

MANUAL LATERALITY IN 3 SPECIES OF CERCOPITHECIDES: INFLUENCE OF TASK COMPLEXITY

C. Blois-Heulin¹, A. Laurence², A. S. Chapelain³ C. Wallez⁴

¹ UMR Animal and human Ethology, University of Rennes 1, Paimpont, France, ² UMR Animal and human Ethology, University of Rennes 1, Rennes, France, ³ Loughborough University, Leicestershire, United Kingdom, ⁴ Department of Psychology, Aix-Marseille University, Aix en Provence,

Presenter's Email: catherine.blois-heulin@univ-rennes1.fr

In the past, studies on laterality focused solely on *Homo sapiens*, but, in recent years, they have been developed in many animal species. These studies contribute to a better understanding of the origins of human brain asymmetry. Two main theories have been developed to explain primate handedness: the Mac Neillage et al.'s "postural origins theory" (1987) and Fagot and Vauclair "complexity task theory" (1991). To test these theories, we compared manual laterality in 3 different species: red-capped mangabeys, Brazza's monkeys and Campbell's monkeys, in different experimental or "natural" situations". In experimental conditions, tasks with different degrees of complexity and different postures were used. An analysis based on the number of lateralized individuals, the number of left and right-handers, on the handedness index and on the strength of laterality, was performed. For all species, the number of lateralized subjects and the strength of laterality, whatever sex and age, increased with task complexity. In particular, all individuals, whatever the species, were lateralized for bimanual coordination tasks. In addition, only few monkeys were lateralized for simply reaching. No effect was found on bias excepted for red-capped mangabeys, for which there was more right-handed than left-handed for hanging tray task. An effect of age and gender was highlighted only in red-capped mangabeys. Adults were right-handers for hanging task, but no significant bias was found for juveniles. Females were right-handers for hanging task; males were left-handers for bimanual task. Such results support mainly the complexity of the task theory and partially the theory of McNeillage.

Keywords: Handedness, Evolution of laterality, mangabeys, guenons