

Pragmatic Primates and Cognitive Cups

Object permanence, visual associative learning, and visual stimulus reversal learning
in captive ring-tailed lemurs (*Lemur catta*) and white-faced sakis (*Pithecia pithecia*)

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Background

Animal cognition in primates is mainly focused on great apes, leaving gaps of knowledge in other primate taxa. In order to further the knowledge of primate cognition, I investigated the cognitive ability of five **Ring-tailed lemurs** (*Lemur catta*) and four **white-faced sakis** (*Pithecia pithecia*) in the Furuvik Zoo, Gävle, Sweden.

The **aim** of the study was to assess three cognitive abilities:

Object permanence: Understanding that an object exists while out of view.

Visual associative learning: Making a connection between a visual stimulus and its outcome.

Visual stimulus reversal learning: The relationship of stimulus and outcome is reversed, requiring the individual to create a novel association.



♂ Albin
16

♂ Germund
18

♂ Holger
18

♂ Josef
20

♂ Vide
5



♀ Anita
9

♂ Engelbrekt
13

♂ Kariakou
19

♀ Lisha
17

Results

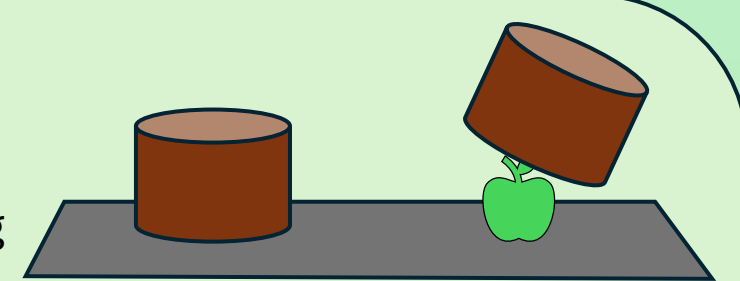
In all three tests, a majority individuals in both species succeeded in reaching the learning criterion of 70% correct responses. Both species required few sessions to reach the learning criterion in the **object permanence** and **visual associative learning** tests. The three **visual stimulus reversal learning** tests required comparatively more sessions for both species, and fewer individuals reached the learning criterion.

Methods

Three cognitive tests

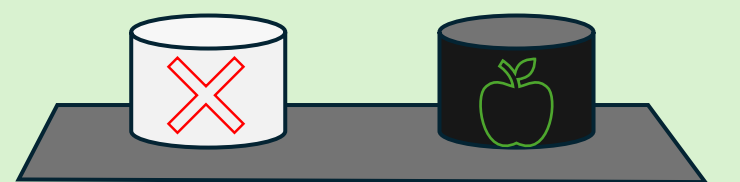
Object permanence:

The animal watches a food reward being hidden under one of two identical cups.



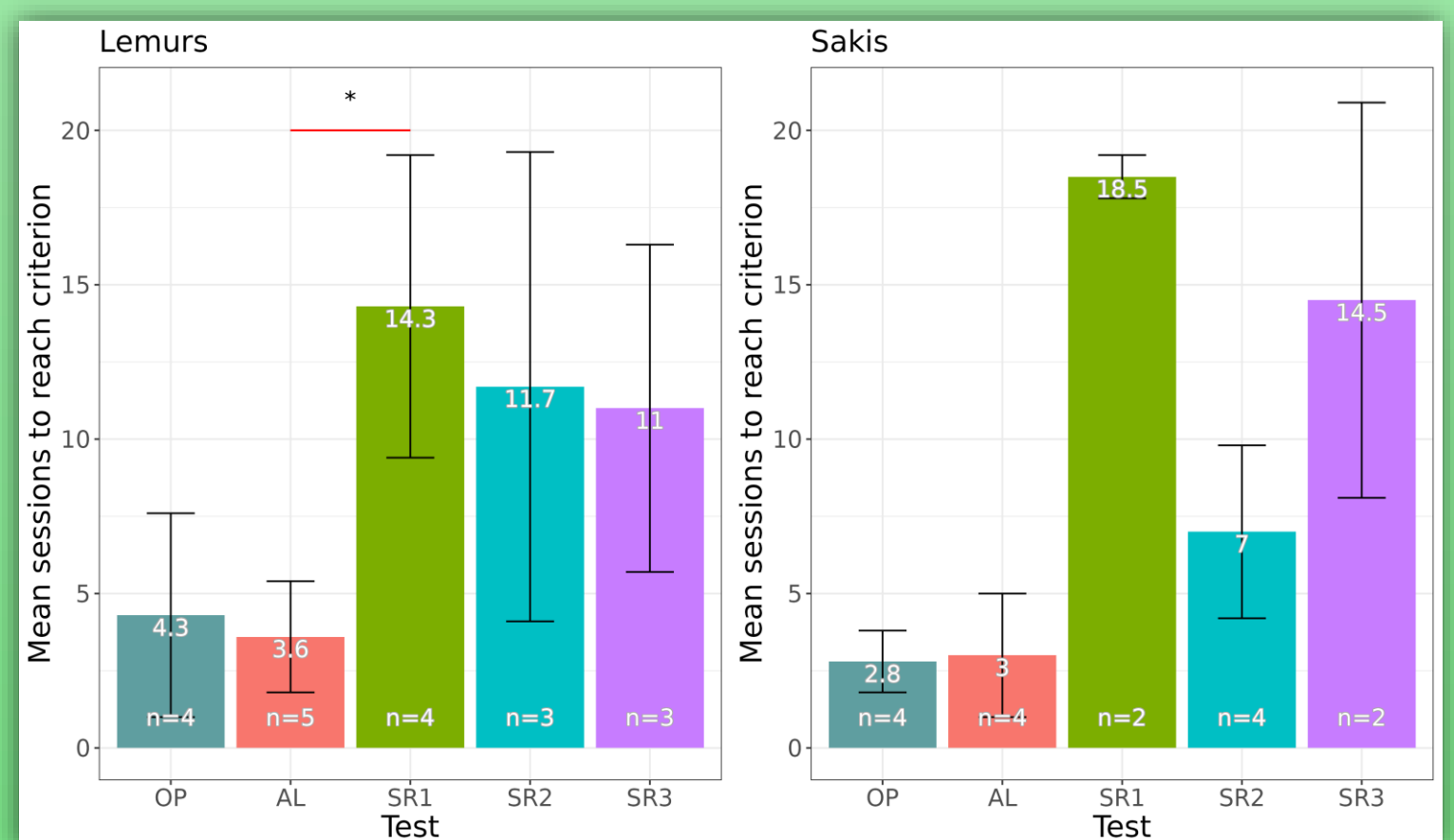
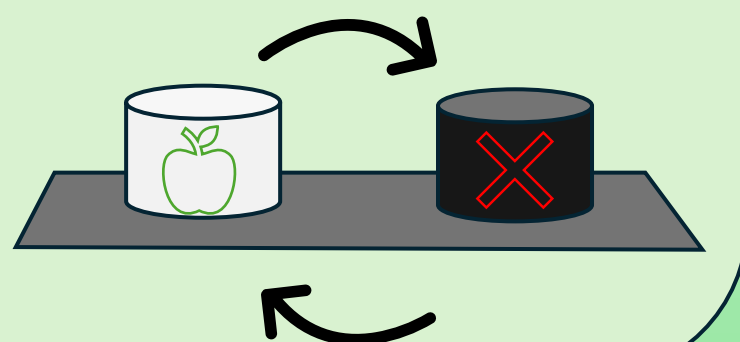
Visual associative learning:

A food reward is pre-emptively hidden under an assigned colour (black or white) cup.



Visual stimulus reversal learning:

The assigned colour is reversed for all animals.



Discussion

The results are consistent with studies on the same tasks in other primate taxa and indicate that both species possess the cognitive ability of object permanence, and of visual associative learning. Both species succeeded in the visual stimulus reversal learning test which reflects their cognitive flexibility to adapt to a changing environment.



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