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On the inappropriate use of the naturalistic fallacy in evolutionary psychology

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Abstract. The naturalistic fallacy is mentioned frequently by evolutionary psychologists as an erroneous way of thinking about the ethical implications of evolved behaviors. However, evolutionary psychologists are themselves confused about the naturalistic fallacy and use it inappropriately to forestall legitimate ethical discussion. We briefly review what the naturalistic fallacy is and why it is misused by evolutionary psychologists. Then we attempt to show how the ethical implications of evolved behaviors can be discussed constructively without impeding evolutionary psychological research. A key is to show how ethical behaviors, in addition to unethical behaviors, can evolve by natural selection.

Introduction

Evolutionary psychologists frequently cite something called the naturalistic fallacy to describe an erroneous way of thinking about the ethical implications of evolved behaviors. The fallacy is usually summarized by the slogan "ought cannot be derived from is". Just because a given behavior evolved by natural selection does not make it ethically acceptable. Again and again, the naturalistic fallacy is invoked in response to those who criticize evolutionary psychology (and before that sociobiology) for its perceived dire ethical implications.

Unfortunately, appealing to the naturalistic fallacy is not the drop-dead argument that it is often taken to be. Not only have evolutionary psychologists left themselves vulnerable to their critics, but even more importantly, legitimate exploration of the ethical implications of evolved behaviors has been retarded. The purpose of this paper is to provide a closer look at the naturalistic fallacy in relation to evolutionary psychological research.

Before beginning, we want to stress that we are sympathetic with the goals of evolutionary psychology and think that research should proceed on all

fronts, including the possibility that unethical behaviors such as rape evolved by natural selection. Thus, we do not side with the most extreme critics whose efforts often seem designed to suppress the entire discipline. However, we also think that evolutionary psychologists need to be more self-critical and attentive to the ethical implications of their subject. As we will show, the facts of the world do have ethical implications, which the naturalistic fallacy was never intended to deny. A new conception of human nature will have ethical implications, as surely as technological advances such as cloning and the human genome project. Failure to explore these implications within the discipline has probably contributed to skepticism and mistrust outside the discipline.

What is the naturalistic fallacy?

Two philosophical claims are associated with the term "naturalistic fallacy," one by David Hume (1739) and the other by G.C. Moore (1903), who actually coined the term. Hume claimed that ethical statements cannot be deduced exclusively from factual statements. It is this claim that evolutionary psychologists associate with the term "naturalistic fallacy". Moore claimed that ethical properties such as "good" and "right" are not the same as natural properties such as "being red" or "being happy," and, more deeply, cannot be *defined* in terms of natural properties. Hence, according to Moore, ethical properties are metaphysically independent of natural properties, and stand on their own. He dubbed the attempt to define ethical properties (e.g., "good") in terms natural properties (e.g., "happiness") the "naturalistic fallacy".

Moore's claim has not fared well among philosophers (Sober 1991, 1994). Since it is Hume's claim that is invoked by evolutionary psychologists, we will set Moore's claim aside for the rest of this essay. Even though it is historically incorrect to associate Moore's term with Hume's claim, it has become so common, in other fields in addition to evolutionary psychology, that we will retain the term in our own discussion.

Hume's claim has proven more robust than Moore's claim, although it is still challenged by at least some philosophers and social theorists (e.g., Richards 1986; Arnhart 1998; Fukuyama 2002). An essay by Sober (1994) entitled "Prospects for an evolutionary ethics" provides an excellent account of the naturalistic fallacy from a combined evolutionary and philosophical perspective. According to Sober, Hume would regard the following argument as deductively invalid:

Torturing people for fun causes great suffering (factual premise).

Torturing people for fun is wrong (ethical conclusion).

However, if we supply an additional premise, the argument can be made deductively valid:

> Torturing people for fun causes great suffering (factual premise).
> It is wrong to cause great suffering (ethical premise).
> ---
> Torturing people for fun is wrong (ethical conclusion).

More generally, a factual statement must be combined with an ethical statement to derive an ethical conclusion . Hence, ought cannot be described *exclusively* from is.

The word "exclusively" is a crucial part of the naturalistic fallacy. If we remove it, the statement "ought cannot be derived from is" implies that the facts of the world have no relevance to ethical conclusions. This is an absurd claim that no philosopher or any other reasonable person would or should defend. General ethical principles require facts to say anything specific about how we ought to behave. Ethics can even be regarded as a system designed to convert *is* into *ought*. A person or society guided by an ethical system feeds the facts of the world into the hopper of the ethics machine, and out the other end comes instructions for how to behave.

How evolutionary psychologists inappropriately use the naturalistic fallacy

A recent textbook entitled *Psychology: an evolutionary approach* (Gaulin and McBurney 2001) provides a typical example of how the naturalistic fallacy is used by evolutionary psychologists. In a section entitled "A source of confusion: the naturalistic fallacy" (pp. 15–16), they begin by describing the widespread skepticism and hostility toward their approach, caused in part by the misuse of evolutionary ideas in the past "to excuse such evils as racism, sexism and social injustice in general." They strenuously "reject repression in all its many forms" and stress the progressive implications of evolutionary psychology. They point out that all scientific theories can be used for either good or evil, but that their proper use is to understand the nature of injustices so that they can be fixed.

After clarifying their own ethical stance, Gaulin and McBurney then discuss the "mistaken idea that evolutionary psychology excuses many of the evils in society on the basis that they are 'natural', being the product of evolution."

> Evolutionary psychology explains behavior; it does not justify it. Imagining that it offers a justification is known as the naturalistic fallacy (e.g., Buss 1990). In a nutshell, the naturalistic fallacy confuses "is" with

> "ought". It confuses the situation that exists in the world with our ethical judgement about that situation. Earthquakes, volcanic eruptions, floods, pestilence, AIDS, cancer, and heart attacks are all natural phenomena. Yet we study their causes, not to justify them, but to be better able to eradicate them or alleviate their effects. By the same token, we hold that studying the possible evolutionary origins of child abuse or infidelity is a good way to understand and therefore address the problems (p. 16).

This quote is accompanied by a so-called "Trail Marker", a nugget of information set apart from the rest of the text to emphasize its importance, which states "The naturalistic fallacy confuses 'is' with 'ought.' Something is not ethically acceptable simply because it is natural." To illustrate what they regard as the naturalistic fallacy, Gaulin and McBurney provide the following passage from Herbert Spencer.

> The poverty of the incapable, the distresses that come upon the imprudent, the starvation of the idle, and the shouldering aside of the weak by the strong ... are the decrees of a large, farseeing benevolence (Herbert Spencer, quoted by Bartlett, 1992, p. 492).

Unfortunately for Gaulin and McBurney, however much we might disagree with Spencer, he is not committing the fallacy attributed to him. Spencer is not justifying these social practices because they are natural, but because they benefit society in the long run. The premises of his argument can be stated more formally as follows:

> The incapable become impoverished, the impudent become distressed, the idle starve, and the weak are shouldered aside by the strong (factual premise)
> A society of capable, prudent, diligent, and strong individuals is ethically better than a society of incapable, imprudent, idle and weak individuals (ethical premise)
> ---
> The processes that create a society of capable, prudent, diligent and strong individuals are ethically benevolent (ethical conclusion)

Spencer is combining a factual statement with an ethical statement to derive an ethical conclusion, so he is engaging in standard ethical reasoning and not committing the naturalistic fallacy. Spencer does not rely on any naturalness associated with the first statement, but rather its relation to the second statement to derive his conclusion. Of course, this does not mean that Spencer is correct. We can argue with him about the facts of the first statement (e.g., the British upper class is not strong but merely has an unfair advantage over the lower classes) or the morality of the second statement (e.g., a strong society is not ethically better if it exploits or abandons its own members).

What we cannot do is dismiss the argument on the grounds that it commits some sort of elementary fallacy.

A perusal of the evolutionary psychology literature reveals that similar inappropriate uses of the naturalistic fallacy are rampant (e.g., Hrdy 1999; Barrett et al. 2002). To see how discussion of the naturalistic fallacy is employed for a contemporary issue, we turn to Thornhill and Palmer's (2000) *The Natural History of Rape*, which discusses the naturalistic fallacy nine times, starting with the following passage:

> We evolutionists use the term *reproductive success* to refer to these reproductive interests, by which we mean not the mere production of offspring but the production of offspring that survive to produce offspring ... A trait that increases this ability is "good" in terms of natural selection even though one might consider it undesirable in ethical terms. There is no connection here between what is biologically or naturally selected and what is ethically right or wrong. To assume a connection is to commit what is called the naturalistic fallacy. In addition, Williams clarified that natural selection favors traits that are "good" in the sense of increasing an individual's reproductive success, not necessarily traits that are "good" in the sense of increasing a group's ability to survive (pp. 5–6).

The phrase "no connection" is tantamount to Hume's claim with the crucial word "exclusively" removed. The next time that the fallacy is invoked follows a discussion of the hypothesis that rape is a form of mate choice in women. According to this hypothesis, women evolved to play "hard to get" so that only the toughest and most fit men would succeed in mating with them. Women may not want to be raped in terms of their psychological motivation, but their very horror insures that they will be impregnated only by the best. This form of mate choice could result in more fit daughters in addition to more fit sons, although Thornhill and Palmer mention only the latter possibility in the passage cited below. They do not regard this as a very plausible hypothesis to explain rape in humans, merely as a theoretical possibility. What would be the ethical implications if the hypothesis turned out to be true?

> But what if there was evidence that human rape was an adaptation that had been selected because it increased the reproductive success of females as a result of the high mating success of their rapist sons? Would that imply that rape was "natural" and therefore good? Would it imply that rape was something females ought to enjoy and encourage because it had increased the reproductive success of females in ancestral populations? Would it imply that feminists should celebrate rape as a form of female power? We think not. To think otherwise is to fall prey to the naturalistic fallacy (p. 84).

Thornhill and Palmer are clearly enjoying themselves at the expense of their feminist critics in this passage, but even if we play along with them, their invocation of the naturalistic fallacy is mistaken, as we can see by comparing the following two syllogisms.

I. Rape harms women psychologically and often physically (factual premise).

It is wrong to cause harm to another (ethical premise)

Rape is ethically wrong (ethical conclusion)

II. Rape harms women psychologically and often physically, *but it also increases the fitness of their offspring sufficiently that, over evolutionary time, rape has evolved as a form of female choice* (factual premise).
It is wrong to cause harm to another (ethical premise)

It is right to increase fitness of offspring (ethical premise)

Rape has both ethically good and bad effects; hence its ethical status is ambiguous (ethical conclusion).

We think that the italicized portion of the second syllogism can change the ethical status of rape. Even if the reader decides that rape remains ethically wrong, the thinking that was required to reach this decision is much different and more complex than for the first syllogism.

The other seven invocations of the naturalistic fallacy follow a similar pattern. Any critic who objects to Thornhill and Palmer's evolutionary interpretation of rape on ethical grounds is dismissed with the phrase "naturalistic fallacy" like a child stupid enough to write 2+2=5, stifling any meaningful discussion of the ethical issues surrounding the subject of rape. Yet, it is Thornhill and Palmer who are thinking fallaciously by using the naturalistic fallacy in this way.

We need to stress once again that, by criticizing Thornhill and Palmer, we are not siding with those who think that rape has nothing to do with reproduction, who believe that it is wrong to compare humans and nonhumans on the subject of rape, and so on. We are perfectly comfortable with the concept of rape as an evolved adaptation, although we do have numerous criticisms of Thornhill and Palmer's specific hypotheses and empirical tests that are beyond the scope of this paper. Our point is merely that the naturalistic fallacy cannot be used to ward off ethical debates the way that a crucifix is supposed to ward off vampires. We also stress that, although the inappropriate use of the naturalistic fallacy is dismayingly common in the evolutionary psychology literature, and indeed is the main reason that the naturalistic fallacy is discussed at all, more balanced accounts do exist. For example Cartwright (2000: 328) at least acknowledges that "values must at some level be related to facts", and Richards (2000) carefully explores

the ethical implications of evolutionary psychology in her book entitled *Human Nature after Darwin*, which provides much needed philosophical background and should be read by evolutionary psychologists and their critics alike.

How to reason about the ethical implications of evolved behaviors

If the naturalistic fallacy is used inappropriately, what is the correct way to reason about the ethical implications of evolved behaviors? We will explore the answer to this question by focusing on one of the most common reactions to the idea of rape as an evolved adaptation. If rape is natural, won't that fact be used to justify rape or at least not to judge it as harshly as if rape is abnormal? Similarly, doesn't rape as a sex act make it appear less unethical than rape as an act of violence?

To discuss these concerns constructively, we need to ask if there are any contexts in which the status of a behavior as natural alters its ethical status. First we must distinguish something that is natural in the sense of being an adaptation (such as becoming hungry after not eating), as opposed to a natural object such as a rock or a natural event such as a heart attack. Adaptations that evolve at the individual level are usually good for the individual, by enhancing both fitness and often (although not always) pleasure and happiness, which are commonly used as the basis for ethical evaluation and the pursuit of which can be regarded as evolved psychological mechanisms for the achievement of high fitness. Insofar as ethics involves promoting the common good, the connection between "natural" and "good" means that the adaptedness of a behavior is intimately connected to its ethical status. Evolutionary psychologists Martin Daly and Margo Wilson make this point in their discussion of the foundation of British law (Daly and Wilson 1988: 194–196; italics theirs):

> The English common law relies heavily upon a conception of the way in which a "reasonable man" could be expected to behave. This hypothetical creature embodies the judiciary's assumptions about the natural order of marital relationships and men's passions ... There is a *theory of human nature* implicit in these laws, and it is essentially similar to the theories of human nature that are implicit in other legal traditions that have developed independently of our own.

Similarly, Supreme Court Justice Oliver Wendell Holmes (1897) wrote "The law can ask no better justification than the deepest instincts of man." These authores are not committing the naturalistic fallacy by making a connection between human nature, ethics, and law. A man who steals for spite or financial gain will be judged more harshly than if he steals because

he and his family are starving, because it is only natural for a starving person to commit desperate acts to obtain food. People are not judged according to the loftiest standards of ethics, such as always valuing the welfare of others equally to one's own welfare, because it is understood that complete selflessness is unnatural. What's the point of setting the bar so high that almost no one can jump over it? Instead, "ought" is derived from the behavior that can be expected from "the reasonable man"; we ought to behave somewhat unselfishly. To pick an example closer to the subject of rape, when a man discovers his wife in the act of having sex with another man and kills one or both, he has historically been judged much less harshly than for other forms of homicide and until recently in some states would be found innocent of any crime (Daly and Wilson 1988). The ethical reasoning behind this verdict is that it is only natural for a man to lose control in this situation. This reasoning is not far removed from the reasoning that if a woman dresses provocatively and leads a man on, the woman is in some degree accountable for the outcome.

A glance at the laws and customs surrounding rape across cultures gives more cause for concern. In many cultures, the ethical implications of rape are based on the honor of husband and family much more than the suffering of the rape victim. It is the woman's job to avoid dishonor and it is her fault if she fails (Wilson and Daly 1992). Similarly, in the United States in the past, a woman who brought charges against a rapist could expect searching questions in court about her own sexual conduct and the possibility that she led the rapist on. Although such questions are less likely to be asked within the courtroom today, the ethical reasoning behind them do not change so easily. Outside the courtroom, many women are still held accountable for being raped. These longstanding attitudes about rape, while unenlightened, are due nevertheless to normal ethical reasoning in which what counts as natural plays a pivotal role.

If we momentarily ignore the true causes of rape, it is clear to us that the factual premise "rape is an act of violence unprovoked by the victim" leads to a much more decisive ethical conclusion than the factual premise "rape is an evolved adaptation." If our only concern was to make rape appear unambiguously immoral, inculcating the belief that rape is purely an act of undeserved violence that has nothing to do with sex might be a successful strategy. Unfortunately, it would not be a successful scientific theory of rape. Even though we disagree as scientists with Thornhill and Palmer on numerous important issues, we broadly agree that rape often reflects an evolved tendency to advance one's own genetic interests at the expense of others. More generally, unethical behaviors of all sorts are often products of natural selection. It is natural to be unethical. Denials of this fact often reflect efforts to

establish factually incorrect beliefs for the practical purpose of preventing unethical behaviors. How can evolutionary psychologists tell the truth about immorality without undermining the very mechanisms that hold immorality at bay? This is evolutionary psychology's moral dilemma and it will not disappear by invoking the naturalistic fallacy.

Solving evolutionary psychology's moral dilemma

Our own way of solving the dilemma proceeds as follows: The idea that immorality is natural is not unique to evolutionary theory. For example, the Christian doctrine of original sin maintains that people are born evil and must achieve morality through religion. More generally, it is usually the case that immoral acts benefit the actor; why else would they pose a temptation? People steal to obtain material goods that they want, kill to profit from the death of their victim, rape for sexual gratification, and so on. Evolutionary theory merely ratifies these common ideas by showing how the temptation to benefit oneself at the expense of others can be explained as a product of natural selection.

However, there is a counterweight to immoral behavior that can also be explained by natural selection. Human societies around the world are governed by moral systems that classify behaviors into "right" and "wrong" based largely on the criterion of *common welfare*. Members of a society are expected to do what's right and to avoid what's wrong even when it is against their own self-interest. Wrong-doers become fair game for punishment and exclusion, which can often be applied very effectively, especially when the wrong-doers are few and the righteous are many. Moral systems are a product of natural selection, as surely as immoral acts. Put another way, there is a temptation to act morally and to insist upon moral behavior in others, just as there is a temptation to act immorally. Which temptation prevails is likely to be highly context-dependent. The same person who is a paragon of moral virtue in one situation might become highly immoral in other situations. We might also expect important individual differences, with some people more likely to behave immorally than others. All of these "temptations", moral and immoral alike, are equally "natural".

If this is the true story that evolutionary theory tells, what are the implications for a particular behavior such as rape? It clearly qualifies as immoral because it benefits the actor at great expense to others, not just the rape victim but society at large. The fact that the actor benefits does nothing to change its moral status, since morality is defined in terms of *common* welfare. In fact, some of our most severe moral judgements are reserved for behaviors that obviously benefit the actor at the expense of others (e.g., betraying one's

country for a large financial reward), and therefore require an exceptionally strong moral response to counterbalance the personal gain. Since rape provides strong benefits for the rapist, a very strong moral stance is required to prevent it from happening. In short, rape might need to be classified as deeply wrong to prevent it from taking place. If it is accepted as immoral, with the full panoply of social control mechanisms that prohibit immoral behaviors in human societies (much of which is internalized during development), then most men will refrain from rape just as they refrain from other behaviors classified as highly immoral.

Evolutionary psychology neglects the evolution of the 'ethical sense' in addition to the ethical implications of evolved behaviors

Our way of discussing the ethical implications of evolved behaviors is to tell a complete story that includes the evolution of what Darwin called 'the ethical sense' in addition to the evolution of unethical behaviors. The importance that Darwin placed on explaining the ethical sense is apparent from the beginning of chapter 4 in the *The Descent of Man* (1871).

> I fully subscribe to the judgment of those writers who maintain that of all the differences between man and the lower animals, the ethical sense or conscience is by far the most important. This sense, as Mackintosh remarks, "has a rightful supremacy over every other principle of human action"; it is summed up in that short but imperious word *ought*, so full of high significance. It is the most noble of all the attributes of man, leading him without a moment's hesitation to risk his life for that of a fellow-creature; or after due deliberation, impelled simply by the deep feeling of right or duty, to sacrifice it in some great cause. Immanuel Kant exclaims, "Duty! Wondrous thought, that workest neither by fond insinuation, flattery, nor by any threat, but merely by holding up thy naked law in the soul, and so extorting for thyself always reverence, if not always obedience; before whom all appetites are dumb, however secretly they rebel; whence thy original?"

In short, Darwin thought that the ethical sense was the single most important aspect of human nature to explain from an evolutionary perspective. Curiously, evolutionary psychologists have not followed his lead. Not only have they avoided discussing the moral implications of evolved behaviors, but also the very subject of morality. Textbooks such as Buss (1999), Gaulin and McBurney (2001), and Barrett et al. (2002) and edited volumes such as Barkow et al. (1992) devote only a few paragraphs to morality and in some cases don't even list the word or associated words such

as "norms" in the index. The fact that evolutionary psychology in its current form tells a partial story, richly embellished for immoral behaviors but silent for moral behaviors and the very concept of morality, undoubtedly contributes to its skeptical reception outside the discipline.

How is it possible for a subject so central to human nature and so clearly recognized by Darwin himself to be so neglected by the discipline that claims to explain human nature from a Darwinian perspective? We think that the answer to this question can be traced to the fact that Darwin explained the ethical sense as a product of *group selection*, which most evolutionary psychologists do not accept as an important evolutionary force (Sober and Wilson 1998). Taken at face value, morality is fundamentally about the welfare of others and society as a whole (B. Williams 1972). As Darwin realized, it is hard to explain how moral individuals outcompete immoral individuals within a group, but easy to explain how groups of moral individuals outcompete groups of immoral individuals. Widespread rejection of group selection during the 1960's was premature; the theory has been revived and group selection was almost certainly a very strong force in human evolution. Previous efforts to explain the evolution of morality without invoking group selection (e.g. Alexander 1987) have been shown to reject group selection in name only (Wilson 1999, 2002). In fact, moral systems *make* group selection a strong force by reducing behavioral differences within groups and increasing them among groups (Boehm 1999). Outside the field of evolutionary psychology, a consensus is forming that moral systems evolved by group selection, much as Darwin originally proposed. As one example, a recent paper published in the journal *Nature* entitled "Altruistic punishment in humans" (Fehr and Gachter 2002) was accompanied by a commentary by Bowles and Gintis (2002) who stated "a plausible explanation for the evolutionary success of this strategy is that groups with a high fraction of altruistic punishers would have sustained cooperation more successfully than groups with fewer punishers, and so would have prevailed over them."

Unfortunately, many evolutionary psychologists have been unable to incorporate these developments into their own framework. The following passage from Thornhill and Palmer is typical.

> One cannot grasp the power of natural selection to "design" adaptations until one abandons the notion that natural selection favors traits that are ethically good and the notion that it favors traits that function for the good of the group. Only then can one appreciate the power of natural selection to design the complex traits of individuals (p. 6).

With individual self-interest as the only explanatory principle, it becomes impossible to explain morality at face value. The only alternative is to try to

explain morality as itself a form of self-interest – an oxymoron – or to fall silent on the subject.

Conclusion

We began this essay by discussing the widespread inappropriate use of the naturalistic fallacy in evolutionary psychology. Hume's claim that ethical conclusions cannot be derived *exclusively* from factual premises may be correct (see below), but moral systems require information about the facts of the world to reach specific conclusions about how people ought to behave. Insofar as evolutionary psychology changes our understanding of human nature, it will undoubtedly have moral implications that require discussion. Using the naturalistic fallacy to forestall such discussion is both illogical and irresponsible.

We have also tried to show how the moral implications of evolved behaviors can be discussed constructively. A key is to explain how moral systems evolve in addition to the impulse to behave immorally. By providing only part of the story, evolutionary psychologists have given the impression that immoral behaviors robustly evolve while moral behaviors must be pulled out of thin air, as something we can "decide" to do despite the dictates of our genes. A different picture emerges when we explain moral systems as products of natural selection that evolved to very successfully limit immoral behaviors under a wide range of circumstances. Once the naturalness of morality is appreciated, the naturalness of immorality is perhaps easier to accept.

It is important to stress that all of our points can be made without challenging the naturalistic fallacy itself. Hume may be correct that ought cannot be derived exclusively from is. Our goal has been to identify and correct the widespread inappropriate conclusions that have been based on this premise. Even the evolution of moral systems in humans does not necessarily challenge the naturalistic fallacy. It is possible that morality exists apart from evolution and that we merely evolved the ability to perceive it, however imperfectly, just as we have evolved to perceive mathematical relationships. For example, a person from one group who commits an atrocity against a person from a rival group can arguably be called immoral, even though he or she has been group selected not to see it that way. The question of whether the naturalistic fallacy can itself be challenged involves a different set of issues that are interesting and important (Richards 1986; Arnhart 1998; Fukuyama 2002) but not the subject of this paper.

We end by stressing once again that our goal is to improve evolutionary psychology, not to bury it. Evolutionary psychologists have not helped their

cause by committing their own fallacy, by avoiding ethical debate, and by ignoring the very subject of morality. By addressing these problems, we think that the field of evolutionary psychology can become richer and enjoy more widespread acceptance in the future.

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