

Journal of Cognition and Neuroethics

Apes with a Moral Code? Primatology, Moral Sentimentalism, and the Evolution of Morality in *The Planet of the Apes*

Paul Carron

Baylor University

Biography

Paul Carron is an Assistant Professor of Philosophy in the Baylor Interdisciplinary Core at Baylor University, where he teaches courses at the intersection of philosophy, psychology, ethics, and social theory. His primary research interests are ethics, free will/moral responsibility, moral psychology, and ancient philosophy.

Acknowledgements

I would like to thank Leslie Roy Ballard for his very helpful comments and editing suggestions on the earlier drafts of this paper. I would also like to thank the members of my writing group, Anne-Marie Schultz, Tom Hanks, and Davide Zori for helpful comments and suggestions. Finally, thanks to Zea Miller for organizing a fine conference and to the participants at the Work of Cognition and Neuroethics in Science Fiction conference at the Insight Institute of Neurosurgery and Neuroscience.

Publication Details

Journal of Cognition and Neuroethics (ISSN: 2166-5087). October, 2015. Volume 3, Issue 3.

Citation

Carron, Paul. 2015. "Apes with a Moral Code? Primatology, Moral Sentimentalism, and the Evolution of Morality in *The Planet of the Apes*." *Journal of Cognition and Neuroethics* 3 (3): 1–26.

Apes with a Moral Code? Primatology, Moral Sentimentalism, and the Evolution of Morality in *The Planet of the Apes*

Paul Carron

Abstract

This essay examines the recent *Planet of the Apes* films through the lens of recent research in primatology. The films lend imaginary support to primatologist Frans de Waal's evolutionary moral sentimentalism; however, the movies also show that truly moral emotions outstrip the cognitive capacities of the great apes. The abstract moral principles employed by the ape community in the movie require the ability to understand and apply a common underlying explanation to perceptually disparate situations; in contrast, recent research in comparative psychology demonstrates that the great apes lack this capacity. Since the capacity for abstraction is required on even the most basic version of moral sentimentalism—Shaun Nichols' sentimental rules account—the lack of the capacity for abstraction reveals a qualitative distinction between primate social behavior and human morality.

Keywords

Moral Sentimentalism, Impartial Spectator, Frans de Waal, Primatology, *Planet of the Apes*

Any animal whatever, endowed with well-marked social instincts, the parental and filial affections being here included, would inevitably acquire a moral sense or conscience, as soon as its intellectual powers had become as well developed, or nearly as well developed, as in man. (Darwin [1871] 1981, 71–72)

To name an act good or bad, ultimately implies that it is apt to give rise to an emotion of approval or disapproval in him who pronounces the judgment... (Westermarck 1906, 4)

Ape separate weak. Ape together strong... Ape not kill ape. (Wyatt 2011; Reeves 2014)

Introduction

The Planet of the Apes is a classic American science fiction film. Released in 1968, it received critical acclaim and box office success (“Top-US-Grossing” 2015). Its inclusion in the National Film Registry by the Library of Congress for cultural, historical, and aesthetic significance evidences its lasting impact. The original film spawned four sequels and several other spinoffs. This film captivated audiences not only for its technical achievements, such as its cinematography, realistic ape costumes, and haunting score, but also for the interesting philosophical questions it raised.

In 2001, a reboot of the franchise appeared in theaters—*The Planet of the Apes* directed by Tim Burton—that had relative box office success but failed critically and did little to advance the franchise’s more interesting philosophical and cultural importance. Another reboot of the franchise appeared in 2011. Thus far, the most recent reboot has generated two films, *The Rise of the Planet of the Apes* and *Dawn of the Planet of the Apes*. Whereas the original film tries to debunk various aspects of human exceptionalism by exposing the human propensities toward racism, classism, and religious ideology, *Rise* and *Dawn* imaginatively depict great apes developing human capacities such as reflective consciousness, emotional intelligence, and moral reasoning.¹

Recent advances in primatology and comparative psychology reveal that many of those imaginative depictions are not so fanciful; rather, the portrayals reflect our growing understanding of nonhuman primate cognitive capacities, an understanding due in large part to the careful research, spanning over 30 years, of primatologist Frans de Waal. Putting the recent reboots into dialogue with current scientific research like de Waal’s illuminates the extent to which human morality is rooted in primate social behavior and cognitive capacities. However, careful examination of that research and its philosophical framework reveals how human moral reasoning and action far outstrip the capacities of nonhuman primates.

In particular, examining what I label de Waal’s evolutionary moral sentimentalism sheds light on the fictitious story of the reboots. Briefly, moral sentimentalism is the idea that moral judgments stem from a person’s reactive attitudes—sympathy, anger, compassion, resentment, etc. When a person judges that an action is morally wrong, this judgment happens in part because the agent experiences—or believes she should experience—certain reactive attitudes in response to the action in question.

Despite evidence that supports de Waal’s evolutionary moral sentimentalism, certain aspects of the reboots go beyond de Waal’s theory to reveal a fundamental problem with

1. Whenever I refer to the “reboots,” I am referring to *Rise* and *Dawn*.

his account. The reboots portray the apes as developing the capacity for abstract moral reasoning, seen in their ability to adopt and apply abstract moral principles. De Waal does not explain how the common ancestor of the great apes and humans developed this capacity. Furthermore, recent research suggests that, notwithstanding all their profound intellectual capacities, the great apes lack the capacity for abstract moral reasoning. Even given all that we have in common with our primate cousins, a *qualitative* difference remains between primate social behavior and human morality. I conclude that despite its explanatory power, de Waal's theory fails to account for the evolution of a distinctly human morality.

My argument proceeds as follows. In section one, I briefly outline the tenets of a recent novel articulation of moral sentimentalism, as it is relevant to the films and for de Waal's primatology. In section two, I briefly overview the plot of the reboots, stressing scenes that display how the moral community evolves. The movies emphasize, for example, the importance of emotions and abstract moral principles for moral community, themes that later reemerge when discussing de Waal's work. In section three, I discuss what I define as de Waal's evolutionary moral sentimentalism (EMS). De Waal's EMS has two main features: 1) reactive attitudes, such as sympathy and empathy; and 2) moral norms that contribute to communal harmony. Major elements of de Waal's EMS are highlighted in the films.

Finally, section four contains the crux of my argument. De Waal argues that human morality evolved from primate social behavior, a theory creatively depicted in the reboots. However, the movies make clear a crucial aspect of human morality: abstract moral principles. De Waal also understands the importance of abstraction when he discusses the philosopher Adam Smith's notion of the "impartial spectator"—the view that when making moral decisions, we must abstract ourselves from our particular viewpoint to see the situation as an impartial person would see it. However, de Waal's account fails to provide evidence of how nonhuman primates develop a similar capacity for disinterestedness or applying abstract rules to the community as a whole. The ability to conceptualize and verbalize abstract notions differs radically between primates and humans. Even a more restrained "sentimental rules" account requires an agent to be able to distinguish between morals and conventions. Further, the agent must be able to recognize generalizable norms or principles regarding harm; recent research offers, however, that nonhuman primates lack the capacity for abstraction or generalization. I conclude that a qualitative distinction remains between primate social behavior and human morality.

Section One: The “Sentimental Rules” Account of Moral Sentimentalism

I am arguing that the most recent *Planet of the Apes* films present an imagined version of Frans de Waal’s evolutionary moral sentimentalism. Therefore it is first necessary to understand the ethical theory referred to as moral sentimentalism. At the most basic level, moral sentimentalism is the ethical theory that ethical responses stem from emotions and feelings (de Waal 2006, 18). Sentimentalism stresses “empathetic caring as the touchstone of virtuous agency” (Cox 2006, 506). As the philosopher David Hume puts it, “The final sentence . . . which pronounces characters or actions amiable or odious, praiseworthy or blameable . . . depends on some internal sense or feeling which nature has made universal in the whole species” ([1777] 1975, 172–173).²

Contemporary neosentimentalists link moral judgment inextricably to *appropriate* moral feelings, primarily empathy, and the agent’s ability to discern the appropriate moral feeling and act in accordance with that feeling in the absence of said feeling (D’Arms and Jacobson 2000, 729).³ Moral sentimentalism has many varieties, but, for my purposes, I focus on one recent novel version, Shaun Nichols’ “sentimental rules” account. I focus on this account because of its power to shed explanatory light on the films and de Waal’s particular brand of sentimentalism.

The main advantage of Nichols’ sentimental rules account is that it explains what he calls “core moral judgment.” Core moral judgment has two main components: “a normative theory prohibiting harming others, and some affective mechanism that is activated by suffering in others” (Nichols 2004, 18). At its root, core moral judgment is the ability to distinguish between moral and conventional rules. Moral and conventional rules have in common that they are rules. To elaborate, they are normative principles that govern conduct and are abstract insofar as they apply to any agent that would perform a certain kind of behavior, even when variables may change.

For instance, consider the rule against a student talking in a classroom without first raising her hand. The rule applies to all students, in a wide variety a situations within the classroom. Therefore, understanding the rule requires the ability, given a classroom setting, to abstract and generalize from the situation. However, important differences hold between moral and conventional rules. Certain categories of inappropriate actions, such as hitting or pulling hair, seem different from other categories of inappropriate

2. Cited in D’Arms and Jacobson 2000, 722.

3. In more technical terms, D’Arms and Jacobson refer to the heart of neosentimentalism as the “Response Dependency Thesis:” “to think that X has some evaluative property ϕ is to think it appropriate to feel F in response to X.”

actions, such as talking over everyone in the room or slurping one's soup. The first category contains morally impermissible actions, while the latter contains conventionally impermissible actions. Nichols surveys psychological experiments (including some of his own) that indicate that young children can make this distinction, but psychopaths cannot. The reason for this difference is that young children respond affectively to the suffering caused by pulling hair, but psychopaths do not. As Nichols' puts the point, "children respond with distress and concern to another's suffering. These responses seem to be diminished in psychopaths" (Nichols 2004, 17). Nichols cites Blair's research, which finds that even nonpsychopathic criminals make a significant moral/conventional distinction, whereas psychopaths do not (Blair 1995, 1–27).⁴ When asked why one should not pull someone's hair, young children will say something like "because it will hurt them," whereas psychopaths will say something like "because it's not allowed" (Nichols 2004, 19).

Therefore, core moral judgment premises a distinction between moral and conventional rules. This distinction is rooted in an affective response to the suffering an action causes another person, and even young children can make this distinction. Furthermore, people with core moral judgment attribute other characteristics to moral rules they do not attribute to conventional rules. In particular, an action that violates a moral rule usually ranks higher on a scale measuring the seriousness of the violation, the generalizability of the violation (it is wrong in all cultures, not just the subject's own culture), and the independence of the violation from the presence of an authority (Nichols 2004, 22).

All these attributes tend to apply to actions that harm another person. The connection between the 1) affect and 2) seriousness, generalizability, and authority-independence combine to produce the distinction between moral and conventional rules. This distinction rests on whether or not the action involves an affective response. To break conventional rules does not normally activate the agent's affective mechanism. Thus, people see those deeds as wrong only because an authority disallows the action. However, actions that harm another person activate the agent's affective mechanism, and it seems that actions that cause harm and activate the affective mechanism closely tie to universal harm norms for most (nonpsychotic) agents.⁵

4. Cited in Nichols 2004, 12.

5. Even psychopaths have a normative theory prohibiting hitting for instance, but, as previously stated, they offer conventional justifications for their moral violations. The main difference between the psychopath and the nonpsychopath seems to be the activation of affect in response to another's suffering. It should be

To sum up, Nichols' sentimental rules account posits that core moral judgment entails the ability to distinguish between moral and conventional rules. Moral rules activate the agent's affective mechanism, so the agent sees the rules as serious, generalizable, and independent of authority. The final, crucial point is that "the affective mechanism responsive to suffering in others, in conjunction with information about harm norms, produces the nonconventional theory" that guides moral judgment (Nichols 2004, 27). So, the agent must have both an affective mechanism responsive to suffering in others and the ability to understand and apply abstract norms regarding harm. One should keep in mind the two main aspects of Nichols' sentimental rules account as examination turns to the movies and de Waal's evolutionary moral sentimentalism.

Section Two: The Evolution of the Moral Community in *The Planet of the Apes* Reboots

The overall narrative arc of the recent *Planet of the Apes* movies shows the development of the great apes into a human-like community where the members have human-like capacities for language, thought, and culture. The 2011 *Rise of the Planet of the Apes* tells the story of how the first chimp develops those human-like capacities and shares them with other great apes. In *Rise*, a common chimp develops human intelligence through exposure to an experimental Alzheimer's drug in utero, purported to stimulate neurogenesis, or the growth of new brain cells. The baby chimp is able to hold his own bottle at just a few days old, solves complex puzzles, tests at human IQ levels, rapidly picks up sign language, and adapts to life in a human home. The people caring for him name him Caesar.

In addition to improved motor skills and cognition, Caesar exhibits reflective consciousness and emotional intelligence sometimes thought of as exclusively human. While walking in the park with his adoptive father, Will Rodman, Caesar notices a dog on a leash. Caesar is also on a leash, and, after responding to the barking dog with a primal growl that reduces the poor canine to a whimper, Caesar signs to his father, "Am I a pet?" When his father replies, "No, you're not a pet," Caesar signs, "What is Caesar?" (Wyatt 2011). This moment of self-recognition reflects our more advanced understanding (compared to when the original film was made) of self-recognition in primates.⁶ We now know that all great apes (except gorillas) and a few other animals recognize themselves in

noted that Nichols is not entirely clear on how he thinks these two elements are connected.

6. For instance, see Povinelli et al. 1993, 347–372.

mirrors. Such recognition suggests that great apes understand themselves as individuals and potentially can distinguish their own mental states from the mental states of other great apes.

In a later scene, for example, Caesar witnesses an angry neighbor accost his human “grandfather,” Charles Rodman, who suffers from Alzheimer’s and has mistakenly entered, and damaged, the neighbor’s car. Caesar perceives one of his caretakers to be in danger, cannot control his anger, and brutally, relentlessly attacks the neighbor in retaliation.⁷ The assault leads to Caesar’s confinement in a primate shelter. Caesar’s human-like cognitive traits continue to develop. At first overpowered and bullied by the other apes, Caesar devises a plan to build a primate community with himself as the leader. He releases a large gorilla named Buck, who is kept in solitary confinement. Through this deed, Caesar gains Buck’s trust and uses the gorilla’s size to overpower, and thereby gain dominance over, the shelter’s antagonistic Alpha male.

Caesar later gives the “Alpha” male a cookie, lets him out of his cage, and appoints him to distribute cookies to the others. To build community, Caesar then lets all the apes out of their cages and introduces them to a principle that will become one of the ape mottoes: “ape together stronger.” Caesar breaks free from containment and returns to his human home. Once there, he steals from the refrigerator the drug that has caused his extraordinary development. He then returns to the primate shelter and releases the drug, which exists as a gas, spreading it in a cloud to all the inhabitants. When they awaken the next morning, they too have increased cognitive capacities. Caesar then leads the apes in an escape from the primate center, through the trees of San Francisco, across the Golden Gate Bridge, and into the redwoods.

The second reboot, released in 2014 and titled *Dawn of the Planet of the Apes*, begins by showing the peaceful colony of apes Caesar and the others have founded. In the colony, the apes teach their children sign language, a written alphabet, and several abstract moral principles. For example, the apes live by the motto “ape not kill ape,” an abstract, general moral principle that “unenhanced” apes cannot comprehend and therefore do not hold.

The end of the first movie and the beginning of the second also explain how the human race begins its devolution. The experimental drug that enhances nonhuman

7. It is important to note that Caesar refrains from killing the man of his own accord. We know based on Chimpanzee behavior in the wild as well as recent accounts of human raised chimps—such as the event with Travis in 2009—that many chimps Caesar’s age would kill the man. For more information on Travis, see the following commentaries: de Waal 2009a and de Waal 2009b.

primate intelligence is deadly to humans. The drug infects a lab worker named Robert Franklin, who, while trying to let Will Rodman know he is ill, then inadvertently infects the same neighbor Caesar attacked. The infected neighbor is a pilot. The final scene of the first film shows the pilot going to the airport, boarding a flight, and rapidly spreading the virus across the globe.

The beginning of *Dawn* reveals the horrific loss of life that resulted from the “Simian flu.”⁸ Only 1 in every 500 humans, genetically immune to the virus, were spared its deadly effects. One group of human survivors has built a community in San Francisco, but the community is running out of power. So a small group travels into the redwoods, hoping to repair a dam that can provide their community with electricity. The humans and apes forge a fragile peace, but that peace breaks down after misunderstandings and betrayals of trust from apes and humans alike. By the end of *Dawn*, a war has begun between apes and humans.

Section Three: De Waal on Primate Social Behavior and the Building Blocks of Human Morality

Having briefly described the evolution of morality in the reboots, I now discuss recent research in primatology to illuminate the films. Fascinating about the reboots are the specific ways they reflect recent research in primatology and related fields, particularly the research of renowned primatologist Frans de Waal. In this section, I describe empathy and normativity, the two main poles of de Waal’s evolutionary moral sentimentalism (EMS), and point out scenes in the reboots that reinforce key conclusions of his research.

De Waal is perhaps the foremost proponent of the continuity between primates and humans. In particular, he argues that nonhuman primate social behavior evidences the building blocks of human morality. De Waal argues that all the great primates (human and nonhuman) are fundamentally social, that feelings of empathy are at work in nonhuman primates, and therefore that both humans and primates are caring *and* violent, selfish *and* nurturing. Since de Waal goes to great lengths to argue that morality slowly has developed over the long span of human evolution, I refer to his account as an “evolutionary moral sentimentalism.”

De Waal is a self-avowed moral sentimentalist. According to de Waal, moral sentimentalism “firmly anchors morality in the natural inclinations and desires of our

8. This is not too far-fetched since the immune system of a Chimpanzee is much more robust than a human’s immune system. That is why chimps are tragically the subjects of many medical experiments, often infecting them with diseases such as Hepatitis.

species” and emphasizes the role of the emotions in human morality (2006, 18). One of the primary philosophical advantages of sentimentalism generally is that sentimentalism provides a naturalistic account of moral emotions, reasoning, and judgment. By naturalistic account, I simply mean that sentimentalist accounts refer to nothing outside of the natural world (i.e. God or the soul), and look to evidence in the natural and human sciences to validate their position.⁹ De Waal goes a step further by telling a story about how the roots of morality arise from nonhuman primate behavior.

The foundation of de Waal’s argument for the continuity of primate behavior and human morality is his claim that human beings are “social to the core,” a core largely shared with primates such as chimpanzees and bonobos (2006, 5). This shared social core generates the capacities for cooperation, reciprocity, fairness, self-control, and more. Crucial for this paper’s argument, the social nature is the source of the two basic building blocks of the moral life: the capacity for reactive attitudes such as empathy and sympathy, and the capacity for “adherence to an ideal or standard” or what de Waal calls “natural normativity” (2014, 187). I briefly cover each of these in turn.

One of the key aspects of de Waal’s EMS is the claim that morality is rooted in certain kinds of reactive attitudes, particularly the propensity to have the feeling of another agent involuntarily aroused in one’s self. More specifically, de Waal stresses the importance of empathy for the moral life, or the ability deliberately to adopt the point of view of other agents, to see and feel things from their perspective (2006, 39). De Waal says that empathy “covers a wide-range of emotional linkage patterns, from the very simple and automatic to the highly sophisticated” (2006, 41). The very simple and the highly sophisticated both are observed in primates and are an essential part of human morality.

De Waal calls the most sophisticated form of empathy “attribution,” or fully adopting another’s perspective, referred to as theory of mind (or sometimes simply “mindreading”). To adopt that perspective, the agent must not only have the ability to look for reasons for the other’s emotions, but also be able to understand the other agent’s mental states, what the other believes, desires, and so forth. De Waal (2006, 26) more succinctly defines sympathy as follows: “an affective response that consists of feelings of sorrow or concern for a distressed or needy other (rather than the same emotion as the other person).” So, empathy is recognizing and feeling what the other agent is feeling, while sympathy is recognizing what the other is feeling, and feeling concern or distress

9. A more technical definition is that ethical naturalism is the view that ethical or moral facts reduce to other natural facts, where a natural fact is something that is the subject matter of the natural sciences.

for the other. Empathy requires mindreading; sympathy does not.¹⁰ But empathy and sympathy both have a vital element in common: they are *reactive* attitudes—responses to suffering or distress in another agent—and are motivating mental states.

One of de Waal's favorite examples of primate empathy is the chimp Kuni, who tried to help a bird fly by climbing to the top of the highest tree in the enclosure, wrapping her feet around the tree branch to leave her hands free, and then spreading out the bird's wings and launching the bird into flight (2006, 31). Kuni seemingly understood the difference between a chimp's needs and the needs of a bird, and responded appropriately. She could read the bird's "mind" and responded to its suffering. De Waal cites a number of similar examples that he takes as sufficient proof that primates can adopt another's viewpoint. Chimps respond to the pain they see in another chimp; a chimp helped another chimp who had fallen into a moat; chimps will protect comrades who are being attacked. All those responses require a basic understanding of the other's situation and emotional cues, and the ability purposefully to respond.

Biologists see in the reactive attitudes of empathy what they call "reciprocal altruism." De Waal defines reciprocal altruism as exchanged acts that are costly to the performer but beneficial to the recipient (2006, 13). Biologists believe such attitudes have evolved because "[e]volution favors animals that assist each other if by doing so they achieve long-term benefits of greater value than the benefits derived from going it alone and competing with others" (13). This is counterintuitive to our common-sense understanding of altruism: altruistic acts are precisely acts that bring *no benefit* to the agent. Yet, biologists refer to reciprocal altruism as altruism because any form of assistance toward another creature that costs the agent something and does not bring immediate positive results to the agent seems to run counter to one of the basic precepts of Darwinian evolution: natural selection (Sober and Wilson 1998, 25). Nevertheless, it is easier to see how tendencies to perform actions that will be reciprocated would be evolutionarily beneficial. It is more difficult to see how altruistic acts evolved that do not benefit the agent.

One sees many examples of unreciprocated altruism, from lowly parasites to the great apes. For example, the trematode parasite *Dicrocoelium dendriticum* spends the adult stages of its life cycle in the liver of cows and sheep, but, during the long process that it takes for the eggs to get from feces back to the liver, it spends its time in an ant. Of the fifty parasites that enter the ant, one migrates to the brain of the ant where it

10. As addressed below, autistic children demonstrate the capacity for basic moral judgment and sympathy, but generally do not appear to have the capacity for empathy.

modifies the ant's behavior, causing the ant to spend more time on the tips of grass blades, where the ant is more likely to be eaten by a sheep or cow. The brain worm then dies, while the others go on to live as adult parasites in the host (Sober and Wilson 1998, 18). Despite the lack of intentionality of any mental states on the part of the parasite, the behavior certainly looks altruistic since the brain worm dies for the sake of its parasite comrades.

De Waal cites an example with apparent intentionality. A chimp named Krom notices that his aunt Jackie is trying to get water out of a large tire suspended from a pipe. The tire is pinned behind several other tires and thus Jackie cannot withdraw any water. After Jackie gives up, Krom begins to remove the tires one by one until he gets to the tire with water in it. He carefully removes it without spilling any water and carries the tire to Jackie. Jackie drinks her water, and Krom walks away without any display from either party. Two points are relevant. First, as in the Kuni story, Krom reads Jackie's mind and responds appropriately. Second, Krom receives no benefits for his actions; the altruism has no apparent reciprocity.

There are a number of interesting examples of reactive attitudes and reciprocal altruism in the *Planet of the Apes* reboots. Recall the earlier example from *Rise*. Caesar's human grandfather, suffering from Alzheimer's, mistakenly wrecks a neighbor's car, and the neighbor confronts him. Caesar is aware of his grandfather's condition. In an earlier scene, for example, he helps the old man use the correct end of his fork to eat eggs. Thus, when Caesar sees his grandfather being attacked, he leaps into action to protect him.

In *Dawn*, Caesar responds to the suffering of another agent, that of his wife, who gets sick after childbirth (he starts a family in the chimp colony, in the interim between the events of the two movies). However, one of the most moving examples is how he responds to the small band of human survivors that need access to a dam located within the territory of the ape colony. He agrees to help them despite protest from his fellow apes, including Koba, who points to scars on his body as evidence of mistreatment in the Gyn Sys laboratory, exclaiming "Human work!"

Caesar's experience with humans has been largely positive because of his primary caretakers. Indeed, in one scene, he refers to his human "father" as "a good man." Moreover, Caesar can see that the band of humans is desperate. Thus, he allows them access to the hydroelectric plant and even instructs apes to assist with the work. This assistance is not a cold, calculated move made in the interest of the ape community. Rather, it shows Caesar responding to the needs of others. It exemplifies recognition of other people's needs, a sense of their desperation, and a compassionate response.

However, the best example of positive reactive attitudes, of reciprocal altruism, happens at the end of *Rise*. As the apes are attempting to escape across the Golden Gate Bridge and into the redwood forest, a police helicopter opens fire on Caesar, believing that if they take out the leader, they can stop the revolt. Buck, the large gorilla Caesar had released from solitary confinement in the primate shelter, pushes Caesar out of the way of gunfire, takes the gunfire on himself, and, leaping into the helicopter, sacrifices his life to take down the assailants. While this act returns Caesar's kindness, it goes far beyond the original act. Buck gets nothing in return for giving his life for the sake of a friend.

Reactive attitudes such as empathy and sympathy constitute one of the basic building blocks of human morality, and de Waal has long emphasized their importance. More recently, he has begun to emphasize normativity as well. In doing so, de Waal responds to frequent criticism from philosophers that the reactive attitudes of animals are not intentional; rather, animals are wantons, creatures that follow whichever desire is strongest.¹¹ For instance, one may argue that evolution has hardwired reciprocal altruism into the great apes because helping conspecifics brings potential future benefits to the agent, thus increasing the agent's chances of survival. But simply acting in accord with one's strongest impulse is not moral; morality often requires conformity to a standard even when a desire conflicts with that standard. De Waal responds to this criticism by arguing that many animals conform to norms, often in ways that resemble human moral action. He argues that, at the most basic level, we see normativity in animal behavior when spiders repair webs or ants repair the nest (de Waal 2014, 187). But this normativity is reflected in much more important ways, such as in instances of fair distribution of rewards, acts of self-control, and reconciliation. I briefly review these examples.

Many studies have suggested that some animals respond negatively to the unjust distribution of rewards or goods. For example, in a now-infamous experiment, de Waal and colleague Brosnan had two capuchin monkeys perform a simple task for a reward. The first monkey performed the task, received a cucumber slice, and appeared satisfied with the reward. The second monkey performed the same task, but received a grape as his reward. The first monkey performed the task again, but, when he was again given a cucumber slice, he revolted, throwing the slice at the experimenter. This first monkey

11. Both Kitcher and Korsgaard use this term—made popular in the philosophical literature by Harry Frankfurt (1971, 5–20) in his essay “Freedom of the Will and the Concept of a Person”—in their respective responses to de Waal in *Primates and Philosophers*.

protested each time, since his partner continued to get grapes for the same work while he got cucumbers (Brosnan and de Waal 2003, 297–299).¹²

De Waal (2014, 195) calls this “inequity aversion” (IA). The reaction is even stronger when the experiment couples one agent’s reward with the punishment of a conspecific. In another famous study, rhesus monkeys could receive food by pulling on a lever, but doing so delivered shocks to a conspecific. The experimenters found that many monkeys would refuse to perform this task. The aversion was so great that one monkey refused to eat for five days, while another refused to eat for twelve days (Masserman et al. 1964, 584–585).¹³ The monkey’s sense of fair distribution of goods coupled with the reactive attitudes in response to the pain and suffering of conspecifics proved a great motivator.

De Waal rightly notes that the capuchin monkey experiment exemplifies disadvantageous IA. The agent negatively responds to the unjust distribution of goods that is disadvantageous to the agent. A higher level of fairness is advantageous IA: the aversion to the unequal distribution of goods that *favors* the agent. This appears to be a more uniquely human capacity. However, recent experiments have tested chimps in a version of the ultimatum game and appear to lend some evidence in favor of primate *advantageous* IA. In the now-classic experiment, a human subject (the proposer) is given a sum of money, for example, 10 dollars. The subject has a partner (the respondent) who knows how much money the subject received. The proposer gets to choose how much money she can keep and how much to give to the respondent. The motivator is that if the respondent accepts the offer, then both participants keep their share. However, if the respondent rejects the offer, then neither participant gets to keep any money.

People in Western cultures typically offer around 50% of the available amount as do people in most other cultures (Guth 1995, 329–344; Camerer and Loewenstein 2004, 3–52; Henrich et al. 2001, 73–78).¹⁴ Surprisingly, in a simplified version of the ultimatum game designed for chimps and 3-to 5-year-old children, chimps tended to opt for an equal distribution instead of an unequal one (Proctor et al. 2013, 2070–2075).¹⁵ De Waal takes this to suggest that chimps are also sensitive to unequal distributions of goods that favor the agent. However, neither chimps nor children distributed the goods equally in the absence of partner influence, suggesting a lack of autonomous moral agency.

12. Cited in de Waal 2014, 195.

13. Cited in de Waal 2006, 29.

14. Cited in de Waal 2014, 197.

15. Cited in de Waal 2014, 197.

Nevertheless, taken together, these studies suggest that nonhuman primates are sensitive to unequal distribution of goods, respond negatively, and take action to attempt to rectify the situation by bringing it back in line with a norm of fair distribution.

Recall the time in *Rise* when Caesar appoints the former “Alpha” male, Rocket, to distribute cookies to all the apes. Caesar begins by giving a cookie to Rocket, then instructs him to give one cookie to each ape until the cookies run out. Caesar could have easily kept all the cookies for himself, or handed them out preferentially. Instead, Caesar seems to recognize the importance of fair distribution for community building.¹⁶

Fair distribution is one way that nonhuman primates seem to conform to norms. A second way is self-control, particularly impulse control. One of the main charges against primate moral instincts by philosophers is that primates are wantons—creatures that always follow their strongest desire. Documenting impulse control would go a long way toward demonstrating that nonhuman primates can check their stronger impulses for an alternative though less strong desire. In what follows I describe several experiments suggesting that nonhuman primates have this ability.

In another now-classic experiment, children are given a marshmallow and are promised that they will get another marshmallow if they can refrain from eating the first. Children can hold out for several minutes, but so can monkeys and chimps (Mischel, Ebbsen, and Raskoff Zeiss 1972, 204–218; Logue 1988, 665–709; Beran et al. 1999, 119–127; Amici, Aureli, and Call 2008, 1415–1419).¹⁷ As interesting as they are, these experiments demonstrate only the ability for participants to delay gratification for a short time to get a greater amount of the same gratification.

Other studies involving intentional self-distraction are more illuminating. For instance, Evans and Beran put a spin on the delayed gratification experiment: they offered chimps toys to play with while the chimps were offered a treat to see if the chimps would distract themselves. Again, the chimps knew that, if they refrained from eating the treat, they would get a greater reward. The chimps played with the toys and ignored the treat, allowing them to delay gratification for up to 18 minutes. As a control, the experimenters ran the experiment with the reward outside the enclosure, out of the reach of the chimp, so there was no temptation to consume the treat before it had accumulated (Evans and Beran 2007, 599–602). In this instance, the chimps did

16. My thanks to Les Ballard for pointing this example out to me.

17. For the experiments with children, see Mischel, Ebbsen, and Raskoff Zeiss 1972, 204–218; and Logue 1988, 665–709. For experiments with chimps and monkeys, see Beran et al. 1999, 119–127; and Amici, Aureli, and Call 2008, 1415–1419. Cited in de Waal 2014, 189.

not bother playing with the toys, indicating they had intentionally played with the toys in the previous experiment to distract themselves from the reward. Although this is still simply an instance of delaying gratification for a time in favor of greater gratification in the future, this shows that primates can intentionally distract themselves, one of the most basic instances of human self-control and emotion regulation and a necessary skill for deliberation and future planning.¹⁸

Nonhuman primates demonstrate impulse control when presented with greater positive outcomes, but they also can control their impulses when faced with negative outcomes. When several chimps all want to mate with the same female, often they sit around for hours grooming each other and calming themselves down rather than engage in a vicious battle for her. No one approaches the female until each male is sufficiently calm, and this behavior wards off a violent altercation (de Waal 2014, 194–195). Chimps do likewise when they are expecting food, which often can cause an altercation. Ostensibly warding off a fight, they will groom each other and engage in celebrations (195). These crucial examples show instances of impulse control when faced with the possibility of a negative outcome. Furthermore, the impulse is being controlled not simply for the sake of greater future gratification, but to avoid painful conflict and maintain communal harmony.

When a member of the human colony approaches Caesar and asks to be allowed to repair a dam that can provide the human colony with unlimited power, Caesar takes a night to deliberate. Most of the apes want to attack the human colony. Koba—Caesar’s close confidant—fears that electricity will give the humans more power, making them more of a threat to the apes, and insists that the apes do not help the humans. Caesar is partially afraid that if he does not help the humans, they will attack. After Koba responds, “Let them attack,” Maurice—another confidant—points out they do not know how many humans there are, or how many guns they have. That uncertainty does not change Koba’s mind. However, Caesar wants above all to prevent a war because he knows that war risks all they have built: home, family, and future. Koba cannot control his impulses, but Caesar can. Because of his impulse control, Caesar is able to engage in future planning and goal-oriented deliberation.

18. There is a large and growing body of literature documenting the human capacity for emotion regulation and its relationship to the agent’s overall welfare. For recent studies, see Feinberg et al. 2012, 788–95; and Lai, Haidt, and Nosek 2014, 781–794. For broader overviews, see John and Gross 2004, 1301–33; and Beauregard 2007, 218–236.

The final example of conformity to norms to highlight is reconciliation. De Waal notes, “about thirty different primate species reconcile after fights, and that reconciliation is not limited to the primates. There is evidence for this mechanism in hyenas, dolphins, wolves, domestic goats, and so on” (2014, 192). After a conflict, chimps will groom and kiss each other, while bonobos will engage in sexual contact. Reconciliation often is seen in preventative form as well. For instance, when young chimps engage in playful wrestling bouts, a mother steps in and stops the bout at the first sign of distress. Her mediation keeps a conflict from breaking out. Some of the above examples on impulse control are also about conflict prevention.

Conflict resolution is another example of nonhuman primates curbing certain behavioral tendencies that would negatively affect the community. If conflicts can be peacefully resolved (or better yet prevented from occurring), then a certain standard of communal harmony can be maintained. The reboots also highlight conflict resolution. In one of the more powerful scenes in *Dawn*, Koba enters into the dam to find humans and apes working together to repair it. Recall that the Gyn Sys lab experimented on Koba, and he has many scars on his body that he refers to as “human work.” Appalled that the apes are helping the humans, he demands to see Caesar. As he is looking for Caesar, Koba pushes a human teenager to the ground. He cannot control his impulse to do violence.

When Caesar emerges, Koba asks why Caesar insists on helping the humans, declares that Caesar loves humans more than apes—loves humans even more than his own son. Caesar erupts in anger at this comment, and the two start to fight. Caesar gains the upper hand and nearly strangles Koba to death; but Caesar stops short, pronouncing between pursed lips, “ape not kill ape.” Koba stands up, assumes a bowing posture of submission, extends his hand, and asks for Caesar’s forgiveness in front of many other apes. After briefly considering Koba’s gesture, Caesar extends his hand, thus accepting the act of reconciliation. Caesar is able to return to himself from a violent immediacy, apply the ape motto, abstract from the situation to prefer the universal of forgiveness over the particularity of violence, and reconcile with Koba. Although the reconciliation is short lived, it highlights the primate capacity for reflection and abstract reasoning, forgiveness, and reconciliation. Even primates do not want to live in a constant state of violent upheaval, so they have developed tendencies and practices that help maintain communal harmony.

Section Four: The Impartiality of Moral Judgment

Thus far I have highlighted two main aspects of de Waal's EMS—reactive attitudes and normativity—and documented how the recent *Planet of the Apes* films imaginatively portray these aspects. I also have described a recent version of moral sentimentalism, Nichols' sentimental rules account. A clear connection exists between Nichols and de Waal's versions of moral sentimentalism. The heart of Nichols' account is the capacity for core moral judgment, or the ability to distinguish between moral and conventional rules. The capacity for core moral judgments rests on the marriage of an affective mechanism with the understanding of abstract norms regarding harm. De Waal has argued that nonhuman primates have the ability for reactive attitudes, particularly in response to the needs of suffering of others, and that nonhuman primates can adjust their behavior given certain goals or communal behavioral standards.

At first glance, the connection between de Waal's EMS and Nichols' sentimental rules account appears to strengthen de Waal's case for the continuity between primate social behavior and human morality. However, on closer investigation, it becomes clear that to understand and apply abstract moral rules, an ape must "possess the representational processes necessary for systematically reinterpreting first-order perceptual relations in terms of higher-order, role-governed relational structures. . .," what Povinelli and colleagues refer to as the "relational reinterpretation hypothesis" (Penn, Holyoak, and Povinelli 2008, 111). In other words, the application of moral norms requires the ability to abstract oneself from one's particular position and consider how a general principle—the common underlying explanation—may apply to any person in a different situation that has certain features in common—yet is perceptually disparate—from the current situation.

For instance, in experiments 9–14 described in Povinelli and Ballew's (2012, 138) *World without Weight: Perspectives on an Alien Mind*, a group of chimpanzees are presented with various weight sorting tasks. In experiment 9, the chimps are trained to sort the objects based on weight, and put the object in one bin if it is heavy and in the other bin if it is light (it should be noted that the difference in weight is typically 10-fold). If they get it right on the first try, they get a treat. No chimp tested could learn to do this in fewer than 400 trials, while some took up to 1562 trials, with a mean of 895 trials (97). Experiments 19–23 measured the impact of weight. In one variation, the chimps had to choose one of two balls and roll it down an incline. Only the heavy ball would push an apple through a hinged door toward the bottom of the incline. If the chimp chooses correctly, then she gets the apple. Again, this takes hundreds of trials for the chimp to learn. In both of these studies (as well as in many others conducted by

Povinelli and his team), the chimps' ability to sort based on weight drops to mere chance (186). Alternatively, experiment 30 tested the ability of 3–5 year old human children to sort and understand the impact of weight, and found that nearly 100% performed the tasks correctly. In fact, children often pass it on the first try “without assistance from the main experimenter” (255). Children demonstrate the ability to understand an abstract concept such as weight that chimps apparently lack.

From these and other experiments, Povinelli concludes that chimps do not understand the concept of weight, which requires the ability to “reinterpret observable objects and relationships in terms of unobservable variables” (2012, 26). A clear connection exists between concepts such as weight, and moral principles. Based on the growing evidence that nonhuman primates are incapable of this kind of abstract thinking, the kind of moral reasoning and action creatively depicted in the recent *Planet of the Apes* films is indeed imaginary. While conflict resolution among nonhuman primates is well documented, Caesar's motivation for restraining from killing Koba in the dam scene is based on his commitment to an abstract moral principle that an ape cannot hold due to its generalizability. Furthermore, although we know that nonhuman primates can delay gratification, delaying gratification in favor of long-term goals such as the good of the ape community and its progeny clearly outstrip ape intellectual capabilities.

To be fair, de Waal never claims that nonhuman primates are capable of human morality. Nevertheless, it often seems that he wants to hide this fact. However, de Waal hints at his understanding of human morality, claiming that human morality differs only *quantitatively* from primate social behavior. In other words, de Waal's evolutionary moral sentimentalism posits a “total gradualism” between primate social behavior and human morality.¹⁹ However, de Waal's own understanding of the distinctiveness of human morality coupled with our growing knowledge of primate intellectual capacities highlights a gap between primate social behavior and human morality. This gap is highly problematic for de Waal's evolutionary moral sentimentalism, because de Waal argues that human morality evolves from primate social behavior, but he cannot provide an evolutionary story to explain how the second major prong of his own theory—normativity—evolved. To understand the nature of this gap between primate social behavior and human morality, it is useful to consider de Waal's own understanding of the human moral sense.

When discussing his understanding of the evolution of human morality, de Waal often quotes Darwin: “Any animal whatever, endowed with well-marked social instincts,

19. This is Christine Korsgaard's (Korsgaard 2006, 104) term.

the parental and filial affections being here included, would inevitably acquire a *moral sense or conscience*, as soon as its intellectual powers had become as well developed, or nearly as well developed, as in man” (Darwin [1871] 1981, 71–72; quoted in de Waal 2006, 14). De Waal makes mostly clear what the social instincts are and how they can develop into more complex mental states. However, the nature of this human *moral sense* requires illumination. De Waal’s discussion of the late-nineteenth-century philosopher and sociologist, Edward Westermarck, lends clarity. De Waal endorses Westermarck’s distinction between reciprocal attitudes and moral emotions. Whereas reciprocal attitudes such as “gratitude and resentment directly concern one’s interests,” moral emotions are marked by their “disinterestedness, apparent impartiality, and flavour of generality” (Westermarck 1906, 738–739).²⁰

The impartial, disinterested nature of the moral emotions may seem to put them at odds with the core of reciprocal attitudes, attitudes that require the basic ability to recognize suffering in another agent and have sympathy for that agent. Here de Waal’s nod to moral philosopher and economist Adam Smith’s “impartial spectator” is helpful. Smith (along with his friend David Hume) believes that human beings have the unique ability to expand local dispositions of kindness, sympathy, and reciprocity directed originally toward children, kin, and perhaps other members of one’s in-group. The truly moral emotions or sympathies, however, “should be moved by what is ‘useful and agreeable’ to people (in general),” even when that general good conflicts with selfish or local interests (Kitcher 2006, 132). On a Smithian account, this transition involves reflecting on or mirroring the various judgments and perspectives and combining them into a genuine moral sentiment (133).

Smith famously stated, “We endeavour to examine our own conduct as we imagine any other fair and impartial spectator would examine it” ([1759] 1982, 204). This “impartial spectator” is the inner moral faculty by which we judge ourselves. Furthermore, “it is the peculiar office of those (moral) faculties . . . to judge, to bestow censure or applause on all the other principles of our nature” (273–274).²¹ De Waal refers explicitly to Smith’s notion of the “impartial spectator” and states that in this area of disinterestedness human emotions “seem to go radically further than other primates’ [emotions]” (de Waal 2006, 20). Smithian moral approval requires distancing ourselves from our personal standpoints to obtain an impartial view of our own motives. Therefore,

20. Cited in de Waal 2006, 20.

21. Cited in Kauppinen 2014.

de Waal seems to endorse an account of human morality at the same time beyond the reach of primate cognitive capacity, yet rooted in basic features of primate social behavior.

De Waal's recent attempt to provide an account of "natural normativity," or the ways that nonhuman primates bring their behavior in line with certain standards, connects to one of the most fascinating, difficult aspects of Smith and Westermarck's moral sentimental account. This aspect is also especially relevant to the films. On Smith's account, the "impartial" nature of moral judgment begs the question: Since one agent cannot possibly know or take into account every other agent's perspective, how does the spectator arrive at her impartial judgment? Smith offers a hint when he notes that most of our moral judgments are based on general rules, which are themselves rooted in our emotional responses to particular cases (Kauppinen 2014, 16; Smith [1759] 1982, 387). Similarly, Westermarck (1906, 4) notes, "To name an act good or bad, ultimately implies that it is apt to give rise to an emotion of approval or disapproval in him who pronounces the judgment . . ." Furthermore, the agent makes the judgment on the account of an "accepted general rule" based on an "emotional sanction in his own mind" (6).²²

Although it is not entirely clear how these general rules and emotional responses are connected, here is one way to understand the preceding comments. Imagine that an agent witnesses a morally salient action—an act of fraud against a conspecific, for instance—but that this action does not directly concern the witness. The witness is in a hurry and is not affected by the incident: he does not feel particularly bad for the victim nor does he know her. In fact, the witness may never see the victim again. But he believes it is wrong to deceive another person, and one of the main reasons he believes that is wrong is the pain that he feels when someone else deceives him. Therefore, even though he does not actually feel sympathy at the moment, he is motivated to help the victim because of a general principle he is committed to, namely, that "it is wrong to intentionally deceive another person." That principle derives from his own reactive attitudes toward those who deceived him in the past. Furthermore, he believes that most other people are also hurt when they are intentionally deceived. In this way, abstract rules or principles derive from, and connect to, common emotional responses, even when those emotions are not active in the agent performing the moral judgment.

This discussion of the impartial nature of moral judgment is meant to highlight both an advantage and a disadvantage of de Waal's EMS. De Waal's recent attempt to demonstrate that many nonhuman primates adjust their behavior because of norms suggests they may be capable of impartial moral judgment. They appear to recognize

22. Cited in Kauppinen 2014.

suffering in others and often act to alleviate that suffering. They work to prevent harmful conflicts from arising that would negatively affect the community. They control their impulses not only to realize more advantageous personal outcomes, but also to maintain communal harmony. Taken together, these points enhance our understanding of the roots of human morality in primate behavior; however, the moral behaviors still fall short of anything resembling impartial moral judgment. De Waal himself notes this point, not only when he admits that disinterested moral emotions go far beyond the reciprocal attitudes of primates, but also when he discusses natural normativity. When comparing his understanding of natural normativity with impartial moral judgment, he states:

Differences likely remain, however. Other primates do not seem to extend norms beyond their immediate social environment, and appear unworried about social relationships or situations that they do not directly participate in... One could argue that their behavior is normative in that it seeks certain outcomes, but that animals manage to do so *without normative judgment*. They may evaluate social behavior as successful or unsuccessful in furthering their goals, but not in terms of right or wrong. (de Waal 2014, 200)

The basic point here is that what de Waal calls “normative judgment” requires the ability to formulate and apply abstract moral principles across dissimilar situations. It requires the marriage of an affective mechanism activated by suffering and the ability to understand and apply moral principles. Recent research in primatology indicates that nonhuman primates cannot perform the abstraction and generalization needed to apply moral principles. Until de Waal can explain how human beings develop this cognitive capacity through the evolutionary process, his evolutionary moral sentimentalism contains a major lacuna.

Conclusion

De Waal’s evolutionary moral sentimentalism comes with problems. Nevertheless, one gains a valuable perspective by using it as a lens through which to examine the recent *Planet of the Apes* reboots. The correlation between de Waal’s evolutionary moral sentimentalism and the evolution of morality in the reboots is clear. Many of the necessary steps for transitioning from reactive emotions to the founding and sustaining of a moral community are seen in the two films. We observe, for example, Caesar’s capacity for reactive, though local, attitudes, such as when he protects his grandfather from an angry neighbor. We then see Caesar expand his sympathies as he begins to have similar

attitudes toward all his fellow great apes, for example, when he shares cookies equally among the entire primate shelter, or when he refuses to kill Koba because “ape not kill ape.” Caesar develops truly moral notions, and, once his compatriots experience similar cognitive increases, they display expanded sympathies as well.²³ This allows the apes to establish a moral community that understands and applies abstract (disinterested) moral principles.

I have argued that recent research suggests that, while primates exhibit reactive attitudes, self-control, and other protomoral capacities, they are incapable of abstraction and disinterestedness. However, the movies offer an imaginary glimpse into how these truly “moral” capacities develop. Once an individual acquires this ability and forms a community of agents with the potential for disinterested moral emotions, it seems natural to foster those emotions in the group through education, specifically, the communication of certain abstract principles that reflect the group’s sympathies.

However, this ability to form a community based on abstract principles that stem from impartial moral judgments also defines a boundary between primate social behavior and human morality. The boundary certainly is fluid, but it helps us to recognize the nature of truly *moral* emotions. Moral emotions require abstract reasoning and disinterestedness, and, until research proves otherwise, we have good reason to conclude that our planet lacks any apes with an abstract moral code.

23. It is interesting to note, however, that Caesar’s moral sympathies and his commitment to moral ideals is much greater than in his conspecifics. Clearly he has been treated kindly in the human home in which he was raised, and he has been morally educated in that environment. Comrades like Koba were not so fortunate, and their moral capacities reflect their upbringing.

References

- Amici, F., F. Aureli, and J. Call. 2008. "Fission-Fusion Dynamics, Behavioral Flexibility, and Inhibitory Control in Primates." *Current Biology* 18 (18): 1415–1419.
- Beauregard, M. 2007. "Mind Does Really Matter: Evidence from Neuroimaging Studies of Emotional Self-Regulation, Psychotherapy, and Placebo Effect." *Progress in Neurobiology* 81 (4): 218–236.
- Beran, M. J., E. S. Savage-Rumbaugh, J. L. Pate, and D. M. Rumbaugh. 1999. "Delay of Gratification in Chimpanzees (*Pan Troglodytes*)." *Developmental Psychobiology* 34 (2): 119–127.
- Blair, R. 1995. "A Cognitive Developmental Approach to Morality: Investigating the Psychopath." *Cognition* 57 (1): 1–29.
- Brosnan, S. F., and F. B. M. de Waal. 2003. "Monkeys Reject Unequal Pay." *Nature* 425 (6955): 297–299.
- Camerer, C. F., and G. Loewenstein. 2004. "Behavioral Economics: Past, Present, Future." In *Advances in Behavioral Economics*, edited by C. F. Camerer, G. Loewenstein, and M. Rabin, 3–52. Princeton, NJ: Princeton University Press.
- Cox, Damian. 2006. "Agent-Based Theories of Right Action." *Ethical Theory and Moral Practice* 9 (5): 505–515.
- D'Arms, Justin, and Daniel Jacobson. 2000. "Sentiment and Value." *Ethics-Chicago* 110 (4): 722–748.
- Darwin, Charles. (1871) 1981. *The Descent of Man, and Selection in Relation to Sex*. Princeton, NJ: Princeton University Press.
- De Waal, F. B. M. 2006. *Primates and Philosophers: How Morality Evolved*. Edited by Stephen Macedo, Josiah Ober, and Robert Wright. Princeton, NJ: Princeton University Press.
- . 2009a. "Another Chimp Bites the Dust." *Huffington Post*, February 17. http://www.huffingtonpost.com/frans-de-waal/another-chimp-bites-the-d_b_167768.html.
- . 2009b. "Chimp Attack: Missed Opportunities." *Huffington Post*, December 7. http://www.huffingtonpost.com/frans-de-waal/chimp-attack-missed-oppo_b_383078.html.
- . 2014. "Natural Normativity: The 'Is' and 'Ought' of Animal Behavior." *Behaviour* 151 (2–3): 185–204.

- Evans, T. A., and M. J. Beran. 2007. "Chimpanzees Use Self-Distracted to Cope with Impulsivity." *Biology Letters* 3 (6): 599–602.
- Feinberg, M., R. Willer, O. Antonenko, and O. P. John. 2012. "Liberating Reason from the Passions: Overriding Intuitionist Moral Judgments through Emotion Reappraisal." *Psychological Science* 23 (7): 788–795.
- Frankfurt, Harry G. 1971. "Freedom of the Will and the Concept of a Person." *The Journal of Philosophy* 68 (1): 5–20.
- Guth, W. 1995. "On Ultimatum Bargaining Experiments: A Personal Review." *Journal of Economic Behavior & Organization* 27 (3): 329.
- Henrich, J., R. Boyd, S. Bowles, C. Camerer, E. Fehr, H. Gintis, and R. McElreath. 2001. "In Search of Homo Economicus: Behavioral Experiments in 15 Small-Scale Societies." *American Economic Review* 91 (2): 73–78.
- Hume, David. (1777) 1975. *Enquiry Concerning Human Understanding and Concerning the Principles of Morals*. 3rd Edition. Edited by L. A. Selby-Bigge and P. H. Nidditch. Oxford: Clarendon Press.
- John, Oliver P., and James J. Gross. 2004. "Healthy and Unhealthy Emotion Regulation: Personality Processes, Individual Differences, and Life Span Development." *Journal of Personality* 72 (6): 1301–1334.
- Kauppinen, Antti, and Edward N. Zalta. 2014. "Moral Sentimentalism." In *The Stanford Encyclopedia of Philosophy*. Stanford University. <http://plato.stanford.edu/archives/spr2014/entries/moral-sentimentalism/>.
- Kitcher, Philip. 2006. "Ethics and Evolution: How to Get Here from There." In *Primates and Philosophers: How Morality Evolved*, 120–139. Princeton, NJ: Princeton University Press.
- Korsgaard, Christine. 2006. "Morality and the Distinctiveness of Human Action." In *Primates and Philosophers: How Morality Evolved*, 98–119. Princeton, NJ: Princeton University Press.
- Lai, Calvin K., Jonathan Haidt, and Brian A. Nosek. 2014. "Moral Elevation Reduces Prejudice against Gay Men." *Cognition & Emotion* 28 (5): 781–794.
- Logue, A. W. 1988. "Research on Self-Control: An Integrating Framework." *Behavioral and Brain Sciences* 11 (4): 665–679.
- Masserman, Jules H., Stanley Wechkin, and William Terriss. 1964. "'Altruistic' Behavior in Rhesus Monkeys." *American Journal of Psychiatry* 121 (6): 584–585.

- Mischel, W., E. B. Ebbsen, and A. Raskoff Zeiss. 1972. "Cognitive and Attentional Mechanisms in Delay of Gratification." *Journal of Personality and Social Psychology* 21 (2): 204–218.
- Nichols, Shaun. 2004. *Sentimental Rules: On the Natural Foundations of Moral Judgment*. Oxford: Oxford University Press.
- Penn, D. C., K. J. Holyoak, and D. J. Povinelli. 2008. "Darwin's Mistake: Explaining the Discontinuity between Human and Nonhuman Minds." *The Behavioral and Brain Sciences* 31 (2): 109–130.
- Povinelli, Daniel J., and Nicholas G. Ballew. 2012. *World without Weight: Perspectives on an Alien Mind*. Oxford: Oxford University Press.
- Povinelli, D. J., A. B. Rulf, K. R. Landau, and D. T. Bierschwale. 1993. "Self-Recognition in Chimpanzees (*Pan Troglodytes*): Distribution, Ontogeny, and Patterns of Emergence." *Journal of Comparative Psychology* (Washington, DC: 1983) 107 (4): 347–372.
- Proctor, D., R. A. Williamson, F. B. M. de Waal, and S. F. Brosnan. 2013. "Chimpanzees Play the Ultimatum Game." *Proceedings of the National Academy of Sciences USA* 110 (6): 2070–2075.
- Reeves, Matt. 2014. *Dawn of the Planet of the Apes*. Blu-Ray. Beverly Hills, CA: Twentieth Century Fox Home Entertainment.
- Smith, Adam, D. D. Raphael, and A. L. Macfie. (1759) 1982. *The Theory of Moral Sentiments*. Indianapolis: Liberty Classics.
- Sober, Elliot, and David Sloan Wilson. 1998. *Unto Others: The Evolution and Psychology of Unselfish Behavior*. Cambridge, MA: Harvard University Press.
- "Top-US-Grossing Feature Films." *IMDB.com*. Accessed June 10, 2015. http://www.imdb.com/search/title?sort=boxoffice_gross_us&title_type=feature&year=1968
- Westermarck, Edward. 1906. *The Origin and Development of the Moral Ideas*. London: Macmillan and Co.
- Wyatt, Rupert. 2011. *Rise of the Planet of the Apes*. Blu-Ray. Beverly Hills, CA: Twentieth Century Fox Home Entertainment.