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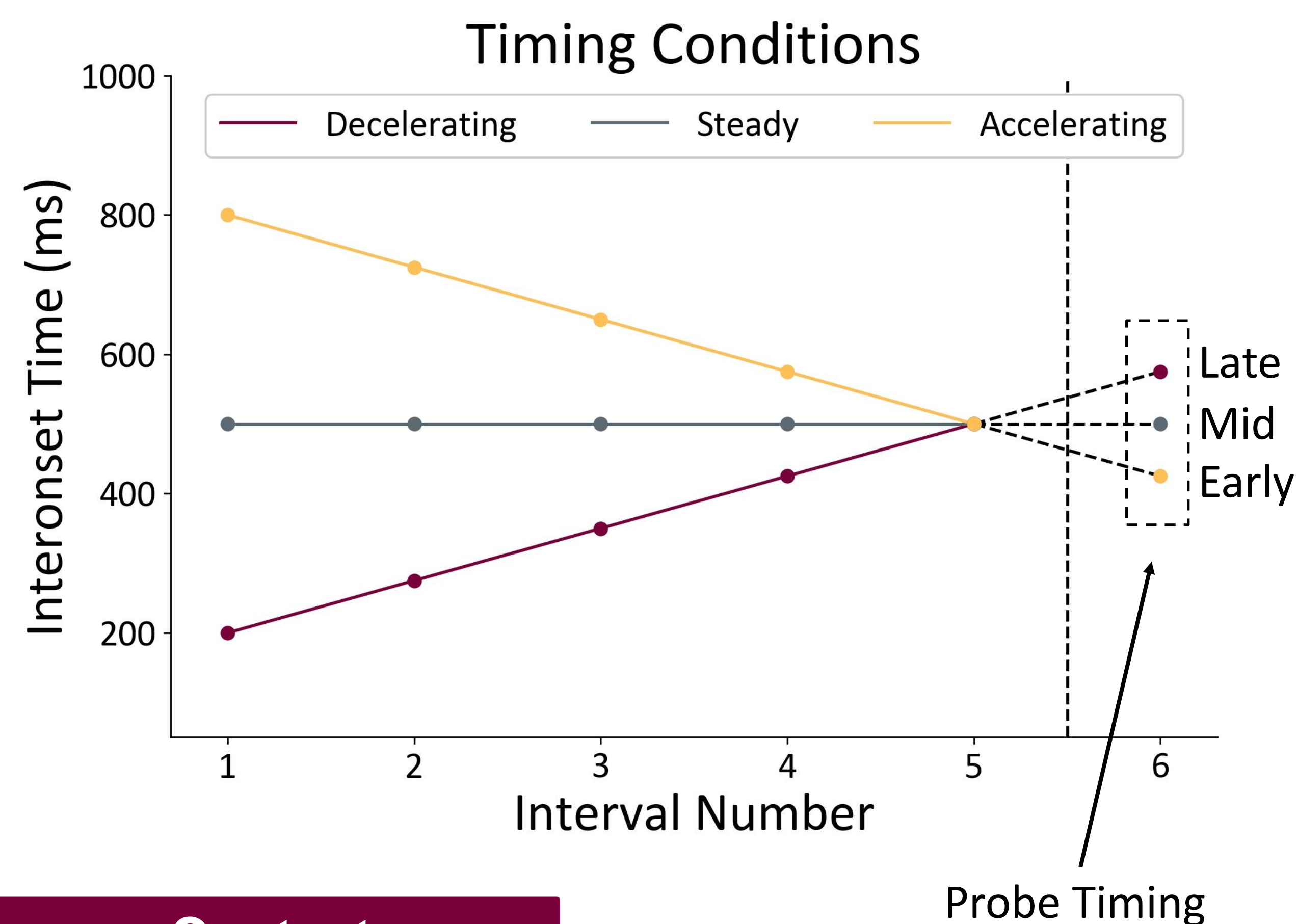
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## Background

- Periodic temporal regularities enable temporal prediction.<sup>5</sup>
- Predictability improves sensory processing, including pitch discrimination, at expected stimulus times.<sup>3,5</sup>
- Synchronous movement improves timekeeping.<sup>2,4</sup>
- **Research Question:** Can **aperiodic** temporal regularities (e.g., **acceleration** and **deceleration**) also facilitate auditory perception if the aperiodic timing follows a predictable pattern?

## Methods

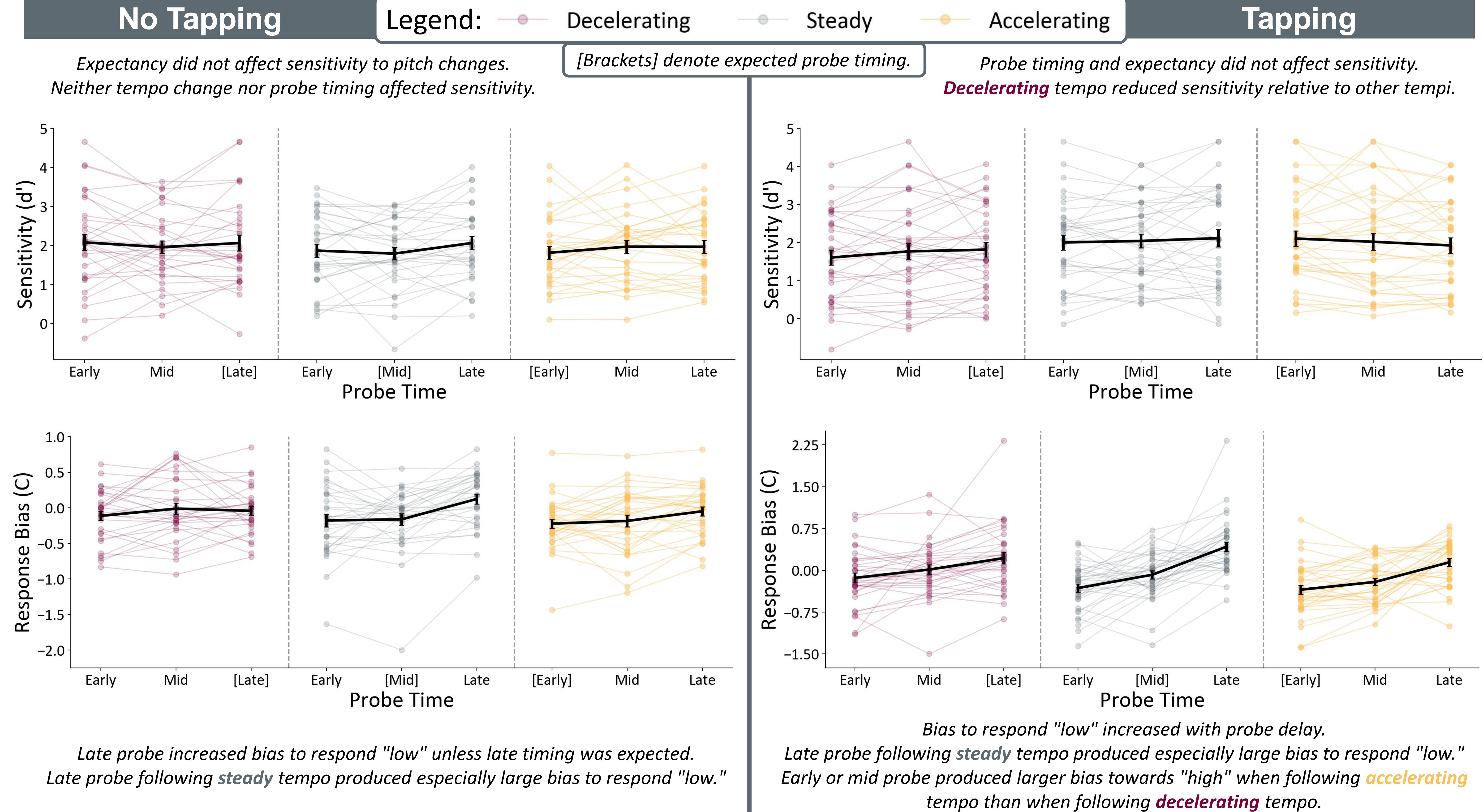
- **Task:** Listen to 7-tone sequences and judge whether the final tone is higher or lower ( $\pm 1.5$  Hz) than the other 6 tones (all 500 Hz).
- **Tempo:** First 6 tones either **accelerate**, maintain a **steady** tempo, or **decelerate**.
- **Probe Timing:** Probe tone occurs 425, 500, or 575 ms ("Early," "Mid," or "Late") after the 6<sup>th</sup> tone, corresponding to the expected timing of the final tone in the three tempo conditions.
- **Trials per session:** 432
- **Experiment 1:** Perform task without tapping (n=31).
- **Experiment 2:** Perform task while synchronizing tapping to tone sequences (n=34).



## Contact

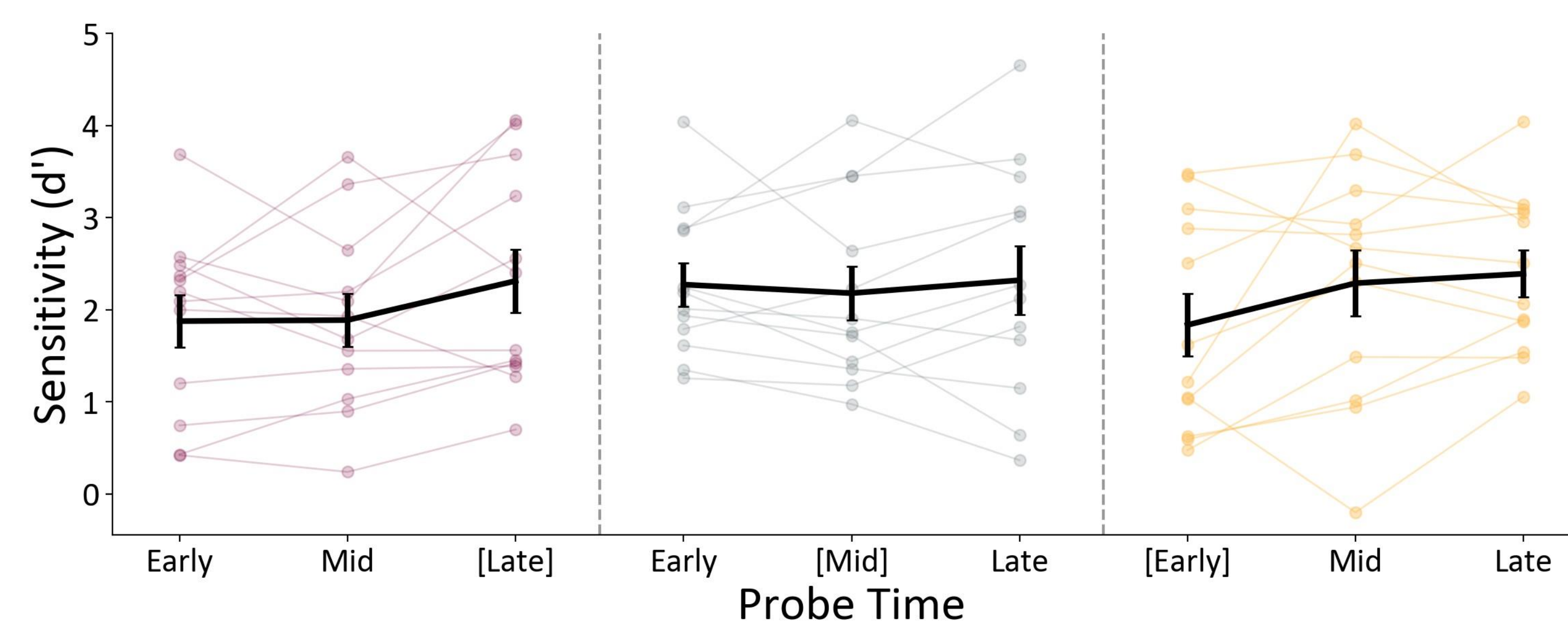
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## Results



## Intensity Discrimination

- Piloted additional experiment testing intensity discrimination.
- Identical to Experiment 1 except probe tone was **louder/softer** than first 6 tones, rather than **higher/lower**.
- Sensitivity and bias were not found to differ by condition.



## Discussion

- Predictable aperiodic timing was not found to improve perceptual accuracy when a probe was played at the expected time.
- Later probe tones biased participants towards rating as low pitch.
- Bias may relate to illusory tempo effect, in which lower pitched stimuli are perceived as slower than higher pitched stimuli, though the reverse ability of tempo to influence perceived pitch has not been demonstrated.<sup>1</sup>

## References

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