Marmosets found to learn to take turns when vocalizing

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Common marmoset. (Callithrix jacchus) Credit: Carmem A. Busko/Wikipedia/CC BY 2.5

(Phys.org)—A trio of researchers with the University of California has

found that marmosets learn to wait for others to stop making noise before they vocalize, at a very young age. In their paper published in *Proceedings of the Royal Society B*, Cecilia Chow, Jude Mitchell and Cory Miller describe a study they undertook with young marmoset twins and their parents and what they learned by doing so.

In the primate world, only humans are able to listen to a sound made by someone else and mimic it, a skill that has led to communication and the different languages spoken around the world. Scientists know that part of communicating involves one person listening to what another says, before responding. This requires an ability to understand what it means to take turns when vocalizing. In this new study, the researchers have found that a young marmoset (a small silvery coated South American monkey) was also able to learn to take turns as part of vocalizing.

In their study, the researchers studied the vocalizations of a pair of captive marmoset twins (and their parents) over the first year of their life and report that they observed two parallels to language development. The first was that taking turns when vocalizing was a learned behavior. The second was that the young marmosets were essentially taught to take turns vocalizing by their parents in ways that are similar to the methods human parents use to teach children to wait for another person to finish speaking before they try to speak themselves.

In watching the monkeys as they grew, the researchers noted that if a youngster made a vocalization while a parent was vocalizing, that vocalization was typically ignored by the adult, which resulted over time in the youngster learning to wait for the adult to finish before vocalizing. They noted that as time passed, the young monkeys became less likely to interrupt—though it was more pronounced with their mother than with their father.

The researchers suggest their findings indicate a learning mechanism

that is similar across all primates which could lead to a better understanding of the development of language in humans.

More information: Vocal turn-taking in a non-human primate is learned during ontogeny, Published 22 April 2015. DOI: 10.1098/rspb.2015.0069

Abstract

Conversational turn-taking is an integral part of language development, as it reflects a confluence of social factors that mitigate communication. Humans coordinate the timing of speech based on the behaviour of another speaker, a behaviour that is learned during infancy. While adults in several primate species engage in vocal turn-taking, the degree to which similar learning processes underlie its development in these non-human species or are unique to language is not clear. We recorded the natural vocal interactions of common marmosets (Callithrix jacchus) occurring with both their sibling twins and parents over the first year of life and observed at least two parallels with language development. First, marmoset turn-taking is a learned vocal behaviour. Second, marmoset parents potentially played a direct role in guiding the development of turn-taking by providing feedback to their offspring when errors occurred during vocal interactions similarly to what has been observed in humans. Though species-differences are also evident, these findings suggest that similar learning mechanisms may be implemented in the ontogeny of vocal turn-taking across our Order, a finding that has important implications for our understanding of language evolution.