



Infants' recognition of a well-known song through melody and lyrics

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Introduction

- By 6 months of age, infants recognize and use melodies and lyrics to detect familiar music (e.g., Hahn et al., 2020; Mehr et al., 2016; Thiessen & Saffran, 2009)
- By their 1st birthday, infants quickly integrate simple musical sequences with a pattern of nonsense syllables when they hear new music (Lebedeva & Kuhl, 2010; Yamane et al., 2021)
- Infants' favourite songs (i.e., frequently heard music at home) capture their attentive listening, encourage movement and provide emotional relief (e.g., Cirelli & Trehub, 2020; Kragness et al., 2021)

Do infants use the melody, lyrics, or both to recognize well-known songs and identify new music?

Methods

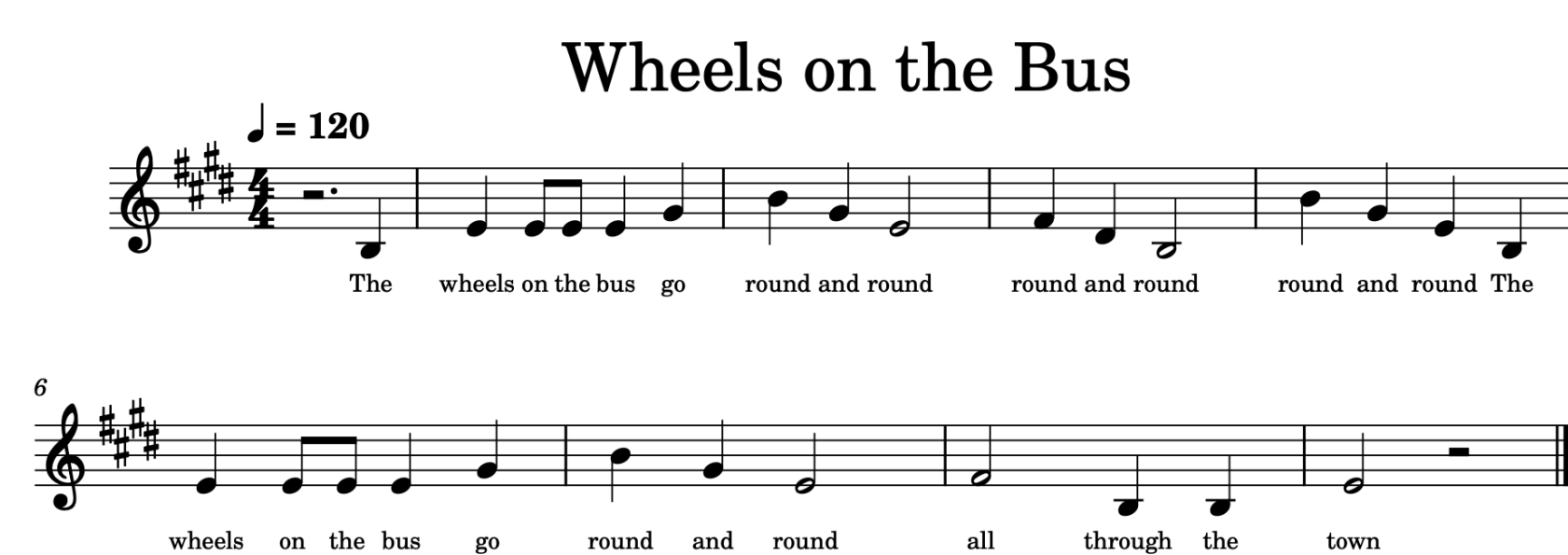
Participants

- Target $N = 40$ infants aged **10-12 months** (current $N = 27$ for analysis)
- Target $N = 40$ infants aged **5-7 months** (data collection to begin in early 2023)

Stimuli (4 song conditions)

Familiar Melody / Familiar Lyrics

- The first verse to well-known children's song *Wheels on the Bus*

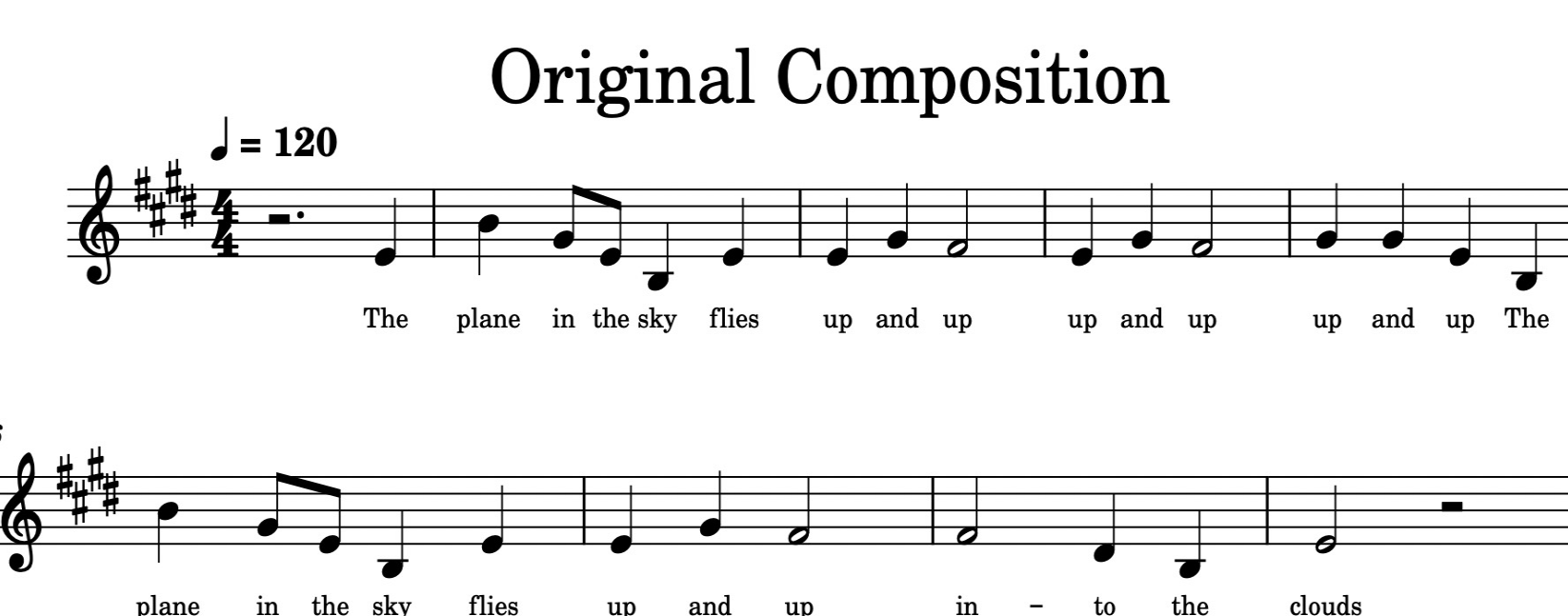


Familiar Melody / Unfamiliar Lyrics

- The tune to the first verse of *Wheels on the Bus* accompanied by novel lyrics

Unfamiliar Melody / Unfamiliar Lyrics

- The original composition



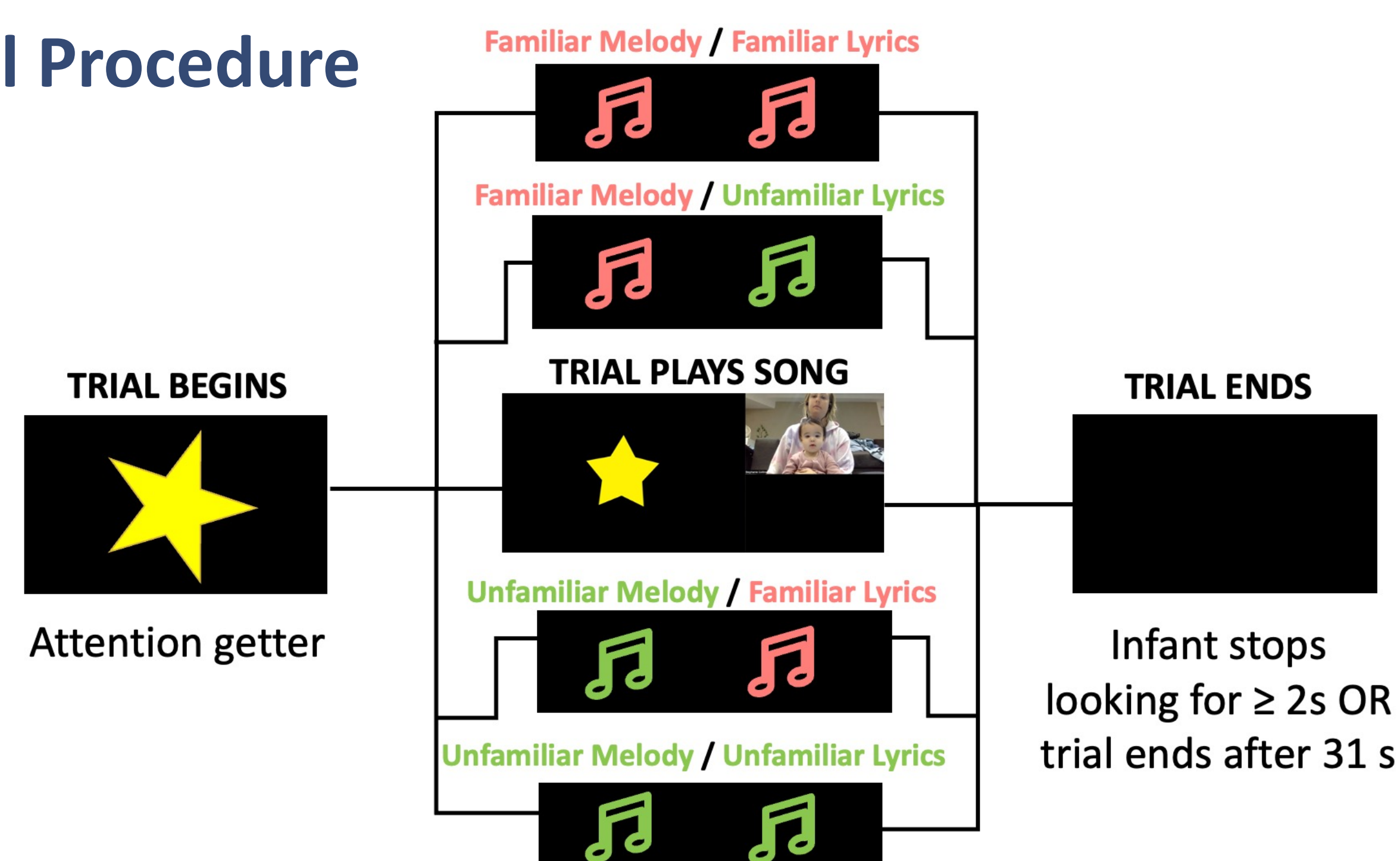
Unfamiliar Melody / Familiar Lyrics

- The novel melody accompanied by lyrics to the first verse of *Wheels on the Bus*

Experimental Procedure

An online preferential listening paradigm

- Hosted on Pyhab (Kominsky, 2019) and screen shared over **Zoom**
- Experimenter live codes infant listening time (i.e., time looking toward the screen) across **16 trials** (i.e., 4 repetitions of each song condition)



Preliminary Results

for $N = 27$ older infants trending towards...

A general preference for **EITHER** the **familiar melody** **OR** **familiar lyrics** of the well-known song **OVER** the **novel song**

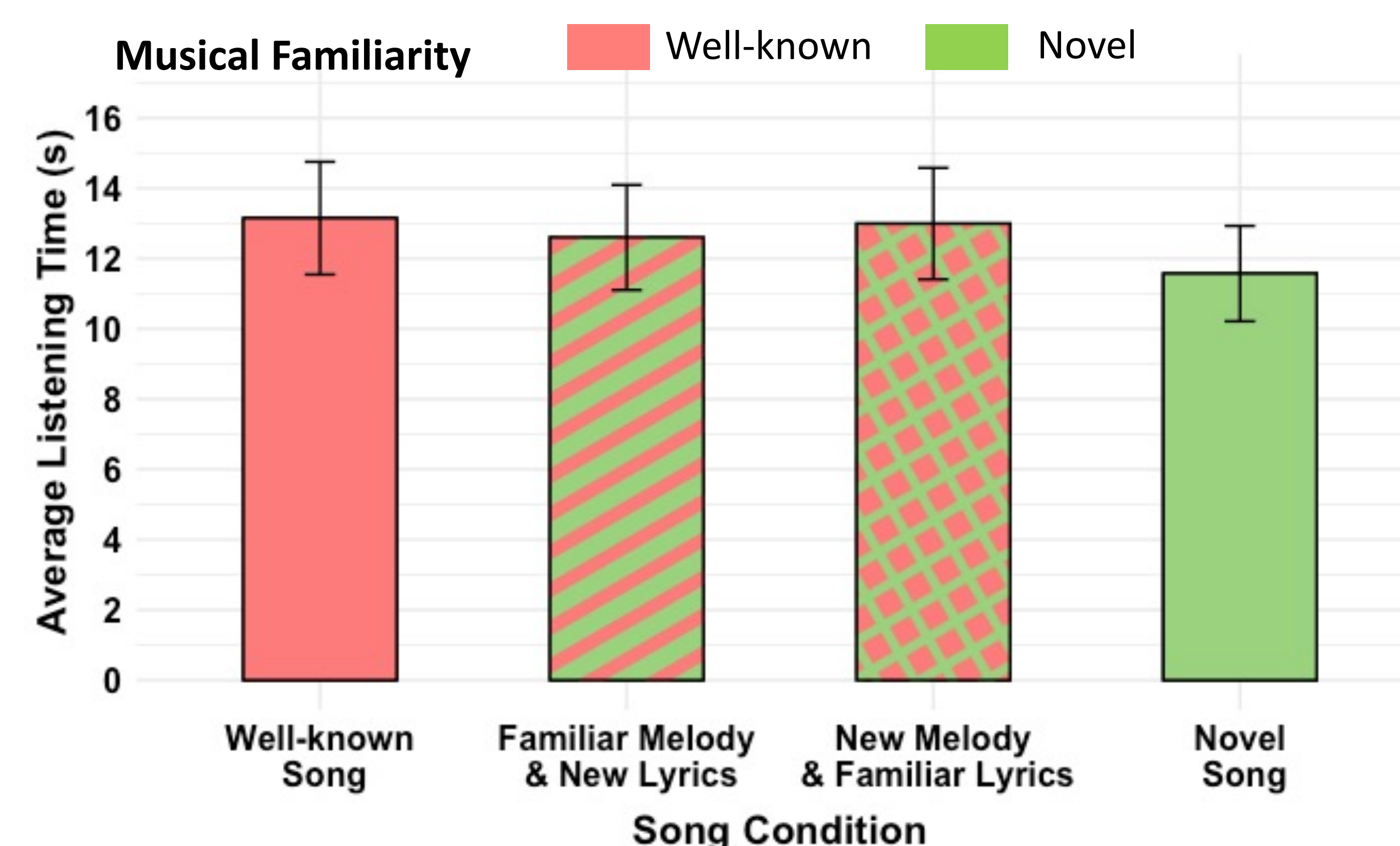


Figure 3: Depicts mean attentive listening times (normalized for each participant) within each of the 4 song conditions across $N = 27$ older infants. Filled and patterned bars visually represent the matched and mismatched song conditions respectively (for melody and/or lyric familiarity). The error bars represent the within-subjects SEM for each song condition.

Discussion

Preliminary results suggest that 10- to 12-month-old infants **INTEGRATE melody and lyric processing when hearing NEW MUSIC**

- We observed decreased listening to the **novel song** (i.e., using unfamiliar melody AND lyrics to identify the original composition as new music; mirroring Yamane et al., 2021)

Before their first birthday, infants seem to use melody and lyrics, but **may not yet fully integrate BOTH melody and lyrics, to recognize a WELL-KNOWN SONG.**

- We observed level listening times between *Wheels on the Bus* and the song conditions that are mismatched in melody and lyric familiarity
- We hypothesized that older infants would **ONLY** listen attentively to *Wheels on the Bus*

Planned Data Collection & Analyses

- Replicate experimental procedure with 5-7-month-old infants
- Observe whether infants differ in their motor, emotional, and prosocial responses to the 4 song conditions
 - Do infants demonstrate selective behavioural responsiveness towards familiar melody and lyrics?
- Examine whether infants' musical experience with *Wheels on the Bus* at home, or their general home musical environment (Music@Home; Politimou et al., 2018), affects their behavioural response patterns