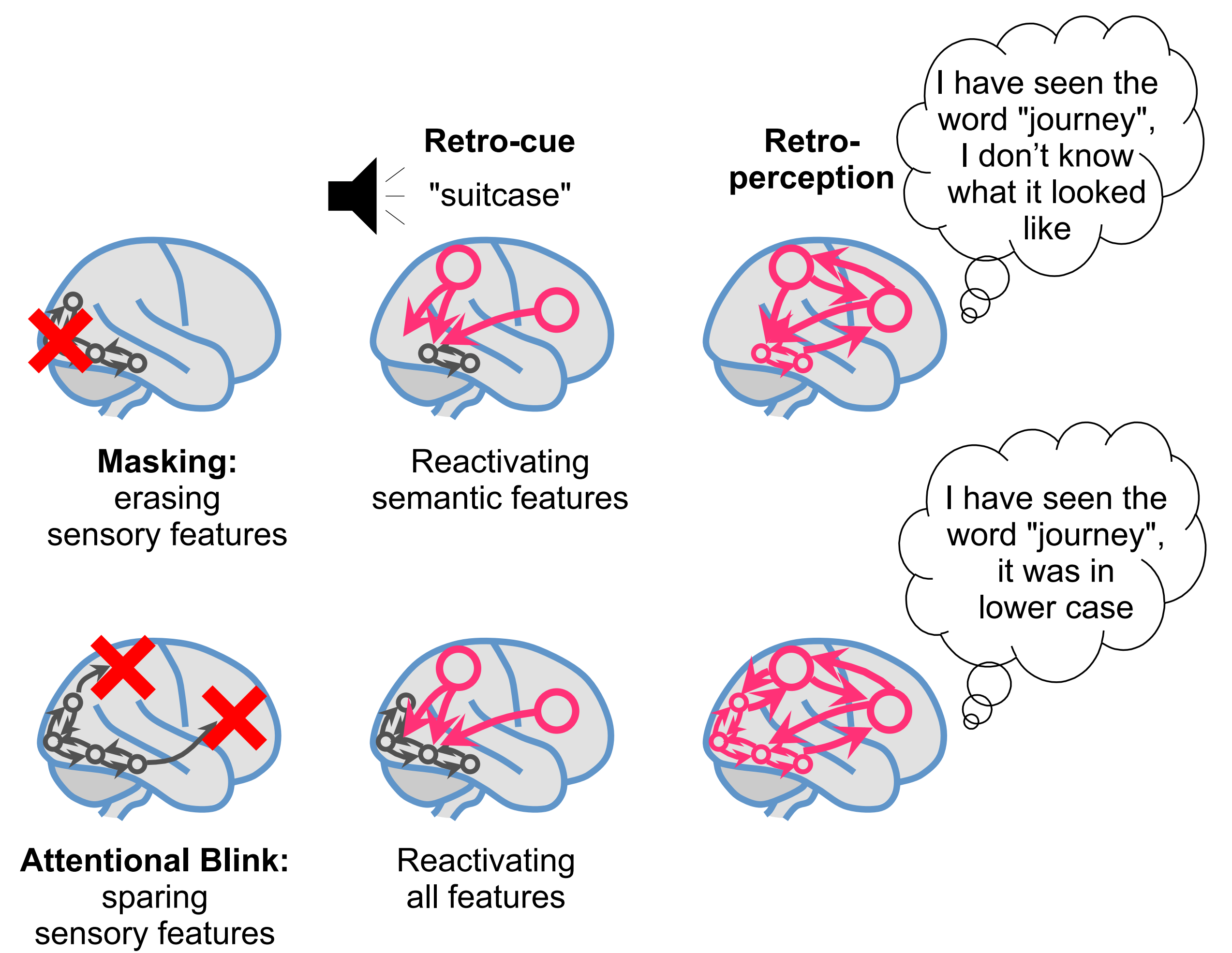
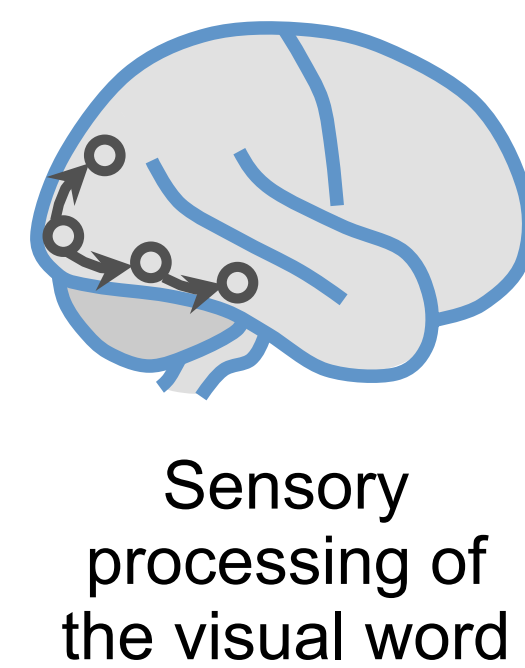
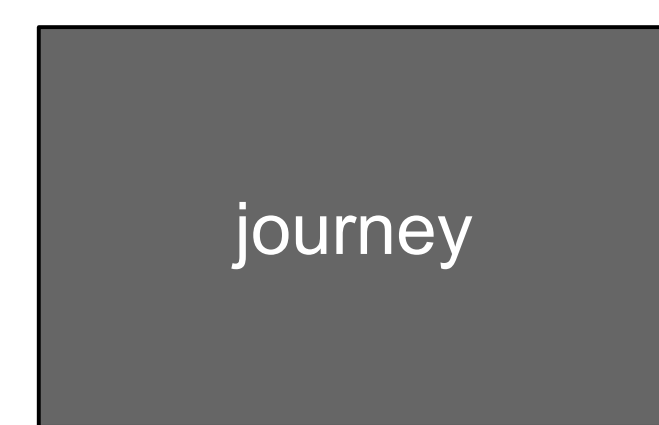


# Decoupling conscious access from sensory processing with the attentional blink and retrospective cues

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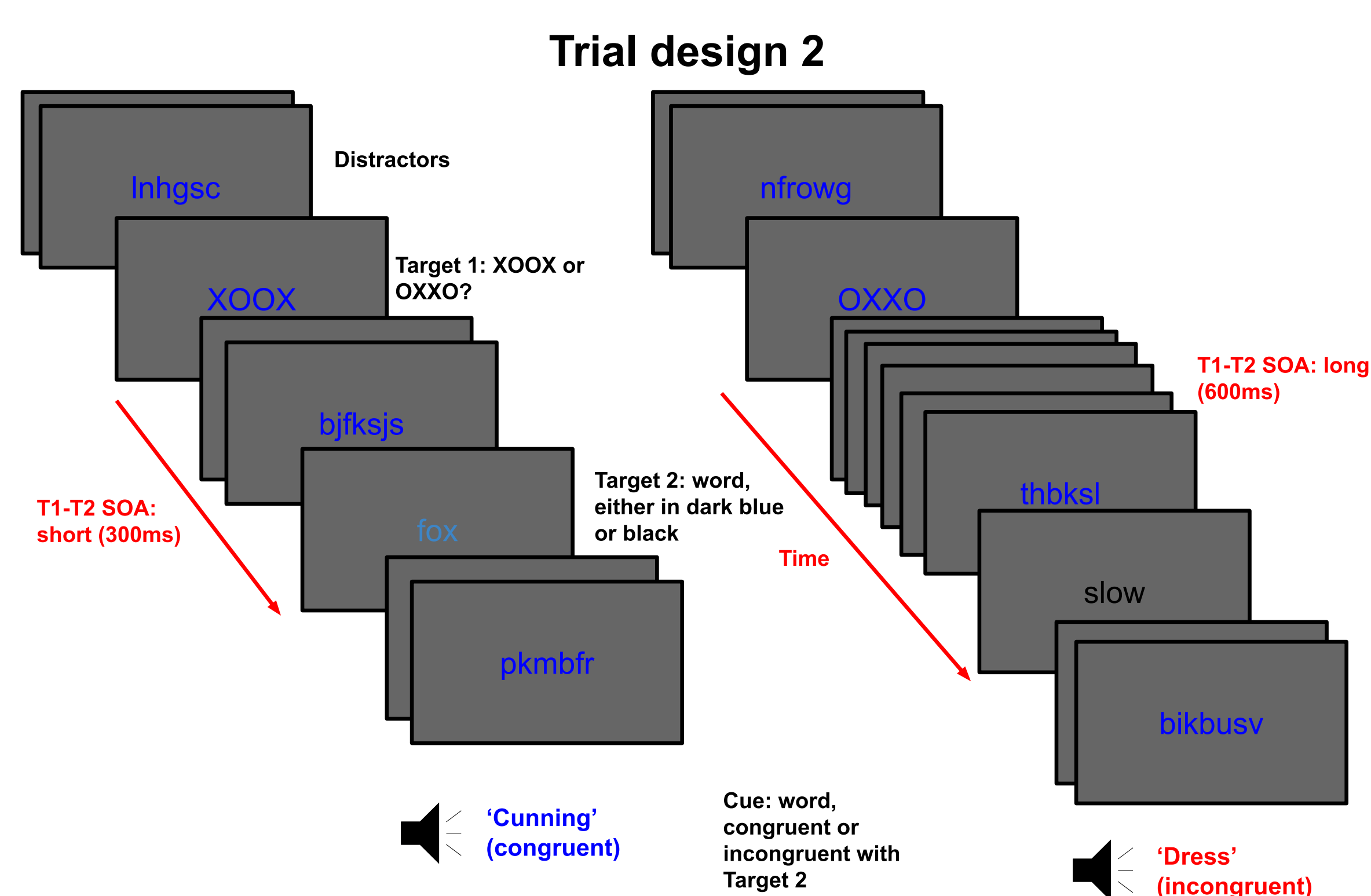
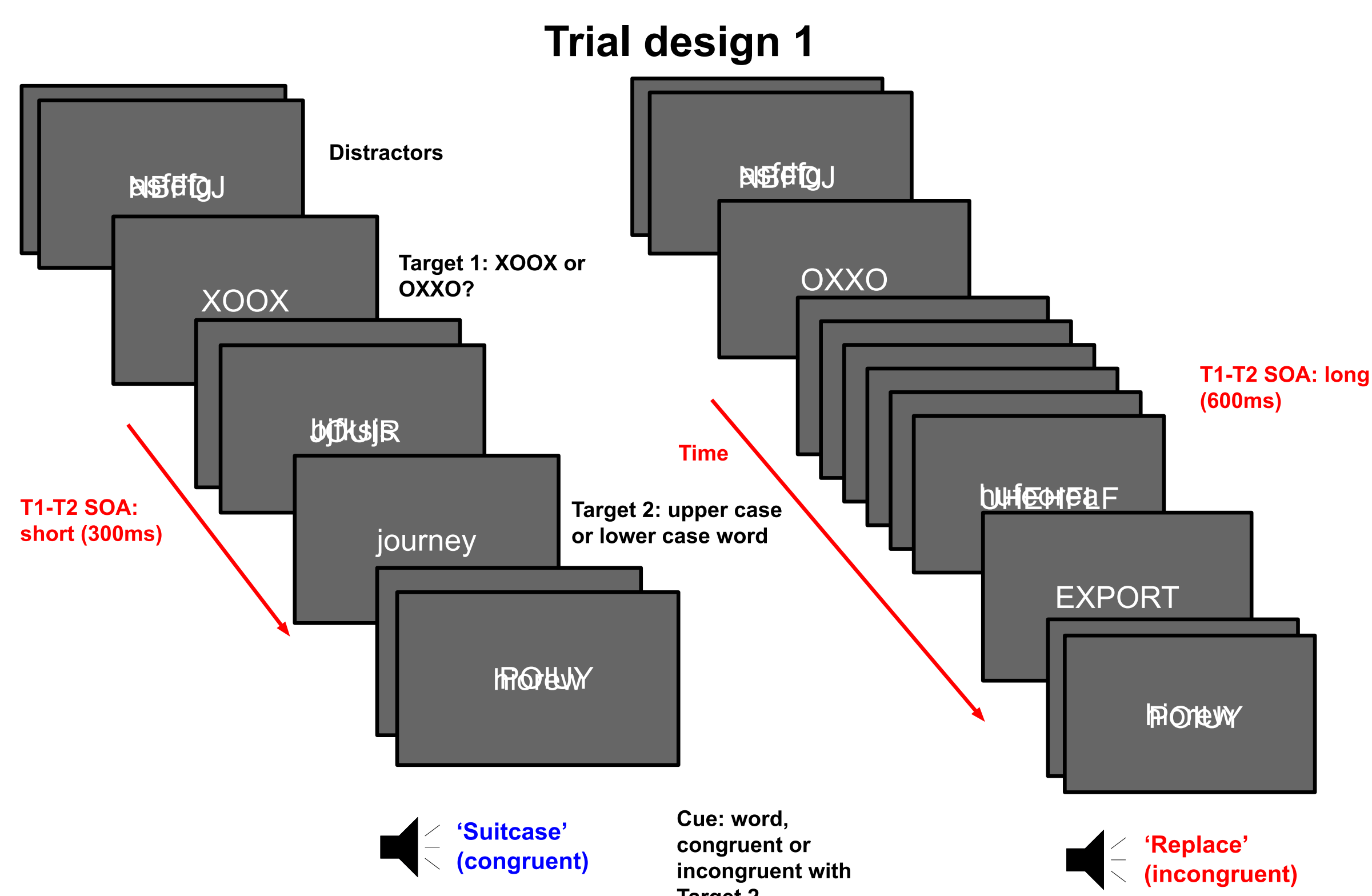
## Introduction

- Previous studies have revealed a "retro-perception" phenomenon: cues presented several hundred milliseconds after target offset can drastically improve target detection (e.g., Sergent et al., 2013).
- This phenomenon suggests that conscious access mechanisms can be decoupled from sensory processing, which would allow us to cleanly compare the two (Sergent, 2018).
- Recently, Rimsky-Robert et al. (2024) studied the limits of retro-perception. When visually masked words were followed by a semantically related auditory word (the retro-cue), participants were better at reporting the masked word's identity (high-level feature), but unable to report its visual (low-level) features (e.g., upper vs. lower case).
- The attentional blink blocks consciousness at a late stage, leaving sensory processing intact (e.g., Vogel et al., 1998) In this pilot study, we are investigating whether after the attentional blink both high and low-level features can be perceived retrospectively.



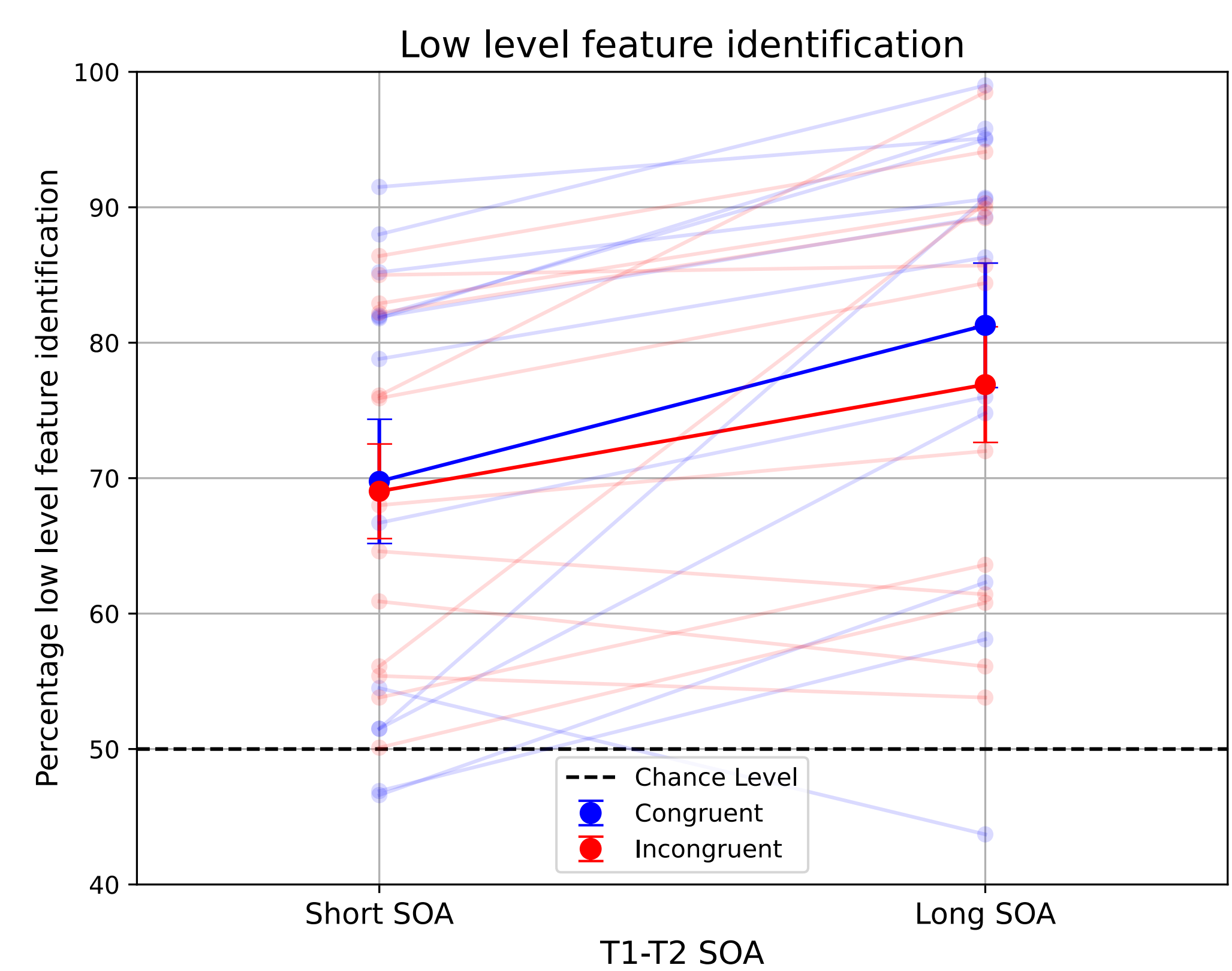
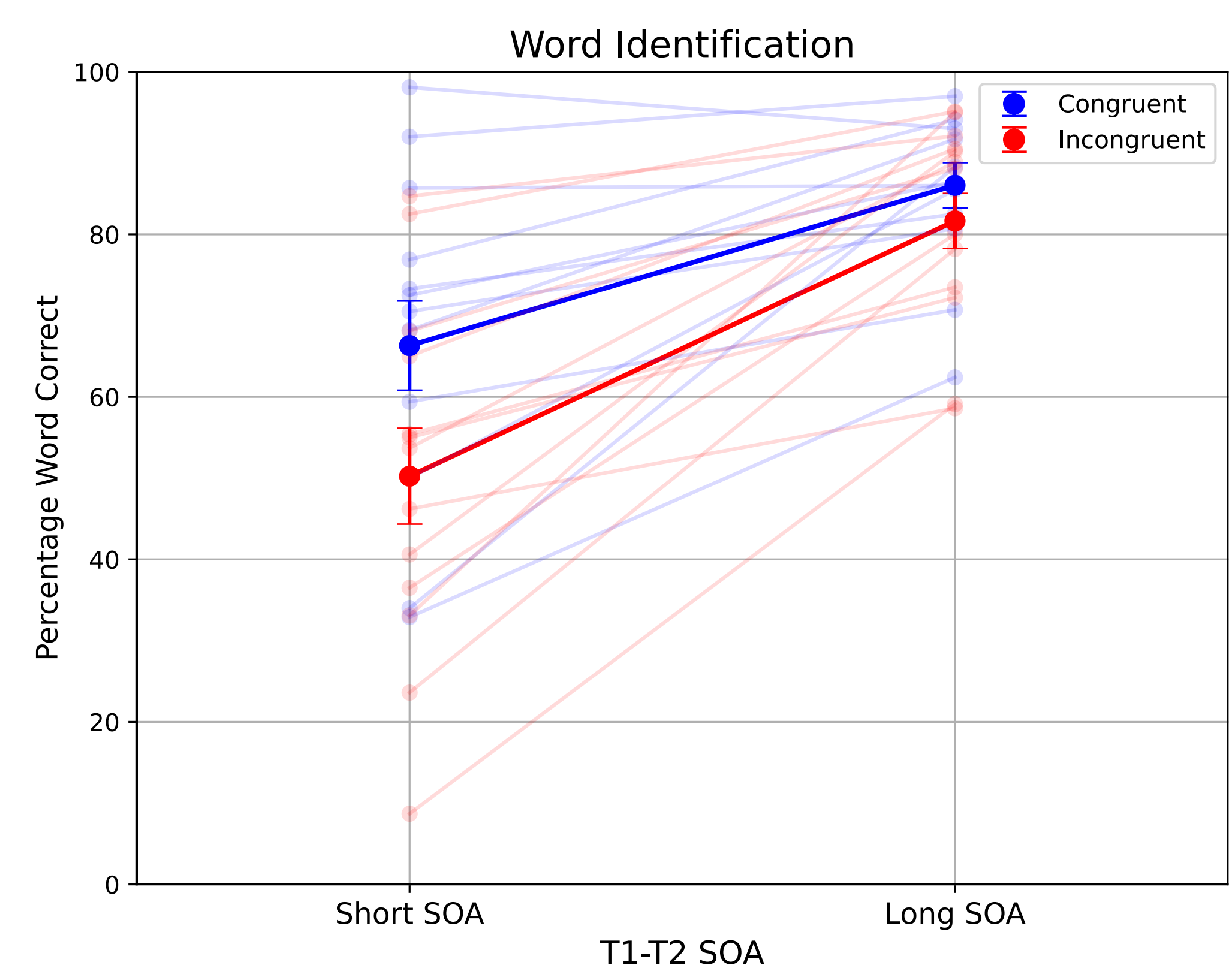
## Methods

- N = 14
- Short T1-T2 SOAs cause the attentional blink
- Retro-perception: performance is greater after a congruent cue than an incongruent cue
- We are piloting multiple trial designs that differ in their low-level feature. Here, we show upper vs. lower case and dark vs. light.



## Pilot results

- The datasets from the two trial designs did not differ from each other and were therefore combined
- After the attentional blink, congruent retro-cues improved word identification, but not low-level feature discrimination



## Discussion

- We expected to observe retro-perception of low-level visual features after the attentional blink. However, as after masking, the retro-cues only improved word identification.
- The visual similarity of the distractors to T2 might have interfered with low-level feature reactivation. Moreover, the cue might be too specific to word identification.
- However, we did observe retro-perception, so we will adapt this design to decouple and compare conscious access and sensory processing using magnetoencephalography.

## References

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