Think Pieces

GOD, GENES, AND COGNIZING AGENTS

by Gregory R. Peterson

Abstract. Much ink has been spilled on the claim that morality and religion have evolutionary roots. While some attempt to reduce morality and religion to biological considerations, others reject any link whatsoever. Any full account, however, must acknowledge the biological roots of human behavior while at the same time recognizing that our relatively unique capacity as cognitive agents requires orienting concepts of cosmic and human nature. While other organisms display quasi-moral and proto-moral behavior that is indeed relevant, fully moral behavior is only possible for organisms that attain a higher level of cognitive ability. This, in turn, implies a significant role for religion, which has traditionally provided an orientation within which moral conduct is understood.

Keywords: altruism; cognition; evolution; morality; proto-moral; quasi-moral.

In recent years, there has been continued interest and growth in evolutionary accounts of morality and religion (e.g., Pinker 1997; Donald 1991; Burkert 1996). Most of these accounts draw on work done in genetics and sociobiology, examining either aspects of altruism in biological organisms or the influence of genes on behavior, or both. In debates on the issue, often the goal is either to reduce moral impulses to genetic imperatives or, more broadly, to attack "religion" in favor of an evolutionary ethic that, paradoxically, transcends our genetic imperatives (e.g., Dawkins 1989).

My goal here is twofold. First, I suggest that most evolutionary accounts of moral behavior do not fully take the emergence of cognition and culture into consideration, with the result that many evolutionary accounts

Gregory R. Peterson is Assistant Professor of Religion at Thiel College, Greenville, PA 16125. His e-mail address is gpeterso@thiel.edu. This paper was originally presented to the American Academy of Religion Science and Religion Section, November 1999.

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of morality are improperly skewed. Second, I propose that we can understand human morality in a biological framework, recognizing both the continuities and discontinuities with other organisms in the animal world. I suggest that religious accounts of human goals and behaviors have an appropriate and necessary place in such a framework. There may also be a sense in which religious accounts compete with secular accounts in a way that has a tangible effect on human conduct.

Ethical Prolegomena

It is worth noting at the outset that most accounts of morality from the scientific side, and sometimes even accounts from within the religion-and-science dialogue, give little attention to defining what counts as moral behavior and what exactly is the relation of moral behavior to religion. In philosophy and religious studies, respectively, both of these remain highly contentious issues. Yet, they are vital for any claim to give a "genealogy of morals" within an evolutionary context. Without going into great detail, I will take the following to be broadly true of most ethical theories.

First, ethics is concerned with prescribing and proscribing certain behaviors, most of which deal with social relationships and social behavior. Second, ethics is concerned with promoting and discouraging values and dispositions, particularly those with an interpersonal or social impact. In the current Western philosophical tradition, approaches that emphasize rules (characteristic of deontological and utilitarian approaches) and those that emphasize virtues (characteristic of Aristotelian approaches) are mutually exclusive. In practice, however, both kinds of approaches are utilized to varying degrees and, it seems to me, both have their place in the moral life. Likewise, while ethics is primarily concerned with our obligations toward others, there has often been room for ideas of self-cultivation that stand relatively independent of social relationships. Indeed, religious traditions often focus on the role of self-cultivation, sometimes to the exclusion and expense of direct responsibility toward others.

Beyond this, I also would argue that most ethical systems are teleological in character, that is, there is an inherent end to be achieved, and that ethical codes and encouragements are designed to help us reach that end. This is obviously the case with utilitarian and Aristotelian approaches. While deontological approaches may deny the teleological character of ethics, they often still retain an implicitly teleological approach. Thus, Immanuel Kant's formulation of the categorical imperative in terms of universalizing one's actions implicitly appeals to a calculation of what the results would be if, for instance, everyone stole or told lies. In most ethical systems, this telos is concerned with the happiness or fulfillment of oneself and of other moral agents. What counts as a state of happiness is, again, a matter of some dispute. Among utilitarians, this has ranged from mere calculation of pleasure and pain to a sorting of "higher" and "lower" plea-

sures, which must be properly weighted. Among religious systems, this can range from Dante's beatific vision of God to Buddhism's desireless state of Nirvana. In practice, there can be considerable overlap. Murder, lying, and stealing are almost always wrong.

What counts as "other moral agents" can also vary. It is tragically a human tendency to exclude from moral consideration those who are different from one's own group. In the modern period, the development of animal rights advocates and environmental ethics has pushed the pendulum the other way. In theological systems, God is also an "other" that needs to be taken into account.

This teleological character of ethics, in turn, requires meta-ethical foundations in terms of human nature and cosmic nature. While "is" and "ought" may be distinct, they are nevertheless related. Conceptions of human nature dictate those goods that we desire and evils that we avoid. Libel and slander are considered injurious because we are capable of taking injury at such things. Dogs, however, are immune to assaults on their character and, at best, are only able to register our displeasure with them. Concepts of human nature may also affect issues of culpability. People who suffer from mental illness are often not held fully responsible for their actions, as reprehensible as they might be. The use of brain chemistry and genetics in court cases indicates the influence of scientific concepts on our ideas of human nature. This use of science also indicates how powerful concepts of human nature are, both for good and ill. Claims that men are by nature rational and that women are by nature less so have been used to confine both men and women to specific roles and conceptions of happiness and fulfillment that have almost always been detrimental to women.

Alongside claims regarding human nature, claims about cosmic nature also play an important role. By cosmic nature I mean general conceptions of the universe, its origins and fate—in short, metaphysics. Conceptions of cosmic nature situate conceptions of human nature. Conceptions of the cosmos inform us of the kind of moral agents that exist, whether God, animals, or aliens from Alpha Centauri. Conceptions of cosmic nature also inform us of the kinds of goods that are achievable and those that are not. Augustine's distinction between the "city of God" and the "city of man" [sic] portrays a cosmos in which all human kingdoms and goods are fleeting and corruptible. Communist and utopian ideologies, by contrast, conceive of a world where human perfectibility is possible, given the right social and technological tools. For religious systems, cosmic nature is not limited to the world as we experience it (that is, what we generally call "nature") but often includes a conception of super-nature or a super-natural realm as well. Traditionally, conceptions of a super-nature and a life after death have played a hugely significant role in religious conceptions of morality, for they allow a redefinition of human nature in such a way that new moral possibilities exist.

It is my hope that none of this seems tremendously earth-shattering. I develop these ideas, however, for two reasons. First, it is rare that an explicit understanding of ethics is given when sociobiologists speak of altruism and ethics, and the same is sometimes true for the religion-and-science dialogue as well. Second, these issues, particularly those regarding human nature and cosmic nature, play a crucial role in understanding human morality and its distinctiveness and relation to our biological and cognitive heritage. It is crucial, therefore, that we make some effort to understand them from the outset.

Quasi-Moral Systems

I am a moral agent. Bacteria are not. Chimpanzees might be. It is often claimed that one thing that distinguishes us from all other creatures is our capacity to act morally. Only human beings consciously weigh their actions in terms of abstract principles and theories of virtue. A bee may sacrifice itself for the hive, but no one thanks it for doing so.

Despite this, we are biological, embodied beings in a biological, embodied world. As such, every assertion of uniqueness must be accompanied by a recognition of basic similarity that provides the context from which uniqueness can emerge. While we may claim that we are the only organisms on Earth that conceive of moral codes, this does not mean that the kinds of situations that require moral thinking are absent in the rest of nature or that the types of solutions that moral systems provide lack analogues among other organisms. Indeed, quite the opposite is the case. Animals share, cheat, steal, deceive, and sacrifice. They make alliances, dethrone leaders, and form friendships as well as rivalries. Of course, when animals do these things, they lack many of the higher-order motivations that prompt human beings to perform the same types of deeds. As such, researchers often put scare quotes around such terms, denoting that when an animal "steals" or "shares," the animal is not stealing or sharing in the human, moral sense of those words. While such an awareness can be laudable, it also can obscure the real resemblance present, both in the behaviors themselves and in the situations that give rise to the opportunity or necessity for such actions.

It seems appropriate, then, to call these situations and resultant behaviors "quasi-moral." Quasi-moral situations arise when two or more organisms are able to influence the well-being of one another, with well-being defined either in terms of reproductive fitness or in terms of pleasure and pain. Quasi-moral behavior, as a consequence, is behavior that provides a solution or strategy to resolve such interactions when they arise. Quasi-moral behavior need not be intentional or conscious in character. It may occur at the level of "genetic programming" or rigid instinctual drives. One may even abstract further from the organisms themselves to their genes. Indeed, since genes are widely perceived to be the unit of selection,

it is at the level of genetics that evolutionary biologists concentrate much of their attention. Thus, not only can organisms be selfish or altruistic, so too can their genes, which "program" such behavior to begin with.

Such quasi-moral behavior has been the central focus of sociobiology for more than two decades. For most sociobiologists, amorality is the natural state of things. Organisms inhabit a Hobbesian world of all against all. Nature is red in tooth and claw, genes are selfish (or, rather, "selfish"), and the genetic duty of every organism is to maximize its fitness at the expense of others. Altruistic behavior that benefits the reproductive fitness of others at the expense of oneself should be weeded out. Thus, the existence of altruistic behavior in the animal kingdom has provided, as Edward O. Wilson (1975) remarked, the central problem for sociobiology.

Interestingly, this is a problem that most sociobiologists take to be solved, at least in general principle. Altruism, they claim, is nothing but selfishness disguised. The primary model used for explaining altruistic behavior is kin selection. On this model, an organism that helps out another related to itself does so because such help enhances the survival of the genes that they both share. Social insects represent the prime example of kin selection theory. Insect societies work together because they share the same set of genes. It is not the survival of the individual organism but the survival of the genes that is important. In this framework, it makes perfect sense for a male worker drone to sacrifice its reproductive capacity for the sake of the queen, because at the genetic level drones and queen are not truly individuals at all—they are the same. From the sociobiologists' perspective, altruism at the level of the organism amounts to selfishness at the level of the genes.

Kin selection explanations have been tremendously successful in explaining a wide range of biological phenomena, from mole rats to sibling aid in parenting. In some situations, however, altruism occurs between organisms that are unrelated. These cases, in turn, are often explained in terms of reciprocal altruism. First proposed by Robert Trivers (1971), reciprocal altruism can be summed up in the phrase, "If you scratch my back, I'll scratch yours." A famous instance of this phenomenon occurs in vampire bats, who may share some of their feast of blood with other bats not related to themselves. According to studies, cooperation is based upon previous generosity. Bats who have been generous previously are more likely to receive a helping of blood than those who are persistently stingy. Similarly, Barbara Smuts (1999) has demonstrated that male baboons who aid female baboons with care for their young and other duties are more likely to be favored as sexual partners in the future.

The success of such apparently altruistic strategies was effectively modeled in a series of computer tournaments by Robert Axelrod (1984). In the tournament series, selfish and altruistic tendencies were modeled in terms of discrete payoffs and penalties. If two individuals cooperated, they

would both get a modestly high payoff (3 points); if they both refused to cooperate (acted selfishly), they would receive only 1 point. But if one chose to cooperate (act altruistically) while the other chose not to ("defected" or acted selfishly), the selfish individual would receive 5 points, and the altruist would receive 0 (the "sucker's payoff"). This game would be played several times, until losers were eliminated and a clear winner emerged. Player strategies ranged from complete altruism to complete selfishness, with many variations in between. The most successful strategy was one called "tit for tat," in which individuals cooperated when others cooperated and defected when others defected. This was seen as a vindication of the survival value of reciprocal altruism by its advocates, for it implied that reciprocal altruism could result in a genetic payoff across generations. It also implied that, once reciprocal altruism established itself in a population, it became an evolutionary stable strategy that would be difficult to invade. Reciprocal altruists would always help one another while at the same time shunning those who "cheated" and attempted to live off the generosity of others.

Of course, the question remains, Is this really moral behavior? To that, the answer can only be no. That is, biologists are not supposing that animals or their genes have a concept of "the good" that they are aiming at, are not concerned with happiness in the moral sense, and are certainly not concerned with abstract concepts of justice and fairness. But it does qualify as quasi-moral. That is, whatever vampire bats may think about helping one another, the issue that they face (the sharing of resources with others) is precisely the same situation for which, when applied to the human context, we require moral reasoning. Likewise, the possible range of solutions is largely the same. One can choose to be selfish, to share unconditionally, or to find some intermediate response. We also find ourselves giving preferential aid to kin, even though the reasons we give for doing so may be completely different from the biological motivations plainly present in other species.

Many have sought to distance human morality from the work of sociobiologists because of the sometimes unsavory conclusions that stem from this research. The presumption of sociobiology is that selfishness is the primary behavior and altruism secondary and, in the end, only apparent. Thus, Michael Ghiselin remarks, "Scratch an 'altruist' and watch a 'hypocrite' bleed" (1974, 207). More than this, some sociobiologists have been eager to apply such analyses to the human context as well, so that humans are seen as being primarily selfish creatures who cooperate out of necessity and the need to enhance personal fitness. Thus, philandering by males is a "natural" effort to spread one's genes as much as possible, and free markets are a natural extension of biological competition.

For these sorts of claims, sociobiologists have been rightly castigated (Midgley 1995; Rolston 1999). Even when sociobiologists make explicit

claims that when they are speaking of, for instance, "selfish" genes, they are not implying anything about human morality, they often end up being sloppy in their language and freely cross the line back and forth between human and animal behavior (Dawkins 1989). Likewise, granting the state of nature to selfishness and requiring altruism to be the second order phenomenon in need of explanation and reduction is hardly innocent of ideological presuppositions, and the relevance of Charles Darwin's own Victorian background is now well noted. Despite this, the baby should not be thrown out with the bath water. Whether or not we are innately selfish and whether or not we are biologically driven to help kin over strangers, we still find ourselves in situations where it is possible to be selfish and possible to help kin over strangers. Our biological context may not be able to provide us with moral solutions, but it does provide the context in which moral solutions are needed. To deny this, it seems to me, is to deny our embodiedness altogether.

Proto-Moral Systems

At some point, quasi-morality gives way to what I shall call "proto-morality." Proto-moral systems occur when animals begin to be able to rationally deliberate actions and their consequences. Such deliberation can occur only with the acquisition of a variety of cognitive skills, including enhanced memory and planning abilities, the ability to map social relations and social hierarchies, some awareness of how one's actions affect others, and the ability to form goals and roughly weigh pains and pleasures. It may also include the ability to deceive and to develop what cognitive ethologists refer to as a "theory of mind." Obviously, most of these behaviors are limited to social mammals, and the richest proto-moral behavior is largely limited to primates. While many may be skeptical that nonhuman animals are capable of such a range of behaviors, cognitive ethology has been accumulating data to suggest that a number of species are able to perform these activities in a flexible and goal-directed manner. Vervet monkeys track social and kin hierarchies within a group. High status for a matriarch means higher status for her kin as well (Cheney and Seyfarth 1990). Without a doubt, the great apes, our closest living relatives, provide the best examples of this sort of proto-moral behavior. Chimpanzees, for instance, live in societies that require both cooperation and vigilance. Chimpanzees form alliances, subvert hierarchies when the opportunity arises, and engage in reconciliation and peacemaking (de Waal 1996).

It may be asked how this differs from the quasi-moral systems already described. I maintain that the difference lies in the element of rational deliberation present in proto-moral systems but absent in quasi-moral systems. Whereas the system of gene transmission may be described as quasi-moral, genes cannot be called proto-moral. They do not deliberate, plan,

or remember past transgressions. Proto-morality can occur only when an organism can begin to deliberate ends and means, experience the consequences of its actions, and modify its behavior accordingly. Proto-morality is still distinct from a genuine moral system. There are no abstract principles, no awareness of virtues to be cultivated. It is not even clear that awareness or consciousness is needed in all situations. But the resemblance is much greater than in the case of quasi-moral systems. Not only are the situations the same (e.g., the distribution of resources), but the means of resolving them are much closer. Actions can and do result in pleasure and pain. Individuals receive group censure and group approval. Ends and means are calculated. The actions of others are taken into account.

It may be noted that, although we consider ourselves to be moral agents, we often conduct foreign policy in precisely this proto-moral fashion. While the United States is strongly influenced by a Wilsonian approach to foreign policy as moral crusade (often to spread democracy, human rights, and the free market), foreign policy is frequently conducted in terms of national interest and balance of power, typified in the United States by Henry Kissinger and dominant in Europe during much of the nineteenth century and in much of the world today. This approach is even justified by its proponents, who argue that nation states cannot be treated as moral agents and that we must be pragmatic when dealing with countries such as China and North Korea. In this approach, foreign policy is conducted in terms of self-interest and mutual benefit. Risks are evaluated, and those who go beyond the pale are punished. Chimpanzee politics may lack the subtlety of international politics, but the same principles often apply.

Genuine Morality

Genuine morality, composed of the type of considerations set forth at the beginning of this paper, requires the kind of capacities beyond those needed for proto-morality. Genuine morality is practiced only by persons, fully integrated individuals that, for the most part, we only get a hint of in the nonhuman animal world. Persons are capable of abstraction and symbolic expression. The human facility for language instantly separates us from all other animals (language-trained apes being the exception that proves the rule). Our capabilities for abstraction of moral principles potentially set our deliberations above mere calculations of self-interest. Our rich emotional life provides a repertoire of moral instincts that likely do not have equivalents in the animal world. I doubt that gazelles feel guilt or that salamanders feel shame. While often ignored, these rich emotional states are subtly linked to our decision-making process (see, for example, Damasio 1994).

The claim for uniqueness can be overstated (for a corrective, see Peterson 1999), but at the very least, the human experience in its full form

represents a new, emergent level of cognition. This does not deny our strong links with the biological community and our evolutionary heritage, but it does put them in proper perspective. It also is the wedge for understanding the weakness of traditional sociobiological accounts of human morality.

Sociobiologists, in their effort to sweep away what they consider to be the disorganized clutter of the social sciences, seek to explain both moral behavior and religion in terms of biological principles and genetic influence. Because human beings are biological organisms, we too are subject to natural selection, and it is only natural to suspect that our drives and values are dictated by our genes. Michael Ruse presents a fairly typical attitude of sociobiologists when he writes, "Morality, more strictly, our belief in morality, is merely an adaptation put in place to further our reproductive ends" (Ruse and Wilson 1985, 51–52). Morality is a biological adaptation, like opposable thumbs and bipedal locomotion. Notions of good and evil are illusions fobbed on us by our genes. In the end, moral law must bend to genetic law, and genetic law reduces to the principle of survival of the fittest. For sociobiologists, then, human altruism is best explained in terms of kin selection theory and reciprocal altruism. Religious and philosophical ideas of "the good" and of "moral law" can, as a consequence, be disposed of.

While this sort of argument has many faults, which have been amply pointed out, I believe that a crucial point is often missed. While human morality shares basic elements with quasi-moral and proto-moral systems found elsewhere in nature, our nature as cognitive, cultural agents requires a different sort of analysis. Human beings have a behavioral flexibility not found anywhere else in nature. We are capable of inhabiting virtually every biome on the planet. Because of our abilities to process information, to weigh alternatives, to remember, and to abstract, the range of our biological drives is insufficient to determine our behavior. It is notable that evolutionary biologists, in their search for the evolutionary roots of cognition, emphasize the universal quality of human nature and human drives, requiring them to eschew differences among human cultures as being insignificant. Thus, to give but one example, studies have been done indicating a universal preference of males for "young, nubile women," while women universally prefer older, wealthier men (Buss 1992). While this may turn out to be true, it stops well short of explaining what many people actually do. Many marry within their own age range, matters other than wealth and beauty often come into play, and some choose to remain celibate, often for religious reasons.

In short, any explanation of human behavior is incomplete without culture. More important, any explanation of human moral behavior is incomplete without the kind of worldview that culture provides. Often, we call this aspect of culture "religion."

This, then, is what sets off genuine morality from quasi-moral and proto-moral systems. Quasi-moral and proto-moral systems do not require a global framework that guides decision making. They are always proximate and pragmatic. In these systems, there is no long-term goal or ideal state to be achieved. Yet, genuine morality is virtually inconceivable without such conceptions. As already explored, conceptions of human nature and cosmic nature are part and parcel of any moral system. This would suggest that religion is a necessary part of any embodied moral system, for a primary task of religion is to provide an orientation to cosmic and human nature. By specifying what ends are desirable and attainable, religions function to provide a framework in which moral action takes place. At the same time, the means for attaining those ends arise in the kind of situations already specified in quasi- and proto-mortal systems. Thus, despite the differences, there are interesting links as well.

It seems to me that a number of interesting consequences follow from such a view. First, it is worth remarking that, in this analysis, any sociobiological account of human morality is incomplete. Sociobiology, game theory, and behavioral genetics each has a contribution to make to our understanding of human nature. Analyses of quasi- and proto-morality also enrich our understanding of the contexts and conditions in which human moral action can take place. Genuine morality, however, cannot be reduced to sociobiology, because sociobiology operates out of a framework that moral systems either presume or compete with. When Michael Ruse, for instance, argues for an evolutionary ethic, evolution has ceased to be simply a scientific hypothesis; it has become a religious one as well.

The claim that religion is profoundly entwined with moral action also has consequences. The truth of this claim is variously taken to be trivial or controversial. It seems trivially true that religious belief affects how people behave. Religious justification undoubtedly has played an important role in the persistence of the caste system in India as well as in the high incidence of vegetarianism among Buddhists. It is trivially true that Christianity as a worldview has supported patriarchy as well as humanitarian efforts on behalf of the poor or the sick. It would be more controversial, however, if one claimed that Christianity entailed patriarchy or that holding a Christian worldview entailed a higher incidence of helping the poor. It is, after all, an academic truism that Christians (or Buddhists, or Muslims) are no different from anyone else. For every good Christian there is a good atheist, and for every bad agnostic there's a religious believer somewhere of equal notoriety. Or is there?

Either we must admit that the ideas of cosmic and human nature do make a difference in moral action or we must admit that culture adds little to moral action and arises, rather, out of evolutionary considerations, as sociobiologists claim. If we admit that such basically religious ideas do make a difference, then we must also admit that different religious systems

impact moral behavior differently. We might even be able to evaluate the different moral impact such religious systems have, both for good and for ill. We might even be able to measure such differences.

These last two statements will no doubt make many religion scholars nervous, for they bring up a host of bad memories of interdenominational and interreligious polemics. No one wants to return to the horrid nineteenth-century attempts to rank religions according to their respective worth and truth value. Fortunately, we do not need to, for unlike many nineteenth-century scholars we recognize that we cannot simply speak of "the Christian worldview" or "the Hindu worldview" or "the Muslim worldview." We now recognize that religious traditions are highly symbolic in character, diverse, and malleable over time. There can be no comparisons of religious traditions *in toto*, only comparisons of living incarnations of those religious traditions, and usually any comparison that takes place will not be between religious traditions but within different versions of religious traditions.

Of course, in one sense, this is not anything new. Feminist scholarship has catalogued in detail how the ideas concerning the nature of women have impacted the real lives of women over the ages. While fundamentalists fulminate over the culture wars, liberals such as Bishop John Spong claim that Christianity must change or die. Indeed, the reason most of us became scholars in the first place is because of our conviction that ideas do, in fact, change lives. What is needed, however, is for such discussions to move into the next, more sophisticated stage, a stage that includes an understanding of the roles that biology and cognition play.

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