

NATURAL GOODNESS AND NATURAL EVIL

Joseph Millum

Abstract

In *Natural Goodness* Philippa Foot gives an analysis of the concepts we use to describe the characteristics of living things. She suggests that we describe them in functional terms, and this allows us to judge organisms as good or defective depending on how well they perform their distinctive functions. Foot claims that we can judge intentional human actions in the same way: the virtues contribute in obvious ways to good human functioning, and this provides us with grounds for making moral judgements. This paper criticises Foot's argument by challenging her notion of function. I argue that the type of judgement she makes about living things requires an evolutionary biological account of function. However, such an account would render her meta-ethical claims implausible, since it is unlikely that human beings are adapted to be maximally virtuous. I conclude that Foot is wrong about the logical structure of our judgements of human action.

1. Introduction

In *Natural Goodness* Philippa Foot provides an account of judgements about the human will through a conceptual analysis of our judgements about living things.¹ She claims that the judgements we make about goodness and defect of the rational will do not differ in logical form from those that we make about the goodness and defect of other characteristics of living organisms. Those judgements are based on the role the characteristics play in the 'distinctive way of life' of the organism in question, that is, their function.

In this paper I challenge the notion of function that Foot uses, and argue that evolutionary biology can provide a superior account of function in terms of adaptation. Further, if we adopt this account of function, Foot's meta-ethical claims become very implausible, since it is unlikely that human beings are adapted to

¹ Philippa Foot, *Natural Goodness* (Oxford: Clarendon Press, 2001).

be as virtuous as possible. I therefore conclude that judgements about natural goodness are not of the same type as judgements of moral goodness.

I begin by explaining the analysis of our language of function according to Foot and Michael Thompson. I then give an alternative analysis using Ruth Millikan's notion of proper functions, and argue that this analysis is explanatorily superior to the Foot/Thompson account. Where the two concepts of function lead to different judgements we should therefore defer to the evolutionary account.

2. Natural-historical judgements

In 'The Representation of Life' Thompson argues that our judgements about living things have a distinctive logical form.² This form is exemplified by what he calls Aristotelian categoricals, or natural-historical judgements. These judgements are of the form 'The S is (or has, or does) F'.³ For example, 'the cat has four legs', 'the swallow flies south for the winter', or 'the rabbit is a herbivore'. They have the following noteworthy characteristics.

1. They are predicated of a particular species,⁴ not of individual organisms. When I say 'the cat has four legs', I say something different if I am making a natural-historical judgement than if I am talking about a particular cat. In the former case I make a claim about the life-form that Tiddles instantiates, and in the latter I say something about Tiddles in particular.⁵

2. They are formulated in a 'timeless' present tense. Where temporal relations are mentioned, they are B-series relations, such as before, after, in the spring, and so forth.⁶ For example, 'after feeding in the spring, the caterpillar constructs a pupa'.

3. They do not admit of reduction. In particular, Thompson claims, it is not possible to translate these sentences into a quanti-

² Michael Thompson, 'The Representation of Life' in *Virtues and Reasons: Philippa Foot and Moral Theory*, Hursthouse, Lawrence, and Quinn (eds) (Oxford: Clarendon Press, 1995).

³ Thompson, 'The Representation of Life', p. 281.

⁴ Or genus, family, and so forth. I adopt Thompson's terminology of 'life-form' to refer to these biological kinds.

⁵ Thompson, 'The Representation of Life', p. 283.

⁶ Thompson, 'The Representation of Life', p. 282.

fied form. To say 'The S is F' is not to say any of: 'all S's are F', 'some S's are F', or 'most S's are F'. For example, human beings have 32 teeth, but it is not the case that all or even most humans have the full complement of teeth. Nevertheless, more is being said than that some humans have 32 teeth – a distinctive characteristic of the organism is being described.⁷

Natural-historical judgements lead us to talk about living organisms differently from other things. Examination of these judgements reveals the logical form of talk about living things, and consequently informs us about the logic of the concepts that are being used. In particular, we can make teleological judgements about these living things without invoking intentional descriptions.⁸ For example, we can join the statements 'The plants have bright flowers' and 'The plants attract insects which carry pollen' into the teleological judgement, 'The plants have bright flowers *in order to* attract insects which carry pollen'. Thompson writes:

Natural-teleological judgements may thus be said to organize the elements of a natural history; they articulate the relations of dependence among the various elements and aspects and phases of a given kind of life.⁹

Most importantly, Thompson claims that we can use natural-historical judgements in making evaluative judgements about living things.¹⁰ Given the natural-historical judgement 'The S is F' and the observation 'This S is not F' we can infer that this S is defective in not being F. Thus natural-historical judgements allow us to make claims about natural defects. For example, a worker bee without a sting is defective because it is true that worker bees have stings; but a wolf without a sting is not a defective wolf.

⁷ Thompson considers the reduction of natural-historical judgements to 'All S's are F *ceteris paribus*', but claims that the *ceteris paribus* clause cannot be explicated without further reference to natural-historical judgements.

⁸ Thompson, 'The Representation of Life', pp. 292–4.

⁹ Thompson, 'The Representation of Life', pp. 293–4.

¹⁰ 'If, though, we want to apply 'normative' categories to subrational nature, and apart from any relation to 'our interests', then the questions inevitably arise, and not so unreasonably: Where does the standard come from? What supplies the measure? The system of natural-historical propositions with a given kind as subject supplies such a standard for members of that kind.' (Thompson, 'The Representation of Life', p. 295).

3. An amendment to Thompson

As Foot points out,¹¹ there is a gap in Thompson's account which must be filled if we are to make evaluative judgements of living things. The heart pumps blood around the body, and the heart makes a lub-dub sound, for example, but a heart which made no sound would not thereby be defective, whereas one that did not pump blood would. Foot suggests that evaluative judgements are only appropriate when applied to natural-historical judgements about attributes and behaviours that play a part in the life of the life-form,¹² that is, those judgements which can be used to make correct natural-teleological judgements. She therefore introduces the notion of function with the suggestion that attributes and behaviours have the ultimate functions of promoting development, self-maintenance and reproduction.¹³ This allows us to distinguish the defective from the merely unusual members of a species.

4. The rejection of evolutionary biology

Given the connection that Foot draws between the function of attributes and behaviours and (roughly) survival and reproduction, it would seem natural to look to evolutionary biology to give a precise characterisation of functions. But both Foot and Thompson explicitly reject any identification of function with evolutionary adaptation. The reason they give is that when we explain the function of a trait by reference to adaptation, we make reference to the evolutionary history of the species. But natural-historical judgements are judgements about the present nature of life-forms, not about their history: 'The description of this sort of order has nothing to do with *natural selection* either; these propositions are in no sense hypotheses about the past.'¹⁴ Thus they suggest that invoking evolution would commit some kind of genetic fallacy.

In the next section I explain the evolutionary biological notion of function that I think best allows us to correctly make natural-

¹¹ Foot, *Natural Goodness*, pp. 31–2.

¹² Foot, *Natural Goodness*, p. 30.

¹³ Foot, *Natural Goodness*, p. 33.

¹⁴ Thompson, 'The Representation of Life', p. 294.

historical judgements. In subsequent sections I argue that this notion is superior to Foot and Thompson's, and indicate some troubling aspects of their account which could be avoided with the adoption of the biological account. Further, Foot's use of function is supposed to track our everyday concept of function; I give reasons for thinking that my account will track common-language ascriptions of functions to organisms. Finally, I show that invoking evolution does not involve committing any fallacy. Thus I intend to show that Foot should assimilate her notion of function to an evolutionary one.

5. Millikan and proper functions

In *White Queen Psychology and Other Essays for Alice*, Millikan defines a proper function as follows:

for an item A to have a function F as a 'proper function', it is necessary (and close to sufficient) that one of these two conditions should hold. (1) A originated as a 'reproduction' . . . of some prior item or items that, *due* in part to possession of the properties reproduced, have actually performed F in the past, and A exists because (causally historically because) of this performance. (2) A originated as the product of some prior device that, given its circumstances, had performance of F as a proper function and that, under those circumstances, normally causes F to be performed by *means* of producing an item like A.¹⁵

For example, sparrows have mottled brown plumage because ancestral sparrows that had such plumage were selected over sparrows with different coloured feathers; they were selected for because the plumage provided camouflage and so reduced predation. Hence the colour pattern of the sparrow has the proper function of camouflage. Sparrows' nests originate as the product of various behaviours which have been selected for because they lead to a nest being built, which then protects the sparrow chicks. Hence the nest has the function of protecting the chicks.

It is worth noting two points here. First, that proper function is a historical concept, that is, in order for something to have a

¹⁵ Ruth Garrett Millikan, *White Queen Psychology and Other Essays for Alice* (Cambridge, Mass.: MIT Press, 1993), p. 13.

proper function it must have a causal history that involves at least one of its ancestors performing the function.¹⁶ Second, the proper function does not have to be successfully performed by A every reproductive cycle, or even most: it just needs to have been selected for at some point as a result of performing F. Most sperm, for example, fail to fertilize eggs, but they still have fertilization as their function.¹⁷

6.1. The explanatory superiority of proper function

The account in terms of proper functions gives precise criteria that determine what the functional traits of an organism are, and hence what natural-historical judgements can correctly be made about them. It provides, *in principle*, a way of determining the function of a trait. Further, in many cases it may be possible to find out what the function is. Experimental biologists are, at least sometimes, able to devise tests that determine whether a trait has been selected for, and in virtue of what.¹⁸ Often such tests are difficult to carry out; for example, because the original selective environment is no longer present, or the effects of the trait are difficult to isolate when studying the organism in its environment. The fact that it is often not easy to tell whether and how a trait is functional should tell against the Foot/Thompson account.¹⁹ Adaptive claims may be made and then withdrawn following

¹⁶ I consider below (Section 8) whether this involves committing a genetic fallacy.

¹⁷ Millikan's account can also resolve the problem of quantifying natural-historical judgements (see Section 2, Point 3). If we characterise the normal conditions for the development of a trait as the set of sets of conditions under which the trait developed when it was selected for, then we can quantify the judgement 'The S is F'; as

(x) $(Sx \ \& \ Nx \rightarrow Fx)$

where N is a conjunction of predicates that describe the normal conditions for the development of the object A which has the function F, and the normal conditions for F's performance.

¹⁸ See Robert N. Brandon, *Adaptation and Environment* (Princeton: Princeton University Press, 1990), Chapter 5, for a relatively full account of *ideally complete adaptive explanations*. Brandon explains experiments that were carried out to try to explain the evolution of insect wings.

¹⁹ For example, it may not be clear whether a trait is the product of viability or sexual selection. Are the antlers of stags for defence against predators, competition between males, or some combination of the two? Further, certain traits that might seem to be adaptations are actually spandrels (the side effects of genuine adaptations). For examples, see Stephen Jay Gould and Richard Lewontin, 'The Spandrels of San Marco and the Panglossian Paradigm: A Critique of the Adaptationist Programme', *Proceedings of the Royal Society of London*, B 205 (1979): 581–598.

experimentation;²⁰ without precise criteria for functions and a methodology that allows function claims to be tested we may be left only with guesses about what traits are supposed to do. Neither Foot nor Thompson gives a serious epistemological story about how we might come to know the truth of natural-historical judgements.

An evolutionary account also explains why life-forms have functions in the first place, and consequently why there are things of which natural-historical judgements can be made. The theory of evolution by natural selection leads us to expect that species will tend to become increasingly well adapted to their environment. As an organism adapts to a particular environment it develops specialised traits that fit it for survival and reproduction in that environment. The collection of these traits will comprise the characteristic way of life of the organism.²¹

6.2. Amendment of linguistic usage

Having established why I think the evolutionary account is explanatorily superior, I have now to say something in defence of the claim that it should and will influence our linguistic practices. Otherwise, it will be open to Foot to argue that she is just using a different notion of function from the evolutionary one.

The argument that we should amend our linguistic practices is provided by the reasons already given for preferring the evolutionary notion of function. That is, the evolutionary concept of function is explanatorily superior, and should therefore be adopted in cases where the function of a trait is in doubt.²²

The claim that members of our linguistic community *will* change their use of function is a more difficult one to establish (not to mention being an empirical hypothesis). In its defence I

²⁰ For example, Darryl Gwynne studied the spermatophylax that many crickets and katydid males give to their mates. Giving these bags of food was hypothesised to be an adaptation to increase mating time, or a form of paternal investment (or some mix of the two). The process of determining the function of the spermatophylax required tracing its origins in the phylogenetic tree, and experimental studies to examine the relationship between the size of the food parcel and sperm transfer. For the majority of crickets it turned out to have the function of increasing mating time (see Darryl T. Gwynne 'Glandular Gifts', *Scientific American* (August 1997): 66–71).

²¹ Changing environments mean that this story needs to be complicated somewhat. However, the basic point remains.

²² I assume here that the linguistic community to which I am appealing is one which believes in the theory of evolution by natural selection, and disbelieves in any conscious guidance of evolution (prior to humankind).

suggest that there is a particular type of factual statement that is amenable to being corrected by the scientific community: one which came to be believed in the first place because of the assertions of scientists. It was commonly believed, for example, that phlogiston was a substance that was responsible for combustion. This was eventually corrected by scientific investigation, and now oxidation is believed to provide the right explanation. The concept of phlogiston has changed from being a contentful to being an empty concept, not merely among scientists but in the educated lay community. Belief in natural-historical judgements is likewise often acquired via scientific investigation; for example, as a consequence of Huygens' scientific investigations it is now common knowledge that the function of the heart is to circulate the blood. Thompson acknowledges this link to science when he describes coming to know natural-historical judgements through nature documentaries and books of classification.²³ So, while in some cases there can be a divergence between common and scientific language, this is likely to be limited when the common usage is itself parasitic on the scientific. The biological community, if it accepts the use of functional attributions, will attribute functions using the same or a very similar methodology to that which I outlined above. I claim that such functional attributions will tend to trickle down into common usage, and be accepted as correcting of this usage.²⁴

7. A possible response

Foot could still claim that her function and the evolutionary function will have the same extension, given her condition that the functional trait must contribute to the characteristic survival and

²³ Thompson, 'The Representation of Life', pp. 280–1, and p. 286

²⁴ There have been lengthy debates about the correct way to analyse the concept of 'function' as it is used in biology (see, e.g., the collections *Nature's Purposes: Analyses of Function and Design in Biology*, Allen, Bekoff, and Lauder, (eds) (Cambridge, Mass.: The MIT Press, 1998), and *Function, Selection, and Design*, Buller (ed) (Albany, N.Y.: State University of New York Press, 1999)). Millikan's account is one version of a popular strand of thinking about functions in terms of the action of natural selection. The conclusions I draw using her account of function should hold for other 'selection' accounts. Indeed, I think that any plausible account of function that permits the sorts of claims that Foot wants to make about organisms will lead to the same conclusions about the well-functioning human.

reproduction of the life-form. Although I think this is unlikely²⁵ it would in any case make no difference to the conclusions of this paper: if the extension of the two concepts is the same, then their consequences for Foot's meta-ethical project will likewise be the same (Sections 10 and 11).

8. Evolution and the genetic fallacy

It has already been admitted that proper function is a historical notion. However, Foot's function is not entirely free of historical reference, either. With the exception, perhaps, of conjunctions of traits, no natural-historical judgement can be correctly made without having been true of at least one member of the life-form judged. How else would its truth-value be determined? So both accounts of function will require some reference to the past to be made in order to ascertain that a trait has a certain function (that is, in both cases we must know about some past performance of the function in order to know that an object currently has the function).²⁶ The two are likewise similar in that judgements of both type of function can be made in the present tense, i.e. 'X has function F' is a standard way of expressing the judgement in both cases. So, it is not the requirement of *some* reference to history, nor the grammar of the judgements that is considered significant. The difference that Foot and Thompson see in the evolutionary case looks therefore as though it must be connected with the cause of something having a function; to have a function in Millikan's sense requires a certain sort of selective history which causes the present attributes of the organism. This is not the case

²⁵ For example, her concept of function will fail to distinguish the effects of different levels of selection. If, for example, group selection occurs, then it will lead to traits whose functions must be described by reference to the success of the group, not the individual. Likewise, the phenomenon of meiotic drive, whereby certain genes become disproportionately represented in the gametes, should be functionally described by reference to the success of the particular genes, not the organism as a whole. In both cases, the performance of the function might reduce the viability of the organism, relative to other possible traits, but still be selected for.

²⁶ It would be open to Foot to argue that something can have a function only if it presently fits into the life of the organism, that is, if it presently contributes to survival and reproduction. If we do want to make such judgements, then Millikan's account would have to be amended to make them possible. This could be done by introducing a notion of present adaptedness, and evaluating organisms on the basis of their fitness in the current environment.

with Foot's version of function. Indeed, it could not be, since she does not give details of how organisms come to have functional traits.

This brief analysis leaves it even less clear where the problem with evolutionary explanations lies. Without begging the question Foot cannot simply rule out accounts of function that make reference to historical events, but it rather seems that she just assumes that when we make natural-historical judgements we cannot *mean* the same as when we make evolutionary-historical judgements. She writes:

To say that some feature of a living thing is an adaptation is to place it in the history of a species. To say that it has a function is to say that it has a certain place in the life of the individuals that belong to that species at a certain time.²⁷

The first claim is certainly correct. But the second claim could be re-written using the concept of adaptation: 'To say that some feature has a function is to say that it is an adaptation that is presently adaptive'. This would explain its place in the life of the individuals of the species now without cutting off its connection to the past.

Despite Foot's assertions to the contrary, there seems to be no reason to rule out an evolutionary account of function with which to make natural-historical judgements.

9. What difference does an evolutionary explanation make?

An evolutionary account of an organism can provide us with concepts for describing that organism. These concepts are provided by the functions of the traits we describe. We describe a cat as hunting a mouse, for example, and this description is justified by the assumption that the function of the cat's complex set of physical movements is the capture of prey. It would be incorrect in this context to describe the behaviour as the cat maintaining the mouse population. Likewise, we describe the behaviour of grazing cows as eating and digesting, not as breaking up the vegetation and making manure.

An evolutionary account of a behaviour can allow us to do two things. Knowing the function of a behaviour allows us to make

²⁷ Foot, *Natural Goodness*, p. 32n.

gross predictions about what an organism will do (our knowledge that the cat is hunting will allow the prediction of the general shape of its behaviour towards the mouse, for example). Further, we will be able to distinguish normal from abnormal behaviour: if Tiddles ignores the mouse then we know that something is wrong.

Our particular interest here is in the virtues. Virtues, such as honesty, loyalty, courage and so on, can be given relatively unproblematic naturalistic descriptions.²⁸ If we assume that virtuous behaviours are functional for humans, then we can try to give accounts of these behaviours in terms of their genetic consequences in the environment in which humans evolved. These accounts can, in turn, allow the prediction of human moral behaviour, that is, how far we should expect human behaviour to accord with the virtues. In the next sections I sketch an evolutionary account of the function of moral behaviour.

10. Good functioning of the will

The core of Foot's argument in *Natural Goodness* is that the meaning of our evaluative terms does not change when we move from talking about plants and animals to talking about the rational will of human beings. Foot argues that moral institutions (such as promising) and moral virtues (such as honesty) play a recognisable role in the life of human beings. For example, given our dependence on each other, it is necessary that there exist some method for ensuring that we do things for each other – this is promising.²⁹ The keeping of promises is part of the way of life of a well-functioning human, that is, keeping promises is good in a human. Moral evaluations are appropriate when we are evaluating actions which 'have as their subject not physical or mental abilities, but voluntary action and purpose.'³⁰ Hence we can evaluate an action as good if it is a voluntary action, and that type of action is characteristic of well-functioning human beings. The fact that sometimes keeping a promise is not in our interests is irrelevant to whether promise-keeping is good, just as the fact that

²⁸ By this I mean only that the behaviour of being honest, say, can be described without reference to normative terminology.

²⁹ Foot, *Natural Goodness*, pp. 45–6.

³⁰ Foot, *Natural Goodness*, p. 69.

sometimes it is the swift deer that runs into the trap is irrelevant to whether swiftness is good.³¹

Using the evolutionary concept of function I now argue that Foot is likely to be mistaken: insofar as we consider moral traits as adaptations, the optimally functioning human will be neither perfectly virtuous nor perfectly vicious, but lie somewhere along a continuum between the two.

Consider the trait of swiftness in the deer, which we can assume is an adaptation. Deer could be faster than they are; for example, longer legs and less body fat could be selected for and would contribute to greater speed. However, natural selection balances the increase in fitness that comes from more speed, with the decrease that would come from, for example, smaller energy stores, or a longer time to grow to maturity.³² Traits tend towards an optimum value where the benefits maximally exceed the costs. The well-functioning deer will be swift to some degree, x , and other deer should have a swiftness which is clustered around this optimum value.

Virtuous action also lies on a continuum (as does the extent to which one adheres to moral rules). I can be more or less honest: honest in some situations and not others; honest only when I can't get away with lying; honest only with those I myself trust; and so on. If we view virtue in this way, then we are not stuck with a choice between being virtuous and not, as though the trait of having a virtue were like the trait of having blue eyes. Rather, we can find an optimum level of virtue, and say that the well-functioning human is one who is honest to this extent, or within these limits, and so forth.

From the evolutionary viewpoint moral behaviour requires explanation when it appears altruistic, that is, when it involves actions which appear to benefit another organism at a cost to the actor. Natural selection acts to maximise the inclusive fitness of individuals. Insofar as an organism is well-adapted, therefore, we would not expect it to behave in ways that benefit unrelated individuals.³³ Nevertheless, human beings often intentionally act in apparently altruistic ways.

³¹ Foot, *Natural Goodness*, p. 34.

³² For example, the cheetah, the fastest land animal, is only able to maintain its high speed for short dashes. The advantage of high speed has been won at the cost of low endurance.

³³ Since fitness is relative, any fitness gain for a competitor is a fitness loss for the individual in question.

11. Human cooperation³⁴

Since the assumption is that the behaviour we are interested in is in fact (more or less) adaptive, we must assume that the appearance of *genetic* altruism is illusory. We are then faced with the problem of explaining how the behaviour is advantageous. This can be achieved by considering the following model for establishing cooperative behaviour.

We consider a *cooperative situation* to be set up as follows. For each participant in the cooperative situation it is most in their interests not to cooperate while others do (and so get a share in the gains of cooperation without putting in the work), but the gains from each cooperating are greater for each than the gains if they all fail to cooperate – this is a prisoner's dilemma. So, for example, if we are farming together then it may be better for me to avoid working (and spend the time getting other goods for myself), but it is also better for you to do this, in which case no farming will be done and both of us will go hungry.

In order to reap the benefits of cooperation, but avoid the costs of defection, an individual can use strategies for behaviour in cooperative situations. For example, if I find myself in many cooperative situations with the same individuals, I can adopt the policy of cooperating with reliable cooperators and defecting against defectors. That is, I cooperate for mutual benefit with individuals who have shown themselves to be cooperative and refuse to cooperate with those who have not.³⁵ The situation will change if I find that I can defect without discovery, or if I will not interact further with some individual. In these cases I do not have to worry about affecting the future behaviour of these individuals and should therefore defect and benefit from non-cooperation. These examples show the weaknesses of always cooperating or always

³⁴ I give here a very simplified account of the evolutionary origins of morality. More complex and complete accounts can be found in Richard D Alexander, *The Biology of Moral Systems* (Hawthorne, N.Y.: A. de Gruyter, 1987), Robert A. Hinde, *Why Good is Good: The Sources of Morality* (London; New York: Routledge, 2002), and William A. Rottschaefter, *The Biology and Psychology of Moral Agency* (Cambridge: Cambridge University Press, 1998). This account does not differ essentially from what is there. Hopefully, it will be enough to make my point about virtue.

³⁵ This is the tit-for-tat strategy (see Robert Axelrod, and William D. Hamilton, 'The Evolution of Cooperation', *Science*, 211 (1981): 1390–6). It is an evolutionarily stable strategy, i.e. one which can remain dominant in a population without being invaded by (e.g.) defecting strategies (see John Maynard-Smith, *Evolution and the Theory of Games*, (Cambridge; New York: Cambridge University Press, 1982), pp. 202–3).

defecting: in the former case, exploitation by defectors is inevitable; in the latter, it is likely that people will cease to cooperate with me.

The following two conclusions can be drawn from this very brief account. First, the extent to which it is adaptive to cooperate will vary depending on the situation and the interactors. Second, in general, the most adaptive strategy in cooperative situations lies between the extremes of always defecting and always cooperating. If moral behaviour is the result of natural selection then we should expect it to fit these conclusions. So, for example, it is in my interests to keep my promises when I make them to my friends and business partners. But if I make them to strangers (who I will not meet again), or if I can break them without being found out, this will be also be in my interests. I will do badly if I never keep my promises (since no one will be willing to trust me and I will therefore miss out on all the benefits of cooperation), but I will also do badly if I always keep them (since I will be played for a fool, and will miss out on the spoils of defection). A well-functioning human should be neither entirely vicious nor entirely virtuous.³⁶

Foot accepts that being virtuous will not always contribute to a particular individual's survival and reproduction. This, however, will not work as an objection to my argument here. The basis, according to Foot, for saying that some X is good, is that X contributes to the survival and reproduction of members of the species, even if X does not do so in every individual case (the deer and the trap example). I have not argued here merely that being perfectly virtuous may fail in individual cases to promote the fitness of an individual; I have argued that being perfectly virtuous does not promote the fitness of human beings in general. Consequently, perfect virtue is unlikely to have been selected for, and thus a well-functioning human is not one which is perfectly virtuous. According to Foot's account, it is this well-functioning human which provides the norm we should use when evaluating actual humans.

³⁶ The extent to which virtue or vice pays will depend on the environment, especially on the extent to which other individuals in the group are cooperative, and the extent of inter-group competition (see Alexander, *The Biology of Moral Systems*, and Robert L. Trivers, 'The Evolution of Reciprocal Altruism', *Quarterly Review of Biology* 46 (1971): 35–57).

12. Consequences for Foot's meta-ethical claims

I have argued for two key claims in this paper. First, that the concept of function that Foot uses in evaluating living beings should be replaced by a concept which makes use of the explanatory resources of evolutionary biology. Second, that when we consider moral behaviour as an evolutionary adaptation, a functional human looks to be one whose behaviour is somewhere intermediate between the virtuous and the vicious. Together, these claims undermine Foot's meta-ethical position.

If we were to accept Foot's claim that the evaluation of human intentional action is not different in form from the evaluation of the roots of trees and the wings of birds then we would be committed to saying that this intentional action is good when it is functioning in the way that it was selected to function. But this would require us to endorse not virtuous action, but some balance of the virtuous and the vicious. We might then criticise another for showing kindness to strangers, or failing to take advantage of the vulnerable, and these would be moral criticisms. It is implausible that our moral standards need to be revised in this direction. I suggest instead that this we should treat this consequence as a *reductio* of Foot's claim about evaluative language. It is not the case that we mean the same thing when we call someone healthy, or well-functioning, as we do when we say they are morally good. The two areas of evaluation are, at least to that extent, distinct.

*University of Toronto
Toronto, Ontario
M5S 1A2
Canada
jomillum@chass.utoronto.ca*