

NATURAL SELECTIONS

CONSIDERING CONTINUA

What's 'separate' about humankind?

By ROWAN HOOPER

In a sense, I'm a mind reader. In writing this, I believe that you think that I want you to think that I intend to persuade you of something I believe. Got that?

It's what cognitive scientists call mind reading -- the ability to speculate on intention. In the example above, there are five levels of mind-reading intentionality. Chimps can "mind read" to two levels. For example, a chimp can think (one level) that I want it to believe (two levels) I've eaten a cookie, when really I've hidden the cookie on a shelf. Dogs can manage one level (they think I've eaten the cookie).

There's a continuum at work here, and it depends on the size and complexity of the brain's frontal lobe. Humans can mind read better than chimps, chimps are better than monkeys, and monkeys are better than dogs.

Today's column is about this continuum. I don't often get to use the word "continuum" -- it's normally one that cosmologists and science-fiction writers reach for when they talk about space and time. But my continuum is just as fascinating, and has profound consequences -- not for the fabric of space-time, but



A resident of Chimp Haven near Shreveport, Louisiana, which gets government funding to care for animals that were owned by the federal government or otherwise involved in federal labs. Chimpanzees' genetic makeup varies by less than 2 percent from man's, and researchers say it's only right to provide them with comfortable retirement after they've served as research fodder. AP PHOTOS

for our view of all life on Earth, and our position on it.

The story starts in Mexico, with spindly limbed spider monkeys. Biologists report that when groups of monkeys return to their camp in the evening, after spending the day in the jungle foraging, they hug the monkeys they've been parted from. They get all cuddly. It's a way of appeasing and reassuring other monkeys that they mean no harm, and so reduces the chance of hostility.

Utter nonsense

Humans cuddle each other too, of course, and shake each other's hands, and kiss each other's cheeks, and bow to each other. But it was surprising to some researchers to see monkeys doing this. It's extremely hard to shake off the feeling that we humans are somehow different, or special, and that there is something unique to us that other animals don't have. Religion can perhaps be blamed for this, but so can our intellectual arrogance.

There's a parallel in Japan, by the way. *Nihonjinron* (theories on the Japanese) is a sort of pseudoscientific set of writings and beliefs centered on the idea that the Japanese are unique, and certainly different from Westerners and other Asians. Utter nonsense, of course, yet a powerful and pervasive belief still held by many people. Westerners living in Japan will know what I'm talking about only too well.



A young female chimp in the Fongoli region of Senegal, where the primates were witnessed in 2005 and 2006 making and sharpening spears which they then used to kill bush babies for food.

Anyway, at the same time as the report on the cuddling monkeys was published last month, another behavior supposed to be unique to humans was reported in chimps. This time, it was something rather darker than cuddling -- using weapons.

Chimps in the Fongoli region of Senegal -- a savannah area -- were observed in 2005 and 2006 fashioning spears, sharpening them with their teeth, and using them to hunt bush babies. Chimps and other animals are famed for their use of tools to forage -- to "fish" for termites, for example -

- but making and using a tool with the intent to maim and kill a vertebrate is on another level.

The things animals do are adaptations to their environments; give an animal a different environment, as happens when we teach chimps sign language, and their natural ability improves. It looks like the Senegal chimps may have developed their spear-wielding ability to make up for a deficiency of their habitat. Red colobus monkeys are a favored food of chimps in other parts of Africa, but the species is not present in the savannah, and the Fongoli chimps hunt green monkeys instead. But the males do the hunting, and they eat first. So females and juveniles have got around this by hunting their own source of protein -- bush babies -- and making weapons to help them.

The message? Cultural (and biological) change often comes about when species find themselves outside of their comfort zone. In this case, in a place where they didn't have lots of protein.

The example of chimps using weapons is powerful because it is yet another behavior that was thought unique to humans. It is also dramatic and disturbing to think of animals hunting with spears.

What's left for us? We have language, of course, but communication in other animals can be complex, and as mentioned, chimps can learn sign language. Our language ability may be far more sophisticated, but it is not qualitatively different; there is a continuum of communication ability -- we are at the extreme end of it, but it is a spectrum none the less. Indeed, chimps are better than us at some cognitive tests involving short-term memory.

Chimps' cave art?

What might be left of what we do that is truly different? This is one of them: writing. However, Jill Pruetz, an Iowa State University biologist who works on the Fongoli chimps, joked to me that she half expects the chimps to start drawing pictures on the caves where they shelter from the sun.

The truth is that there's not much that is unique to humans. Why should there be? We all evolved from the same common ancestor. There is a continuum of behavior and abilities across all animals, and we are very much part of that continuum.

Recognize this and we might start treating the world a bit better.

Some people think that chimps should be admitted to the human club -- that they should be renamed from *Pan troglodytes* to *Homo troglodytes*.

But perhaps it would be better if we reclassified ourselves as *Pan sapiens*.

The second volume of Natural Selections columns translated into Japanese is published by Shinchosha, priced at 1,500 yen. The title is "Hito wa ima mo shinka shiteru (The Evolving Human: How new biology explains your journey through life)."

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