

or discussions of systems (not including developmental systems theory). Does this book say everything that needs to be said? Of course not, and nor does it pretend to. As a doorway into the fascinating developments of systems biology and its philosophical underpinnings, however, no reader could ask for a better entry point. We hope that the book will stimulate further interdisciplinary gatherings along the lines of the one that was the source for this collection of essays, and that as these occur, the literature in both fields will be positively influenced by closer dialogue between systems biologists and philosophers of science.

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- Christine Korsgaard, Philip Kitcher, and Peter Singer. In the third part, de Waal responds to commentators.
- De Waal starts by identifying the opponent he wants to challenge. Naming it the “Veneer Theory” of morality (VT), he defines it as the view according to which morality is “a cultural overlay, a thin veneer hiding an otherwise selfish and brutish nature” (p. 6). De Waal sees VT as a historical constant of both philosophical and evolutionary thinking and singles out as its most disturbing specimen T. H. Huxley’s lecture *Evolution and Ethics* (1893). Since “Darwin’s bulldog” seems to have suggested that human morality somehow falls beyond the explanatory reach of evolutionary theory, de Waal finds him guilty of the high treason of Darwinism.
- Although he opens his case against VT by invoking two historical allies—Charles Darwin and Edward Westermarck—de Waal’s chief ally is actually de Waal himself, as he relies mainly on his longstanding primatological research and some of his earlier writings, his main objective being to show that morality is part and parcel of our evolved nature, and not a “veneer.” De Waal’s basic argument can be stated as follows: in the psychological and social lives of human and nonhuman primates, there are a number of common elements, from empathy to the tendency to harmonize relationships. Since these elements are also the “building blocks” of morality, their presence in both human and nonhuman primates is evidence for his theses about the natural pedigree of human morality. What follows is an abridged two-step reconstruction of this general argument.

Building Blocks in Search of a Theory

Primates and Philosophers: How Morality Evolved

Frans de Waal

Princeton, NJ: Princeton University Press, 2006
(209 pp; \$22.95 hbk; ISBN 0691124477)

Tomislav Bracanović

Department of Philosophy

Centre for Croatian Studies of the University of Zagreb, Croatia

tomislav.bracanovic@hrstud.hr

Conceived on the occasion of Frans de Waal’s Tanner Lectures on Human Values at Princeton University in 2003, *Primates and Philosophers* contains as its first and major part de Waal’s essay “Morally evolved: Primate social instincts, human morality, and the rise and fall of ‘Veneer Theory,’” followed by his three short appendices: on anthropomorphism in primate research, on theory of mind in apes, and on animal rights, respectively. The second part of the book consists of commentaries on de Waal’s essay written by Robert Wright,

Empathy, according to de Waal, is undoubtedly present in nonhuman primates, especially in chimpanzees, which also seem to display “cognitive empathy”—the ability to adopt another individual’s viewpoint. Reciprocity, de Waal stresses, is well established among capuchin monkeys and chimpanzees. Drawing on his experiments with capuchin monkeys and their responses to inequitable rewards for the same efforts, de Waal argues that some nonhuman primates also have a certain “sense of social regularity.” And finally, says de Waal, in apes there is the tendency to harmonize relationships visible in their “reconciliation behavior,” when females or high-ranking males even-handedly smooth relations between conflicting parties with, as it seems, their only aim being to restore peace in the group.

De Waal next presents his views about the constitutive role of the above traits for human morality. First he adopts a view according to which “human morality is firmly anchored in the social emotions, with empathy at its core” (p. 56). Then he postulates that morality is best summarized by the so-called Golden Rule (with reciprocity at its heart) and draws the following corollary: “To know that some of the psychology behind this rule may exist in other species, along with the required empathy, bolsters the idea that morality, rather than a recent invention, is part of human nature” (p. 49). As for the “sense

of social regularity” in apes, de Waal admits that this “fairness” differs from human fairness in that it is not disinterested. Nevertheless, he argues, it suggests that “the full-blown sense of fairness must have started someplace and that the self is the logical place to look for its origin” (p. 49). Finally, the tendency of apes to harmonize relationships, he says, involves rudiments of impartiality and concern for the greater good that are typical of human morality.

De Waal believes that the above two-step strategy suffices to show that human morality is not a “cultural innovation achieved by our species alone,” but rather “a direct outgrowth of the social instincts we share with other animals” (p. 6). However, de Waal’s four commentators, although they do subscribe to the same naturalistic agenda as he does, are much less optimistic about some of his proposals. What follows is a selection of their objections.

The commentators are quite united in their rejection of de Waal’s points about VT. For Christine Korsgaard VT is “rather laughable” and “not very tempting” anyway. Philip Kitcher claims that “the fact that demolition [of VT] is so easy should alert us to the possibility that the real issues have not been exposed and addressed” (p. 121). Peter Singer finds de Waal’s views about VT “too swift,” in part because it is problematic to read social contract theorists as offering historical explanations of the origin of morality. Accused by de Waal of VT propaganda, Robert Wright claims that he does not belong in that category. He suggests that de Waal’s distinction between VT and a naturalistic theory of morality omits intermediate positions. Wright especially singles out his own “naturalistic veneer theory,” which sees “humans as often covering self-serving motives with a moralistic veneer, but sees the veneer-building process itself as genetically, not just culturally, grounded” (p. 96–97). Good evidence for this point could have been Michael Ruse’s (1986) influential view of morality as an adaptation that we cannot discard even if we wanted to.

The keyword of Korsgaard’s more specific criticism is “intentionality.” She accepts that the concept of acting intentionally could be applied in various degrees and senses all across the animal kingdom, but her support for gradualism (not naturalism) stops when it comes to humans. She claims that human morality depends upon the capacity for normative self-government, which requires a level of intentionality deeper than the one present in animals. Unlike a human being, she says, a chimpanzee or a capuchin monkey, even when he is aware of his purposes and is deciding between pursuing different purposes, is incapable of *not* choosing to pursue those purposes. This is because his pursuing is “determined for him by his desires and emotions” or “affective states” (p. 110).

Singer criticizes de Waal’s emotivist view of morality, especially his reading of Joshua Greene’s neuroscientific experiments with people confronted with specific moral dilemmas.

Greene et al. (2001) have shown that in some settings, a majority of people will abandon their otherwise firm utilitarian reasoning and refuse to sacrifice one life in order to save five. This is probably because they were expected to personally harm another person, an action that seems to be blocked by brain areas associated with emotion. To de Waal’s point that this confirms that morality is “firmly anchored in the social emotions,” Singer replies that the minority of people who persist in their utilitarian reasoning just as equally confirm the alternative view about the central role of reason in morality. Their judgments are also genuine moral judgments, maintains Singer, and show that “unlike other social mammals, we can reflect on our emotional responses, and choose to reject them” (p. 149).

Apart from his dissatisfaction with de Waal’s vague talk of “building blocks” of morality or of humans being “deep down” truly moral, Kitcher faults de Waal for not distinguishing between possible types of psychological altruism he ascribes to nonhuman animals, for example, paternalistic and nonpaternalistic altruism (one responding to the *needs*, the other to the *wants* of the beneficiary) or the various forms altruism can assume due to combinations of intensity, range, extent, and skill. The vital question is what type of psychological altruism is relevant to morality. Before this question is answered, says Kitcher, it is “premature to claim” that human morality is a “direct outgrowth” of altruistic tendencies present among nonhuman animals. One could perhaps boost this skepticism by invoking Elliott Sober’s (1993) point that morality, since it can require both altruism and selfishness, is a separate “phenotype,” different from both of them.

Wright criticizes the “cognitive anthropomorphism” in de Waal’s explanations of chimpanzees’ behavior, relying on what he calls the “principle of anthropomorphic parsimony.” Explanations of various behaviors in chimpanzees, he says, can be given in either emotional or cognitive terms (or both), but as it is hard to say which is more appropriate in a particular case, emotional explanations must be favored. Wright has three reasons for this recommendation. (1) In the course of evolution, emotional guidance of behavior preceded its conscious strategic guidance. (2) Since humans have emotions supporting “strategically sound behaviors,” chimpanzees probably have them too. (3) Although human strategic behavior can be guided emotionally *and* cognitively, it is questionable whether in chimpanzees natural selection would have added this second (redundant) mechanism for triggering such behavior (p. 91). In other words, motivating mechanisms behind animal and human behavior can be very different, and one should be careful in tracking down their similarities.

In general, ethicists might criticize de Waal’s conceptual work. For example, in discussing reciprocity, he claims that the Golden Rule “remains unsurpassed as a summary of human morality” (p. 49), whereas in discussion of “community

concern” he claims that the essence of morality is to take “the interests of the entire community into account” (p. 58). It is as if de Waal adjusts his definitions of morality in order to be able to interpret a variety of nonhuman behaviors as its “building blocks.” Philosophers of science might raise other objections. For example, empathy and reciprocity are for de Waal the “chief prerequisites” of morality but “by no means sufficient to produce morality as we know it” (pp. 20–21). But should a good explanation not reveal both necessary and sufficient conditions of a given phenomenon? Also, de Waal claims that theories of kin selection and reciprocal altruism are sufficient to explain nonhuman primates’ social behavior (p. 16), but when it comes to humans, he gives a strong group-selectionist hint: “In the course of human evolution, out-group hostility enhanced in-group solidarity to the point that morality emerged” (p. 54). If similar behaviors in humans and nonhumans were shaped by different evolutionary forces, and especially if group selection is tied to the cultural process (Boyd and Richerson 1985), isn’t it likely that some discontinuity exists between them?

Pointing at some loose ends in de Waal’s essay should not be taken as advice to reject his approach to morality altogether. On the contrary, de Waal’s efforts to extend his primatological expertise to morality will surely inspire many. We should also bear in mind that he was exposed to the scrutiny of well-informed critics, although his responses to them were focused less on their specific objections and much more on rearticulating some of his central claims. As he puts it, the commentators focused “on what seems missing rather than present in other primates,” whereas his emphasis “has rather been on shared characteristics” (p. 161). Still, it is reasonable to expect of a naturalistic theory of morality that it be symmetrical and that it deal with both what is “shared” and what is “different.” Apparently, de Waal was primarily interested to show *that* morality evolved, but was less concerned about the question of *how* this happened. All of this creates the impression that he did omit to address some of the most intriguing issues related to the origin of morality. I am sure, however, that we will not have to wait too long for his more elaborated views on this topic.

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Yesterday Life, Tomorrow Consciousness?

The Quest for Consciousness: A Neurobiological Approach

Christof Koch

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Erik Myin

Centre for Philosophical Psychology, Department of Philosophy
University of Antwerp, Belgium

Erik.Myin@ua.ac.be

&

Centre for Logic and Philosophy of Science

Department of Philosophy

VUB Brussels, Belgium

Johan Veldeman

FWO-Flanders and Centre for Philosophical Psychology

Department of Philosophy

University of Antwerp, Belgium

Johan.Veldeman@ua.ac.be

Is consciousness the one remaining mystery science stands on the threshold of solving? It is tempting to compare the issue of *consciousness* at the beginning of the 21st century to that of *life* halfway through the 20th century. The latter story begins with skeptics in the early 20th century who thought that life would withstand a complete scientific analysis because the mechanisms underlying heredity were not within the reach of the explanatory potential of natural science. Their moment of defeat came when Watson and Crick discovered the double-helix structure of DNA. Given the rapid advances in the study of the brain, are we on a similar track with consciousness? Will skeptics who see consciousness as beyond the grasp of natural science soon be silenced? It is telling that after the celebrated work on DNA, Francis Crick set out to “explain the mystery of consciousness in scientific terms” (Crick 1994: xi). In this “quest” he was quickly joined by Christof Koch, and the many papers the two men published together on the basis of this book. In it, Crick’s presence is tangible in both form (the frequent “we” or “Francis and I”) and content. Koch leaves no doubt that his own views on the conquest of consciousness are grounded in the analogy with life:

The architecture of the DNA molecule led to an understanding of heredity that was simply beyond the capabilities of the previous generations of chemists and biologists. By analogy, knowing where the neurons that mediate a specific conscious percept are located, where they project to and receive input from, their firing pattern, their developmental pedigree from birth to adulthood, and so on, might provide a similar breakthrough on the way to a complete theory of consciousness. (p. 316)