

# The Role of Stimulus Variability in Infant Preferences for Social And Nonsocial Events

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## Background

Typically-developing infants show an emerging preference for social over nonsocial events (Bahrick, Todd, Castellanos, & Sorondo, under review; Courage, Reynolds, Richards, 2006, Reynolds, Zhang, & Guy, 2013). Compared to nonsocial events, social events typically provide more complex, variable, and less predictable sound and movement patterns, and greater amounts of audiovisual redundancy (Adolphs, 2001; Bahrick, 2010; Dawson et al., 2004). If greater event variability contributes to social preferences, then manipulating event variability such that social and nonsocial events are more comparable may attenuate social preferences. Consistent with this prediction, 4.5-month-olds showed a visual preference for nonsocial over social events when the events were approximately matched for variability level (Bahrick et al., 2012). To assess the development of social vs. nonsocial preferences in infancy, and whether these preferences change with age and as a function of event variability, a group of 7.5-month-old infants was tested in the same procedure.

## Methods

Seventeen 7.5-month-old infants ( $M=222.53$  days,  $SD=12.70$ ) participated in a two screen preferential looking procedure with audiovisual films of social and nonsocial events presented side by side. Social events consisted of videos of each of 3 actors/actresses counting, saying a rhyme, or delivering a monologue, and nonsocial events consisted of videos of 3 objects (a xylophone, mechanical toy truck, and oscilloscopic images) moving and producing sounds (see Figure 1). Low, moderate, and high variability levels for each event type were created by manipulating sound/movement temporal variability, pattern length, and number of repetitions of the pattern within each 30 s trial. Low variability events displayed frequent pattern repetition and little movement/sound variability (e.g., counting vs. musical scales), moderate variability events depicted longer patterns with 2-3 repetitions per trial and moderate temporal variability (e.g., a rhyme vs. short melody), and high variability events depicted patterns that did not repeat and showed high temporal variability (e.g., monologue vs. long, complex musical passage). Side by side pairs of low, moderate, and high variability audiovisual social vs. nonsocial events were presented in three blocks of six 30 s trials, one block for each variability level. The proportion of total looking time (PTLT) to the social events was calculated, with values greater than 50% indicating a preference for social over nonsocial events.

Figure 1. Still images of dynamic audiovisual nonsocial and social events.

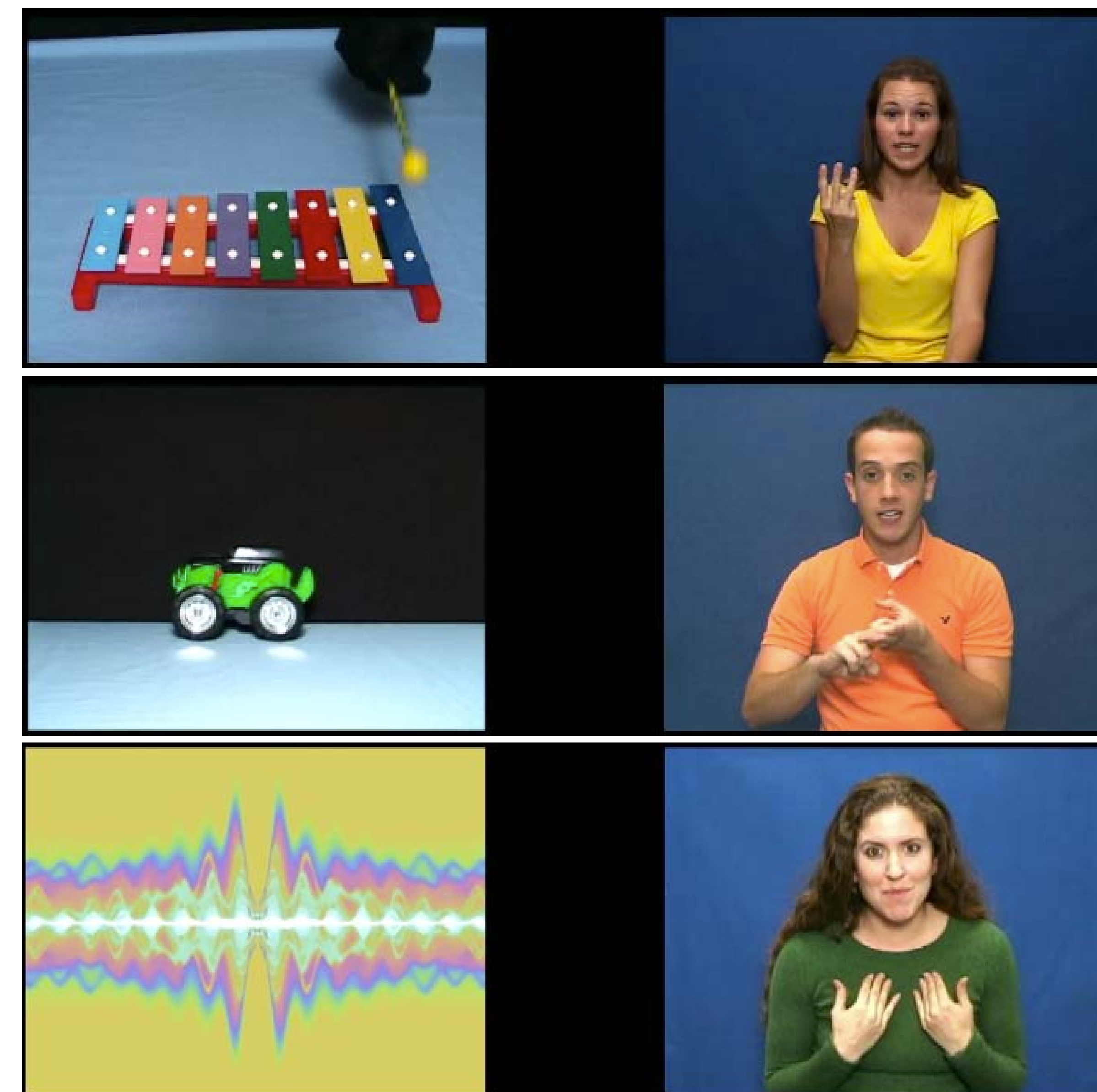
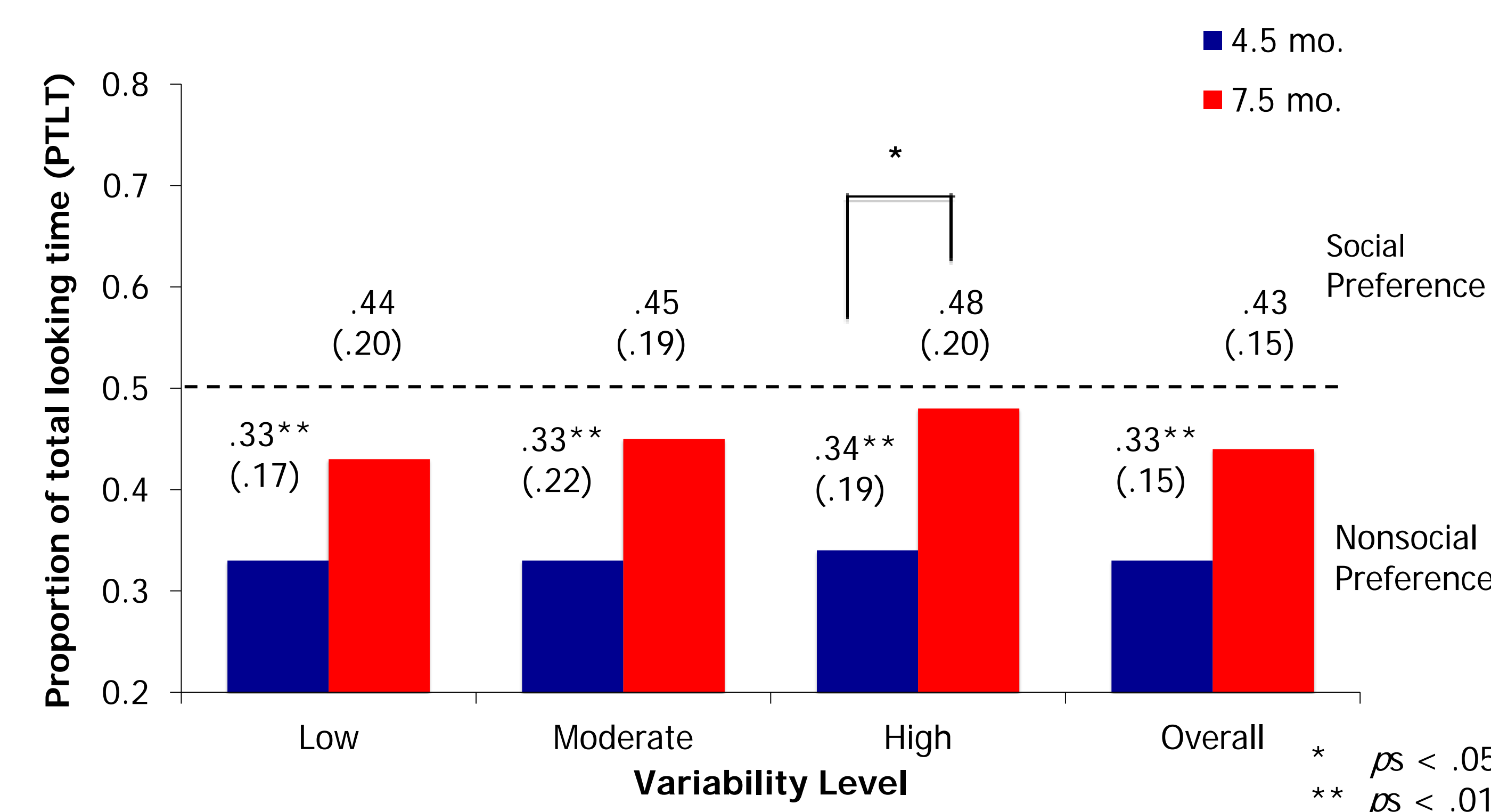


Figure 2. Proportion of total looking time (PTLT) to social events for each variability level (low, moderate, high) and for all trials (overall) for 7.5- and 4.5-month-old infants. PTLT values below 50% indicate preferences for the nonsocial events.



## Results

Results are depicted in Figure 2 along with those of the 4.5 month-olds. A single-sample  $t$  test on the overall PTLT to the social events against chance (50%) revealed that the mean PTLT to the social events was not significantly different from chance at 7.5 months,  $t(16) = -1.48$ ,  $p = .16$ , indicating no preference for social or nonsocial events. Nor were the PTLTs significantly different from chance at the low, moderate, or high variability levels,  $t_s(16) < -1.38$ ,  $p_s > .19$ . Thus, in contrast to the nonsocial preference shown by 4.5-month-olds, 7.5-month-olds showed no preference for social or nonsocial events. An ANOVA comparing age and variability level revealed a main effect of age,  $F(1, 35) = 5.66$ ,  $p = .02$ , with 7.5-month-olds showing greater PTLTs to social events than 4.5-month-olds. This was particularly true for the high variability level events ( $p = .04$ ). No other main effects or interactions were significant ( $p_s > .65$ ).

## Conclusions

In contrast to 4.5-month-olds who showed a clear preference for nonsocial over social events when event variability was roughly equated, 7.5-month-olds showed no preference. Further, their preference for social events was significantly greater than that of 4.5-month-olds. The present findings are consistent with the view that infant attention to social events may, in part, stem from their relatively high levels of variability compared to nonsocial events. Further, consistent with our prior research, these findings indicate an emerging preference for social as compared with nonsocial events across early development (Bahrick et al., under review).

## References

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