

Background

- Beat perception is innate. [1]
- In rhythmic non-speech contexts, stimulus properties influence audiovisual integration. [2]
- Stimulus rhythms influence attending, temporal grouping, and temporal expectancies. [3, 4]
- Stimulus-driven attending involves reflexive shift toward temporal locus of sound following its initial occurrence. [3]
- **Hazard Function:** as time elapses between presentation of warning signal and next presentation of imperative stimulus, more resources are allocated to the next possible moment in time. [5]
- Attention is preferentially allocated to metrically strong rhythms. [6]

Questions

Do infants prefer the temporal regularity of rhythmic stimuli over the temporal irregularity of non-rhythmic stimuli?

- **Hypothesis:** Rhythmic sequences will elicit longer fixation and earlier gaze shift to the still image than non-rhythmic sequences, suggesting attentional bias for temporally regular stimuli

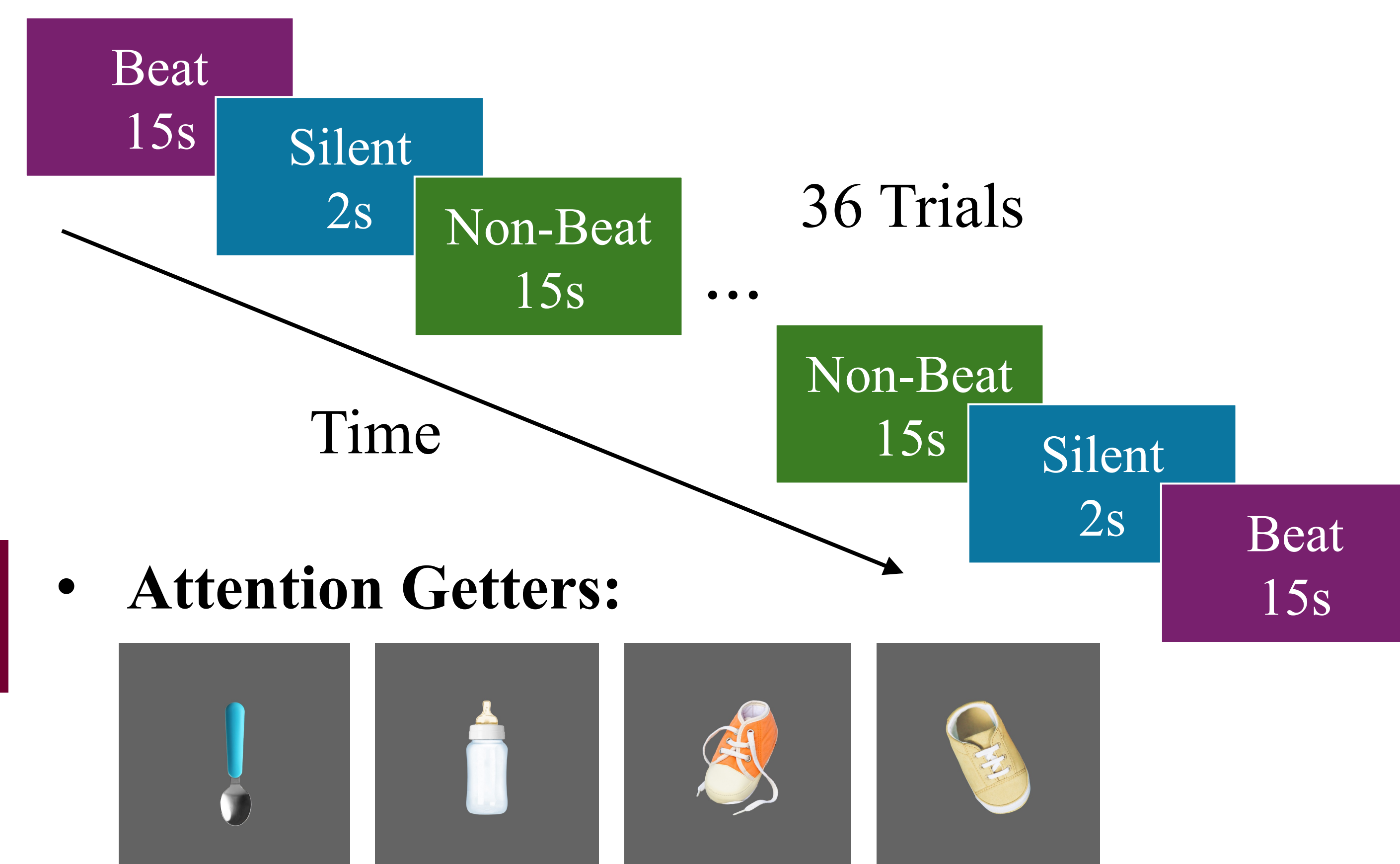
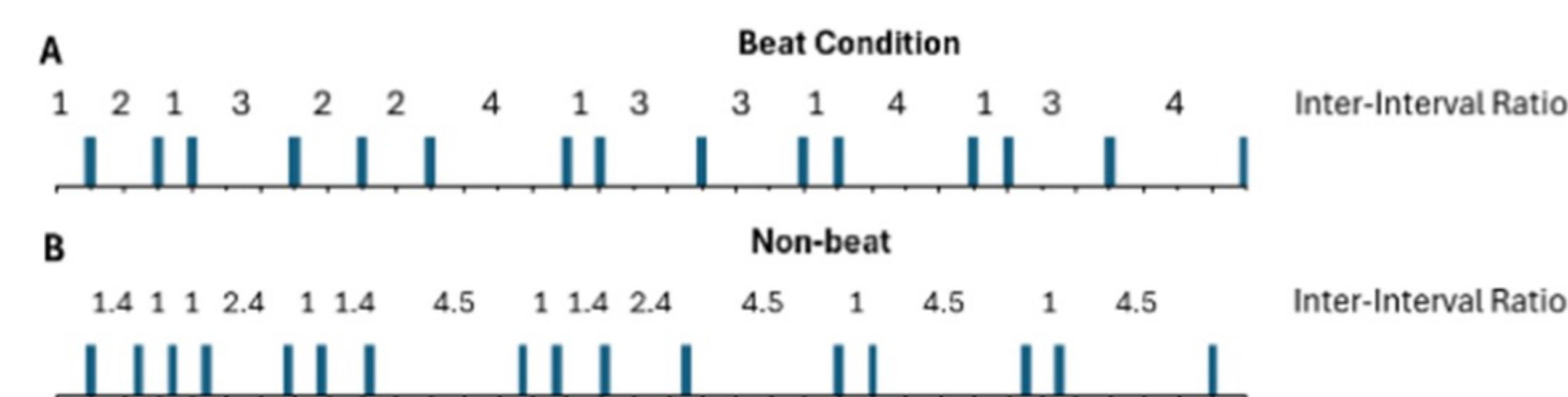
Are infants' age, musical background, home environment, or parental factors linked to modulations in beat preferences?

- **Hypothesis:** Increased age and stronger musical background will correlate with longer fixation than younger infants with less strong musical background.

Methods

Eye-Tracking Data Collection:

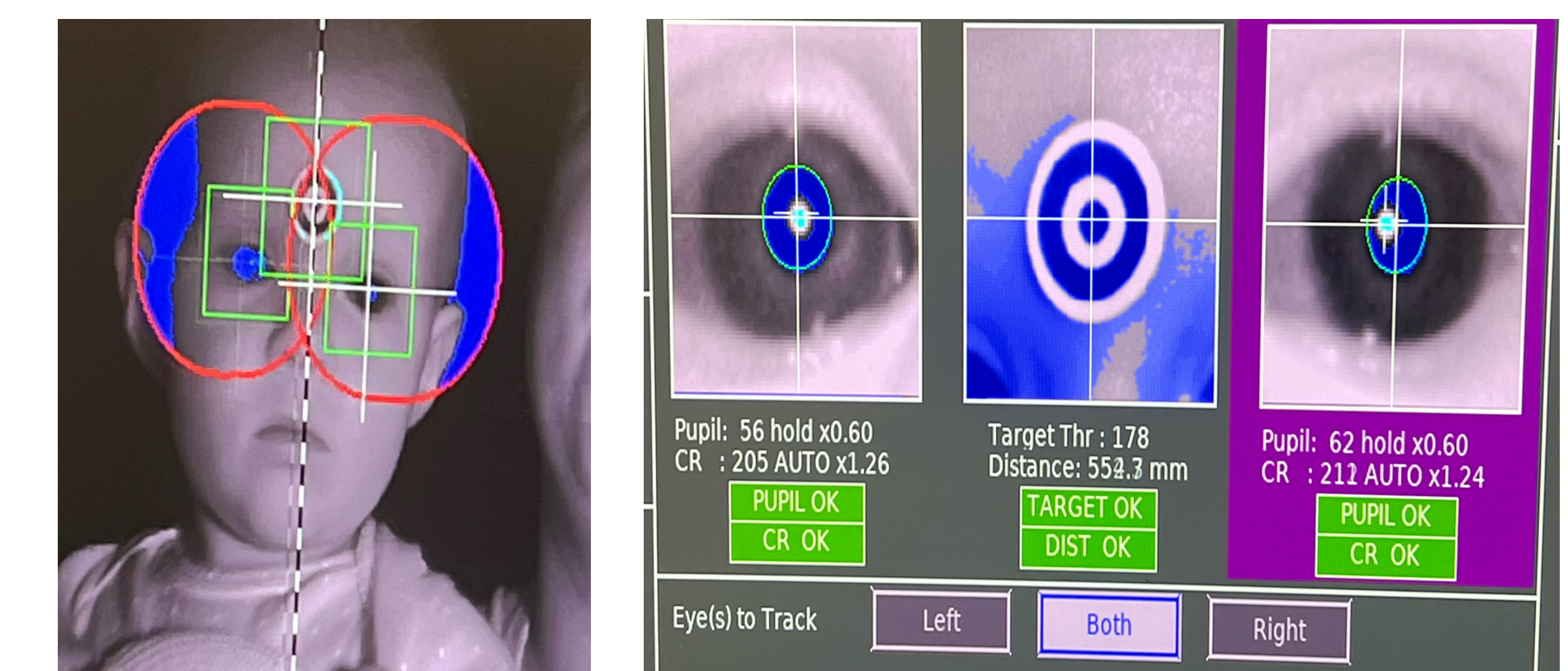
- **Age:** 6 – 15 months (n = 34)
- **Experimental Design:** Beat vs Non-Beat conditions (within-subject) with acoustic variance (loudness, pitch, tempo, timbre)



Attention Getters:



- **Software:** EyeLink 1000 Plus



Eye-Tracking Data Analysis:

- Compare average looking time during Beat and Non-Beat conditions
- Compare average time to first fixation for Beat and Non-Beat conditions
- Correlate infants' age and musical background, and average looking time to Beat and Non-Beat conditions

Parent-Filled Questionnaire:

- Musical background (musical exposure, activities, training) of infants and family member(s)
- Language(s) spoken by infants and family member(s)
- Dance of infants & handedness of parents

Implications

- Rhythmic perception, auditory scene analysis, pattern detection, and speech perception rely on temporal predictions. [7]
- Regularity helps us detect patterns, parse an auditory scene into distinct perceptual objects, and understand speech. [7]
- Results may prove useful to rhythmic interventions that orient attention. [8]

References

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