

11- to 13-month-old infants do not demonstrate preferential listening for predictable Western musical melodies. Infants demonstrated nearly equal mean listening times to both predictable and unpredictable melodies, suggesting that enculturation to culturally-relevant melodic structure emerges later in infancy.

BACKGROUND

- During early infancy, children become proficient at perceiving language, sounds, and musical patterns common in everyday interactions (Maurer & Werker, 2014).
- Engaging with culturally familiar music becomes an effortless process as we grow older (Hannon & Trainor, 2007).
- Progression towards fluency in cultural relevance throughout our lifespan is representative of the process of enculturation.
- **Do 11- to 13-month-old infants demonstrate a preference for predictable musical melodies, reflecting expectations formed from cultural exposure?**

METHOD

PARTICIPANTS

- 11- to 13-month-old infants, $N = 54$ (33 Western listeners, 28 non-Western listeners).

PROCEDURE

- This study utilized a preferential-listening paradigm online over Zoom. Infants' prior musical exposure was collected by parent-report via questionnaire.
- During each of 16 trials, an eye-catching stimulus was presented to the participant, followed by **predictable** or **unpredictable** melodies playing for 30 seconds, or until the infant glanced away for 2 seconds.
- Participant looking times across conditions were live-coded and served as a proxy measure for interest in the varying melodies.
- Masking headphones were worn by the researcher and parent to ensure the infant's behaviour is reflective of their own interest.

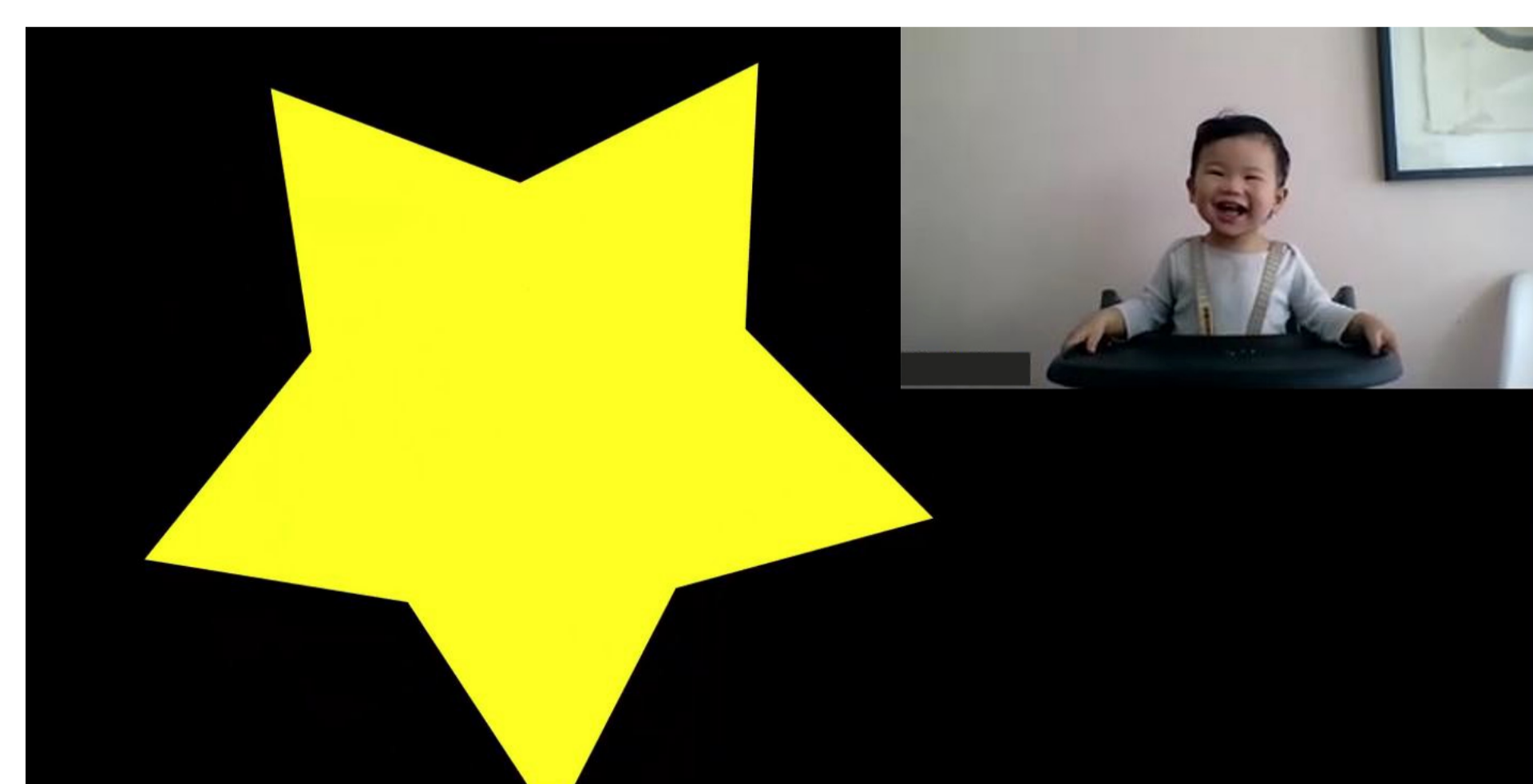


Figure 1. Participant during Infant Melody Experiment.

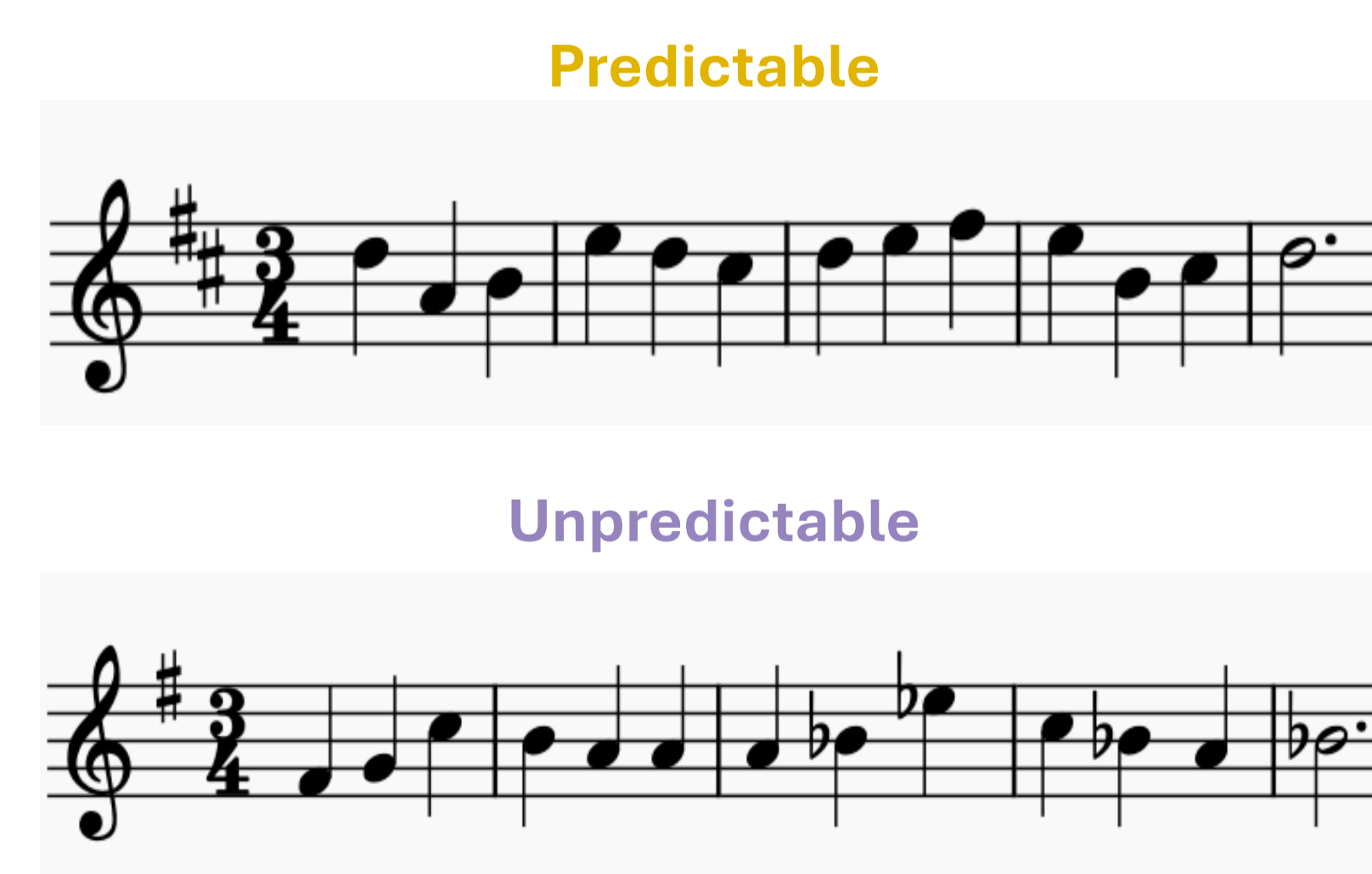
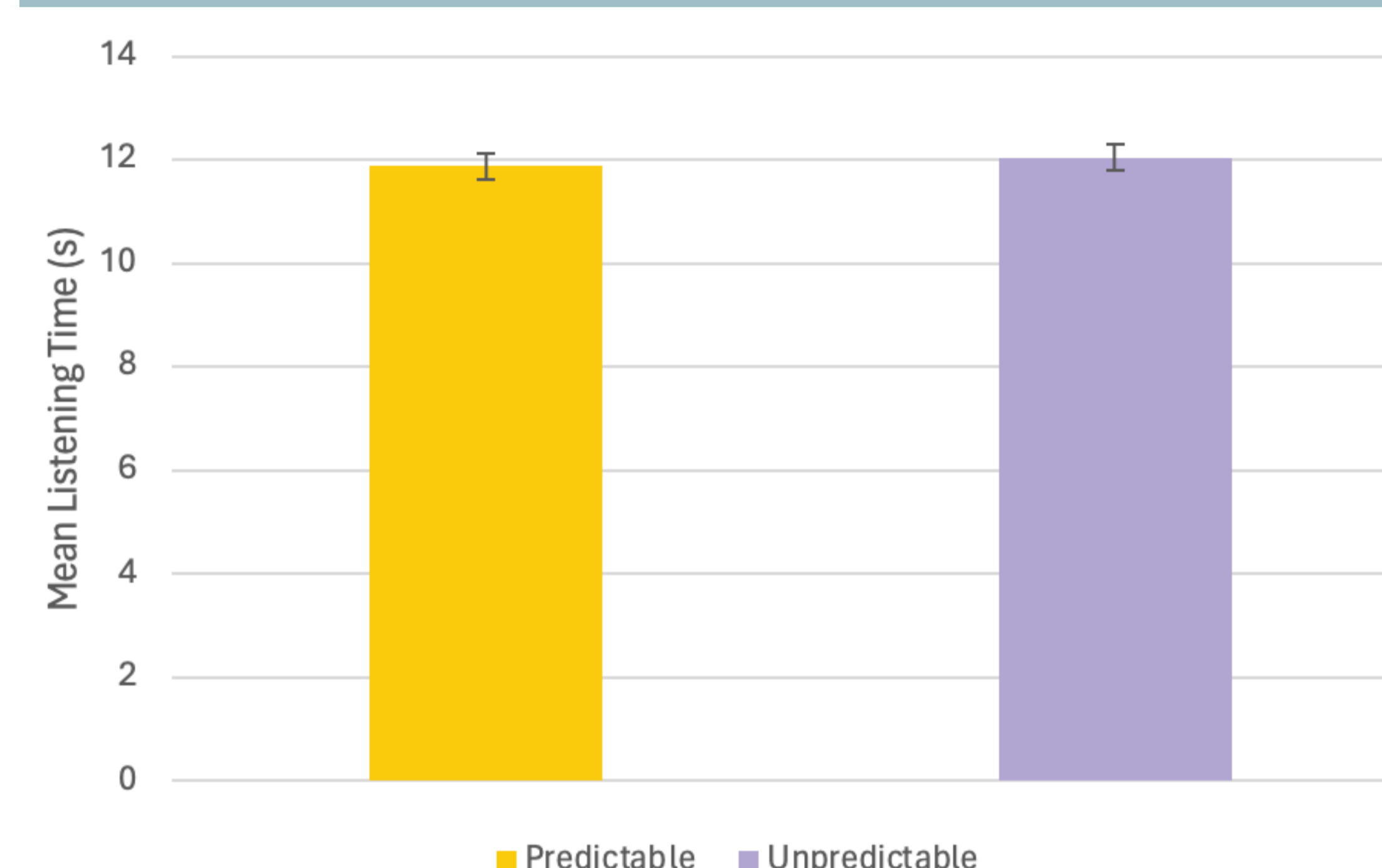


Figure 2. **Predictable** and **unpredictable** melody samples.



RESULTS



LISTENING TIME

- Participants with both Western and non-Western listening backgrounds were included.
- There was no effect ($p > 0.05$) of trial type, with mean listening times for **predictable** melodies ($m = 11.88$) and **unpredictable** melodies ($m = 12.05$) being nearly identical.
- Findings from previous studies were not replicated in this trial.

Figure 3. Results suggest no emersion of expectation for melodic structure in 11- to 13-month-old infants.

DISCUSSION

- When analyzing only Western-listening infants, similar results were found.
- The present sample did not include an equal number of Western- and non-Western listeners, preventing additional examination of the relationship between music exposure and melodic enculturation.

IMPLICATIONS & FUTURE DIRECTIONS

- Results could suggest that melodic enculturation, the expectation for melodic structure, emerges later in infancy, or that the utilized methodology was not sensitive enough to detect significant behaviours.
- Given that adults demonstrate expectations for melodic structure, future studies can utilize a paradigm designed for older children to analyze patterns in listening behaviour, therefore refining the investigated age range.
- Future directions include adapting a longitudinal design to retest participants three months after initial testing to measure continuity in responses as the participant continues to age, as well as utilizing EEG to identify sequence buildup as the melody unfolds.
- Identification of dance behaviour during the trials could also provide additional insight, as previous research finds that compared to unfamiliar songs, 12-month-old infants dance more to familiar songs (Dou & Cirelli, 2024).

REFERENCES

- Dou, A. & Cirelli, L. K. (2024). The effects of melody and lyric familiarity on infant responsiveness to well-known music [Manuscript in preparation]. Department of Psychology, University of Toronto Scarborough.
- Hannon, E. E., & Trainor, L. J. (2007). Music acquisition: effects of enculturation and formal training on development. *Trends in Cognitive Sciences*, 11(11), 466–472. <https://doi.org/10.1016/j.tics.2007.08.008>
- Maurer, D., & Werker, J. F. (2014). Perceptual narrowing during infancy: a comparison of language and faces. *Developmental psychobiology*, 56(2), 154–178. <https://doi.org/10.1002/dev.21177>