Better than Our Nature? Evolution and Moral Realism, Justification and Progress

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1. Introduction

 The fact of evolution undeniably has consequences for moral philosophy. First of all, it raises immediate questions for the meta-ethical position of moral realism, because the origin of our moral faculties and dispositions in a contingent evolutionary process is on the face of it incompatible with the view that our moral beliefs are objective and track independent moral truths. Second, this meta-ethical worry seems to undermine the normative justification of our moral norms and beliefs. If we don’t have any grounds to believe that the source of our moral beliefs has any ontological authority, how can our moral judgments be justified in an objective way?

 Moral justification does indeed appear to be threatened to its very core by the fact of evolution. A contemporary of Darwin, Frances Cobbe, voices in horror that the evolutionary genealogy of our moral sense deals ‘a deadly blow at ethics, by affirming that, not only has our moral sense come to us from a source commanding no special respect, but that it answers to no external or durable, not to say universal or eternal, reality, and is merely tentative and provisional, the provincial prejudice, as we may describe it, of this little world and its temporary inhabitants, which would be looked upon with a smile of derision by better-informed people now residing on Mars’ (Cobbe 1987: 10-11). This fear has all but disappeared. In recent work, Cottingham (2005: 54) points at the ‘unacceptably relativistic conclusion that rightness or wrongness depend on the contingences of species development’.

 If our moral beliefs and inclinations are the product of evolved faculties and dispositions, blindly shaping them for their instrumental value in the struggle for survival – what are we to make of those moral beliefs? Does it still make sense to speak of right and wrong, given that human morality is nothing but an ‘illusion foisted upon us by our [selfish] genes’ (Ruse 1986: 253)?

 In this chapter I take these debunking arguments seriously, arguing that traditional moral realism is untenable given the evolutionary origin of our ‘moral sense’. Nevertheless, in contrast to the recent influential account of evolutionary anti-realism proposed by Joyce (2006), I do not hand the same fate to normative justification. In fact, I argue that it is precisely in their biological roots that we find the key to justifying our moral norms. This account, I will argue, has – in addition to averting Cobbe’s fear that the fact of evolution takes away all normative justification – the virtue of allowing the naturalist or evolutionist to entertain the notion of moral progress.

 I construct my argument by looking at the relation between our actual moral norms and beliefs and the rationale behind the evolution of our moral sense. This relationship is typically blackboxed by the evolutionary ethicist who often ignores actual moral norms and beliefs and derives her conclusions from the mere premise that our moral beliefs and evaluations are rooted in faculties and dispositions that have been shaped by an evolutionary process. I will argue that much in the same way that modern science has radically transcended the evolutionary intended output of our cognitive faculties, our moral behavior and norms have transcended the evolutionary intended output of our moral dispositions and faculties from which they emanate. The best explanation for such a surprising fact, I argue, is our possession of non-modular intuitive moral guidelines, which I call an innate 'moral compass', in conjunction with our ability to reason. This I will argue opens the way towards an internalist justification of morality and enables the evolutionist to account for moral progress. Regarding the latter, I attempt to show both why we can rationally entertain the notion of progress in the domain of morality and how such progress comes about given the particular ‘moral sense’ we possess.

2. Transcending our moral nature

 Morality is not a single adaptation, nor did it evolve to deal with a single set of problems. As Joyce (2006: 140) puts it ‘morality is a complicated and nebulous affair at the best of times, and moral judgments no doubt implicate many different psychological and neural mechanisms’. The moral disgust with which we regard incest, for instance, evolved in the interest of our genetic heritage, whereas the moral disapprobation of in-group aggression evolved to maintain social cohesion. On the whole, however, the general consensus is that the central 'function' of our moral sense is to promote cooperation within groups (Darwin 1877/1989, Alexander 1985, Joyce 2006, Krebs 2011, Kitcher 2011, Greene 2013). Tomasello (2013: 231) squarely states that ‘from an evolutionary perspective, morality is a form of cooperation’.

 When we look at our actual moral behavior, however, it appears that much of it is very hard to explain from an evolutionary perspective. So much in fact that I will argue that our moral beliefs and norms go radically beyond and even against the evolutionary raison d'être of the faculties and dispositions from which they emanate. On the one hand, most cultures have extended the scope of beneficiaries of our moral consideration and altruism from the small tribe for which it was intended when it was selected in Pleistocene hunter-gatherer societies, to the whole of humanity and even beyond (consider animal rights). On the other hand, we take on much stronger obligations vis-a-vis one another than the simple obligations necessary to maintain high levels of cooperation and enlightened reciprocity for which our moral sense was intended. To witness this we mustn't necessarily turn to the Mother Teresa's and other moral heroes of our era—the average moral Joe will do. From helping old strangers cross the street, over donating blood to benefit a stranger anonymously, to something as banal as taking a quick survey on the internet in the interest of science or an unknown company, we exhibit moral behavior that transcends its intended biological function (in-group reciprocity and cooperation) on a daily basis.

 In fact, our morality has ventured so far from the intended behavior for which it was selected that in many cases we find ourselves in the paradoxical situation that – strictly speaking – our moral imperatives work against our biological fitness. Donating money to hungry children in Ethiopia, deviates resources from oneself and one's close kin with virtually no chance of reciprocation in the future. Including animals in our moral circle has led a growing number of people to forsake precious nutrients from animal sources. Moreover, we spend important resources on animal conservation and – irony of all ironies – spend a small fortune on preserving some of our former predators.

 Of course, the critical reader may object, we only do so because we can afford it. Vegetarians are very rare to come by in traditional hunter-gatherer tribes where the calories and nutrients from animal meat are vital to their survival, and people struggling to make ends meet won't typically donate large chunks of their meager earnings to charity (although you may be surprised). But this misses the point. Much as any other adaptation, our moral sense evolved to create a particular set of fitness enhancing behaviors. What we witness however is that our moral sense has led us to a whole range of behaviors which it definitely did not evolve to produce. Note that we don’t even need to invoke actual moral actions to make this point. The mere fact that we recognize these transcending behaviors as morally laudable is proof that our moral sense has come a long way from its evolutionary origin. This requires explanation.

3. An evolved moral compass powered by reason

 Faced with the fact that our moral beliefs and behavior often go radically beyond and against the behavioral patterns for which they evolved, three possible explanations come to mind. The first explanation is that the evolved dispositions making up our moral sense often 'miss their mark' in terms of behavior because of imperfect design. Natural selection is a tinkering process and often yields less than perfect design (think about the vertebral column, which although perfectly suited for our four-legged ancestors, leaves quite a few bipedal hominids with sore backs). With regards to our moral sense, however, this explanation is unlikely from the outset. We're not talking about small behavioral deviations from the intended purpose, but wide-spread, systematic and radical departures; even outright opposite behavior to what its evolutionary origin would predict.

 A second possible explanation is that the surprising behavioral output of our moral sense is the result of the radically different environmental conditions in which it is cast nowadays compared to the environment in which it evolved (the so-called environment of evolutionary adaptedness or EEA). There could be, in other words, a mismatch between both environments leading to different results than the ones 'intended' by natural selection in our modern environment. A good example of such a mismatch is our craving for fat and sugar. This craving was vital for our survival for the most part of our evolutionary history where calories were hard to come by. However, it definitely doesn't serve our biological interests well in an environment filled to the brim with cheap fast food options. Could this be the case for our moral sense? Perhaps donating money to Ethiopian children is just a kind of 'misfiring' of our moral sense, which originally intended this altruistic gestures for in-group members only (people who could reciprocate and enhance my personal fitness by entering with me in cooperative undertakings)?

 There may be some truth to this last explanation, after all television and other media have brought the suffering African children into our living room and this 'proximity' might trigger our prosocial instincts which in the EEA could only have been triggered by group members – the only individuals we would be exposed to on a daily basis (see Small et al 2007). However, at closer inspection, this line of argument is not satisfactory. The moral imperatives we follow are often in tension with our intuitive social instincts. We try hard not to be racially biased (harder than you might think if you look at the results of 'implicit association tests' measuring cognitive effort to withstand intuitive negative associations – Greenwald and Banaji 1995, Gladwell 2005). In-group – out-group differentiation has all but disappeared in our modern environment. For the most part, it is not our modern environment that confuses our evolved dispositions into 'thinking' members of the out-group belong to the in-group and consequently extending our moral circle, it is our conscious moral reasoning that rejects our evolved bias. Moreover, the mismatch hypothesis doesn't explain the stronger moral obligations that we take on.

 This leads me to a third explanation, which I favor. In shaping moral norms and beliefs we do more than blindly applying a set of emotional dispositions and intuitions that evolved to enhance our biological fitness. More particularly, moral behavior and evaluation is to an important extent carried by reason. This is not mere conjecture. Empirical research has brought to light that, in addition to emotions and intuitions, moral evaluation can and does involve reasoning processes. In a landmark experimental study subjecting participants to fMRI scans while presenting them with moral dilemmas, Greene and colleagues (2001) put forth a convincing case that next to an emotional cognitive subsystem, we also employ a reason-based cognitive subsystem in moral evaluation. Whereas the emotional system often floods our moral thinking automatically and subconsciously, the rational system can in some cases override its output and generally takes over when presented with moral problems for which we have no ready-made, automatic, emotion-based response (see also Greene 2013).

 However, reason alone does not get morality off the ground. In fact if reason ruled supreme in the absence of moral or prosocial dispositions (therefore by default serving only our self-interest), we would get notoriously immoral behavior. From the ruthless homo-economicus, who is happy to exploit people as long as there are personal gains to be made, to the outright psychopath, who has no qualms about murder as long as the projected benefits (perhaps the victim was encumbering some of his plans) outweigh the projected costs (the probability of getting caught and being punished). For morality to take a flight – as it has – we need moral intuitions guiding our reasoning processes. Intuitions that provide our content-free reasoning processes with the necessary orientation to steer morality in a certain direction.

 Importantly, the moral intuitions making up this ‘moral compass’ cannot be modular. They cannot yield a fixed and automatic output reaction when fed a particular input (such as the automatic emotional reaction of moral disgust when confronted with incest (see Haidt 2001) or the automatic negative intuitive bias when confronted with members of the out-group as the above mentioned 'implicit association tests' reveal). They need to provide guidance to conscious reasoning rather than trigger automatic responses. Whereas reason by itself would be blind and would not lead to moral behavior, these intuitive principles would get us nowhere over and above the behavior they were intended to produce without reason. But when you combine both, you get a potent mix, pushing morality to a point where it radically transcends the purpose of its biological origin.

The basic ingredient in our moral compass, I believe, is what Tomasello et al. (2005) call 'self-other equivalence'. According to Tomasello the unprecedented level of cooperation in human groups is the result of joint intentionality. This is established by having both joint goals and joint attention to establish how this goal is going to be realized. For joint intentions, all parties need to know that the other(s) know the goal; they need to know their part in achieving the goal as well as the part of the others; and they need to trust that all other parties involved will do their part. In other words, we need to attribute thoughts and intentions to others—we need to 'read their mind'. Consequently, according to Tomasello, we stop viewing others as mere elements of the social environment, instead viewing them as other ‘selves’. As a result, ‘self-other equivalence’ – as Tomasello puts it – emerges.

 This self-other equivalence branches out into two important moral intuitions at the core of our moral compass. The first is empathy. When I believe that other individuals are the same as I am (with similar capacities for happiness and sorrow), I relate differently to their well-being. I can associate with their pleasure and pain. This ultimately leads us to the ubiquitous moral imperative we know as the golden rule: 'don't do to others what you don't want others to do to you' (negative version) or 'treat others the way you would want to be treated' (positive version). Interestingly, this rule has been formulated in very different cultural contexts ranging from Ancient Greece, over Ancient China and India, to Judeo-Christianity, Islam and Buddhism, pointing at the universal and therefore innate nature of human empathy, arising out of the seeds of self-other equivalence. It incites us to refrain from causing harm to others (negative rule) and promote human flourishing where we can (positive rule), and it makes intuitive sense to everybody.

 A second moral intuition rooted in self-other equivalence is fairness. According to Binmore (2005) human beings are endowed with a universal deep structure for promoting fairness. In analogy with Chomsky's (1959) influential view on human language, claiming that underlying all human languages is an innate deep structure or 'universal grammar' constraining natural languages and supporting language acquisition, Binmore claims that a similar kind of innate framework underlies our thinking about fairness. This structure he argues is best captured by Rawls's (1971) original position (which explains its intuitive appeal).

 Cross-cultural commonalities in our sense of fairness point at the innate nature of these moral intuitions (Binmore 2005). This is corroborated by Tomasello and colleagues, who studied young children and argue that we come equipped with a number of intuitions about distributive fairness we couldn’t merely have absorbed through cultural learning. Young children share spoils equally with peers after having collaborated to obtain the goods even if they could easily monopolize the goods (Warneken et al 2011), understand and defend the entitlement of others (Schmidt et al 2013), understand fair as equal (Wittig et al 2013), and give less to freeriders than to collaborators (Melis et al 2013). While Tomasello’s research points out that these important fairness intuitions are uniquely human given that our closest evolutionary cousins the chimpanzees do not abide by them, some fairness intuitions may nevertheless have evolved in our primate lineage long before the human split-off. Notably, Brosnan and de Waal (2003) found that capuchin monkeys refuse to cooperate with the experimenter if they receive an unfair treatment (less reward than their conspecifics for the same effort).

 The fact that there is an innate basis for fairness does not mean that there is no cultural variation in fairness norms. Morality in general and fairness in particular, as Binmore (2005) points out, are both a product of biology and culture. Our innate sense of fairness provides the framework on which social contracts are built. It functions as a moral compass, not an automatic trigger of certain behavioral patterns, and precisely this aspect of our moral sense provides an opening for reason-based moral cognition and pushes our moral behavior way beyond its modest origins.

 Presumably, this self-other equivalence was reserved for the in-group. According to an influential strand of research, an important factor underlying the evolution of adaptations allowing for a higher level of cooperation has been in-between group competition (Bowles and Gintis 2011, see also Vlerick 2016). We evolved the ability to read other minds and started seeing others as other selves because groups with these mind-reading, empathic individuals cooperated better and had an evolutionary edge over groups composed of individuals that didn't or did so to a lesser degree. Empathy, in other words, evolved in groups because it allowed those groups to out-compete other groups. It did not evolve to be extended beyond the in-group (which explains the co-evolution of a pervasive negative out-group bias). In fact, it could only evolve if it wasn't extended to the out-group. Nevertheless, once you unleash reason on these moral guidelines (empathy, fairness) the circle is expanded, because rational thinking reveals that there is no principled difference between a member of the in-group and a member of the out-group.

 At the core of this transcending moral behavior are those innate moral guidelines (rather than instinctive responses) which make up our moral compass. It is in this feature of our moral mind, I will argue, that we find the common ground necessary for the (internalist) justification of our moral norms and beliefs, and a theoretical framework to assess moral progress and explain how it is realized. This is the subject of the following sections.

4. An internal road to normative justification

Evolutionary debunking arguments undermine moral realism (Ruse and Wilson 1986, Joyce 2006). This, in turn, is typically considered to undermine normative justification, leading to relativism (Cobbe 1875, Cottingham 2005). In contrast, I will argue that relativism does not follow from the evolutionary debunking of moral realism. The fact of evolution, I maintain, does not undermine normative justification.

 Moral realists generally claim that (1) there are moral facts which exist mind-independently, and (2) that these facts are therefore objective and universal. Our moral claims, traditional realists insist, can be true or false in the light of these facts, and we can be confident that at least some of our claims are true (Sayre-McCord 2015). At the heart of moral realism are the claims that moral beliefs refer to mind-independent moral facts (1) and that moral truths are objective and universal (2). These two claims need to be kept distinct. They are not identical. If moral facts are mind-independent it follows that they are objective but this entailment relationship cannot be reversed. Moral truths could very well be objective or universal but not mind-independent. Take Kantian ethics, for example, in which moral truths are objective and universal, but not mind-independent. Indeed, they depend on reasoning, since Kant asks us to universalize the maxim of our actions and look for contradictions.

 Evolutionary arguments aimed at undermining moral realism can target the mind-independent existence of moral facts and/or the objective or universal nature of our moral beliefs. The first line of arguments – targeting the independence criterion – claim that the genealogical story of moral beliefs makes the notion of independent moral truths superfluous (Joyce 2006) or redundant (Ruse and Wilson 1986): we don't need objective independent moral facts to explain our moral experience (see also Street 2006). The second line of arguments - targeting the objective or universal nature of our moral beliefs – moves from the premise that different evolutionary conditions could have resulted in different moral beliefs to the conclusion that those beliefs are not objective, let alone universal norms as the realist hopes, but idiosyncratic species-specific norms (Ruse and Wilson 1986).

 The first line of argument, challenging the independence criterion, undermines the epistemic justification of our moral beliefs. If there are no mind-independent moral truths, we are not epistemically justified to hold those beliefs, in the same way that we would not be epistemically justified to believe in the existence of God, if God does in fact not exist. Nevertheless, even in the absence of independent moral truths and the correlated epistemic justification of our moral beliefs, our moral beliefs could still be normatively justified insofar as they are objective. Kantian deontology as well as utilitarianism both provide normative justification without reference to mind-independent moral facts.

 You don't need the theory of evolution to undermine the independent existence of moral facts. Assuming that moral truths exist independently of moral beings means taking on quite a heavy metaphysical load. As Street (2006:126) points out, it is more parsimonious and therefore explanatory more desirable not to posit external moral facts. Would there be moral facts even if there were no conscious creatures around? Much as one might lean towards mathematical anti-realism – arguing that mathematical entities do not refer to an external realm of immaterial entities but are projected onto the world – one might take a similar point of view regarding moral truths. No need for evolution.

 The real evolutionary challenge to normative justification, I think, resides in the line of arguments targeted at undermining the objectivity or universality of our moral beliefs. Darwin himself foresaw this disruptive consequence of his great theory when he asks us to imagine that humankind had evolved under the same environmental circumstances as hive-bees:

[T]here can hardly be a doubt that our unmarried females would, like the worker-bees, think it a sacred duty to kill their brothers, and mothers would strive to kill their fertile daughters; and no one would think of interfering. Nevertheless the bee, or any other social animal, would in our supposed case gain, as it appears to me, some feeling of right and wrong, or a conscience. . . . In this case an inward monitor would tell the animal that it would have been better to have followed one impulse rather than the other. The one course ought to have been followed: the one would have been right and the other wrong (Darwin 1989/1877: 99-100).

In other words, moral right and wrong are fundamentally no different than other preferences. In the same way that dung flies are attracted to mammal feces and humans are disgusted by them (because those respective preferences served the biological fitness of both species), some actions – like killing a brother – could be perceived as morally right by one species and absolutely wrong by another depending on the environmental circumstances to which their moral sense is adapted. This genealogical threat seems to radically undermine the normative justification of our moral beliefs. How can we objectively state that certain actions are morally right and others are morally wrong if this reflects nothing but a contingent species-specific set of dispositions with no ontological authority whatsoever? Any attempt to justify our moral norms and beliefs appears misguided and hopelessly anthropocentric.

 Nevertheless, the idiosyncratic nature of our moral sense doesn’t force us to reject all forms of normative justification and capitulate to an ‘anything-goes’ relativism, as was Cobbe's fear. In fact, the key to rescuing normative justification – providing an objective benchmark from which to distinguish moral right from wrong – from the challenge posed by the objectivity problem resides in the independence problem. Indeed, if we abandon the postulation of the existence of mind-independent moral facts which, given the ‘costly’ metaphysical demand this imposes on us is not an attractive position for the naturalist to begin with, justification should not be sought in the outward correspondence with external moral truths. Instead, we should look inwards and search for common ground. In other words, viewing morality as a projection by moral beings rather than a mind-external quality magically drenched into the structures of the world, entails that we cannot setup normative justification as correspondence with external moral facts or even as correspondence with a set of supposed norms on which all possible moral beings would converge (given that it is a species-specific projection). Rather what makes moral beliefs objective for us and therefore normatively justified is the common ground we can find in our moral sense.

 Such an internalist foundation would allow us to maintain that saying that it is wrong to kill a child for fun is not merely a matter of contingent taste or cultural convention, but is objectively wrong in the context of human (inter)action. Why? Not because some feature of the world forces us to acknowledge this, but because our very nature forces us to project this moral judgment onto the world. It is not because some hypothetical being might see things differently, that it is any less true for us.

 Compare this with color vision. Because of the particular way our eyes work, we see some wavelengths of light as the color red. There is arguably nothing intrinsic in these wavelengths that make them red rather than some other color. It is just the way our eyes perceive it. Another species with different eyes might very well perceive something different when those particular wavelengths hit its eyes. Nevertheless, I am no less justified in the context of human interaction to state that 'this apple is red'. The fact that there is nothing intrinsic in those wavelengths bouncing off the surface of the apple that makes it red and that other species might perceive the apple differently, does not make it less justified in a human context.

 Given our possession of what I have called an innate 'moral compass', we have such a foundation which allows for objective moral judgments in the human context. On the one hand, the non-modular nature of the intuitions making up our moral compass enables us to make moral judgments and evaluations (rather than forcing reactions of aversion or attraction on us). On the other hand, the innate nature of these intuitions provides us with an objective human benchmark from which we can rationally state that harming an innocent person is wrong, while helping her is right.

 Contrast this with the position of strong evolutionary anti-realism, most recently and most extensively defended by Joyce (2006). Joyce argues that while it is not practically irrational for us to act in accordance to our intuitive moral norms (he invokes the psychological discomfort we might experience by acting 'immorally', and we can imagine that committing outright immoral acts is not the best strategy for self-preservation in most societies), holding moral beliefs is strictly speaking irrational (226-27). I disagree. It is no more irrational to state that child molesting is wrong than it is to call a red apple red. We don’t need esoteric correspondence with external and universal moral truths (Platonic ideas perhaps) to make this claim. All we need is a proper context in which such a statement is rational. In casu, the context of human interaction.

 I call this position internal realism – in analogy with the like-named influential position defended by Putnam (1981) in epistemology. But I could equally well call it, justificatory or non-relativistic anti-realism. It is indeed a halfway house between strong realism claiming that there are universal moral truths which can be known and strong anti-realism claiming that since there are no moral truths, there can be no normative justification.

 The point of internal realist accounts is to refrain from strong and ultimately untenable metaphysical commitments, all the while averting strong relativistic threats. In the theory of knowledge, Putnam's (1981) internal realism attempts to overcome both a problematic strong version of realism and a strong version of subjectivism. Against the realist he argues that we view and understand the world through conceptual schemes, but he doesn't follow the subjectivist in her anything-goes relativism. He argues that while our theories cannot be expected to correspond in an absolute sense to the world (they arise through our conceptual schemes), they can nevertheless be objective-for-us. For example, the claim that ᴫ =3.14... is not a matter of cultural convention or subjective opinion, but neither is it independent of conceptual schemes such as mathematics and geometry (see Vlerick 2014). Similarly, moral right and wrong depend on what the moral subject projects onto the world (compare with conceptual schemes), but this does not mean that our moral norms and beliefs lose all objectivity. Merely that this objectivity is anchored in our biology and consequently that normative justification must be contextualized within the realm of human agency.

 My analysis may not answer the skeptic who demands absolute foundations in Cartesian fashion. In epistemology, as Russell (1912) points out, there is no rebutting the skeptic who refuses to enter 'the circle of knowledge' because she demands an absolute correspondence between representation and the world, which can never be provided. Of course, this doesn’t mean all forms of justification go overboard. We can justify our beliefs to varying degrees. The proposition that the earth is round has stronger justification than the proposition that it is flat; the theory of human evolution has more evidence—that is, stronger justification—than the belief that we are the products of divine creation some 7000 years ago. Not all theories are on the same footing and if we want to make progress in the domain of knowledge, we can't be discouraged with the skeptic's impossible demands.

 Similarly, in the domain of morality, the skeptic will dismiss such an internalist approach to justification. However, much as we can ignore the skeptic in epistemology and 'enter the circle of knowledge', bootstrapping our way to better theories, we can do something similar in morality. Indeed, a moral compass from which we can rationally and objectively (for us) differentiate moral right from wrong, not only grants us (internalist) normative justification, it also provides us with a framework enabling us to reason our way to better moral norms and beliefs. This is the subject of the next section.

5. Moral progress

 Apart from averting Cobbe’s nightmare, the key virtue of the internalist normative framework I propose is that it allows the evolutionist to account for moral progress. If there is no normative framework to argue that some actions are better than others, there can logically be no assessment of moral progress. We just lack a foundation to state rationally that twenty-first century Europe with its liberal democracy is a morally superior regime than its sixteenth century autocratic (and theocratic) counterpart when alleged witches were being burnt at the stake, religious dissidents tortured and when slavery was an institutional reality. The meta-ethical worry that an evolutionary take on morality might undermine such a normative framework does not seem, however, to have deterred a number of naturalists (and evolutionists) such as Singer (2011), Pinker (2012), and Schermer (2015) to talk about moral progress. And it shouldn't! Given that within the human context there is an objective framework by which certain human actions are morally better than others, we can account for moral progress.

 Providing a benchmark from which to assess moral progress is one thing, another one is to explain it. How is moral progress possible? An analogy with knowledge is in order here. How did we get from flat-earth geocentrism to round-earth heliocentrism or from Aristotelian physics to Einsteinian? While a full answer to this question requires a chapter or even a book of its own (see Vlerick 2012 for an attempt), the short answer is that we use our reasoning powers combined with a set of epistemic values (an epistemic compass if you will) guiding us in our search for better theories. Such values include the need for a theory to be coherent (both internally and with other accepted theories), its predictive accuracy, explanatory scope, etc. Without these values, reasoning powers are blind and ultimately powerless, with no benchmark for assessing that one theory is better than another and no way of identifying a defective theory in the first place (because it is incoherent or fails in its predictions for instance).

 The same process is at work in the domain of morality. Our moral compass provides us with the necessary orientation (fairness, equality, human flourishing) and our reasoning powers provide us with the necessary 'horsepower'. This leads to what Singer (1995: 226) has called the 'escalator' effect of reason. It accounts for the surprising fact that our moral norms and beliefs often go beyond and against the rationale behind the evolution of our moral sense.

 Our possession of a moral compass powered by reason explains why we’re expanding our moral circle (Singer 2011). Reason reveals that there is no principled difference between members of the in-group and members of the out-group and to some extent between the suffering of certain animals and human suffering. It also enables us to detect and root out contradictions in our behavior. When our nepotistic biases clash with our sense of fairness, or our in-group preference clashes with our sense of equality, we take note and improve. Finally, reason enables us to rid ourselves of intuitive aversions such as aversions towards homosexuality, by pointing out – as Bentham (1978) did – that such behavior causes nobody any harm and allowing it promotes human happiness.

 So far I hope to have convinced the reader that rather than undermining normative justification the biological roots of our moral sense support it, that the non-modular moral intuitions which are the distinctive feature of our moral minds provide us with a rational basis from which to assess moral progress and even explain the process by which moral progress comes about. Before resting my case, briefly, I would like to make an even stronger claim. Not only is an evolutionary take on the genealogy of morality compatible with normative justification and moral progress, such an evolutionary analysis can actually enable us to make moral progress. It can be a valuable instrumental tool to realize moral progress. It can do so by showing that moral dispositions which evolved to solve certain problems in an ancestral context are ill designed for a modern context and are likely to lead to poor moral outcomes.

 Greene (2013), for instance, points out that many of our moral instincts and emotions have been selected to solve the problem of me-versus-us (promoting group cooperation). Those instincts however are poorly suited to deal with problems of us-versus-them, the problems we typically encounter in the modern globalized world. Another example is our evolved aversion to cause physical harm to others. Cushman and colleagues (2012) found that even 'pretend' harmful acts, such as pointing a fake gun at somebody, causes strong physical reactions of aversion (in casu, increased peripheral vasoconstriction). This gut-wrenching aversion of hurting somebody at close range, however, disappears when we are removed from the scene. Ironically, and in the context of modern war technology dauntingly, it is much 'harder' to harm a person with bare fists than it is to hurl missiles at a distance or even an atomic bomb with a single flip of the switch. While it makes sense from an evolutionary perspective that our emotion-based harm aversion only kicks in when there is actual physical contact (the only possibility to cause harm in ancestral times), we should be conscious of the fact that in our modern environment this aversion is not triggered precisely in those circumstances where we can inflict the most harm.

 As Singer (2005) and Appiah (2008) point out, we should not follow our moral intuitions blindly. They are heuristics that yield good results in most cases, but can (dramatically) fail in some cases. We can and should use empirical research to learn when these cases arise and take the necessary precautionary measures. An evolutionary perspective on our moral wiring is a valuable tool in this process. It teaches us to regard the output of some of our evolved moral dispositions with a healthy dose of skepticism, given that the behavior they evolved to produce cannot always be expected to lead to good (moral) results (as determined by our reason powered moral compass). This puts us one step ahead in our constant strive to become better than our nature.

6. Conclusion

 The evolutionary origin of our moral sense is often taken to undermine both moral realism and normative justification. Darwin was aware of this disruptive consequence and so were some of his contemporaries (Cobbe 1987). In this chapter I argued that while the fact of evolution undermines strong realism it need not undermine normative justification. In fact, it is precisely in the biological foundation of our moral sense that I locate the roots of normative justification. In other words, rather than undermining justification, the biological nature of our moral sense provides us with an internalist road to justification, warding off an otherwise unstoppable anything-goes relativism in the absence of traditional moral realism.

 The fact of evolution, as I hope to have convinced the reader, does not vindicate normative justification (as has been argued successfully against Spencerian ethics and other vindicative projects), nor does it undermine it (as I argue against evolutionary moral skeptics). In fact normative justification does not relate to it at all. It relates to those aspects of moral reasoning in which we can find common ground and that forms the basis of moral conscious reasoning (as opposed to modular automatic reactions) – a sense of fairness and equality, a willingness to promote human flourishing. In the bigger scheme of things, these values are an idiosyncratic evolutionary heritage, but that does not make them any less objective within the human context. No less, indeed, than the redness of apples and the blueness of skies, and ultimately – powered by reason – they can help us make our moral skies an even brighter shade of blue.