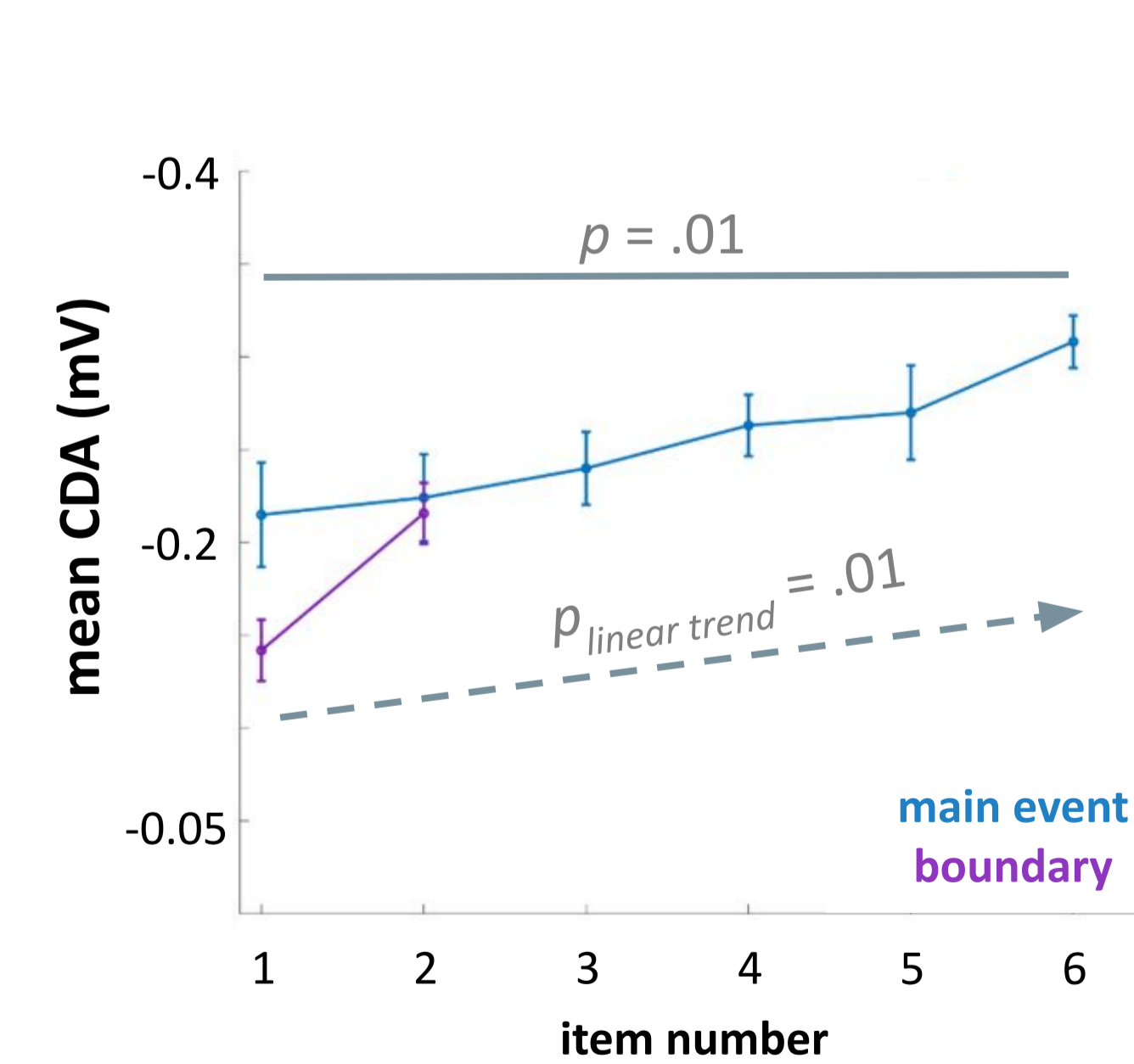
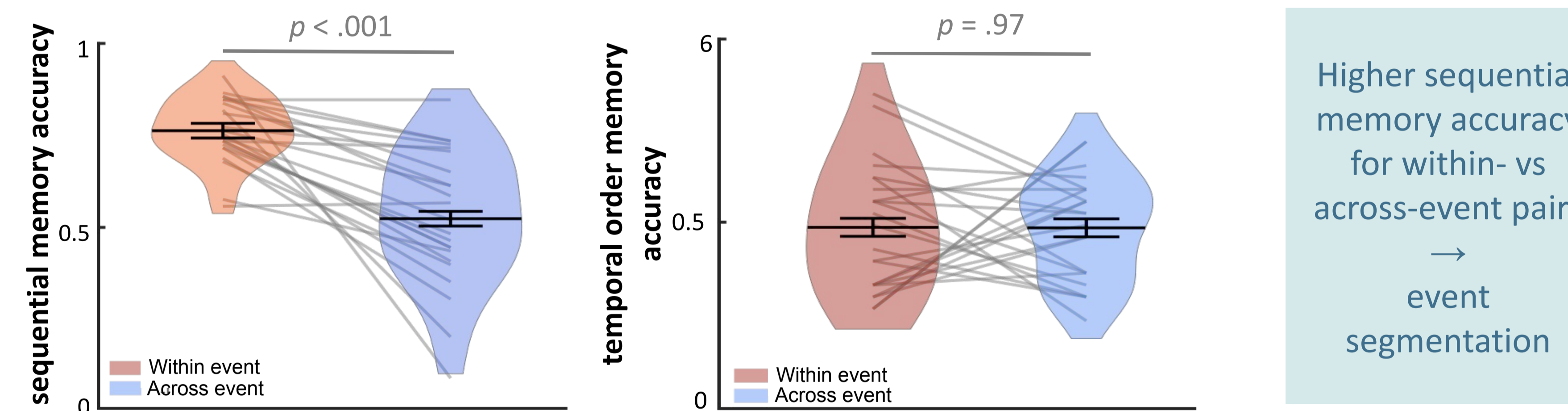
Experimental Procedure



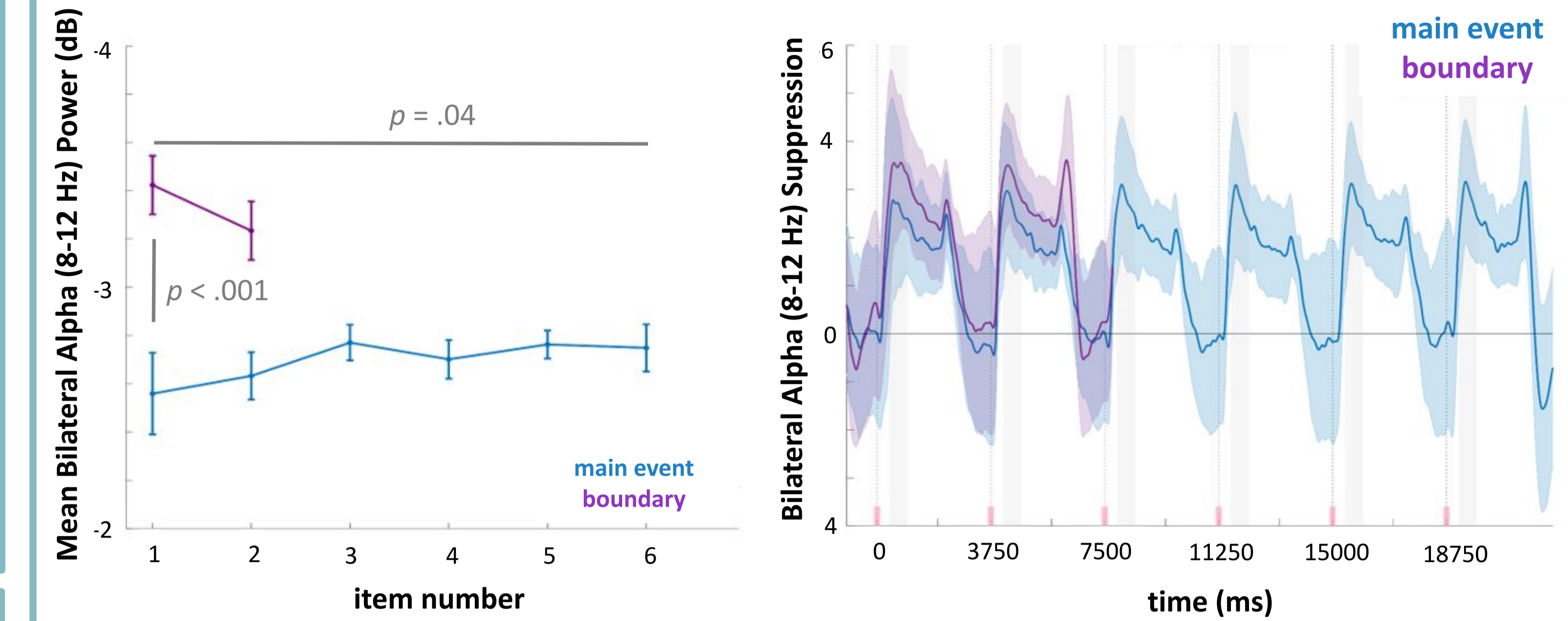
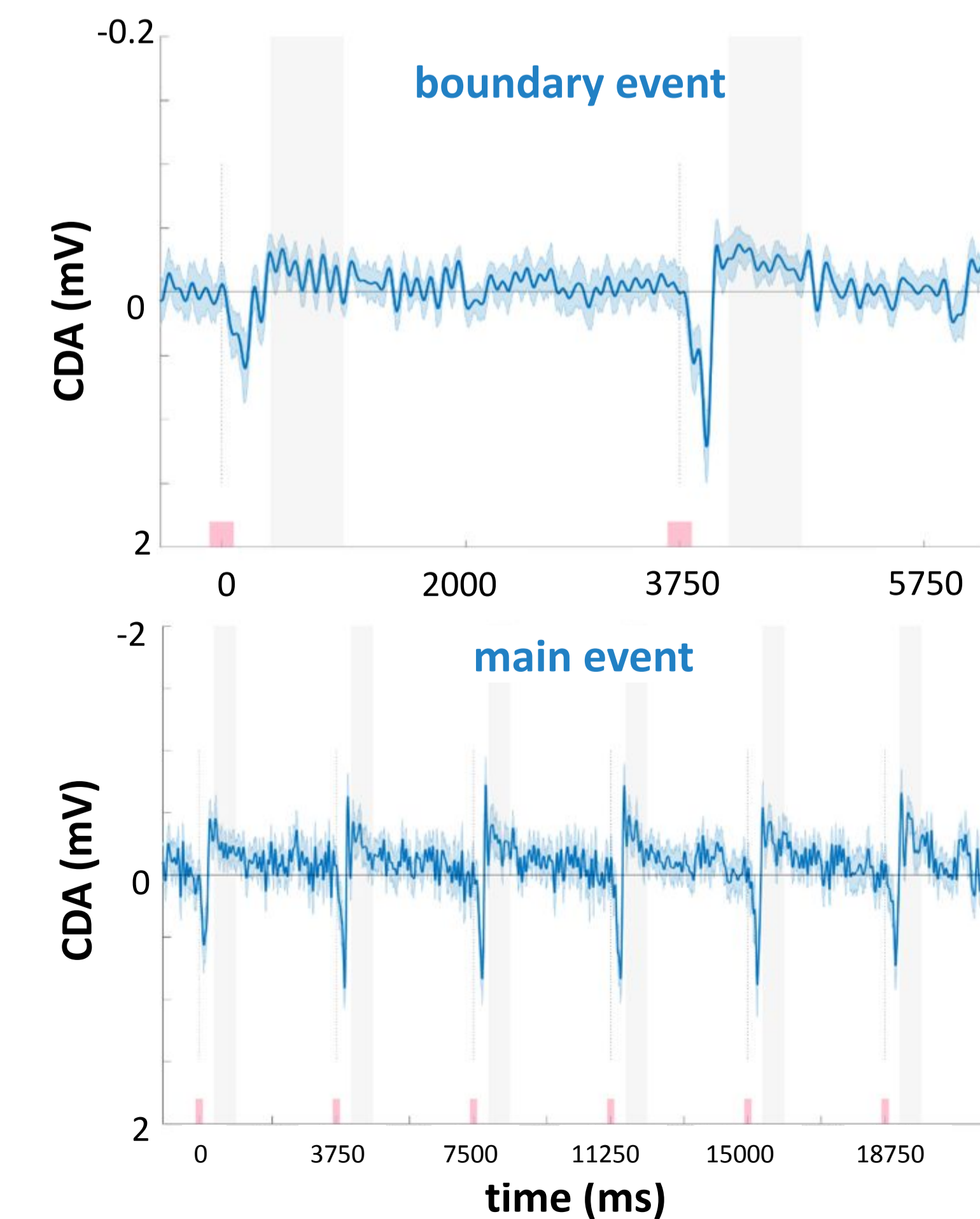
Predictions



Results (N = 23)



CDA increased within events
→
Evidence for accumulation



Alpha suppression was larger following main events (6 items) vs boundary events (2 items)
→
Evidence for reactivation

Conclusions

Evidence for reactivation: Strong alpha suppression at event boundaries supports reactivation of prior events.

Evidence for accumulation: CDA increase across within-event items support the accumulation of information within events.

Reactivation and accumulation jointly support event segmentation.

Functional role: Accumulation may integrate within event information and reactivation may link past and present events, aiding memory integration.

References

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