



University of Utah

Politics and an Innate Moral Sense: Scientific Evidence for an Old Theory?

Author(s): Kristen Renwick Monroe, Adam Martin and Priyanka Ghosh

Reviewed work(s):

Source: *Political Research Quarterly*, Vol. 62, No. 3 (Sep., 2009), pp. 614-634

Published by: [Sage Publications, Inc.](#) on behalf of the [University of Utah](#)

Stable URL: <http://www.jstor.org/stable/40232405>

Accessed: 28/06/2012 17:06

Your use of the JSTOR archive indicates your acceptance of the Terms & Conditions of Use, available at

<http://www.jstor.org/page/info/about/policies/terms.jsp>

JSTOR is a not-for-profit service that helps scholars, researchers, and students discover, use, and build upon a wide range of content in a trusted digital archive. We use information technology and tools to increase productivity and facilitate new forms of scholarship. For more information about JSTOR, please contact support@jstor.org.



Sage Publications, Inc. and *University of Utah* are collaborating with JSTOR to digitize, preserve and extend access to *Political Research Quarterly*.

<http://www.jstor.org>

Politics and an Innate Moral Sense

Scientific Evidence for an Old Theory?

Kristen Renwick Monroe

Adam Martin

Priyanka Ghosh

University of California at Irvine

Part of a symposium arguing for increased interdisciplinary conversations, this article suggests how political scientists can benefit from recent scientific work in child development, evolutionary biology, behavioral economics, primatology, and linguistics. All offer empirical evidence suggesting human beings are born with a moral grammar hard-wired into their neural circuitry. The analysis challenges claims for cultural relativity and suggests psychological egoism and rational choice theory leave unexplained much political behavior because they rest on too narrow a conceptualization of basic human nature, omitting precisely the sociability that moral sense theory places as a fundamental part of our human nature.

Keywords: *morality; moral sense theory; intuition; economics; neuroscience; evolution*

What is moral sense theory? Why is it important for political science? In addressing these questions we find convincing scientific evidence, in fields as wide ranging as child development, linguistics, behavioral economics, neuroscience, moral psychology, and primatology, that supports the belief in universal drives that can be said to constitute a biologically prepared moral architecture within human nature. Not limited to self-interest, these include what might be called a moral sense, akin to the olfactory lobes that provide us with a sense of smell. This evidence suggests all human beings are born with the prototypes of a sense that fosters anxiety when they witness others in distress and, similarly, promotes positive feelings when that distress is alleviated. We conclude by citing empirical work suggesting how incorporating the concept of an innate moral sense into basic models of social and political life will improve political analysis.

Our analysis presents an overview of moral sense theory in Part 1. Part 2 turns to recent scientific evidence in child development, evolutionary biology, behavioral economics, neuroscience, moral psychology, primatology, and linguistics. All these disciplines contain works offering empirical evidence suggesting human beings are born with substrates of a moral faculty hard-wired into their neural circuitry. The normative implication is that agents of socialization

traditionally said to inculcate ethics actually may be reinforcing parts of an instinctive moral sense. In part 3, we suggest what light this evidence sheds on the basic tenets of moral sense theory. We then propose critical questions that might inform our research as we scrutinize this old theory via a more focused, scientifically informed, interdisciplinary examination. Our analysis emphasizes three points. First, it challenges existing claims for strong cultural relativity. Instead, the empirical evidence supports claims of an innate human nature that varies, according to the environment—broadly conceptualized—in phenotypic fashion. Second, political theories and models based on psychological egoism leave unexplained much of political behavior because they rest on too narrow a conceptualization of human nature and omit crucial elements of the sociability that moral sense theory places as a fundamental part of our human nature. Finally, we call for a continuing dialogue with

Kristen Renwick Monroe, Professor of Political Science and Philosophy and Director of the UCI Interdisciplinary Center for the Scientific Study of Ethics and Morality, University of California at Irvine; e-mail: krmonroe@uci.edu.

Adam Martin, graduate student intern, University of California at Irvine Ethics Center.

Priyanka Ghosh, undergraduate intern, University of California at Irvine Ethics Center.

other disciplines because, as the present illustration demonstrates, interdisciplinary work with the natural sciences can yield important insight into basic tenets of political science (Axelrod 2008).¹

The Idea of an Innate Moral Sense

Intellectual origins. Moral sense theory holds that we are able to distinguish between right and wrong through a distinctive moral² sense. Although human nature is a perennial philosophical theme, dating from Plato, the idea of an innate moral sense reflects the Enlightenment's attempt to explain how human psychology might justify political and moral theories (Porter 2001). As part of the Enlightenment's quest for the scientific analysis of moral issues, moral sense theory inquires about the realities of human nature in order to construct our disquisitions on government and moral conduct on this nature and, presumably, construct polities that then can more realistically hope to achieve an ethical politics and society. In this regard, we discern the influence of both Locke and Hobbes.

In *An Essay Concerning Human Understanding*, Locke ([1690] 2000) attempted to develop a mental science much as Isaac Newton had developed a physical science. Locke was not the only scholar to reject the scholasticism and rationalism of his time and to eschew the approach in which we deduce "truths" from abstract premises that were otherwise unavailable to ordinary experience. In this, Locke followed the scientific tradition of both Newton and Bacon in stressing an approach that attempted to discern the nature of human beings through an empirical method that was systematic and available to anyone who had ordinary powers of perception and unprejudiced judgment (Myers 1985).

This scientific approach to morality rejected the approach in which abstract rationality reduces the senses to a minor role. It generated a school known as moral sense theory, also referred to as British sentimentalism. This school included Francis Hutcheson, Anthony Ashley Cooper (a.k.a., the 3rd Earl of Shaftesbury), Adam Smith, Bishop Butler (1900), and David Hume as its best-known advocates. Although these men did not always agree on fundamental principles, they nonetheless shared a common outlook that distinguishes them from other ethicists. They argued that moral terms must refer to some thing that is ultimately observable. The reference of such terms is a sentiment or feeling of revulsion or approval. The moral quality of any act is the sentiment

it elicits, and the core of morality is a distinctly human nature that is inclined toward social and political forms of connection. This makes the moral sense a substrate of all human behavior. At its core, it remains the same, despite cultural variations.

Hobbes's influence on moral sense theory is less direct than Locke's but nonetheless powerful. Perhaps we best discern Hobbes's influence by noting that moral sense theory attempts to answer both the questions left unanswered by theorists who find reason the driving force behind moral action and the questions left unanswered by the intuitionists who opposed the primacy of reason. The problem for those who argue in favor of moral intuitions—as opposed to reason—as the impetus for morality is the following: If reason does indeed tell us it would be wrong to be immoral—to lie, for example—how does this discernment provide a motive to be moral? Is merely recognizing that something is wrong enough to move us to do the right thing, even when our desires suggest otherwise? For example, why would we not lie anyway if lying is in our self-interest in a particular instance? The intuitionist position separates our moral knowledge from the forces that motivate us. Intuitionists make moral knowledge a matter of reason; but they locate our drive toward selfishness—such as lying or other forms of immorality—in the passions. This then raises obvious questions: Will reason dominate the passions? What happens if it does not?

An answer from religion is the blessing and sanction of God; the deity will react punitively in the absence of control of our selfish passions. Others (Durkheim 1954) found an answer in the socializing role of community. Hobbes answered this same question via the strong sovereign of social contract theory. In all these explanations, we are compelled to act morally by an external force—whether sacred (God) or secular (society or the political authorities). The external thus provides the impetus to do good. These answers were unacceptable to the intuitionists, who wanted to demonstrate that morality had innate bases within human beings themselves and that it is reasonable to do good regardless of threats from any external power, divine or human. It is the attempt to construct such a demonstration that lies behind moral sense theory. Although the initial discussion occurred during the seventeenth and eighteenth centuries, the debate touches on an issue still under contention today: Does the drive toward morality lie in conscious reasoning or in affective processes?

Shaftesbury. The term *moral sense* is first used by Shaftesbury ([1711] 1999) whose *Characteristics of*

Men, Manners, Options, Times argued we are able to distinguish between right and wrong by a distinctive moral sense that provides a special type of affective response. For Shaftesbury, the ability to sense virtue is akin to an aesthetic act, comparable to sensing beauty in art. Both senses have much to do with whether an act contributes to the general harmony of mankind. Therefore, the moral sense as such is closely related to considerations of the general welfare.

Shaftesbury ([1699] 1977) effectively argues against the Hobbesian view that the prime motivation driving human behavior is self-interest. For Shaftesbury, Hobbes erred in privileging self-interest as an explanation; Shaftesbury agreed that self-interest is a natural passion in humankind but held that self-interest is but one of many passions. Shaftesbury claimed that self-interest is joined (and often superseded) by other passions, such as benevolence, sympathy, gratitude, and generosity. For Shaftesbury, these feelings create an “affection for virtue,” which then naturally leads to the promotion of public interest. This affection, which Shaftesbury thought created a natural harmony between virtue and self-interest, was called the moral sense. Shaftesbury thus recognized that people had contrary desires, of the kind made central by Hobbes, and did not expect people to be virtuous at all times. But he argued that the pleasures of virtue are superior to those of vice, expecting that the dual motives of self-interest and the social interest would work together in perfect adjustment.

The originator of the theory thus sets it up as a kind of distinctive moral sense. It is a feeling-response, analogous to sensing beauty. For Shaftesbury, the test of a proposed action is whether it contributes to the general harmony of mankind, which Shaftesbury identifies as the general welfare. This harmony of the senses follows the Greek tradition (e.g., Plato) in which the harmony of the two drives in human nature—that of self-interest and social interest—will work together in equilibrium. For moral sense theorists, as for other Enlightenment thinkers, morality does not require supernatural sanctions and religion. Although religion is not critical for moral sense theory, the early moral sense theorists were at least nominally Christian and do allow that it may be God who implanted this moral sense in man. Moral sense theory thus is not antithetical to religious views of a moral sense and might be said merely to substitute nature for God as the key agent, as the Deist responses of the Enlightenment made plain. The spurs to moral activity thus were held to have their base in human nature,

extraneous to religious sanction and prior to deliberative reason.

Hutcheson. Shaftesbury’s general ideas are expanded upon by Francis Hutcheson, whose analysis of human nature claimed there were a great number of special senses. Hutcheson’s ethical theory is expressed in three works: *Inquiry Into the Original of Our Ideas of Beauty and Virtue* ([1725] 1971), *An Essay on the Nature and Conduct of the Passions and Affections, With Illustrations Upon the Moral Sense* ([1728] 1969), and *System of Moral Philosophy* ([1755] 1968).³ Essentially, Hutcheson argues that humans possess more than just the five external senses that allow us to smell, taste, see, hear, and touch; we also have a variety of internal senses. These internal senses include a sense of honor, of beauty, a sense of the ridiculous, and more important for our purposes, what Hutcheson called a “public sense” that entailed the feeling of being pleased by the happiness of others and uneasy over human misery.

According to Hutcheson, these internal senses are implanted in us, much as are the senses of taste, smell, and so on. These internal senses cause us to react immediately and instinctively to the character of actions. The moral sense causes us to approve of acts that are good and virtuous and to disapprove of those that are bad or vicious, much as humans exhibit disgust at foul odors or salivate in the presence of food. Hutcheson went even further than the original intuitionists in asserting that moral judgment is not based on reason. He held that our moral sense does not simply, or even predominantly, find pleasing those acts that benefit our own interest. For Hutcheson, moral sense seems based on a disinterested benevolence, with the ultimate desideratum “the greatest happiness for the greatest number.” (This argument anticipates the Utilitarians in both phrasing and in its concern to promote the general welfare à la Bentham.)

Hutcheson suggests the moral sense is an internal reflex, responding both to external and internal precepts. While custom, education, and example may refine and even extend this sense, a natural substrate or proto-sense must exist in order to perceive the moral right and wrong. Hutcheson bases part of his argument on the fact that benevolence is pleasing to man. He argues that because man’s power to reason is, in general, too weak to match his moral perceptiveness, there must be a moral sense to which benevolent activity is pleasing. This approach later appears in work by Hume and Adam Smith (1759), Hutcheson’s most famous student.⁴

Table 1
Summary of Arguments and Evidence for a Moral Sense

Tenet	Evidence
1. Moral terms are sentiments, or feelings of revulsion, or approval.	Work in ethology (DeWaal 1989a, 1989b, 1996, 1997a, 1997b, 1998) and child development support this assertion (Kagan 1981, 1989; Kagan and Lamb 1987; Kagan et al. 1979).
2. The core of morality is a distinctly human nature.	Child development (Kagan 1981, 1989; Kagan and Lamb 1987; Kagan et al. 1979) theory strongly supports this assertion.
3. At its core, the moral sense itself will be the same regardless of cultural variation.	Child development literature (Kagan 1981, 1989; Kagan and Lamb 1987; Kagan et al. 1979) as well as primatology (DeWaal 1989a, 1989b, 1996, 1997a, 1997b, 1998) and behavioral economics (Bowles and Gintis 2002) find this tenet to be true.
4. Reason alone cannot provide the impetus for morality.	Ethology (DeWaal 1989a, 1989b, 1996, 1997a, 1997b, 1998) and evolutionary logic support this tenet.
5. The human ability to reason is too limited to sufficiently exercise moral judgment on a daily basis; hence, reason alone cannot explain morality.	Animal behavioral studies (DeWaal 1989a, 1989b, 1996, 1997a, 1997b, 1998), social psychology, and neuroscience (Tankersley et al. 2007) have all found support for this tenet.
6. Self-interest is not the only, nor necessarily the dominant, human passion or drive.	See work on altruism (Batson et al. 2002), in both humans and other sentient beings.
7. The moral sense is a feeling-response.	Work in child psychology supports this claim (mainly work by Kagan, 1981, 1989; Kagan and Lamb 1987; Kagan et al. 1979).
8. Moral behavior is instinctual, with approval or disapproval being analogous to disgust or other automatic responses.	Work in ethology supports this claim (DeWaal 1989a, 1989b, 1996, 1997a, 1997b, 1998) as well as work in child psychology. (Kagan, 1981, 1989; Kagan and Lamb 1987; Kagan et al. 1979).

Hume. David Hume ([1777] 1978, 1999) agreed that reason cannot constitute the foundation for morality because reason, for Hume, is the slave of the passions. Reason cannot determine our ultimate desires and cannot move us toward action unless there is a prior desire; all it can do is tell us how best to achieve these desires. For Hume, all substantive knowledge ultimately must be derived from sense experience. But Hume breaks with his predecessors who sought to provide a rational warrant for most of our original beliefs and held that many beliefs had no such warrant. Instead, Hume argued, they should be explained in psychological terms. They were the results of mental processes of a nonrational, though practically irresistible kind. Hume drew particular attention to the role played by the imagination and the importance of the imagination as a source of conventional rules and custom.

Hume's argument—that ethics is rooted in emotion or feelings instead of reason—moves the debate away from the specific claim of a moral sense, however, and Hume is traditionally, and more properly, understood to be arguing primarily for the predominance of emotion as the foundation of ethics rather than to be arguing in favor of a specific moral sense. In this regard, Hume's heirs are the students of human

nature and the historical development of society, and we find the concept of a moral sense surfacing most prominently among developmental psychologists concerned with ethics (Kohlberg 1981, 1984; Piaget 1932) and ethologists concerned with the extent to which human beings resemble other animals in having an inborn sense of morality, much as they have an instinct for survival (DeWaal 1996, 2001; Goodall 1986, 1990). Ethology and anthropology share a concern for human sociability and ask whether there are behaviors, such as mothering, that are socially constructed or if such behaviors contain an innate element (for summaries of work linking Piaget's work on moral development to primatology, see Parker and McKinney 1999). They ask if whole societies can go against their basic human nature, if the capacity for evil is composed by society, and if we all have an innate capacity for evil, as for good.⁵

Contemporary Evidence of a Moral Sense

Is there scientific evidence in support of the idea of an innate moral sense? Arguments that human beings have an inborn sense of morality, much as they

have an instinct for survival, surface prominently in the contemporary literature of diverse disciplines. Anthropologists ask about human behavior in the ancestral environment to discern the role of culture in influencing moral behavior. Animal ethologists ask if the ethical nature of human beings is rooted in the biological nature we share with other species. Developmental psychologists examine children in their earliest years, before culture and language have shaped what might be innate tendencies toward certain kinds of behavior. And increasingly, moral psychologists and neuroscientists are making inroads into the biological substrates of moral behavior not only in animals or infants but also in adults and throughout the life cycle. This empirical research on an innate moral sense can be fragmentary and preclusive; it occasionally involves questions about the scientific reliability of certain findings.⁶ Nonetheless, this evidence is salient enough to justify a reconsideration of the existence of an innate moral sense. We need to ask if this assumption, or at least its possibility, should be built into our political models.⁷

Developmental psychology. Contemporary psychologists build on Piaget (1932) who, while not explicitly proposing a moral sense, does assume people have a built-in capacity for morality. Piaget's heirs (Kagan 1981) privilege reason in constructing cognitive-developmental models that tie the idea of an innate moral sense to developmental reasoning as they ask how people progress through different stages of moral reasoning and, later, ask how factors such as gender influence a general developmental process that exists innately in all humans. Analysts such as Kohlberg (1976) and Gilligan (1982), however, make moral development an extended process, wherein moral reasoning continues to develop well into adolescence and adulthood. Because their work emphasizes reason, not an innate moral sense, it thus deserves only occasional comment here.⁸ Other child psychologists (Kagan 1981, 1989; Kagan and Lamb 1987; Kagan et al. 1979) provide clearer illustrations of developmental work arguing for an innate moral sense, work that does not rely on more complex cognitive processes of reasoning of the kind found only in adolescents or adults. Let us thus turn to work in this genre, focusing on research by one of the most important developmentalists, Jerome Kagan.

Kagan's lifetime of experiments with children asks whether human action is motivated by a desire for sensory pleasure. He finds the emergence of a moral

sense in children at the end of the second year is universal and that this moral sense, as much or perhaps more than language or reason, is distinct to people. Kagan finds humans biologically programmed with an innate moral sense of ethics and morality, much as we are programmed for language. As with language, the form this ethics takes in practice will vary according to external factors. In making this argument, Kagan juxtaposes what he considers an innate moral sense in children with the kind of explanation offered by Utilitarians, who root the drive for ethics in the desire to maximize pleasure and minimize pain. Kagan concludes that the conscious feeling of pleasure that originates in one or more of the sensory modalities—those we might find in the sensory pleasure at eating food, touching something that appeals to us, or in sexual arousal—are indeed innate. But this kind of pleasure is not what Kagan makes critical in his conceptualization of a moral sense. Instead, Kagan (1998) locates a moral sense in the “conceptual consonance between an idea, called a standard, and the chosen action. When that consonance occurs, the person momentarily experiences a pleasant feeling because his behavior is in accord with a standard he has categorized as good” (p. 151).⁹

Kagan illuminates an issue that is critical for our purposes. He claims the pleasures of sensory experience discussed in Utilitarian thought can be confirmed with laboratory investigations. This particular sensory pleasure is found in a variety of animals, not just in humans. In the mammalian brain, this sensory pleasure seems to center in a set of neurons that, when excited, creates a state of sensory enjoyment. Biological tests confirm the existence of such neuronal transmitters and reveal activity in the centers of the brain in which such sensory stimuli originate. For theorists who locate the drive toward morality in such a sensory pleasure, then, scientific evidence seems to validate the existence of such pleasure centers.¹⁰

Nonetheless, as Kagan (1998) appropriately notes, attempting to root morality in sensory pleasure still involves us in difficulties. “The traditional argument that moral standards are derived from sensory pleasure or the reduction of pain cannot explain the universal fact that people become angry when they see others violate standards they believe are right” (p. 158). Does this mean we must abandon the idea of a moral sense? Not for Kagan, who argues that the biological foundation of this moral sense is critical and emerges from our primate ancestry. But the good feelings, the pleasures that come when we experience consonance with our standards, *these* are what Kagan argues

drive us toward moral action, and these are as difficult to measure as they are critical for morality. Kagan proposes that these more complicated good feelings consist of five unique abilities that humans inherit genetically, much as both humans and other primates inherit the tendency to be attentive to the voice, face, and actions of others. For Kagan, these five components constitute the moral sense: (1) the ability to infer others' feelings and thoughts,¹¹ (2) the capacity for self-awareness, (3) our penchant to categorize events and our selves as good or bad, (4) our capacity to reflect on past actions, and (5) our capability to know that a particular act could have been suppressed. These five abilities exist in all human beings. They merge to form a moral sense around the second year in children, thus making the human moral sense a biologically prepared competence.

Kagan's arguments about our moral sense correspond to arguments about our innate mathematical abilities. The human ability to conceptualize numbers and grasp the rules of arithmetic is innate,¹² but an innate mathematical ability does not necessitate the particular set of mathematical principles that has been conceptualized and passed on to us as children. The form of the mathematics is arbitrary; other principles could equally well have been generated and transmitted. Kagan is careful to suggest that although a foundation for a moral sense *does* exist, this does not necessarily imply that a *particular* ethical system is more natural than others. Kagan (1998) draws on the wide "variety of moral standards across cultures in history" to support his claim that it is "very difficult to argue that one inherits a tendency for certain morals" (p. 12). In this regard, ethics resembles language.

A good analogy to morality is language . . . because we're humans, we inherit a capacity to learn a language. But the language that we learn could be Swahili, French, English, Japanese. The same thing [is true] with morality. We inherit, because we are humans, a concern with right and wrong, and empathy with others. But the specific actions that we regard as moral, can vary with culture, just as the specific language you learn can vary with culture. (P. 13)

The proclivity toward ethical behavior thus is innate but the particularities of the ethical action are not. Accordingly, a cultural relativist could accept the concept of an innate moral sense while still arguing that what some ethicists find an innate prohibition—a

taboo against incest or murder, for example—is socially constructed.

Despite this conclusion, Kagan argues against cultural relativism when discussing the stages reached by normal children.¹³ These stages include the cognitive sophistication necessary to integrate the past, present, and future in what Piaget called reversibility, a process necessary for the assumption of responsibility for one's actions (Kagan 1998, 175). Kagan also finds that most two-year-olds have a capacity to "infer the thoughts and feelings of another and will show signs of tension if another person is hurt, or may offer penance if they caused another's distress" (Kagan 1998, 173). Kagan links the ability to anticipate the feelings of another with the suppression of the child's desire to hurt another. This connection between empathy and anticipation of another's feelings, however, is the result of speculation and inference, not the result of experiments. Nonetheless, Kagan does conclude that the "appearance of empathy in all children by the end of the second year implies that two-year-olds are prepared by their biology to regard hurting others as bad—that is, [as] a moral violation" (Kagan 1998, 173). At the same age, most children become aware of themselves as individuals with specific characteristics, intentions, and feelings. They recognize that they can be labeled *bad* or *good* and will try to avoid creating unpleasant feelings in others because they know that if they do so, they in turn will be avoided (Kagan 1998, 173). That insight is a seminal origin of the moral motive, although it will not be the only basis for morality in later years. A desire to avoid or to deny the labeling of self as bad increases in intensity as the child matures; in time, it will take precedence over fear of disapproval or punishment as the primary governor of behavior. This means "shame and guilt are biologically prepared, developmentally timed emotions" (Kagan 1998, 175).

Kagan does not take us to specific morality, just to our need to classify acts as "good" or "bad." We find little in his system to distinguish an Oskar Schindler from a Nazi genocidalist. Nor does Kagan totally separate his morality from a developmental process that controls out the influence of reason and culture, although his reference to cross-cultural studies allows for many cultural factors. For this, we turn to literature in primatology that attempts to achieve both these goals and that suggests animals other than human beings have a moral sense that is expressed in specific behaviors. Such works are not referring to the kind of consonance between act and standard that

Kagan makes his hallmark of morality. Furthermore, Kagan himself would take strong exception to classifying other animals in the same category as humans because Kagan believes humans are the only species to have the particular form of a moral sense that moves beyond the pleasure principle or psychological egoism.

What is biologically special about our species is a constant attention to what is good and beautiful and a dislike of all that is bad and ugly. These biologically prepared biases render the human experience incommensurable with that of any other species. (Kagan 1998, 191)¹⁴

This view from one of the key child developmentalists, then, is that the human moral sense is biologically prepared, that it develops early, and that it is adaptive, a product of evolution unique to human beings. “That’s why a lot of the animal research that tries to inform the human condition has limited value because we, only we, not chimpanzees, are aware of right and wrong, and we wish to do the right thing” (Kagan 2000, 11).

Evolutionary biology and animal behavioral economics. Other scholars take strong exception to Kagan’s insistence on the unique human claim to a moral sense. In searching for biology’s ability to encode behavior, they focus on primitive behaviors that do not require the cognitive development Kagan required for his moral sense as consonance. (For example, Darwin 1889 embraced the concept of a moral sense but did not specify what he meant by it.) Do animals exhibit behavior that corresponds with what we humans think of as “moral”? Do nonhuman animals feel the kind of sentiments that Hume made the impetus for morality? Do animals possess the cognitive abilities necessary to engage in the relatively sophisticated developmental processes underlying Kagan’s concept of morality as consonance? If so, which animals? Where do we draw the line in terms of cognitive development? Is animal behavior that looks moral to us the product of more primitive stimulus-response patterns that occur without the complex neurotransmitter responses of the neo-cortex? A host of questions remain to be answered, but the preliminary evidence is intriguing.

Relatively few works by evolutionary biologists focus on morality among human beings. Consequently, this literature does not often find its way into discussions of human morality, and evolutionary biological

analyses of a human moral sense seldom are found in contemporary political science.¹⁵ For empirical, albeit still controversial, evidence on the idea of a moral sense, we turn to scholars studying animal behavior, especially primatology. These animal behavioral scientists do not adopt Kagan’s conceptualization of a more cognitively developed consonance; yet Kagan and these animal ethologists share one important goal: disputing the idea that the only drive behind behavior is psychological egoism. Their success in this endeavor has salience for political science because psychological egoism is the sole or dominant force for many political theorists (Hobbes 1651) and evolutionary biologists (Dawkins 1976) who argue that human beings resemble other animals in being born selfish and lacking in true generosity and altruism. Animal behavioral scientists (DeWaal 1986) challenge this view and offer intriguing evidence to support their view that animals have an innate moral sense.

Much of this literature is designed to demonstrate that morality is not merely man’s cultural invention but is instead the product of millions of years of evolution. These evolutionary biologists concede that the strong have an advantage in any society built on individual strength. But this advantage shifts once additional factors relevant for survival are introduced. Any complex society, they argue, will make cooperation a valued form of behavior and thus evolutionarily adaptive. Working together helps individuals—be they capuchin monkeys or human beings—do better than they would alone. In game theoretic terms, joint efforts produce joint pay-offs; with cooperation comes increased sensitivity concerning who gets what for their efforts. Thus, some evolutionary biologists find the Hobbesian world mischaracterizes empirical reality. The new field of animal behavioral economics turns to the Adam Smith ([1759] 1976) of *A Theory of Moral Sentiments*, emphasizing the way in which kindness begets kindness. They argue that human beings have a concern with fairness and justice, but some (Hauser 2006) critique political theorists (Rawls 1972) for focusing on how much we care about fairness when we should be asking *why* primates came to care about justice and fairness in the first place. Animal behavioral economists argue that humans come from a long line of social primates and believe there are quite concrete advantages associated with fairness in our primate past.

These conclusions are supported by a host of empirical studies, from chimpanzees and lions to fish and humans (Crawford 1937; DeWaal 1998).

Chimpanzees will groom in exchange for food, for example, suggesting memory-based and partner-specific exchanges that mimic what humans call gratitude (Bonnie and DeWaal 2004). Research on capuchins suggests they demonstrate cooperation, communication, and even obligations, as when two monkeys work together to get the reward of individual bowls of food. In one experiment, for example, a monkey called Sammy was in such a hurry to get her food reward that she released the tray before her coworker (Bias) got her reward. When Bias realized that her tray had bounced out beyond her reach, she screamed. Sammy then approached her own pull bar and released it so Bias could get Bias's cup of food. Sammy did so despite the fact that her own food cup was now empty (DeWaal 1996). Brosnan and DeWaal (2003) found monkeys demonstrate a sense of fairness, protesting when one monkey gets grapes (a preferred food) while the others get cucumbers, even going on strike until they all get grapes. The monkeys thus were rejecting unequal pay, behavior at variance with the fitness maximization, which stipulates they should take what they can get and not let another's resentment or envy interfere with maximizing behavior.

Behavioral economists argue that the evolution of emotions serves to preserve the spirit of cooperation. Caring what others get might seem irrational to some schools of economics, but it keeps us from being taken advantage of in the long run. Discouraging exploitation, free-riding, and cheating thus is evolutionarily advantageous. Such empirical work has been developed into a sophisticated theory of cooperation, mutual aid, gratitude, reciprocity, and sharing (Brosnan et al. 2005; Clark and Grote 2003; DeWaal 1997a; Smaniotta 2004). Beyond primates, mammalian preferences for equity have been found among dogs (Range et al. 2009). These experiments in animal behavior conclude that the source of the fairness principle is conflict avoidance. It begins with individuals such as Sammy noticing resentment and moves to Sammy's concern about how others will react if she gets more. It ends with more complex declarations proclaiming inequity a bad practice in general. Human beings thus "embrace the golden rule not accidentally, as Hobbes thought, but as part of our background as cooperative primates" (DeWaal in Markey 2003). In this sense, animal behavioral scientists might provide one answer to an important criticism posed to the original moral sense theorists: How do we choose between the various—and conflicting—behaviors that people judge moral?

One plausible answer is to favor whatever behavior is more evolutionarily adaptive.

But what if we reject this route as too simplistic? Is the literature on animal behavior still relevant for us? Yes. If we are asking about an innate moral sense, and whether or not human beings possess this sense, then an important way to approach the problem is to conceive of humans as a subset of the animal kingdom. If other animals, especially primates—of which humans are a subset—demonstrate behavior that appears to correspond to what we would conceptualize as moral, then that constitutes inferential evidence suggesting human beings possess this moral sense as part of our animal biology. This is the basic premise underlying the following argument; the difficulties with it will be discussed later.

DeWaal and the primate nature. Drawing on more than 25 years of experiments with primates, DeWaal argues that an innate moral sense exists in all primates and that animals have both culture (2001) and emotions (1989a, 1989b, 1996, 1997a, 1997b, 1998). DeWaal's work is critical in challenging the philosophical tendency to privilege human beings and the premise that self-interest drives our animal nature,¹⁶ arguing that "morality is as firmly grounded in neurobiology as anything else we do or are" (DeWaal 1996, 217). Indeed, DeWaal finds a wide range of ethical acts among primates, from reciprocity and cooperation to helping those who are hurt or feeding the hungry. Such acts, for DeWaal, indicate the ability of animals to feel sympathy. "Survival of the weak, the handicapped, the mentally retarded, and others who posed a burden was depicted as the first appearance on the evolutionary scene of compassion and moral decency" (DeWaal 1996, 7). He cites numerous examples of animal succorance, in animals as different as whales and macaques, demonstrating the "functional equivalent of human sympathy" (DeWaal 1996, 40). DeWaal further argues that animals respond to social rules to help each other and to share food and resolve conflicts. He does not argue that animals are "good," but he does claim they exhibit behavior that looks like cooperation, altruism, sharing, helping, and so on *in addition to* demonstrating the kinds of behavior that ensure survival. His picture of animals, then, is a more complex picture of morality than that usually attributed to animals in a simplified model of Darwinian "survival of the fittest." Whether this behavior in animals corresponds to what we think of as moral and whether we should further infer from this behavior that there is an

underlying animal emotion that corresponds to the human emotions that drive similar behavior on our part are two important questions DeWaal does not address directly.

DeWaal does provide extensive evidence from animal behavior, however, that suggests animals exhibit behavior suggestive of an inborn sense that corresponds closely to what we might think of as morality. He provides numerous illustrations suggesting all social mammals—from elephants and dolphins to primates as well as humans—share four distinct characteristics that constitute the roots of a moral system. These traits are:

1. **Sympathy.** DeWaal's observations of primates suggest all social mammals recognize each other as individuals and have feelings for each other. These feelings include sadness at long separations, happiness on being reunited, and the drive to help members who are in trouble in their community. He finds numerous demonstrations of sympathy and concern, such as dolphins supporting an injured companion at the water's surface to keep it from drowning, an elephant returning to the spot where his mother died and touching her skull sympathetically, or an elephant herd trying to revive a young female elephant who was shot by a poacher and then, when unsuccessful, spreading earth and branches over her body before they leave it. DeWaal argues that sympathy is the cornerstone of morality. It is sympathy that leads us to recognize the existence of others and to treat others with the consideration we would like to have shown us.
2. **Hierarchy.** DeWaal next suggests animals exhibit an inborn drive for hierarchy, another characteristic of morality he finds shared by animals and humans. Generally, DeWaal notes, all social mammals live in hierarchies and follow the rules enforced by the dominant group. Once the social order is established, breaking this order leads to the anticipation of punishment. (Interestingly, Kagan also notes this phenomenon in very young children.) Primates will administer beatings, among other forms of punishment, to group members who break group rules. DeWaal (1996, 89) notes the example of two chimpanzees who did not come when they were called by their keepers at feeding time. Because these two stayed out late, the other members of the group were not fed at the normal feeding time, and the entire group remained hungry. The rest of the group retaliated and beat the two miscreants. The next night, these two were the first to come in at feeding time, and they never again dallied when called for food. DeWaal argues that such behavior resembles the human need to enforce the rank and order of a community through the institutions of law, politics, and government. For DeWaal, this demonstrates a sense of culture and a society that has rules and regulations that must be abided by. For the animals DeWaal studied, when behavior deviated from the norms of the group, punishment was effective and the established order was maintained.
3. **Reciprocity.** DeWaal notes a phenomenon closely related to dominance and hierarchy: reciprocity, a kind of quid pro quo that exists in all primate communities. Male chimpanzees, for example, pursue dominance and form coalitions that depend on mutual support during confrontations with their rivals. Repeated failure to support a partner destroys the coalition. Moreover, DeWaal finds some primates appear to remember who has hit them and will take revenge on these individuals afterward. Even in sharing food, primates tend to share food with those who have shared food with them in the past. For DeWaal, this parallels the human need for fulfillment of obligations and keeping agreements. DeWaal concludes that primates have the intuitive ability to be generous and to expect a similar show of generosity in return.
4. **Reconciliation.** Finally, primates appear to resolve communal conflict over food, resources, and other social incidents in a similar manner. Reconciliation has to occur, and third parties play an important role in eliminating the conflict. Primates do this through grooming, embracing, or kissing in patterns that DeWaal finds evocative of forgiveness and mediation to maintain the peacefulness in the human community.

Space constraints limit fuller discussion of this research, but DeWaal's work illustrates the trends among primatologists to view human beings in evolutionary terms, not as a distinct moral species (Goodall 1986, 1990; Sapolsky 2002). What we find in human beings, they argue, is a difference in degree, not a difference in kind. Thus, nonhuman animals share distinct

aspects of a moral system that are akin to that of their human cousins. In particular, primatologists have gathered clear and striking scientific work that suggests psychological egoism is not all there is to our inherent primate nature. If our social nature exists as part of our primate genotype, our political theories should recognize this. When broken down to its most essential indicators—culture, language, and politics—morality can be found in animals. If it exists in all primates, the conclusion then must be that it exists in man as well, as part of our primate nature.¹⁷

Behavioral economics also sheds light upon how the presence of basic “moral emotions” could lead to cooperative economic outcomes. Bowles and Gintis (2002) have modeled a public goods game whereby in addition to personal material pay-offs, participants’ utility functions can incorporate one’s valuation of the pay-off to others, one’s “degree of reciprocity,” and moral emotions such as guilt of shame at one’s own or another’s deeds; these factors can promote cooperation in a group setting. This tendency, they propose, points to the role of internalized norms building upon the moral emotions to construct socially optimal results. Such an “internalization of norms” serves to “eliminate many of the cost-benefit calculations and replaces them with simple moral and prudential guidelines for action” (Bowles and Gintis 2002, 21). This means norm-internalizers are more “biologically fit than those who do not [internalize norms] so the psychological mechanisms of internalization are evolutionarily selected” (Bowles and Gintis 2002, 21). The evolutionary and genetic implications of these findings have been plausibly modeled as well (Gintis 2003). Such an approach provides a valuable addendum to the self-interest-based models of Axelrod (1984) and its cognate parallels in biology (Trivers, 1971). In experimental situations, drives toward social motives—such as equality—have also been noted. Dawes, Fowler et al. (2007) found that in constructing a game isolating egalitarian motives, participants would alter the incomes of other players even at a cost to themselves, given a chance, when inequality was perceived. In other words, players’ negative affect at inequality drove them to “reduce above-average earners’ incomes and to increase below-average earners’ incomes” (p. 794). Dawes and his colleagues believe such behavior points to the evolutionary development of “strong reciprocity.”¹⁸

Linguistics, evolution, and a moral grammar. Recent work (Hauser 2006; Young et al. 2007) builds on this

analogy but substitutes Chomsky’s (1965)¹⁹ model of innate linguistic grammar for math²⁰ and adds a section on Rawls’s (1972) work on justice. Hauser is not a moral sense theorist but he draws on evolutionary psychology, biology, linguistics, neuroscience, and primate cognition to argue that humans are endowed with a moral faculty that pronounces on right and wrong based on principles of action that are unconsciously derived. The moral grammar consists of a set of principles that operates on the basis of the causes and consequences of action. Hence, just as humans are endowed with linguistic ability, we also possess a moral faculty. We are born with abstract rules or principles. Nurture enters the picture to set the parameters and guide us toward the acquisition of particular moral systems. Hauser uses empirical research distinguishing the principles from the parameters to discover limitations on the range of possible moral systems. For Hauser, the brain acts as a circuit, like a toolkit specializing in recognizing certain problems as relevant for ethics. Many of the experiments Hauser cites try to delimit stages in child development. For example, three-year-olds already are aware of intention. They judge less severely acts that cause harm when the intention is good. Hauser deems this ability an innate way to detect cheaters who violate social norms.²¹ Hauser rejects the Kantian (Kant [1797] 1991) perspective on morality as relying too exclusively on reason and principles, finding this view undermined by research into the emotions (Damasio 1994, 1999; Kahneman and Tversky 2000).²² Hauser argues that people do not act by principled reasoning alone. Indeed, when questioned after an action, people frequently cite gut feelings or intuitions as their motivating force. Hauser also rejects the Humean position, however, which predicates the validity of a moral judgment on how one feels. If morality simply resides in how one feels—namely, it is grounded in individual self-reference—then, Hauser argues, moral pronouncements would be infinitely heterogeneous, atomistic, and internally inconsistent with a concept of morality as a referential behavior for a collective.

Hauser’s theory can be understood more clearly if we consider his definition of the moral. (Hauser, himself, fails to define the concept explicitly. Indeed, his discussion seems strangely uninformed about critical philosophical distinctions, such as the one between ethical intuitionism and moral sense theory. This lack of conceptual clarity, however, does not minimize the importance of Hauser’s empirical work.) Hauser claims moral judgment is more than a feeling or knowing; it is a sense of gravity that is simultaneously

cognized and felt. Morality carries greater seriousness than mere rules of etiquette. Hauser finds three archetypes of moral judgment and associates these with three political theorists. First, the Kantian approach describes morality as the result of observing an event and then making moral judgment using reason and according to a universal principle. Second, a Humean approach finds morality occurs when individuals observe events and make a moral judgment based on how they feel about what they have witnessed, thus producing a more relativistic view of morality. And third, the Rawlsian approach argues that people possess a moral faculty that is prior to emotion or cognition. This mechanism is automatic and subconscious; it triggers emotions and thought as appropriate to the situation and contains some logic of fairness. This Rawlsian position implies an innate sense of justice that is generally universal in humans but moderated for specific cultural contexts.²³ Different locations (attitudes toward a moral dilemma) can be explained as variation from some mean. This is where the innate grammar analogy comes into play:

Paralleling the story of language, one path to discovering whether our moral faculty consists of universal principles and parameters that allow for cultural variation is to tap into the anthropological literature with its rich descriptions of what people across the globe do when confronted with selfish and beneficent options. (Hauser 2006, 131)

Hauser (2006, 129) expects something akin to linguistic variation, namely, systematic differences among cultures based on parametric settings. These parametric settings explain diverse cultural responses in behavior and principles of harming and helping others.

All societies have a normative sense of fairness. What varies between cultures is the range of tolerable responses to situations that elicit judgments of fairness. In essence, each culture sets the boundary conditions, by tweaking a set of parameters for a fair transaction. (Hauser 2006, 99)

For Hauser, our moral judgments also reflect “intuition percolating up from unconscious and inaccessible principles of action” (p. 121).

Hauser’s work thus suggests we have a moral faculty that leads us to judge situations based on notions of fairness. This moral faculty is modeled after innate

grammar: There are both strong and weak forms. The strong or nativist form argues that all content (rules, values, meaning, application) is innate. The weak form posits that a general principle is combined with some acquisition mechanism, which in turn provides content specificity. A hybrid form would argue that some content is innate but other content is acquired. Hauser seems to favor three models of the Rawlsian creature: weak, temperate, and staunch. He considers these as phenotypic expressions of a genetic potential set in different contexts. A weak Rawlsian “as a species, distinct from all others . . . has the capacity to acquire morally relevant norms, but nature hasn’t provided any of the relevant details” (Hauser 2006, 198). A temperate Rawlsian is “equipped with a suite of principles and parameters for building moral systems. These principles lack specific content, but operate over the causes and consequences of action” (Hauser 2006, 198). Finally, the staunch person “is equipped with specific moral principles about helping and harming, genetically built into the brain and unalterable by culture” (Hauser 2006, 199). This makes the universal moral grammar a

theory about the suite of principles and parameters that enable humans to build moral systems. It is a toolkit for building a variety of different moral systems as distinct from one in particular. The grammar or set of principles is fixed, but the output is limitless within a range of logical possibilities. (Hauser 2006, 300)

When applied to moral behavior, Hauser indicates that moral principles may be gleaned from anthropological sources. For instance, the edict “thou shall not kill” is a principle holding of many religions. Yet, killing in the form of infanticide or honor killing is accepted by some cultures. These are exceptions to the rule. Hauser’s moral faculty approach holds that examples of killing are permissible deviations (parametric settings according to culture). Thus, Hauser (2006) accounts for societal and cultural variation of norms by positing an absolute norm that is universal but with local departures based on specific sociohistorical conditions.

Underlying the extensive cross-cultural variation we observe in our expressed social norms is a universal moral grammar that enables each child to grow a narrow range of possible moral systems. When we judge an action as morally right or wrong, we do so instinctively, tapping a

system of unconsciously operative and inaccessible moral knowledge. Variation between cultures in their expressed moral norms is like variation between cultures in their spoken languages: Both systems enable members of one group to exchange ideas and values with each other, but not with members of another group.

To say that we are endowed with a universal moral grammar is to say that we have evolved general but abstract principles for deciding which actions are forbidden, permissible, or obligatory. There are no principles dictating which particular sexual, altruistic, or violent acts are permissible. (P. 420)

Moral psychology and neuroscience. Related advances in moral psychology also shed light upon the substrates of moral behavior in human evolution and on its legacy on the neuroscientific level. Building on Trivers (1971) and E. O. Wilson (1975, 1978, 1998), several research programs have converged upon results lending support to the moral sense hypothesis as features of the pressures of natural selection upon our human ancestors. Human selfhood likely arose as a pragmatic measure for perceiving and relating to objects (and fellow members of the species) in the external environment, making selfhood inherently relational. What likely originally arose as a “motor system ontology” (Metzinger and Gallese 2003) increasingly became a social “embodied simulation.” This simulation meant the actions of others were mimicked by the subject, to the point that the same neurons coding for the appropriate action would fire when either carrying out *or* observing the action concerned. This form of action and behavioral mimicking, first for physical behavior and eventually for facial expressions and affective empathy, depended upon specialized portions of the cortex dubbed *mirror neurons* (Gallese et al. 2004; Iacoboni 2008) and led to what Gallese (2006) dubs *intentional attunement*, an affective and social synchronization of behavior and mental states between two or more human subjects. This affective repertoire proves highly salient for accessing the emotions underpinning moral sentiments and behavior, including general empathy (Carr et al. 2003; T. Singer et al. 2004) and more specific feelings like disgust (Gallese, Rizzolatti et al. 2003; Wicker et al. 2003). More specific findings about the emotional role provided in moral behavior pinpoints the ventromedial prefrontal cortex (VMPC), especially as assessed by tests of moral cognition of patients

subject to VMPC damage (Young and Koenigs 2007). Research into the neural bases of perceived fairness reveal that fairer offers in game-based experiments lead to greater activity in the ventral striatum, the VMPC, and the left amygdala, areas known to be “reward centers” (Tabibnia and Lieberman 2007). Reactions against unfairness also have physiological markers, such as increased skin conductance (van t’Wout et al. 2007). Cooperation can provoke similar neural reward responses, including the ventral striatum, rostral anterior cingulate cortex, and the medial orbitofrontal cortex (Rilling et al. 2002). Charitable donations similarly seem tied to frontal-mesolimbic structures, relying upon two parallel reward systems, one linking the ventral tegmental area with mesolimbic areas and the ventral striatum (typically involved in pecuniary reward) and one including the subgenual area for donations. This is noteworthy because the subgenual area (at the nexus of the posterior part of the medial orbitofrontal cortex, the ventral cingulate cortex, and septal region) is tied to “social attachment and affiliative reward mechanisms in humans and other animals” (Moll et al. 2006, 15624). Decisions to donate similarly have their roots in measured compassion and anger. The opposition to donation had its own network of brain regions, comprising a network between the lateral-orbitofrontal cortex, the anterior insula, and the dorsolateral cortex; some of these have been previously implicated in the experience of disgust (Moll et al. 2006). Altruism has often been linked to empathy (Batson et al. 2002), and the neural mechanisms of empathy appear to be recruited for altruistic feelings. Perceiving the “actions and intentions of others” has been found to involve the posterior superior temporal cortex, particularly in the right hemisphere; variable activity in these regions has been linked to variation in levels of self-reported altruism (Tankersley et al. 2007). Empathy itself also has correlates in the cerebral cortex; its perspective-taking manifestation results in activation of “middle insula, aMCC, medial and lateral premotor areas, and selectively in left and right parietal cortices” (Lamm et al. 2007, 42).

Additional previous studies have implicated key brain structures contributing to moral affect. When these are personal dilemmas in which danger or moral violation happen to immediate subjects, heightened activity arises in the medial frontal gyrus, posterior cingulate gyrus, and the bilateral superior temporal sulcus, while impersonal dilemmas activate more “working memory” segments, including the

dorsolateral prefrontal cortex and the parietal cortex (Greene and Haidt 2002). The superior temporal sulcus is particularly interesting because previous research implicates it in representations of “personhood” to which the subject socially responds. Hormonal elements likewise appear to support a human “moral sense,” particularly that of oxytocin, the presence of which encourages trust in others (Zak et al. 2005) as well as generosity (Zak et al. 2007). The roots of oxytocin in human physiology also are clear for vicariously witnessing “morally elevating” stimuli. Silvers and Haidt (2008) found that breastfeeding women seeing a morally uplifting video were more likely to nurse their babies; they posit that “moral elevation may involve the release of oxytocin, a hormone affiliated with lactation and affiliation” (p. 291). Other neurotransmitters also mediate reactions to perceived unfairness, such that serotonin-selective reduction of 5-HT levels in tested subjects made them more prone to retaliate against unfairness in a structured ultimatum game (Crockett et al. 2008).

There are additional reasons to suppose predispositions for a variety of moral emotions are directly genetic. In examining iterations of the classic “trust game” among two studies in Sweden and the United States between monozygotic and dizygotic twins, Cesarini et al. (2008) discovered that heritability explained a significant variance in the choice “to invest, and to reciprocate investment” (p. 3721).

Recent work in social psychology lends credence to elements of a moral sense, particularly the work of Haidt and colleagues (Haidt 2001, 2007; Haidt and Bjorklund 2008). In constructing his “social intuitionist model” of moral judgment, Haidt makes his debt to the Scottish Enlightenment scholars such as Hume explicit: “Where do moral beliefs and motivations come from? They come from sentiments which give us an immediate feeling of right and wrong, and which are built into the fabric of human nature. Hume’s answer . . . is our answer too” (Haidt and Bjorklund 2008, 184). Haidt’s “social intuitionist” model draws upon previous work in social psychology (Bruner 1986; Pyszczynski and Greenberg 1987; Zajonc 1980) pointing to a “dual process” system in which an “intuitive” system responds quickly, effortlessly, and automatically, with its contents seldom available to introspection and affectively laden. A second system is more ponderous, deliberate, linear, and devoted to serial reasoning, with limited computing power to bear on immediate objects of attention. The relative inaccessibility of such automatic processes to conscious thought (Nisbett and Wilson

1977) and the contribution of such automatic processes to moral behaviors like altruism (Bargh et al. 1996) have been previously documented and have laid the groundwork for social intuitionist models and experiments. Like others before him, Haidt proposes that the affective system is what leads in moral judgments and that much of what is deemed “moral reasoning” (à la Kant, Kohlberg, et al.) is often in fact post hoc rationalizing of judgments already made. If moral reasoning does enter into the process, it is secondarily.

Furthermore, the “social intuitionist” model²⁴ identifies five repeatedly illustrated transcultural moral substrates for which human beings are likely innately prepared from birth. These five clusters include harm/care, fairness/reciprocity, authority/respect, unity/sanctity, and in-group loyalty. According to Haidt and his colleagues,

Moral development can now be understood as a process in which the externalization of five (or more) innate moral modules meets up with a particular set of socially constructed virtues. There is almost always a close match because no culture can construct virtues that do not mesh with one or more of the foundations. (Haidt and Bjorklund 2008, 204-05)

The emotions underlying the repertoire of “social intuitions” fall under four general “families” or clusters of emotions (Haidt 2003). The first might be termed *other-condemning*, including anger, contempt, and particularly disgust. The second consists of *self-conscious* emotions such as shame, embarrassment, and guilt. The third grouping of *other-suffering* emotions broadly includes those construed as compassion. Finally, *other-praising* emotions include affects such as gratitude, awe, and elevation. Each of these serves as a precursor to the moral prompts and decisions dealing with their appropriate targets (Wheatley and Haidt 2005).

Rethinking the Idea of an Innate Moral Sense

The empirical evidence presented previously would seem to justify further examination of moral sense theory. But what specific insight does the evidence suggest? We conclude by noting areas on which future work might most profitably concentrate analysis and suggesting how political science can

benefit from this analysis. We do so by focusing on the background assumptions and basic tenets of moral sense theory. We also note this caveat concerning the empirical versus normative distinction raised by our work. Our aim is not to suggest that this moral sense is always right or that its presence as an innate faculty automatically sanctions its results.²⁵ Nor do we claim that our current presentation of moral sense theory answers all such questions; we merely hope to draw attention to the possible sources of such intuitions and promptings to act morally. Arguments descending from Utilitarians (and buttressed by modern economics, at least in a simplified form) suggest a calculative prompting of self-interest; arguments descending from Kantians suggest a role for obeying categorical rules. Moral sense theory draws attention to an alternative to both Utilitarianism and Kantianism—not necessarily in terms of normative implications but in terms of explanatory power. Moral sense theory suggests how it is humans are prompted to be moral, not *why* they should be moral. These are large and important questions, but beyond the scope of the current article.

Background Assumptions

1. The evidence that both humans and other animals engage in “moral” acts—such as sharing, cooperation, concern for the well-being of others—makes the empirical work on primates and young children directly relevant for political scientists. Such work offers the possibility of observation that minimizes—or at least offers certain controls over—the impact of cultural influences on human behavior, a methodological difficulty that has plagued ethnographic and comparative research in political science for some time.
2. In terms of research methodologies, inquiries such as the present work encourage closer dialogue with the natural sciences not only to determine analogues to human political behavior but also to trace the roots of the innate human faculties upon which social and political behavior are built. Such faculties would include our predilections toward morality.

Basic Tenets of Moral Sense Theory

Moral terms are sentiments, or feelings of revulsion or approval. What does the behavior of babies, young children, or nonhuman animals tell us about their feelings or sentiments? All the problems of

inference that plague interpersonal comparisons in this regard exist and are quite possibly multiplied for sentient beings who cannot communicate in a shared language and whose cognitive development, or even their cognitive potentials, is more limited than are the adult experimenters. The evidence on this tenet thus is mixed and possibly inherently limited. But the inferential difficulties in discovering what is in another’s mind from their behavior also exist in discussions of human ethics, so this line of research continues to be relevant.

The core of morality is a distinctly human nature. Child developmentalists and animal ethologists disagree on this tenet. Many child developmentalists (Kagan) and political theorists find the cognitive difference in degree constitutes a difference in kind; others find a continuum along which humans and other, less cognitively endowed animals fall. Where analysts locate the cutoff point for “sentient being” varies a great deal. This is an important empirical issue because the general implications of this for future research policies are great. For example, upon what other animals may we ethically experiment if animals share so many of our human moral capacities? This debate over what constitutes “sentient being” parallels a similar discussion within philosophical circles, with Utilitarians like Peter Singer (1975) arguing that the categorization of sentient being means we should, in certain circumstances, accord the traditionally considered “lower animals” more rights than certain humans, such as the elderly with chronic, debilitating diseases or newborns with serious defects. The unquestioning privileging of human beings in ethical discussions thus would seem to be called into question by the empirical research in animal behavior. The implications for policy analysis in areas such as animal rights or biomedical ethics are striking, if controversial.

At its core, the moral sense itself will be the same regardless of cultural variation. The evidence from child development literature—work that suggests certain behaviors, such as babies crying when they hear the sound of other babies crying but not crying when exposed to similarly unpleasant sounds—suggests this tenet may be valid. Similar work in primatology and behavioral economics also suggests a host of behaviors—fairness, sharing, cooperation, revenge—may be universal. This supports the idea of an innate moral sense corresponding to the innate human capacity for language or mathematics. Innate proclivities

exist but do not necessitate a specific language, type of mathematics, or a particular code of ethics.

Reason alone cannot provide the impetus for morality. Moral sense theorists claim we cannot rely on reason to get us to morality because even if reason does tell us it would be wrong to be immoral, the mere discernment of this fact does not provide a motive to be moral. This seems logically plausible, but is it supported by empirical evidence? Work in ethology is instructive here. It considers behavior in animals whose cognitive development is so less developed than humans that we cannot speak of them as having highly developed capacities for reason. Yet these animals nonetheless exhibit behavior corresponding to what we think of as demonstrating moral concerns for the welfare of others. This would suggest highly developed systems of reasoning are not necessary for moral action. Whether reason advances our capacity for ethical treatment thus seems open to both further debate and empirical examination. Evolutionary logic suggests that natural selection would have laid the nonconscious foundations for social behaviors relative to human morality long before our sentience achieved its current status. Emotions were not late-comers to moral judgment; they may lie at its roots.

The human ability to reason is too limited to sufficiently exercise moral judgment on a daily basis; hence, reason alone cannot explain morality. Closely related to the previous tenet, this claim (Hume) finds support in research in neurology (Damasio 1994) suggesting the ability to reason becomes impaired and restricted when the part of the brain where the emotions are centered is damaged or removed. The philosophical tradition of separating reason from the emotions thus may not accurately capture our biological functioning. If this philosophical tradition is in error, then the debate over the wisdom of locating morality in abstract reasoning abilities also may be erroneous. The literature reviewed here, ranging from animal behavior to social psychology to neuroscience, becomes relevant insofar as it suggests that while the human capacities for reason constitute valuable additions to moral judgment, the affective sources precede and may even often supersede them.

Self-interest is not the only, nor necessarily the dominant, human passion or drive. Work on altruism in both humans and other sentient beings suggests this possibility, aligning current research with the conclusions of Shaftesbury rather than Hobbes (Monroe 1996, 2001). Shaftesbury's connected claims—that

the pleasures of virtue are superior to those of vice and that the dual motives of self-interest and the social interest will work together in perfect adjustment—are less obvious; these claims have not yet been validated by empirical studies (Margolis 1984). But the implications for political science are of great import; research agendas in the future must include models based on a more granular view of human nature than the unipolar self-interested model sometimes encountered in rational choice theory (Mansbridge 1990; Monroe 1991). Political science models and analyses based exclusively on the self-interest assumption have not always borne fruit; alternate methods will be needed to detect other inputs of salience to political life.

The moral sense is a feeling-response. What does this suggest for ethical theories based on psychological egoism? The drive toward psychological egoism may well be one of the few clearly established primary emotions, analogous to fear in its instinctual aspect and originating in the amygdala not the neo-cortex. But if we assume the drive toward morality comes from the kind of pleasure principle that underlies Utilitarianism (Bentham 2002; Mill 2002), then we find little supporting evidence. The relevance seems clear for theories of morality that assume psychological egoism as a foundation for ethical behavior. If we accept the idea that psychological egoism drives ethics, at least for the individual, then evidence exists to support this tenet. But if we adopt a more complex conceptualization of the underpinnings of morality—as Kagan does, for example, in which moral senses are more highly developed cognitive phenomena, analogous to shame or guilt—then the evidence is inconclusive.

Moral behavior is instinctual, with approval or disapproval being analogous to disgust or other automatic responses. The evidence (Ekman 1992; Kagan 1984) suggests human beings are born with constrained repertoires of behavior for a variety of bodily and social functions; moral behavior is likely consonant with these evolutionarily constrained faculties. Work in ethology also supports this claim because primates seem to exhibit behavior suggestive of concern for others.

Conclusion

We have presented the basic claims and critiques of moral sense theory and then examined the theory's most fundamental tenets in light of recent evidence

from ethology, primate behavior, behavioral economics, evolutionary biology, neuroscience, linguistics, and child development. Does this literature provide a scientific foundation for the idea of an innate moral sense?²⁶ Yes. A more nuanced answer will provide a new, more granular description of the phenomenon, but our review thus far yields several important empirical questions for further work.

Is there a moral sense? If so, what is it? If a moral sense is constructed only through interaction with others, via socialization and culture, then the idea of an independent innate sense of morality is a moot point. The evidence presented thus far suggests otherwise, specifically that human beings are born with some innate needs and proclivities that encourage moral action. This turns us to our second question: If a moral sense exists, what are its features? How should we describe it? The empirical evidence supports at least two different, basic alternatives.

The first conceptualization considers a moral sense a human universal but one expressed differentially because of cultural variation. A common template for moral judgment, proceeding from a common affective or automatic core, likely is intrinsic from birth, while its expression is constrained by socialization. This phenotypic view—in which an inherited trait varies in response to environmental factors—would explain both individual and cultural variance in moral behavior.²⁷

The second conceptualization also accepts the idea of an innate and phenotypic moral sense born into all people, but it further stipulates that this sense includes certain primitive components that do *not* vary culturally. These components include, at a minimum, an innate need to feel benevolence toward others and to feel empathy for those in need or at risk. A further refinement on this conceptualization adds a third factor: innate needs to feel worthy and good about ourselves, with our own needs for self-esteem tied to how we feel about our treatment of others. This need is obviously taken as a human universal, regardless of its exact form. Culture again enters in a phenotypic way, as it does with other innate senses.

In either of these basic conceptualizations, the moral sense is analogous to other senses. Smell may be biologically limited but can be shaped within these constraints by culture, just as proclivities for height are influenced by environmental factors such as diet. In a similar fashion, our sense of moral competence can be developed much as a phenotype sets our abilities in other areas. In all these conceptualizations, however, moral sense theory argues that the origin of

morality resides in feelings or sentiment, not in reason. Reason may enter later but only as the engineer guiding behavior toward goals whose impetus originates in more basic instinctual drives.

A moral continuum? Traditionally, humans are deemed the only animals with a sense of morality because a well-developed intellectual component is assumed necessary to conceptualize and extrapolate moral concepts, such as justice, honor, and loyalty. The analysis presented previously raises several important questions for future analysis and empirical examination. (1) Do animals have the cognitive capacity to understand the concepts involved in moral behavior? (2) Even if they do not have this intelligence, does this mean they do not have the emotions that may engender the development of these concepts? (3) If they exhibit behavior that resembles what we think of as moral behavior, does that mean their feelings are the same as ours, or are we merely engaging in anthropomorphism when we make such an inference? (4) If we cannot directly get at animal emotions or motives, what can we infer about these emotions and motives from animal behavior? (5) If we observe animal behavior that corresponds to what we think of as moral, how do we know this emanates from an innate sense, because animals too may have culture?²⁸

Although it is difficult to address the question of correspondence, the evidence suggests animals do demonstrate concern for others and engage in behavior that looks remarkably similar to acts human beings take when humans are concerned for others. The evidence on whether animals have “an affection for virtue” is more difficult to ascertain. The evidence is strong that animals possess some primitive emotions. For example, humans experiencing fear exhibit changes in the amygdala that correspond to those occurring in CAT scans in animals. So we know some basic emotions do not work through the neo-cortex. Scientists seem to agree that fear and pleasure are two such primitive emotions. If animals have pleasure centers similar to humans, then we have some evidence supporting the idea underlying psychological egoism as a foundation for ethics.

Detecting the existence of more complex forms of morality is more difficult, and we are left with a host of provocative questions on which future research should focus. If morality emanates from sensory experience, as Hume suggests, why should not animals other than humans experience these? Do animals feel the kind of sentiments Hume made the impetus for morality? If so, which animals experience this?

Which sentiments do they feel? How cognitively developed do animals have to be to experience the kind of sensory pleasure that some theories of ethics make central? Peter Singer opened Pandora's box on this issue by suggesting some animals may have higher cognitive abilities than certain humans. If our concern is not just with humans but also with other sentient beings, then we may have to adopt policies that benefit animals over people, at least in certain instances that remain unspecified, given existing scientific knowledge. How necessary is this cognitive development for the sentient being to exhibit behavior that seems to have moral overtones to it? DeWaal offers numerous examples of behavior suggesting the functional equivalent of human sympathy, hierarchy, reciprocity, and reconciliation in the animal kingdom. The work from animal behavior as a whole seems to answer one critique of moral sense theory: How do we resolve differences between one person's moral sense and another person's? The external standard that critics of moral sense theory have asked for may be provided by the regularity of behavior in the animal kingdom. If all animals show a concern for the group and caring for others, is this not strong evidence of the need for such behavior as a part of our biologically determined need to flourish as human beings? We may not have an innate moral sense in the form of desiring to abide by specific rules, but children and animals seem to exhibit the capacity to infer how others feel and to show signs of tension, distress, and unhappiness if another person is hurt. The fact that we also find common biological manifestations of these behaviors hints at their ubiquity in the human species before extensive socialization occurs. The fact that people everywhere, even young children, show such concern for others and such distress at others' loss or hurt, is powerful evidence that this may be a universal. Is this proof of a moral sense born within human beings? Certainly the evidence is sufficient to justify a closer and more scientifically informed, interdisciplinary look at an old theory. Given the concern of political scientists to construct theories of human political behavior on empirically validated concepts of human nature, such a second look is in order.²⁹

Notes

1. Examples of previous interactions with the natural sciences already abound (Connolly 2002; Thiele 2006); more are needed, especially with regard to the study of values—what they are and how they are acquired and practiced. The relevance of moral values and motives has long been recognized in political science (Baker 2005; Inglehart and Norris 2004); such a line of inquiry deserves further integration with insights from the natural

sciences. Such examinations are important for all political scientists concerned with constructing models and analyses of political behavior grounded in empirically validated theories of human nature. We hope that our work will encourage other political scientists to explore work in these more biologically oriented disciplines.

2. We use the terms *ethics* and *morality* interchangeably in this article, both because this is the common practice in everyday language and because there is no one commonly accepted distinction among the scientists working in the diverse fields we have discussed here. Nonetheless, there are basic, albeit subtle, differences that moral philosophers or ethicists would recognize. In general, *morals* refers to personal character while *ethics* tends to refer to a social system in which those personal morals are applied. This means *ethics* tends to point to standards or codes of behavior expected by the group to which individuals belong. Further discussion of the myriad other intricate subtleties lies beyond the scope of this article.

3. First written in 1738, this book was expanded and revised throughout Hutcheson's life and published after his death. It contains the fullest expression of Hutcheson's philosophy, ranging from discussions of our human nature, duties to God and to each other, the rights and duties of parents, civil liberty, rights and contracts, and laws of peace and war. It contains an argument against slavery that was influential in providing academic legitimacy to the anti-slave movement. Reprinted in colonial Philadelphia, it supposedly influenced authors of the U.S. Constitution.

4. Smith maintains the basis of morality in the sentiment but moves toward the device of an impartial spectator. He thus shifts from reliance on an innate moral sense and is not considered a moral sense theorist. Other, more minor moral sense theorists, however, such as Joseph Butler, emphasized harmony between morality and enlightened self-interest, though Butler claims that happiness is a by-product of the satisfaction of desires for things, not just the desire for happiness in and of itself. Such direct and simple egoism was a self-defeating strategy for Butler, who argued that egoists would do better for themselves if they adopt immediate goals other than their own interests and then live their everyday life in accord with these more immediate goals.

5. The Enlightenment contains other voices not explicitly those of a "moral sense" theory but analogues that are relevant for the history of political theory. For example, Rousseau (1754) elaborated a theory of compassion, which he held to be the root of all other moral virtues, and an innate one as well, "by so much the more universal and useful to mankind, as it comes before any kind of reflection; and at the same time so natural, that the very brutes themselves sometimes give evident proofs of it."

6. See Geertz (2001) on the debate over observer contamination and fabricated data in anthropology.

7. Moral sense theory, as generally construed, assumes it is grounded in sentiments or emotions. Hence, our basic sense of what is good or bad is neither inferred from nor based upon any propositions. Such noninferential moral knowledge is based on a priori nonempirical knowledge such as mathematical truth. What is often referred to as "ethical intuitionism" is distinguished from moral sense theory and is said to model the acquisition of such noninferential knowledge about right and wrong on empirical grounds, in the manner that we acquire knowledge of the color of objects. Because our interest here is not in constructing an extended discussion of the concept of morality, we define it simply as behavior designed to further the well-being of others. See Monroe (2004) for fuller discussion.

8. See Monroe (1996, 2001) for a discussion of such work.

9. While Kagan finds no English word for this concept and refers to it as virtue, his elaboration on this consonance appears to correspond closely to what Freud called the super-ego.

10. Research dating from the 1950s found that mice that had stimulus applied to the pleasure centers of their brains would ignore food in preference for behavior that triggered such stimuli. See *Inside the Animal Mind* (Page 1999) for a fascinating, visual overview of these experiments, which includes excerpts from experiments on many kinds of animals, not just laboratory mice.

11. This resembles Smith's concept of empathy in many regards.

12. Malcolm Gladwell, Books, *Baby Steps*. *The New Yorker*, January 10, 2000.

13. The entire discussion is directed at what might be considered the normal pattern and ignores pathology or extremes.

14. Kagan does not discuss the link between moral superiority of humans and keeping slaves. "The biological imperative for all animals is to avoid hunger and harm and to reproduce, and adult chimps spend much of each day doing just that. But humans in ancient societies established cities, wrote laws forbidding certain behaviors, built ships, wore finery, used slaves, attended plays, and, in Greece, admired the Parthenon" (Kagan 1998, 191).

15. James Q. Wilson's APSA presidential address and his subsequent book were an exception. Wilson (1993) asked whether "people everywhere have a natural moral sense that is not entirely the product of utility or convention" (p. 13). Wilson defined moral sense as

a directly felt impression of some standards by which we ought to judge voluntary action. The standards are usually general and imprecise. Hence, when I say that people have a moral sense, I do not wish to be understood as saying that they have an intuitive knowledge of moral rules. Moral rules are often disputed and usually in conflict; but the process by which people resolve those disputes or settle those conflicts leads them back to sentiments that seem to them to have a worth that is intuitively obvious. (P. 13)

Unfortunately, Wilson's own demonstration of a moral sense left much to be desired. We need greater specificity and testable ideas for political scientists to reexamine moral sense theory as a plausible account of moral behavior.

16. DeWaal's most recent work (2001) focuses more on the ability of animals to learn behavior much as humans do, but because that is not directly relevant to our argument here, we do not pursue the line of inquiry it suggests about the possibilities of shaping the moral sense.

17. DeWaal himself raises a further possibility by suggesting morality ought to be universal and holistic. Other primatologists do not go this far in their argument, however, and we are not making such a claim here, even though such an argument could be made (see Monroe 2001 or DeWaal 2001).

18. Such results corroborate "public goods" experiments such as that of Fehr and Gächter (2002).

19. See Chomsky (1965) for the distinction between competence and behavior.

20. Ironically, the main proponent of this approach—Marc Hauser—refers neither to the original work on an innate moral sense nor to Kagan's work.

21. Hauser focuses on traditional perspectives of morality as they confront archetypal moral dilemmas. He then outlines three

main moral philosophical approaches: the Kantian, Humean, and Rawlsian perspectives. (Hauser ignores the extent to which Rawls's work is based on Kant's.) He finds strong forms of Kantian and Humean moral philosophy unable to account for the diverse behavior of those entangled in moral quandaries.

22. "Reasoning and emotion play some role in our moral behavior, but neither can do complete justice to the process leading up to moral judgment" (Hauser 2006, 11)

23. Hauser blends evolution and moral psychology, classifying Piaget and Kohlberg as Kantian and arguing that (1) neither psychologist offers a convincing account of how children or adults move from one stage to the next and (2) both psychologists conflate correlation with causation. Thus, although Hauser finds their stage theories of moral development interesting, he finds both theorists offer a map rather than a progression of moral development.

24. Haidt (2007) recently dubbed his model the "new synthesis in moral psychology."

25. Questions of volition lie beyond the scope of this article. See Frost (2008) for a discussion of political volition.

26. Such an approach shares the idea of nature as the driving force behind morality but locates this drive in a specific mechanism not in randomly caused behavior that is then discovered to be evolutionarily adaptive (Skyrms 1996) or superior cognitive abilities that enable us to perceive moral facts (Ayala 1987) in a uniquely human manner.

27. See McDermott's (2007) work on the genetic foundation of aggression.

28. DeWaal (2001).

29. Space constraints preclude more exhaustive discussion of the implications for political science, but these implications extend beyond the study of morality. Interdisciplinary efforts have been increasing in number for several years between political science and the life sciences. Alford and Hibbing (2008) herald this development as "the new empirical biopolitics," in which interpretations of political attitudes, motives, and behavior are shifting away from purely demographic and environmental influences to biological and evolutionary explanations, both potentially as having greater salience and explanatory power. For Alford and Hibbing, "attention to the apparent genetic basis for political and social orientations holds the greatest promise of advancing empirical biopolitics" (p. 183). Implicit in all such undertakings is a recognition of the role innate predispositions, molded by evolutionary pressures, contribute to human psychology and actions in the public, political sphere. Breakthroughs are already being achieved. Behaviors such as altruism and social identity have been linked to increased political participation (Fowler and Kam 2007). Genetic heritability influences voter turnout (Fowler et al. 2008). Specific genes associated with greater voter turnout have been identified, some moderated by religious involvement (Fowler and Dawes 2008). Finally, the neurology of cognition for conservatives and liberals has shown differential activation of the anterior cingulate (Amodio et al. 2007). If all these are indicative of a trend, the explanations of human behavior drawing from innate templates prepared by our genes, including a "moral sense," will only rise in their importance for their relevance and explanatory power. A moral sense, as we have described, is likely one of these innately prepared faculties that influence not only altruism and civic-mindedness but also political involvement of a variety of forms.

References

- Alford, J., and J. Hibbing. 2008. The new empirical biopolitics. *Annual Review of Political Science* 11:183-203.
- Amodio, D., J. T. Jost, S. L. Master, and C. M. Yee. 2007. Neurocognitive correlates of liberalism and conservatism. *Nature Neuroscience* 10 (10): 1246-47.
- Axelrod, R. 1984. *The evolution of cooperation*. New York: Basic Books.
- . 2008. Political science and beyond: Presidential address to the APSA. *Perspectives on Politics* 6 (1): 3-9.
- Ayala, F. J. 1987. The biological roots of morality. *Biology and Philosophy* 2 (3): 235-52.
- Baker, W. 2005. *America's crisis of values: Reality and perception*. Princeton, NJ: Princeton University Press.
- Bargh, J., M. Chen, and L. Burrows. 1996. Automaticity of social behavior: Direct effects of trait construct and stereotype activation on action. *Journal of Personality and Social Psychology* 71:230-244.
- Batson, C. D., N. Ahmad, D. A. Lishner, and J. Tsang. 2002. Empathy and altruism. In *Handbook of positive psychology*, eds. C. R. Snyder & S. L. Lopez, 485-98. New York: Oxford University Press.
- Bentham, J. 2002. *Works*. Charlottesville, CA: InteLex Corp.
- Bonnie, K. E., and F. B. M. DeWaal. 2004. Primate social reciprocity and the origin of gratitude. In *The psychology of gratitude*, eds. R. A. Emmons and M. E. McCullough, 213-29. Oxford, UK: Oxford University Press.
- Bowles, Samuel, and Herbert Gintis. 2002. Prosocial emotions. Working Paper 02-07-028, Santa Fe Institute.
- Brosnan, S. F., and F. B. M. DeWaal. 2003. Monkeys reject unequal pay. *Nature* 425: 297-99.
- Brosnan, S. F., H. Schiff, and F. B. M. DeWaal. 2005. Tolerance for inequity increases with social closeness in chimpanzees. *Proceedings of the Royal Society B* 272:253-58.
- Bruner, J. 1986. *Actual minds, possible worlds*. Cambridge, MA: Harvard University Press.
- Butler, Bishop. 1900. *The works of Bishop Butler*. Ed. J. H. Bernard. London: Macmillan.
- Carr, Laurie, Marco Iacoboni, Marie-Charlotte Dubeau, John C. Mazziotta, and Gian Luigi Lenzi. 2003. Neural mechanisms of empathy in humans: A relay from neural systems for imitation to limbic areas. *Proceedings of the National Academy of Sciences* 100:5497-502.
- Cesarini, David, Christopher T. Dawes, James H. Fowler, Magnus Johannesson, Paul Lichtenstein, and Björn Wallace. 2008. Heritability of cooperative behavior in the trust game. *Proceedings of the National Academy of Sciences* 105 (10): 3721-26.
- Chomsky, N. 1965. *Syntactic structures*. The Hague, the Netherlands: Mouton.
- Clark, M. S., and N. K. Grote. 2003. Close relationships. In *Handbook of psychology: Personality and social psychology*, eds. T. Million and M. J. Lerner, 447-61. New York: John Wiley.
- Connolly, W. 2002. *Neuro-politics: Thinking culture, speed*. Minneapolis: University of Minnesota Press.
- Crawford, M. 1937. The cooperative solving of problems by young chimpanzees. *Comparative Psychology Monographs* 14 (1937): 1-88.
- Crockett, Molly J., Luke Clark, Golnaz Tabibnia, Matthew D. Lieberman, and Trevor W. Robbins. 2008. Serotonin modulates behavioral reactions to unfairness. *Science* 320:1739.
- Damasio, Antonio M. 1994. *Descartes' error: Emotion, reason, and the human brain*. New York: Putnam.
- . 1999. *The feeling of what happens: Body and emotions in the making of consciousness*. New York: Harcourt Brace.
- Darwin, C. 1889. *The origin of species*. New York: Appleton.
- Dawkins, Richard. 1976. *The selfish gene*. New York: Oxford University Press.
- DeWaal, Frans. 1986. The integration of dominance and social bonding in primates. *The Quarterly Review of Biology* 61 (4): 459-79.
- . 1989a. Food sharing and reciprocal obligations among chimpanzees. *Journal of Human Evolution* 18 (1989): 433-59.
- . 1989b. *Peacemaking among primates*. Cambridge, MA: Harvard University Press.
- . 1996. *Good natured: The origins of right and wrong in humans and other animals*. Cambridge, MA: Harvard University Press.
- . 1997a. *Bonobo: The forgotten ape*. Berkeley: University of California Press.
- . 1997b. The chimpanzee's service economy: Food for grooming. *Evolution and Human Behavior* 18 (1997): 375-86.
- . 1998. *Chimpanzee politics: Power and sex among apes*. Rev. ed. Baltimore: Johns Hopkins University Press.
- . 2001. *The ape and the sushi master: Cultural reflections of a primatologist*. New York: Basic Books.
- Durkheim, E. 1954. *The elementary forms of religious life*. New York: Free Press.
- Ekman, P. 1992. An argument for basic emotions. *Cognition and Emotion* 6:169-200.
- Fehr, E., and S. Gächter. 2002. Altruistic punishment in humans. *Nature* 415:137-40.
- Fowler, J., L. Baker, and C. Dawes. 2008. Genetic variation in political participation. *American Political Science Review* 102 (2): 233-48.
- Fowler, J., Dawes, C., et al. 2007. Egalitarian motives in humans. *Nature* 446:794-796.
- Fowler, J., and C. Dawes. 2008. Two genes predict voter turnout. *Journal of Politics* 70 (3): 579-94.
- Fowler, J., and C. Kam. 2007. Beyond the self: Social identity, altruism, and political participation. *Journal of Politics* 69 (3): 813-27.
- Frost, Samantha. 2008. *Lessons from a materialist thinker: Hobbesian reflections on ethics and politics*. Stanford, CA: Stanford University Press.
- Gallese, V. 2006. Intentional attunement: A neurophysiological perspective on social cognition and its disruption in autism. *Brain Research* 1079:15-24.
- Gallese, V., C. Keysers, and R. Rizzolatti. 2004. A unifying view of the basis of human social cognition. *Trends in Cognitive Sciences* 8 (9): 396-403.
- Gallese, V., Rizzolatti, G. et al. 2003. Both of us disgusted in my insula: The common neural basis of seeing and feeling disgust. *Neuron*, 40(3): 655-664.
- Geertz, Clifford. 2001. Life among the anthros. *The N.Y. Review of Books* 48 (2): 18-21.
- Gilligan, Carol. 1982. *In a different voice: Psychological theory and women's development*. Cambridge, MA: Harvard University Press.

- Gintis, H. 2003. The hitchhiker's guide to altruism: Genes, culture and the internalization of norms. *Journal of Theoretical Biology* 220 (4): 407-18.
- Goodall, Jane. 1986. *The chimpanzees of Gombe: Patterns of behavior*. Cambridge, MA: Belknap Press of Harvard University Press.
- . 1990. *Through a window: My thirty years with the chimpanzees of Gombe*. Boston: Houghton Mifflin.
- Greene, J., and J. Haidt. 2002. How (and where) does moral judgment work? *Trends in Cognitive Sciences* 6 (12): 517-23.
- Haidt, J. 2001. The emotional dog and its rational tail: A social intuitionist approach to moral judgment. *Psychological Review* 108 (4): 814-34.
- . 2003. The moral emotions. In *Handbook of affective sciences*, eds. R. Davidson, K. Scherer, and H. Goldsmith, 852-70. Oxford, UK: Oxford University Press.
- . 2007. The new synthesis in moral psychology. *Science* 316:998-1002.
- Haidt, J., and F. Bjorklund. 2008. Social intuitionists answer six questions about moral psychology. In *Moral psychology, Vol. 2: The cognitive science of morality*, ed. W. Sinnott-Armstrong, 181-217. Cambridge, MA: MIT Press.
- Hauser, Marc. 2006. *Moral minds*. New York: HarperCollins.
- Hobbes, T. 1651. *Philosophical rudiments concerning government and society*. London: Angel in Ivie-Lane.
- Hume, David. 1999. *An enquiry concerning human understanding*. Ed. Tom Beauchamp. Oxford, UK: Oxford University Press.
- Hutcheson, Francis. [1725] 1971. *Inquiry into the original of our ideas of beauty and virtue*. New York: Garland.
- . [1728] 1969. *An essay on the nature and conduct of the passions and affections, with illustrations upon the moral sense*. Gainesville, FL: Scholars' Facsimile and Reprints.
- . [1755] 1968. *A system of moral philosophy*. New York: A.M. Kelley.
- . [1777] 1978. *Enquiries concerning human understanding and concerning the principles of morals*. Ed. P. H. Nidditch. Oxford, UK: Clarendon.
- Iacoboni, M. 2008. *Mirroring people: The new science of how we connect with others*. New York: Farrar, Strauss & Giroux.
- Inglehart, R., and P. Norris. 2004. *Sacred and secular: Religion and politics worldwide*. Cambridge, UK: Cambridge University Press.
- Kagan, J. 1981. *The second year: The emergence of self-awareness*. Cambridge, MA: Harvard University Press.
- . 1984. *The nature of the child*. New York: Basic Books.
- . 1989. *Unstable ideas: Temperament, cognition and self*. Cambridge, MA: Harvard University Press.
- . 1998. *Three seductive ideas*. Cambridge, MA: Harvard University Press.
- Kagan, J. R. E. Klein; G. E. Finley; B. Rogoff; E. Nolan 1979. *A cross-cultural study of cognitive development*. Chicago: University of Chicago Press.
- Kagan, J., and Sharon Lamb, eds. 1987. *The emergence of morality in young children*. Chicago: University of Chicago Press.
- Kahneman, D., and A. Tversky, eds. 2000. *Choices, values and frames*. New York: Cambridge University Press.
- Kant, I. [1797] 1991. *The metaphysics of morals*. Trans. Mary Gregor. Cambridge, UK: Cambridge University Press.
- Kohlberg, Lawrence. 1984. *Essays on moral development*. Vol. 2. New York: Harper & Row.
- . 1976. Moral stages and moralization: The cognitive-developmental approach. In *Moral development and behavior*, ed. T. Lickona, 31-53. New York: Holt, Rinehart and Winston.
- . 1981. *The philosophy of moral development*. New York: Harper & Row.
- Lamm, C., C. D. Batson, and J. Decety. 2007. The neural substrate of human empathy: Effects of perspective-taking and cognitive appraisal. *Journal of Cognitive Neuroscience* 19:1, 42-58.
- Locke, John. [1690] 2000. *An essay concerning human understanding*. Eds. Gary Fuller, Robert Stecker, and John P. Wright. London: Routledge Philosophers in Focus Series.
- Mansbridge, Jane, ed. 1990. *Beyond self-interest*. Chicago: University of Chicago Press.
- Margolis, Howard. 1984. *Selfishness, altruism, and rationality: A theory of social choice*. Chicago: University of Chicago Press.
- Markey, Sean. 2003. Monkeys show sense of fairness, study says. *National Geographic News*, September 17.
- McDermott, Rose. 2007. Genetic and hormonal differences in aggression in a computer simulation game. Talk at the University of California, Irvine Ethics Center.
- Metzinger, T., and V. Gallese. 2003. The emergence of a shared action ontology: Building blocks for a theory. *Consciousness and Cognition* 12:549-71.
- Mill, J. S. 2002. *The basic writings of John Stuart Mill: On liberty, the subjection of women, and utilitarianism*. New York: Modern Library.
- Moll, Jorge, Frank Krueger, Roland Zahn, Matteo Pardini, Richardo de Oliveira-Souza, and Jordan Grafman. 2006. Human fronto-mesolimbic networks guide decisions about charitable donation. *Proceedings of the National Academy of Sciences* 103:15623-28.
- Monroe, Kristen R. 1991, ed. *The economic approach to politics*. New York: HarperCollins.
- . 1996. *The heart of altruism: Perceptions of a common humanity*. Princeton, NJ: Princeton University Press.
- . 2001. Morality and a sense of self: The importance of identity and categorization for moral action. *American Journal of Political Science* 45 (3): 491-507.
- . 2004. *The hand of compassion: Portraits of moral choice during the holocaust*. Princeton, NJ: Princeton University Press.
- Myers, Milton L. 1985. *The soul of modern economic man: Ideas of self-interest, Thomas Hobbes to Adam Smith*. Chicago: University of Chicago Press.
- Nisbett, R. E., and T. D. Wilson. 1977. Telling more than we can know: Verbal reports on mental processes. *Psychological Review* 84 (3): 221-49.
- Page, G. 1999. *Inside the animal mind*. New York: Doubleday.
- Parker, S. T., and M. L. McKinney. 1999. *Origins of intelligence: The evolution of cognitive development in monkeys, apes and humans*. Baltimore: Johns Hopkins University Press.
- Piaget, Jean. 1932. *The moral judgement of the child*. London: K. Paul, Trench, Trubner.
- Porter, Roy. 2001. *The Enlightenment*. New York: Macmillan.
- Pyszczynski, T., and J. Greenberg. 1987. Toward an integration of cognitive and motivational perspectives on social inference: A biased hypothesis-testing model. *Advances in Experimental Social Psychology* 20:297-340.
- Range, F., L. Horn, Z. Viranyi, and L. Huber. 2009. The absence of reward induces inequity aversion in dogs. *PNAS*, 106:340-45.

- Rawls, John. 1972. *Theory of justice*. Oxford, UK: Oxford University Press.
- Rilling, James K., David A. Gutman, Thorsten R. Zeh, Giuseppe Pagnoni, Gregory S. Berns, and Clinton D. Kilts. 2002. Neural bases of social cooperation. *Neuron* 35:395-405.
- Rousseau, J. 1754. *Discourse on the origin and basis of inequality among men*. <http://www.constitution.org/jjr/ineq.htm>.
- Sapolsky, Robert. 2002. *A primate's memoir*. New York: Touchstone Books.
- Shaftesbury, 3rd Earl of (Anthony Ashley Cooper). [1699] 1977. *An inquiry concerning virtue, or merit*. Ed. David Walford. Manchester, UK: Manchester University Press.
- . [1711] 1999. *Characteristics of men, manners, options, times*. Ed. L. Klein. Cambridge, UK: Cambridge University Press.
- Silvers, J., and J. Haidt. 2008. Moral elevation can induce nursing. *Emotion* 8(2): 291-95.
- Singer, Peter. 1975. *Animal liberation: A new ethics for our treatment of animals*. New York: Random House.
- Singer, Tania, Ben Seymour, John O'Doherty, Holger Kaube, Raymond J. Dolan, and Chris D. Frith. 2004. Empathy for pain involves the affective but not sensory component of pain. *Science* 303:1157-62.
- Skyrms, Brian. 1996. *Evolution of the social contract*. Cambridge, UK: Cambridge University Press.
- Smaniotta, R. C. 2004. "You scratch my back and I scratch yours" versus "love thy neighbour": Two proximate mechanisms of reciprocal altruism. Dissertation, University of Groningen.
- Smith, Adam. [1759] 1976. *The theory of moral sentiments*. Introduction by E. G. West. Indianapolis: Liberty Classics.
- Tabibnia, G., and M. Lieberman. 2007. Fairness and cooperation are rewarding: Evidence from social cognitive neuroscience. *Annals of the New York Academy of Sciences* 1118:90-101.
- Tankersley, D., C. J. Stowe, and S. A. Huettel. 2007. Altruism is associated with an increased neural response to agency. *Nature Neuroscience* 10 (2):150-1.
- Thiele, L. P. 2006. *The heart of judgment: Practical wisdom, neuroscience, and narrative*. Cambridge, UK: Cambridge University Press.
- Trivers, R. L. 1971. The evolution of reciprocal altruism. *Quarterly Review of Biology* 46:35-57.
- van t'Wout, Mascha, Rene S. Kahn, Alan G. Sanfey, and Andre Aleman. 2007. Affective state and decision-making in the ultimatum game. *Experimental Brain Research* 169 (4): 564-68.
- Wheatley, T., and J. Haidt. 2005. Hypnotically induced disgust makes moral judgments more severe. *Psychological Science* 16:780-84.
- Wicker, B., C. Keysers, J. Plailly, J. Royet, V. Gallese, and G. Rizzolatti. 2003. Both of us disgusted in my insula: The common neural basis of seeing and feeling disgust. *Neuron* 40:655-64.
- Wilson, E. O. 1975. *Sociobiology: The new synthesis*. Cambridge, MA: Harvard University Press.
- . 1978. *On human nature*. Cambridge, MA: Harvard University Press.
- . 1998. *Consilience: The unity of knowledge*. New York: Alfred A. Knopf/Random House.
- Wilson, James Q. 1993. *Moral sense*. New York: Free Press.
- Young, Liane, Fiery Cushman, Marc Hauser, and Rebecca Saxe. 2007. The neural basis of the interaction between theory of mind and moral judgment. *PNAS* 104 (20) : 8235-40.
- Young, L., and M. Koenigs. 2007. Investigating emotion in moral cognition: A review of evidence from functional neuroimaging and neuropsychology. *British Medical Bulletin* 84:69-79.
- Zajonc, R. 1980. Feeling and thinking: Preferences need no inferences. *American Psychologist* 35:151-75.
- Zak, P., A. Stanton, and S. Ahmadi. 2007. Oxytocin increases generosity in humans. *PLoS One* 2 (11): 1128.
- Zak, P., R. Kurzban, and W. Matzner. 2005. Oxytocin is associated with human trustworthiness. *Hormones and Behavior* 48:522-27.