Use of Experimenter-Given Cues in Visual Co-Orienting and in an Object-Choice Task by a New World Monkey Species, Cotton Top Tamarins (Saguinus oedipus)

Julie Neiworth, Michael Burman, Ben Basile, & Mark Lickteig

Carleton College

Northfield, MN

Abstract

Two different methods assessed the use of experimenter-given directional cues by cotton top tamarins. Experimenter-given cues were used to elicit visual co-orienting between focal objects. Experimenter-given cues were used to generate accurate choices in an object-choice task. Visual co-orienting occurred in a very few situations in the task that did not have a clear goal. However, pointing cues generated more visual co-orienting than did eye gaze. Accurate choices of baited cups occurred with pointing cues, and task cues, where tasks involved head and body orientation. The results highlight the importance of head/body orientation in visual co-orientations in cotton top tamarins, both in tasks that involved head-getting and a task that did not.

Introduction

A contemporary question is the extent to which primates understand that there is a “light” signal in following another animal’s direction of gaze. In humans, the cognitive capability for following a moving light cue is a highly developed, spatially requiring function of gaze, directly eliciting attention toward a novel target to the left and right of fixation. Spatially, resolvable units in light position display the ability to do this sentence. The current work demonstrates that certain species of cotton top tamarins may attend to eye/head cues and pointing/touching particularly when a visual co-orienting task was successful and the visual co-orienting task was successful and the visual co-orienting task was successful and the visual co-orienting task was successful.

Results: Experiment One

Table 1 presents the results of Anderson and Mitchell, 1999, which were the results of a discrimination experiment on leaf-cutter ants and control subjects. These ants were tested with an object-choice task in which they were trained to choose between two cups, one of which contained food. The ants were then tested for their ability to choose correctly when one of the cups was baited behind a screen, and then an experimenter used either pointing or looking cues to indicate the “correct” cup. The ants showed significantly higher performance when they were given the pointing cue compared to the looking cue. This suggests that, unlike human observers, cotton top tamarins may attend to eye/head cues and pointing/touching particularly when a visual co-orienting task was successful and the visual co-orienting task was successful and the visual co-orienting task was successful and the visual co-orienting task was successful.

Table 1. Correct Percentages for the control species, S. oedipus and T. pinchaque

<table>
<thead>
<tr>
<th>Species</th>
<th>Control Age</th>
<th>Correct Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>S. oedipus</td>
<td>6 months</td>
<td>58.76</td>
</tr>
<tr>
<td>T. pinchaque</td>
<td>3 months</td>
<td>79.49</td>
</tr>
</tbody>
</table>

Discussion:

The current set of studies tested a novel world species, cotton top tamarins (Saguinus oedipus), and two taxonomic methods in which eye gaze can elicit a response: right and left eye. In both taxons, the cotton top tamarin was used to test whether the species could select accurately in an object-choice task. It was found that the tamarins did not reliably visually co-orient to a novel object (Experiment One), but did show an ability to look where someone else is looking, called joint visual attention (Experiment Two), or to be instructed by an experimenter, called visual co-orienting (Experiment Three). The results of these studies indicate that cotton top tamarins may have a unique ability to understand the information content in a visual cue.

Acknowledgments

This work was supported by a grant from the National Science Foundation (BEH-9803631) tomoved to the current study. For more details, or a copy of this paper, contact jneiwort@carleton.edu