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Is Human Morality a Product of Evolution?

A new book explores the link between social collaboration and behavior that makes our species unique.

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Nearly 150 years ago, Charles Darwin proposed that morality was a byproduct of evolution, a human trait that arose as natural selection shaped man into a highly social species—and the capacity for morality, he argued, lay in small, subtle differences between us and our closest animal relatives. “The difference in mind between man and the higher animals, great as it is, certainly is one of degree and not of kind,” he wrote in his 1871 book *The Descent of Man*.

For the last 30 years, the psychologist Michael Tomasello has been studying those differences of degree, trying to determine how our species’ social nature gave rise to morality. The co-director of the Max Planck Institute for Evolutionary Anthropology in Leipzig, Germany, Tomasello has spent much of his career conducting experiments that compare the social and cognitive

abilities of chimpanzees, our closest relative in the animal kingdom, and human toddlers. In his forthcoming book *A Natural History of Human Morality*, he draws on decades' worth of work to argue for the idea that humans' morality, unique in the animal kingdom, is a consequence of our tendency to collaborate and cooperate in ways that other great apes do not.

Beginning in the early 20th century, research on non-human primates—like chimpanzees, bonobos, and orangutans—has shown that they are capable of many things once considered uniquely human, like tool-making, empathy, discerning the intentions and goals of others, and forming friendships. But humans also have language, laws, institutions, and culture. For a long time, the dominant explanation for these uniquely human concepts was our raw intelligence—the human brain is three times larger than the chimpanzee brain—but in recent years, some scientists have also argued that our more social nature may be what's allowed us to advance so much further than the apes.

But as Tomasello argues in his book, this “social intelligence hypothesis” is something of an understatement. A social nature isn't enough to fully distinguish between humans and chimpanzees—male chimpanzees can form political alliances, for example, and sometimes work together to hunt, both of which require advanced social skills. Humans are not just socially intelligent, then; as Tomasello and others have put it, we're “ultra-social” in ways that the great apes are not, with an enhanced capacity for cooperation that arose somewhere along our species' evolutionary path.

Tomasello has conducted dozens of studies to support this idea. In one study published in 2007, he and his colleagues gave 105 human toddlers, 106 chimpanzees, and 32 orangutans a battery of tests assessing their cognitive abilities in two domains: physical and social. The researchers found that the children and the apes performed identically on the physical tasks, like using a stick to retrieve food that was out of reach or recalling which cup had food in it. But with the social tests—like learning how to solve a problem by imitating another person, or following an experimenter's gaze to find a treat—the toddlers performed about twice as well as the apes.

Related to this enhanced social ability is a greater tendency to work together, even on tasks where collaboration isn't necessary. In a 2011 study by Tomasello and his Planck Institute colleagues, 3-year-old children and chimpanzees were given an opportunity to obtain a reward either on their own or by collaborating with another member of their species. The experiment was set up so that the

children and the apes knew a) that they would get the reward regardless of whether they worked with a partner, and b) that working with a partner would mean both of them got the same reward. Children, the researchers found, were much more likely to collaborate than chimpanzees.

There are many theories for why humans became ultra-social. Tomasello subscribes to the idea that it's at least partly a consequence of the way early humans fed themselves. After humans and chimpanzees diverged from their common ancestor around 6 million years ago, the two species adopted very different strategies for obtaining food: Chimpanzees, who eat mostly fruit, gather and eat the majority of their food alone; humans, by contrast, became collaborative foragers. The fossil record shows that as early as 400,000 years ago, they were working together to hunt large game, a practice that some researchers believe may have arisen out of necessity—when fruits and vegetables were scarce, early humans could continue the difficult work of foraging and hunting small game on their own, or they could band together to take home the higher reward of an animal with more meat.

Chimps show no signs of this ability. “It is inconceivable,” Tomasello has said, “that you would ever see two chimpanzees carrying a log together.” In one of the earliest studies of chimpanzee cooperation, published in 1937, chimpanzees only worked together to pull in a board with food on it after they'd been extensively trained by an experimenter—they showed no natural ability to do it on their own. (Even when chimpanzees do collaborate, there's been no evidence to date that they have the ability to adopt complementary roles in group efforts or establish a complex division of labor.)

But collaboration didn't just change the way early humans procured food, Tomasello argues; it also changed how humans understood themselves in relation to others. Specifically, people came to think of themselves as part of a larger unit whose members worked together for mutual gain. They began, in other words, to have what Tomasello calls “shared intentionality.” This, he says, is the subtle cognitive capacity—that difference of degree Darwin wrote about—that sets humans apart from the great apes, the reason why we have developed cultural institutions and engage in large-scale collaborative activities. Sharing intentions means that two minds are paying attention to the same thing and working toward the same goal, but each with its own perspective on that shared reality.

This shared intentionality, Tomasello believes, is the basis of morality. Some psychologists and philosophers break morality into two

components: sympathy, or concern for another individual; and fairness, the idea that everyone should get what they deserve. Many animals are capable of the former—a chimpanzee, for example, will behave in altruistic ways, like retrieving an out-of-reach object for another chimp—but only humans, it appears, have a sophisticated understanding of fairness.

To illustrate this point, Tomasello uses the example of two people working together to pick fruit from a tree: The first person boosts up the second to get to the top of the tree, where he picks fruit for the both of them. The underlying assumption in this interaction is that each person will fulfill the duties of his unique role, and that, once the fruit has been collected, it will be divided fairly. If one person abandoned the task, or gave in to the impulse to take more than his share, the mutual benefit of their partnership would be negated.

A similar scenario has played itself out in Tomasello's lab: In one experiment, pairs of chimpanzees were brought into a room and given the opportunity to work together to get some fruit. When the fruit was already pre-divided into equal portions, both primates took only their share. But when they had to divide it up themselves, the dominant chimpanzee generally took most or all of it.

When toddlers were faced with a similar task of collaborating to obtain food or toys, and then dividing up those toys, they generally split them up equally. If the two children each worked separately on the same task, though, and one obtained more toys than the other, the luckier child generally didn't share with the unluckier one. Through their actions, the researchers concluded, the children in the study seemed to believe that fairness was the equal division of spoils when both parties worked together to obtain them—that sharing was fair only in the context of collaboration.

In *The Descent of Man*, Darwin wrote: "I fully subscribe to the judgment of those writers who maintain that of all the differences between man and the lower animals, the moral sense or conscience is by far the most important." By extension, then, our enhanced ability to cooperate may be the most significant distinction between us and our closest evolutionary relatives.

