

Professor examines the complex evolution of human morality

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(PhysOrg.com) -- Although the question of what makes humans different from other animals doesn't have a single obvious answer, one seemingly conspicuous human trait is morality. Darwin, in his book *The Descent of Man, and Selection in Relation to Sex*, published in 1871, singled out "the moral sense or conscience" as by far the most important difference between humans and other animals. Darwin's argument was, of course, strongly based on the concepts of biological evolution and natural selection. Now, upon further investigating the origins of morality, Francisco Ayala, a professor of ecology and evolutionary biology at the University of California, Irvine, has proposed a Darwininspired explanation of how human morality might have evolved.

Ayala defines moral or ethical behavior as "the actions of a person who takes into account in a sympathetic way the impact the actions have on others." While philosophers and biologists have long debated whether the origins of morality are cultural or biological, respectively, Ayala argues that it's actually a combination of both. He sees morality as consisting of two parts: the capacity for ethics and the specific moral codes that we follow. He proposes that, while ethical capacity is a product of biological evolution, moral codes are products of cultural evolution. This more complex theory of morality's origins is very similar to Darwin's perspective.

"Many biologists, including sociobiologists, argue that morality is a biologically determined trait," Ayala told *PhysOrg.com*. "Most philosophers and theologians see morality as a product of cultural



evolution and/or religious faith. I distinguish between the 'capacity for ethics,' which is biologically determined as a result of biological evolution; and the 'moral codes' or ethical norms, which are largely outcomes of cultural evolution, including religious beliefs."

Ayala further explains that the capacity for moral behavior is not adaptive in itself, but it is a consequence of a higher intellectual ability that is adaptive, being directly promoted through natural selection due to its ability to improve survival rates (such as by allowing us to construct tools, develop hunting strategies, etc.). Ayala identifies three necessary conditions for moral behavior that could have evolved with intelligence: the ability to anticipate the consequences of our actions, to evaluate such consequences, and to choose accordingly how to act. While overall intellectual capacities evolved gradually, he speculates that the three necessary conditions for moral behavior only came about after crossing an evolutionary threshold, as they require abilities such as the formation of abstract concepts. And only after humans possessed all three abilities could we possess a moral capacity.

In this line of thinking, morality is not an adaptation but an exaptation, which is when a trait evolves because it served one particular function, but later comes to serve another function, which was not originally the target of natural selection. Ayala proposes that, once morality evolved as a byproduct of higher intelligence, it influenced individuals to behave in ways that increased cooperation, benefitting the social group and providing an evolutionary advantage, so that it eventually became an adaptation in and of itself.

Although a kind of <u>natural selection</u>, called group selection, is generally not considered an evolutionary stable strategy, Ayala points out Darwin's argument that, unlike other animals, humans can understand the benefits of morality, cooperation, and altruistic behavior. This understanding has inspired humans to create laws that enforce the moral codes that benefit



their society. The cultural evolution that drives these moral codes is, as Ayala explains, a more effective and faster form of evolution compared with biological evolution, and also explains the diversity of moral codes in different cultures.

If human morality originated both biologically and culturally, in the way that Ayala suggests, then it seems that it would be very unlikely for other animals to have evolved the same degree of morality in the same way, if at all. Because morality relies on several evolutionary prerequisites that themselves seem unique to humans, it might even be considered one of the human traits that is furthest from the other animals, in accordance with Darwin's original suggestion. Perhaps, this distinctively human trait could even provide a solution to a distinctively human problem, as Ayala quotes the prominent psychologist Steven Pinker when he writes that "Morality is not just any old topic in psychology, but close to our connection of the meaning of life. Moral goodness is what gives each of us the sense that we are worthy human beings."

"Morality is a unique human trait, one of the most important and most distinctive traits that characterize humanity," Ayala said. "Obviously, it is also overwhelmingly important in determining the welfare of human societies. The distinction I use in characterizing morality (behavior versus norms) can be largely extended to other distinctive human attributes, like religion. We are concerned about the meaning and purpose of life, as a consequence of our exalted intelligence, which came about by biological evolution and allows us to anticipate the future and to know that we will die. But the diversity of religions comes about as the result of cultural -- not biological -- evolution."

More information: Francisco J. Ayala. "The difference of being human: Morality." *PNAS*. <u>http://www.pnas.org/content/107/suppl.2/9015.abstract</u> "What the Biological Sciences Can and Cannot Contribute to Ethics,"



chap. 18, pp. 316-336, in Ayala FJ and Arp R, eds. *Contemporary Debates in Philosophy of Biology* (Wiley-Blackwell, Malden, MA, 2010). philsci-archive.pitt.edu/archive/00004079/

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