Investigating the development of visual perspective representations in rhesus monkey (*Macaca mulatta*) infants

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Introduction

- Human children undergo robust ontogenetic shifts in theory of mind capabilities. [1]

Are humans alone in these developmental shifts in theory of mind, or do other primates show similar changes across infancy?

- Adult rhesus macaques can represent what others see and know despite failures on false belief tasks. [2,3,4,5]

Do rhesus monkeys undergo developmental shifts in their understanding of seeing throughout infancy and juvenile years?

References

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[2] Marticorena, D., Ruiz, A. M., Mukerji, C., Goddu, A., & Santos, L. R. (2011). Monkeys represent others' knowledge but not their beliefs. *Developmental Science* 14(6),

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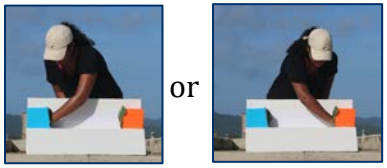
Methods

Subjects: n=240, between 0-60 months old

0 – 12 months | **12 – 36 months** | **36 – 60 months**

1: Familiarization to reach

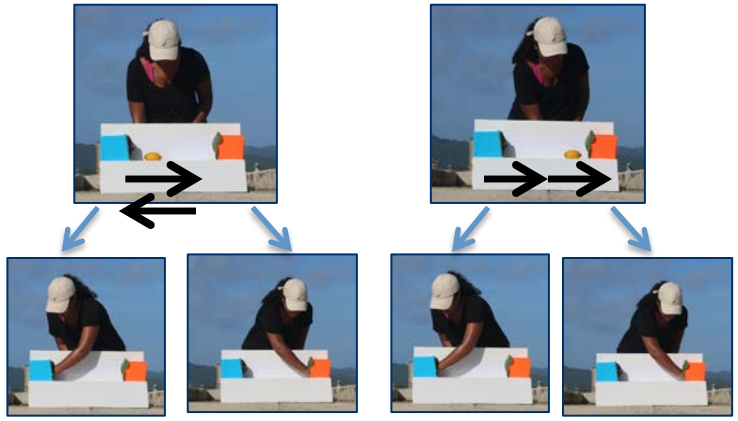


or

2: Familiarization to lemon

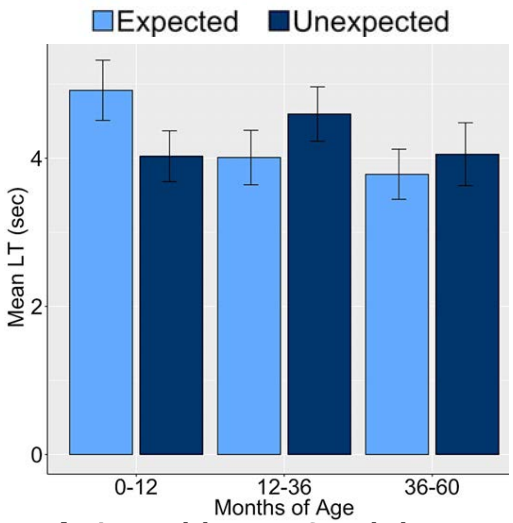
3: Test trial, two conditions

Same **Different**



Expected **Unexpected** **Unexpected** **Expected**

Results



Analysis: Welch Two Sampled T-test, within cohort and between conditions

0-12: t(79)=1.6741, p=0.09 *n.s.*
12-36: t(79)=-1.1311, p=0.26 *n.s.*
36-60: t(79)=-0.5006, p=0.61 *n.s.*

Conclusions

- While infants appear to show a different pattern than juvenile rhesus monkeys, observed group and within-cohort differences are non-significant.
- We provide the first test of infant rhesus monkeys in an expectancy violation experiment.
- Future research should explore whether similar changes occur in human infant understanding of visual perspective.