

Evolution, Society, and Ethics: Social Darwinism versus Evolutionary Ethics

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Abstract

Evolutionary ethics (EE) is a branch of philosophy that arouses both fascination and deep suspicion. It claims that Darwinian mechanisms and evolutionary data on animal sociality are relevant to ethical reflection. This field of study is often misunderstood and rarely fails to conjure up images of Social Darwinism as a vector for nasty ideologies and policies. However, it is worth resisting the temptation to reduce EE to Social Darwinism and developing an objective analysis of whether it is appropriate to adopt an evolutionary approach in ethics. The purpose of this article is to ‘dedemonise’ EE while exploring its limits.

I shall begin by presenting two ways of integrating a Darwinian way of thinking into the context of social and political sciences¹: Social Darwinism and what one could label ‘Pro-social Darwinism’. Next I will point out some of the fundamental errors on which Social Darwinism is grounded; this will help in understanding why contemporary evolutionary ethicists cannot possibly hold the views defended by this theory (unless they are inclined to intellectual dishonesty). On the contrary, EE seems more akin to a Pro-social Darwinian approach, except for the fact that it restricts its reflections to theoretical ethics.

The second part of the paper (sections 3 to 7) provides a clear and detailed picture of EE as well as an analysis of its relevance at the different levels of ethics (descriptive, meta-, normative and practical). Special focus will be given to questions relating to the genesis of morals and the delicate shift from facts to norms.

1. Social Darwinism and Pro-social Darwinism

Social Darwinism is an historical example of the application of the Darwinian paradigm to the human and political sciences. In the Nineteenth and at the beginning of the Twentieth century, Darwinism was commonly thought to be a theory that explained the process by which races developed over generations to display greater complexity and perfection. The mechanism underlying the evolutionary process was natural selection, conceived as a struggle for survival by the best adapted to the detriment of the worst adapted. This principle of survival of the

¹ See also Christophe Heinz & Nicolas Claidière’s chapter in this volume.

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fittest in a harsh and savage environment was considered to be a factor in the improvement of the race: it suppressed the weak and maintained only the best seed (Spencer 1864). This conception of a violent and progressive evolution was often associated with a host of other beliefs. Varying according to the author, we come across the idea that there is a hierarchy of social class as well as of race; the western races (in particular their upper classes) are the supreme result of the process of evolution, and are thus superior to other races. One also finds the idea that new technologies, advances in medicine, and state policies that support the disadvantaged in society prevent selection from playing its role of racial and social purifier. It is thought that an excellent way of resolving these problems is to take political measures (*laissez-faire*), or social or medical measures (of the eugenics variety) to give a boost to evolution, and re-establish in an 'artificial' manner the beneficial effects of selection². A great many versions of Social Darwinism are based on the notion of race and the idea that it can evolve in a positive or negative sense: it can improve or deteriorate. In the best case, one might use this collection of beliefs as a basis for one's good intention to improve one's race through knowledge about heredity and evolution (Spencer). In the worst case, one will consider one's own race qualitatively better than others and seek to purify it and to impose supremacy (Bruecher 1936); the political consequences of this kind of ideology (extermination by force of individuals who do not conform or those of 'inferior' race) are sadly known in the form of the German Nazism of the Second World War.

The presentation of Social Darwinism just provided is very summary and does not attempt to describe the details of the positions defended by different thinkers in this movement, all the more given that there is often debate about which authors were really part of this current of thought. For example, Herbert Spencer (1864) is commonly considered a Social Darwinist because he advocated a policy of *laissez-faire* based on his conviction that governmental measures to help the poor and the weak favoured the survival of mal-adapted human specimens. But Spencer would certainly not have accepted a cult of force or the Nazi derivations of his position. On the contrary, he was convinced that the process of evolution was headed towards a situation where military societies gave way slowly to industrial civilisation, where the struggle for survival became less brutal and altruistic sentiments replaced egoistic motivation (Spencer 1879)³.

The last point explains why Spencer has directly inspired some thinkers from another current of thought, which we could call '*Pro-social Darwinism*', where this means the defence of a socio-political ideal of equality, mutual aid and collaboration. In fact, Darwinian thought has not only inspired eugenicists, or been used as nationalist propaganda, or by ideologues who seek to justify the superiority of their race and their cult of force. One also finds it among left-wing thinkers. In France, for example, Emile Gauthier, the left-wing anarchist of the 1880s, used Darwin's ideas to defend his political ideals. Instead of the survival of the fittest, his slogan was aid for existence (Gauthier 1880). In the same vein, the liberal republican Alfred Fouillé was inspired by the socialising passages in Spencer's writings to sing the praises of altruism and cooperation (Fouillé 1880)⁴.

There is nothing bizarre in the idea of using Darwinian concepts to support social and egalitarian measures, since Darwin himself thought that cooperation between individuals was an adaptive strategy in many environments. In fact, he saw very well that the reproductive success of members of a group could be noticeably improved if cohesion, cooperation and

² Karl Pearson (1912) and Francis Galton (1869) are particularly known for having defended this kind of idea. For French thinkers, see, in particular, Vacher de Lapouge (1886).

³ For a detailed presentation of Spencer's position, see Richards (1987).

⁴ For more details, see Clark (1981).

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security ruled inside a community. In *The Descent of Man*, Darwin writes: “In however complex a manner this feeling [sympathy] may have originated, as it is one of high importance to all those animals which aid and defend one another, it will have been increased through natural selection; for those communities, which included the greatest number of the most sympathetic members, would flourish best, and rear the greatest number of offspring.” (1871: chap IV, parentheses added).

Overall, we can say that the application of Darwinism to the human sciences can be used to support either the credo of conflict or that of cooperation. This fact reveals the extent to which Darwinism is regularly used as a justificatory tool for social and political ideologies that have been elaborated in a non-Darwinian context. For example, the notions of qualitative difference between races and between social classes or egalitarianism do not belong to the theory of evolution; they have essentially been constructed within a socio-political framework belonging to a particular time.

2. EE versus Social Darwinism and Pro-social Darwinism

Let us see now how *contemporary* evolutionary ethics makes use of Darwinian notions, and how it is different from Social and Pro-social Darwinism. In a way similar to these two currents of thought, EE uses Darwinian material in a social context: more precisely, in the context of moral activity. On the other hand, the objectives are not the same: while the two first currents aimed to justify certain social and political practices, EE is not tied to any political programme. It is an essentially theoretical branch that is interested in the questions traditionally discussed in moral philosophy.

Moreover, a minimum requirement if one is to count as a serious defender of the EE movement is a proper understanding of the theory of evolution. A contemporary understanding of the latter prevents the unwholesome extrapolations of Social Darwinism. Firstly, given our current knowledge of evolution and genetics, it is no longer possible to maintain the idea that evolution leads towards more complex and noble forms. On the one hand, even if it is true that it is generally the most adaptive traits that are selected for, the process of natural selection only has meaning within a given environmental context.⁵ If the environment changes, the characteristics that were adaptive in the former environment may possibly be so no longer; the polar bears that suffer from climate change are an example⁶. It is thus improper to say that evolution is directed towards greater perfection⁷. On the other hand, even at the local level, selection cannot produce perfection because it limits itself to favouring the best alternative among those present. Thus chance mutations may not produce the best possible alternative to respond to a need posed by the environment (Mayr 1982); the famous clumsy panda thumb is proof of this (Gould 1982). Understood in this way, evolution is a

⁵ Cf. Philippe Huneman’s chapter on selection in this volume.

⁶ The population geneticist Sewall Wright has clearly demonstrated this: once a local optimum is obtained, it remains very fragile and sensitive to the least environmental change (Wright 1932).

⁷ Darwin understood this perfectly when he wrote: “In each well-stocked country natural selection acts through the competition of the inhabitants, and consequently leads to success in the battle for life, only in accordance with the standard of that particular country. [...] Natural selection will not necessarily lead to absolute perfection; nor, as far as we can judge by our limited faculties, can absolute perfection be everywhere predicated.” (Darwin 1871, Chap. VI, final section)

blind process. Furthermore, natural selection chooses less those fittest to survive in a given environment, than those fittest to *reproduce* themselves in that environment; so it is possible that characteristics that handicap an organism greatly, such as the long feathers of the peacock, are selected for the simple reason that they increase the sexual attractiveness of their bearers (Zahavi 1975)⁸.

Secondly, the reduction of evolution to survival of the fittest through direct conflict between individuals is outrageously simplistic. It is a fact recognised today that evolution is a complex phenomenon; depending on the circumstances, it has led to the selection of bloodthirsty behaviours, but also to highly social organisations. Cooperative and social traits that allow the maintenance of cohesion and harmony within a group, or even a species, can prove to be extremely advantageous from an evolutionary point of view. Think of bonobos, for example, who live in a group and regularly use sexual relations to defuse conflicts within the group. On an altogether different note, to cope with the glacial cold of the ice floe, emperor penguins huddle tightly together in their hundreds so that they can keep warm; to prevent the individuals on the outside from freezing, they perform a continuous rotation from the exterior towards the interior.

Thirdly, while the notion of species is important in biology⁹, the biological significance of human races is extremely feeble. We know from research in population genetics that, if it is at all relevant to distinguish different human races (Li *et al.* 2008), the characteristics that permit us to actually differentiate individuals from these different races (skin colour, facial shape, specific variations in non-coding DNA regions) are minor characteristics¹⁰ from the point of view of the organisation and functioning of human organisms. Furthermore, it has been shown that, at the genetic level, variance between individuals within a race is decidedly greater than variance between races (Barbujani 2005: 218-9)¹¹. Lastly, evolutionary processes do not permit the construction of a hierarchy of races, precisely because evolution is not a process that leads towards a qualitatively better world; at least nothing in the theory of evolution enables one to derive this conclusion (Jordan 2008). The same reasoning evidently applies to the issue of differences between social classes. The qualitative criteria used to distinguish the classes has no biological foundation, thus it is inappropriate to speak of genetic configurations particular to social class.

In brief, given the knowledge we now have about evolutionary phenomena and advances in population genetics, an evolutionary ethicist cannot hope to found a moral ideology based on a meliorist conception of evolution, or on qualitative differences between races and classes, short of displaying intellectual dishonesty. Therefore, she cannot defend the theses of Social

⁸ More precisely, Zahavi has demonstrated that these handicaps have a precise function in the game of choosing sexual partners: they are a sign of the male's health. It is a way for males to say to females: 'Look! I am so strong that I can survive even with feathers that handicap me greatly!'

⁹ Cf. Sarah Samadi & Anouk Barberousse's chapter in this volume.

¹⁰ Cf. Véronique Barriel's chapter in this volume.

¹¹ Variance is a statistical measure that allows one to characterise the dispersion of values in relation to a mean. Technically speaking, variance is the average sum of the squared deviations from the mean of the recorded differences (in the present case, we are considering the genetic differences recorded in the human species). A great number of studies show that the individual differences between members of the same human population explain 85% of the global variance in the human species; the fact of belonging to different populations explains 3 to 8% of the variance; and the fact of belonging to different races or continents explains between 6 and 11%.

Darwinism. Actually, when browsing the contemporary writings of EE, it is striking to note how far this movement distances itself from Social Darwinism. Through its systematic interest in themes related to the natural basis of cooperation, altruism, and help and sharing, the movement clearly comes under the heading of *Pro-social Darwinism*, although it does not go as far as to engage in concrete political or social programmes.

3. EE in detail

Let us now enter into the detail of EE¹². This current of thought distinguishes itself by its application of a particular method within moral philosophy. This methodology consists in taking evolutionary theories developed in behavioural biology seriously, and trying to grasp their implications for the framework of moral reflection. More precisely, the defenders of EE hold a number of simple convictions. According to them, i) a good moral system must be applicable to human beings¹³; ii) the best way to go about developing such a system is to have a thorough knowledge of human nature¹⁴ and the necessary conditions for life in society¹⁵; iii) we are the representatives of a biological social species that is the result of natural selection. These convictions, which are after all quite banal, lead them to think that, iv) moral capacities have emerged in the course of the evolution of our species in the same way as all other faculties belonging to human beings¹⁶; v) knowledge of the biological bases of sociality¹⁷ and

¹² This article only looks at contemporary developments in EE. To discover what Darwin himself thought about morality, cf. Jérôme Ravat's chapter in this volume.

¹³ As Flanagan writes: 'Make sure when constructing a moral theory or projecting a moral ideal that the character, decision processing, and behavior prescribed are possible, or are at least perceived to be possible, for creatures like us.' (Flanagan 1991: 32).

¹⁴ On the notion of human nature, see Edouard Machery's chapter in this volume.

¹⁵ Note that the first two points are not particularly original and are defended by a great number of philosophers (notably, Anscombe 1958, Aristotle 2004).

¹⁶ Some authors underline the continuity between our moral faculties and a form of proto-morality that one finds in some species of primate. According to Frans de Waal, for example, "there must at some level be continuity between the behaviour of humans and that of other primates. No domain, not even our celebrated morality, can be excluded from this assumption (de Waal 2003: 1).

¹⁷ In connection with this, it is worth specifying that EE does not reduce to sociobiology. Sociobiology is a current of thought that attempts to understand the behaviour of social species, including the human species. It is a more general research project from which EE takes inspiration. It is fashionable nowadays to speak ill of sociobiology because some of its proponents (E.O. Wilson 1978) made terrible blunders that were widely publicised and because, in its infancy, it was too centred on genes (Dawkins 1976 – on this topic, see Bary 2007). Many detractors of sociobiology thus have a tendency to forget, on the one hand, that it is not only interested in humans, but in all social species, and, on the other, that the genocentric perspective permitted the discipline to lay down the foundations for the first serious explanations of animal sociality (Hamilton 1964). More generally speaking, sociobiology is the origin of some important advanced theories (notably, the work of Hamilton, Maynard-Smith, Trivers, and E.O. Wilson himself). If, to avoid polemics, no one today dares use the label, do not let this deceive you. The study of human and animal social behaviour is an extremely active, rich and fertile domain of research, where explanatory models are continuously refined. Today, the questions that were addressed by sociobiology are taught and developed under more general labels such as 'behavioural ecology' (for the

of human nature allow us to understand the conditions for the emergence of morality and can prove useful in the elaboration of a moral system.

It is important to understand that EE as defined here is not a philosophical current in the same manner that utilitarianism or deontology are¹⁸. It is not an option that is distinct from traditional moral philosophies; it is completely possible for an evolutionary ethicist to be a deontologist (Rauscher 1997), utilitarian (Wright 1995), or a virtue ethicist (Arnhart 1998). So EE is anything but a replacement for moral philosophy. In contrast, its particularity is to propose a new manner of practising ethics by introducing considerations of an evolutionary nature into reflection. The hope is that using this new tool of reflection will allow us to make certain theoretical choices rather than others at the very core of a moral framework, and will sometimes furnish supplementary arguments for taking a position in a debate.

Understood in this way, it is not surprising that, rare exceptions aside, evolutionary ethicists are not biologists, but philosophers who are sensitive to advances in evolutionary science. It is equally interesting to note that the most recent evolutionary ethicists (Joyce 2006, Nichols 2004, Prinz 2007)¹⁹ are not content to find inspiration only in the ideas of Darwin; they integrate data and theoretical tools from a host of contemporary sciences, including evolutionary biology, evolutionary game theory²⁰, psychology, anthropology, and neurology in their new models.

4. The contribution of EE to the four levels in ethics

The question that we will now address is whether adopting an evolutionary approach provides any added value at the level of moral reflection. In what follows, I will attempt to show that this approach can be more or less useful depending on the level of ethical reflection.

We can distinguish four levels in ethics: i) descriptive ethics, where the issues are the genesis of morality, and an explanation of the way in which people think and act morally; ii) the metaethical level, where one examines problems relating to the nature of moral reality and the possibility of moral knowledge; iii) normative ethics, which involves the justification or the foundation of moral judgements; iv) applied ethics, where one seeks to resolve existing moral conflicts and political and social problems.

In terms of applied ethics, there is practically no literature. Even if in principle it is possible, contemporary evolutionary ethicists rarely associate themselves with socio-political

animal domain), or ‘evolutionary psychology’ and ‘evolutionary anthropology’ (for the human domain).

¹⁸ Utilitarianism and deontology are antagonistic moral theories that take position on how we base our moral judgements. The former is based on a utility calculation: morally justified actions are those that maximise the sum total of pleasure or happiness of the individuals concerned. Deontology, on the contrary, bases morality on the notions of individual duty and respect for a universal moral principle (for example, the Kantian categorical imperative): actions are thus not judged as a function of their consequences, but according to the intention from which they spring.

¹⁹ Some authors mentioned in this article do not exactly proclaim themselves evolutionary ethicists. On the other hand, they adhere to each of the five points of the broad definition of EE proposed above.

²⁰ In reality, contemporary evolutionary biology and evolutionary game theory are two sciences that mutually influence one another to such an extent that, in some contexts, it is hardly relevant to distinguish them.

programmes and they hardly ever touch on concrete issues such as GM foods, euthanasia or eugenics. It is probably their awareness of the eugenicist derivations of the Nineteenth and Twentieth centuries that motivates their extremely prudent behaviour towards applied ethics. The three other domains are, on the other hand, largely covered by EE. We can note a particular passion for metaethical questions (Casebeer 2003, Gibbard 1990, Joyce 2006, Prinz 2007, Rottshaefer 1998, Ruse 1986 etc.). These questions are very abstract; for example, there is the question whether moral properties exist independently of the subjectivity of subjects or whether they are the simple product of a projection of our minds; one asks in what sense one can speak of moral knowledge, of true moral assertions, etc. The (analytic style) debates are particularly technical and unfortunately distorted by an incessant influx of new terms and definitions. A whole article would be needed to outline the essentials; for this reason, I will allow myself the liberty of passing over this area of research like a cat on hot bricks²¹. It is, however, useful to mention that the work of evolutionary ethicists in metaethics does not seem to have advanced the debates very much, at least not as much as one might have hoped. In concrete terms, nearly the entire range of imaginable metaethical positions has been defended with the help of evolutionary arguments. While this new approach may have the virtue of bringing supplementary arguments to the debate, for all that, it does not permit all the protagonists to agree on a sole solution.

The two areas to which it is worth devoting most time are those of descriptive ethics and normative ethics. Let us see if the evolutionary approach is useful at these two levels.

5. Explanations of the genesis of morality

Anthropological research indicates that all human societies possess morality in some form or another (Brown 1991, Roberts 1979). This universal presence of morality within humanity invites the thought that it is, in some way or another, profoundly anchored in our nature. If we add to this the idea that morality is the result of a natural process of evolution, we naturally end up with attempts to explain this phenomenon in terms of adaptation and selective advantages.

From an evolutionary point of view, moral behaviour generally translates into individual investment in favour of the wellbeing and interests of other individuals or of the entire community. Since, at first glance, morality seems costly at the individual level, in the eyes of an evolutionary thinker, it comes partially under the question of the emergence of altruistic and highly cooperative behaviour among social species in general.

In the evolutionary sciences, it is always a challenge to explain how a behaviour that is costly for the individual was able to evolve. This problem also crops up in the animal world. Thus, before looking at the question of the genesis of actual morality, it is worth taking a small detour via the social animals with an eye to understanding the mechanisms that underlie altruism and mutual help among these species.

In the biological world, we can observe that certain bees are capable of sacrificing their lives by stinging a predator that is approaching the nest; we can equally observe marmots stay on watch for the arrival of eagles for hours, ready to alert their conspecifics as soon as one comes; this allows them to graze in security.

The existence of such behavioural traits poses a challenge for biologists because they seem to defy the logic of the theory of natural selection. In fact, from an evolutionary point of view,

²¹ For more details on the different positions defended in evolutionary metaethics, see Clavien & FitzGerald (2008).

an altruistic trait²² leads to helpful behaviour at the expense of the altruistic individual's capacity for survival and reproduction. Therefore, natural selection should in principle retain only the traits that favour the adaptation and reproduction of their carriers at the expense of traits that are harmful to their carriers.

So how has a tendency to behave altruistically been able to evolve? William Hamilton came up with an ingenious solution when he invented the theory of kin selection (1964). Instead of thinking in terms of advantages for the individual carriers of altruistic traits, it is worth concentrating attention on the genes responsible for these behaviours and on the way in which these genes spread in the whole population. We know that individuals who are kin have a large part of their genes in common (in general, parents and children have 50% of genes in common, as do brothers and sisters). If there are genes that lead to altruistic behaviours in favour of an individual's kin, the occasional disadvantage for the agent could be, from the gene's point of view, compensated by an increase in the capacity for survival and reproduction of its close kin (given that there is high probability that they are carrying copies of the same genes). The theory of kin selection is very powerful in explaining self-sacrificing behaviour towards close kin. There are other explanatory models that we can appeal to for the whole series of other cooperative behaviours that occur between more far related individuals. For example, there is the theory of reciprocity (often called reciprocal altruism), which says that it is worth doing another a favour if one will have a good chance of being able to benefit in the future from a returned favour (Axelrod 1984, Trivers 1971). There is also the theory of indirect reciprocity, according to which it can be advantageous for an individual to invest energy doing a favour for another or for the community in order to gain a good reputation (Zahavi 1977). These different theories are complementary; it is possible that the evolution of social behaviour is the joint result of several of these mechanisms (Lehmann & Keller 2006). The behaviour of social insects such as bees is certainly due to kin selection because the worker bees are sisters. As for the marmots' behaviour, it could be a mixture of kin selection and reciprocity.

A final type of evolutionary explanation of highly social behaviours is the theory of group selection (D. S. Wilson 1975). This kind of selection does not operate at the level of the genes (in the way kin selection does), nor at the level of individual advantage in the long term (in the way direct and indirect reciprocity do), but at the level of the group. The idea is that highly social behaviours that are unfavourable from the individual point of view can spread in the population, provided they allow their group to survive better in a hostile environment; if groups composed of a great number of altruists survive better than groups composed uniquely of egoists, in total, it is possible that more altruists will survive (even if, from an individual point of view, it is better to be an egoist in a group of altruists). However, we should note that this theory is still controversial in evolutionary circles; it seems that it could be included in an enlarged version of kin selection.²³

All these explanations reflect the fact that, in the course of evolution, animal species have developed different strategies to adapt to their environment; one set of strategies that has proved effective for the survival of species that live in groups consists precisely in adopting highly social behaviours – altruism, mutual aid. A certain number of evolutionary

²² Be careful not to confuse the biological notion of altruism with the ordinary conception that we have of altruism. Biological altruism refers to the negative effects of a behaviour on the survival and reproduction of individuals who practise it, whereas the altruism we think of ordinarily refers to a subject's benevolent motives. The former is conceived in terms of *effects*, while the latter is conceived in terms of *causes*. For more details on ways of defining biological altruism, see West *et al.* (2007).

²³ To read more about the evolution of altruism, see Clavien (2010).

mechanisms (kin selection, indirect reciprocity etc.) have allowed the evolution of these strategies.

Thanks to the work of biologists, we have explanations for the emergence of highly social behaviours among animal species. What about the evolution of moral behaviour? From an evolutionary point of view, the latter appears to fall under the category of social behaviour requiring explanation that is similar to those mentioned above. On the other hand, in contrast to animals, human beings are able to partially free themselves from the influence of their genes. Thus we must be able to account for this fact. It would take too long to provide details of all the different explanatory models that have been proposed. I will limit myself to presenting a summary map of the terrain. Looked at in a very schematic way, two explanatory routes have been developed.

The first route considers morality a by-product derived from one or more adaptations that have evolved in their own way. In contrast to the adaptations on which it rests, morality has not been selected *because* it has proved beneficial to the individuals who practise it. It is rather a phenomenon that has somehow emerged independently of its effects on the biological world.

The second route involves claiming that morality is not neutral from the point of view of selection; in other words, morality has been selected because it responds to a need that has appeared in the course of human evolution. More precisely, it offers a selective advantage at the genetic, individual or group level (or several at the same time).

The authors who opt for the first solution (Prinz 2009, Rottschaefer & Martinsen 1990, Singer 1981) think that morality is a derived product that rests on a certain number of capacities (for example, understanding others' mental states, putting oneself in another's shoes, communicating through language), and on psychological tendencies and more specific behaviours that are the result of the effects of reciprocity or kin or group selection. Thus George Williams writes:

Ethical systems [...] must have been produced indirectly by some sort of accident, the sort of thing that happens routinely in evolution. [...] These [moral] motivations must arise from biologically normal attitudes favoured by kin selection and reciprocity, but have biologically abnormal manifestations in our abnormal modern environment. (Williams 1993: 229)

It is important to know that certain detractors of EE (for instance, Nagel 1979), in their attempt to reduce the impact of evolution on our moral activity as much as possible, defend a similar position; but the detractors try to reduce the number of these capacities by using very vague categories, such as intelligence, reason or free will²⁴, and by not attempting to come up with an explanation of the evolution and adaptation of these capacities. In contrast, the most fervent defenders of EE break down and provide details of the set of capacities and psychological tendencies on which morality rests. For example, Chandra Sripada and Stephen Stich (2006) think that our moral activity 'surfs' on a number of important modules, psychological systems that have evolved to respond to particular ecological needs and that function in a relatively independent manner in relation to one another. Among these, there is the mechanism for norm acquisition, or the tendency to adopt the norms and behaviours of prestigious people. These authors even think that innate tendencies dictate the content of some of our norms, such as the disgust felt at incest. Between these two extremes, there is a whole range of authors who defend intermediary positions (among them, G. Williams, Rottschaefer and Prinz). To explain the evolution of many of the elements on which morality rests, it can

²⁴ On the notion of free will and its moral implications, see Honderich (2002).

be useful to refer to Robert Trivers' (1971) work. We cannot exactly call him an evolutionary ethicist and he does not say anything explicit about whether morality is a derived product. Yet in his famous article of 1971, he puts forward an ingenious hypothesis for the origin of our intelligence and some of our social sentiments. These different capacities could have evolved to respond to the adaptive problems of our ancestors. Trivers starts from the observation that human beings who live in groups of individuals who interact regularly have much to gain by producing chains of interactions on a reciprocal altruism model. But from an individual point of view, it is also advantageous to benefit from the kindness of others without contributing anything in return. This fact has allowed the evolution of both tendencies to altruism and tendencies to opportunism. Natural selection has thus gradually developed a complex psychological system that assures the good functioning of cooperation in spite of the occasional tricks provoked by opportunism; it has given us the capacity to form friendships and to feel gratitude; it has given us cheater detection systems and the desire to punish cheaters; and, conversely, very subtle forms of dishonesty, hypocrisy and lying. This race of cheating and cheater detection is perhaps the origin of our intelligence²⁵ (or at least the greatest subtlety of our cognitive capacities), as well as emotions such as guilt and indignation. Once all the necessary elements were in place, morality could emerge.

However, most followers of EE opt for the idea that morality itself is an evolutionary adaptation; in this way, they distance themselves from interpretations in terms of a derived product. Morality is thus a particular device, a 'moral sense', that has evolved precisely because it allows us to respond to certain needs linked to community life²⁶. Divergence appears regarding how we should conceive precisely the phenomenon of morality and how to determine the processes that have led to its birth and its stabilisation in the course of evolution.

One idea is that morality favours cooperation; provided that it works well, the latter is to everyone's advantage. According to Robert Richards (1986: 289), ancestral human societies were composed of small groups of related individuals who regularly competed. This kind of environment was favourable for the evolution of altruistic impulses, which served the good of the community. In this way, a moral sense evolved among human beings: a set of inclinations and natural dispositions that committed individuals to act for the good of the community to which they belonged. More precisely, the moral sense is an innate attitude that evolved under the pressure of kin selection and group selection in the setting of small community life. Richards argues that it is thanks to these two mechanisms of selection that people are inclined to act for the good of the community, which is to say in an altruistic and, thus, moral, way. Michael Ruse (1984) proposes a similar explanation, but instead of kin or group selection, he prefers to give prominence to the idea of expanded reciprocity. According to him, the principle of reciprocity is anchored in our species and manifests itself in our conscience in the form of moral sentiments. Generally, Ruse believes in the existence of a moral sense, which is a sense of the good, of the bad, and of obligation. This is supposed to be written in our genetic material and to develop in the course of our ontogenesis. It is displayed in our emotions, which push us to act in an altruistic way, all the while instilling us with a belief in the objectivity of our altruistic convictions. So he writes:

I suggest that we humans have built in innately, or instinctively if you like, a capacity for working together socially. And I suggest that this capacity manifests itself at the physical level as a moral sense – a genuine, Mother Teresa-type altruism! Hence I argue – on purely naturalistic, Darwinian grounds –

²⁵ See also Byrne & Whiten (1997).

²⁶ Darwin himself seems to defend this kind of position. Regarding this, see Jérôme Ravat's chapter in this volume.

that morality, or rather a moral sense – a recognition of the call of altruism and a propensity to obey – is something which is hard-wired into humans. It has been put there by natural selection in order to get us to work together socially or to cooperate. (Ruse 2002: 157)

In the same way as Richards and Ruse, Larry Arnhart thinks that human beings possess a natural moral sense (Arnhart 1998). But in contrast to his precedents, Arnhart does not reduce morality to altruism. For him, the moral sense is the natural extension of pro-social behaviour. It rests on a collection of desires shared by all human beings, such as the reciprocal desire of parents and their children to remain together or the desire for equality (1998: 89). In brief, the function of morality consists in facilitating positive interactions among individuals.

The list of different explanations of the genesis of morality is far from being complete. Taken together, they invoke all the mechanisms typically used in evolutionary theories: kin selection, direct and indirect reciprocity, group selection. However, given the scarce empirical and historical clues at our disposal, it is not clear how we should choose between these options. Without a doubt, they all contain a grain of truth because they refer to different aspects of the social dynamic of which morality is undeniably a part.

A general impression that comes from reading these different explanatory models is that they are talking about highly speculative suppositions, the truth of which can never really be tested. This fact should not be ignored. But we should add three remarks. Firstly, even if the speculative explanations are not scientifically provable, it is legitimate and interesting to enquire into the genesis of morality. Secondly, the philosophers who are keen to point out the weaknesses of these models should not forget that the histories of the genesis of morality proposed by great philosophers (notably, Hobbes, Rousseau and Nietzsche) are even more speculative and much less realistic than those proposed by evolutionary ethicists. And, lastly, despite their divergences, all authors agree on a certain number of crucial elements. Most notably, there is the idea that morality appeared in the social and environmental context of our ancestors who lived in small communities where survival depended largely on the quality of internal cohesion in the group. Another point of agreement is the fact that mechanisms such as kin selection or reciprocity, the functioning of which is very precisely defined (as much at the conceptual level as at the mathematical level), have played a crucial role in the evolution of morality. These mechanisms are at the origin of the sociality of animal species that found themselves confronted with similar environmental challenges. Kin selection is an extremely powerful explanatory tool for understanding the attachment of parents to their progeny and, more generally (when it is understood in the wide sense of the term)²⁷, for individuals belonging to the same group. Finally, evolutionary theorists underline the pertinence of the mathematical and information technology tools used in evolutionary game theory (Axelrod 1984, Maynard Smith 1982). With the help of these tools, it is possible to develop models that simulate competitive environments, the behavioural strategies that can be used in these environments, and the effect of natural selection on the diffusion of these strategies. These models are able to show the robustness, the stability and the positive global effects of helping behaviours in the socio-environmental conditions with which our ancestors were doubtless confronted (Fehr & Fischbacher 2003, Hammerstein 2003). There is thus nothing surprising in the fact that the psychological tendencies that favour this kind of behaviour have developed in human beings.

We have passed rapidly over a review of the evolutionary explanations of the origin of morality. We should note that descriptive ethics does not revolve only around this issue; it is also interested in moral beliefs and their diffusion in different human societies, as well as the

²⁷ See Clavien (2010).

psychological and neuronal systems linked to moral thought and action. Occasionally, the evolutionary approach can prove a useful tool in addressing these questions (Gibbard 1990, Haidt 2001, Nichols 2004). We will see an example of this in the last section of this article.

6. The delicate shift from the factual to the normative

The question that is really interesting for moral philosophy is whether an evolutionary understanding of the emergence of morality has an influence at the level of normative ethics. David Hume (1991), George Moore (1998), and many others in their wake have justly noted how difficult it is to draw normative conclusions on the basis of descriptive considerations. Yet this is exactly the project of many evolutionary ethicists²⁸.

There are many attempts to define the moral good by means of a concept that can be completely explained in an empirical manner. For example, according to Larry Arnhart, the moral good is equivalent to what is desirable from the point of view of human nature, which means that which has been generally desired by human beings throughout their evolutionary history: a complete life, parental care, sexual relations, family ties, friendship, social hierarchy, justice as reciprocity, etc. (Arnhart 1998). Along the same lines, Robert Richards defends the idea that the moral good corresponds to altruism, understood in the sense of promoting the good of the community (Richards 1986).

G. E. Moore (1998) is known for having taken up arms against this kind of definition of the moral good. In one sense, he is right. It seems that one loses something important if one tries to reduce morality to descriptive facts. The claim that a concept or a moral statement can be reformulated in purely descriptive terms is in direct contradiction with a very widely shared conviction that the moral does not belong to the same category as the descriptive. If such a reduction could be made, there would be no way of accounting for the differences and the relations holding between the moral and the descriptive (for example, the fact that moral notions, in contrast to descriptive notions, are prescriptive in nature). Furthermore, if one wants to carry the reductionist project through to the end and propose a description of the moral good that is both clear and free from any normative component, one risks at the same time losing any interest we have in speaking of morality. In a way, we throw the baby out with the bathwater. If the normative reduces completely to the descriptive, we can ask why it is still useful to engage in moral reflection! By desiring its demystification too strongly, we end up losing it.

However, it is worth noting that this criticism is not valid against attempts at producing a 'non-exhaustive' definition of the moral good. It might be useful to come up with a definition that furnishes us with some understanding of the moral good without any pretensions to conceptual identity (see Putnam 2002 on this). For instance, one could say that the moral good has a relation to cooperation and awareness of others' interests. This is a useful descriptive explanation whose relevance one cannot dismiss *a priori*.

Faced with the inability to provide an exhaustive definition of the moral good in descriptive terms, some might be tempted to construct a logical argument with the aim of deriving a normative conclusion from descriptive premises. Here is an example of this kind of argument:

²⁸ It is worth mentioning here that many evolutionary thinkers are much more reserved on this point and extol the virtues of a separation between morality and nature (Alexander 1987, Dawkins 1976, 1992, Gould 1999, Williams 1993). We will see later on that such a position should, however, be nuanced.

Premise 1: In a group of social beings, an individual possessing the capacity to act in an altruistic manner improves the life expectancy of all the members of society. This is the reason why this capacity can be selected for.

Premise 2: Human beings have evolved inclinations to think in terms of mutual advantage and to act in an altruistic manner. These tendencies are inscribed into their biological nature.

Conclusion: It is morally required that human beings develop and make use of their capacity to act in an altruistic manner.

As Hume had already noted a very long time ago (1991: vol. 3: 585-86), deducing moral conclusions from purely descriptive premises is an elementary logical error. To make the reasoning proposed above valid, we would need to add a supplementary premise that contained a normative element. In this case, we would have to add a premise saying that altruism is morally required²⁹.

The question we must now address concerns the real contribution of Hume's point. Despite what one might think at first glance, his point only makes sense in the strict domain of logical reasoning; within this framework, all that it claims is that a term (in this case, the moral component) cannot appear in the conclusion if it does not figure in the premises of the argument. But one cannot conclude from the fact that no moral conclusion can be logically deduced from descriptive premises that there is *no possible relation* between the descriptive and the moral³⁰. To claim that would be to accept a strict dichotomy between facts and values at the ontological level. Yet that thesis is not only highly subject to controversy, moreover it cannot rest in any way on a purely formal argument such as Hume's; it is perfectly possible to accept Hume's point without, however, defending a dichotomy between fact and value (see Putnam 2002). Taking this line, James Rachels (1990) has correctly commented that it is not necessary to claim that some facts logically imply a moral judgement in order to ground that moral judgement; rather, one must produce the best possible reasons for accepting the judgement. This demand is clearly weaker, but it remains significant. I will return to this point in the next section.

7. The futile search for the ultimate foundations of morality

It is tempting to imagine that the difficulty concerning the shift from the factual to the normative is a sufficient reason to categorise EE as irrelevant to our normative reflections.

But such a conclusion only follows if one demands an ultimate foundation for our moral norms. Moreover, if we take a look at the moral philosophy literature, it is evident that no current moral system manages to escape the problem of ultimate justification.

Some moral systems rest entirely on universal principles (such as the utilitarian principle or the Kantian categorical imperative), while others are based on a certain number of fundamental rights (e.g. human rights); yet others are based on fundamental moral values. But none of them is able to furnish an ultimate justification for their base elements on which the theoretical edifice is built. The difficulty is only exacerbated in the case of conflict between different rights or values advocated by one and the same system; the problem of ordering produces infinite theoretical complications (on this, see Appiah 2008: 73-82). In the final analysis, to maintain their position, philosophers often claim that the base elements they

²⁹ For an exposition of other aborted attempts to pass from the factual to the normative through logical reasoning, see Clavien (2007).

³⁰ This is what Rudolf Carnap wrongly claimed (1967).

propose are self-evident, or simply follow from common sense. But is this not a simple recourse to the facts? Furthermore, is it really the case that this is so? There are serious reasons to doubt it, given that philosophers do not agree among themselves on the content of what is judicious for our common sense to dictate. In addition, an increasing amount of empirical evidence on human moral psychology seems to go against this faith in the existence of communally shared moral intuitions. It is true that people's moral reactions follow some rules, but it is quite disconcerting to note that many of these rules do not seem to be anchored in morality. To illustrate this point, I will finish this article by mentioning some results drawn from a series of thought experiments that have recently led to a great deal of ink being spilt over them³¹.

The first is the trolley case. This is a thought experiment where people are asked to decide which of two alternative actions is better. Here is the situation described. You are witness to a grave occurrence: a trolley with broken brakes is speeding along and is about to run over five hikers who are crossing the track further down. By extraordinary chance, you find yourself next to a signal box and, by pushing a lever, you can change the trajectory of the trolley. If you do this, you will save the hikers. But if you opt for this solution the trolley will go onto a track where a railway worker is carrying out some repairs. The trolley will definitely run him over. Do you choose to pull the lever or not?

The second thought experiment is the footbridge case. The same trolley is advancing in the direction of the five hikers, but this time, you are next to an obese man on a footbridge that overhangs the track. You know that if you push this man, his weight will be enough to stop the trolley and bring it to a halt, thus saving the five hikers. The obese man will most certainly die though. Do you choose to push the man or not (given that no alternative action is possible)?

These thought experiments have been tested many times and the results indicate clearly that in the trolley case (with the signal box), a large majority of the subjects questioned choose to sacrifice the railway worker (thus saving the five hikers), while in the footbridge case, the majority refuses to push the obese man onto the track to stop the trolley. Common sense thus seems to dictate contradictory judgements! To save the coherence of the subjects' choices, one can resort to the hypothesis of double effect. According to this hypothesis, if the death of a person is an unforeseen side effect of a good action (which is what happens in the trolley case), the subject considers the death to be permissible. In contrast, it is inadmissible to want to kill someone with the aim of saving other people; in the footbridge case, the death of the obese man is a means and not a side effect. This interpretation is interesting from the point of view of a moral approach that rests on the intuitions of common sense because it allows the rationalisation of the subjects' apparently contradictory choices. The problem is that this interpretation is relativised by a third thought experiment: the loop case.

In the third scenario, the subject is able to modify the trajectory of the trolley so that it takes a temporary loop track that returns to the original track. On the loop track, there is an obese man whose weight and mass would stop the trolley. Even in this experiment, it has been found that the majority of subjects choose to pull the lever so that they sacrifice the man and save the five others. The hypothesis of double effect might account for part of the variation observed in people's moral choices but it is clearly insufficient as an explanation (Cushman *et al.* 2010; Greene *et al.* 2009).

In fact, it seems that the simple occurrence (or not) of physical contact with the individual to be sacrificed (and not an intuition or a moral kind of reasoning) explains most of the variation observed in subjects' choices. This idea is confirmed by an experiment carried out by Greene and colleagues (2001) on the trolley and footbridge problems. During this experiment, the

³¹ For a more detailed presentation of the trolley dilemma literature, see Appiah (2008).

subjects' brains were scanned with the aid of a brain imaging technique. The results of the experiment show that emotional involvement has a great influence on moral judgements: imagining having to push a person under a trolley going at full speed in order to stop it (and thus, saving the five hikers) is more emotionally salient (this is translated as increased brain activity in the areas correlated to emotions) than imagining pushing a lever that will direct the trolley onto a track where there is a person. This difference in emotional engagement leads subjects to refuse the first action and to judge the second to be morally permissible, even though the life of one person is weighed against the lives of five people in both cases. Thus, the subjects' choice in the footbridge case seems to depend mainly on a physiological reaction that is linked to the proximity or physical contact with a person.

The reason I have taken the time to explain the details of these experiments is twofold. On the one hand, the collection of results from these three empirical tests puts pressure on the idea that common sense can easily provide us with intuitions of a moral type that will be trustworthy, coherent, and on which it is possible to found an ultimate moral theory. In fact, to interpret the moral judgements produced in the framework of the three aforementioned experiments, one cannot escape the explanation of physical contact³². With these empirical data in mind, it is difficult to suppose that there exists a widely-shared moral sense that is ultimately capable of justifying our values and moral choices.

On the other hand, these results favour a descriptive analysis of the moral phenomenon, an analysis of the kind in which evolutionary considerations can play a role. Without wanting to give too much credit to post-hoc explanations, we can note that an evolutionary theorist would hardly be surprised by the existence of this law of physical proximity (see Appiah 2008). At the time when our social instincts were slowly forged, human beings probably lived in small communities in which it was important to help exactly the members of their group, in other words the people in danger who were 'right beside them'. These systems allowed our ancestors to respond rapidly in everyday situations of danger. Following this logic, it is understandable that we have less difficulty accepting the distress of people physically distanced from us, or the lack of aversion in the loop case.

What can we conclude from this discussion? Looking for irrefutable foundations for our moral norms seems to be a lost cause because the most primary moral intuitions are often not morally rationalisable. However, if we lower our expectations in terms of grounding moral norms, and if we accept that we should be content with producing the best possible reasons for accepting one norm over another, factual data (including of an evolutionary kind) will clearly play a large part in the enterprise of moral justification. There are many ways of using empirical material to justify our moral convictions. For example, a modest attempt would be to make use of criteria such as feasibility, coherence, functionality, or compatibility with our emotional responses and those of our peers. None of these criteria could be considered ultimate, but together they could allow us to legitimate our moral convictions (along these lines, see Gibbard 1990). Deep reflection on this question will lead us too far from the topic at hand, but it should be acknowledged that evolutionary considerations (notably those relating to the functionality of a behaviour) can prove relevant within the framework of this kind of normative enterprise.

³² In the same vein, it has also been shown empirically that factors that are *a priori* amoral have an influence on our moral choices: for example, the purely physical feeling of disgust (Wheatley & Haidt 2005), or the state of mind (positive or negative) in which the subjects find themselves (Valdesolo & DeStefano 2006).

8. Conclusion

In this article, I have tried to show that EE in the contemporary sense cannot be assimilated to Social Darwinism and that, within limits, it is relevant to adopt an evolutionary approach in ethics. More exactly, EE operates principally at the descriptive level, which can lead to some interesting enlightenments at other ethical levels.

A critical analysis of EE also reveals how difficult it is to hope to find absolutely irrefutable foundations for our moral norms. Perhaps the time has come for moral philosophy to detach itself from the search for ultimate foundations and purely theoretical systems in favour of deep reflection on the way in which we can manage the urges of human beings.*

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