

A Biological Critique of Natural Normativity

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[W]e must recognize that our concepts are not logically perfect. They, like organisms themselves, get along reasonably well in their normal habitats but may be seriously ill suited to coping with unusual circumstances. Elliott Sober¹

1. Introduction

Does the natural world have value in itself, independent of valuations by human or other valuers? It is commonly said that there are fundamentally two approaches to environmental ethics: approaches which attempt to show that the reason we ought to accord moral consideration to the natural world is that it has value in itself, independent from human valuation; and approaches that focus instead on the human-centered reasons to be concerned about the state of the natural world. The purpose of this paper is to consider one case that has been made for the existence of objective value in the natural world, and to show that it does not hold up when considered in light of current thinking in biological science and philosophy of biology.

The neo-Aristotelian case for objective value in nature relies on the concept of ‘natural normativity.’ This work is situated within the larger project of naturalistic, neo-Aristotelian, virtue ethics.² Part of the goal in this project is to show, against contemporary subjectivist theories of moral evaluation, that our evaluations of living things – human and non-human alike – are not grounded in our emotional reactions to states of affairs, but in objective facts. The objective facts in questions are facts about how organisms belonging to different species characteristically live their lives. However, in order to do this, the neo-Aristotelian must draw on biological concepts that, as I will argue, are poorly adapted to the contemporary scientific and philosophical environment.

¹ Elliot Sober. (2000). *Philosophy of Biology*, 2nd ed. Boulder, CO: Westview Press. 156.

² For an excellent overview of this project, see Rosalind Hursthouse’s *On Virtue Ethics*. (1999). New York: Oxford University Press.

The concepts in question are the concept of environment and the concept of species. As far as the concept of environment goes, neo-Aristotelians neglect to take into account the tight conceptual interdependence of environment and the characteristic features of a species, a key part of the overall account of natural normativity. The concept of species presents a different yet equally problematic challenge to naturalism. There are several working concepts of species within the discipline of biology,³ but none of them supports the kind of claim that neo-Aristotelians must make about what features belong to members of a species insofar as they are members of the species. Moreover, to draw the kinds of boundaries around the concepts of environment and species in a way that is congenial to the neo-Aristotelian project would undermine their objectivity. Consideration of these conceptual problems leads to the conclusion that natural normativity is not objective normativity.

2. Natural Normativity

Neo-Aristotelian accounts of ethics rely on the idea of natural normativity as the basis of an objective meta-ethical theory. Proponents of this approach include Philippa Foot, Rosalind Hursthouse, and, in the field of environmental ethics, John O'Neill.⁴ Natural normativity is taken to be independent of, but observable by, human evaluators. Our observations of this kind of normativity are canonically represented by 'Aristotelian categoricals,' sentences of the form, "S's characteristically are/have/do F."⁵ Such sentences are said to capture those characteristics that members of a particular species need in order to flourish, that is, to express the *good* for

³ Depending on what systematist you ask, it might be more proper to say that there is one working species concept, and several mistaken ones. But I will elaborate on this later.

⁴ Relevant publications include: Philippa Foot. *Natural Goodness*. Oxford : Clarendon, 2001; Rosalind Hursthouse, Gavin Lawrence, Warren Quinn (eds.). *On Virtue Ethics*. New York : Oxford University Press, 1999; John O'Neill. *Ecology, Policy and Politics: Human well-being and the natural world*. New York: Routledge, 1993; and Michael Thomsson. 'The Representation of Life.' In R. Hursthouse, G. Lawrence, W. Quinn (eds.), *Virtues and Reasons*. New York: Oxford Clarendon Press, 1995.

⁵ Thompson, 1999. Thompson points out that there are myriad alternative ways to formulate aristotelian categoricals in natural language (281).

members of that species. These goods are supposed to be objective attributes, ones that exist independently of human evaluators.

What are these facts supposed to be, and how do our moral evaluations derive from them? In order to set up this discussion, I will first introduce technical terminology used by Foot. Each species has a 'life-form.' A species' life-form is comprised of the ways in which 'flourishing' is characteristically achieved by the individual organisms that are members of that species, in the species' natural habitat. These ways include both the parts and the operations of the organisms. In the case of non-human organisms, what it means to flourish is to achieve development, self-maintenance, and reproduction.⁶

Moral evaluations – assessments of natural normativity – are based on facts about a species' life-form in the following fashion. From our scientific knowledge of the life-form of a species, we can construct Aristotelian categoricals, which are sentences that express aspects of the life form. For example, the sentence, 'The male peacock has a brightly coloured tail,' is an Aristotelian categorical.⁷ There is a close relationship between Aristotelian categoricals and the evaluation of natural normativity. In Foot's words;

In fact ... if we have a true natural-history proposition [i.e. an Aristotelian categorical] to the effect that S's are F, then if a certain individual S – the individual here and now or then and there – is not F if it is therefore not as it should be, but rather weak, diseased, or in some other way defective.⁸

One final distinction is needed to complete this nutshell account of natural normativity. As Foot points out, for judgments of natural normativity, not just any Aristotelian categorical will do. What is needed are sentences that attach predicates to species in a teleological fashion. For predicate attachment to be teleological, the predicate must attribute parts or operations that causally contribute to the flourishing of the member organisms of the species. So the peacock's

⁶ Foot 26-27.

⁷ Foot 30.

⁸ Foot 30. Foot is drawing from Thompson, 295.

possession of a brightly-coloured tail is a feature open to teleological predication; the blue tit's possession of a round blue patch on its head is not.

3. Biological concepts: species and environment

The neo-Aristotelian approach to objectivist meta-ethics rests on the biological concepts of environment and species. I will argue, however, that neither of these concepts can do the work that is required of them. Furthermore, to try to develop a concept of either that will work would threaten the very objectivity that the neo-Aristotelian seeks.

3.1. The concept of natural environment⁹

The concept of a species' natural environment plays a key role in the account of natural normativity. For if we do not exclude certain artificial environments from the construction of Aristotelian categoricals, we can end up with some strange results. Foot gives the example of a deer in a zoo that runs poorly to illustrate this point:

Even in a zoo a fleeing animal like a deer that cannot run well is so far forth defective and not as it should be, in spite of the fact that, as this particular individual is by chance placed, this may be no disadvantage for defence or feeding or mating or rearing the young."¹⁰

It seems highly intuitive to Foot that there would be an Aristotelian categorical concerning deer and running well, regardless of whether deer need this ability to flourish in an artificial environment. Foot uses this example to illustrate that "...what is excellence, and what defect, is relative to the natural habitat of the species."¹¹ Foot does not elaborate on her notion of a natural habitat. In spite of the fact that this notion makes some intuitive sense, there is no robust way to

⁹ I mean by 'environment' what Kitcher outlines as the biologist's notion of environment, or functional environment, in Kitcher (2003). 'Battling the Undead: How (and How Not) to Resist Genetic Determinism.' See *In Mendel's Mirror: Philosophical Reflections on Biology*. New York: Oxford University Press. 283-300.

¹⁰ Foot 34.

¹¹ Foot 34.

characterize the natural environment of a species that will preserve the kinds of judgment that the neo-Aristotelian seeks to capture. Before arguing for the claim that there is no robust notion of environment, I will first sketch out some reasons why the distinction carries intuitive plausibility.

There is a principled way in which to distinguish between which organisms live in a natural environment, and those that live in an artificial environment. Organisms that live in an artificial environment flourish, if they flourish, as a result of the tending done by an intentional agent. Farms, aquariums, gardens, botanical gardens, and zoos are examples of artificial environments. Organisms that do not live in an artificial environment live in a natural environment. In a natural environment, organisms flourish (if they flourish) as a result of their own parts and operations. There are further distinctions to be made here. Some populations of organisms that live in a artificial environments have undergone artificial selection: at one end of the spectrum of artificial selection is active, intentional, breeding, as is done with livestock; at the other end of the spectrum is passive artificial selection, selection that is just like natural selection except that it occurs in an artificial environment. Other populations that live in artificial environments are recent enough arrivals that they have only ever undergone natural selection. These distinctions, all of which have vague boundaries, will help clarify the problem of characterizing the good of deer in zoos.

There are two ways in which one could sensibly discount the role of artificial environments in judgments of natural normativity. One way has to do with the fact that, as I mentioned above, in artificial environments organisms are largely not responsible for their own flourishing. It is the tending of the zookeeper, the aquarium technician, the horticulturist, that explains their flourishing, if they flourish. We cannot really understand, therefore, the goodness and defect of such organisms in terms of their characteristic features. This might be a reasonable ground on which to say that we cannot make normative judgements at all about organisms in artificial environments. But this is not what the neo-Aristotelian wants to say: her claim is that the zoo-bound deer that runs poorly is a defective deer.

The other way to make sense of the problem has to do with the fact that, when populations are transplanted from natural into artificial environments they will retain the characteristic features that they had at the time of transplantation, if only until a few generations go by under the new selective pressures. In this sense, deer in zoos are the same deer that needed to run well in the wild in order to flourish. However, this is only temporarily true, if at all.

Having said all that I can in defence of the distinction that Foot makes concerning artificial environments, I will now try to show how problematic it is to find a principled way in which to tie Aristotelian categoricals to an environment. One thing that will become clear in the following discussion is that different Aristotelian categoricals will result, depending on how we decide on an appropriate notion of environment.

3.2. Three concepts of environment

Consider the following three proposals that have been made for what an appropriate concept of a species' natural environment could be.¹²

- i. the species' statistically normal environment;
- ii. the environment in which the species evolved;
- iii. any environment in which the species remains.

The goal, with respect to naturalistic virtue ethics, is to find a robust concept of environment that will both support the determination of a unique¹³ Aristotelian categorical for each species, and that will allow for the principled exclusion of populations that live in artificial environments. I will first explain how all three given proposals lead to problems. I will then offer a fourth option that, in spite of being extremely concessive, also fails to give natural normativity what it needs to get off the ground.

¹² These possibilities, and several of the objections, were suggested by Philip Kitcher in an unpublished lecture, 11 November 2003.

¹³ I mean unique in the sense that every species should have only one set of teleological predicates. I do not mean that each species should have a set of teleological predicates that is distinct from that of other species, although this should result if all species have distinct life-forms.

If we construct Aristotelian categoricals based on a concept of natural environment as the statistically normal environment of a species, then we admit two possibilities that are uncongenial to the neo-Aristotelian position. The first possibility is the natural environment of species whose members primarily live in artificial environments will turn out to be an artificial environment. I have already discussed the problems that result from this possibility. The second possibility is that there could be one species that is divided into two populations, each with a different habitat. The natural environment of the less populous of the two populations will turn out to be the other population's environment.

The second proposal, to consider the environment in which the species evolved to be the species' natural environment, is unworkable for different reasons. Many species evolved in environments much different from any environment in which its currently living members flourish: in some cases, these are environments that no longer exist. Furthermore, features that were teleological in the environment in which a species evolved may have been retained although they are no longer teleological. It would make little sense to construct an Aristotelian categorical based on a feature that was teleological sometime in the past but is no longer important to the flourishing of the present members of the species.

The third proposal, to any environment in which the species remains as its natural environment, is probably more along the lines of what the neo-Aristotelian intends. One problem with this proposal is the same problem that arose for the first. There are species that remain only in zoos and botanical gardens; these would have to be excluded again on an ad hoc basis.

To summarize, three proposals have been made for a concept of natural environment that will allow for the construction of Aristotelian categoricals in the way that the neo-Aristotelian requires. The first and third proposals fail primarily because they requires the ad hoc exclusion of populations living in artificial environments. The second fails because it does not pick out a set of features that are causally related to the flourishing of present populations of a species.

3.3. A fourth concept of environment

There is yet another conception of environment available. The possibility is based on the biological concept of a 'reaction norm'. A reaction norm for a particular genotype is the graph that shows the range of phenotypes that would result, given all possible environments in which organisms of that genotype would survive.¹⁴ Reaction norms are extremely difficult to determine, but one could make a case that it is in principle possible to determine a reaction norm for all organisms. It seems reasonable that we could use the experimental basis for reaction norms as a basis for another concept of environment. Each species has a space of natural environments in which its members would survive. If we replace the notion of survival with the notion of flourishing, then it seems that we might have an objective space on which to base Aristotelian categoricals for a species. Unfortunately, this concept of environment also runs into problems.

One problem is that phenotypic characteristics are not simply functions of genotypes: genetic traits can give rise to different phenotypic traits, depending on the sequence of environments that the developing organism is exposed to.¹⁵ So if we were to base Aristotelian categoricals on this space of environments, then there would be two ways in which the resultant categoricals lack uniqueness. One, different features would be teleological in different environments. Two, the organisms would have different phenotypic characteristics and thus different teleological features in different environments. This is a modification that is perhaps open to an ethical naturalist who is willing to expand Aristotelian categoricals to encompass not just species terms but also environment terms.

A second problem with this proposal is that the problem of excluding artificial environments remains: artificial environments would still have to be excluded on an ad hoc basis.

¹⁴ David L. Hull. (1998). 'On Human Nature'. In David L. Hull and Michael Ruse (eds.), *The Philosophy of Biology*. New York: Oxford University Press. 383-397. First published in *PSA 1986* (East Lansing, MI: Philosophy of Science Association, 1986), ii. 3-13. 390-391.

¹⁵ Ibid.

The third, and most damaging, problem with this proposal is that reaction norms are determined for genotypes, and genotypes belong to individual organisms rather than species. It would only be possible to derive Aristotelian categoricals for species in this way if the genotypes used were of organisms that displayed the appropriate teleological features. This raises all kinds of problems of circularity. We would have to know which organisms displayed the teleological features of its species before determining a reaction norm based environment; but teleological features can only be specified with respect to an environment. In addition to raising issues of circularity, this discussion points toward yet another hugely important problem for Foot, which I will discuss the next section. All of the discussion up until now in this essay has presupposed that there is some unproblematic notion of species that will support the determination of Aristotelian categoricals, if only an appropriate concept of environment could be established. But as I will discuss in the next section, individual members of a species vary considerably. So considerably in fact that my fourth proposal of an environment concept would not work. To define a space of environments in which one member of a species would flourish is not to define a space in which all members of the species would flourish.

What the current section's discussion reveals, I think, are two things. One is that there is no robust objective notion of environment that would support the determination of a unique Aristotelian categorical. An ethical naturalist could admit multiple categoricals by relativizing each categorical to an environment, but to do so would only solve part of the problem. The second lesson of this section is that the teleological features of a species are inextricably dependent on what environment is specified. Furthermore, lurking behind these difficulties related to the concept of environment are even larger concerns about the variability of individual organisms belonging to the same species.

4. The concept of species

In the above discussion of the concept of environment, I presupposed that there is a clear-cut concept of species that would allow for the objective construction of Aristotelian

categoricals, if only we could specify an appropriate concept of environment . It turns out that this is not the case, for even if there were an appropriate concept of environment, there is still no concept of species that will do the work required by the neo Aristotelian, because species admit of a great amount of variation amongst their members.

4.1. Species concepts

In biological practice and in systematics there are several distinct predominant concepts of how to group organisms into species.¹⁶ Writers on the topic tend to agree that species concepts have two distinctively different purposes, and that each candidate species concept does better or worse at fulfilling these purposes. Kitcher, for example, groups species concepts into those based on structural similarities and those based on phylogenetic relationships.¹⁷ David Hull regards the dichotomy as resulting from a demand for, on the one hand, a fundamental unit in classification, on the other a fundamental unit in evolution.¹⁸ However one pinpoints exactly what the two kinds of demands on species concepts are, it is clear that some species concepts focus on lineage, while others focus on traits.

¹⁶ 'Several' might be an understatement. Joel Cracraft cites a study that finds 22 different species concepts throughout the relevant literature: J. Cracraft. (2000). 'Introduction.' In Quentin Wheeler and Rudolf Meier (eds.), *Species Concepts and Phylogenetic Theory: A Debate*. New York: Columbia University Press. 3-14. The study Cracraft cites is: R.L. Mayden. (1997). 'A hierarchy of species concepts: the denouement in the saga of the species problem. In M.A. Claridge, H.A. Dawah, and M.R. Wilson (eds.), *Species: The Units of Diversity*. London: Chapman & Hall. 381-424.

¹⁷ Philip Kitcher. (1984). 'Species.' *Philosophy of Science*, 51:2. 308-333.

¹⁸ David L. Hull. (1998). 'Introduction to Part V.' In David L. Hull and Michael Ruse (eds.), *The Philosophy of Biology*. New York: Oxford University Press. 295-299.

4.2. Species, essences, and biological practice

Aristotelian categoricals express propositions about species. In order for them to be true, there must be some fact about the species that makes them true. The obvious candidate for such a fact is the essence of a species, but there is little in the way of biological practice or theory to support the idea that biological species have essences.

If species have essences, then the organisms that are members of the species must share at least one non-trivial property¹⁹ that is both a necessary and sufficient condition for membership in that species. Sober gives three criteria that the shared property must meet in order to qualify as an essential property of a kind:

- i. The property must be non-accidental.
- ii. The property must be explanatory: it must explain many of the other properties of the kind.
- iii. The property must be intrinsic: it cannot be a relation between things of the kind, nor a relation between things of the kind and other things in the universe.²⁰

Sober argues that biological practice refutes essentialism about species. His claim is that biologists, with the exception of pheneticists, do not classify organisms into species based on genetic or phenotypic similarities. Rather, they consider species to be historical entities.²¹ Hull has a similar view: he argues that:

[t]he organisms that comprise sexual species form complex networks of mating and reproduction. Any organism that is part of such a network belongs to that species, even if the characters it exhibits are atypical or in some sense aberrant.²²

What the quotation from Hull shows is that this sort of argument against essentialism depends on a species concept that emphasizes lineage. However, similar arguments from practice are available for the pheneticist who classifies species statistically, according to shared

¹⁹ Kitcher (1984, 310) points out that species-membership, for example, is a trivial property shared by members of a species, on the set-theoretic view of species.

²⁰ Sober 149.

²¹ Sober 151.

²² Hull 384.

characteristics. Hull considers and rejects the possibility that species might have statistical rather than traditional essences:

Organisms belong to a particular biological species because they possess enough of the relevant properties or enough of the more important relevant properties. Such unimodal clusters do exist, and might well count as 'statistical natures', but in most cases the distribution that characterize biological species are multi-modal, depending on the properties studied. No matter how desperately one wants to construe biological species as natural kinds characterizable by some sort of 'essences' or 'natures', such multi-modal distributions simply will not do. To complicate matters further, these clusters of properties, whether uni- or multi-modal, change through time.²³

Hull's argument is plausible for phenetics, but species are sometimes still identified by traits in manners other than that of the pheneticists. Cracraft points out that of the approximately 1.75 million species that have already been identified, many have been identified on the basis of a single specimen. But he argues that this is simply a result of not having sufficient specimens: if more specimens were available, then trait variation would be incorporated into these species definitions.²⁴ Typological thinking, Cracraft claims, is only a matter of practical necessity, and not a part of biological practice.

The above arguments cast doubt on the existence of a necessary and sufficient property that defines membership for each species. Hull also advances arguments to the effect that when there are properties that all and only members of one species share, which happens occasionally, these properties usually fail the criterion of being explanatory.²⁵ For those who are still not convinced that species do not have essences, both Sober and Hull point out that even when species do have common definitive properties, and even if these properties are explanatory, they would still be accidental properties. Hull puts this point in the following way, using the example of human beings:

²³ Hull 383.

²⁴ Cracraft 10-13.

²⁵ Hull 385.

If by “human nature” all one means is a trait which happens to be prevalent and important for the moment, then human nature surely exists. Each species exhibits adaptations... One of our most important adaptations is our ability to play the knowledge game. It is important that enough of us play this game well enough, because our species is not very good at anything else. But this adaptation may not have characterized us throughout our existence, and may not continue to characterize us in the future. Biologically, we will remain the same species, the same lineage, even though we lose our “essence”.²⁶

It seems then that there is no biological concept of species that would fulfill the role of truth-maker for Aristotelian categoricals. Moreover, an essentialist concept of species would conflict with an expectation of population variation that is perfectly normal from the point of view of evolutionary theory.

4.4. Essence and defect

The above discussion of essentialism and species concepts raises another interesting question that I will address only very briefly here. Even if there were a biological concept of species that fulfilled Sober’s three requirements for essentialism, it is not at all clear that this would help to ground Foot’s theory. On Sober’s account of essentialism, which is a fairly standard account, organisms that lack the necessary and sufficient property essential to a kind are not *deficient* members of the kind – they are not members of the kind at all. If biological species did have such essences, then the conclusion of the deduction of natural normativity would not go at all as Foot, following Thompson, construes it. At this point, the Aristotelian roots of this project show clearly. In very rough outline, Aristotle considered species to have essences. Members of the species who do not display the essential properties of the species still possess these features potentially. On the basis of Aristotelian metaphysics, then, there is a sense in which an organism that lacks the essential features of its species can be considered defective. It seems unlikely, however, that Foot or other neo-Aristotelian ethicists would be interested in returning to Aristotelian metaphysics. There are few resources within contemporary biology

²⁶ Hull 391-392. See also Sober 152.

from which to argue that organisms that lack the essential features of their species possess them potentially. As Hull puts it, it is futile to argue that human beings who, for genetic reasons, lack the capacity to learn a language nevertheless possess the capacity potentially:

They [human beings who lack language capacity] are potential language users in the sense that if they had a different genetic make-up and were exposed to the appropriate sequences of environments, then they would have been able to acquire language skills similar to those possessed by the rest of us. But this contrary-to-fact conditional can be applied to other species as well. In this same sense, chimpanzees possess the capacity to acquire language.²⁷

5. Conclusion

For judgments of natural normativity to be objective, they must rest on objective facts about the natural world. The neo-Aristotelian theory of natural normativity involves the construction of Aristotelian categoricals that are supposed to reflect objective facts about species. However, as I have outlined, there are two major conceptual problems with this approach. The first problem is that Aristotelian categoricals must be relativized to an environment, but there is no clear principled way to determine the appropriate concept of environment. Some possible conceptions of environment require ad hoc exclusions of artificial environments: such ad hoc exclusions undermine the objectivity of the theory. Other conceptions of environment that seem promising are unfortunately based on an unreasonable assumption about the resemblances between organisms of the same species. This consideration leads to the second major conceptual problem: among the concepts of species that are currently operating in the diverse fields of biology, there is none that entails that all members of a species share essential properties. Both of these conceptual problems spell trouble for the project of naturalistic virtue ethics in which the neo-Aristotelian theory is situated.

²⁷ Hull 387.

The above arguments leave the neo-Aristotelian in the awkward position of having to explain where natural normativity comes from, if not from the natural world as understood by natural scientists. I conclude that statements of 'natural normativity' derive from evaluation, not observation, of the natural world.