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HOW GENE–CULTURE COEVOLUTION CAN—BUT PROBABLY DID NOT—TRACK MIND-INDEPENDENT MORAL TRUTH

By Nathan Cofnas

I argue that our general disposition to make moral judgments and our core moral intuitions are likely the product of social selection—a kind of gene–culture coevolution driven by the enforcement of collectively agreed-upon rules. Social selection could potentially track mind-independent moral truth by a process that I term realist social selection: our ancestors could have acquired moral knowledge via reason and enforced rules based on that knowledge, thereby creating selection pressures that drove the evolution of our moral psychology. Given anthropological evidence that early humans designed rules with the conscious aim of preserving individual autonomy and advancing their collective interests, the theory of realist social selection appears to be attractive for moral realists. The goal of evolutionary debunking arguments should be to show not that our moral beliefs are the product of natural selection, but that realist social selection did not occur.

Keywords: evolutionary debunking arguments, moral realism, natural selection, social selection, cultural evolution, gene–culture coevolution.

I. INTRODUCTION

Moral realists believe that there are moral truths that are objective, non-relative, and—according to most realists—knowable (Shafer-Landau 2003; Huemer 2005; Tersman 2006). As Shafer-Landau (2003: 15) puts it, moral truths are 'stance-independent': 'the moral standards that fix the moral facts are not made true by virtue of their ratification from within any given actual or hypothetical perspective'. Non-naturalist realists add that moral facts cannot be reduced to natural ones (ibid.: ch. 3).

Sceptics about moral realism frequently employ 'debunking arguments'. Debunking arguments present a story about the causal origins of a belief as an undermining defeater (Kahane 2011: 106). They take the following form:

Causal premise: *C* caused *S*'s belief that *p*.
Epistemic premise: *C* does not produce reliable beliefs about *p*.

Conclusion: In light of the knowledge that *C* caused the belief that *p*, *S* is unjustified in believing that *p*. (Kahane 2011: 106; Nichols 2014: 731; Sauer 2018: 30; Egeland 2022: 4).

Debunkers disagree about what makes a causal process epistemically defective in the way required for a debunking argument to succeed (Sauer 2018: 31). The idea that debunking arguments show the targeted belief to be *insensitive* (*S* would have believed that *p* via *C* even if not-*p*) or *unsafe* (*S* could easily have been wrong about *p*) is disputed by those who reject sensitivity or safety as necessary for justification (Egeland 2022: 7–9). Another possibility is that a *C*-caused belief that *p* is debunked by showing that *C* does not presuppose the truth of *p* (e.g., Harman 1977; Ruse and Wilson 1986; Joyce 2006: 220). This, too, runs into trouble. Nichols (2015: 98) observes that, for example, the explanation for his (presumably justified) belief that Hume will be studied at universities a century from now does not presuppose that the belief is true.

If *C* caused *S*'s belief that *p*, we cannot undermine *S*'s justification for the belief that *p* merely by showing that *C* 'does not bear on the truth of *p*' (Vavova 2018: 136). Such 'irrelevant influences' are pervasive, but many are epistemically unproblematic (ibid.). The fact that *S*'s parents met each other is part of the causal story for all of *S*'s beliefs. Maybe *S* came to believe that *p* only after being gifted an authoritative book about the subject for their birthday. But (in most cases) the discovery of influences like these—your parents met each other, you received a book on your birthday—is not debunking. In order to be debunking, the discovery that *C* caused *S*'s belief that *p* has to provide some *reason* to think that *S* is likely to be mistaken (White 2010: 604; Vavova 2018). There are many ways in which the causal origins of a belief can be epistemically defective. Egeland (2022: 13) suggests—quite plausibly—that 'there most likely does not exist any special debunking principle that unifies all valid debunking arguments'.

Evolutionary debunking arguments (EDAs) in ethics purport to debunk moral beliefs (realistically construed) by attributing them to natural selection. Natural selection is said to be epistemically defective with respect to mind-independent moral truth. Street (2006: 125, 143) argues that it would be an 'incredible', 'implausible coincidence' if natural selection, which aims at fitness, endowed us with 'evaluative tendencies' that happen to correspond with mind-independent morality. Although evolutionary debunkers often refer to their target as 'moral realism', there are probably versions of *naturalistic* realism that are not undermined by EDAs (e.g., Sterelny and Fraser 2017). The terminology is used somewhat inconsistently. For example, Street (2006) describes herself as a critic of 'realism', but she advocates constructivism, which is often classified as a kind of (naturalistic) realism. Without attempting to sort this out, I will use the term 'mind-independent morality', 'objective morality', or simply 'moral realism' to refer to the versions of realism that are susceptible to EDAs.

Some critics of EDAs counter that even if natural selection aims at fitness rather than moral truth, beliefs might be both adaptive and moral (Enoch 2010; Wielenberg 2010; Skarsaune 2011). For example, if *survival* is objectively good, natural selection will endow us with the objectively correct moral belief that survival is good even though it is not tracking moral truth per se (Enoch 2010). Various other challenges have been raised to EDAs (see Vavova 2015). Having acknowledged the controversy, I will not attempt to defend evolutionary debunking in general. The EDA that I will propose does not raise any novel epistemic questions. For the purposes of this paper, I assume for the sake of argument that natural selection is epistemically defective with respect to objective moral truth in the way required to run a debunking argument.

EDAs in ethics can be 'selective' or 'global' (Sauer 2018: ch. 3). Selective EDAs attribute some but not all of our moral beliefs to natural selection. For example, Greene (2008: 66–76) and Singer (2005: 347–51) argue that we should reject our deontological moral intuitions as the tainted product of natural selection, while our utilitarian intuitions remain undebunked and therefore potentially reliable. Global EDAs target moral realism itself, and come in two main varieties, which are most associated with Street (2006) and Joyce (2006), respectively.

According to Street (2006), natural selection (indirectly) shaped the content of our core moral beliefs. In order to prompt adaptive behaviour—protecting one's life, caring for one's children, returning favours (when this cultivates beneficial cooperative relationships), punishing those who have inflicted deliberate harm on oneself (when this will discourage them or others from inflicting further harm), and so on—natural selection endowed us and some other animals with 'basic evaluative tendencies' to judge that such a behaviour is 'called for' (ibid.: 117). In other animals, these evaluative tendencies exist only in a 'proto' form (ibid.: 119). Our close relatives such as chimpanzees, who have been subject to similar selection pressures, have proto evaluative tendencies that are analogous—or homologous—to ours. Humans have the capacity to articulate our intuitions about what is 'called for' with language in order to generate 'full-fledged' evaluative judgments such as *it is good to return favours*, *criminals should be punished*, or *what George did was wrong* (ibid.: 118). But these full-fledged judgments are rooted in evaluative tendencies—which on Street's account seem to be equivalent to our innate *moral intuitions*—that were implanted in us by natural selection simply because they increased inclusive fitness in the ancestral environment. She concludes that 'one enormous factor in shaping the content of human values has been the forces of natural selection, such that our system of evaluative judgements is thoroughly saturated with evolutionary influence' (ibid.: 114). In light of this discovery, our moral beliefs (realistically construed) are *all* unjustified. (Street's theory about the origin of our moral beliefs is controversial; see, e.g., Machery and Mallon 2010; Parfit 2011: 535–8; Deem 2016; Isserow 2019; Cofnas 2020a; Levy and Levy 2020.)

In contrast to Street (2006), Joyce (2006) does not emphasize the claim that natural selection (directly or indirectly) influenced the *content* of our moral beliefs. Instead, he argues that the psychological disposition to acquire (realist) moral beliefs in general is the product of natural selection. We would be disposed to acquire beliefs about right and wrong even if there were no mind-independent truth of the matter (ibid.: 220). The discovery of this fact undermines the justification for all of our moral beliefs (realistically construed).

I argue that the evolutionary explanations of our moral beliefs that feature in both Street- and Joyce-style EDAs may be mistaken in ways that undermine the arguments. Section II outlines the concept of gene–culture coevolution, and concludes that some popular gene–culture coevolutionary theories of morality can easily be incorporated into standard EDAs. Section III argues that our moral psychology is the product of a special kind of gene–culture coevolution called *social selection*. Social selection occurs when members of a species unconsciously direct their own evolution toward a mentally represented endpoint. Anthropological evidence suggests that early humans drove the evolution of our moral psychology by collectively establishing rules to preserve individual autonomy and promote group interests, and imposing fitness-reducing punishments on rule violators. This raises the possibility of *realist social selection*—the theory that social selection led us to evolve an innate tendency to make moral judgments that line up with mind-independent moral truth. Our ancestors could have established rules to protect autonomy and promote their collective interests because they recognized the mind-independent moral imperative of these rules via reason. Section IV argues that, if our moral beliefs are in fact the product of social selection, the goal of EDAs should be to show that *realist* social selection did not occur. I offer a debunking account of the social-selection process that shaped our moral faculty.

II. GENE–CULTURE COEVOLUTION AND EVOLUTIONARY DEBUNKING ARGUMENTS

Gene–culture coevolution refers to the phenomenon whereby cultural evolution affects genetic evolution and vice versa (Durham 1991; Richerson and Boyd 2005; Lewens 2015; Henrich 2016). Some scientists have defended gene–culture coevolutionary accounts of the evolution of morality, which appear strikingly different from the theories that feature in popular EDAs, particularly Street's (2006). Do these theories pose a challenge for the debunking project? Before considering this question, we should be clear on how gene–culture coevolution relates to natural selection as traditionally understood.

Following Lewontin (1970), Sober (2000: 36) writes that '[n]atural selection occurs when there is heritable variation in fitness'. The *heritability* requirement means that there must be a mechanism of inheritance that makes offspring

resemble their parent(s). We now know that—at least in the sorts of cases that concerned Darwin—the mechanism of inheritance is DNA. But natural selection does not require DNA specifically. It requires that offspring resemble their parent(s) regardless of how this resemblance is brought about (Lewontin 1970: 1; Sober and Wilson 1998: 107).

As a matter of fact, DNA is not the only way in which organisms inherit traits from their parents. Humans and (to a very limited extent) some other animals can also inherit traits via *cultural* transmission. Culturally transmitted traits, or 'cultural variants'—ideas, skills, beliefs, attitudes, and values (Richerson and Boyd 2005: 63)—can be passed from parents to children by *learning*, which involves imitation, emulation, or guided discovery (Sterelny 2012). Since these heritable cultural variants can both vary and affect fitness, adaptive variants can spread due to natural selection acting on individuals or groups (Sober and Wilson 1998: 149–54; Richerson and Boyd 2005: 13–4, 68–79). As Richerson and Boyd (2005: 76) say, '[t]o the extent that people acquire beliefs from their parents, natural selection acts on culture in almost exactly the same way as it does on genes'.

DNA transmission is (in animals) only vertical (parents to offspring). In contrast, cultural transmission can also occur horizontally (organism to other members of its generation) and obliquely (adults to non-offspring children) (Cavalli-Sforza and Feldman 1981). A consequence of this is that the *variants themselves* can undergo Darwinian evolution in the cultural realm (Richerson and Boyd 2005: 76; cf. Dawkins 1976/2016: ch. 11). That is, variants can be more or less fit in the sense that they are more or less likely to be copied by other people and transmitted down the generations.

This brings us back to gene–culture coevolution. *Culture*—the panoply of cultural variants—is a fitness-relevant aspect of the enculturated organism's environment. As such, it can impose selection pressures that favour certain *genetic* variants. The selection pressures acting on individuals depend in complex ways on the cultural variants of others in their society, and on the variants that they themselves adopt. Genetic adaptations make culture possible, and culture in turn creates conditions that favour new genetic adaptations, which affect culture, and so on.

Whereas we cannot choose our DNA, we have some liberty to choose among competing cultural variants. This creates selection pressure for the tendency to identify and adopt the most fitness-promoting cultural variants in our environment. While the variants themselves are undergoing their own Darwinian selection, the individuals who participate in the culture are subject to Darwinian selection for the tendency to choose those that are best from their own fitness perspective. According to cultural evolutionary theorists, this led us to evolve certain adaptive, innate *learning biases*. Richerson and Boyd (2005: Table 3.1) have, based on a combination of modelling work and empirical evidence, identified three categories of learning biases under the

headings '*Content-based (or direct) bias*', '*Frequency-based bias*', and '*Model-based bias*'. These refer, respectively, to our preference for cultural variants that are (a) intrinsically appealing (due to their perceived benefit, or because 'the structure of cognition makes some variants easier to learn or remember'), (b) common or rare (we tend to conform to the majority), or (c) exhibited by people with certain characteristics (we tend to copy others who are successful, prestigious, or similar to ourselves).

Now, we can consider whether the phenomenon of cultural evolution or gene–culture coevolution has implications for EDAs in ethics.

Standard EDAs typically claim that natural selection directly or indirectly influenced our moral beliefs by acting on genetically transmitted traits. One might suppose that EDAs lose their force if the traits in question are *culturally* transmitted. Parfit appears to defend this view in the following passage:

> When Street and others claim that our normative beliefs were mostly produced by evolutionary forces, these writers are in part referring to cultural evolution. Some normative beliefs became more widely spread when and because communities of people with these beliefs were more likely to be successful. It is much less clear how we should assess the claim that certain normative beliefs were in this way, not *reproductively*, but *socially* or *culturally* advantageous. It is less clear, for example, whether and how such explanations of our normative beliefs should be assumed to *debunk* or undermine these beliefs. When the acceptance of certain normative beliefs made some community or culture more likely to survive and flourish, this fact does not as such cast doubt on the truth or plausibility of these beliefs. Such explanations of our normative beliefs do not obviously, in Street's phrase, *contaminate* these beliefs. (Parfit 2011: 537)

If, when Parfit refers to moral beliefs that proliferate because they make a community 'likely to survive and flourish', he has in mind something like natural selection, then his reasoning seems to be based on a straightforward mistake. *If* explaining a moral belief in terms of natural selection debunks it, then, it does not matter what the underlying mechanism of transmission is—whether it is genetic, epigenetic, cultural, or anything else we could imagine. As discussed above, natural selection is not defined by genes or DNA. Parfit says that '[w]hen the acceptance of certain normative beliefs made some community or culture more likely to survive and flourish, this fact does not as such cast doubt on the truth or plausibility of these beliefs'. This statement is correct in a limited sense, but it misses the point of the EDA. If the causal explanation of our moral belief that *p* is that societies in which people believed that *p* were more likely to survive and flourish (i.e., were favoured by natural selection), then our belief is just as 'contaminated' as any other moral belief explained by natural selection.

Parfit's claim that when Street and other debunkers refer to 'evolutionary forces' they are 'in part referring to cultural evolution' is probably wrong, and is certainly wrong with respect to Street. Street (2006: 118) makes it clear that

she is talking about natural selection acting on traits that 'must be genetically heritable'. But that is not important. The possibility that natural selection acts on culturally as well as genetically transmitted moral beliefs is easily accommodated by standard EDAs.

Does the fact that gene frequencies change in response to cultural change and vice versa pose a challenge for EDAs? Cultural evolutionists in the Boyd-and-Richerson tradition have developed mathematical models that suggest that morality—or at least certain core elements of it—evolved in a different way than Street- or Joyce-style debunkers propose.

Cultural evolutionary models assume that cultural variants are distributed in a population, and individuals with the learning biases mentioned above choose whom to imitate. Modelling work shows that, in populations of social learners, stable behavioural patterns emerge as a by-product of the learning biases, particularly when the conformist bias is combined with punishment of deviants (Boyd and Richerson 1992; Chudek et al. 2013: 442). A key assumption of these models is that *stable behavioural patterns, or norms, are not the product of conscious design*. Groups vary in their initial distributions of norms, and individuals choose whom to imitate based on their learning biases, not based on an envisioned endpoint. Cultural evolutionary theorists in this tradition emphasize their view that people are simply unable to anticipate the consequences of different norms, so any attempt to deliberately design a system of group-beneficial norms is futile (e.g., Henrich 2006). Many norm equilibria are possible, and the vast majority are *detrimental*, not beneficial, to group fitness (Boyd and Richerson 1992; Henrich and Boyd 2001: 86; Chudek and Henrich 2011: 222). So how do group-beneficial norms ever evolve? According to the modellers, a small number of groups will randomly stumble on group-beneficial equilibria—namely, prosocial norms enforced by punishment—and these practices will be favoured by cultural group selection (Boyd and Richerson 2002). After group-beneficial prosocial norms spread by cultural group selection, in a process of gene–culture coevolution people become genetically adapted to be innately receptive to prosocial practices and values (Henrich and Boyd 2001; Chudek and Henrich 2011; Chudek et al. 2013; see Cofnas 2018: 311).

According to the story given above, our innate moral intuitions are the product of three stages of Darwinian selection. First, there is selection among competing cultural variants, namely, different *norms*. Secondly, there is cultural group selection, which mostly involves natural selection acting on groups. Thirdly, natural selection acts on individuals via selection pressures created by the enforcement of prosocial norms.

Street-style EDAs assume that our moral beliefs are the product of natural selection acting on traits that (in Street's words, as quoted above) 'must be genetically heritable'. The Boyd-and-Richerson account of morality suggests that moral evolution was driven in large part by natural selection acting on

culturally transmitted beliefs, which only later become genetically incorporated. This might seem to pose a challenge for EDAs, but in fact it does not. The epistemic premise of EDAs is that natural selection does not track mind-independent moral truth. All three stages of the evolution of morality that feature in Boyd and Richerson's theory involve natural selection. It would be an 'incredible coincidence' (to use Street's [2006: 125] expression), if the process they describe produced moral beliefs that happened to align with mind-independent moral truth.

III. THE SOCIAL-SELECTION ACCOUNT OF MORALITY

In the previous section I argued that gene–culture coevolutionary theories of morality do not necessarily pose a threat to standard EDAs. Here, I describe Boehm's (1999, 2012) account of the evolution of morality and argue that it *does* pose a genuine threat. According to Boehm, morality evolved by a kind of gene–culture coevolution called 'social selection': our ancestors *consciously* designed blueprints of desirable societies, enforced behaviour demanded by the blueprint, and in this way artificially selected people to have (realist) moral intuitions. I will argue that social selection, whether it is conceived as different from, or as a special case of, natural selection, could potentially track mind-independent moral truth. Moral beliefs produced by social selection cannot be undermined—at least not directly—by standard EDAs.

Regarding the evolutionary psychological theories upon which her EDA is based, Street (2006: 113) writes: 'while I am skeptical of the *details* of the evolutionary picture I offer, I think its *outlines* are certain enough to make it well worth exploring the philosophical implications'. For the purposes of the present paper, we can take the same attitude toward the social-selection theory of morality. The details are uncertain, but the key claim is highly plausible. Human societies have been organized around deliberately engineered social codes for an evolutionarily significant amount of time. For thousands of generations, individuals' fitness was to some degree tied to their ability to conform to these codes. This created selection pressures favouring individuals who internalized the norms of their society—that is, who had a *conscience* (Boehm 2012)—and were perhaps also disposed to acquire certain specific moral beliefs (Cofnas 2018: 315–6). Contra Boyd and Richerson, these norms were *intentionally designed* by agents to promote their collective goals. I will not try to adjudicate between the various accounts of morality offered by evolutionary psychologists and cultural evolutionary theorists. Rather, I will explore what the philosophical implications would be if we accept the social-selection account.

Boehm's (1999, 2012) theory goes as follows. Until around 250,000 years ago, human society resembled that of chimpanzees (*Pan troglodytes*), with each

group being dominated by an alpha male and his coalition partner(s). Like chimps, subordinate people sometimes formed coalitions to challenge and even overthrow the alpha. But although one alpha might be dethroned, a new one would always take his place. The social system itself remained stable. Alphas enforced rules designed almost entirely to benefit themselves. They were often resented, but their subordinates lacked the ability and inspiration to change the system. At some point, however, there was a revolution. Our ancestors evolved the requisite levels of intelligence, foresight, and ability to communicate and cooperate, which allowed them to conceive and collectively execute a plan to redesign their political system. Subordinate males banded together to overthrow their alphas and establish a 'reverse dominance hierarchy' with themselves occupying the leadership position. Instead of an alpha ruling for his own benefit, the new coalitions of the majority of men ruled for their *collective* benefit. They designed an explicit 'blueprint' (Boehm 1999: 12, 193–4) for a desirable society, which called for political egalitarianism (at least among adult men), measures to protect individual autonomy, and various prosocial behaviours. They punished those who failed to live up to the demands of the blueprint, and rewarded those who did, in ways that affected fitness.

'[S]ocial control by groups' was 'initially nonmoralistic' (Boehm 2012: 15), but it created unique selection pressures in the human lineage that led to the evolution of a *conscience*, which Boehm defines as the tendency to '*personally [identify] with community values*, which means internalizing your group's rules'[1] (ibid.: 113). When rules are made and enforced by an alpha (as among chimps), they tend to be followed only when the alpha is watching or otherwise likely to discover deviance. When rules are made to promote collective well-being, however, almost all group members have a stake in enforcing them, and violations witnessed by one person can be made public to everyone by means of language. Many generations of highly effective law enforcement favoured individuals who were particularly inclined to follow group rules. The evolutionary function of the conscience is to compel us to follow such rules—or at least to think very carefully before transgressing (ibid.: 114–5). In Boehm's words: 'prehistorically humans began to make use of social control so intensively that individuals who were better at inhibiting their own antisocial tendencies, either through fear of punishment or through absorbing and identifying with their group's rules, gained superior fitness' (ibid.: 17). As people evolved stronger consciences, 'group punishment increasingly became driven by moral outrage' (ibid.: 88), and consequently more intense and effective. In addition to

[1] Under certain conditions people's consciences can lead them to *reject* their group's rules. But the evolutionary function of the conscience is to prompt conformity. For most of our evolutionary history (including to some extent today), seriously opposing the values of one's community would have elicited swift, fitness-reducing punishments.

negative social selection (i.e., punishment), rule conformists could also have been favoured as marriage or exchange partners.

I cannot do justice to all of the evidence from multiple sources that Boehm provides to support his theory. But his main empirical evidence comes from studies of 20th-century nomadic foragers who lived more or less as our ancestors in the Pleistocene. These societies are marked by striking commonalities. Without exception,[2] from Australia to South America to Africa, they all enforce strict political egalitarianism among men. Some nomadic foragers have nominal leaders, but neither the leader nor any other adult male is allowed to issue direct orders to another adult male. 'These foragers very predictably share a core of moral beliefs with an egalitarian emphasis on every hunter's being a political equal, while the political positions of women as non-hunters are much more subject to diversity' (ibid.: 80). They also have rules requiring that food, particularly meat from large game, be shared among all group members. They are *consciously aware* that their rules have the effect of preserving individual autonomy and protecting people from bad luck (e.g., an unsuccessful hunt). Nomadic foragers all over the world employ the death penalty against recalcitrant rule breakers—almost always men—and especially against men exhibiting alpha-like behaviour (ibid.: Table 1). Approximately half of documented death penalty cases across these societies involve males who were

> *intimidating* their groups. . . by greedily or maliciously using supernatural power to seriously threaten the welfare or lives of others; by being far too ready to kill, repeatedly, out of greed or anger; by otherwise managing to seriously dominate others; or (much more rarely) by being aggressively insane. (ibid.: 85)

Other crimes inviting capital punishment include theft, cheating in the context of meat sharing, taboo violations, and engaging in proscribed sexual behaviour. However, the death penalty is a rare last resort. Most instances of rule violation are dealt with by less serious (but escalating) punishments ranging from teasing to shaming to ostracism to expulsion from the group (which can be a de facto death sentence).

[2] Some critics of Boehm have pointed to examples of hunter–gatherer societies that are not egalitarian. However, these hunter–gatherers are sedentary and/or combine hunting and gathering with agriculture or trade with agriculturalists, and are therefore not pure *nomadic foragers*. Wengrow and Graeber (2015: 600) do not deny that nomadic foragers were egalitarian, but they 'propose a relationship between seasonality and the conscious reversal of political structures'. According to their theory, some Upper Pleistocene hunter–gatherers alternated seasonally between nomadic and sedentary social systems. During the nomadic phase they were egalitarian, and during the sedentary phase they were (weakly) hierarchical. But even if some Upper Palaeolithic hunter–gatherers sometimes deviated from nomadic foraging and strict egalitarianism (see also Singh and Glowacki 2022), this would not undermine the claim that social selection was a decisive factor in the evolution of morality, particularly in the beginning. When our moral faculty initially evolved—and for a substantial period of time afterwards—our ancestors presumably *were* nomadic foragers.

III.1 Social selection could track mind-independent moral truth

In principle, social selection could track mind-independent moral truth very simply. The selecting agents merely have to enforce moral behaviour in response to their recognition of the truth. Realists typically claim that we grasp truths in domains such as mathematics and ethics as a by-product of our *general reasoning ability*, which was favoured by natural selection to solve adaptive problems in the ancestral environment (e.g., Huemer 2005: 215–6; Parfit 2011: 494–7; de Lazari-Radek and Singer 2012: 16–8; Cuneo and Shafer-Landau 2014: 427). Suppose, our ancestors acquired moral knowledge via *reason* and imposed fitness-reducing punishments on those who refused to behave morally or espouse moral views. In that case, we would have evolved a tendency to make moral judgments and to have specific moral intuitions that dispose us to acquire objectively true moral beliefs. We can call this the theory of *realist social selection*.

As noted, both Street and Joyce claim that scientific explanations of our moral beliefs do not assume the existence of mind-independent moral truth. Although Street (2006) describes her challenge to moral realism as the 'Darwinian Dilemma', she argues that the dilemma does not have to be specifically *Darwinian*. 'Ultimately,' she says, 'the fact that there are *any* good scientific explanations of our evaluative judgements is a problem for the realist about value. . . .The best causal accounts of our evaluative judgements, whether Darwinian or otherwise, make no reference to the realist's independent evaluative truths' (ibid.: 155). Alluding to our (realist) moral beliefs, Joyce (2006: 220) contends that any belief is rendered unjustified by 'the discovery of an empirically supported theory that provides a complete explanation of why we have that belief while nowhere presupposing its truth'. But realist social selection is a *scientific* theory of the evolutionary origins of our moral faculty—and a theory that seems to have prima facie support—which *does* assume the existence of mind-independent moral truth.

To spell out the theory of realist social selection more precisely:

1. Humans evolved a general reasoning ability for solving adaptive problems in the ancestral environment, which (as an accidental by-product) allowed them to grasp mind-independent moral truth.
2. Around 250,000 thousand years ago our ancestors instituted rules to promote autonomy and collective well-being in response to their recognition that autonomy and well-being are objectively good.
3. The enforcement of rules designed to promote autonomy and collective well-being created selection pressures for a disposition to internalize group norms and perceive them as true in a realist sense. It also led us to evolve moral intuitions—for example, concerning equality—that dispose us (albeit not inevitably) to acquire some specific, objectively true moral beliefs.

4. Under normal circumstances, our socially selected conscience and moral intuitions are some of the main forces that shape our moral beliefs (realistically construed). We easily acquire the belief that, for example, *people are moral equals* because we were socially selected to identify with norms designed to ensure political equality.
5. Joyce-style evolutionary debunkers are right that we evolved a disposition to acquire realist moral beliefs. Street-style debunkers are right that evolved evaluative tendencies are an 'enormous factor in shaping the content of human values' (Street 2006: 114). Both are wrong to think that the evolutionary process that produced our moral faculty was off track with respect to mind-independent truth.

The theory of realist social selection assumes that (at least many of) the norms that were enforced by early humans were objectively correct, or were based on objectively correct values. This means that the theory will be attractive mainly to realists who believe that the particular norms that were *in fact* enforced among nomadic foragers were the correct ones. If we accept the anthropological claim that nomadic foragers designed norms to promote autonomy, equality, and collective survival, those who endorse the realist-social-selection account must assume that *these* things are objectively valuable.

It is true that the moral codes of nomadic foragers did not impartially recognize the moral equality of *all* people. They varied greatly in their treatment of women, and frequently deemed outgroup members to have a much lesser moral status or even none at all. But this is not a serious problem for the realist who regards such inegalitarianism as objectively immoral. There is no reason to expect nomadic foragers to get everything right. Realist social selection only requires that early humans grasped some core principles of morality (perhaps imperfectly) and enforced rules in light of this knowledge.

If the theory of realist social selection is correct, one profound implication would be that we have *two* ways of gaining moral knowledge. First, like our Middle Palaeolithic ancestors, we can grasp moral truth via reason. The theory assumes that the early humans who initiated the process of social selection obtained knowledge of moral truth via reason, so this must be possible for us, too. Secondly, we can rely (to some extent) on our evolved moral intuitions. The realist-social-selection theory does not imply that moral knowledge necessarily comes to us automatically or effortlessly via intuition. But, it does imply that our moral intuitions (properly evaluated or interpreted) can be a reliable source of moral knowledge. The reason is that our intuitions are the product of an evolutionary process that tracked mind-independent moral truth.

IV. A NEW EVOLUTIONARY DEBUNKING ARGUMENT

To reiterate, the social-selection theory of morality says that early humans possessed high levels of general intelligence and foresight as well as the ability

to make sophisticated calculations regarding their own and others' perceived interests. Using these cognitive abilities, they designed and enforced rules to preserve individual autonomy and equality and to advance their collective well-being (as they understood it). From the perspective of the realist, it may seem like early humans grasped some key elements of mind-independent moral truth and enforced rules in accordance with that truth, which caused us to evolve a conscience and innate moral intuitions.

If evolutionary debunking is to succeed, a new EDA needs to be formulated to target beliefs generated by a moral faculty that evolved due to social selection. It needs to show that some causal factor(s) that had a decisive influence over the social-selection process was not truth tracking, and therefore, in light of this discovery, the beliefs generated by our evolved moral faculty are unjustified.

This can be done by pushing standard EDAs back a step. Instead of targeting our beliefs by attributing them (or the underlying intuitions) to natural selection, evolutionary debunkers can target the *motivation* of the social selectors. The source of epistemic contamination was not natural selection acting directly on our moral faculty as in Street- and Joyce-style EDAs. Rather, natural selection shaped the desires and dispositions of the social selectors, and thus drove the evolution of our moral faculty *indirectly*.

Like other animals, humans were endowed by natural selection with drives to perform (or avoid) certain actions and to bring about (or prevent) certain states of affairs that tended to promote (or harm) fitness in the ancestral environment. For example, natural selection gave us a drive to eat sugary food, which led us to eat fruit when it was available. Natural selection gave us a drive to keep our body within a narrow temperature range that is optimal for survival. Because the individual fitness of primates is tied to their place in a dominance hierarchy, natural selection endowed them with a dislike of being dominated in order to motivate them to ascend the hierarchy, if possible (Eibl-Eibesfeldt 1989: 297; Boehm 1999: 170, 237–9). As primates, we inherited this disposition.

Consider the process that led to the evolution of our moral faculty (according to the theory of social selection). It began when people who were being exploited by an alpha banded together to depose him. The motivations of these rebels—chief among them being a desire to secure more personal autonomy—are readily explained by natural selection aimed at increasing inclusive fitness. Some non-human primates, such as chimps, can express their resentment toward alphas by forming coalitions of a few individuals to attack him, or ganging up on him as a larger group (de Waal 1982/2007; Goodall 1986). Unlike chimps, our ancestors evolved the necessary intellectual and psychological capacities to do something *permanent* about alpha tyranny.

When coalitions of the majority of men overthrew their alphas, each man realized that he was unlikely to become an alpha himself, and even if he did he would likely meet the same fate as the previous one. It served the perceived

interests of each individual in the coalition to rule as a society of equals—to agree that *no one* would be subordinate to anyone. In this way, they were using their cognitive abilities not to acquire knowledge of mind-independent moral truth, but to satisfy their naturally selected primate desires to avoid domination.

The reigning coalitions also imposed rules demanding that certain foods (particularly meat) should be shared more or less equally. This served as both an insurance policy and a means to prevent individual hoarding that could lead to significant social inequalities and alpha-like behaviour. Everyone knew that he himself would sometimes come up empty in a hunting or gathering expedition. In the long run everyone would benefit from a system that ensured that the unlucky would not be left to starve. Our ancestors who instituted food-sharing rules were acting on impulses—primarily a desire to eat—that evolved by natural selection to promote individual fitness.

Other rules included prohibitions against thievery, lying, and cheating. Once again, the rule designers were acting on naturally selected desires. Boehm (2012: 52) describes nomadic foragers as 'intuitive applied sociologists who are purposefully trying to shape their society in ways that will help themselves because everyone's life is helped by better cooperation'. In this context, *helping themselves* meant promoting outcomes that they were naturally selected to regard as favourable. Practices like thievery, lying, and cheating undermine the kind of cooperation that is necessary for obtaining food, for fending off physical threats, and so on.

According to the debunking account I am proposing, our ancestors who presided over the social-selection process were motivated by biological drives that were *in turn* the product of natural selection. These drives were designed by natural selection to track the same thing that natural selection tracks, namely, *fitness*. It would be an implausible coincidence, if naturally selected drives (which, again, track fitness) led us to impose rules that just so happened to correspond with mind-independent moral truth.

Consider the debunking argument in outline form, which can be contrasted with the realist-social-selection account in the previous section:

1. Natural selection endowed our ancestors with drives to perform (or avoid) certain actions and to bring about (or prevent) certain states of affairs that tended to promote (or harm) fitness in the ancestral environment. Among these were a drive to eat food, to avoid domination, and so on. We also evolved a general reasoning ability for solving adaptive problems.
2. Because our ancestors evolved (via natural selection) to regard autonomy, eating, and survival as desirable, around 250,000 thousand years ago they used their general reasoning ability to design and institute rules to maintain political equality, ensure access to food, and promote cooperation.
3. The enforcement of rules designed to promote autonomy and collective well-being created selection pressures for a disposition to internalize group

norms and perceive them as true in a realist sense. We also evolved specific moral intuitions—for example, concerning equality—that make us particularly receptive to norms that resemble those that were enforced among nomadic foragers.

4. Under normal circumstances, our socially selected conscience and moral intuitions are some of the main forces that shape our moral beliefs (realistically construed). We easily acquire the belief that, for example, *people are moral equals* because we were socially selected to identify with norms designed to ensure political equality.
5. Natural selection tracks fitness, not mind-independent moral truth. It endows us with drives to perform (or avoid) certain actions and to bring about (or prevent) certain states of affairs that tend to promote (or harm) fitness. In other words, like natural selection itself, *naturally selected drives* track fitness, not moral truth. The process that drove the evolution of our moral faculty (i.e., social selectors acting on naturally selected drives) was thus off track with respect to mind-independent moral truth.
6. Joyce-style evolutionary debunkers are right that we evolved a disposition to acquire realist moral beliefs. Street-style debunkers are right that evolved evaluative tendencies are an 'enormous factor in shaping the content of human values' (Street 2006: 114). Both are wrong that natural selection operated *directly* on our moral faculty.

A similar strategy of pushing EDAs back a step is employed by Kahane (2014), and his EDA can supplement the one proposed here. He is responding to de Lazari-Radek and Singer's (2012) defence of utilitarianism. De Lazari-Radek and Singer argue that belief in the principle of universal benevolence—a core component of utilitarianism—is uniquely immune to evolutionary debunking. They acknowledge, however, that the principle of universal benevolence requires a theory of well-being in order to tell us what benevolence consists in—without such a theory, the principle is 'empty of content' (ibid.: 23). Kahane (2014) counters that our ideas about well-being appear to be strongly influenced by natural selection. If utilitarians accept the epistemic premise that natural selection does not track mind-independent moral truth, they have to acknowledge that our beliefs about well-being are unjustified, which (for all practical purposes) renders an ethical system based on the principle of universal benevolence contentless. In a parallel way, the theory of realist social selection assumes that nomadic foragers were acting on an objectively correct theory of well-being when they established rules to promote their collective interests. But their views about well-being—namely, that it consists in individual autonomy, protection from attack, freedom from being hungry, and so on—are best explained as the result of natural selection acting to increase inclusive fitness.

IV.1 Cultural change

On the social-selection model, moral change is driven largely by changes in the balance of power among competing interest groups in society. Among nomadic foragers, coalitions of the majority of males gained the upper hand vis-à-vis would-be alphas, and they enforced egalitarian and socialist values that served their perceived interests. Ten thousand years ago, when some groups made the transition to sedentary living and agriculture, populations became too large to function effectively without a political hierarchy (Boehm 1999: 143–4; Turchin and Gavrilets 2009). Hierarchy re-emerged, and the balance of power switched back to alphas. Kings and warlords promoted values such as respect for authority, which served their interests often at the expense of the majority. The largest, most militaristic agricultural societies were favoured in a process of cultural group selection (Turchin 2009, 2010), which led antiegalitarian values to spread further.

Huemer (2016) argues that the recent cross-cultural trend toward liberalism is best explained as a consequence of people independently coming to recognize that liberalism is the objectively correct moral theory. The social-selection model provides a debunking explanation for the phenomenon of liberal convergence (see Cofnas 2020b; cf. Hopster 2020). People tend to fight for moral values that serve their perceived interests, *which, in turn, are explained by natural selection*. Liberal values—the 'moral equality of persons', 'respect for the dignity of the individual', and opposition to 'gratuitous coercion and violence' (Huemer 2016: 1987)—serve the perceived interests of most people. Over the past few centuries—and especially the last several decades—coalitions of the majority have simply been reasserting their interests vis-à-vis modern-day alphas. The return of egalitarianism is probably facilitated by the fact that our innate moral intuitions evolved (via social selection) to make us particularly receptive to the egalitarian values that prevailed among nomadic foragers.

Street (2006: 113–4) suggests that the content of our moral beliefs has been shaped in part by 'many. . . forces [that] were not evolutionary at all, but rather social, cultural, historical', and she highlights the '*sui generis* influence of rational reflection'. I would point out that social, cultural, and historical forces sometimes *are* Darwinian processes (as discussed in Section II), but often they are not. Non-Darwinian historical accidents, whims of powerful individuals, changes in the physical environment, and the like can also influence culturally transmitted values. Forces like these, however, are not likely to be regarded by the realist as truth tracking. For the realist, *rational reflection* does seem like a potentially on-track process that could counteract the distorting (direct or indirect) influence of natural selection. But I think Street is right that rational reflection does not provide a way to step outside our evaluations and assess them from a neutral point of view. Rather, rational reflection elaborates on a 'starting fund' of evaluative judgments, drawing out the implications of initial

judgments and considering some in the light of others (ibid.: 124; cf. Kahane 2011: 119). I suggest that the evidence supports the idea that, insofar as reason played a role in the evolution of our moral faculty, it has been employed in the service naturally selected drives.

IV.2 Why favour the debunking account?

FitzPatrick (2015: 893) argues that (standard) EDAs are 'question-begging'. He says that debunkers cannot refute realism 'simply by proposing a story that, *if true*, would cause problems for realism, and then claim that simply because of greater parsimony we should accept it as true'. A version of FitzPatrick's objection could be applied to the EDA proposed here. We have two mutually exclusive theories that fit the facts, viz., the realist-social-selection account and the debunking account. Both theories say that, having evolved the necessary intellectual and psychological capacities, early humans overthrew their alpha tyrants, established egalitarian political systems to preserve individual autonomy, and instituted rules to promote collective well-being. Why should we prefer the debunking explanation? Why assume that our ancestors were acting on their naturally selected desires rather than knowledge of mind-independent morality?

I contend that FitzPatrick's objection does not have the same force against the social-selection-based EDA that it has against standard EDAs. FitzPatrick's original point was that the evolutionary explanations upon which standard EDAs are predicated are highly speculative. Only prior metaethical commitment to antirealism would justify favouring the speculative debunking theory over equally speculative realist accounts of the aetiology of our moral beliefs. The situation is different when we choose between the realist-social-selection account and the debunking-social-selection account. Realists who reject *standard* EDAs like Street's can deny the entire evolutionary story upon which they are based. In contrast, advocates of the realist-social-selection theory ipso facto agree with debunkers that our moral faculty evolved due to social selection. They differ only in what motivations they attribute to the social selectors: realists say the social selectors were acting in response to their knowledge of moral truth—debunkers, that they were acting on naturally selected desires shared with other primates. It seems difficult for the advocate of the realist-social-selection account to avoid positing a big coincidence. Social selection appears to have unfolded *as if* it had been guided by naturally selected desires shared with other primates (the desire to avoid being dominated, etc.). The debunking account offers a straightforward explanation for this, namely, it *really was* guided by those desires. But for advocates of the realist-social-selection account, this would be a huge coincidence. They must posit not only extra ontology (mind-independent moral truth) but *also* an inexplicable coincidence.

There is another option available to the realist. As noted in the Introduction, some critics of standard EDAs argue that moral beliefs can be both adaptive and objectively correct. Therefore, natural selection could have favoured a tendency to acquire true moral beliefs. Essentially the same argument can be employed against a social-selection-based debunking argument. The realist can say that natural selection gave us drives that led us to support norms that are also objectively morally correct. For example, natural selection gave us a love of autonomy, which made us establish an egalitarian political system, and this made us internalize (via social selection) the moral truth that people are equals. But, as Vavova (2015: 109) notes, arguments of this type 'presuppose exactly what is in question: the truth of our moral beliefs. In the context of the debunker's attack, this is question-begging.' The debunker who invokes the social-selection account of morality purports to give a reason to think that our moral beliefs are unjustified. One cannot respond by assuming the beliefs are correct.[3]

V. DISCUSSION

I have considered what follows metaethically from the premise that our moral faculty is the product of social selection as described by Boehm (1999, 2012). There are several influential competing accounts of moral evolution—some of which have been discussed in this paper—and scientists are far from reaching a consensus on which is best (Bloom 2019). Arguably, however, evidence is accumulating in support of the social-selection account. Although they do not discuss the evolution of morality, Levine et al. (2018) provide evidence that moral reasoning (at least in some contexts) follows a contractualist logic, which fits with the predictions of the theory of social selection. Curry et al. (2019) argue persuasively that categories of behaviour that are relevant to cooperation are universally moralized, which is what we would expect if morality was designed to advance collective group interests. Wrangham (2019: 204) notes that '[u]ntutored children' exhibit prosociality and sensitivity to norm violations 'that are not explained by kin selection or mutualism', but which can readily be explained by the social-selection model.

If the theory of social selection is correct, metaethics potentially has something substantial to contribute to the *science* of the evolution of morality. To explain the evolution of our moral psychology, we must give an account of the motivations of our ancestors who established and enforced social norms.

[3] Vavova (2015: 112–3) argues that evolutionary explanations of our moral beliefs may not actually give us a reason to think we are mistaken, but I leave this controversy aside. As noted, in this paper I assume for the sake of argument that attributing moral beliefs to natural selection debunks them.

One possibility is that they were motivated by their appreciation of mind-independent moral truth acquired via reason—a process I termed realist social selection. The alternative is that they were acting on naturally selected motivations shared with other primates—desires to avoid being dominated, to secure food, and so on. Although I have argued in favour of a debunking account, the theory of realist social selection must be acknowledged as a competing hypothesis. Scientists investigating the biological evolution of morality cannot remain metaethically neutral.[4]

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University of Oxford, UK