

# Contextual stability, not prediction errors, underlies event segmentation

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## Background

We demarcate continuous experience into distinct memory units, called event segmentation

(Ezzyat & Davachi, 2011; Güler et al., 2023; Zacks, 2020; Zacks & Swallow, 2007).

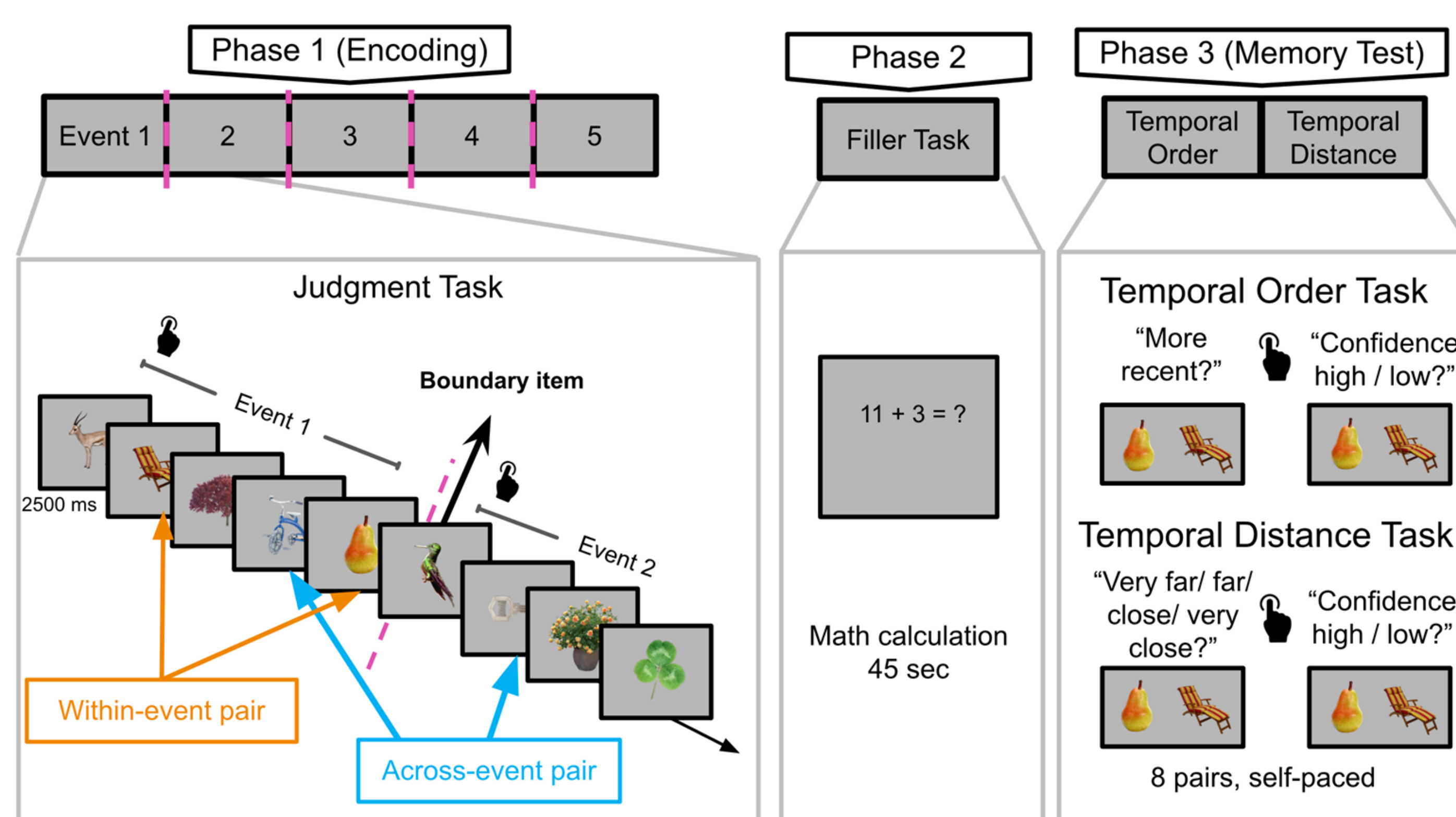
There are two different perspectives on how event segmentation occurs; contextual stability (DuBrow & Davachi, 2013) vs. prediction errors (Zacks et al., 2011)

**Is prediction errors or contextual stability the main driving factor for the occurrence of event segmentation?**

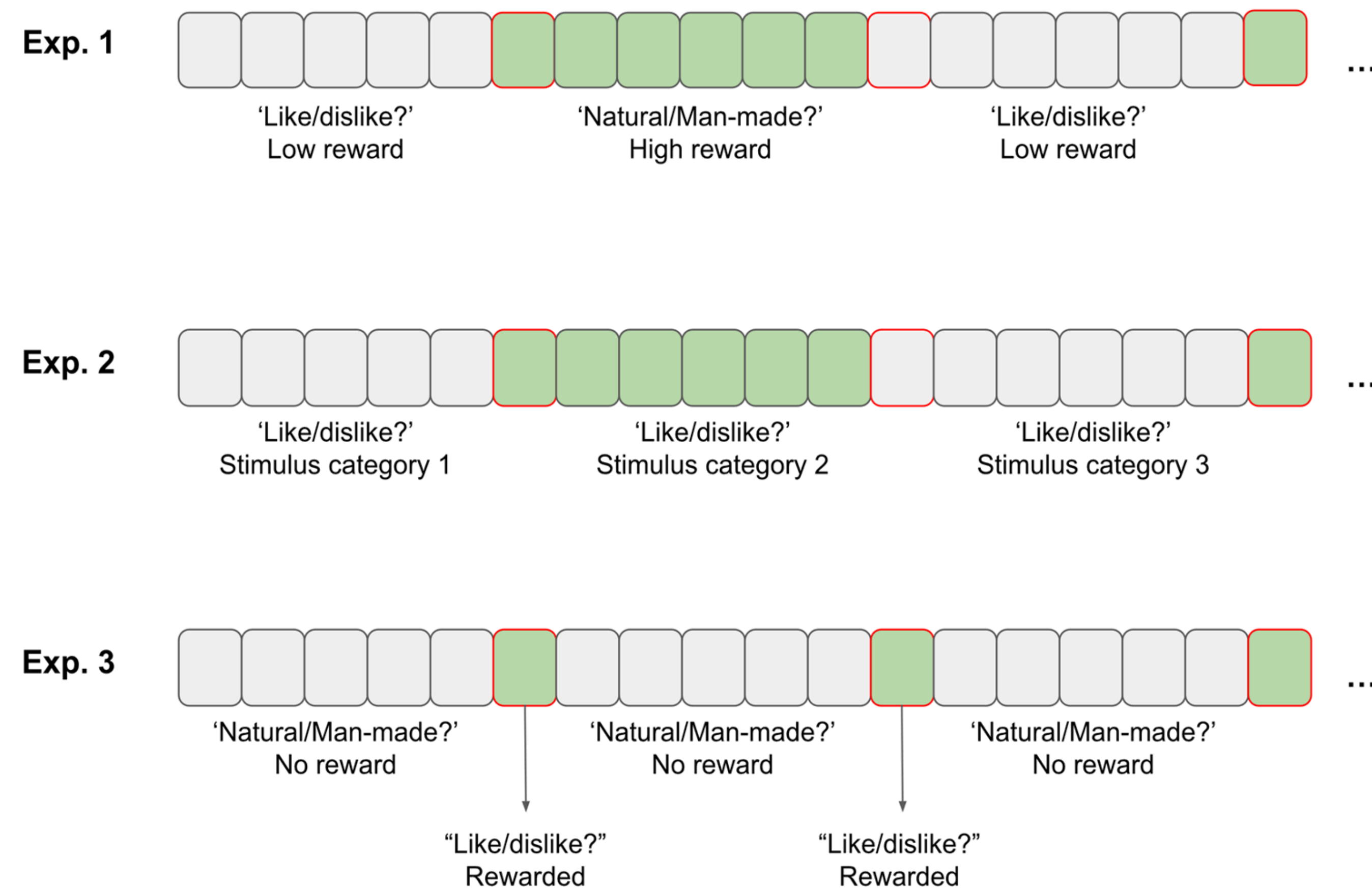
We hypothesized that contextual stability, as opposed to prediction errors, is the factor that generates event segmentation.

## Methods

The general flow of the experiments



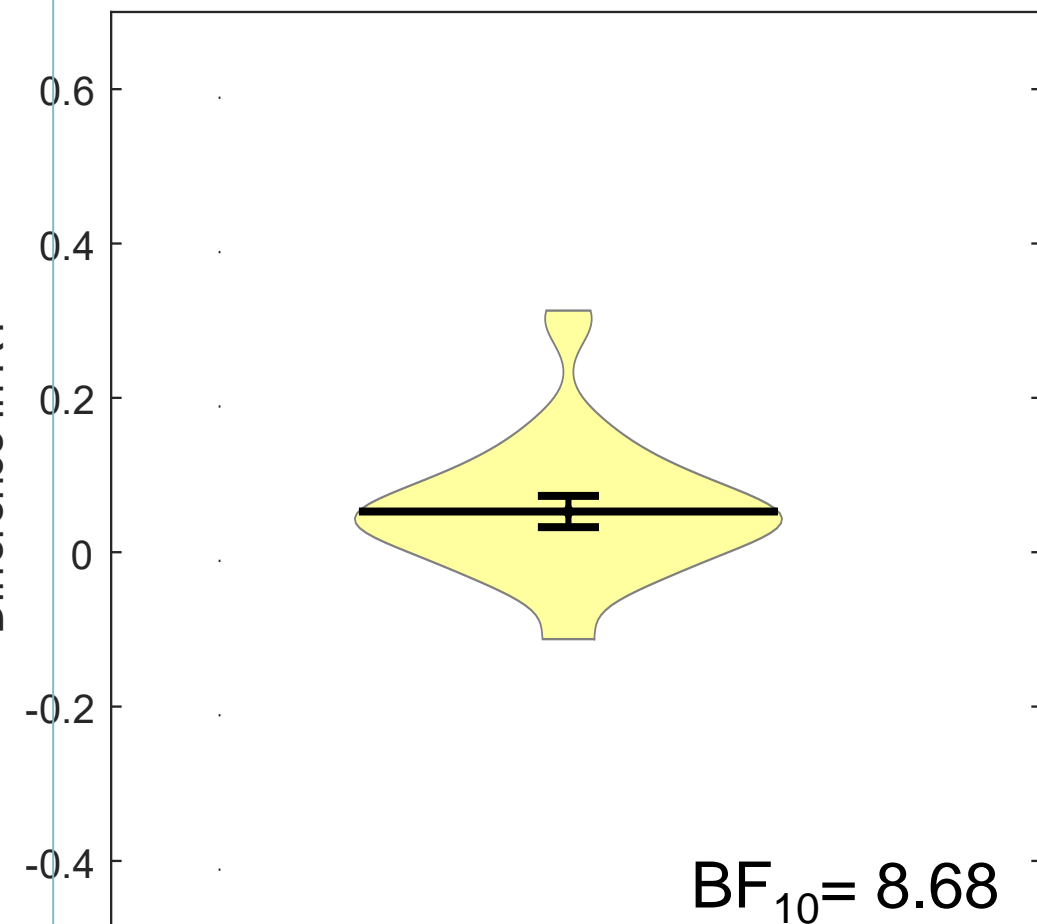
Judgment Task design for the experiments



## Results – Prediction error

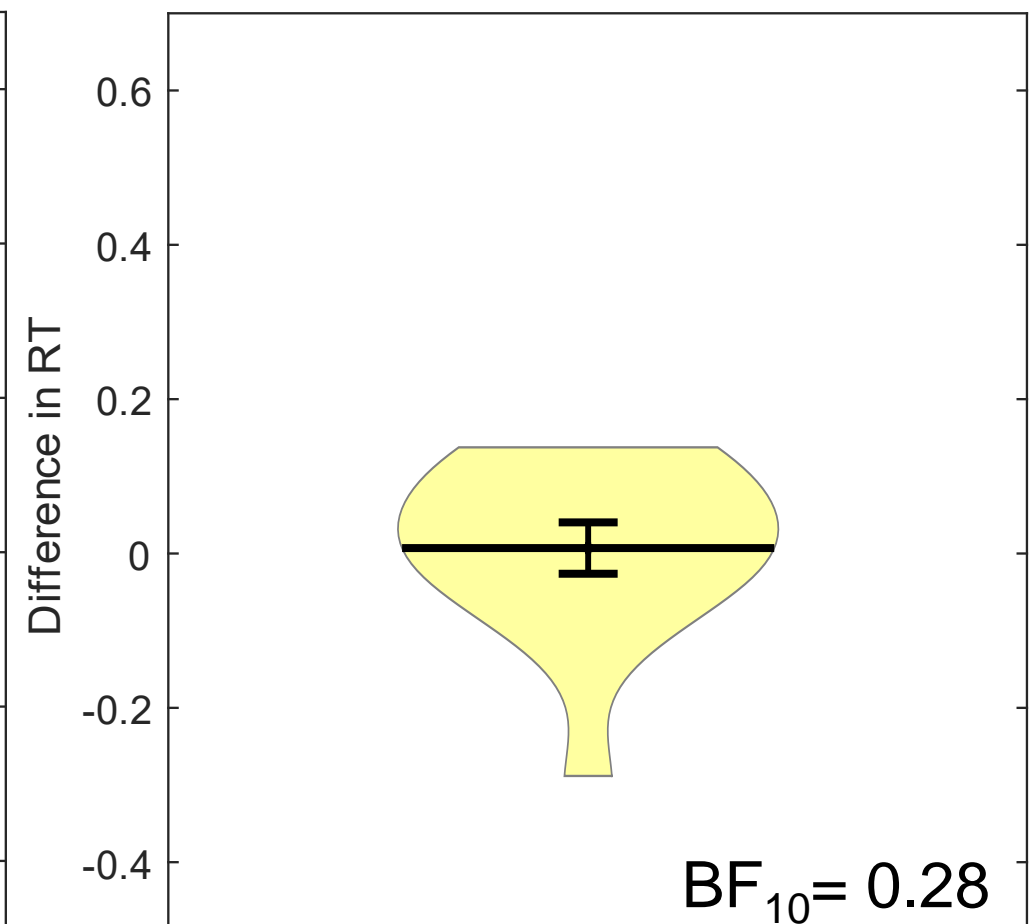
Experiment 1

Prediction error



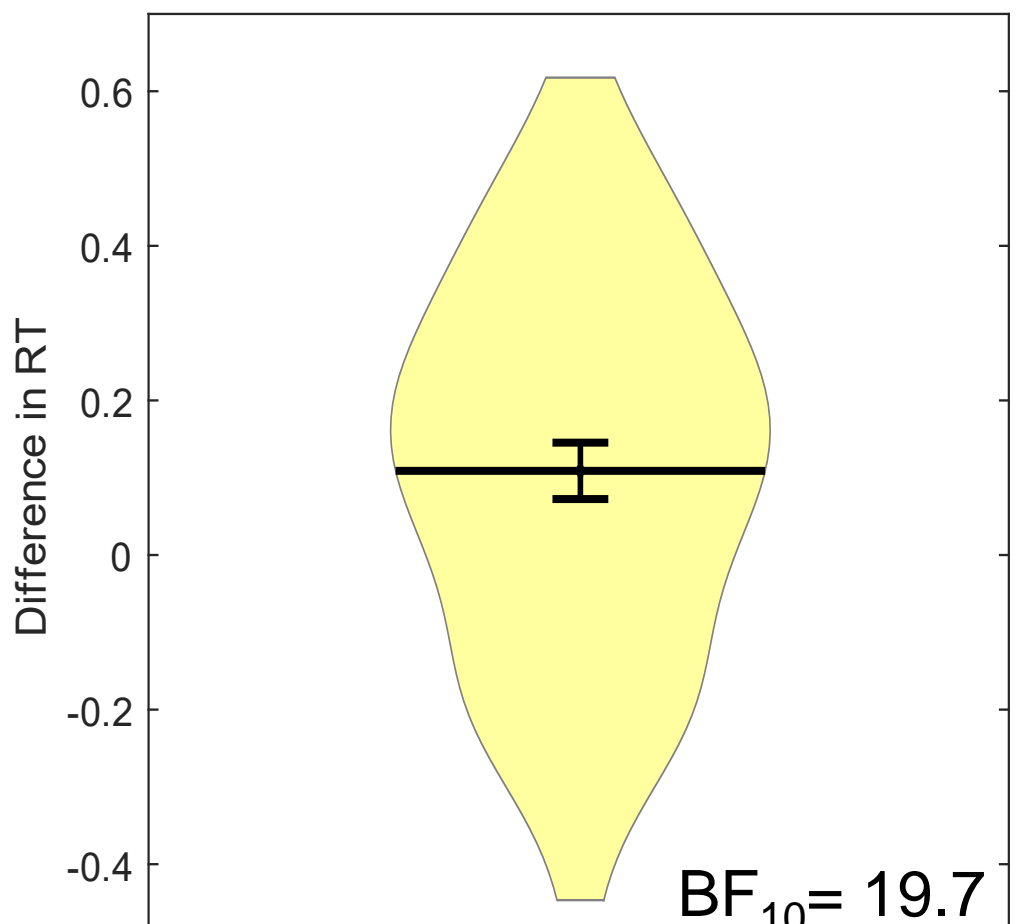
Experiment 2

Prediction error



Experiment 3

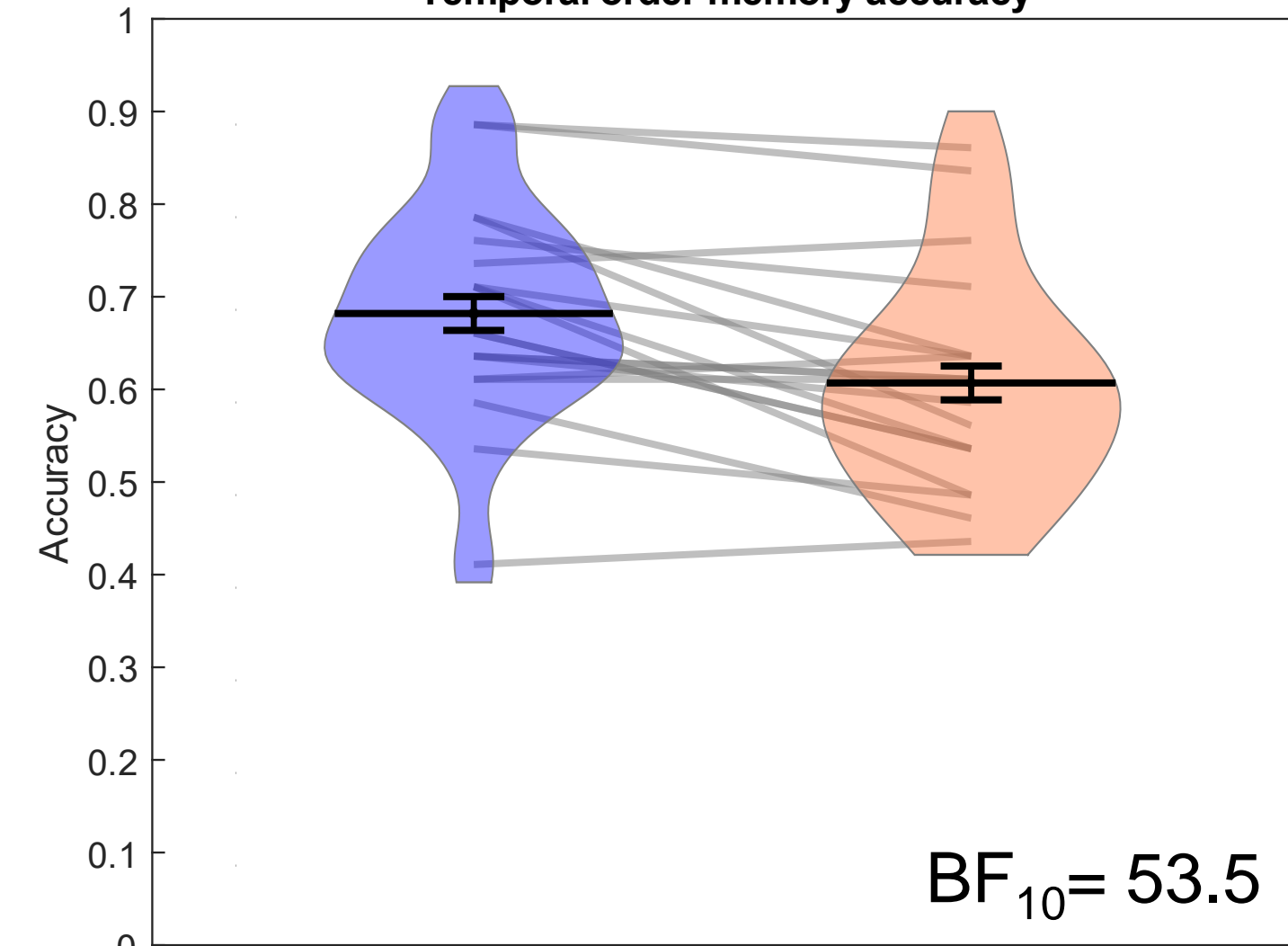
Prediction error



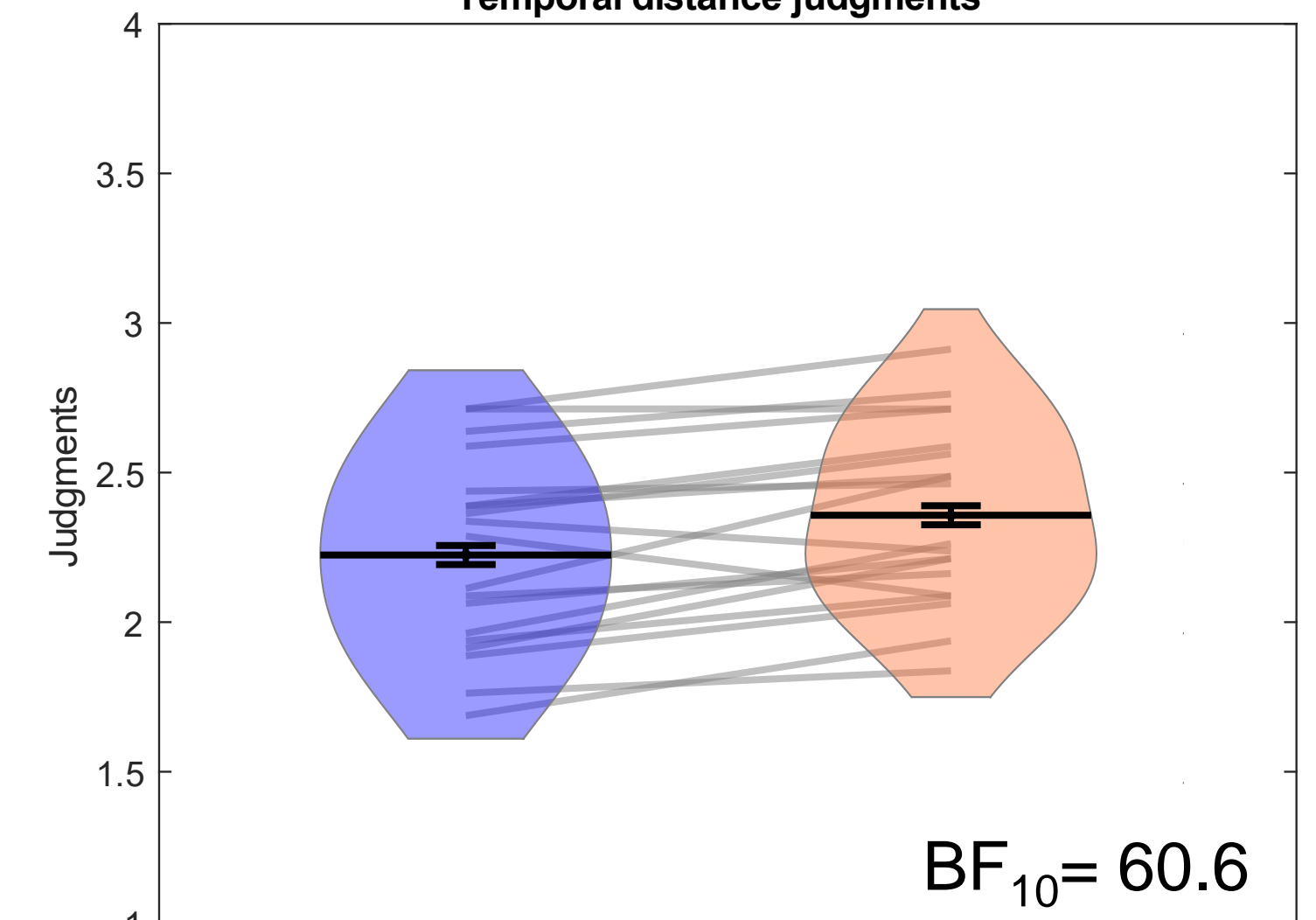
## Results – Event segmentation

Experiment 1 (N = 19)

Temporal order memory accuracy



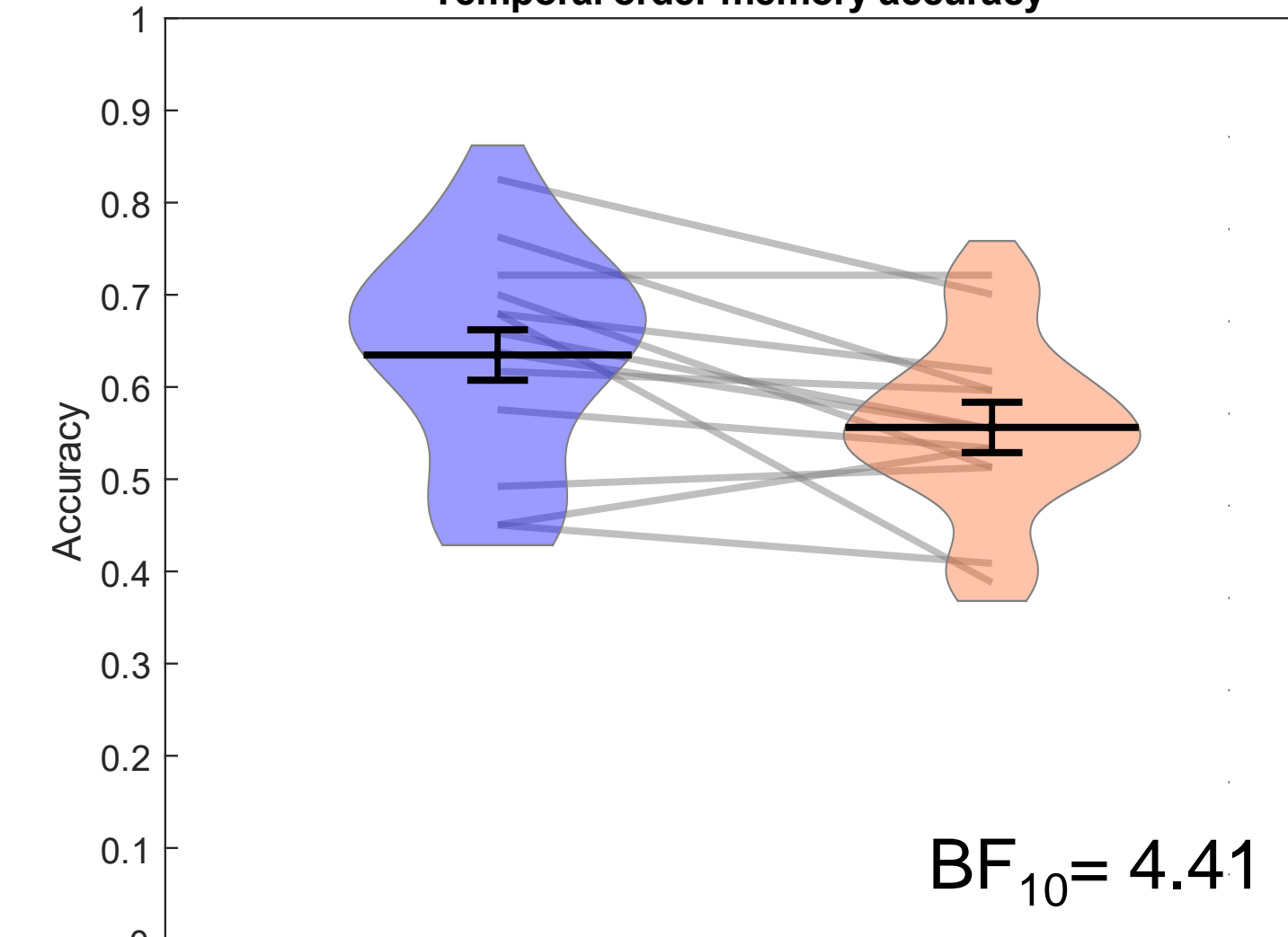
Temporal distance judgments



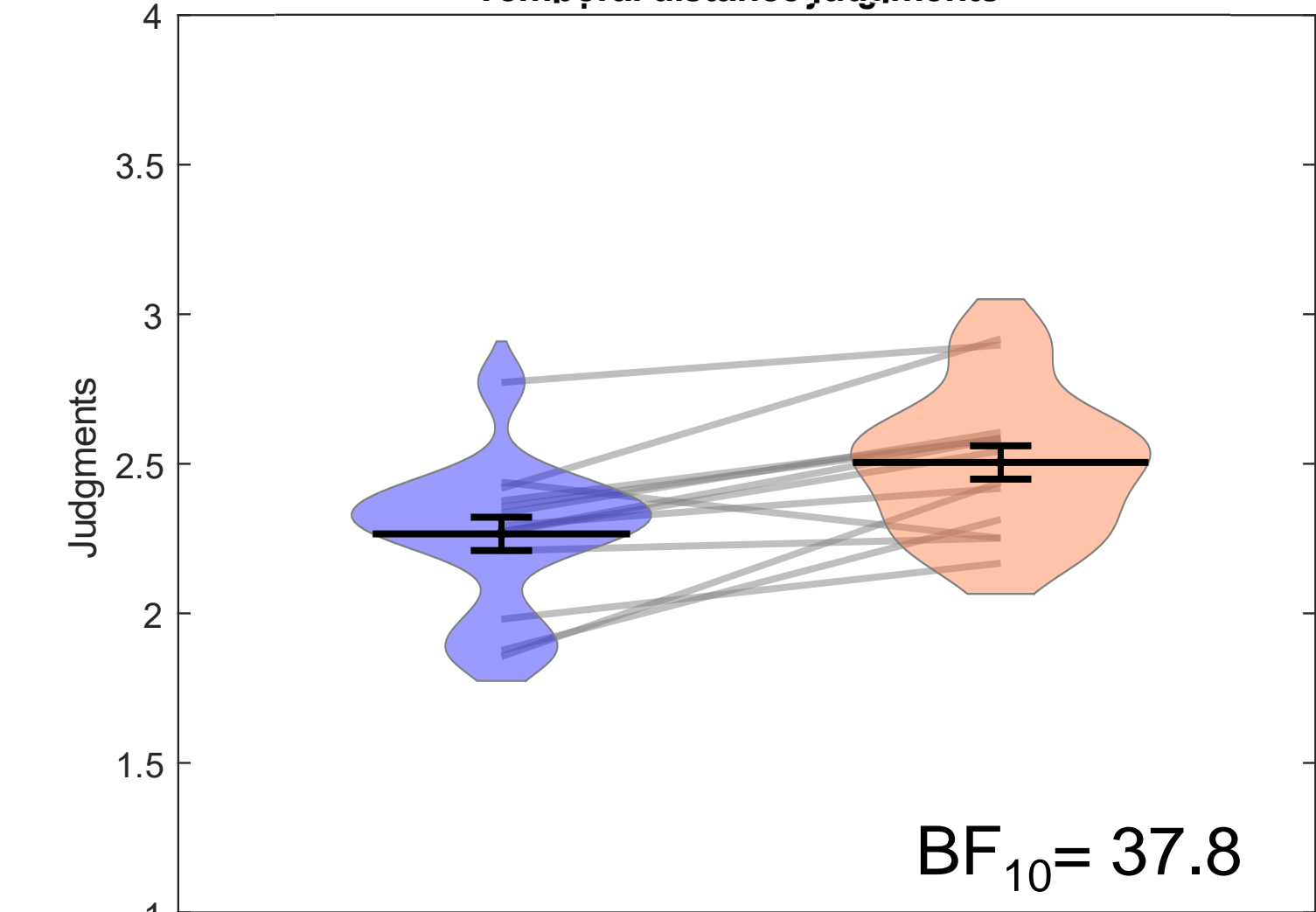
Contextual stability (rule & reward) generates event segmentation

Experiment 2 (N = 13)

Temporal order memory accuracy



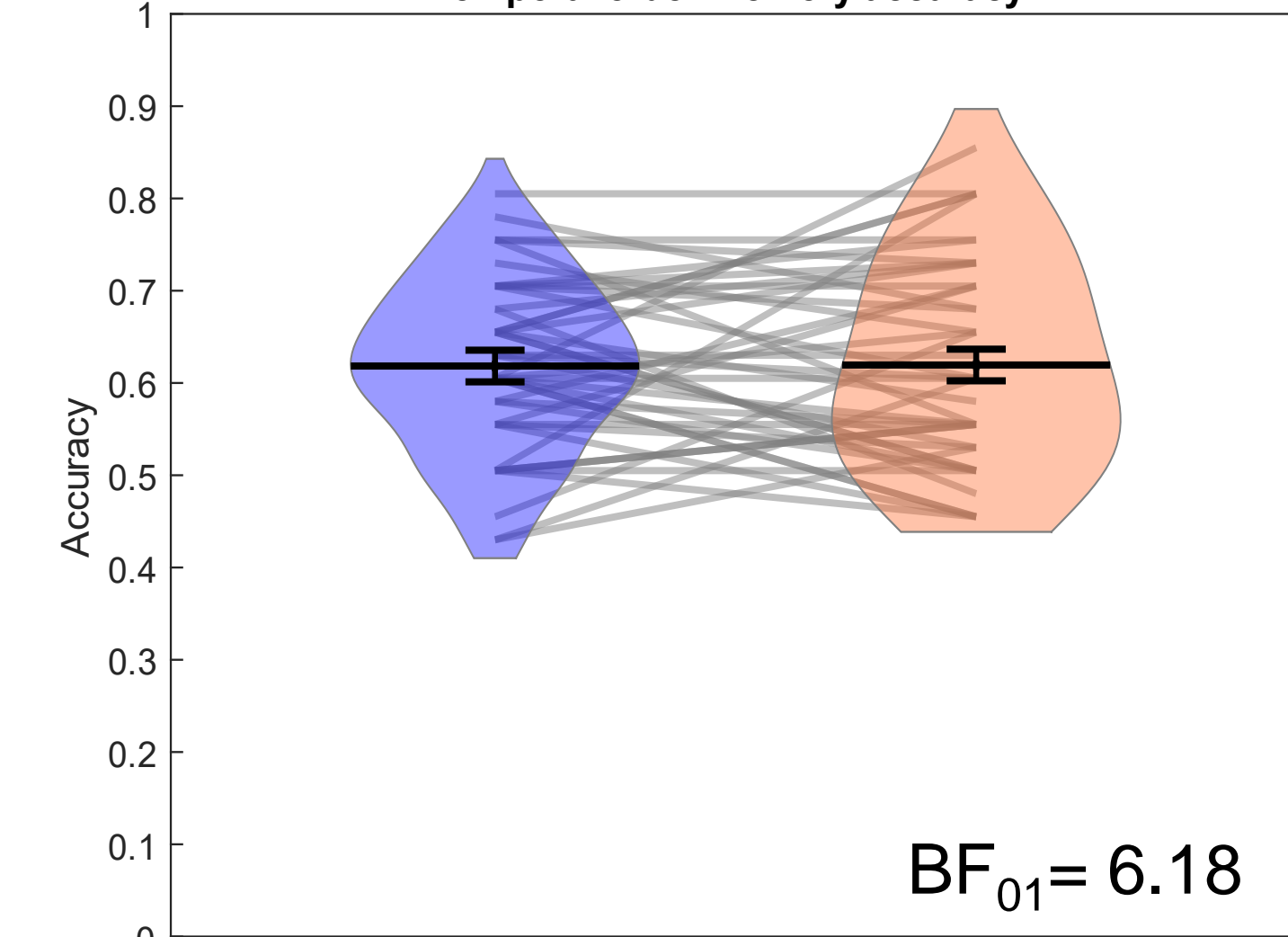
Temporal distance judgments



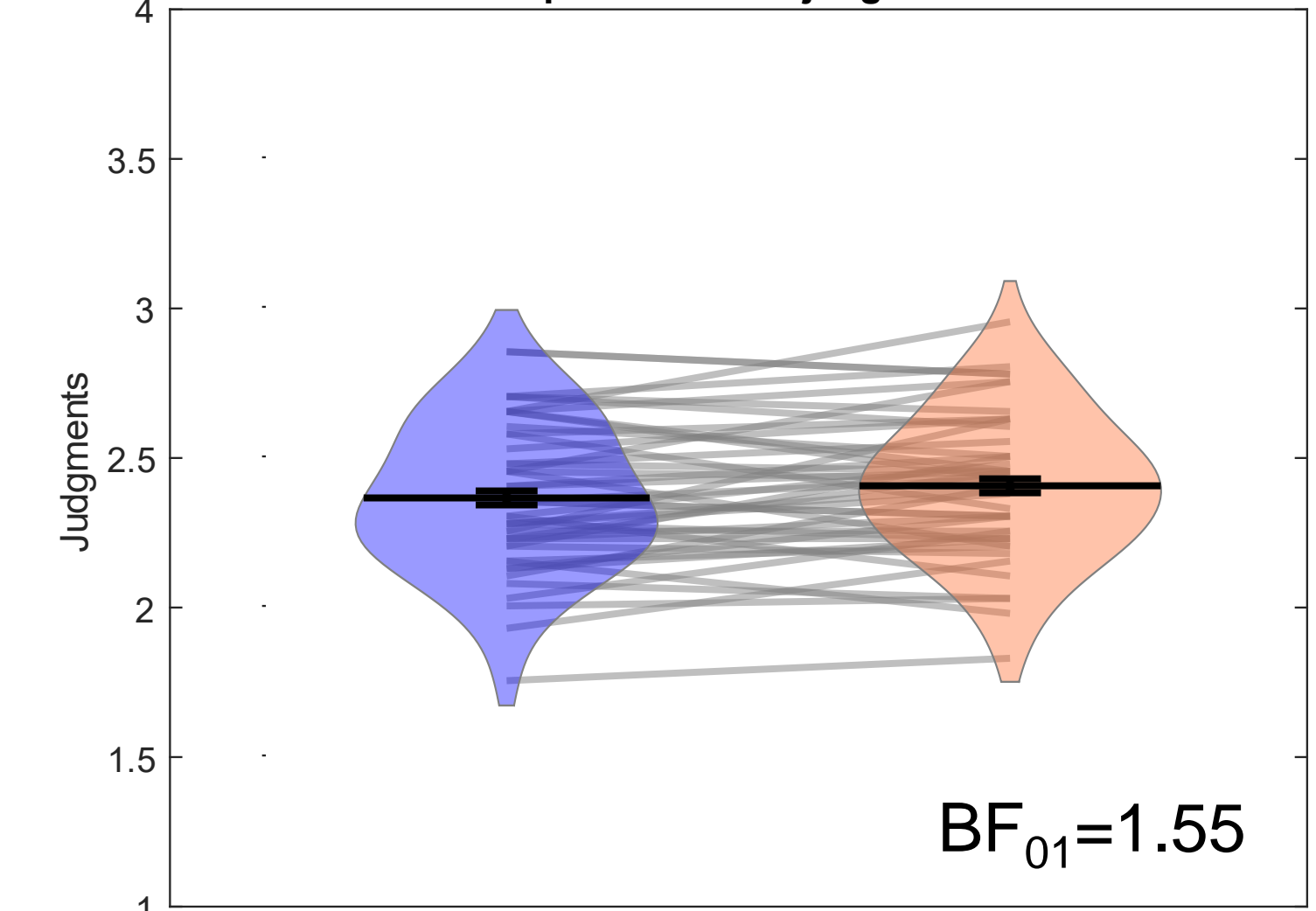
Contextual stability (object category) generates event segmentation

Experiment 3 (N = 45)

Temporal order memory accuracy



Temporal distance judgments



RTs for boundary items (M = 1.49) were higher than non-boundary items (M = 1.37)

The prediction error (change for a single item) is not enough for event segmentation

## Conclusion

Contextual stability is a more dominant factor than prediction error in generating event segmentation. Although instant changes that do not continue in a certain context cause a prediction error, they are not enough to parse experiences into distinct memory units.

Scan for references

