Right-handed Chimpanzees Provide Clues to the Origin of Human Language

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Most of the linguistic functions in humans are controlled by the left cerebral hemisphere. A study of captive chimpanzees at the Yerkes National Primate Research Center (Atlanta, Georgia), reported in the January 2010 issue of Elsevier's *Cortex* (http://www.elsevier.com/locate/cortex), suggests that this "hemispheric lateralization" for language may have its evolutionary roots in the gestural communication of our common ancestors. A large majority of the chimpanzees in the study showed a significant bias towards right-handed gestures when communicating, which may reflect a similar dominance of the left hemisphere for communication in chimpanzees as that seen for language functions in humans.

A team of researchers, supervised by William D. Hopkins of Agnes Scott College, studied hand use in 70 captive chimpanzees over a period of 10 months, recording a variety of communicative gestures specific to chimpanzees. These included "arm threat," "extend arm," or "hand-slap" gestures produced in different social contexts, such as attention-getting interactions, shared excitation, threat, aggression, greeting, reconciliation or invitations for grooming or for play. The gestures were directed at the human observers, as well as toward other chimpanzees.

"The degree of predominance of the right hand for gestures is one of the most pronounced we have ever found in chimpanzees in comparison to other non-communicative manual actions. We already found such manual biases in this species for pointing gestures exclusively directed to humans. These additional data clearly showed that right-handedness for gestures is not specifically associated to interactions with humans, but generalizes to intraspecific communication," notes Hopkins.

The French co-authors, Adrien Meguerditchian and Jacques Vauclair from the Aix-Marseille University (Aix-en-Provence, France), also point out that "this finding provides additional support to the idea that speech evolved initially from a gestural communicative system in our ancestors. Moreover, gestural communication in apes shares some key features with human language, such as intentionality, referential properties and flexibility of learning and use."