

Effects of Attentional Prioritization on the Representation of Content and of Context in Visual Working Memory

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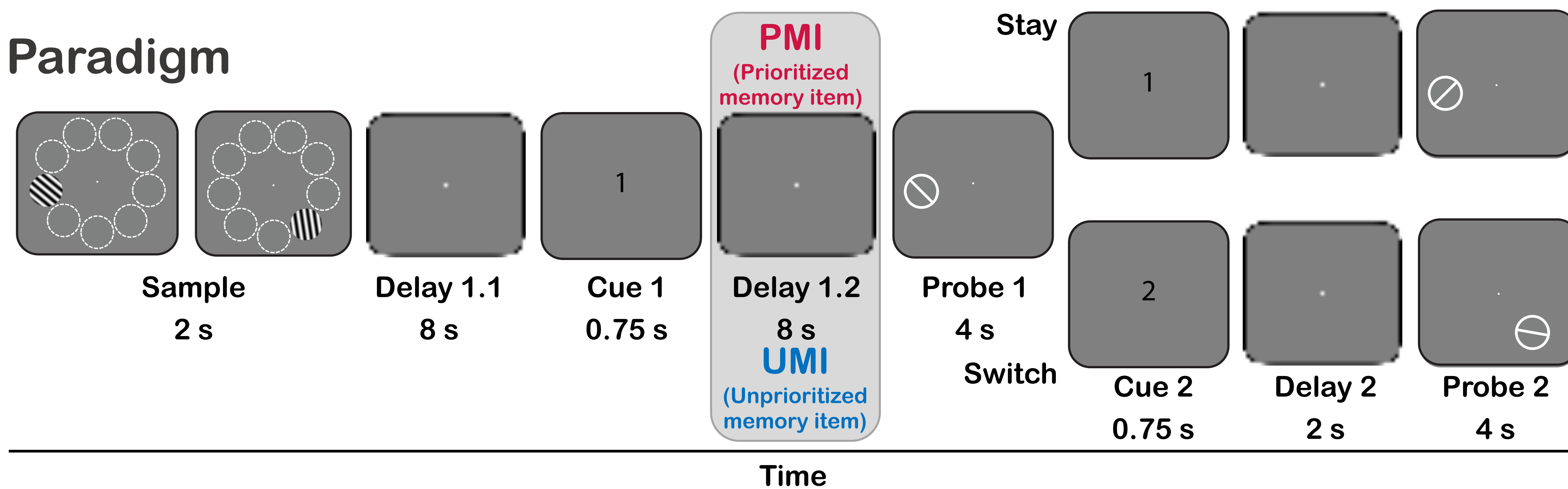
BACKGROUND

What is the neural mechanism for representing unprioritized memory item in working memory?

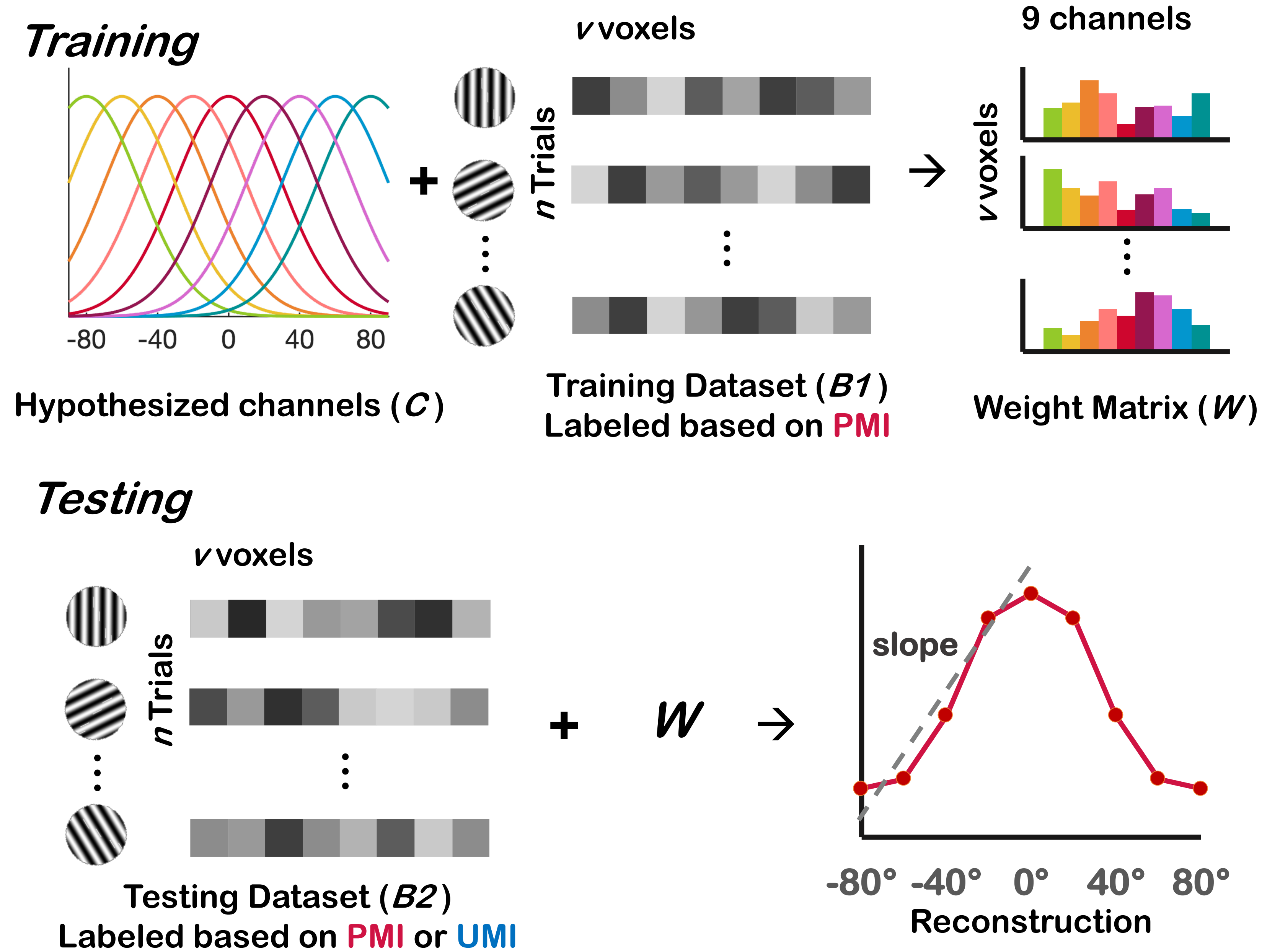
- Short-term synaptic plasticity (Barak & Tsodyks, 2014)
- Cortical specialization — Recoding (Christophel et al., 2018)
- Representational transformation — Remapping (van Loon et al, 2018; Yu & Postle, 2018)

METHODS

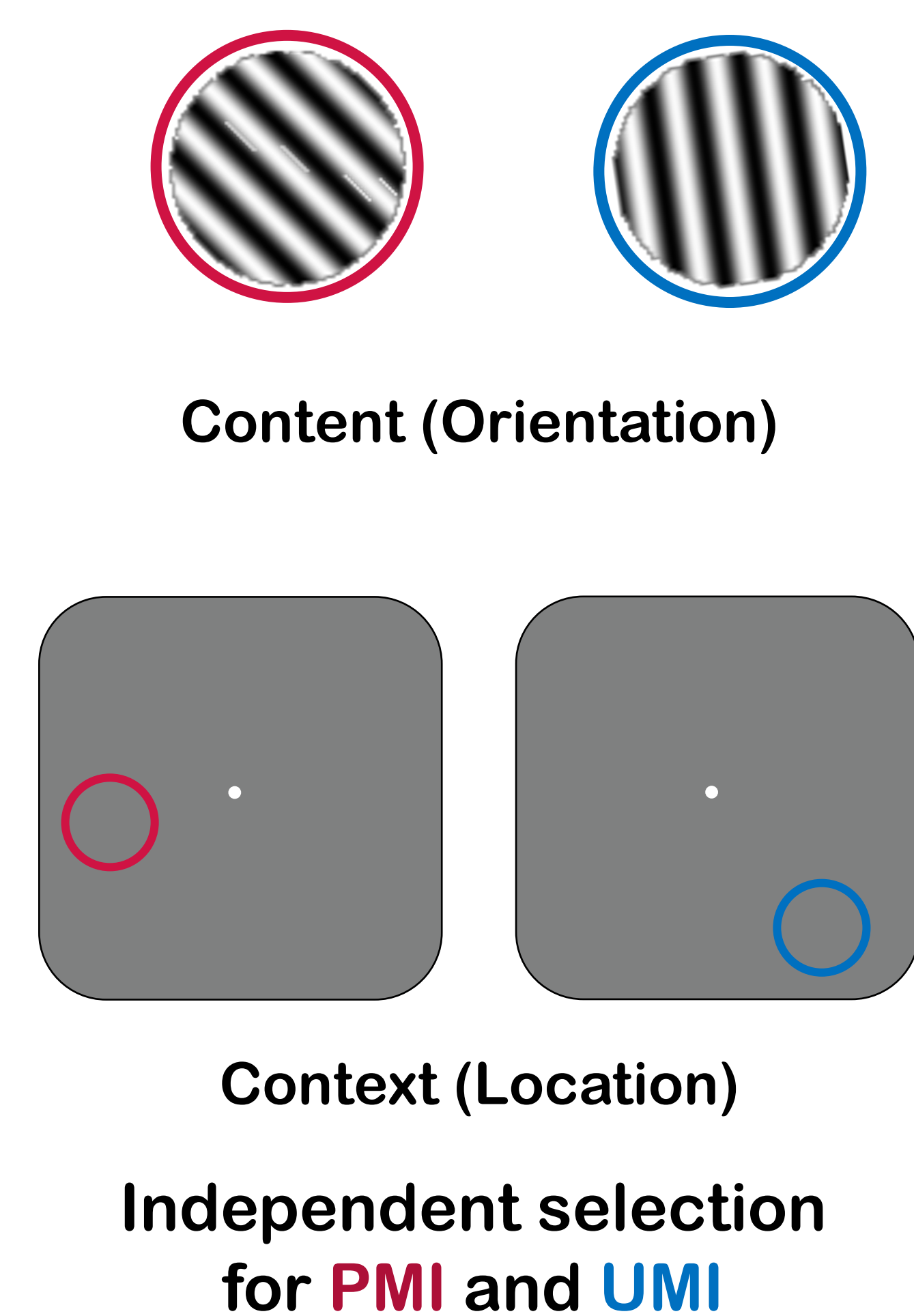
Paradigm



Inverted Encoding Model ($B = W \times C$)



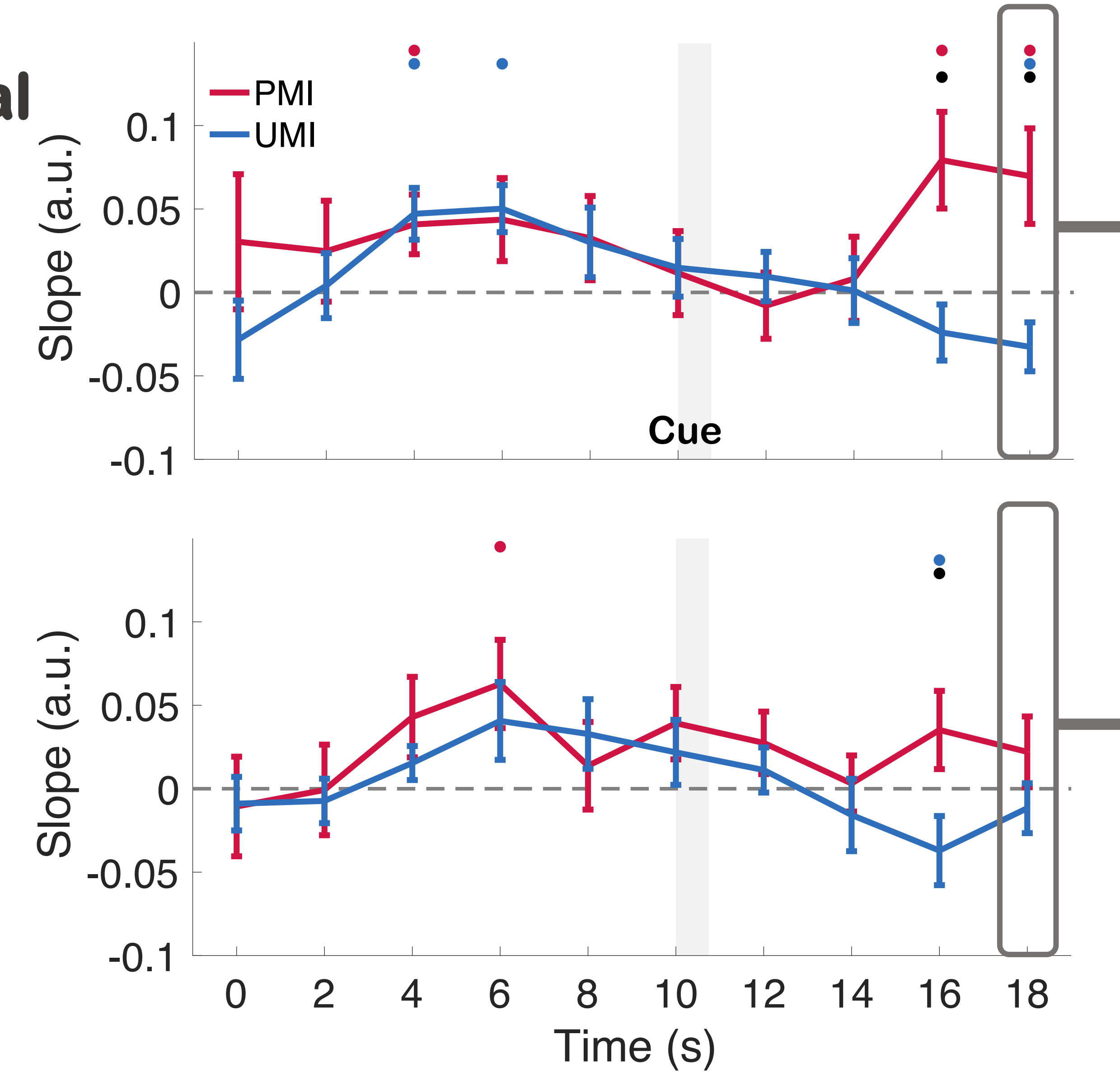
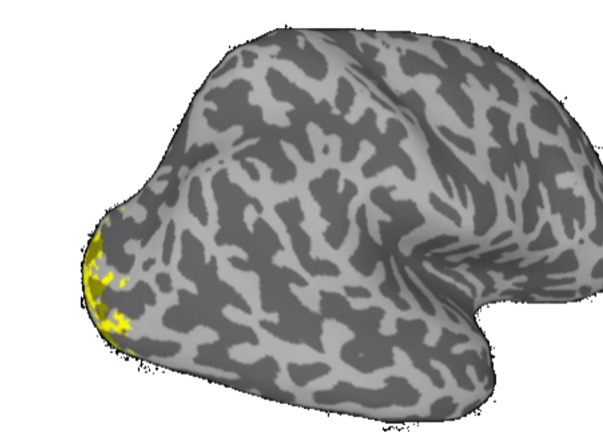
Comparing IEM Reconstructions for PMI versus UMI



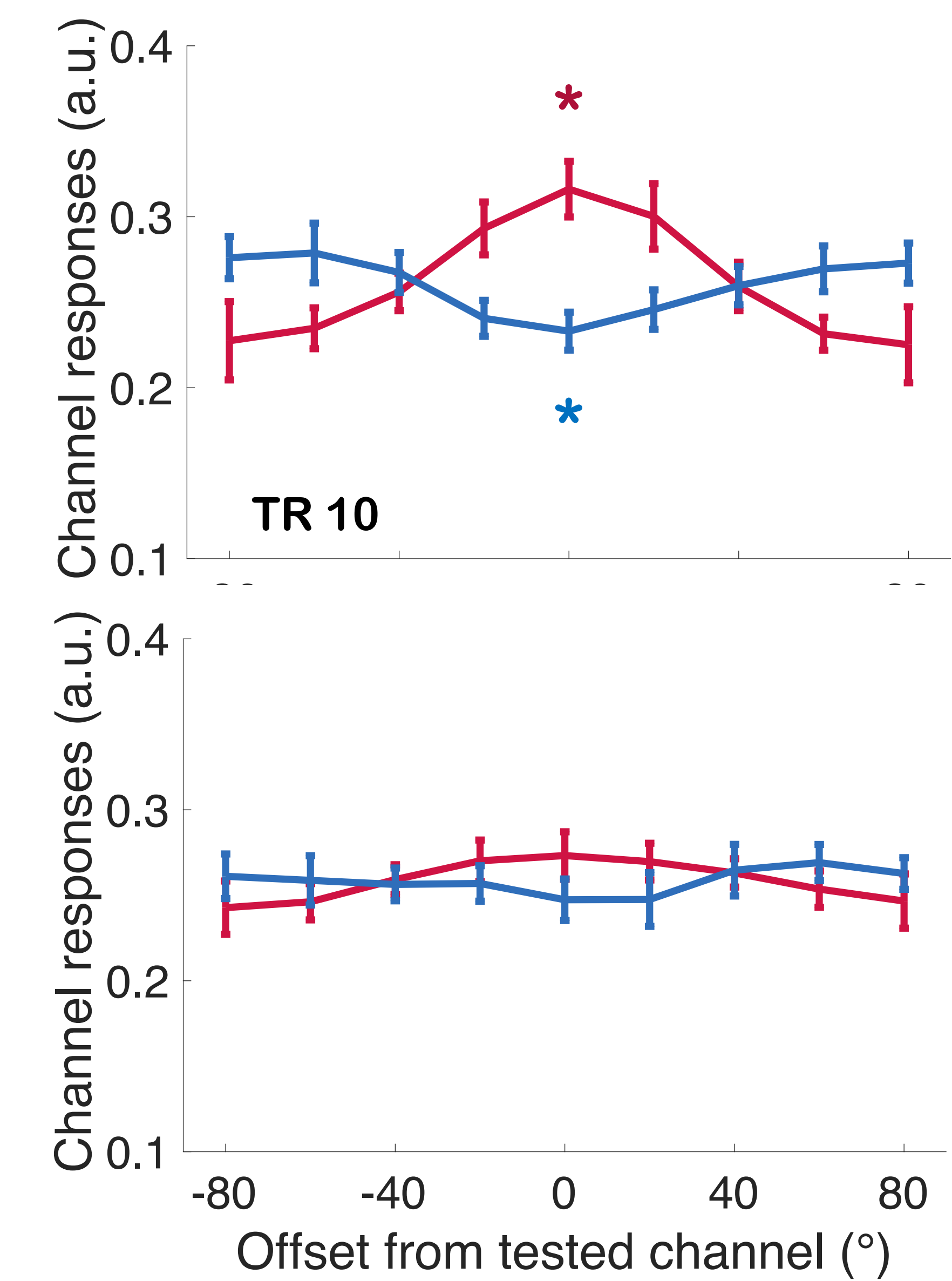
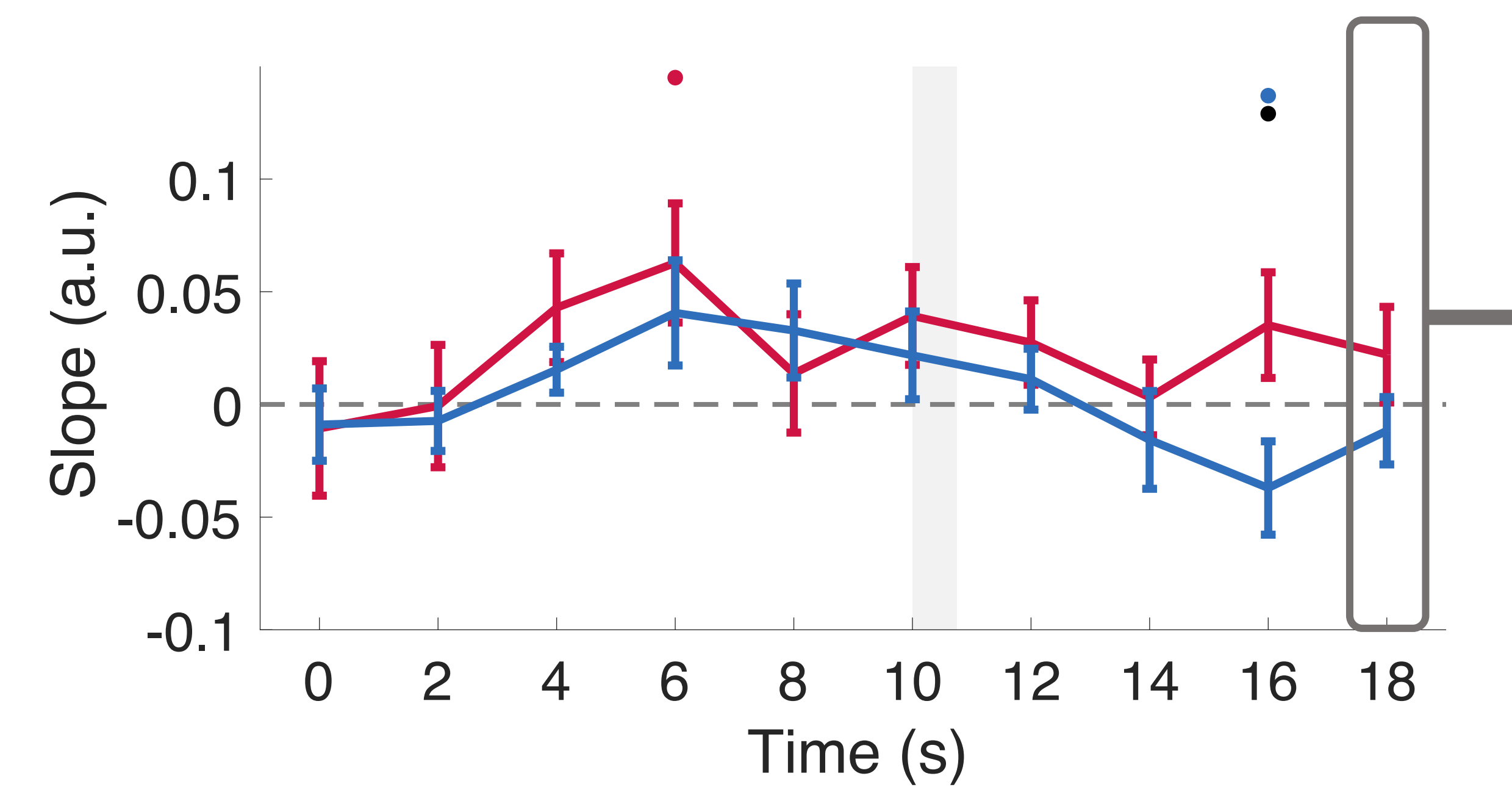
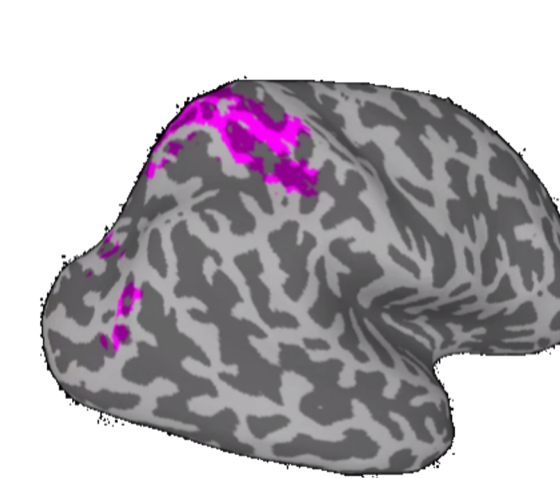
RESULTS

Orientation Reconstruction

Early Visual

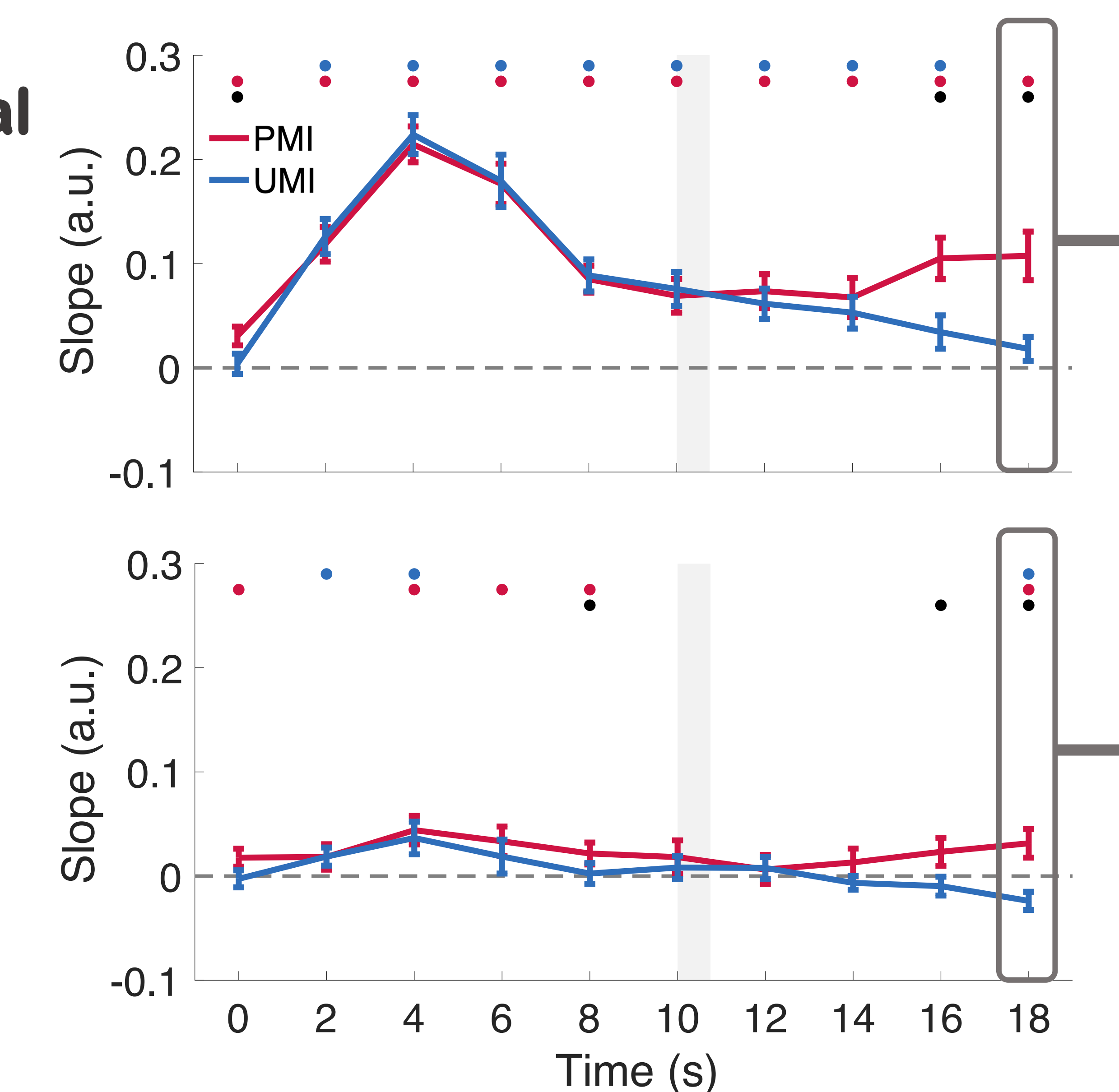
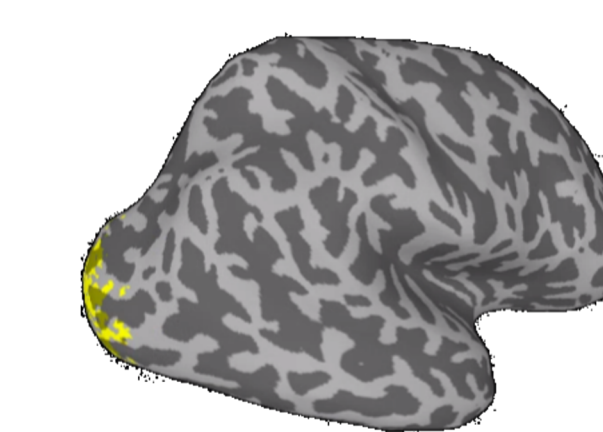


IPS

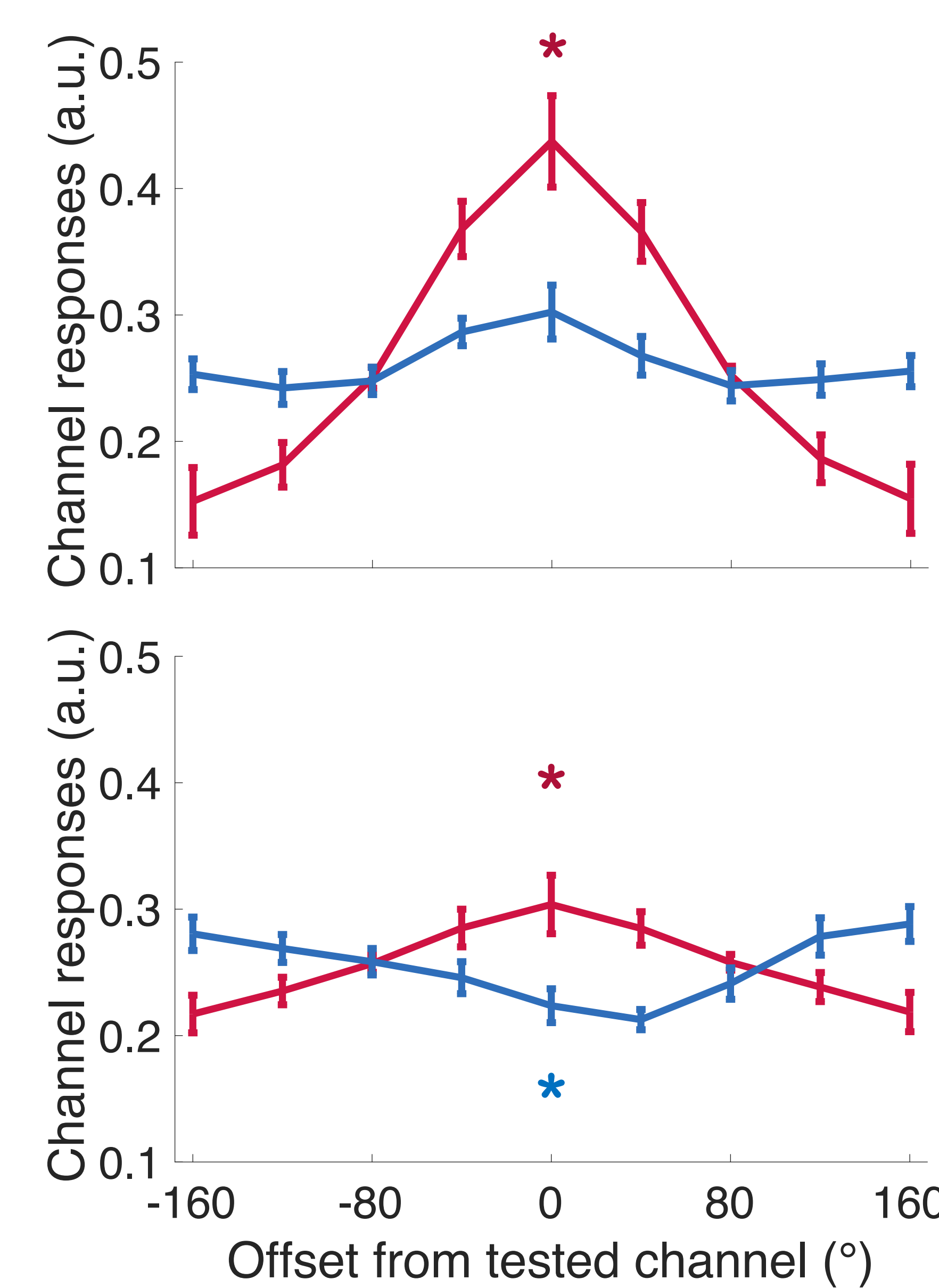
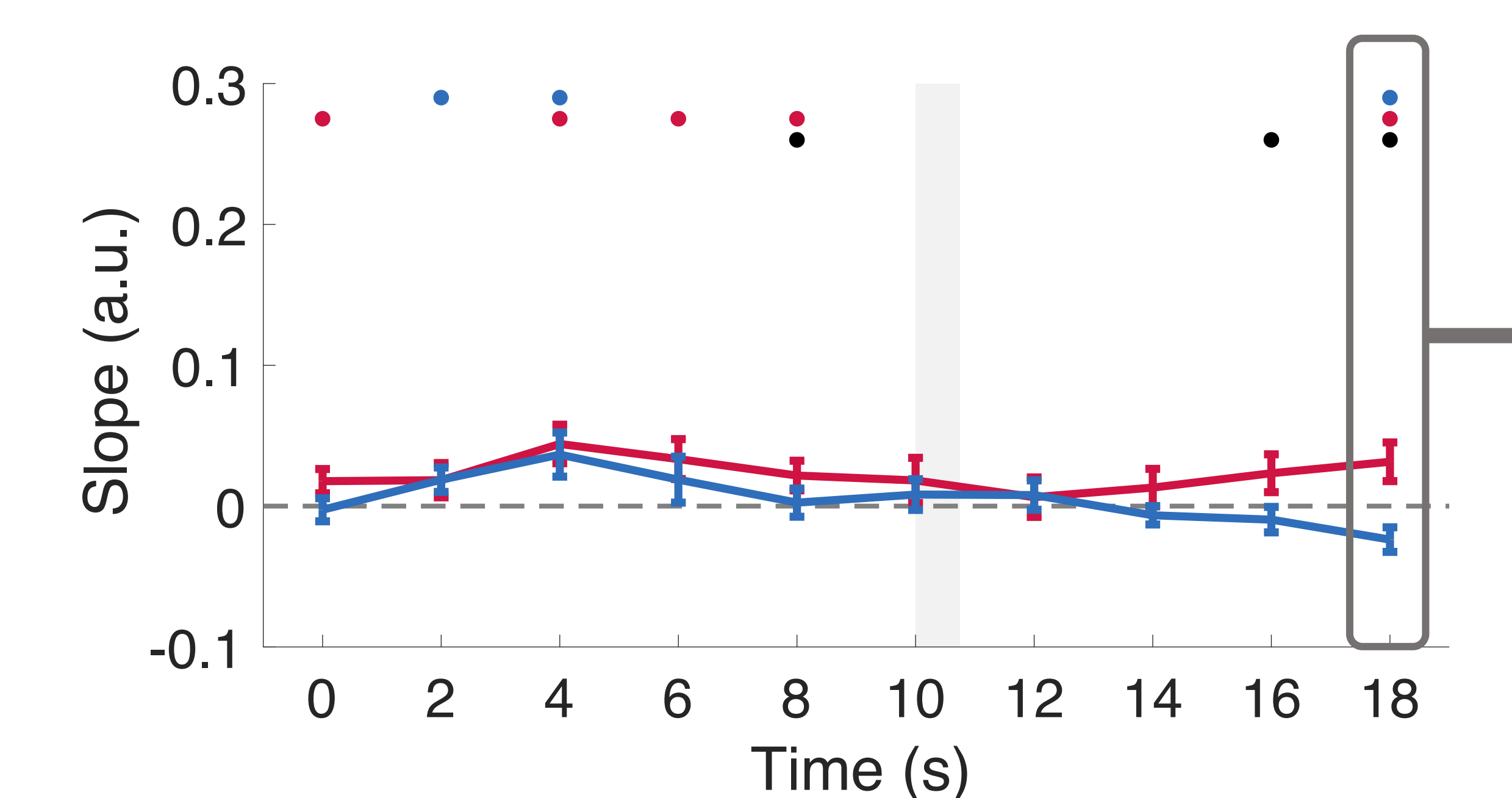
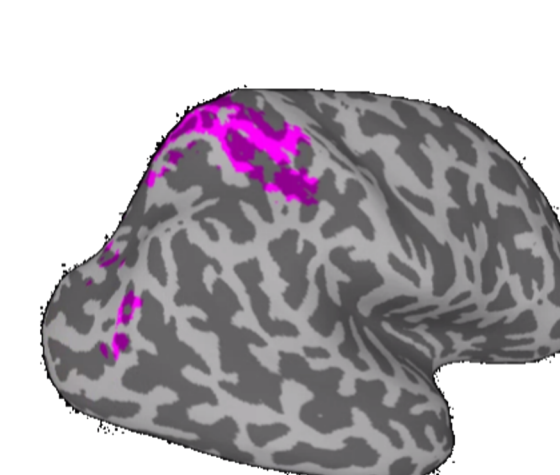


Location Reconstruction

Early Visual



IPS



References

- [1] Barak O, Tsodyks M (2014) Working models of working memory. *Curr Opin Neurobiol* 25:20-24.
- [2] Christophel TB, Jamshchikina P, Yan C, Allefeld C, Haynes JD (2018) Cortical specialization for attended versus unattended working memory. *Nat Neurosci* 21:494-496.
- [3] van Loon AM, Olmos-Solis K, Fahrenfort JJ, Olivers CN (2018) Current and future goals are represented in opposite patterns in object-selective cortex. *eLife* 7: e38677.
- [4] Yu Q, & Postle BR (2018). Different states of priority recruit different neural codes in visual working memory. *BioRxiv*, 334920.

CONCLUSION

A common **remapping** operation for representing UMI, selectively in the brain regions primarily responsible for representing information of that domain.