SOCIOBIOLOGY AND MORAL DISCOURSE

by Loyal Rue

Abstract. In the intellectual lineage of sociobiology (understood as evolutionary social science), this article considers the place of moral discourse in the evolution of emergent systems for mediating behavior. Given that humans share molecular systems, reflex systems, drive systems, emotional systems, and cognitive systems with chimpanzees, why is it that human behavior is so radically different from chimpanzee behavior? The answer is that, unlike chimps, humans possess symbolic systems, empowering them to override chimplike default morality in favor of symbolically mediated moral codes. The article concludes with a brief discussion of the power of religious symbols to influence moral behavior by reprogramming emotional systems.

Keywords: behavior mediation systems; default morality; genetic determinism; Carl Linnaeus; moral discourse; override morality; social determinism; sociobiology.

In the eighteenth century, when Carl Linnaeus was working out the details of his famous system for classifying biological species, he came across a major problem: what to do with human beings! Should he put them into the same category with the great apes, or should he put them in a separate category? At one point along the way he says this: "As a natural historian I have yet to find any characteristics which enable man to be distinguished on scientific principles from the ape" (see Broberg 1983, 170). According to strict anatomical standards, humans belong squarely with the apes. But Linnaeus was a bit uneasy about this kinship because he could see that, judging by behavioral standards, the humans belong in a world apart.

Linnaeus, of course, did not have the benefit of genetic theory to guide him—but even if he had, the problem would not have gone away. Today we have firm data to show that humans and common chimpanzees share almost 99 percent of their genetic inheritance. In fact, in genetic terms,

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humans are more closely related to chimps than gorillas are. And yet there remains that immense divide between human existence and simian existence. As Terrence Deacon puts it, "Biologically, we are just another ape. Mentally, we are a new phylum of organisms" (Deacon 1997, 23). So the dilemma persists.

In some ways this dilemma represents the great puzzle of our human condition. My own feeling is that if we could somehow come to terms with and understand both our intimate kinship with the apes and our undeniable distance from them, then we might come a long way forward in self-understanding. It is doubtful that we will ever come all the way in understanding the human condition, but we have taken a few important steps. And I would like to suggest that the discipline of sociobiology has been one of our most valuable guides.

One of the most interesting things about the discipline of sociobiology is that it results from a huge mistake. The mistake was made by the social sciences in general, who did us all the disservice of failing to take Darwin seriously. Darwin, of course, claimed that humans descended from animals by the process of natural selection. The social sciences don't actually deny this, and they do manage to pay some measure of lip service to the Darwinian revolution, but they have continued to regard the insights of this revolution as trivial with respect to human self-understanding. They have remained aloof, vaguely tolerant, yet deeply suspicious.

To take Darwin seriously means, among other things, to place the study of human nature squarely within the context of evolutionary biology—which the social sciences have consistently failed to do. Instead, social science theory has developed in ways totally separate from the evolutionary paradigm. As a result, the social sciences adopted a perspective broadly known as "social determinism," a view associated with Emile Durkheim, the father of modern sociology. Social determinism says that human nature is a contingent social artifact, not an innate biological endowment. Only social facts, as Durkheim put it, can explain other social facts.

The first steps to correct this view were taken by the European discipline of ethology, the systematic study of animal behavior. Ethologists were basically zoologists who began to explore animal behavior from an evolutionary perspective. They insisted that many behavioral traits of animals, no less than physical traits, were acquired by genetic inheritance. Behavior, in other words, was subject to evolution by natural selection. Among nonhumans, anyway, some social facts could *not* be explained without a few biological facts. Ethology took Darwin seriously. What ethology did *not* take seriously was the study of human beings. That is, it focused almost exclusively on the behavior of nonhuman animals.

Ethology started things moving, but it was left to sociobiology to apply the full force of the evolutionary perspective to human behavior.

Sociobiology insists that we will never have a satisfying account of human nature until we recognize the full extent to which human behavior bears the influence of biological systems. It proceeds on the assumption that human nature is primarily a biological construct, and that mere social facts are *not* sufficient to explain all social facts.

Sociobiologists have pointed to a whole class of social facts that social determinism can't very well explain—that is, all those universal behaviors that show up in every culture despite radical differences in social conditioning. Sociobiology has done a terrific job of identifying several of these invariant human behavior patterns and giving us convincing arguments about how they amount to adaptive biological strategies that come to us by way of genetic inheritance. Many of these patterns have to do with reproductive strategies—for example, the optimal mating strategy for males is to go for quantity, whereas females go for quality; males tend to engage in mate-guarding behavior; parents invest themselves differently with respect to sons and daughters; and so on. These and many other behavior patterns can be shown to conform to the logic of evolutionary biology. The only way to account for these universal social facts is to assume that in some measure they come under the control of genes. This program of seeking out the role of genes in human behavior has been very enlightening. But it hasn't been without problems—not the least of which is that sociobiological explanations are easily construed as arguments for hardwired genetic determinism, a view that is just as difficult to maintain as extreme social determinism.

So what *is* sociobiology? Basically, it is an attempt to step into the breach and to put social science back on the track of evolutionary thinking. Sociobiology, properly seen, is *evolutionary social science*. It is evolutionary psychology, evolutionary sociology, evolutionary anthropology, and even evolutionary politics and economics—all rolled into one.

So now the question becomes, how can evolutionary social science help us to come to terms with the persistent problem faced by Linnaeus? As long as we're back on Linnaeus, I might just report that he dealt with the problem by tinkering with his categories. In the first edition of his *System of Nature* he put humans together with apes under the grouping he called *anthropomorpha*, but in later editions this category disappeared and he became more open to separating humans from the apes. We are, he finally decided, *sui generis*—unique, there is nothing like us. It was finally the moral aspects of human life that impressed Linnaeus the most. We transcend the conditions of our simian cousins because we alone are moral beings: "I well know what a splendidly great difference there is between a man and a beast when I look at them from a point of view of morality" (see Broberg 1983, 167).

For Linnaeus, at least, we are *sui generis* because we are moral. But what does this tell us, really? And come to think of it, is it even true that we alone are moral? There are some pretty serious primatologists out there who think that thievery, cruelty, and injustice are just as irritating to chimps as they are to us. And kindness, generosity, and reconciliation are equally cherished by chimps. Chimps at least have interests, and probably even values. But do they engage in moral behavior? What *is* moral behavior, anyway? And how did *any* creature come to have it? That is the modern form of the Linnaean problem. Evolutionary social science suggests that if we want to understand moral behavior and how we came to have it, then we might begin by asking about the evolution of behavior itself. Here follows what I take to be the basic outline of the story.

We begin with the painfully obvious point that all living things behave. Bacteria behave. Algae behave. Ants and birds behave. There's no dispute about that. The story gets interesting only when we ask *why* they behave as they do. Evolutionary biologists have a short and simple answer to the *why* question: organisms behave in ways that are designed by natural selection to maximize their reproductive fitness. That is, all living things have it in their nature to behave in ways that propagate their own genes, and those of their close relatives, indefinitely into the future. This is far from being a trivial truth—it is what might be called a superordinate truth, an organizing principle in evolutionary biology and evolutionary social science. Moral behavior, then, like all behavior, should be viewed under the rubric of fitness-maximizing behavior.

Another fairly obvious point is that all behaviors are mediated. Let me introduce a warning here. It is a fundamental category mistake to suggest that behavior per se is heritable. Nobody inherits *behavior*. What we inherit are genes that code for proteins that build the tissues of mechanisms that *mediate* behavior. So the evolution of behavior is really evolution in the mediation of behavior—in the organizers, the mechanisms of behavior.

This focus on the mediators of behavior gives us a way of thinking in which we can make use of sociobiological insights without getting ourselves trapped in the simplistic and misleading notion that there are genes for behaviors—which there are not. There are genes for various mediators, which more or less heavily bias our responses to factors in the environment. That is, the genes make lots of promises for how an organism will behave, but which promises are kept will depend on circumstances in the environment.

Sociobiology helped to bring us to our senses concerning the biology of human behavior, and now we can begin to move forward in telling a more complete story. The general drift of the story is that, over evolutionary time, there has been a gradual process of systematic development in which

behaviors become mediated by ever more complicated mechanisms which enable ever more complicated interactions between organisms and their environments. As the mediation of behavior becomes more complex, we see also greater variability in behavior.

In the simplest organisms, behaviors are mediated by straightforward biochemical reactions—simple lock-and-key mechanisms that govern the interactions of molecules. This level of behavior never drops out of the picture. In fact, we can say that all behavior—whether it's an alga swimming after a sunbeam or an ambassador negotiating a treaty—*all* behavior ultimately comes down to lock-and-key *molecular systems*. If the biochemistry stops, behavior stops. So it's all locks and keys. But here is the point: there are lots of different systematic ways to orchestrate all these locks and keys. The evolution of behavior is a story about these different ways.

At the level of one-celled organisms the orchestration is described by the dynamics of chemical reactions. But when we get to larger, multicellular organisms, you have to add in new levels of orchestration to govern the behavior of lots of different cells. In larger organisms you have lots of different cell lines that get involved in organizing the basic chemistry.

When you get neurons on the scene, this process of systematic modulation can get terribly complex. Take the *reflex system*, for example. A reflex system is still biochemistry, but it is highly organized. A reflex system mediates hardwired behaviors such as, for example, when the pupil of your eye widens in response to dimming the lights; or when you breathe rhythmically during sleep. Lots and lots of new behaviors become possible once reflex systems get organized. Reflex systems are great, and we have inherited quite a few of them. But if that is all you've got to organize your chemistry, then you will not have a very interesting life. Life gets more interesting when *physiological drive systems* come on line. These systems, like hunger and sex drives, are much more flexible systems, involving more complicated chains of chemical reactions. When a physiological drive mechanism (hunger, let's say) gets activated, then the organism begins to look for food, but its behavior is more variable and not just the hardwired reflex of a frog stabbing its tongue at a fly.

Mammals, of course, have lots of reflex systems and physiological drive systems to help in the mediation of behavior. But in mammals we also begin to see the evolution of *emotional systems*, which are even more variable and more learning-dependent than drive systems. You find emotional systems regulating all sorts of behaviors, in part because the emotional centers in the brain are well connected to lots of other mediation systems. This is what makes it possible for emotional systems to interfere with drive systems—as, for example, when fear interrupts a search for food. Emotional systems are very important for the regulation of social behaviors such as kin selection and reciprocal altruism—not only in our own

species but in several other mammals as well. In fact, it is very likely that emotional systems evolved as mechanisms to enable the more complex social arrangements that were called for in response to more demanding ecological constraints.

And then, in addition to emotional systems, we also have the mediating influence of *cognitive systems*, which make it possible for organisms to construct internal neural maps of things and events and processes in the external world and to use this information in organizing behavior.

Returning now to take the story from the very beginning: For the first several aeons after the Big Bang, the only sensible discipline in the universe would have been physics—it was all physics. Chemistry cannot happen until there are lots of elements around to get involved in chemical bonds. But as soon as galaxies form, and supernovae start to pop off—then chemistry begins. And then for several more aeons it was all physics and chemistry—no biology. As far as we can tell, biology did not begin to make sense in our universe until about 4 billion years ago, when life emerged out of the chemical soup of our planet. Physics, chemistry, and biology are all disciplines that describe systematic organization in the behavior of matter.

Within biology we find lots and lots of deeply interactive and often competing mediating systems—all of which influence behavior by modulating biochemical reactions, either directly or indirectly. The mediation of behavior in higher mammals is ultimately biochemical, but it's anything but straightforward. It's extremely complex and multidynamic, and includes various systems for reflexes, drives, emotions, and cognitions.

At this point we are drawn right back to the Linnaean problem. It happens that we share all these mediation systems with the chimps. Chimp biochemistry is fundamentally the same as human biochemistry. No one has discovered a hormone or neurotransmitter that is exclusive to humans. Chimps also have reflex systems, physiological drive systems, emotional systems, and cognitive systems. These are heritable systems; we share them with the chimps because they were passed on to both species by our common ancestors. So why is it that we are not more like the chimps? If we share in common all these systems for organizing behavior, then why is our behavior so radically different? What is it that *we* have that they do not have? The difference is that, unlike chimps, we have *symbolic systems*. And it turns out that symbol systems can function as very powerful instruments for regulating these heritable systems.

There is something quite different about these new, exclusively human symbolic mediation systems: they are constructed by social interactions between individuals, and they exist outside the body. In order for these mediation systems to work, they must be internalized, or learned. The

process of learning a symbol system amounts to reprogramming the inherited systems so that their default behaviors can be overridden. This process of symbolic reprogramming, I want to say, varies with respect to the different heritable systems.

Consider the cognitive systems first. Here I make the very large assumption that Terrence Deacon's theory of language/brain coevolution tells the correct story. Deacon argues that the newest parts of the brain (those parts that manipulate symbols) actually evolved under the selective pressure of increasingly complex symbol systems. In effect, language helped shape the cognitive systems of the human brain. More complex language systems created selective pressure for brains that were more symbolically competent—which resulted in still more complex language systems, then bigger brains, and so on. This means that our cognitive systems have been built by heredity to be invaded by and dominated by symbol systems. So with respect to our cognitive systems, the process of symbolic reprogramming is almost automatic. Children have a built-in bias to learn language, and they do so with almost no effort at all. This is not the case with chimp cognitive systems. You can get chimps to use language—sort of—but the process of reprogramming is difficult and incomplete. It is easy and cheap for a child to learn language but difficult and expensive for a chimp—and without constant effort the chimp quickly defaults away from language use.

But now consider another set of mediating systems: the emotions. These systems, it appears, do *not* have the same openness to symbolic domination that the cognitive systems do. For some reason they did not enter into a coevolutionary contract with symbol systems—which means that we are left with emotional systems that are very close to the ones the chimps have. Now this does not mean that cultural symbol systems cannot reprogram the emotions at all—they certainly can—only that the process of reprogramming will be difficult and costly. The hereditary biases in our emotional systems are so strong that it takes a focused, diligent effort to override them. That is why it is so easy for children to master a language but so difficult for them to master their emotions. In the case of emotional systems, the default behaviors programmed in by natural selection are always very close to the surface.

Now I want to say something about morality. Humans are faced with two forms of morality: the moral code programmed into their emotional systems by heredity (i.e., the *default* morality), and the moral code reprogrammed into them by their culture (i.e., the *override* morality). The default morality is rather chimplike, and it is already in the mediation system. It consists of a whole range of genetic promises about how a human will behave. But the override morality is different. It is constructed

outside the body by moral discourse, and it is brought into the body by the process of moral nurturing.

One of the lessons of sociobiology has been that our emotional systems are powerful mediators of behavior, and they resist being dominated by artificial systems. These systems keep on insisting to us that we should keep the promises of the default morality, that we are really intended to live as the apes do—to follow their reproductive strategies, to engage in their territorial behavior, to practice their sexual politics, to form their kind of social order, and so on. But against these apelike emotional urges are placed the moral demands of socially constructed standards of behavior, imploring us to override the default behaviors in favor of artificial behaviors. So we are constantly conflicted between our primate programming and our cultural reprogramming. We *can* reprogram the emotions, but it is a very difficult and labor-intensive undertaking—something like teaching a chimp to use language.

This is one of the principal functions of religious traditions—to reprogram the emotions so that we will be motivated to override our default morality. A religious tradition amounts to a coherent collection of stories, images, standards for behavior, and so on—in other words, a symbolic system that gets involved in the mediation of behavior. All religious traditions have a cognitive component to them, but their primary focus is to reprogram the emotional systems.

Let me mention just a few of these systems and try to show how the central images of a religious tradition are designed to engage and to reeducate them. I will use examples from Christianity, but a similar story can be told for other religious traditions. Bear in mind that the great apes are capable of each of these emotional responses, but they are not, of course, capable of responding to religious symbols. The first emotion is *affection*. When a person feels affection for another person he or she is predisposed to make sacrifices for the person. We *want* to do nice things for those we like. The Christian images of the infant Jesus, Madonna and the child, and the good shepherd are particularly effective in eliciting an affectionate response. The next is *sympathy.* Higher primates can experience a sense of sympathy, especially when they see a conspecific in a state of suffering. Sympathy elicits a motivation to help—as it does when the Christian is aroused by the image of a helpless and innocent man suffering on a cross at the hands of merciless authorities. A third emotion is *gratitude*. Higher primates are capable of gratitude—an emotional bias to repay favors. This is what Christians are moved to feel when they are reminded that Jesus' death was a selfless act undertaken for the sake of others. Jesus' sacrifice is a gift that calls for repayment. Finally, I want to mention *resentment*, not exactly a positive emotion but certainly an effective regulator of behavior in many primate species. A symbolic exploitation of resentment is found

in the story of Judas, who betrayed the altruistic Jesus. Judas has become a symbol in Christian culture for the self-seeking cheater.

These central images of the Christian tradition play on the emotional systems that we have received from the evolutionary past. They pull emotional triggers and direct our emotional responses toward service to Jesus. They move people to love Jesus, to have sympathy for Jesus, to feel grateful to Jesus, and to resent those who don't. When you love Jesus, feel sympathy for him, and are grateful to him, then you will be moved to follow him—to become Christlike and to practice the universal brotherhood he practiced and preached. That is, when these symbols have done their job, then Christians will be motivated to override the many temptations to act like chimps and will freely sacrifice and cooperate for the welfare of others.

Chimps can sacrifice and cooperate, too, but normally only within the limits of the local group—with kin, primarily. Chimps cannot manage anything as global as universal brotherhood. *Nor could we*, if we did not have the mediation of symbols to help us override our default morality. It is a matter of keeping old genetic promises by default, or making new promises by design. It is a matter of yielding to the urges of the evolutionary past or rising to the challenge of expanding our affections, our sympathies, our gratitude, and even our resentment to achieve a larger sense of solidarity and cooperation that includes not only the local troop but all of humankind—and even goes beyond our own kind to include all the forms and fountains of life itself. Reeducating the emotions to a larger promise will take a lot of work on the part of teachers and learners alike. And here perhaps is the deepest lesson in self-understanding offered to us by sociobiology: that without constant efforts at moral discourse and emotional nurturing, our biology *will be* our destiny.

References

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