



Speaking versus Singing: Can Infants Tell Them Apart?

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Introduction

- Caregivers regularly communicate with infants through speech and song.
- Several studies examine infants processing of speech and song¹, but do not examine their ability to distinguish speech from song or control for acoustic confounds.^{2,3}
- **Our Aim:** Investigate whether infants differentiate spoken from sung modalities using a modified stimulus alternating preference procedure (SAPP).

Methods

Participants

- **Adults:** 18- to 35-year-olds
- **Infants:** 4- to 5-month-olds and 11- to 12-month-olds

Stimuli

- Infant-directed spoken and sung versions of “George & Martha” children’s books
- Stimuli are matched for total duration, semantics, and average F0

Procedure

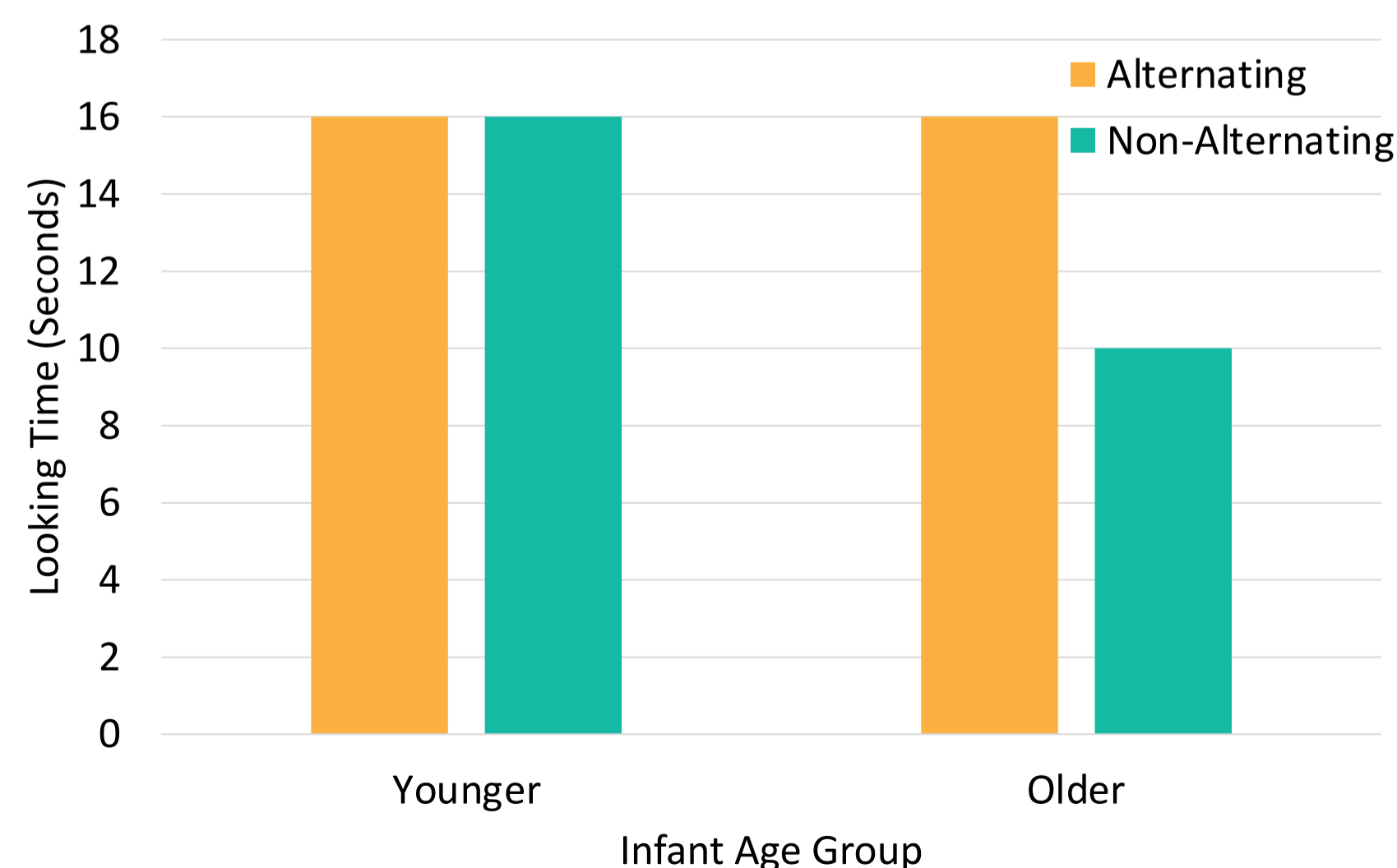
- Modified SAPP⁴
- **Habituate Speech** → Speech, Song-Speech
- **Habituate Song** → Song, Speech-Song
- Test trials (14): 7 alternating, 7 non-alternating (hybrid oddball⁵)
- Adults will provide continuous ratings of similarity for current excerpt compared to previous excerpt

Predictions

- 1:** Infants younger than 6 months of age **will not** look longer at alternating trials than non-alternating, suggesting they do not differentiate between modalities.
- 2:** Infants older than 6 months of age **will** look longer at alternating than non-alternating trials, suggesting they have formed distinct categories for speech and song.
- 3:** Adults **will** have greater dissimilarity ratings for alternating trials than non-alternating trials, suggesting they perceive speech and song as more distinct than different spoken exemplars.

Predicted Results

Infant Looking Time for Speech and Song



Implications

- Adults will readily differentiate speech and song using similarity ratings that mimic looking time responses from infants
- Higher LT for alternating trials in older infants but not in younger infants would suggest the emergence of domain-specific processing
- This work will further our understanding of the developmental trajectory for the cognitive/perceptual processes behind infant music & language perception
- Future work will examine whether a lack of differentiation between speech and song is related to an inability to apply domain-specific knowledge (e.g., exact pitch intervals must be maintained in song, but not speech) in younger compared to older infants

References

- 1: Cirelli, L. K. & Trehub, S. E. (2020). *Developmental Psychology*, 56(5), 861-868.
- 2: Costa-Giomi & Ilari (2014). *Journal of Research in Music Education*, 62, 188-194.
- 3: Best, C. T. & Jones, C. (1998). *Infant Behavior and Development*, 21(295), 295–295.
- 4: Houston, D. M., Horn, D. L., Qi, R., Ting, J. Y., & Gao, S. (2007). Assessing Speech Discrimination in Individual Infants. *Infancy*, 12(2), 119–145.