Book reviews

Deciphering the structure of the moral sense: a review of Marc Hauser's *Moral Minds: How Nature Designed Our Universal Sense of Right and Wrong*.
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We are undergoing a paradigm shift, or renaissance, in our understanding of how people acquire a sense of morality—a shift that is speeding us toward insights that are transforming the field. The heyday of psychological theories of morality such as those advanced by social learning and cognitive-developmental theorists is over. The "new look" is evolutionary, through and through. Psychologists who ignore it or reject it without understanding it do so at their own explanatory peril. Hauser's new book, *Moral Minds: How Nature Designed Our Universal Sense of Right and Wrong*, is the latest in a series of books in this genre.

To appreciate this new approach to morality, one must be able to understand theories and research in fields as diverse as evolutionary biology, philosophy, economics, game theory, developmental psychology, social psychology, cognitive psychology, anthropology, primatology, and neurochemistry. This is a challenging task. One of the most impressive things about the content of the *Moral Minds*, and therefore Hauser's mind, is the tremendous breadth (and depth) of knowledge it contains. On one page, Hauser talks about principles of biological evolution; on another, principles and parameters of language acquisition; on another research on cooperation in primates; on another developmental research on comprehension of intention in infants; on another principles of the philosophy of ethics, and so on. While reading this book, one cannot help but admire its author, whose accomplishments include teaching awards, popular books, leadership in collaborative groups, and an impressive body of publications in a diverse array of areas.

With only a couple of small exceptions—for example, equating Kohlberg's and Piaget's theories, and incorrectly attributing to both theorists the position that young children do not understand intentions—he seems to get it right. Piaget (1932) summarized his position as follows: [children display] "two distinct moral orientations—one that judges actions according to their material consequences and one that only takes intentions into account. These two attitudes may co-exist at the same age and even in the same child...we have

therefore two processes partially overlapping, but of which the second gradually succeeds in dominating the first" (p. 133).

In *Moral Minds*, Hauser offers an extensive review of theory and research relevant to the evolution of morality—some of it "hot off the press." In addition, he advances a model of his own. Ideally, he would have described his model, then organized his review of relevant theory and research systematically in terms of their implications for his model. Sometimes he does this; but he often pursues what seem to be diversions (interesting as most of them are). The book is at its best when critically reviewing literature relevant to the evolution of morality. It is at its worst when it fails to weave the threads it develops into an integrated whole. In a sense, the book attempts to accomplish too much.

Let us set the stage for the model that Hauser advances. All evolutionary models of morality share the assumptions that the mental mechanisms that give rise to moral emotions, moral judgments, moral behaviors evolved in ancestral environments, that these mechanisms were designed by various forms of natural selection (and in some cases, gene-culture co-evolution), and that they bear the stamp of this process. It follows that we should look for precursors of this moral sense in mechanisms that have evolved in other primates, then attend to the contribution of mechanisms that distinguish humans from other animals. This framework was introduced by Darwin in *Descent of Man*. The primary difference between competing models of the evolution of morality lies in the types of mechanisms they assume produce the manifestations of morality, and the ways in which they believe these mechanisms evolved. For example, Darwin emphasized the role of "social instincts" buttressed by reason. Social intuitionists such as Haidt (2001) emphasize the role of mechanisms that produce affective reactions such as disgust, and the ways in which they interact with the mechanisms that guide the internalization of social norms. Gene-culture co-evolution theorists such as Gintis, Bowles, Boyd, and Fehr (in press) emphasize the role of mechanisms that produce social strategies and enable social learning.

Hauser's innovative contribution is to root morality in the evolution of mechanisms akin to those that produce the kind of universal grammar described by Chomsky. Hauser argues that a moral instinct has evolved that is similar to the language instinct. It is hard wired in neural circuits that

evolved to make moral decisions. In the same way that all languages are structured in terms of universal principles of generative grammar that produce substantively different sentences in different linguistic environments, all people's moral sense is based on universal principles of generative morality that may produce different kinds of moral judgments in different cultures.

In support of his model, Hauser adduces evidence from studies that assess responses to moral dilemmas such as the "trolley problem" (Should you pull a switch to divert a train down a track with one person on it, or allow it to continue along a track that has five people on it? Should you push a large person onto a track to stop a train that would otherwise kill five people?) Most people say "yes" to the first and "no" to the second. Hauser argues that the prevailing explanation for this difference—that people recoil emotionally from behaving in ways that directly inflict harm on others (pushing the large person to his death), but not so much from indirectly harming others—does not account for all of the data. Hauser argues instead that people unconsciously analyze the two situations in terms of a "moral grammar" that contains implicit principles such as those that govern causal attributions and attributions of intention.

The assumption that all people's sense of morality is similar in underlying structure (principles), but varies in content (parameters), seems reasonable, as does the assumption that to understand the form of people's sense of morality, we must understand how the mechanisms that produce it evolved. However, it is unclear whether Chomsky's model of universal grammar best captures the nature of this mechanism, or whether a moral sense stems from only one source, or "moral organ." Granted, both language and moral judgments are structured in terms of unconscious principles that induce children to say things that they could not have copied from adults. However, the implicit knowledge that people have about language seems qualitatively different from the implicit knowledge they have about morality, which suggests that the mechanisms that give rise to these products are designed in qualitatively different ways. Understanding how to construct a sentence by selecting from thousands of possible words, and knowing how to combine them in terms of implicit rules, is quite different from sensing that it is unfair to take more than your share and explaining why. Children acquire a sophisticated ability to combine words into meaningful sentences relatively early in their lives, and once acquired, they seem to use the same grammar throughout their lives. In contrast, as children develop, some of their ideas about morality undergo qualitative changes. Language is not susceptible to self-serving biases. Violating the rules of grammar is quite different from violating the rules that govern moral attributions. Grammar pertains to how people communicate their ideas to others; morality pertains to the content of ideas communicated through language—what forms of conduct people think are right and wrong, and why. People do not argue about principles of language or

language structure in the same way they argue about principles of morality. Believing that it is wrong to eat pork but not beef (or vice versa) is quite different from saying "Du" instead of "you."

No one knows how the capacity for language evolved, but it seems likely that the moral sense evolved in a more straightforward way than the capacity for language did. Early humans who inherited a primitive moral sense fared better in their groups than early humans who did not. Universal aspects of this sense could have been refined through strategic interactions among members of groups. It was in the interest of early humans to persuade members of their groups to assist them, to honor their commitments, and in general to behave in moral ways. In persuading others to do the right thing, people advanced principles that others held them to or, for the sake of cognitive consistency, that they applied to themselves. There are only a limited number of effective ways to resolve conflicts of interest between self-interested actors. Universal norms such as the norm of reciprocity explicate the principles that promote mutually beneficial outcomes. These principles, and the mental mechanisms that support them, were selected because they were effective in helping early humans solve their social problems, uphold systems of cooperation, and maximize their gains from group living.

Hauser assumes that people possess only one moral organ, which produces all aspects of people's sense of morality. The evidence seems more consistent with the idea that several evolved mechanisms contribute to this sense. Included in this set are mechanisms that give rise to affective reactions such as approval, disapproval, guilt, shame, gratitude, and righteous indignation (featured by social intuitionists); mechanisms that induce people to conform to moral norms and internalize cultural conventions (featured by social learning theorists); mechanisms that induce people to coordinate their behavior and engage in cooperative exchanges (featured by game theorists and social constructionists); mechanisms that enable people to understand what others are thinking and feeling (featured by cognitive-developmental theorists and social constructionists); mechanisms that induce people to manipulate members of their groups (featured by social psychologists); mechanisms that house heuristics (featured by cognitive psychologists); and mechanisms that endow people with the capacity to engage in rational thought (featured by cognitive-developmental theorists and Charles Darwin). Different mechanisms may be activated in different contexts, sometimes in complementary ways and sometimes in ways that produce internal (and interpersonal) conflicts. People may make different kinds of moral decisions in different ways. Different versions of the trolley problem may activate different mechanisms, inducing people to process the information in different ways.

To be fair, Hauser addresses this point by postulating three kinds of mental organ, or "creature"—a Humean creature, a Kantean creature, and a Rawlsian creature, each of which, he acknowledges, may influence moral judg-

ments. He argues that the Rawlsian creature, which contains the principles of moral grammar, is somehow more primary and significant than the other two. Maybe and maybe not. As Hauser acknowledges, there is not enough evidence to reach a decision. But for the sake of Hauser's book, this does not really matter. Whether or not the particular model that Hauser advocates proves valid, *Moral Minds* is chock full of fascinating information guaranteed to provoke a great deal of thought.

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The Evolution of Mind: Fundamental Questions and Controversies.
Steven W. Gangestad, Jeffry A. Simpson (Eds.), New York and London: The Guilford Press.

Because the universe itself is continuous rather than segmented, the boundaries we draw between scientific disciplines will always be somewhat arbitrary. As our knowledge improves, disciplinary realignments are inevitable. *The Evolution of Mind: Fundamental Issues and Controversies* is further evidence of a disciplinary realignment that has been under way for several decades. The success of the evolutionary biological analysis of behavior has broken down barriers among the behavioral sciences and between them and the life sciences. The result is a new discipline. Although this new discipline has neither a name nor an academic department it can call its own, it does have journals, such as this one, and professional societies, such as the Human Behavior and Evolution Society and the International Society for Human Ethology and, most importantly, a body of shared theory and methods. At least for the purpose of writing this review, I will refer to this new discipline as human evolutionary science.

The Evolution of Mind was designed to examine twelve important issues in human evolutionary science. Some were controversial in the past but are no longer, while others have become controversial only recently. To address these issues, the editors called upon a *Who's Who* of experts to write 43 brief essays. A volume like this could easily have become little more than an exercise in mutual admiration, but the editors avoided that outcome both by selecting authors known for taking strong and often opposing positions on important issues and by reaching beyond the usual suspects for insights from people we hear from less often. These include archaeologist Steven Mithen, feminist psychologists Alice Eagly and Wendy Wood, and philosopher Kim Sterelny.

The various authors, many of whom contribute to more than one chapter, took different approaches to their task. Some wrote short literature reviews; others, essays with few references. Some essays are tightly focused on the question at hand, while others use the question only as a starting point. The result may be uneven, but it is fascinating nevertheless. The volume is rounded out (and greatly enhanced) by the editors' introductory chapter, section introductions, and concluding chapter.

The issues are grouped into three broad categories. Under the heading of methodological issues, the editors place the question of how to reconstruct the evolution of mind, the value of measuring current fitness, comparisons with nonhuman primates, and cost/benefit analysis. In the middle section on metatheoretical issues, they place modularity, development, and group selection. In the final section on important human evolutionary outcomes, they place key changes in the evolution of the mind, brain evolution, general intelligence, culture, and mating. As the editors admit, the list and its organization are both somewhat arbitrary. Why, for example, have an entire section on mating but none on parenting or sociality more broadly? Why limit our comparisons with other species to nonhuman primates when so many of the adaptive problems of concern in human evolutionary science have been around for much longer than there have been primates? Why is there no discussion about the controversy over "strong reciprocity" (Burnham & Johnson, 2005; Fehr, Fischbacher, & Gächter, 2002)?

This volume shows that some issues that have been divisive in the past have now been resolved. For example, the adaptivist/adaptationist issue, which led to heated debates between "Darwinian anthropologists" and "Darwinian psychologists" in the late 1980s and early 1990s, is no longer a point of much contention. The argument centered on the role of measures of current fitness to the study of adaptation. Darwinian psychologists, led by Donald Symons (1987), argued that measurements of current fitness were an "adaptivist" distraction from our real job of identifying the results of selection that took place in the past. Darwinian anthropologists argued that measurements of current fitness can be an important type of data for the identification of adaptations. In this volume, evolutionary biologists H. Kern Reeve and Paul W. Sherman argue that there are two complementary ways to study adaptation, one that looks backward to study selection in the past and another that focuses on current selection. Human behavioral ecologist Monique Borgerhoff Mulder argues that measures of current fitness, though not always necessary, can be very useful. Evolutionary psychologist Charles Crawford takes a different route but arrives at a very similar point, arguing