

# Hippocampal Connectivity with Regions Involved in Processing Internal and External Information during Event Perception

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## Event Segmentation Theory: Event models guide event perception<sup>1</sup>

- Active representations of the current situation (event models) may guide event perception via predictive processing.
- To accurately reflect the current situation, event models need to be updated when the event changes (i.e., at event boundaries).
- Event model updating involves integrating information from the external world with internal knowledge of how events typically unfold.

### Research question

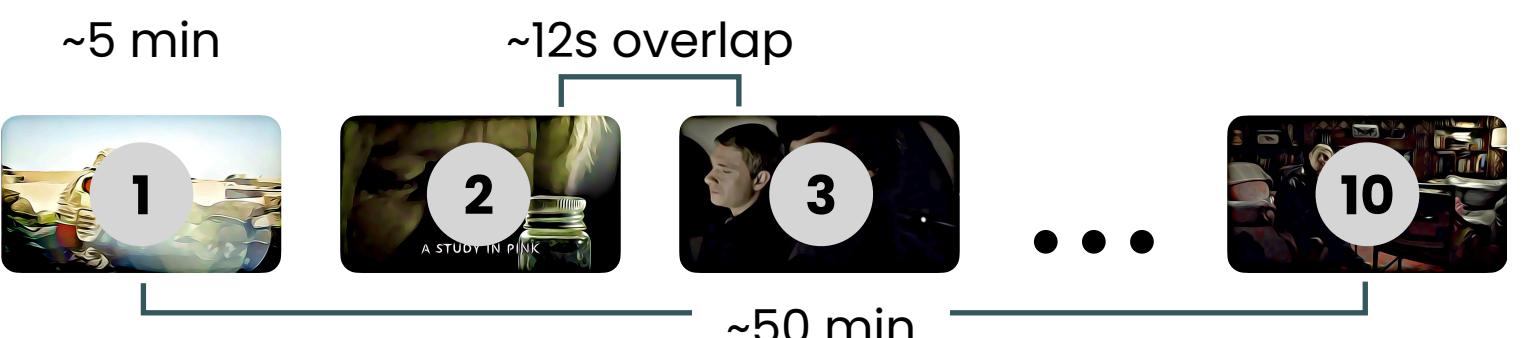
How does connectivity between region associated with event model updating<sup>2</sup> (**hippocampus**) & networks<sup>3</sup> associated with more internal (**default A**) or external (**visual**) information processing change when events change?

### Sherlock imaging dataset<sup>4</sup>

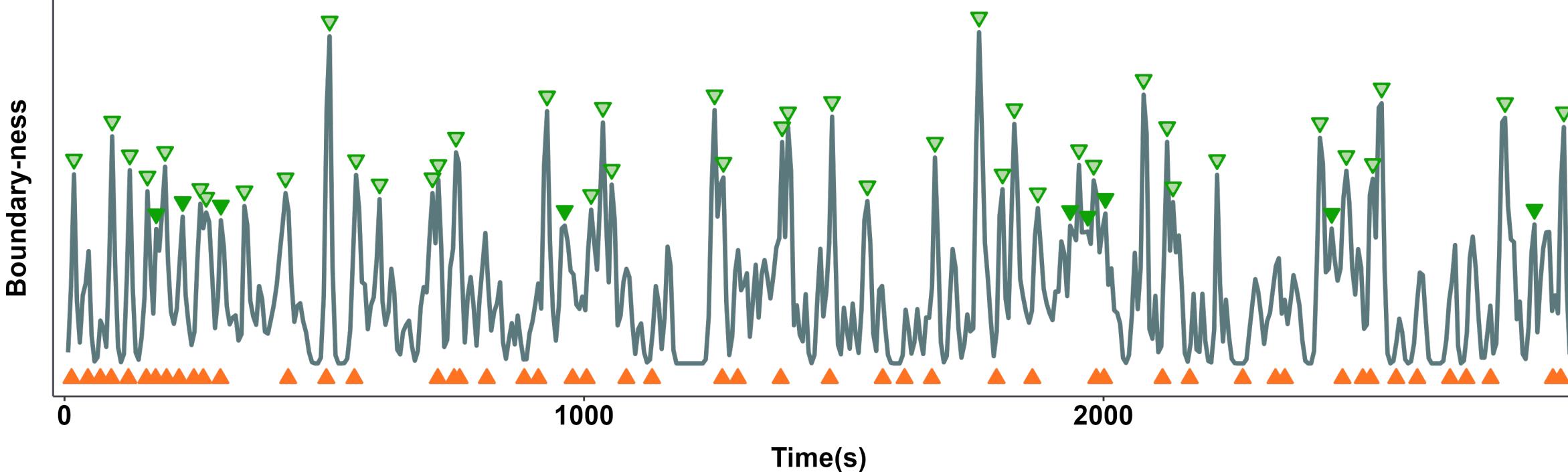
- 16 participants viewed BBC Sherlock ep.1 in scanner.
- Previously coded for scene changes<sup>5</sup>.

### Segmentation task

- 11 participants<sup>6</sup> marked coarse event boundaries.

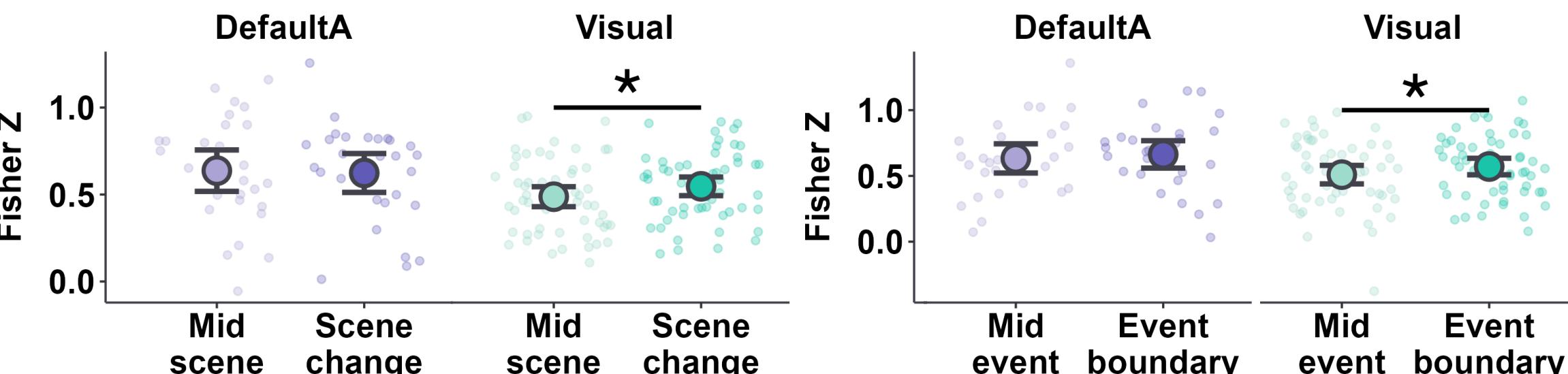


## Scene changes do not always correspond with event boundaries



- ▼ Normative event boundaries<sup>6</sup>: highest n-peaks, n = mean(button presses).
- ▼ Event boundaries: highest m-peaks, m = no. of scene changes.
- ▲ Scene changes.

## Increase in hippocampal connectivity to external but not internal networks

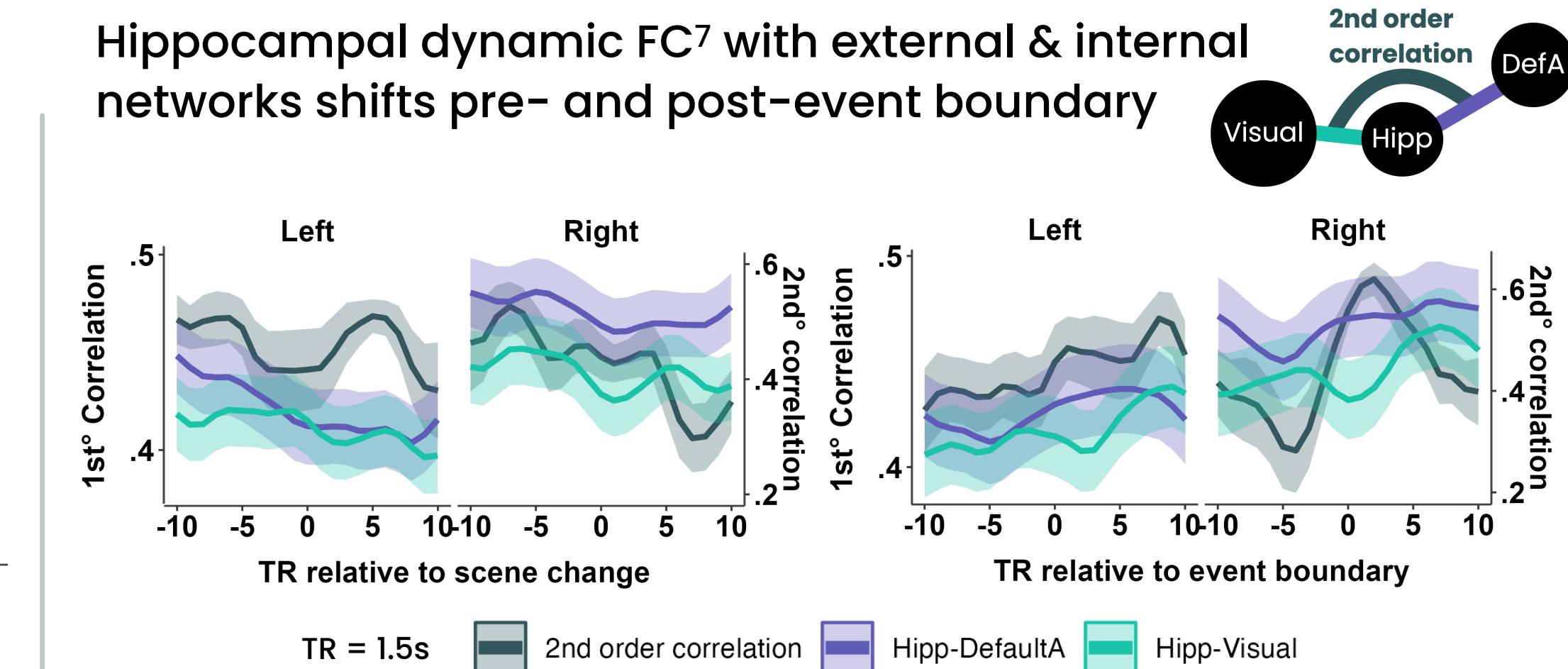


### References

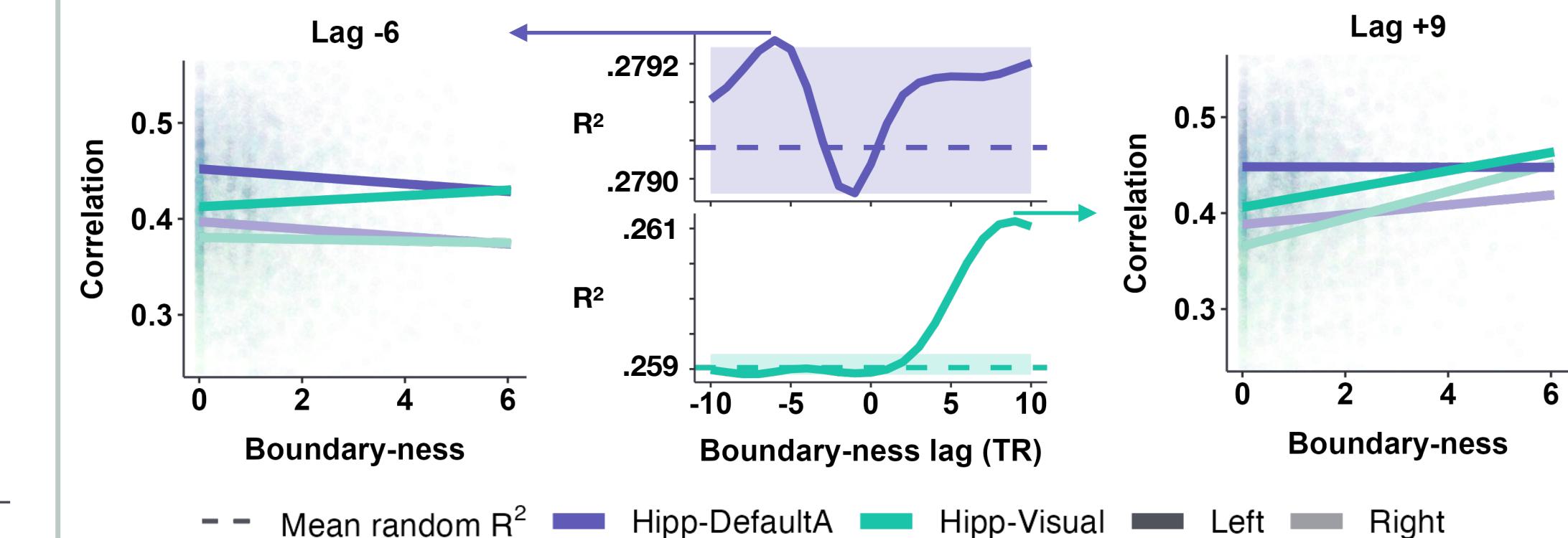
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## Hippocampal dynamic FC<sup>7</sup> with external & internal networks shifts pre- and post-event boundary



## Boundary-ness optimally explains hippocampal dynamic FC with external and internal networks at distinct timepoints



### Conclusion

The online processing of event boundaries involves **dynamic shifts** between **segregation and integration** of **internal and external** sources of information by the hippocampus. Connectivity changes around event boundaries are not identical to those around scene changes.