17-month-olds do not revoke trust from unreliable informants providing verbal testimony

Allison Fitch[1,2], Patricia Ganea[3], Paul Harris[4], Zsuzsa Kaldy[2]

[1]Boston University, [2]University of Massachusetts Boston, [3]University of Toronto, [4]Harvard University

Introduction

- From their second year, infants use verbal testimony to generate and update mental representations about absent referents. For example, when told about a change in a hidden object's location, 16-month-olds show a Violation-of-Expectation (VoE) if that change has not actually occurred (Ganea et al., 2016).
- It is believed that they do so without regard to the credibility of the testimony. Findings from *pointing and hiding tasks* suggest children 3 years and younger have a strong bias to trust verbal testimony (e.g. Ganea et al., 2011; Jaswal., 2010; Jaswal et al., 2010).
- This is difficult to reconcile with findings from *eye-tracking tasks* in 8-month-olds, who evaluate the credibility of nonverbal testimony, and will revoke their trust in unreliable informants (e.g. Tummeltshammer et al., 2014).
- Two possible interpretations:
  1. Differences in findings are the result of the medium of the testimony (verbal/linguistic vs. nonverbal/nonlinguistic)
  2. Differences in findings are the result of different task demand
- Current study investigates Hypothesis 2 using a low-demand eye-tracking study to test infants' ability to revoke trust in an unreliable informant. This is the first study to examine selective trust in verbal (episodic) testimony in infants.

Pilot Study

- In an initial pilot study, we asked if the VoE in Ganea et al., 2016 decreased over 6 repeated exposures (Fitch et al., ICIS 2016).
- Findings showed no decrease in VoE over the 6 trials— infants were just as surprised by violations of the testimony on trial 6 as they were on trial 1.
- Perhaps due to the informant, which was a disembodied voice and the same in both violation and no-violation blocks.
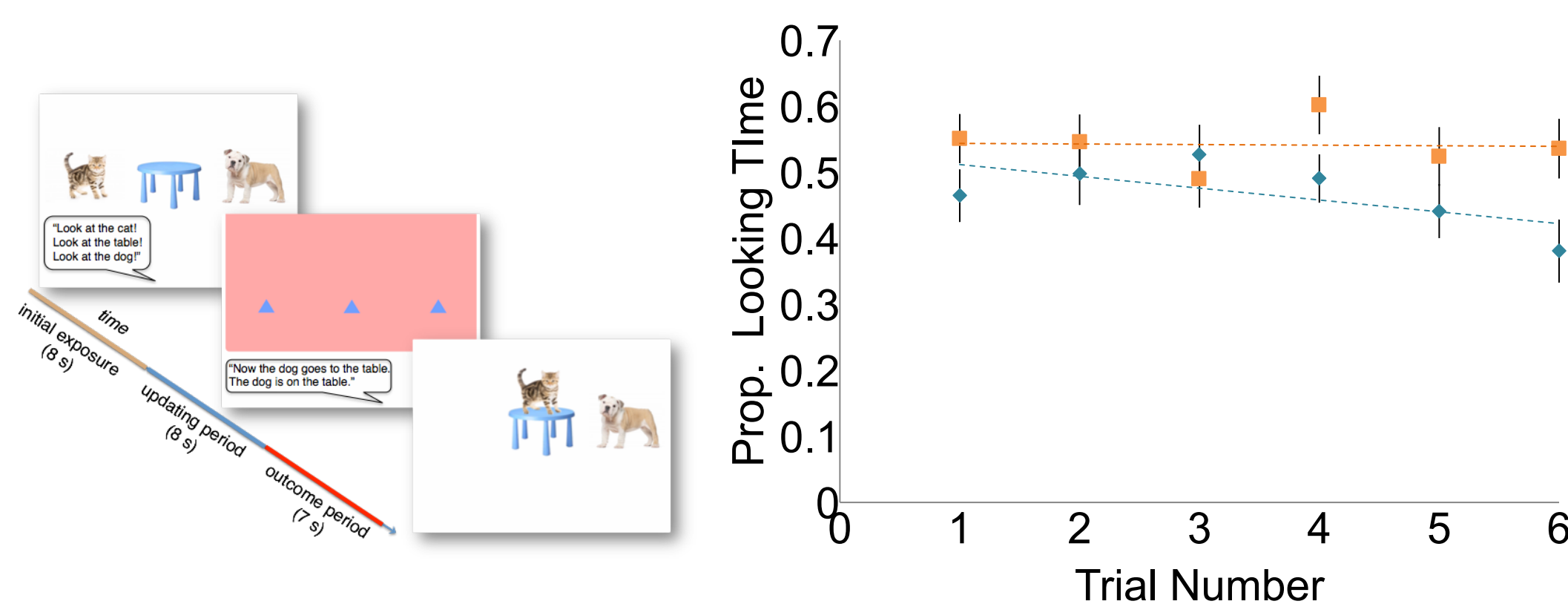
References

- Fitch, A., Ganea, P. A., Harris, P. L., & Kaldy, Z. (2016). Infants continue to trust language after multiple false testimonies. *International Congress of Infant Studies,* May, 2016.
- Ganea, P. A., Fitch, A., Harris, P. L., & Kaldy, Z. (2016). Sixteen-month-olds can use language to update their expectations about the visual world. *Journal of Experimental Child Psychology*, 151, 65-76.
- Ganea, P. A., Koenig, M. A., & Millett, K. G. (2011). Changing your mind about things unseen: Toddlers' sensitivity to prior reliability. *Journal of Experimental Child Psychology*, 109(4), 445-453.
- Jaswal, V. K. (2010). Believing what you're told: Young children's trust in unexpected testimony about the physical world. *Cognitive Psychology*, 61(3), 248-272.
- Jaswal, V. K., Croft, A. C., Setia, A. R., & Cole, C. A. (2010). Young children have a specific, highly robust bias to trust testimony. *Psychological Science*, 21(10), 1541-1547.
- Tummeltshammer, K. S., Wu, R., Sobel, D. M., & Kirkham, N. Z. (2014). Infants track the reliability of potential informants. *Psychological Science*, 25(9), 1730-1738.

Methods

Participants: 24 full-term, monolingual infants (10 F, 14;15-19;24, *M* = 17 months)

Apparatus: Tobii T120 Eye-Tracker, sampling at 60 Hz

Procedure: Violation-of-Expectation, 1 familiarization block (each stimulus 2x for 6 trials), followed by 2 blocks of 4 test trials, order counterbalanced:
  1 reliable informant block (no violation)
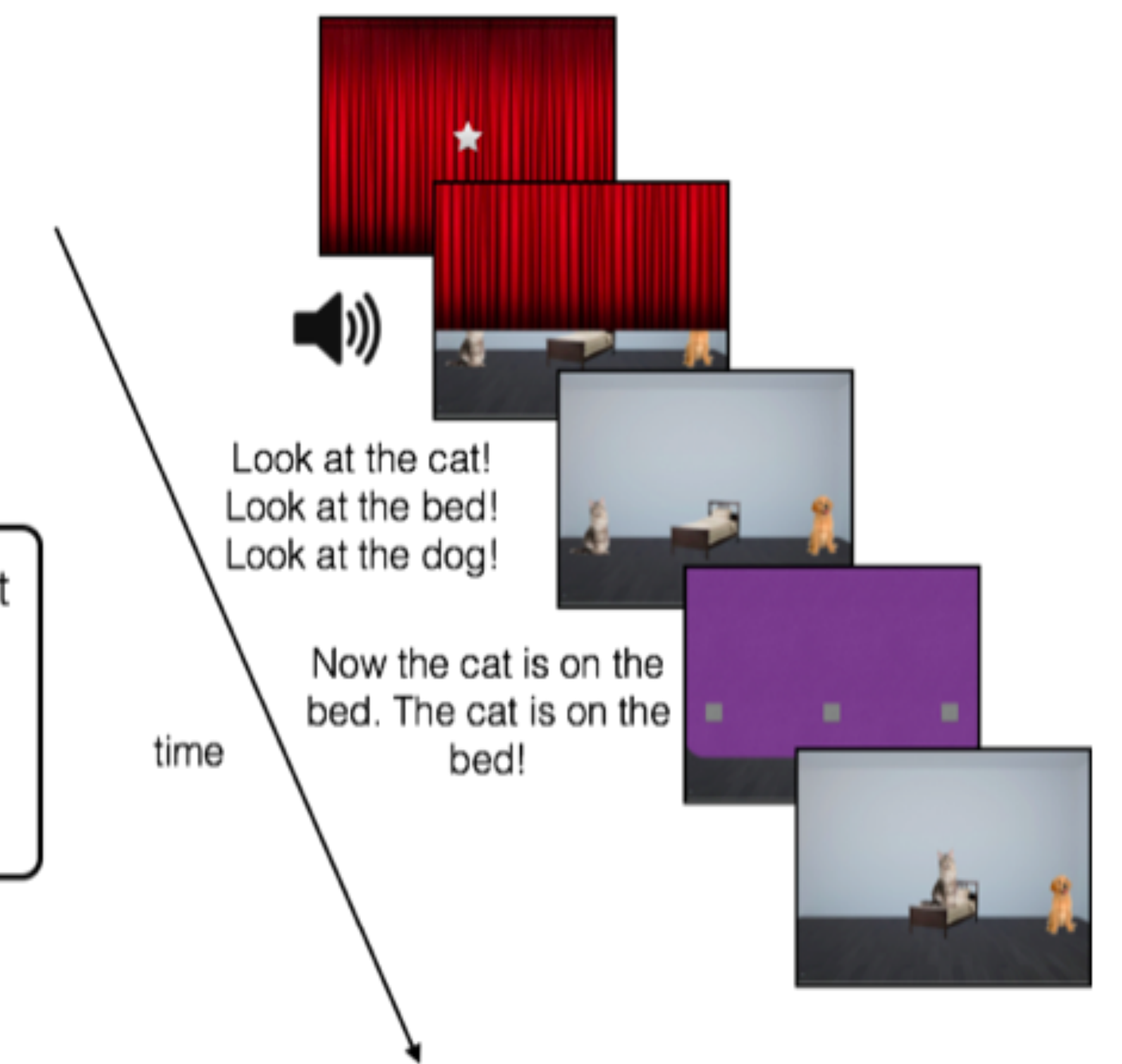 1 unreliable informant block (violation)

DV: Proportion of looking time to the animal that changed location

Introduction

Hi there! Do you like animals? I want to show you some of my favorite animals. Let's take a look at some cats and dogs. They're playing a hiding game!

Test

Look at the cat!
Look at the bed!
Look at the dog!

Now the cat is on the bed. The cat is on the bed!

Hypothesis: In early trials, we expect a Violation-of-Expectation, and thus longer looking in the unreliable (violation) block relative to the reliable (no violation) block. In later trials, trust is revoked from unreliable informants, and Violation-of-Expectation is diminished.

Results

Overall, infants look more (proportional to overall looking) to the animal that changed location in the violation (unreliable) condition than the no violation (reliable), replicating Ganea et al., 2016. There is no effect of block order or informant's gender.

A Generalized Estimating Equations model predicting Proportion of Looking Time from Condition and Trial Number demonstrated a significant effect of Condition (Wald $\chi^2(1)$ = 6.416, p = .011) and a significant Condition x Trial Interaction (Wald $\chi^2(3)$ = 7.89, p = .048).

Average Proportion of Looking Time to Animal that Changed Location by Condition
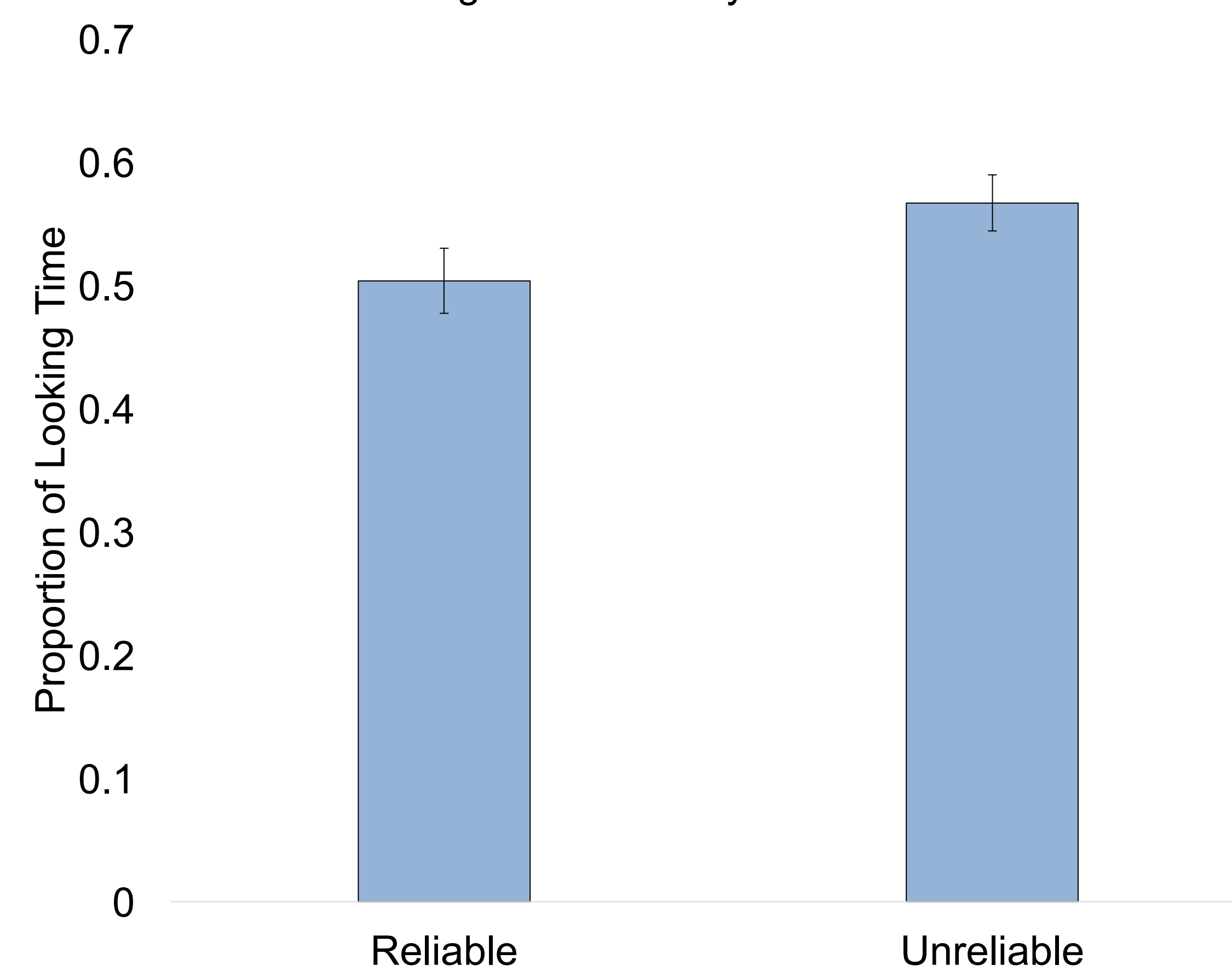
Proportion Looking Time to Animal that Changed Location by Condition and Trial
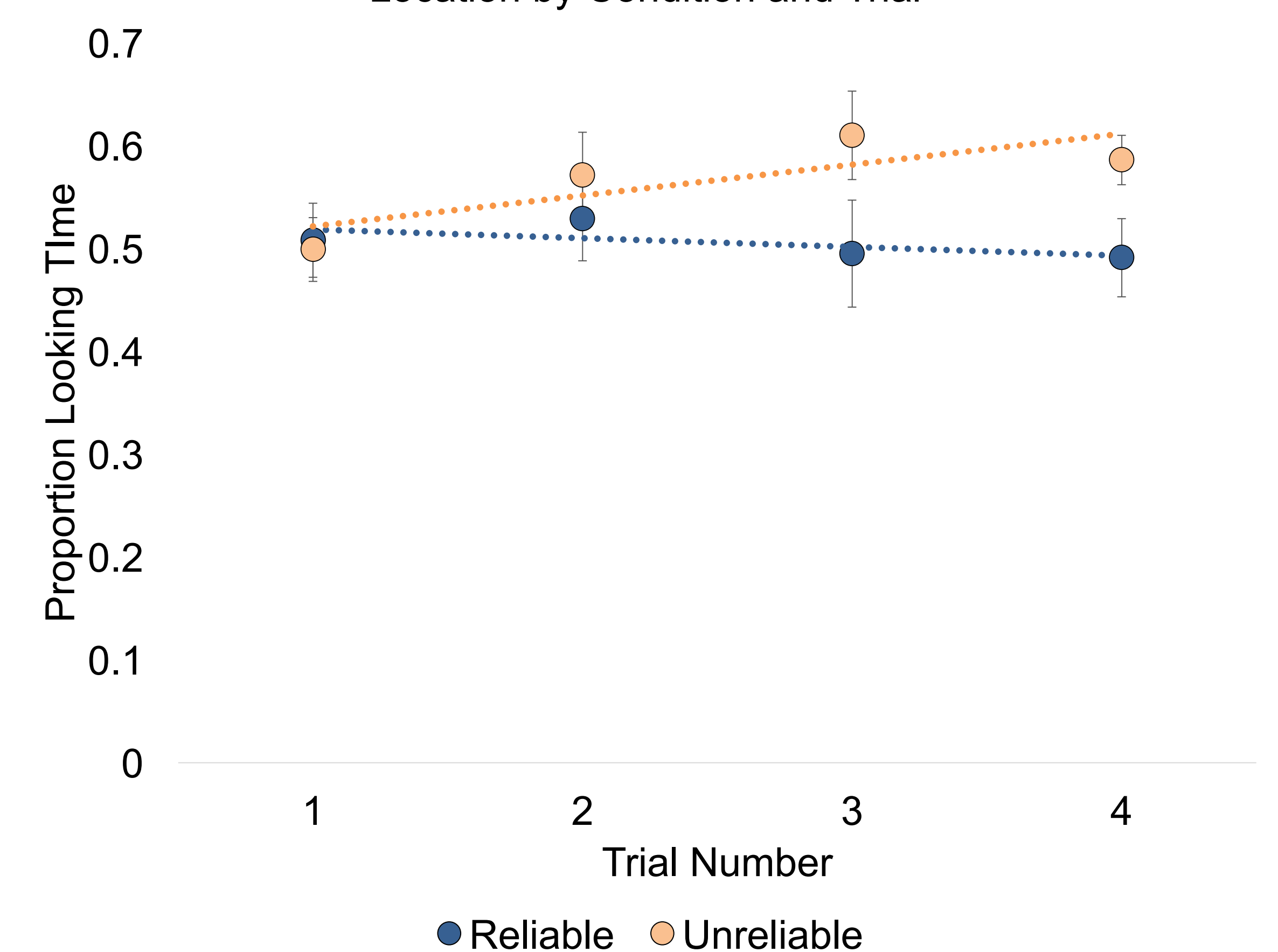
Discussion

- Findings demonstrate clear Violation-of-Expectation effects, replicating Ganea et al. 2016's claims that infants at this age can update mental representations of absent scenes based on verbal testimony.
- Contrary to the hypothesis, Violation-of-Expectation effects only began to appear after repeated exposures to an unreliable informant, and did not diminish after four trials.
- This suggests that although infants did not *revoke* trust in the unreliable informant, they also were not initially surprised by their unreliable testimony.
  - This may be due to differences in methods. Three-year-olds revoke trust more easily if the informant is out of the room—here, the informant was never physically present.
- **Conclusion:** The inability to revoke trust in verbal testimony at this age appears unrelated to task demands. Our findings contribute to the body of work in older children that language is particularly difficult to withhold trust from, and extends this to infants. However, infants may be less biased to initially trust testimony than previously thought.