Chapter 1

The Normativity of Nature: Organic and Practical Teleology

"Biology cannot, or at least in practice does not, eliminate functions and purposes."

—Mark Perlman, "The Modern Resurrection of Teleology in Biology", 6.

Is-Ought Gap

Rosalind Hursthouse argues that ethical evaluations (of humans) and non-ethical evaluations (of plants and animals) "both depend upon our identifying what is characteristic of the species in question."[1] In other words, *normative* evaluations depend on *descriptive* facts about a species. If true, this notion would be momentous: "is" statements would underwrite "ought" statements.

This chapter addresses and challenges the widespread prejudice against scientific teleology. I invoke the help of sciences – especially life sciences such as biology and medicine – which indicate that teleological nihilism and teleoreductionism are by no means "*the* scientific doctrines". Rather, if teleological realism is a scientifically respectable position, then nature is normative. And if nature is normative, it is at least possible that *human nature* is normative, even though humans are a unique kind of animal.

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1. Rosalind Hursthouse, *On Virtue Ethics* (Oxford University Press, 1998), chap. 10, abstract.

The notion that natural, descriptive propositions can serve as premises in arguments with normative conclusions is central to the project of ethical naturalism. Is this notion even intelligible? Many have posed an obvious challenge to this notion. We can put the challenge in this form:

Is-Ought Gap Challenge

1. If ethical naturalism is possibly true, then "ought" conclusions can be derived from "is" premises.
2. But no "ought" conclusions can be derived from "is" premises.
3. Therefore ethical naturalism is not possibly true.

The second premise seems to render hopeless the thought, articulated by Hursthouse, that we can evaluate things on the basis of what they are. This is the major problem I shall address. This problem goes by many names, but the one I prefer is the "is-ought gap."

Simply put, the is-ought gap is the intuitive notion that one cannot learn anything about *what ought to be* simply by examining *what is*.[2] For example, suppose your friend Jim will be attending his first Oscar ceremony, but doesn't know what to wear. Suppose we observe that *most male celebrities wear black ties to the Oscars.* It simply does not follow from the premise that most men in fact wear black ties that *Jim ought to wear a black tie to the Oscars*. At least, it does not follow without additional, brutely normative premise such as that *He ought to wear whatever most people are wearing.* Even if we supply *that* normative premise, where did it come from? "When in Rome, do as the Romans do" is not something supplied by *observation*.

More broadly, in ethics, the is-ought gap seems devastating. For even supposing we gathered a whole collection of reliable scientific truths about human bodies, cognitive-behavioral patterns and so on – from anthropology, psychology, sociology, and also biology, chemstry, physics – we would not be a wit closer to establishing any ethical truths. A detailed and scientific description

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2. Thus, Hume: "In every system of morality, which I have hitherto met with, I have always remarked, that the author proceeds for some time in the ordinary ways of reasoning, and establishes the being of a God, or makes observations concerning human affairs; when all of a sudden I am surprised to find, that instead of the usual copulations of propositions, is, and is not, I meet with no proposition that is not connected with an ought, or an ought not. This change is imperceptible; but is however, of the last consequence." (*A Treatise of Human Nature* book III, part I, section I).

of human nature could hope to supply a "descriptive ethics" that narrates what such-and-such a culture approves of or finds worthwhile compared to what they find worthless and reprehensible.

At its best, a descriptive ethics might identify universal moral approbations and disapprobations. For example, while habits and attitudes toward drinking alcohol vary dramatically from culture to culture, there seems to be a universal (cross-cultural) disapprobation for continual drunkenness, even among cultures (like the Bolivian Camba) that drink regularly and drink heavily.[3] Such findings might be interesting, but the is-ought gap reminds us that they are a far cry from *ethical* insights.

The is-ought gap objection is fatal to some forms of ethical naturalism, but not to the neo-Aristotelian type Hursthouse and others are pursuing.[4] For there exists a second, and more promising way to underwrite "ought" statements. From basic, fundamental, scientifically respectable *natural norms*. Call this the possibility of natural normativity.[5] We can put the challenge, in the following form:

Bald Nature Challenge

1. If ethical naturalism is possibly true, then some facts are genuinely both natural and normative.
2. But no facts are genuinely both natural and normative.
3. Therefore ethical naturalism is not possibly true.

This challenge parallels the first one in that everything depends on the second premise – on whether

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3. "It is important to realize that drinking problems are virtually unknown in most of the world's cultures, including many where drinking is commonplace and occasional drunkenness is accepted." Dwight B Heath, "Sociocultural Variants in Alcoholism," *Encyclopedic Handbook of Alcoholism*, 1982, 426–40.

4. I suspect the is-ought gap has not been adequately overcome by Peter Railton's and Richard Boyd's theories. I do not have space here to explore the suspicision.

5. The concept of 'natural normativity' is indeterminate, which means I run the risk of unclarity; that indeterminacy is necessary for us to discuss these issues without begging the question in favor of the view that all norms are unnatural and all nature is non-normative. If natural norms could be discovered, then it would be *at least possible* that the is-ought gap is not a fatal problem for all types of ethical naturalism.

nature consists of *merely* non-normative facts.[6] If so, then it follows that normativity is either real but

non-natural (or supernatural) or "naturalistic" but not real (i.e., not mind-independent). There would

be no such thing as the paradoxical notion of a "prescriptive fact" or a "natural ought."[7] Hume

(and others) assume this. But if the second premise is not true – if some facts are genuinely both

natural and normative – then ethical naturalism is at least *possible*. (There will be other challenges

to address, of course.)

The candidates for natural normative facts I shall defend are natural formal and functional

or teleological properties of organisms. Hursthouse, Philippa Foot, John McDowell, MacIntyre, and

Stephen Brown are united in the thought that some natural formal or teleological facts – whether

that is Hursthouse's "characteristic", or a "life-form"[8] or "form of life"[9], or "human nature" – are

inherently normative. Rather than "bridging" the gap between "is" and "ought", they defy the

opposition.

I. Teleology as Solution

Although the neo-Aristotelians are united in the affirmation that some natural norms can serve as

a grounding for ethical facts, there are two or three competing strategies as to which "norms" are

up to the task. The strategies go under many names.[10]

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6. That nature consists of merely "natural" facts is, of course, a tautology. But whether all natural facts are non-normative facts is the question at hand. Simply to *stipulate* that "natural facts are descriptive and not normative!" is to beg the question with an exclamation point. I will pick up this question again in a later chapter.

7. Recall Mackie's beautifully expressed worry about notion of "to-be-pursuedness" built into things.

8. Michael Thompson, *Life and Action* (Harvard University Press, 2008), 57

9. John McDowell, "Virtue and Reason," *The Monist* 62, no. 3 (1979): 339.

10. Annas distinguishes two sorts of naturalism, one that emphasizes the biological nature of humanity (at the expense of the odd normativity of reason) and another that emphasizes the rational nature of humanity (at the expense of the mundane descriptivity of biology). Christopher Toner distinguishes between the "biological naturalism" of Thompson and Foot (and later MacIntyre) from the "second naturalism" or "excellence naturalism" or 'culturalism' of McDowell and (early) MacIntyre, each of which has its strengths and problems. Cf. John McDowell, "Two Sorts of Naturalism,"

Biology or Rationality?

The basic difference is between those who discover natural normativity in *human nature* – culture, or rationality, or practical agency – and those who hope to find natural normativity more generally in all organic life. As Thomas Nagel puts it, with the existence of life in the cosmos arises the existence of "beings of the kind.. for which things can be good or bad."[11] (The third group defends the view that natural normativity is intrinsic to the whole cosmos.) Let's examine each one a bit more.[12]

Social Teleology: the Normativity of Human Nature

The second option is the normative notion of humanity. On this option, something about humanity is naturally and inherently teleological. For example, perhaps one of the natural functions of rationality is to construct goals for itself and legislate laws for itself.[13] On this view, ethical conclusions are irreducibly based upon human facts such as human rationality, human culture, or human excellence. Since these human facts are contrasted with broader natural facts, call this view "So-

in *Mind, Value, and Reality* (Cambridge: Harvard University Press, 1998); Hans Fink, "Three Sorts of Naturalism," *European Journal of Philosophy* 14, no. 2 (August 2006): 202–21; Christopher Toner, "Sorts of Naturalism: Requirements for a Successful Theory," *Metaphilosophy* 39, no. 2 (2008): 220–50; Julia Annas, "Virtue Ethics: What Kind of Naturalism?" in Stephen Mark Gardiner, *Virtue Ethics, Old and New* (Cornell University Press, 2005).

11. Thomas Nagel, *Mind and Cosmos* (Oxford University Press, 2012), 117.

12. Though I shall not pursue it, I should at least mention the most ambitious and most risky sort of strategy: to defend the view that *all* of nature is teleological. But it is the notion that everything – including stars and rocks – "has a purpose", as if the cosmos were somehow organized and *going somewhere*. Call this Cosmic Teleology. Though such natural normativity in the form of natural teleology has its recent defenders. For atheistic version of cosmic teleology, see ibid., ; for non-human centered versions see John Leslie, *Universes* (Psychology Press, 1996) and Tim Mulgan, *Purpose in the Universe: The Moral and Metaphysical Case for Ananthropocentric Purposivism* (Oxford University Press, 2015). For Thomistic versions, cf. Edward Feser, *Aquinas: A Beginner's Guide* (Oneworld Publications, 2009); and Peter Kreeft, *Summa Philosophica* (St. Augustine, 2012).

13. Compare with Christine M Korsgaard, *The Sources of Normativity* (Cambridge University Press, 1996). Korsgaard's argument about the "Authority of Reflection" builds a case that human autonomy – the ability to be a law to oneself – is the source of normative authority. In other words, my own identity as a rational human agent obligates me to behave morally.

cial" or "Rational" or "Practical Teleology."[14] Pretty clearly, human cognitive and and practical

behaviors are inherently end-directed or teleological: John goes to the gym *in order to get fit for his film*

role; Jane practices her speech *to win the Iowa primary*. Humans *act on reasons* and in pursuit of ends.[15]

This kind of social or rational teleology is certainly the safer of the two strategies, and is followed by

McDowell, Hursthouse, and the early MacIntyre.[16]

Alasdair MacIntyre's position on natural normativity has shifted over the decades. I would

like to mention both his earlier view (defending social teleology), which is closer to that of McDowell

than that of Foot.

In *After Virtue*, he emphasizes "second nature" far more than primary nature. That is, he

finds a ground of normativity not in our life-form but in us: in our social identities, our culture, our

rationality. For example, he says his account of virtue "happily not Aristotelian" for "although this

account of the virtues is teleological, it does not require any allegiance to Aristotle's metaphysical

biology."[17] The "metaphysical biology" MacIntyre refers to here is that metaphysically realist view

that formal and final causes inhere (and in fact constitute) biological species.[18] That said, Mac-

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14. Cf. Marinus Farreira, "Reasons from Neo-Aristotelian Naturalism," 2011. Ferreira calls
this "excellence naturalism" as opposed.

15. The teleological nihilism (of say, hardcore determinists) says that not even human prac-
tices are teleological. There are no "purposes" or natural ends anywhere in the world *including* in
human actions. Even our practices, behaviors, and lives are purposeless, even to ourselves. I discuss
teleological nihilism below. Cf. Daniel C Dennett, "Darwin's Dangerous Idea," *The Sciences* 35, no.
3 (1995): 34–40.

16. Hursthouse appears to me to affirm both Foot's sort of naturalism and McDowell's.
Jennifer Frey observes this as well: "On this issue, Hursthouse seems to be speaking out of both sides
of her mouth. She wants to acknowledge to Aristotelian critics like John McDowell that naturalistic
considerations do not convince anyone to change their basic moral beliefs or motivate them to
action. But at the same time, she thinks that she can approach the Humean or the Kantian and
argue for "the rational credentials" of our moral beliefs based upon a "scientific" and "objective"
naturalistic account. It is unclear how she is supposed to satisfy both parties at once, and the tension
remains unresolved in her own work." Cf. Jennifer Ann Frey, "The Will and the Good" (PhD thesis,
University of Pittsburgh, 2012) 44, footnote 55.

17. Alasdair MacIntyre, *After Virtue* (University of Notre Dame Press, 1984), 197.

18. These causes may be understood by metaphysical realists as intelligible forms or univer-
sals which the intellect, by virtue of its intelligible powers, can be abstracted. As John Haldane says:
content-determining principles of perception are one and the same as the character-determining

Intyre does most emphatically argue for a teleological form of ethics based on the normativity of *human* nature. He grounds teleology not in non-human nature but in human nature, specifically our practical, social nature. He calls this notion "social teleology."

The notion of social teleology builds on the apparently obvious truth that *human society is teleological.* That is, we do not just act randomly. We do not only act according to the promptings of instinct (that too). Rather, we act *on reasons,* both individually and in groups. We act to achieve goals. Whether we arise from bed *in order to* give a talk, or drive to work *in order to* do a good job, or pursue a career *for* satisfaction and a profitable retirement, we are directing ourselves toward ends. In groups, too, we pursue shared goals, deliberate about *what is to be done*: Congress aims to pass just and beneficial laws. The school board aims to increase enrollment and balance the budget. Expanding our focus from individual actions or projects, we can put the point more strongly: all of human life is a practice. It can be brought under the concept of either one, unified, whole practice or pluralistic set of practices. Even when Iris Murdoch assumed[19] that human life has "no external point or τελος", she argues that it has a point *from within.* It is impossible, in other words, to bring our own human life under the concept of an *event.* Human life must be brought under the concept of a practice, which is teleological and essentially so. This insight has important implications for ethics, as well as other fields: action theory, sociology, anthropology, philosophy of mind, and so on.[20] But the point here is that, since we act in groups and for reasons, teleology is a real feature of our social nature. They cannot be understood without teleology. So if the critic of natural normativity rejects teleological realism (as did the early MacIntyre), it is enough if she accepts social teleology.

principles of the objects of perception — the identity of act and object." Intellection, in turn, is a distinctly human (rational) activity. While animals can not only sense but *perceive*, humans have the capacity of intellection, the power of abstracting the forms themselves from percepts. An animal can sense an informed, organized object; an animal can be affected by the object. But the human animal can *acquire information* from the organized object. The ability to perceive something *as*, or even to perceive something big and brown with a smudge on its nose, does not imply the ability to perceive that thing as a cat. Cf. John Haldane, "On Coming Home to (Metaphysical) Realism," *Philosophy* 71, no. 276 (1996): 287–96

19. Iris Murdoch, *The Sovereignty of Good over Other Concepts* (Mouette Press, 1998).
20. Cf. Thompson, *Life and Action*.

Natural Teleology

The second strategy is more ambitious and more risky. It is to defend the view that other parts of nature (such as living creatures) are naturally and inherently teleological. For example, perhaps one of the functions of *being alive at all* is that plants and animals act to survive and perform whatever instinctual actions are necessary for them to grow and develop into the state of species-specific maturity. At least some natural entities – living organisms – have ineliminable, irreducible, normative properties. Call this view Natural Teleology. Natural Teleology is the preferred strategy of Foot, Thompson, and the later MacIntyre. It seems to have won over Annas, Brown, and Barham, and a host of other biological scientists.[21]]

Problems for Teleology

Each of these two predominant strategies faces its major challenge. For example, fven if the first strategy of *human* natural normativity could pre-emptively undercut the is-ought gap, the major worry is no such thing as a universal human nature from which we might derive normative conclusions. Even the singular noun phrase "human nature" is liable to sound mystical, like a platonic universal underlying all human beings.

> Bernard Williams summarizes the antiquated worldview that many are suspicious of:
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> The idea of a naturalistic ethics was born of a deeply teleological outlook, and its best
> expression, in many ways, is still to be found in Aristotle's philosophy, a philosophy

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21. Keith Ward, "Kant's Teleological Ethics," *The Philosophical Quarterly* 21, no. 85 (1971): 337–51; Larry Arnhart, "Aristotle's Biopolitics: A Defense of Biological Teleology Against Biological Nihilism," *Politics and the Life Sciences* 6, no. 2 (1988): pp. 173–229; Monte Johnson, *Aristotle on Teleology* (Oxford University Press, 2005); Philippe Huneman, "Naturalising Purpose: From Comparative Anatomy to the 'Adventure of Reason'," *Studies in History and Philosophy of Science Part C: Studies in History and Philosophy of Biological and Biomedical Sciences* 37, no. 4 (2006): 649–74; Mariska Leunissen, *Explanation and Teleology in Aristotle's Science of Nature* (Cambridge University Press, 2010). For a detailed exposition of the full menu of philosophical options, cf.Bill Cosby, "The Modern Philosophical Resurrection of Teleology," *The Monist* 87, no. 1 (2004): 3–51.

according to which there is inherent in each natural kind of thing an appropriate way for things of that kind to behave.[22]

The problem, of course, is that if human beings are a "mess" (as Williams puts it) then the normative conclusions to be derived would be equally messy. Humans are occasionally irrational and always variable. Human beings posit themselves, create themselves, define their values, chart their destinies, and all in different ways.

Along similar lines, evolutionary biology tells us that genetically modern humankind is the latest in a series of species. This is prima facie in tension with the notion of fixed, stable human nature. Ernst Mayr puts the alleged tension between the flexibility of evolutionary species and a fixed human nature in this way:

> The concepts of unchanging essences and of complete discontinuities between every *eidos* (type) and all others make genuine evolutionary thinking impossible. I agree with those who claim that the essentialist philosophies of Aristotle and Plato are incompatible with evolutionary thinking.[23]

Like Williams' worry that we can no longer believe in an "appropriate way… to behave" that is "inherent in each natural kind of thing", Mayr's worry is that there may not even be natural kinds.

A second, related, objection is that if there is such thing as "human nature", it is nothing more or less than our biological and physiological makeup. Tim Lewins argues that:

> the only biologically respectable notion of human nature that remains is an extremely permissive one that names the reliable dispositions of the human species as a whole. This conception offers no ethical guidance…[24]

On Lewins' view, the only scientific talk about our "nature" is an indetermiante series of complicated stories about our genetics, evolutionary history, and neurophysiology, perhaps even including

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22. Cf. Bernard Williams, in *Making Sense of Humanity: And Other Philosophical Papers 1982-1993* (Cambridge University Press, 1995), 109.

23. Ernst Mayr, *Populations, Species, and Evolution: An Abridgment of Animal Species and Evolution* (Harvard University Press, 1970), 4.

24. Tim Lewens, "Human Nature: The Very Idea," *Philosophy & Technology* 25, no. 4 (2012): 459–74.

cultural, geographical, and ecological settings. The problem, of course, is that an empirical "scientific" conception of human nature has nothing to do with *ethics*. All of the complicated stories we could tell – if they are genuinely scientific – would be purely *descriptive*. In response to this worry, Rosalind Hursthouse's response is to reassure us that: "Ethical naturalism is not to be construed as the attempt to ground ethical evaluations in a scientific account of human nature."[25] Nevertheless, she *does* endorse the project of grounding ethical evaluations in human nature. If this grounding is not *scientific*, then how is a grounding of ethics going to work?

Bald Nature Objection

I shall return to the problems regarding a normative conception of human nature in a later chapter. Here I must address the objections to the Organic or Natural Teleology strategy. This second strategy has its own, even bigger, problems; not even all the neo-Aristotelians are optimistic about the strategy of grounding human ethics in natural normativity.

Even if natural normativity in the form of teleology in the non-human world *could possibly* underwrite normative conclusions about human ethics, how would we confirm the hypothesis that there is such a thing as natural normativity? Is the hypothesis scientific or not? For many, scientific naturalism just is the commitment to believe all and only the best deliverances of all the sciences.[26] But suffice many scientific naturalists do indeed think that the scientific conception of nature is incompatible with the kind of natural normativity found in Foot's brand of neo-Aristotelian ethical naturalism. They think that the scientific picture of nature is the picture of "bald nature" (McDow-

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25. Hursthouse, *On Virtue Ethics* especially chapter 10.

26. Other ethical naturalists like Richard Boyd and Peter Railton would be quick to observe, at this juncture, that natural kinds themselves are part of the vocabulary of natural science. Cf. Richard Boyd, "Realism, Anti-Foundationalism and the Enthusiasm for Natural Kinds," *Philosophical Studies* 61, no. 1 (1991): 127–48; Richard N Boyd, "How to Be a Moral Realist," *Contemporary Materialism*, 1988, 307; Peter Railton, "Moral Realism," *Philosophical Review* 95, no. 2 (1986). And indeed, part of my strategy for defending the truth and scientific credentials of Footian naturalism is to appeal to generic truths about natural kinds. But this objection is still considerable.

ell's phrase for non-normative nature) or the "Laplacian" picture.[27] Call "teleological nihilism" the view that there are no natural purposes *except* those in human actions, intentions, and societies, etc. On teleological nihilism, *social teleology* is not instances of a broader category that includes the tendency of an acorn to become an oak and the tendency of deer to survive and reproduce; human purposes are sui generis phenomena that spontaneously emerge out of our brains at a certain level of complexity. Final causation thinking is then projected out onto the world by us; we observe that the beaver gathered wood and that the beaver built a dam and we say "the beaver gathered wood *in order to* build the dam." But really the beaver did no such thing. This is what philosopher of biology Ernst Mayr calls "teleonomic" natural behavior, but not genuinely teleological.[28]

II.   An Initial Case for Natural Normativity

So what are we to make of these challenges? I shall respond to the Bald Nature Objection.

On the one hand, I think both strategies (social teleology and natural teleology) would work, and wish to defend them against ethical non-naturalists or ethical naturalists of different sorts.[29] On the other hand, I think natural teleology is the stronger of the two and is less subject to objections from cultural relativism. Hence, in the spirit of devil-may-care adventure seeking, I shall pursue the more ambitious strategy of defending natural normativity in all of organic nature, not just human beings.

However, in a later chapter I will more thoroughly examine the notion human (and only human) teleology is the source of natural normativity. (In the end, I do not think these two notions of normativity are *contradictory*. A "third type" of naturalism could even perhaps combine them.)[30] To

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27. Alvin Plantinga, *Where the Conflict Really Lies: Science, Religion, and Naturalism* (Oxford University Press, 2011), 84. Plantinga explains that the bald, disenchanted picture of nature that excludes all consciousness – both divine and human – should not be pinned on Newton, who was a pious Christian, but fits better with Pierre-Simon Laplace.

28. Ernst Mayr, "The Idea of Teleology," *Journal of the History of Ideas* 53, no. 1 (1992): pp. 117–35.

29. Such as functionalists and the Cornell realists just mentioned.

30. Fink, "Three Sorts of Naturalism.. The criteria for this third sort of naturalism are

those for whom the concept of natural teleology might have been completely unpalettable, I hope to render it not only conceivable but plausible. For those who do not find it plausible, human teleology is a kind of fail-safe. The facts of social or practical teleology are enough to ground the theory of virtue I develop in a later chapter. Although I feel confident that social teleology is a sufficient ground for ethics, I shall caution that the cost of rejecting natural teleology is an incorrigible cultural relativism: While objective morality may be realized intersubjectively, intersubjective morality is not objective.

For now, I shall pursue the strategy according to which natural normativity in the form of natural teleology is sufficient to ground a theory of ethics in observations about human nature as practical, rational animals.[31] This is to defend the Foot/Thompson strategy of Natural Teleology as preferable over McDowell's strategy of Social or Practical Teleology. In doing so, I shall summarize and bolster her arguments, offering a more rigorous argument for the fundamental premise that some natural facts are brutely normative, teleological facts.

Foot on Natural Normativity

Let's begin with Philippa Foot. Foot argues that human virtues are instances of a broader class of natural properties: 'natural goodness.'[32] to earn an audience for her argument, her first chapter (which she call a "fresh start") clears some shaky assumptions inherited from Hume and Moore. Instead of treating human valuations as sui generis, a miraculous new appearance in the cosmos that only appears with the existence of humans, hat we should expand our scope to examine our status as natural entities. She is well aware that her offering is likely to offend the ears of some listeners. Her defense is the thought (drawn from Wittgenstein) that crude beginnings are often a

sketched brilliantly by Toner, "Sorts of Naturalism.. Such third kind of naturalistic theory would be comprehensive. It would provide an anti-dualistic account of first nature and "second nature", of biology and culture, of animality and rationality. But more of these things later.

31. Arnhart, "Aristotle's Biopolitics."

32. Philippa Foot, *Natural Goodness* (Oxford University Press, 2001); cf. Sanford S Levy, "Philippa Foot's Theory of Natural Goodness," in *Forum Philosophicum*, vol. 14, 1, 2009, 1–15.

necessary first step on the way something refined.

The kind of "shaky assumption" she means is this: Moore assumed that "good" was the ultimate ethical predicate under review. By contrast, she argues that statements like "pleasure is good" are not good paradigms for philosophical reflection. Evaluation of human creatures and evaluation of plants and animals follow *the same logical pattern*. In such evaluations, good is good *for*. Contrast 'good' with other predicates like 'red' or 'beautiful.' In a statement such as 'the house is beautiful', the predicate 'beautiful' doesn't need a complement. The house is *beautiful* – full stop. But 'good' (like 'useful') has a different logical function. 'The house is useful' does need a complement – the house is useful *for a mom of six, or useful for an artist,* or what have you. Similarly, 'good' always means *good for someone* or *for something.* 'Good' always needs a complement. If this crude beginning is anywhere near to correct, we can distance ourselves from Moore's starting point and build on another starting point: the life-form of human beings.

In this Foot agrees with Thompson's groundbreaking *Representation of Life*. There, he argues that the concept of "life" is not, as it may seem to some, a property of some beings where *being* is the fundamental concept; rather "life" is a fundamental concept.[33] Thompson reviews and refutes a variety of biological definitions of life such as reproduction, growth, metabolisis, etc., for these properties depend on a prior understanding of life. He says, "Vital description of individual organisms is itself the primitive expression of a conception of things in terms of 'life-form' or 'species', and if we want to understand these categories in philosophy we must bring them back to that form of description."[34] When we observe and examine living things we rightly employ some shared categories and our conclusions rightly share a logical structure. What is that common structure? Every individual living being is a member of a species or life-form. And different life-forms are subject to different normative appraisals.

Humans are certainly a unique *kind* of living being with a unique life-form. And we shall

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33. Michael Thompson, "The Representation of Life," in *Virtues and Reasons*, ed. Lawrence Hursthouse Rosalind and Warren Quinn (Oxford: Clarendon Press, 1995), 247–96.
34. Thompson, *Life and Action*, 57.

examine below what difference the differences make. As a preview, morality is (correctly) thought to be action-guiding. Hume and Moore (correctly) argue that moral principles cannot be merely descriptive; they must motivate us to act or refrain from acting. (Furthermore, moral theories must be able to explain retroactively *why* one acted or refrained from acting). and help us to evaluate actions or abstentions, in ourselves and others.) Call this the Practicality Requirement. But, the argument will be, the position that moral reasons are inextricably tied to conative psychological states is not the best way to meet the Practicality Requirement. Rather, the action-guiding facts in the case of natural goodness are facts humans as practical, rational creatures, and facts about our relation to objects in the world. But more on this below.

> Foot concludes that:

> …goodness and badness, and therefore about evaluation in its most general form; but we might equally have been thinking in terms of, say, strength and weakness or health and disease, or again about an individual plant or animal being or not being as it should be, or ought to be, in this respect or that. Let us call the conceptual patterns found there, patterns of natural normativity.[35]

Another way of putting this point is that some properties we can call 'goodness' are primary qualities of nature. McDowell and others will worry that this picture of nature is not "the scientific picture" of nature, and that even if it were, such a picture is not necessary since social normativity is a sufficient grounding for ethics.

III. A Novel Case for Natural Normativity from Generics

What are the odds that "identifying what is characteristic of a species" can license normative judgments? The odds are quite good, I think. My case for natural normativity depends on a minimal scientific realism and on a little-utilized feature of language and conceptualization called "generic propositions" – or simply "generics." The case in brief is this:

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35. Foot, *Natural Goodness*, 38.

1. If some generic statements describing natural entities are true, then some facts are both genuinely natural and normative – there are "natural norms."
2. Some generic statements describing natural entities are true.
3. Therefore, some facts are genuinely both natural and normative – there are "natural norms."

The Special Logic of Generics

Michael Thompson is one of the first to work out "the special logic of judgments we make about living things, and then to indicate its application to ethics." That 'special logic' is variously called "Aristotelian categoricals"[36], "natural-historical judgements"[37] "norms"[G. E. M. Anscombe[38] 14-15. Anscombe is not very optimistic about the project Thompson, Foot, and I are undertaking. She says: "It might remain to look for"norms" in human virtues: just as man has so many teeth, which is certainly not the average number of teeth men have, but is the number of teeth for the species, so perhaps the species man, regarded not just biologically, but from the point of view of the activity of thought and choice in regard to the various departments of life-powers and faculties and use of things needed- "has" such-and-such virtues: and this "man" with the complete set of virtues is the "norm," as "man" with, e.g., a complete set of teeth is a norm."] "bare plurals"[39]. I prefer the shorter and less adorned term 'generic.'[40]

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36. Ibid.
37. Thompson, "The Representation of Life"; Thompson, *Life and Action*.
38. "Modern Moral Philosophy," *Philosophy* 33, no. 124 (1958): 1–19.
39. Greg N Carlson, "A Unified Analysis of the English Bare Plural," *Linguistics and Philosophy* 1, no. 3 (1977): 413–57.
40. Cf. ibid., . Carlson's essay is an early attempt to account for a variety of linguistic forms under one concept of reference to kinds; Francis Jeffry Pelletier and Greg N Carlson, *The Generic Book* (University of Chicago Press, 1995); Sarah-Jane Leslie, "Generics: Cognition and Acquisition," *Philosophical Review* 117, no. 1 (2008): 1–47; Andrew M Bailey, "Animalism," *Philosophy Compass* 10, no. 12 (2015): 867–83 for a discussion of a specific generic: "we are animals" in metaphysics and philosophical anthropology; Andrei Cimpian, Amanda C Brandone, and Susan A Gelman, "Generic Statements Require Little Evidence for Acceptance but Have Powerful Implications," *Cognitive Science* 34, no. 8 (2010): 1452–82 for an experiment in cognitive psychology that seeks to quantify the prevalence levels at which subjects tend to agree to generics, i.e., how many birds have to lay eggs before we agree to the assertion that "birds lay eggs"? Manfred Krifka, "Bare

My postulate is this: **some generics about human beings are true.** If this is true then, I shall suggest, we have good hope of cutting up nature at the joints. When combined with a moderate scientific realism, generic truths from sciences such as biology, physics, and anthropology (and perhaps others) support a modest natural normativity which will be further articulated (in a later chapter) to indicate which traits are virtues or vices for human beings.

Generics are neither universal nor particular

Now, what are generics? "A fine question, but a difficult one," Andrew Baiely says. His recent paper provides a helpful introduction to the topic of generic statements:

> Start with this sentence: [all ducks lay eggs.] This first sentence is, let us suppose, true. So far so good. But is it equivalent to 'for every x, if x is a [duck], x [lays eggs]? 'ducks lay eggs' may be true even if not all ducks lay eggs, 'mosquitos carry dengue fever' may be true even if only a very few mosquitos carry that virus, and so on). We are now positioned to observe one curious property of generics: they admit of exceptions.[41]

Thus, generics are statements of the form "S is F" or "S has or does F" where S is not an individual but a class or natural kind. The logical form of "all S's ϕ" does not predicate ϕ-ing to all members of the category S without exception, nor does it simply assert that some "S's ϕ", which is true but uninteresting.

Consider the statement "all wolves hunt in packs." Logically, the proposition expressed in this statement is neither strictly universal nor strictly particular. It is not a strictly true universal judgment (for some actual wolves hunt alone, and some don't hunt at all). Furthermore, it is true but trivial that *some wolves hunt in packs*. Confining ourselves to particular judgments like "Some reptiles lay eggs" would be radically unambitious science. We want to know – and can know – what is true of the class as a whole. If a biologist discovers an exception to the proposition "All reptiles

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NPs: Kind-Referring, Indefinites, Both, or Neither?" in *Semantics and Linguistic Theory*, vol. 13, 2003, 180–203; Ariel Cohen, "On the Generic Use of Indefinite Singulars," *Journal of Semantics* 18, no. 3 (2001): 183–209.

    41. Bailey, "Animalism," 869.

lay eggs", then either it turns out that not all reptiles lay eggs *or* she has discovered a new species of reptile that does not lay eggs.

Generics refer to natural kinds

Generics do not refer *distributively to all* members of a category nor merely to *some* but to the category itself; they are statements about natural kinds. In this way, generics pick out what we might call formal facts, facts about the life form in question.

　　The statement that "wolves hunt in packs" is only interesting to scientists if it is an item of conceptual knowledge about wolves as a *kind*. A generic is interesting because it is, or we treat it as, a truth about forms, or species. The subject of the statement is not all S's nor merely some S's, but the "infama species."[42] As Leslie says:

> It is widely accepted that [definite] generics are singular statements which predicate properties directly of kinds. For example, "tigers are extinct" predicates the property of being extinct directly of the kind Panthera tigris, and would be true just in case Panthera tigris had the property of being extinct (Krifka et al. 1995).

Generics are not statistical

As Leslie's point shows, generics are not merely statistical regularities. The members of extinct species do not exhibit any properties at all, yet it is still true in some sense that *the species* is extinct. Likewise, all the living members of a species might fail to exemplify its formal attributes. Consider the fact that "California condors can fly for hours without resting."[43] In 1987 there were only 27 known condors alive. One could easily imagine a scenario in which every living member of such an endangered species were too injured, old, or diseased to exemplify this attribute. It would be strictly false of the individual condors that any of them could fly for hours; nevertheless the generic would still be true that "condors" (as a class) *can* fly for hours.

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42. Toner, "Sorts of Naturalism," 222, quoting Thompson.
43. Jeffrey P. Cohn, "Saving the California Condor," *BioScience* 49, no. 11 (1999): 864–68.

McDowell calls this a "logical weakness" of generics, as if Aristotelian-categoricals were aiming for deductive certainty but falling short. He cites the example from Anscombe (and Aristotle) that "humans have 32 teeth", saying "there is a truth we can state in those terms, but from that truth, together with the fact that I am a human being, it does not follow that I have 32 teeth. (In fact it is false)."[44] McDowell rather misses the point. Generics are not half-hearted universal judgments; they are judgments of a logically different kind. That we do not know deductively whether any particular wolf hunts in a pack is rather a strength than a weakness; the generic truth that wolves hunt in packs sets in us a normative expectation we then bring to any particular wolf and by which we can judge whether it is exemplifying its life form.[45] Similarly, while anthropological generics such as "human beings wear clothes" admit of exceptions, they might, if true, set normative expectations.

Generics are familiar

While there is much to be learned about the linguistic features of generics,[46] still, their use and acquisition is actually very familiar. Michael Thompson points out that: there is a "general and thoroughgoing reciprocal mutual interdependence of vital description of the individual and natural historical judgment about the form or kind."[47] Micah Lott's comment on this same point is that:

> At each stage of an empirical investigation, our observations are mediated by our current understanding of the life form whose members we are observing. At the same time, our observations of those individual members will in turn improve our

44. McDowell, "Two Sorts of Naturalism," 171–2.

45. Sandeep Prasada et al., "Conceptual Distinctions Amongst Generics," *Cognition* 126, no. 3 (2013): 3.

46. Leslie distinguishes between indefinite generics such as "tigers are striped" which admits of the specification "that tiger over there is striped" and definite generics such as "domestic cats are common" which does not admit of specification, "that domestic cat is common". Indefinite generics are trickier: "Ducks lay eggs" is a true generic," while "ducks are female" is false, yet it is only the female ducks who ever lay eggs. "Mosquitoes carry the West Nile virus" is true, and "books are paperbacks" is false, yet less than one percent of mosquitoes carry the virus, while over eighty percent of books are paper backs." Leslie, "Generics.

47. Michael Thompson, "Apprehending Human Form," *Royal Institute of Philosophy Supplement* 54 (2004): 52.

> understanding of the life form itself, which then makes possible even more accurate
> and extensive future observations.[48]

Generic truths are acquired via a normal scientific means of empirical observation, rational reflection, and discussion.[49] This familiar scientific process may not be easy or free of dangers, but it is at least *a familiar scientific process*. Scientists are continually correcting formerly established generics (the notion that all mammals give live birth was thrown into crisis by the platypus) and working to distinguish between the normal and defective traits of a species.

Generics are teleological

While there is a kind of normativity in the mere idea of a life-form, we can make the case stronger. There is a related kind of normativity in the idea of the natural teleology of life-forms. And generics also illuminate natural, normative, teleological facts. I shall take the idea of a real, natural function to be roughly synonymous with a real, natural teleology. As Perlman says:

> Many objects in the world have functions. Some of the objects with functions are
> organs or parts of living organisms… Hearts are for pumping blood. Eyes are for
> seeing. Countless works in biology explain the "Form, Function, and Evolution of
> …" everything from bee dances to elephant tusks to pandas' 'thumbs'. Many scientific explanations, in areas as diverse as psychology, sociology, economics, medical

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48. Micah Lott, "Moral Virtue as Knowledge of Human Form," *Social Theory and Practice* 38, no. 3 (2012): 414.

49. To use a silly example, suppose that someone from a warm and landlocked country has never heard of penguins before. This person visits a zoo and sees penguins for the first time. He notices that these astonishing creatures are called 'penguins', and appear to be birds (for they have beaks, feathers, lay eggs, emit squawks, etc.). He reflects that most – if not all birds – have many of these macro features. Fascinated, he consults encyclopedias, biology or zoology textbooks, and consult zoologist friends. All these sources confirm the categorization. Although I am not aware of when the first penguin was studied by a modern naturalist, we can easily imagine that it was from observations and reflections such as these that penguins long ago earned an entry in the annals of scientific knowledge. The biological community gave them a scientific name ('sphenisciformes') and began to fill in gaps with a detailed description of their evolutionary history, characteristics, genetics, environments, diet, predators, and so on. The scientific conclusion, upon initial observation, bolstered by reflection, underwrites the initial hypothesis: penguins are indeed birds.

research, and neuroscience, rest on appeals to the function and/or malfunction of things or systems.[50]

Barham clarifies the range of terms that denote identical or similar concepts:

> "By "teleology," I have in mind such words and concepts as "purpose," "end," "goal," "function," "control," and "regulation," as well as the real-world biological phenomena to which these words and concepts refer. This means that the word "teleology" should always be construed here in its internal or "immanent" sense—purposiveness existing in living beings themselves—and never in its external or "transcendent" sense of an overarching cosmic principle"[51]

With these concepts in hand, we can see why Chris Toner says that "natural-historical judgments readily admit of combination into teleological judgments."[52] Thompson, for example, cites the scientific observation that "flowers have blossoms of such-and-such type in order that such-and-such insects should be attracted and spread their pollen about."[53]

This kind of combination of generic truths is very familiar. No sooner have I learned the formal facts about a penguin (that it is a bird, that it can swim, that it has a countershaded white belly and dark back etc.) do I learn that *penguins are countershaded in order to avoid predators from above and below.* A shark looking up may miss a penguin, because its white belly blends in with the sunlight surface waters; a shark looking down may miss a penguin, because it blends in with the pitch dark waters of the abyss. Since an individual penguin may fail to be countershaded in the way that expresses its form, it would be defective. This defect is not a judgment made by scientists and "imposed" as it were, from the outside, on the penguin; but a normative fact about the penguin. As Hursthouse says, "Wolves hunt in packs; a 'free-rider' wolf that doesn't join in the hunt fails to act well and is thereby defective."[54] We might add that some formal features *of a normal, mature* animal exist merely potentially before full maturation. For example, a female reptile that cannot lay eggs might

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50. Cosby, "The Modern Philosophical Resurrection of Teleology," 1–4.
51. James Barham, "Teleological Realism in Biology" (PhD thesis, University of Notre Dame; Web, 2011), 1.
52. Toner, "Sorts of Naturalism," 222.
53. Thompson, *Life and Action*, 293–94.
54. Hursthouse, *On Virtue Ethics*, 201.

be injured, ill, or simply young. Eyes that cannot see might be injured, ill, or simply developing. Eyes that have had enough time to develop *should* see, are *supposed to* see, *ought to* see. Hearts do not just "pump blood" but hearts are *for* pumping blood.

IV. Three Paths Forward

In my overall argument, generic truths are intended to serve as a counterexample to premise 2 of the **Bald Nature Challenge** above. Recall, that challenge asserted that no facts are genuinely both natural and normative. Generics are both genuinely natural and normative: natural, in that a large percentage of scientific knowledge consists of scientists predicating generic truths of natural kinds; normative, in that the life-form in question is one which an individual may or may not "live up" to, and in that *some* generics pick out natural functional or teleological facts about life forms (that penguins are counter-shaded *to avoid* predators, that hearts are *for* pumping blood, etc.). On my view, accepting the straightforward, generic truths delivered by such sciences about forms and functions is quite simply the respectable thing to do. But it seems to me there are three paths forward: reject, reduce, or accept Natural Teleology.

Reject

The first path is to reject generic truths about species and their formal and functional characteristics. Probably, those who are tempted to reject natural teleology believe there are no *ends* (τελοι). Call this view teleological nihilism.[55] Teleological nihilism claims as its evidence *"modern science" as a whole.* Abandoning the search for natural teleology was a harbinger of modern science; Francis Bacon and others believed that the search for final causes corrupted science. So, if best science tells us that nature is *only* descriptive, natural normativity is dismissed out of court.[56] In fact, natural sciences

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55. Also called teleological eliminativism.
56. Cf. Bacon, *New Organon*, Book I. XLVIII "Although the most general principles in nature ought to be held merely positive, as they are discovered, and cannot with truth be referred to a cause, nevertheless the human understanding being unable to rest still seeks something prior in the order

and the experimental, empirical methods that advance them have progressed far more than anyone could have dreamed. In part, this success is the result of giving up magical thinking.

Reply to Teleological Nihilism

Nevertheless, let's suppose for *reductio* that no generic statements are true. Then it would be false in some important sense false that 'wolves hunt in packs', and false that 'condors can fly for hours', false even that 'penguins are birds'. It is false, furthermore, that eyes see and humans are mammals. But such denials are, I think, absurdities.[57]

The proper reply to Bacon is that the teleological nihilism hypothesis has been tried and found wanting. Animals, plants, and all living things exhibit end-directed or teleonomic behavior: eyes see, hemlock trees offer shade to fish, stomachs digest, deer leap to avoid predators. Even when Kant denies natural teleology – the biological theory that the form of an organism causes the parts to grow and relate to each other in a particular way – he admits we *cannot help thinking so*.[58]

By all means, let us be scientific. But let us be careful not to become anti-scientific in the *name* of preserving the purity of science. The notion that some of nature is normative – or that some norms are natural – is not only a good logical explanation of the natural phenomena of biology but also a good *scientific* explanation. While natural teleological realism is still controversial, it is not a controversy between science and philosohpy but a controversy *within science*. It is a legitimate discussion between scientists of one stripe and scientists of another.

An analogy might help: suppose a marine biologist studying dolphin behavior came to believe dolphin's have language. One could imagine other biologists accusing her of "projecting" an

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of nature. And then it is that in struggling toward that which is further off it falls back upon that which is nearer at hand, namely, on final causes, which have relation clearly to the nature of man rather than to the nature of the universe; and from this source have strangely defiled philosophy."

57. That is not to say that the denial is not worth considering. It might well be true. My point in calling the denial 'absurd' is to say that if it is true, an absurdity is true. If it is true, then the truth is absurd. And reality itself might well be absurd. I don't think it is, but there have been many philosophers who have thought so, and such thoughts cannot be justly dismissed without consideration. Since absurdist philosophers are not my primary audience, I simply lay the issue aside.

58. Huneman, "Naturalising Purpose."

exclusively human phenomenon – communication by language – on non-human nature. They could ridicule her "magical thinking" but they would miss a fascinating repository of scientific insight. "Listening to science" does not mean listening to materialist philosophers who haven't studied biology since their undergraduate days; "listening to science" *just means* listening to actual scientists, such as biologists and others who tell us that teleological functions are real and who treat them as if they were irreducible. Branding "heretics" and demoting their research as "anti-scientific" is a behavior more appropriate to the zealous defense of ideological materialism than it is to advancing the genuine researches of ground-breaking scientists.

Things are even clearer when it comes to natural kinds and generic truths about species. If we accept scientific realism of any form, we cannot deny that some generics are true. (Even more strongly, if we accept *any* form of conceptual knowledge, we are probably implicitly already committed to the truth of some generics, for much of our conceptual knowledge consists in generics.[59]) Animals, plants, and all living things belong to species, and our knowledge of them consists of generic truths about not just individuals but that species. A species involves a defined range of potential attributes that normally come to be actualized over time. An individual hemlock tree may or may not shade any fish in any rivers, but it may in time; or it may never do so, but it is still a scientific insight that that is one thing 'hemlock trees' in general do. Compare with Thomas Nagel's point that some "laws of nature would apply directly to the relation between the present and the future."[60]

Hence, to reject *all truths* about natural kinds, I contend, is to reject the best scientific deliverances of our best scientific evidence. As Perlman says, "It is surprising that analytic philosophers, with their strong focus on science, would reject a notion that is so central to some areas of science, most notably, biology and engineering sciences… Biology cannot, or at least in practice does not, eliminate functions and purposes."[61] The great cost of throwing out generics *as a class* threatens to

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59. Prasada et al., "Conceptual Distinctions Amongst Generics."
60. @ Nagel, *Mind and Cosmos*, 93.
61. Cosby, "The Modern Philosophical Resurrection of Teleology," 6.

throw out a huge percentage of scientific statements in biology, organic chemistry, anthropology, psychology, sociology, economics, anatomy, and medicine.[62]

Reduce

The second path is to accept natural teleonomic behavior and even the appearance of natural teleology, natural functions, etc., but to *reduce* these phenomena to less intimidating, mechanical, Laplacian terms.

Arguing for or against teleoreductionism has become a cottage industry.[63] It is impossible to do justice to the complexity of the dialectic here. I will content myself to note, and critique, two popular forms of reduction: the first reduces biological functions to causal contributions to a system and the second reduces teleonomic biological functions to naturally selected effects. A proponent of the first reduction is Donald Davidson. A proponent of the second is Ruth Millikan. For example, Ruth Millikan argues that an organism's proper function simply cannot be "read off" its capacities at present but must be known via empirical history. Her theory entails the unpalatable conclusion that an organ that is otherwise physically identical to, say, a heart, that was magically apparated into existence would not have a "proper function". She bites the bullet on this.

Reply

James Barham argues that neither of these forms of reduction is very promising: "In a nutshell, the problem is that neither theory can explain the normative character of biological processes in a coherent manner."[64] The problem with the "causal-role" reduction of teleonomic phenomena is that in order to even posit a hypothesis about how some parts of a system contribute to the achievement of its end or purpose, we must identify *in advance* which parts of the organism play a

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62. We must not forget that the term 'science' is an abstraction. The only real thing is scientists and their statements. Scientists disagree, and some of their statements are proven false by the research of other scientists.

63. Cf. ibid., sec. III; and Barham, "Teleological Realism in Biology," chap. 3.

64. James Barham, "Confessions of an Atheist Darwin-Doubter" (Web; Evolution News, 2012), http://www.evolutionnews.org/2012/05/confessions_of059861.html.

role in bringing about the end or purpose. But if we already know the causal contribution of those

parts, what more could we learn by positing the causal-role theory? James Barham elaborates:

> With respect to the "causal-role" theory, there is no way to distinguish between func-
> tional and non-functional parts of a biological system without presupposing the nor-
> mative character of the overall system as a whole – which begs the question at issue.

As regards the second form, Thompson insists that judgments about natural teleology are made

true from the form of life under question, not from "hypotheses about the past."[65] Barham agrees.

He says:

> With respect to the "selected-effects" theory, the problem is that selection history is
> conceptually irrelevant to the identification of function. True, it has a role to play
> in explaining how present-day functions have come to exist. But selection history
> cannot possibly explain what it is about a biological process that constitutes it as a
> function… The reason is that our concept of function in no way depends on evolu-
> tionary history. If it did, then biologists like Aristotle, Galen, Harvey, and innumer-
> able others who lived long before Darwin would not have had the means to identify
> the functions of organs, which they of course did. Sometimes, they got it wrong, as
> when Aristotle placed the seat of perception and thought in the heart, instead of the
> brain (though some of his predecessors got it right). But Aristotle's mistake was due
> to his inadequate knowledge of physiology, not to his ignorance of evolution.

If neither forms of 'teleoreduction' are likely to account for the normativity of the biological function

in question, then it is a fundamental truth not only that hearts cause blood to be pumped but that

hearts *are for* pumping blood – that is their natural function. And that is just the hypothesis Barham

argues is the most likely:

> In a series of important articles and books over the past decade or so [many authors]
> have cast grave doubt on the coherence of any reductive analysis of function. Some
> of these authors (e.g., Jacobs, Maund, Zammito) call explicitly for a reconsideration

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65. Cf. Thompson, "The Representation of Life," 293. Toner adds that judgments about
natural teleological facts are made true regardless of the origin of the facts, "whether about creation
or natural selection." (Toner, "Sorts of Naturalism. 223.) This seems right to me. It does not matter
for present purposes *how* the function came to be, just whether or not it really *is* at present.

of the possibility that teleological phenomena in biology might be both objectively real and irreducible.[66]

Accept as is

The third option is to accept that some natural facts are intrinsically normative, irreducible, natural facts. Although the very word 'teleology' is liable to sound quaint to modern ears, Barham has argued that 'teleological realism' is a rationally permissible view to take on biology.[67] Teleological realism in biology is making a come-back. For instance, Arnhart persuasively argues that teleology is assumed in medicine.[68] Zammito clarifies ongoing relevance in biology, since organisms seem to be intrinsically purposeful.[69]

Thomas Nagel is a third who has followed out the argument for natural teleology from a much broader, cosmic perspective, though he too denies that the cosmos is like an orchestra being played.[70] Though Nagel took a lot of heat for his argument, Michael Chorost's review of *Mind and Cosmos* reminds readers that natural teleology is not so scientifically heretical as it might first seem. He says:

> Natural teleology is unorthodox, but it has a long and honorable history. For example, in 1953 the evolutionary biologist Julian Huxley argued that it's in the nature of nature to get more advanced over time. "If we take a snapshot view, improvement eludes us," he wrote. "But as soon as we introduce time, we see trends of improvement."… [the furthermore] paleontologist Simon Conway Morris, at the University of Cambridge, has argued that natural structures such as eyes, neurons, brains, and hands are so beneficial that they will get invented over and over again. They are, in

66. Barham, "Teleological Realism in Biology," 10. Barham cites: Bedau (1990, 1992a, 1992b, 1993), Cameron (2004), Christensen & Bickhard (2002), Jacobs (1986), Manning (1997), Maund (2000), McLaughlin (2001, 2009), Mossio et al. (2009), Mundale & Bechtel (1996), Nanay (2010), Nissen (1997), Perovic (2007), Walsh (2006).

67. Ibid.

68. Arnhart, "Aristotle's Biopolitics."

69. John Zammito, "Teleology Then and Now: The Question of Kant's Relevance for Contemporary Controversies over Function in Biology," *Studies in History and Philosophy of Science Part* 37, no. 4 (2006): 748–70.

70. Nagel, *Mind and Cosmos*.

effect, attractors in an abstract biological space that pull life in their direction. Con-
tingency and catastrophe will delay them but cannot stop them. Conway Morris
sees this as evidence that not only life but human life, and humanlike minds, will
emerge naturally from the cosmos: "If we humans had not evolved, then something
more or less identical would have emerged sooner or later."[71]

If scientists can countenance natural normativity via natural teleology as respectable, we philoso-
phers not do the same? Certainly natural teleology is out of fashion; but the winds of intellectual
fashion blow hither and yon, and we may yet discover that Aristotle was right.[72] Either way, philoso-
phers of various schools (metaphysicians and ethicists) would do well to dialogue with biologists and
cosmologists to come to grips with the possibility that our best evidence suggests that nature is nor-
mative.

Conclusion

The goal of this chapter has been to meet the **Bald Nature Challenge to Ethical Naturalism**
stated above, and to clear away the **Scientific Facts** and **Teleological Nihilism** objections. The
challenge, recall, was this:

1. If ethical naturalism is possibly true, then some facts are genuinely both natural and
   normative.
2. But no facts are genuinely both natural and normative.
3. Therefore ethical naturalism is not possibly true.

The conclusion we have drawn is that indeed *some* facts – especially facts about living things – are
both natural and irredicubily normative. These are natural formal and functional or teleological
facts about natural kinds and about living beings. Such facts are expressed in perfectly respectable
scientific judgments we have called "generics" but may also be called "Aristotelian categoricals",
"natural-historical judgements", "norms", "bare plurals", etc. Generics like these render it at least

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71. Michael Chorost, "Where Thomas Nagel Went Wrong," *Chronicle of Higher Education*,
2013. Chorost argues that Nagel did not "go wrong" in his thesis but in presenting it philosophically
without engaging the support from relevant scientific literature.
    72. Johnson, *Aristotle on Teleology*.

possible to conclude the the scientific picture of nature includes normativity in the form of natural teleology. If true generics could be stated about human beings, then it is conceivable we can use them as a basis for ethical theory.

Of course, I have not yet tried to show *which* true generics about humans can serve as the basis for ethical theory. All I have tried to show is that *some* of these generics are true. By denying the consequent, we are not necessarily affirming the antecedent. That affirmation requires another step, namely, to apply the above argument to human beings. The argument that will help us transition from generics about the biological world in general to generics about human beings and which may provide the basis of normative *ethics* is this:

Human Normativity

1. On ethical naturalism, all generics can be used as premises in arguments with normative conclusions.
2. Some true generics are about humans (there are some human natural norms).
3. Therefore, some true generics about humans can be used as premises in arguments with normative conclusions.

Establishing premise 1 has been our task in this chapter. Establishing premise 2 is the task for the next chapter.

Foot is well aware that the imposition of normativity onto brute nature, or the derivation of normativity from brute nature, is likely to seem absurd:

> The idea that any features and operations of humans could be evaluated in the same way as those of plants and animals may provoke instant opposition. For to say that this is possible is to imply that some at least of our judgements of goodness and badness in human beings are given truth or falsity by the conditions of human life. And even if it is allowed that certain evaluations of this kind are possible—-those vaguely thought of perhaps as 'merely biological'—-there is bound to be scepticism about the possibility that 'moral evaluation' could be like this.[73]

Despite such legitimate worries, we have followed Foot in trying to earn a hearing for this notion by arguing that the "meaning of 'good' in so-called 'moral contexts' " does not have a special logic of

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73. Foot, *Natural Goodness*, 38.

its own. Rather, as she insists, "no change in the meaning of 'good' between the word as it appears

in 'good roots' and as it appears in 'good dispositions of the human will.'[74] Hursthouse articulates

Foot's basic point in this way:

> The starting point is an idea that she has never lost sight of, and which figures in her
> early attack on Hare. It is the idea that 'good', like 'small', is an attributive adjective.
> What that entails is that, although you can evaluate and choose things according to
> almost any criteria you like, you must select the noun or noun phrase you use to
> describe the thing you are calling good advisedly, for it determines the criteria of
> goodness that are appropriate. Hare can call a cactus a good one on the grounds
> that it is diseased and dying, and choose it for that reason, but what he must not
> do is describe it as a good cactus, for a cactus is a living thing. He can describe
> it as a good 'decorative object for my windowsill' or 'present to give my detestable
> mother-in-law', but not as a good cactus.[75]

The point here is that 'goodness' is not a sui-generis, non-natural property projected by human

beings out onto the world; rather, 'good' and 'defective' pick out natural properties of living things.

The goodness of a cactus is relative to its cactus nature; the goodness of human beings is relative

to their human nature. And that human nature is to be or have the potential to become practical,

rational animals. Hursthouse continues:

> When we moved from the evaluations of other social animals to ethical evaluations
> of ourselves, there was an obvious addition to the list of aspects which are evaluated.
> The other animals act. So do we occasionally, but mostly we act from reason, as they
> do not, and it is primarily in virtue of our actions from reason that we are ethically
> good or bad human beings. So that is one difference that our being rational makes.[76]

The task in discovering true generics about human beings is capturing what is common between us

and other animals and what is unique about rational animals.

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74. Ibid., 39.
75. Hursthouse, *On Virtue Ethics*, 195.
76. Ibid., 217.