



Dynamic Representations in Visual Working Memory

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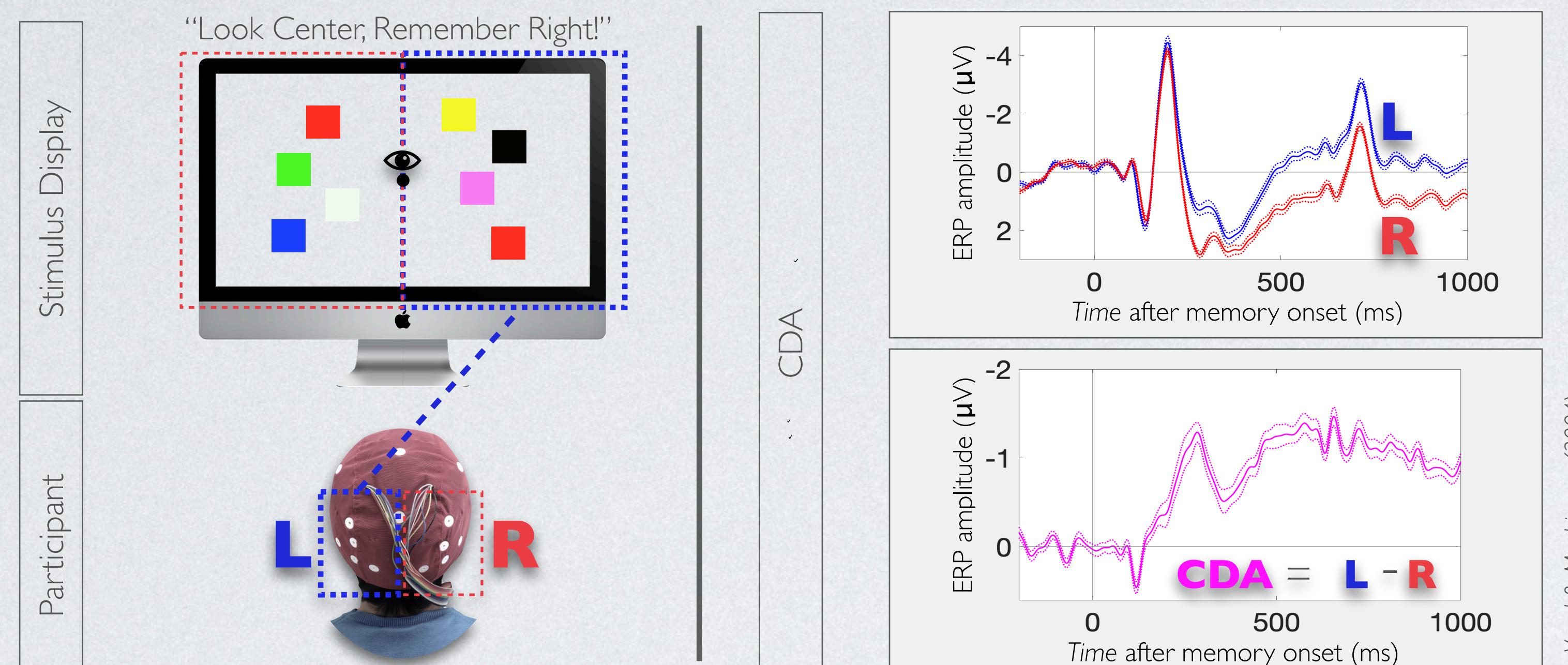


How can we measure a mental response to dynamic stimuli?

► **VWM** is a theoretical mental workspace that can represent limited amount of visual information for a task-related behaviour.

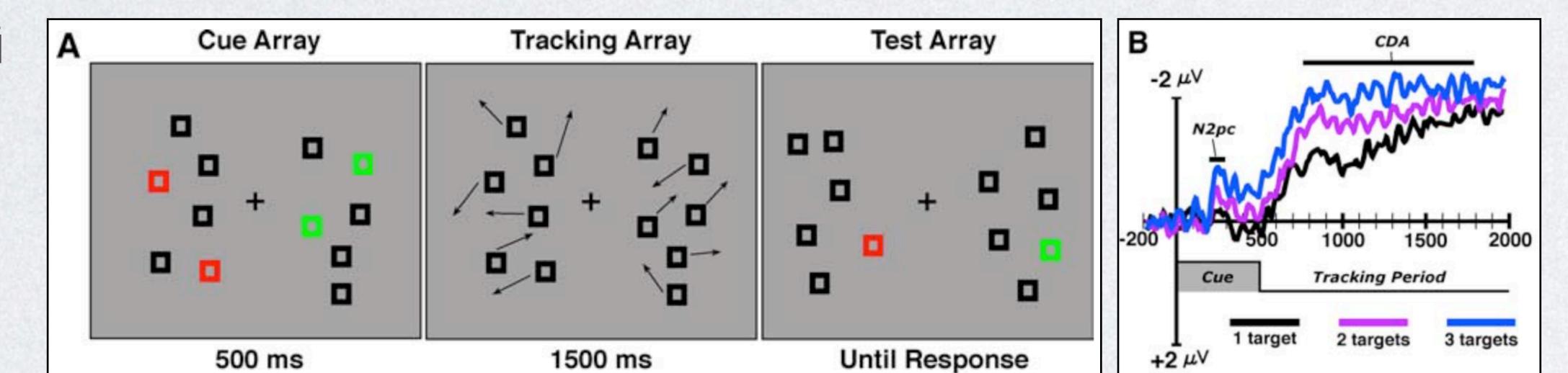
► **Contralateral Delay Activity (CDA)** is an ERP component whose amplitude tracks the number of discrete items currently held in VWM.

► More items = higher CDA amplitude.

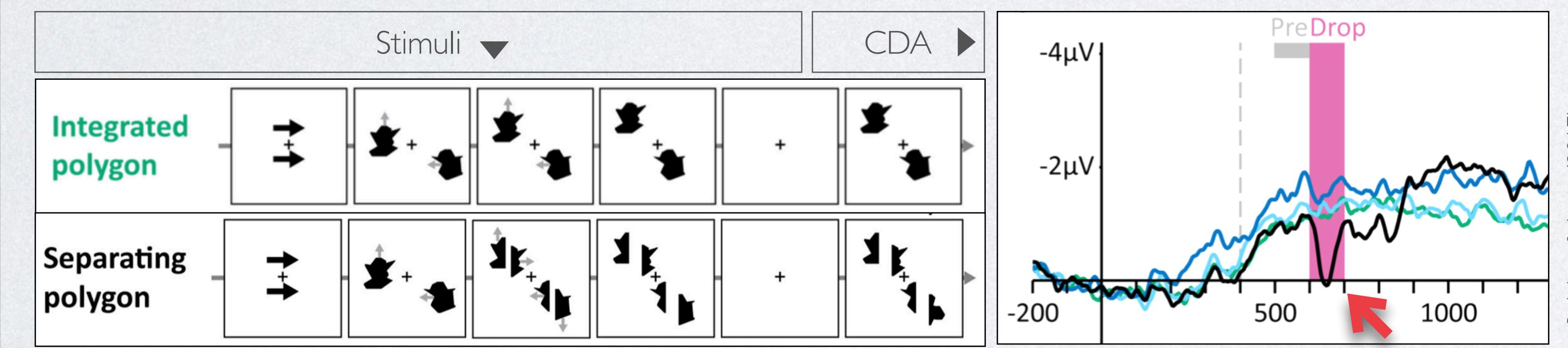


► **Translocating stimuli** are accordingly reflected in CDA.

► More moving items = higher CDA amplitude.



► **Separating stimuli** result in a '**VWM Reset**'.



► **VWM Reset** is the temporary nullifying of a current VWM representation when there is a **lost correspondence** between that representation and its corresponding stimulus.



If **VWM Reset** is due to such lost correspondence, then we should see **VWM Reset** to a discontinuous change, but not continuous change in **identity** of the stimulus.

► Stimulus **identity** is a characterizing feature of a stimulus:

- Shape (1)
- Color (2)

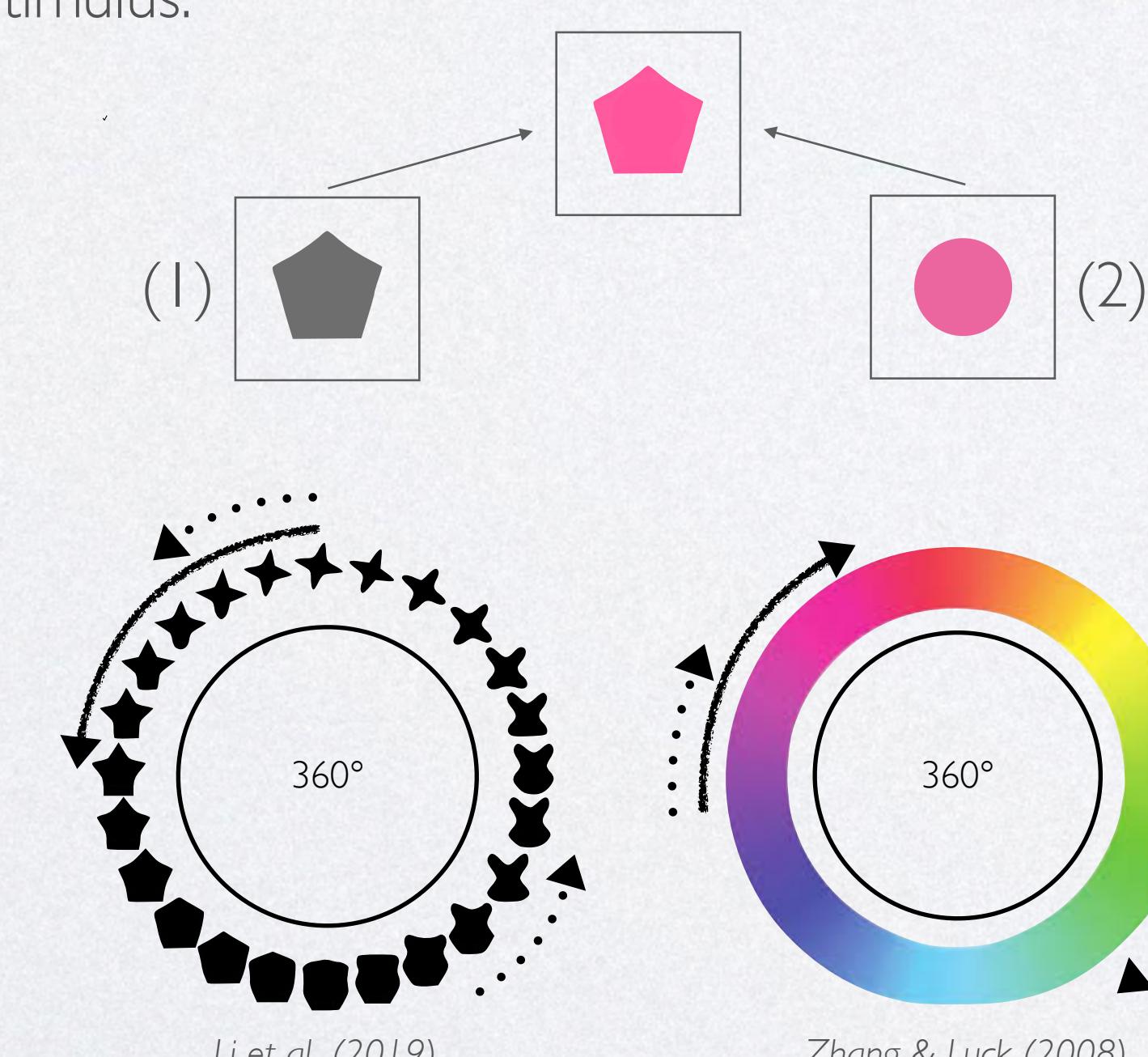
► Types of dynamic change in stimulus identity:

Continuous Change: —————

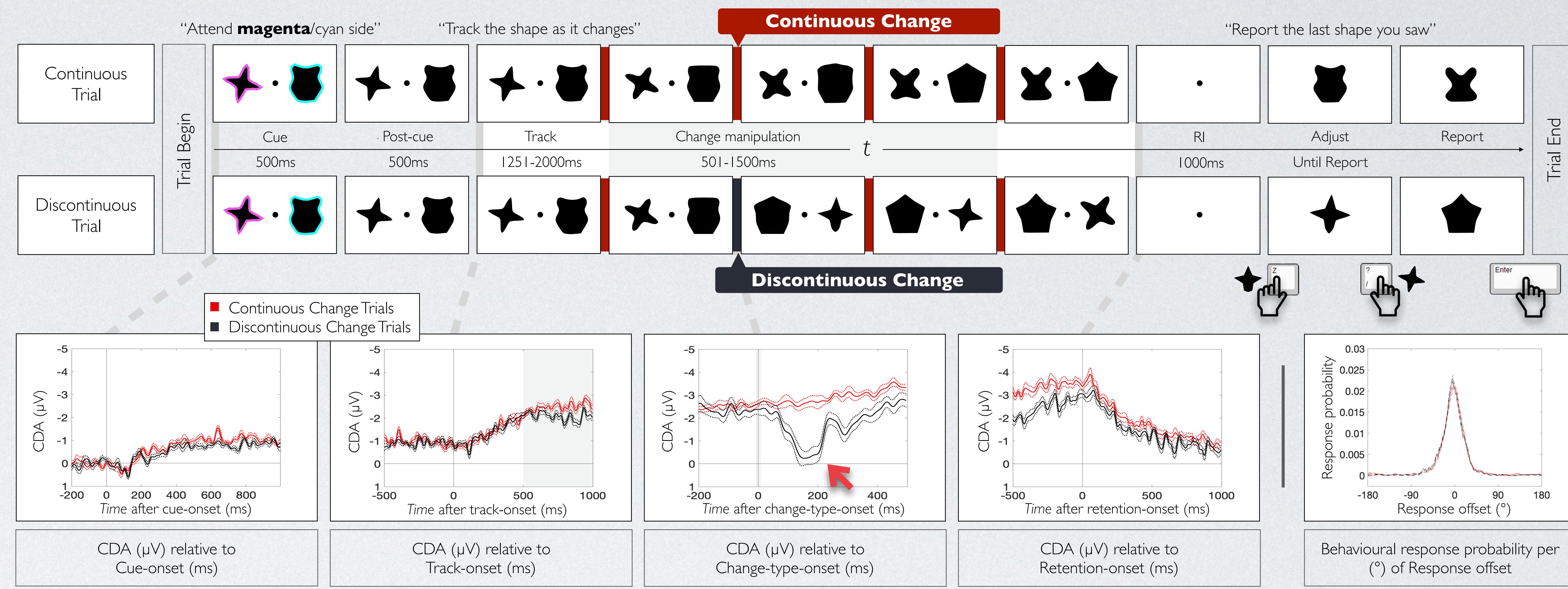
► A sequential presentation of stimuli from circular shape or colour space.

Discontinuous Change:

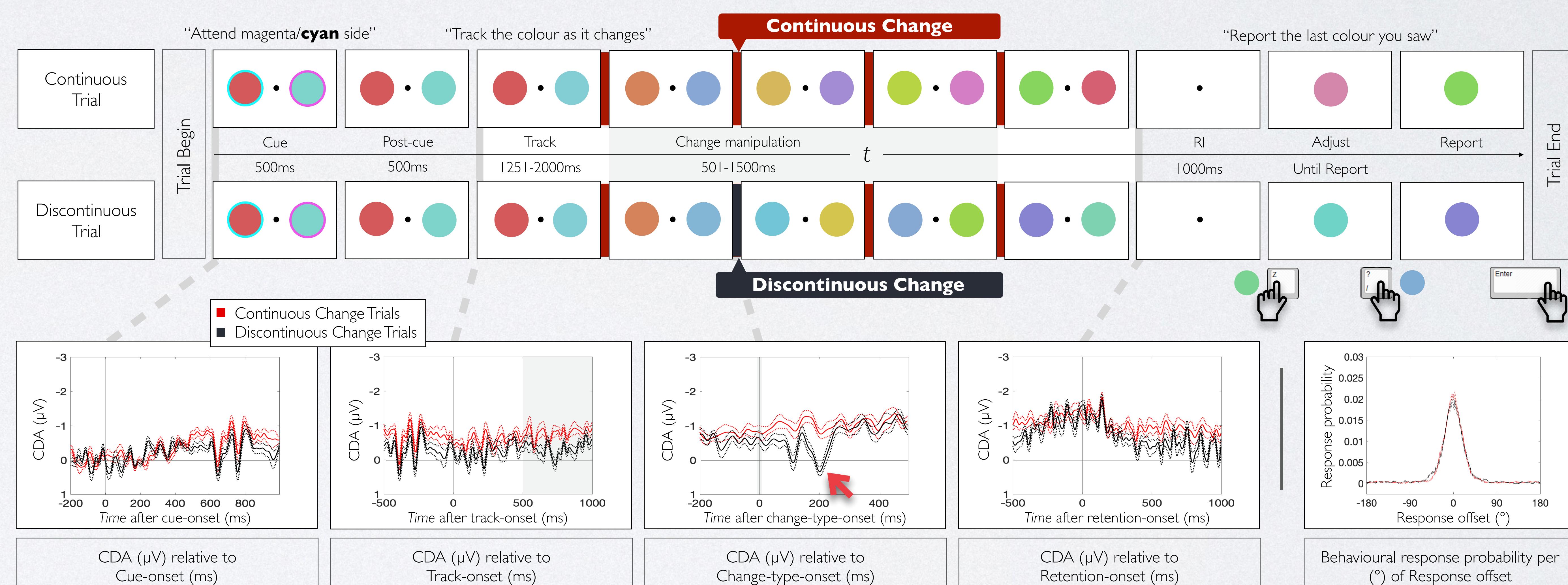
► A non-sequential presentation of stimuli from circular shape or colour space.



Does a Discontinuous Change in Shape cause VWM to Reset?

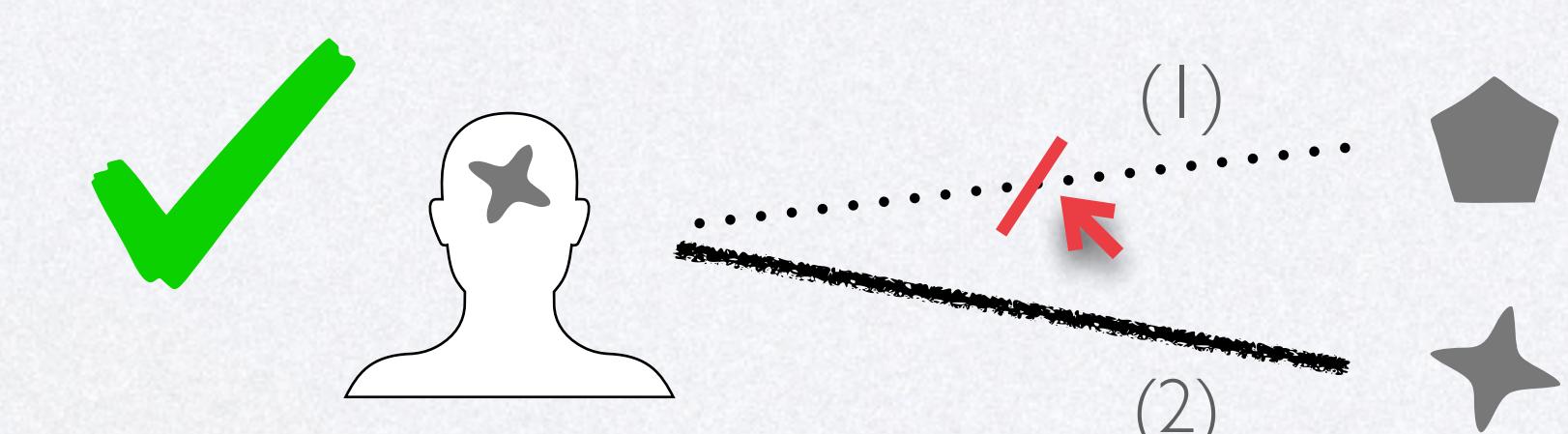


Does a Discontinuous Change in Colour cause VWM to Reset?



Discussion

- (1) The lost correspondence elicits **VWM Reset**.
- (2) When the stimulus changes its identity continuously, **VWM Updates** the corresponding representation without discarding it.



Future Directions

- How might **expectation** of the future state of a stimulus influence its corresponding VWM representation?
- Are dynamic VWM representations dependent on the **task-relevance** of a **feature** of a stimulus?



References

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