

Repeat after me:

Exploring what children's speaking and singing reveals about their domain-specific knowledge

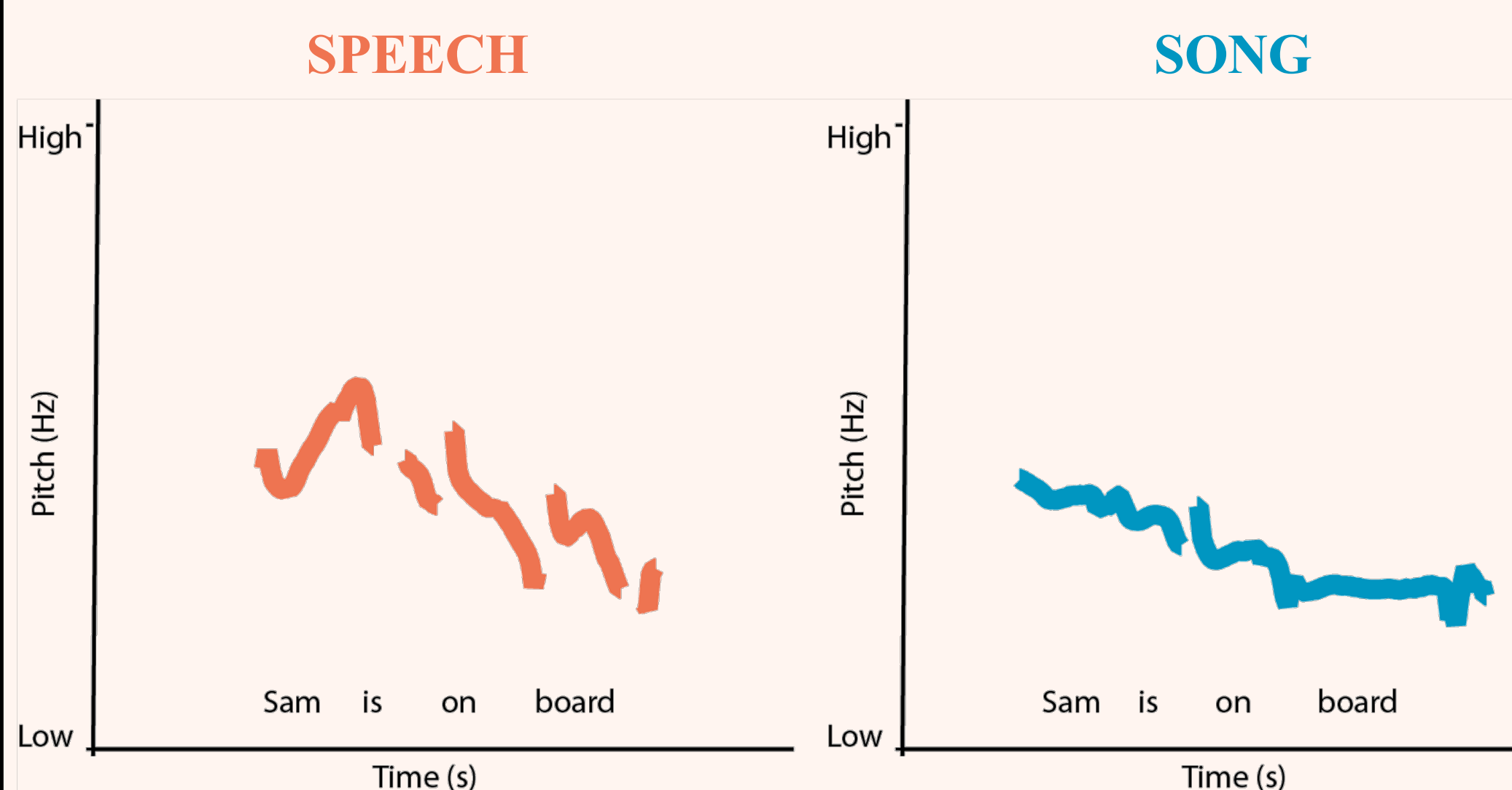
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Introduction

- Pitch is important in both musical and linguistic communication
- But pitch is used differently in each domain
- In music, pitch is **more stable, salient, and is discrete**
- In language, pitch is **less stable, salient, and is continuous**
- The relationship between the successive pitches is integral to song, but not speech



Previous Literature

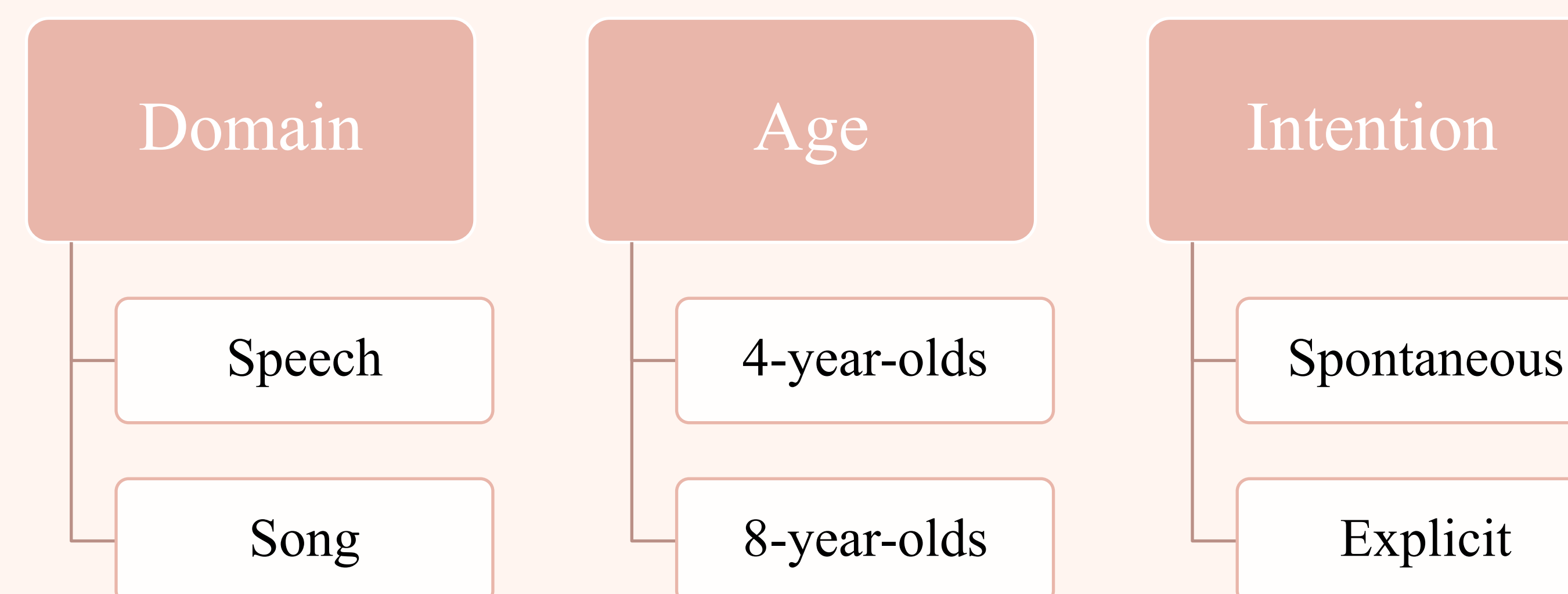
- Children can explicitly **perceive speech-song differences**, but do not categorize them with adult-like accuracy until age 8
- Would an **implicit task** show knowledge of domain differences early in childhood?
- In **production tasks**, adults imitate pitch more accurately in song than speech, even spontaneously, when they are not given instructions to match pitch, showing evidence of implicit domain-dependent knowledge

Methods & Design

Research Question

Does domain-specific knowledge about the different uses of pitch in speech and song develop earlier than suggested by explicit tasks?

Methodology



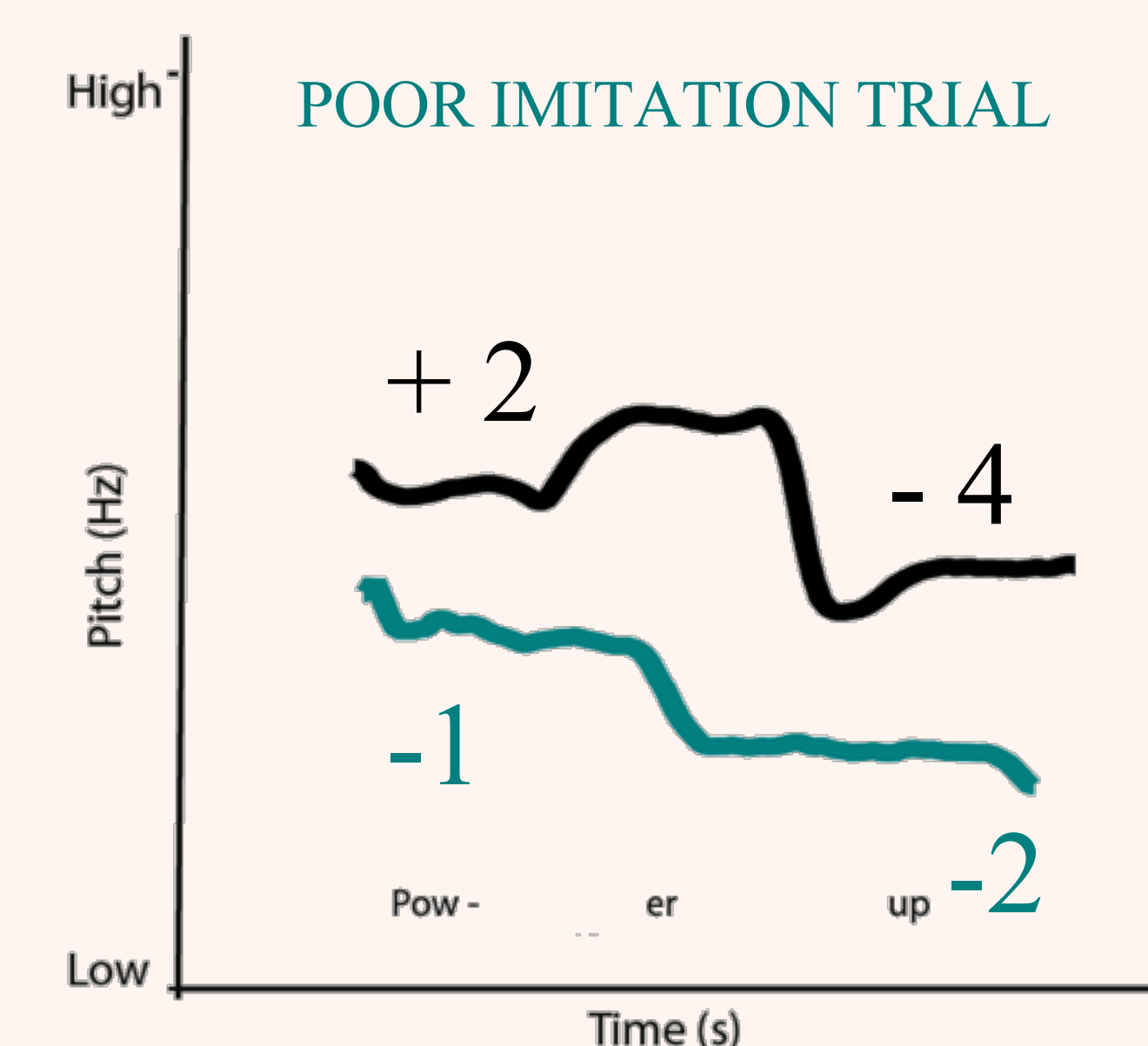
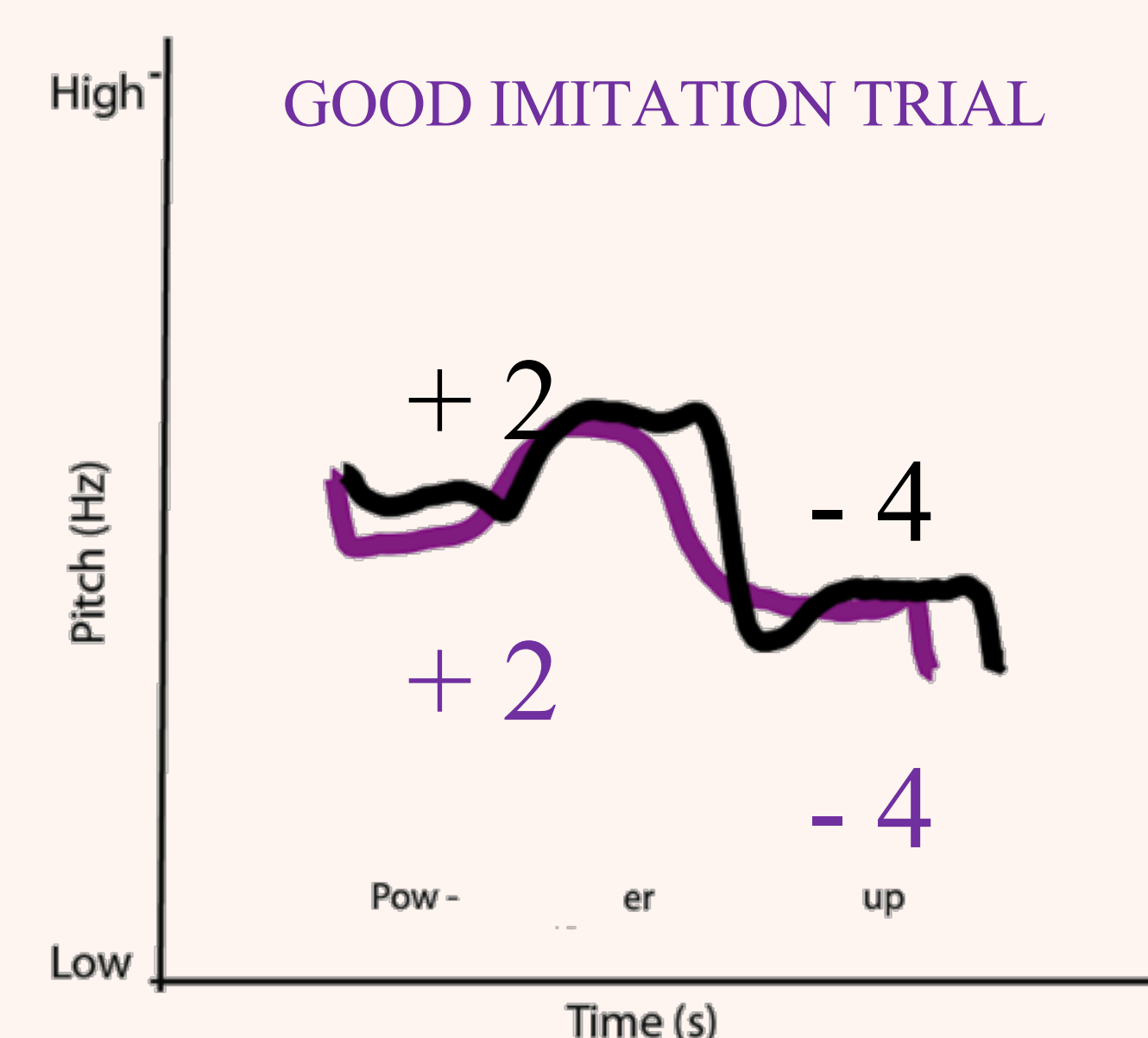
Procedure

Task 1: Spontaneous Pitch Matching	Task 2: Explicit Pitch Matching	Task 3: Simple Pitch Matching
reflects domain-specific knowledge of pitch	reflects intentional pitch-matching abilities	reflects baseline pitch-matching abilities to non-linguistic stimuli

Plan of Analysis

Imitated pitch phrases for both speech and song will be analyzed across three metrics:

1. **Pitch Interval Preservation:** how well is the participant preserving the relationship between two pitches?
2. **Pitch Accuracy:** how much did the participant's imitated pitch deviate from the target pitch?
3. **Pitch Correlation:** how well is the participant imitating the contour of the utterance?



Conclusion

Predicted Results

- We **predict all children will pitch match more accurately to song than speech** due to the stability, salience, and discrete nature of sung utterances
- We predict **older children will spontaneously pitch match in song but not speech**, reflecting domain-specific knowledge
- We predict **younger children will display similar spontaneous pitch imitation performance in both domains**, reflecting the ongoing development of domain-specific knowledge

Implications

- Extends previous speech-song perception work with children using a production paradigm
- First to compare speech-song pitch imitation in children
- Sets the groundwork for understanding how domain-specific knowledge develops and why it is important for guiding attention to relevant auditory features

References

- Pfordresher, P. Q. (2022). A reversal of the song advantage in vocal pitch imitation. *JASA Express Letters*, 2(3), 034401.
- Pfordresher, P. Q., Mantell, J. T., & Pruitt, T. A. (2022). Effects of intention in the imitation of sung and spoken pitch. *Psychological Research-Psychologische Forschung*.
- Vanden Bosch der Nederlanden, C. M., Qi, X., Sequeira, S., Seth, P., Grahn, J. A., Joannisse, M. F., & Hannon, E. E. (2022). Developmental changes in the categorization of speech and song. *Developmental Science*, e13346–e13346.