# Event Perception Based On Working Memory Demand

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## Event Segmentation Theory

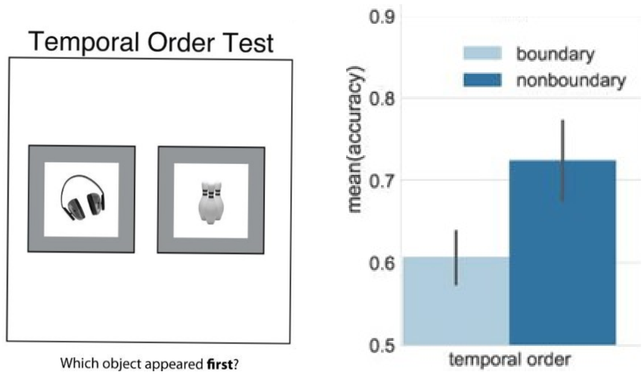
People tend to perceive continuous experiences as a discrete sequence of events. According to the event segmentation theory, an event boundary is perceived when an individual makes an error in their prediction about what will happen next (Zacks & Tversky, 2001).

Recent studies have suggested that event boundaries can be perceived during predictable switches such as by walking through doors or changes in background color after a constant amount of trials (Radvansky, Krawietz, & Tamplin, 2011; Heusser et al., 2018).

In this study, we aim to investigate **whether working memory load manipulation can trigger event boundary perception in the absence of a prediction error.**

## Memory & Event Boundaries

We adapted the task from Heusser et al. (2018) to establish and identify event boundaries:



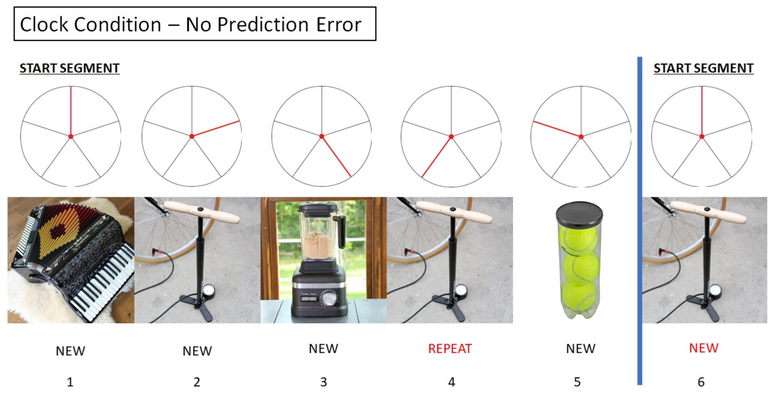

Temporal order memory of items that were perceived from within a single event was significantly more accurate than that of two items that were from two different event segments.

We will use a temporal order task to identify that an event boundary is created between item pairs for which participants show worse temporal order memory.

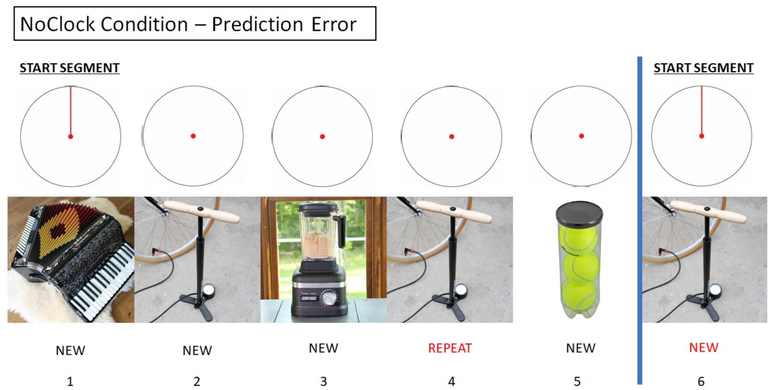
## Method

**Phase 1** - Image presentation

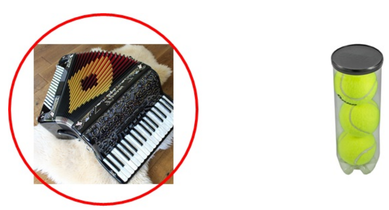
Condition 1: clock image has ticks to indicate when segment will end




Condition 2: clock image does not have ticks




**Phase 2** - Temporal order task



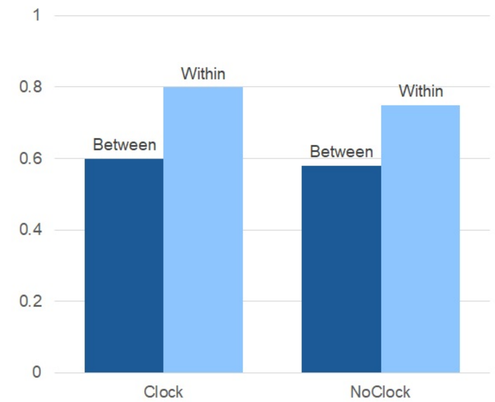

50% of image pairs from same segment, 50% from different segment

All images in image pairs are not repeated. Each image in pairs are 4 items apart

## Hypothesis

An event boundary will be perceived when working memory is prompted to be reset, even without prediction error.

**Participants will perform worse in temporal order task for item pairs from different segments compared to items from same segment for both conditions of image presentation.**




This could provide evidence that event boundaries are created when the current model of the world is prompted to be updated by resetting the working memory load.

## Next Steps

Task was completely created in PsychoPy3 and we are now moving the local experiment file online on Pavlovia to run trials.
We are planning to recruit online subjects over the next 3 to 4 months.

## References

1. Heusser A. C., Ezzyat Y., Shiff H., & Davichi L. (2018) Perceptual Boundaries Create Mnemonic Trade-Offs Between Local Boundary Processing and Across-Trial Associative Binding. Journal of Experimental Psychology, 4(7), 1075-1090.
2. Radvansky G. A., Krawietz S. A., & Tamplin A. K. (2011) Walking Through Doorways Causes Forgetting: Further Explorations. The Quarterly Journal of Experimental Psychology 64(8), 1632-1645.
3. Zacks J. M., & Tversky B. (2001) Event Structure in Perception and Conception. Psychological Bulletin, 127, 3-21.