



Infant attention, movement, and socio-emotional responses to live musical performances in a group context



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- Lullabies and play songs are believed to serve universal functions and have demonstrable effects on infant affect, behavior, and physiology (e.g. Bainbridge, Bertolo et al., 2020; Cirelli et al., 2020; Rock et al., 1999)
- Music is often experienced in group settings, and there has been recent interest in investigating the social and affective underpinnings of collective musical experiences
- How do infants respond to musical performances in a group context?

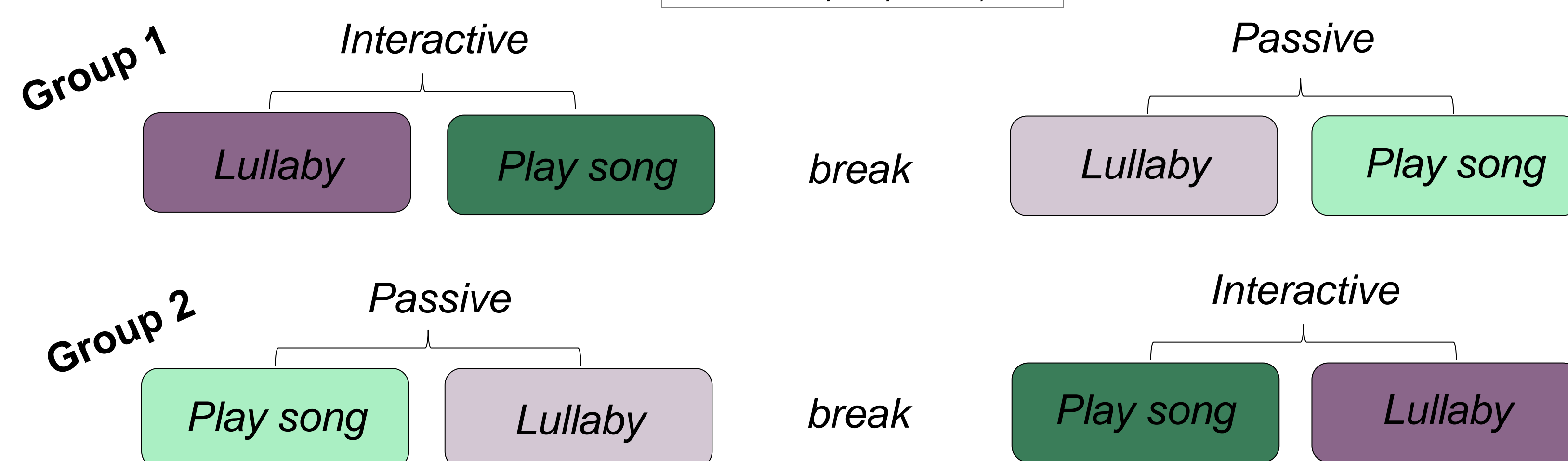
Method

Participants

- 56 infants (6-18 months, 32 boys, 24 girls)
- Infants were tested in two groups, but manipulations were within-subjects

Procedure

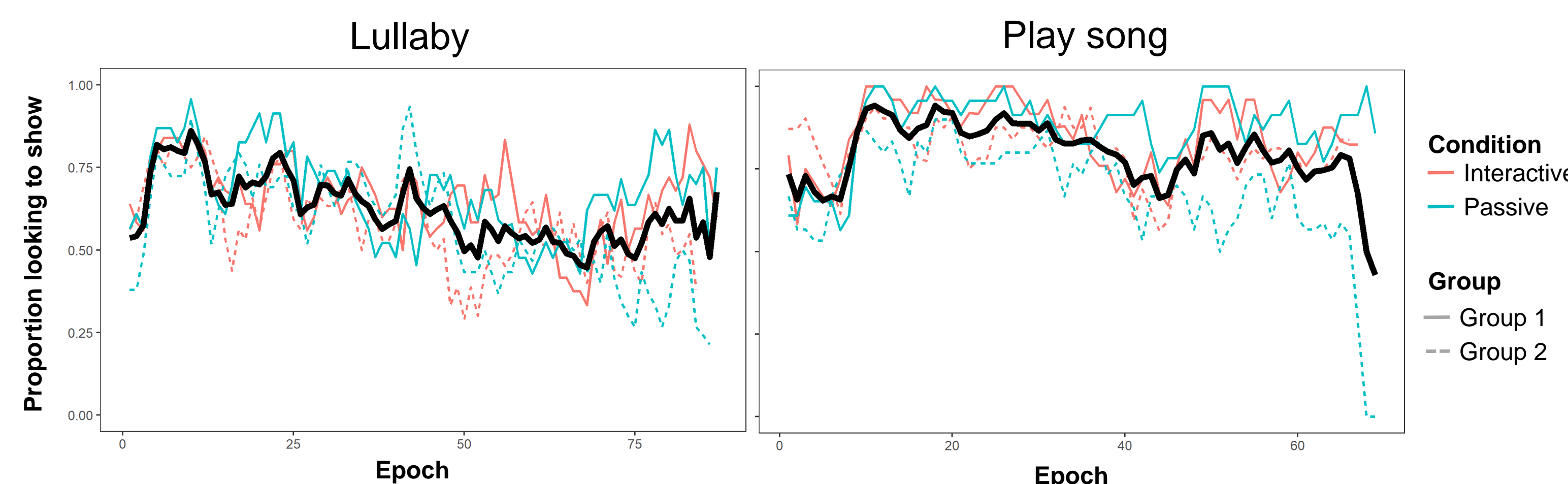
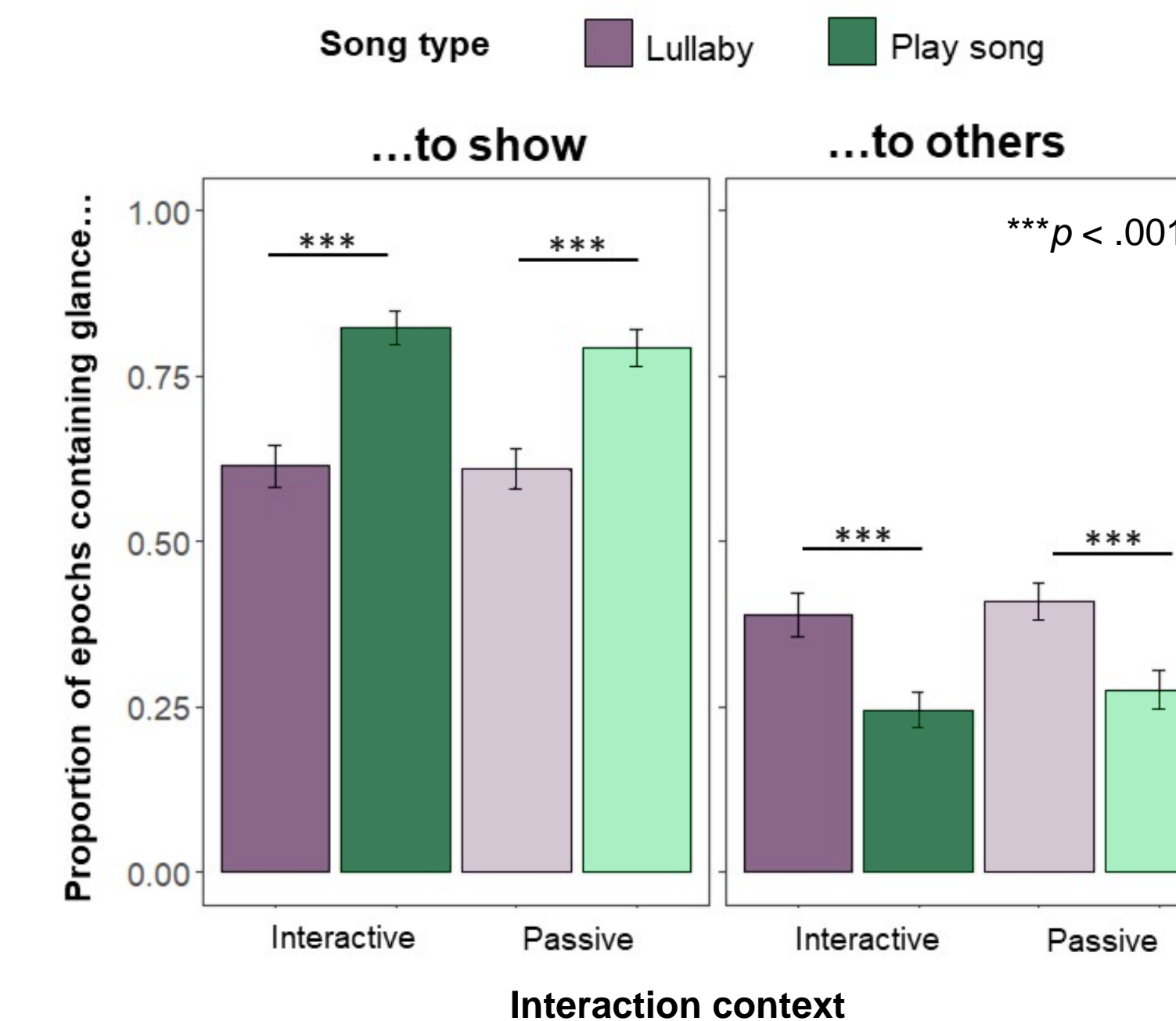
- Parents and infants attended an event in downtown Toronto performed by professional musicians (two singers trained in opera, one pianist, one auxiliary percussionist). They heard each song type (lullaby/play song) twice with a break in between, once in each interactive context (passive/interactive). The entire session lasted around 20 minutes.
- Cameras were placed around the audience to capture all infants' faces
- Infant behaviours were transcribed in ELAN by coders blind to the audio and to the hypotheses.



Results

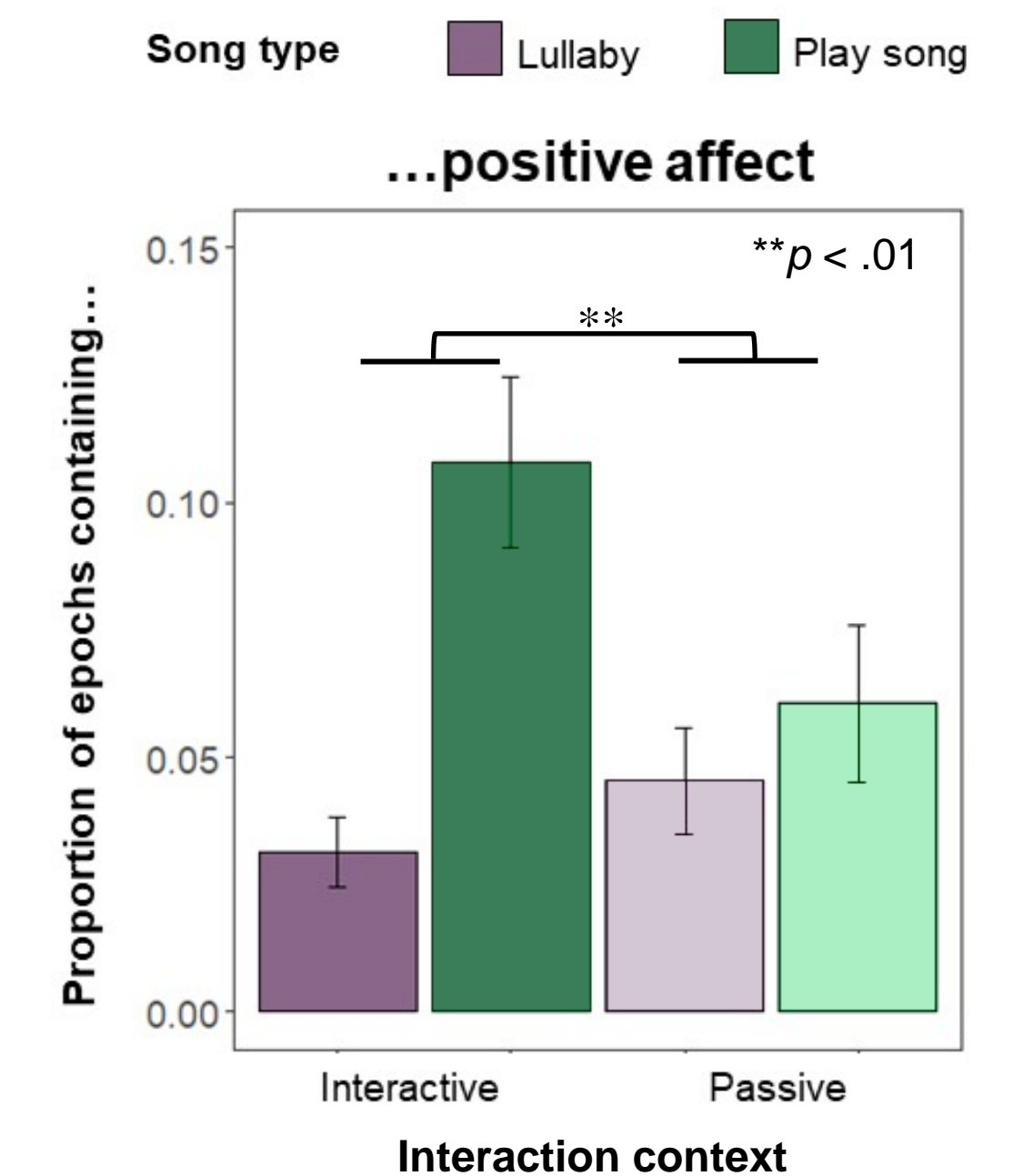
Focus of attention was affected by song type, but not interaction context

- For both attention to parents and others, there was a main effect of *song type* (p 's < .01), no effects of *interaction context*
- Attention to show:** play song > lullaby
- Attention to others:** lullaby > play song



Positive affect was altered by both song type and interaction context

- Expressions of positive affect were most frequent in the interactive play song context (*song type X interaction context* interaction, $p < .01$).
- Expressions of negative affect were rare, and not affected by *song type* or *interaction context*.

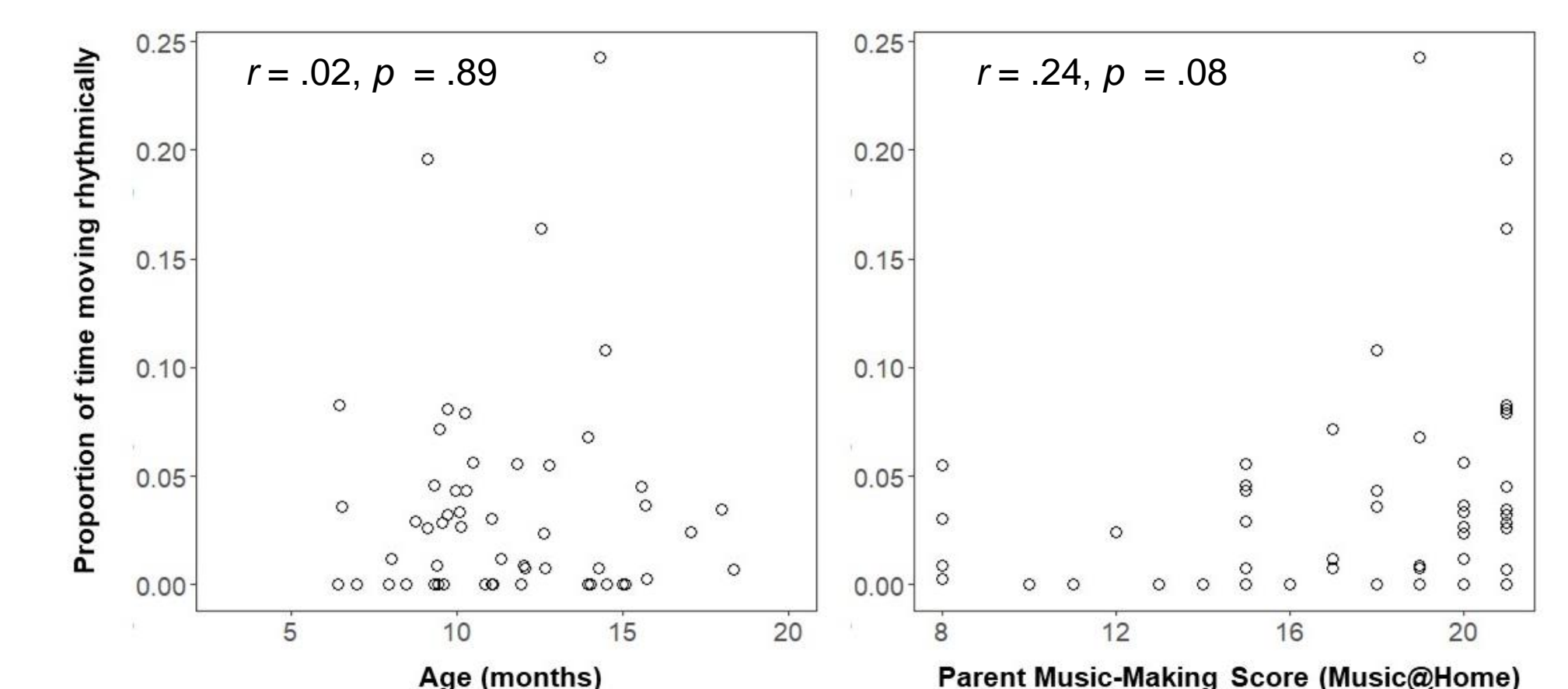


Collective attention over the performance

- Lines represent the proportion of infants who attended to the show for each 2-second epoch
- Attention profiles are similar in shape across all four renditions (2 conditions x 2 groups)

Infants' rhythmic movements in the passive condition increased with self-reported "parent music-making" at home

- Proportion of time that infants moving rhythmically (passive condition only) was not affected by *song type* ($p = .343$)
- Counter to expectations, proportion of time moving rhythmically did not increase with age
- Frequency was positively associated with the Parent Music-Making subscore of the Music@Home Questionnaire (Polittimou et al., 2018).
 - "Make music regularly during playtime", "Make music everyday", "Make music once or twice a week"



Discussion

- Much previous research has demonstrated affective and behavioural differences between infants listening to songs with different goals
- The present study demonstrates that those effects extend beyond the lab and are apparent even in highly distracting, novel, and socially dynamic contexts
- The boost in positive affect was limited to cases where the song style was active and interaction was high, but objects of attention were affected only by song type, not interaction context.
- Ongoing work → emotional contagion, live vs. recorded, behaviour + physiological responses