

NAME: Aparna Srinivasan, aparna.m.srinivasan@vanderbilt.edu

PI: Lense, Miriam

First theme choice: Clinical/Behavioral/Intervention

The use of blink timing as a prosodic communicative marker in infant-directed singing interactions

Authors: Srinivasan M. Aparna, Lense Miriam

Introduction: Infant-directed singing is a universal form of social communication between a parent and their young child. Infant-directed singing better captures and maintains infant's attention compared to infant-directed speech (Trehub, 2001-2002), particularly when presented in an audiovisual format. Prior work from our lab indicates that infant-directed singing entrains infants' visual behavior with infants increasing their gaze to the eyes of the singer timed to the rhythmically salient moments (metrically strong beats). However, less work has considered how parents structure their visual social communicative cues when singing to their infants. In the current study, we consider one specific cue, the timing of parents' blinking when singing. When a speaker blinks, they lose access to the visual world around them, as well as block the listener's access to the information expressed by the speaker's eyes.

Methods: Participants included fourteen parent-infant dyads of nine month-old-infants. Parents were instructed to sing naturally to their child like they did at home. Parents sang an average of two songs to their infants (average total duration of singing across parents = 81.76 seconds). The timing of beats and blinks were manually coded from the audio and video files. Peristimulus time histograms were used for data analysis to analyze the alignment of the blinks and the metrically strong beats.

Results: Parents' average blink rate was 18.2 blinks/minute. However, blinks were not evenly distributed across their singing. Preliminary analyses reveal that parents' blink rate at the metrically strong beats did not differ from chance; however, parents' blink rate significantly increased before and after the strong beats, consistent with the times around the beats being of reduced salience relative to the strong beats themselves.

Discussion: Despite individual differences in how parents sang to their infants (e.g., song choice, tempo, etc.), we observed synchronization in blink timing across parents. Parents increased their blink rate at the times before and after the metrically strong beats relative to chance levels of blinking. Times before/after beats are of reduced salience relative to the beats themselves. When singing to their infants, parents unconsciously time their blinks based on the rhythmic structure so that their eyes (important for social cueing) are available at rhythmically important moments. In future directions, we will investigate this alignment of visual cues to rhythmic structure in parent-child dyads of toddlers with and without ASD to examine how developmental status and social communicative attunement impact parent behavior during multimodal singing interactions.

References, if any: Trehub, S. E., & Nakata, T. (2001-2002). Emotion and music in infancy. *Musicae Scientiae*, 5(1_suppl), 37-61. doi:10.1177/10298649020050s103

Keywords:

Infants, Parents, Music