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BOOKS ON SCIENCE

An Evolutionary Theory of Right and Wrong

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Who doesn't know the difference between right and wrong? Yet that essential knowledge, generally assumed to come from parental teaching or religious or legal instruction, could turn out to have a quite different origin.

Primatologists like Frans de Waal have long argued that the roots of human morality are evident in social animals like apes and monkeys. The animals' feelings of empathy and expectations of reciprocity are essential behaviors for mammalian group living and can be regarded as a counterpart of human morality.

Marc D. Hauser, a Harvard biologist, has built on this idea to propose that people are born with a moral grammar wired into their neural circuits by evolution. In a new book, "Moral Minds" (HarperCollins 2006), he argues that the grammar generates instant moral judgments which, in part because of the quick decisions that must be made in life-or-death situations, are inaccessible to the conscious mind.

People are generally unaware of this process because the mind is adept at coming up with plausible rationalizations for why it arrived at a decision generated subconsciously.

Dr. Hauser presents his argument as a hypothesis to be proved, not as an established fact. But it is an idea that he roots in solid ground, including his own and others' work with primates and in empirical results derived by moral philosophers.

The proposal, if true, would have far-reaching consequences. It implies that parents and teachers are not teaching children the rules of correct behavior from scratch but are, at best, giving shape to an innate behavior. And it suggests that religions are not the source of moral codes but, rather, social enforcers of instinctive moral behavior.

Both atheists and people belonging to a wide range of faiths make the same moral judgments, Dr. Hauser writes, implying "that the system that unconsciously generates moral judgments is immune to religious doctrine." Dr. Hauser argues that the moral grammar operates in much the same way as the universal grammar proposed by the linguist Noam Chomsky as the innate neural machinery for language. The universal grammar is a system of rules for generating syntax and vocabulary but does not specify any particular language. That is supplied by the culture in which a child grows up.

The moral grammar too, in Dr. Hauser's view, is a system for generating moral behavior and not a list of specific rules. It constrains human behavior so tightly that many rules are in fact the same or very similar

in every society — do as you would be done by; care for children and the weak; don't kill; avoid adultery and incest; don't cheat, steal or lie.

But it also allows for variations, since cultures can assign different weights to the elements of the grammar's calculations. Thus one society may ban abortion, another may see infanticide as a moral duty in certain circumstances. Or as Kipling observed, "The wildest dreams of Kew are the facts of Katmandu, and the crimes of Clapham chaste in Martaban."

Matters of right and wrong have long been the province of moral philosophers and ethicists. Dr. Hauser's proposal is an attempt to claim the subject for science, in particular for evolutionary biology. The moral grammar evolved, he believes, because restraints on behavior are required for social living and have been favored by natural selection because of their survival value.

Much of the present evidence for the moral grammar is indirect. Some of it comes from psychological tests of children, showing that they have an innate sense of fairness that starts to unfold at age 4. Some comes from ingenious dilemmas devised to show a subconscious moral judgment generator at work. These are known by the moral philosophers who developed them as "trolley problems."

Suppose you are standing by a railroad track. Ahead, in a deep cutting from which no escape is possible, five people are walking on the track. You hear a train approaching. Beside you is a lever with which you can switch the train to a sidetrack. One person is walking on the sidetrack. Is it O.K. to pull the lever and save the five people, though one will die?

Most people say it is.

Assume now you are on a bridge overlooking the track. Ahead, five people on the track are at risk. You can save them by throwing down a heavy object into the path of the approaching train. One is available beside you, in the form of a fat man. Is it O.K. to push him to save the five?

Most people say no, although lives saved and lost are the same as in the first problem.

Why does the moral grammar generate such different judgments in apparently similar situations? It makes a distinction, Dr. Hauser writes, between a foreseen harm (the train killing the person on the track) and an intended harm (throwing the person in front of the train), despite the fact that the consequences are the same in either case. It also rates killing an animal as more acceptable than killing a person.

Many people cannot articulate the foreseen/intended distinction, Dr. Hauser says, a sign that it is being made at inaccessible levels of the mind. This inability challenges the general belief that moral behavior is learned. For if people cannot articulate the foreseen/intended distinction, how can they teach it?

Dr. Hauser began his research career in animal communication, working with vervet monkeys in Kenya and with birds. He is the author of a standard textbook on the subject, "The Evolution of Communication." He began to take an interest in the human animal in 1992 after psychologists devised experiments that

allowed one to infer what babies are thinking. He found he could repeat many of these experiments in cotton-top tamarins, allowing the cognitive capacities of infants to be set in an evolutionary framework.

His proposal of a moral grammar emerges from a collaboration with Mr. Chomsky, who had taken an interest in Dr. Hauser's ideas about animal communication. In 2002 they wrote, with Dr. Tecumseh Fitch, an unusual article arguing that the faculty of language must have developed as an adaptation of some neural system possessed by animals, perhaps one used in navigation. From this interaction Dr. Hauser developed the idea that moral behavior, like language behavior, is acquired with the help of an innate set of rules that unfolds early in a child's development.

Social animals, he believes, possess the rudiments of a moral system in that they can recognize cheating or deviations from expected behavior. But they generally lack the psychological mechanisms on which the pervasive reciprocity of human society is based, like the ability to remember bad behavior, quantify its costs, recall prior interactions with an individual and punish offenders. "Lions cooperate on the hunt, but there is no punishment for laggards," Dr. Hauser said.

The moral grammar now universal among people presumably evolved to its final shape during the hunter-gatherer phase of the human past, before the dispersal from the ancestral homeland in northeast Africa some 50,000 years ago. This may be why events before our eyes carry far greater moral weight than happenings far away, Dr. Hauser believes, since in those days one never had to care about people remote from one's environment.

Dr. Hauser believes that the moral grammar may have evolved through the evolutionary mechanism known as group selection. A group bound by altruism toward its members and rigorous discouragement of cheaters would be more likely to prevail over a less cohesive society, so genes for moral grammar would become more common.

Many evolutionary biologists frown on the idea of group selection, noting that genes cannot become more frequent unless they benefit the individual who carries them, and a person who contributes altruistically to people not related to him will reduce his own fitness and leave fewer offspring.

But though group selection has not been proved to occur in animals, Dr. Hauser believes that it may have operated in people because of their greater social conformity and willingness to punish or ostracize those who disobey moral codes.

"That permits strong group cohesion you don't see in other animals, which may make for group selection," he said.

His proposal for an innate moral grammar, if people pay attention to it, could ruffle many feathers. His fellow biologists may raise eyebrows at proposing such a big idea when much of the supporting evidence has yet to be acquired. Moral philosophers may not welcome a biologist's bid to annex their turf, despite Dr. Hauser's expressed desire to collaborate with them.

Nevertheless, researchers' idea of a good hypothesis is one that generates interesting and testable predictions. By this criterion, the proposal of an innate moral grammar seems unlikely to disappoint.

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