

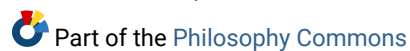
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# The concept of health: beyond normativism and naturalism

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## Abstract

Philosophical discussions of health and disease have traditionally been dominated by a debate between normativists, who hold that health is an inescapably value-laded concept and naturalists, such as Christopher Boorse, who believe that it is possible to derive a purely descriptive or theoretical definition of health based upon biological function. In this paper I defend a distinctive view which traces its origins in Aristotle's naturalistic ethics. An Aristotelian would agree with Boorse that health and disease are ubiquitous features of the natural world and thus not mere projections of human interests and values. She would differ from him in rejecting the idea that value is a non-natural quality. I conclude my discussion with some comments of the normative character of living systems.

## Introduction

Our conduct affects our health just as our health affects our conduct. Unsurprisingly then the question of the relationship between physical health and moral well-being is an ancient one. The Greeks noticed that morality and medicine seemed inextricably entwined: the work of a typical Hellenistic moralist could easily be exchanged for that of a doctor and only the most astute scholar would notice. A few centuries later Descartes in his final work, *The Passions of the Soul*, boldly announces that he will approach the emotions neither as 'an orator, nor a moralist' but through medical science, before settling into well-worn moralizing territory.<sup>1</sup> [1] In our own day, worries about the over-medicalization of social and moral problems persist. Should naughty children be given enough amphetamines to make the average street corner dealer blush? Should clearly psychotic killers be dragged to execution simply to placate the baying mob?

These questions are perhaps insuperable. Programmatic statements by leading medical bodies help little. The WHO's famously hyperbolic declaration carries the ambivalence deep within its core. Health, it admonishes, 'is a state of complete physical,

mental and social well-being and not merely the absence of disease or infirmity' [2]. For all its lofty ambition, many sympathize with Robert Hughes' quip that this definition better befits 'a bovine than a human form of life' [3]. Its insistence upon the socially activist nature of medicine troubles those who believe that we do best when we are left alone. Even the more circumspect note its systematic vagueness. What on earth would 'complete physical, mental and social well-being' look like and how to tell when one achieved this Elysian state?

Philosophy flourishes where confusion abounds. In this context, a vigorous and sometimes acrimonious debate has emerged between normativists, who insist that medical diagnoses are inherently value-laden and naturalists, who believe that it is possible to formulate a purely descriptive theory of health. Normativism remains the consensus view among philosophically sophisticated doctors [4–6]. Conversely, naturalism has exerted its greatest pull upon philosophers for whom value-freedom is the hallmark of science and who aspire to see medicine become truly scientific [7–9].

It might seem therefore that there is no real dispute: normativism appeals to practising doctors while philosophers with scientific ambitions can content themselves with constructing pristine but practically useless definitions of health. Such a compromise would, I contend, be a mistake. In medicine, theory and practice are conjoined twins. For that reason, it should not surprise us that normativism purchases practical applicability at the expense of theoretical incoherence, while naturalism gains theoretical clarity

<sup>1</sup> p. 17 There is some controversy about the best way to render Descartes' expression 'comme un physicien' Voss opts for 'physicist' which is correct in the context of the work but we should also bear in mind that Descartes in common with the medievals treated 'physiology' and 'physics' as synonyms.

1 at the cost of defining health and disease in ways unrecognizable  
 2 by most practitioners or patients.

3 My aim in this paper will be to find a way through this morass.  
 4 I will defend a broadly Aristotelian naturalism about health  
 5 [10–12]. It is naturalist in two senses: first, it regards human beings  
 6 as animals, albeit peculiar ones, and recognizes no gaping void  
 7 between us and the rest of organic nature; second, it considers  
 8 value as an inherent feature of our shared natural world. Conse-  
 9 quently our moral evaluations are made in the same logical tone of  
 10 voice that we use when we evaluate any living being. For this  
 11 reason we can recognize an affinity between health and broader  
 12 human well-being. We evaluate a person or a society in the context  
 13 of the typical standards of a human form of life. But this is no  
 14 different from asking what it is for a cat, a lungfish or a liver to do  
 15 well or badly. To know whether a particular individual is doing  
 16 well, we need to know what it is for cats, lungfish and livers to do  
 17 well. Consequently, the content of an evaluation is more than an  
 18 arbitrary projection of human interests.<sup>2</sup>

19 One powerful objection to Aristotelian accounts is that unlike  
 20 other animals, there is no unique human form of life but rather a  
 21 plurality of culturally defined goods. Human beings are socio-  
 22 cultural animals and living well involves living harmoniously with  
 23 one's peers. To do this we need to constantly negotiate individual  
 24 and collective differences. However, the underlying assumption  
 25 upon which this objection rests is an outdated distinction between  
 26 biology and culture which is untenable for various philosophical  
 27 and scientific reasons. Put simply, it overemphasizes human diver-  
 28 sity while under-emphasizing diversity in the organic world. His-  
 29 torical experience has taught us that while tolerance of diversity is  
 30 a *prima facie* good, certain forms of life have proven themselves  
 31 incompatible with a properly human existence. By the same token,  
 32 recent work in the life sciences has demonstrated the sheer com-  
 33 plexity of biota. This new understanding has major ramifications  
 34 for our concepts of health and disease.

### 35 36 **Health without hair: Christopher** 37 **Boorse's bald naturalism**

38 Baldness, shortness and ugliness are aspects of human life which  
 39 have significant impacts upon its quality but which no sensible  
 40 theory would call diseases. Yet, this seems precisely the conclusion  
 41 one is forced to adopt, if one accepts the standard normativist  
 42 definition of disease as a disvalued physical or mental condition.  
 43 Equally, the 'disvalue' model fails to capture pathological states  
 44 which are asymptomatic and thus neither valued nor disvalued.  
 45 Moreover, disease is an inherent feature of the biological world  
 46 which long pre-dated our existence and will outlast us. Thus  
 47 disease cannot be an evaluative concept.

48 This, in brief, is the position which Christopher Boorse has  
 49 vigorously defended since the 1970s. It was articulated partly in  
 50 response to the debate initiated by Thomas Szasz. Szasz had  
 51 argued that psychiatric diagnoses were little more than codified  
 52 descriptions of troublesome behaviour. Unlike somatic medicine,  
 53 which rests upon a solid core of pathology, psychiatry was really a  
 54 sophisticated form of moral and political coercion. Enforced incar-

55  
56 <sup>2</sup> I also believe, although it is not essential to my argument here, that our  
 57 evaluations are successful to the extent that they track how things actually  
 58 are in the natural world.

ceration and psychiatric treatment, routinely employed in both the  
 totalitarian East and ostensibly liberal West, had no scientific  
 warrant.

Szasz's critique quickly provoked a response. One common  
 objection questioned his dichotomy between somatic medicine's  
 apparently objective diagnoses and the normative diagnoses  
 employed in mental health. Medicine, it was argued, is normative  
 to the core. The identification of a pathology requires the invoca-  
 tion of complex evaluative frameworks which vary between cul-  
 tures and over time. What we identify as a disease is closely related  
 to what we find troubling enough to treat.

While not primarily concerned with psychiatry, Boorse agreed  
 with Szasz that somatic diagnoses should be the benchmark. He  
 vociferously rejects the normativist view and also considers and  
 dismisses several naturalist options. Diseases cannot simply be  
 deviations from a statistical norm, as this would have the absurd  
 implication that top athletes might be considered ill. Neither can a  
 purely evolutionary account furnish a satisfactory view: Darwinian  
 accounts emphasize the capacity to successfully reproduce but  
 reproduction may exact a heavy toll on an individual's health.  
 Many childless people live their lives in rude health.

His preferred option therefore is a composite of evolutionary  
 and statistical conceptions of health which he dubbed the Bio-  
 Statistical Model (BST). This model has four elements:

- 1 The *reference class* is a natural class of organisms of uniform  
 functional design; specifically, an age-group of a sex and species.
- 2 A *normal function* of a part or process within members of the  
 reference class is a statistically typical contribution by it to their  
 individual survival and reproduction.
- 3 *Health* in a member of the reference class is *normal functional*  
*ability*: the readiness of each individual part to perform all its  
 normal functions on typical occasions with at least typical  
 efficiency.
- 4 A *disease* is a type of internal state which impairs health, that is,  
 reduces one or more functional abilities below typical  
 efficiency. ([7], p. 555)<sup>3</sup>

I will not rehearse the main normativist responses. Instead, I  
 will take a different approach and argue that the account is insuf-  
 ficiently naturalist. This may seem a paradoxical accusation to  
 level against someone regarded as the paradigm naturalist, so in  
 what follows I will attempt to justify my claim.

### Whose theory? Which practice?

Much of Boorse's argument rests upon a rigid distinction between  
 medical science and clinical practice. Boorse purports to have  
 revealed the true meaning of the terms 'health' and 'disease' as  
 manifested in their use by the appropriate body of experts. This is  
 to be distinguished from their stereotypical uses in ordinary non-  
 expert speech. In his most recent defence of the theory, Boorse  
 states that he is 'content for the BST to live or die by the consid-  
 ered usage of pathologists' ([8], p. 53). But do pathologists even  
 operate with a definition of disease which resembles Boorse's?  
 Moreover, why should pathological definitions of disease be given  
 priority over those of other medical specialists and layfolk, espe-  
 cially because the rise of evidence-based medicine has tended to  
 diminish the centrality of pathology in medicine?

<sup>3</sup> In his more recent work [8] he has modified the definition of health to be  
 simply 'the absence of disease'.

1 Many of these issues are addressed by William Stempsey, a  
2 philosopher with medical training, including a residency as a  
3 pathologist [14]. Stempsey challenges his rigid dichotomy between  
4 medical theory and clinical practice, even in the context of his  
5 favoured area of pathology. As Stempsey notes, most pathologists  
6 are also clinicians and the favoured textbook definition of the  
7 science of pathology is not in terms of functional abnormality but in  
8 terms of the study (*logos*) of suffering (*pathos*). It is implausible that  
9 doctors would be concerned with human suffering in a practical  
10 setting but then indifferent to it in a theoretical one.

11 Pathologists' primary concern is with the morphological char-  
12 acter of diseases rather than disease *per se*. Moreover, pathologists  
13 look for definitions which are practically efficacious. There is no  
14 reason to suppose that they have any special expertise in dealing  
15 with the kind of conceptual issues that engage philosophers. Even  
16 if, in unconsidered usage, they give a definition similar to Boorse's  
17 this would not settle the matter. This would be an empirical socio-  
18 linguistic fact rather than a conceptual norm. The haphazard usage  
19 of one group of specialists has no more authority than that of any  
20 other. Stempsey suggests that the best source for considered usage  
21 would be doctors with philosophical training and he notes that the  
22 overwhelming consensus among philosophically sophisticated  
23 doctors is normativist.

24 Presumably what Boorse appeals to in pathologists' usage is an  
25 implicit philosophy of science. Analysis of pathologists' best  
26 descriptive practice should yield a definition of disease which is  
27 value-free, precisely because this would be the 'scientific' defini-  
28 tion of disease. Put aside the potential circularity. Is it even true  
29 that Boorse's theoretical definition is based upon an adequate  
30 philosophy of science? Stempsey suggests that Boorse has ignored  
31 an entire trend in the history and philosophy of science which  
32 rejects the fact-value distinction.<sup>4</sup>

### 33 **A biological theory of disease?**

34 Stempsey suggests that Boorse is unlikely to find support for his  
35 theoretical definition among doctors but it is possible that he might  
36 among biological scientists. However, the problem here is that the  
37 further one gets from medicine, the further one also gets from the  
38 contexts which give sense to concepts like health and disease.  
39 Viewed through an evolutionary lens, our concerns with health and  
40 disease seem curiously parochial. This is eloquently summarized  
41 by Elliot Sober [16]. Sober argues that one of the most significant  
42 aspects of the Darwinian revolution is the replacement of an essen-  
43 tialist conception of species membership with what the biologist  
44 Ernst Mayr defined as 'population thinking'. Essentialist views of  
45 species view development in terms of progression towards a  
46 'natural state'. Population models regard species as united only by  
47 reproductive history and characterized by a phenotypic norm of  
48 reaction.

49 Consider the recent discovery in the Potomac River of male  
50 Largemouth and Smallmouth Bass producing eggs. On the natural  
51 state model, these fish are obviously monsters, as it is unnatural for  
52 males to produce eggs. They are defective specimens of  
53 *Micropterus dolomieu* and *Macropterus salmoides*. In a more

54 <sup>4</sup> The discussion broaches the much broader question of the alleged value-  
55 freedom of science. Stempsey has defended elsewhere at much greater  
56 length a position that he describes as 'value-dependent realism' [15].  
57  
58

natural environment, they would not have developed in this dis-  
torted way. The natural state model reflects common-sense devel-  
opmental assumptions. The population model's analysis would be  
more complex. The production of eggs by male fish is part of the  
reaction norm for that genotype, as expressed in a polluted envi-  
ronment. Furthermore, it is possible that some such mutation may  
actually increase the inclusive fitness of an individual such that its  
genes come to dominate future populations. There is nothing in the  
nature of the species itself that permits us to classify this variation  
as defective.

This view seems counter-intuitive when we turn to ideas of  
health and disease. Sober notes that:

our current conceptions of function and dysfunction, of  
disease and health seem to be based upon the kinds of distinc-  
tions recommended by the Natural State Model. And both of  
these distinctions resist characterization in terms of maximum  
fitness. For virtually any trait you please, there can be envi-  
ronments in which the trait is selected for, or selected against.  
Diseases can be rendered advantageous, and health can be  
made to represent a reproductive cost [16].

This draws upon some fairly obvious observations about the evo-  
lutionary process: on the one hand, its cold indifference to the  
interests of any organism or species; on the other, that any function  
can only be defined as normal in relation to a given selective  
environment.

In his Rebuttal, Boorse considers, but fails to comprehend, just  
how devastating the 'bad biology' arguments are to his case. They  
thoroughly undermine his central notion of a species design as  
anything other than a theoretical abstraction. Boorse appeals to the  
authority of anatomical textbooks. He argues that while the evo-  
lutionary process selects from variation, selective pressures ulti-  
mately produce the kinds of uniformities found in *Gray's  
Anatomy*. Diseases and deformities are statistical deviations from  
those uniformities. This intuitively appealing idea formed a cor-  
nerstone of a recent fad called evolutionary psychology. Evolu-  
tionary psychologists argued that just as evolution produces  
anatomical uniformity, we can also expect it to produce psycho-  
logical uniformity. In his recent devastating critique David Buller  
carefully dismantles the analogy [17].

Two of his arguments are especially devastating. First, Buller  
argues that the type of uniformities upon which *Gray's Anatomy* is  
based are abstractions designed for pedagogic purposes. Like any  
abstraction they can illuminate or they can mislead depending  
upon context. Notoriously, the 70-kg male was until recently con-  
sidered the anatomical norm. As a result, disastrous clinical deci-  
sions were made as a result of neglecting profound physiological  
differences between men and women. Furthermore, conditions  
which only affect women were either neglected or else mistakenly  
treated as pathological. Florid textbook descriptions abound of  
normal processes like menstruation and childbirth [18].

Second, the greater the degree of uniformity, the less likely a  
given feature is unique to our species. As Buller ([17], p. 426)  
notes, 'all primates have two hands, all mammals have lungs, and  
all vertebrates have two eyes, a heart, a liver, and a stomach'. This  
is not necessarily as devastating an objection to Boorse as it is to  
the evolutionary psychologists. After all, one of Boorse's strongest  
arguments against normativism is that it neglects our continuities  
with other animal species and he is not searching for an essential  
human nature.



## Against design

1 However, closer consideration reveals a deeper problem. If we  
2 abandon the notion of a uniform ‘species design’ then a core tenet  
3 of his analysis is undermined. With a notion of ‘species design’  
4 certain functions are simply a given and it is possible to make  
5 sense of the claim that the ‘normal is the natural’ without illicitly  
6 importing evaluative premises. Without it, it becomes a matter of  
7 analytic choice what to count in and what to count out. Do we, for  
8 instance, have a wide comparison class, against which we evaluate  
9 members of our own and other species? Or alternatively, do we  
10 have a narrow class restricted perhaps (as Boorse suggests) to a  
11 particular age group of a particular gender. If we choose the  
12 former, we elide the difference between human and veterinary  
13 medicine. If choose the latter, the obvious response is to wonder  
14 why we should stop there. Would not a more accurate assessment  
15 be arrived at, if we only considered subjects living in the same  
16 locale and pursuing similar occupations? Consider here the noto-  
17 rious problems of devising common health outcomes for compar-  
18 ing Scandinavians and Scots.

19 Buller’s third related argument is that if we narrow our focus  
20 from putative uniformities at a global level, we come to see that  
21 there are numerous differences between individual human beings.  
22 As a result, ‘strictly speaking, there is no single human anatomy  
23 and physiology possessed by all humans around the world’. In  
24 support of this, he lists conditions such as *situs inversus*, children  
25 born with only one kidney, or with ambiguous genitalia and less  
26 dramatically the variation in human blood type. He urges therefore  
27 that we abandon ‘the idea that *Gray’s Anatomy* provides a single  
28 “detailed” and “precise” picture of the anatomy and physiology of  
29 every human on earth [since this] is plausible only if one ignores  
30 known facts about human anatomical and physiological variation’.  
31 The same holds, *mutatis mutandis*, for Boorse’s appeal to uniform  
32 design in support of this theoretical definition of health. But  
33 without this idealization, neither simple deviation from norm nor  
34 diminished function will provide a satisfactory value-free concep-  
35 tion of disease.

36 As Buller later argues, it is an unfortunate historical accident  
37 that Darwin’s theory had to be articulated in opposition to Natural  
38 Theology. We are thus burdened with a conceptual framework of  
39 design metaphors. Talk of a uniform species design is seriously  
40 misleading both practically and theoretically. As medicine increas-  
41 ingly conquers pathogenic disease and shifts its attention to  
42 genetic impairment, the situation becomes even more complex.  
43 Take Glucose 6-Phosphate Dehydrogenase Deficiency or ‘favism’.  
44 Those afflicted experience anaemia and related disorders after  
45 exposure to fava beans. Even the most hard-headed genetic reduc-  
46 tionist would accept that the disease only emerges as the result of  
47 a complex interaction between genetic predisposition and devel-  
48 opmental contingencies. Someone raised in a culture which  
49 shunned fava beans would be unaffected. Moreover, as with sickle-  
50 cell anaemia, there is some evidence that the gene for favism has  
51 conveyed anti-malarial benefits, on heterozygote female carriers  
52 [19].

53 From a biological perspective, there is consequently no useful  
54 way of specifying the normal or natural state of an organism outside  
55 some environmental context. One forlorn strategy that evolutionary  
56 psychologists have resorted to is to appeal to the putative ‘wild  
57 state’ of the human genome. The candidate for this is the Pleistocen  
58

Savannah. Disregard for the moment the fact that the Pleistocene  
period encompassed a variety of ice ages and temperate periods and  
was characterized at several points by mass migrations. When  
unpacked, talk of a genotypes’s natural environment amounts to  
little more than the observation that that particular genotype was  
selected for, when compared with all the available alternatives. It is  
always logically possible that a different environment may have  
been even more advantageous to that genotype or conversely that  
another genotype may have been even more successful.

Boorse’s talk of uniform design is beset by similar problems. In  
both cases, a particular trait is mapped onto an idealized version of  
an ancestral selective environment and the extent to which that trait  
is functioning well or badly in the current environment is then  
given as evidence for how far it remains true to its natural design.  
This is a curiously static version of evolutionary theory. If we  
recall that the primary purpose of evolutionary theory was to  
explain diversity rather than stasis, it becomes even more curious.  
Sometimes the rationale is that the length of time is crucial,  
because a certain feature has been stable over a long period, it is  
more natural than one that has recently developed.

There are a number of possible responses. The first is that given  
the enormous length of time involved in the evolutionary process,  
there is no reason to privilege the Pleistocene over any period of  
human evolution, including our current one. For instance, one of the  
most crucial events in human development was our discovery of  
agriculture but it seems likely that for ecological reasons this could  
only have occurred during the later Holocene period [20] Growing  
evidence suggests that the development of agriculture led to  
increasing parasite load and thus a massively changed selective  
environment. Indeed, rather than slowing down, there seems to have  
been a degree of speeding up of human genetic evolution, possibly  
in response to increased pressures upon the immune system.

The study of such gene–culture interaction forms part of a larger  
process in the biological sciences which aims at integrating evolu-  
tionary and developmental insights. As John Dupré has argued,  
this represents a shift away from an older preformationist view of  
development, in which the life cycle of an organism was thought to  
unfold along lines ‘programmed’ by a genetic ‘blueprint’ towards  
one which sees development in much more epigenetic terms [21].  
This view stresses the mutually conditioning character of devel-  
opmental process and the heavy hand that a wide range of contin-  
gencies play in that process.

Some theorists have even gone so far as to posit the life cycle of  
the organism, rather than the gene as the primary unit of selection  
[22–24]. Even less radical thinkers acknowledge that selection,  
particular in the case of human beings, operates at multiple levels  
[25]. There is not the space to engage with these detailed technical  
debates but the implication for the accounts of health and illness  
are profound. An epigenetic view of organismic development  
undermines the appeal to ‘uniform functional design’ upon which  
Boorse’s analysis so heavily relies. Function attribution only  
makes sense in the context of the life cycle of the organism in  
question, or so I will argue in the next section.

## Organism, mechanisms and value

The shift towards a developmentalist perspective marks a shift  
away from a Cartesian view of organisms as little machines. It  
might raise ‘the bogey of vitalism’ in some readers’ minds. Surely

1 modern science has freed us of an anthropomorphic view of  
2 living things and rendered obsolete the dichotomy between  
3 animate and inanimate matter. Boorse's naturalist theory of health  
4 can be viewed as an attempt to extend that project into medicine  
5 which has always been saddled with the ambivalent status of being  
6 both science and art. His aim was to supply a theory which did  
7 justice to the distinctiveness of living things without importing  
8 illicit evaluative assumptions. The fact that he is unable to suc-  
9 cessfully achieve this suggests a worrying possibility: perhaps it is  
10 not possible to save the phenomenon in the health sciences without  
11 the (illicit) projection of human values.

12 Earlier, I summarily rejected such a projectivist version of nor-  
13 mativism. In what follows I will expand upon this and also defend  
14 my naturalized form of normativism. Implicit in all versions of the  
15 projectivist view is the following assumption: as the natural world  
16 is bereft of all value, any value we discover there must come from  
17 outside. Typical candidates include a deity or human beings  
18 whether individually or collectively. In what follows, I will restrict  
19 my considerations to humans.

20 Projectivism offers us an image of human beings standing  
21 outside the natural world projecting our values onto it which, while  
22 intelligible on some crude theological visions, flies in the face of  
23 all hitherto scientific understanding but most especially Darwin-  
24 ism. As Boorse rightly argues, any satisfactory theory should not  
25 ignore the continuities between ourselves and other animals.  
26 However, in order to maintain that continuity, Boorse feels com-  
27 pelled to reject any legitimate role for values in the diagnosis of  
28 disease. This betrays a fundamental projectivist assumption: if  
29 health and disease are necessarily evaluative concepts, then they  
30 cannot be genuinely part of the furniture of the world.

31 Projectivism rests upon two distinct theses: the first is that  
32 scientific rigour equates with its degree of value-freedom; the  
33 second is that the universe, as discovered by the natural sciences is  
34 necessarily disenchanting. Indeed, the disenchantment thesis pro-  
35 vides the warrant for the value-freedom of scientific enquiry.  
36 These theses are, however, distinguishable. Value-freedom as a  
37 postulate was formulated explicitly (if never clearly) by Max  
38 Weber and was intended primarily as an account of the method-  
39 ology of the social sciences. Because social phenomenon is nec-  
40 essarily value-laden Weber recognized the danger of bias. His  
41 central concept, *Verstehen*, entails that in conducting social or  
42 anthropological research one should not approach one's subjects  
43 from an alien standpoint. Weber's maxim is thus most intelligibly  
44 rendered as the claim that one should be careful in one's choice of  
45 framework not that one values can be dispensed with.

46 Furthermore, recent work in the history and philosophy of  
47 science has questioned whether even the natural sciences are ever  
48 genuinely value-free [26,27]. Many philosophers including Boorse  
49 have grudgingly acknowledged this, while falling back upon a  
50 rigid distinction between epistemic and non-epistemic values.  
51 According to this distinction, epistemic values, such as integrity,  
52 fidelity to evidential canons and so on are appropriate whereas  
53 non-epistemic values are not. This merely kits out the dowdy  
54 fact-value dichotomy in more fashionable garb.

55 Hilary Putnam has proposed a 'disinflation' of the fact-value  
56 dichotomy which should address some of the worries about illic-  
57 itly importing values into science. We can acknowledge

58 a distinction to be drawn (one that is useful in some contexts)  
59 between ethical judgments and other sorts of judgments. This

60 is undoubtedly the case, just as it is undoubtedly the case that  
61 there is a distinction to be drawn (and one that is useful in  
62 some contexts) between *chemical* judgments and judgments  
63 that do not belong to the field of chemistry. *But nothing meta-*  
64 *physical follows from the existence of a fact-value distinction*  
65 *in this (modest) sense.* ([27], p. 19)

66 In actual scientific practice, Putnam notes, value and fact are  
67 intermingled. To illustrate this, one might distinguish between a  
68 medical scientist and a quack. Clearly, they are distinguishable in  
69 terms of the respective methodologies each employs but to reduce  
70 the distinction to this alone is to miss something crucial. Even  
71 someone using an unsuccessful method can still manifest many  
72 intellectual virtues. The genuine medical scientist has a commit-  
73 ment to the truth of her findings which the quack does not. The  
74 quack might be happier if his pills and potions worked, not least  
75 because this would increase his sales. But provided that his decep-  
76 tion goes undetected, the quack is indifferent to the truth of his  
77 claims, in ways that the scientist cannot be. Indeed, part of the  
78 appeal of the notion of value-freedom is that it implies that the  
79 scientist places the pursuit of truth above all other considerations.

80 In the real world, scientists' motives may be less noble. But the  
81 intellectual pedigree of the natural sciences is well-earned and  
82 partly reflects a recognition that many scientists do manifest a high  
83 degree of personal and intellectual integrity. The notion therefore  
84 that any scientific practice is value-free, while intended to flatter  
85 the natural sciences is ultimately demeaning. The worry that  
86 science may be corrupted by illicit moral or political values is  
87 genuine but the best safeguard against is not to pretend that sci-  
88 entists operate in an evaluative vacuum but rather to foster the right  
89 kinds of intellectual and moral values, some of which will be  
90 internal to the sciences but others of which draw upon a common  
91 set of shared values.

92 Consider another example. Running diagnostic tests is a core  
93 activity of medical investigation and may appear at first blush to be  
94 a paradigmatically value-free domain. However, depending upon  
95 how the test is calibrated, it may yield either false negatives or  
96 false positives. The researcher has to make a decision about direc-  
97 tion of error. Suppose the test in question detects prostate cancer in  
98 elderly men. Because many men will die with, though not of,  
99 prostate cancer, the decision must be made as to whether it is worth  
100 risking emotionally traumatizing these men and making them  
101 undergo a painful and costly procedure. A large number of false  
102 positives are likely to have this effect and thus the tendency has  
103 been to favour false negatives.

104 Suppose however the test in question detected testicular cancer  
105 in younger men. The fact that the cancer in question is eminently  
106 controllable, if detected early, but otherwise aggressive, combined  
107 with the fact that the men in question have an entire working and  
108 reproductive life ahead of them tends towards a preponderance of  
109 false positives. Practical considerations, and values as constitutive  
110 elements of those considerations, determine diagnostic outcomes.  
111 Some of the values in question are epistemic, others are clearly  
112 ethical.

## 113 The value of life

114  
115 The arguments in favour of a naturalized normativism about health  
116 run deeper. Taken together they state: judgements about health are  
117 judgements about living beings. Medical science can never be just

1 applied pathology for the simple reason that a central defining  
2 feature of living beings is typically absent in the path lab. Living  
3 beings are defined above all else by the characteristic activities  
4 which they undertake in pursuit of their life goals. This means that  
5 certain predicates are attributable to living beings which do not  
6 apply to inanimate matter. This insight is captured well in Michael  
7 Thompson's essay *The Representation of Life* [28]. He suggests  
8 that when we come to think about life certain forms of thought  
9 become appropriate which do not apply to inanimate matter.

10 Thompson illustrates this with a discussion from a biology text,  
11 in which the author attempts to tabulate some of the defining  
12 features of living beings. As Thompson points out, even where the  
13 vocabulary used shares similarities with the discussion of inani-  
14 mate objects in biology it takes a distinctive form. This becomes  
15 most obvious in the discussion of the claim that 'living things  
16 respond to stimuli'. This fairly standard formulation assimilates  
17 the description of living processes to analogous inanimate ones.  
18 Thompson offers the following example:

19 *The warming of an asphalt road bed and the train of photo-*  
20 *synthetical events in a green leaf* are both of them, in some  
21 sense, the effect of sunlight. *And the thawing of icy ponds and*  
22 *the opening of maple buds* are each occasioned by rising  
23 spring temperatures [28].

24 From the physical point of view, energy conversion occurs in all  
25 of these cases. However, we miss something distinctive about  
26 biological explanations if this is all we see. In the case of biologi-  
27 cal phenomena, the question: 'and what happens next?' has a  
28 special sense. For, what we are interested in is how a given  
29 process, say photosynthesis or budding, figures in the life of the  
30 organism, what contribution it makes to the plant's characteristic  
31 life activities. Questions about characteristic life activities make no  
32 sense when dealing with planets or rivers.

33 For this reason, the appropriate form of judgement for living  
34 beings is what Thompson refers to as the Aristotelian categorical.  
35 This is a statement like: 'swallows fly south in Winter' which is  
36 true in general for swallows, and which gives a description of a  
37 feature of the characteristic form of life of a swallow but which,  
38 unlike the exceptionless generalities of physics and chemistry, is  
39 not undermined by the discovery of aberrant swallows. The  
40 swallow is aberrant precisely because it is not acting as a swallow  
41 should.

42 Boorse is sensitive to some of the issues here. In his Rebuttal, he  
43 stresses the centrality of the notion of organisms as goal-directed  
44 systems to his view of health and disease. The problem for Boorse  
45 is that is not possible to have a satisfying account of goal-directed  
46 systems which is value-neutral in his required sense. The most  
47 promising attempt to offer an aseptic analysis of biological func-  
48 tion can be found in cybernetic systems theory. Mark Bedau has  
49 demonstrated that such an approach cannot succeed [29].

50 The problem with this approach is that, on the aseptic analysis,  
51 any steady state system will pass the test for being goal-directed.  
52 To illustrate this, Bedau asks us to consider the distinction between  
53 the biological processes that maintain a steady concentration of  
54 approximately 90% water in mammalian blood and the swinging  
55 of a pendulum. Both of these can be understood as equilibrium  
56 systems but only one is truly goal-directed. If the systems theorist  
57 conceded that both were, in a sense, goal-directed the scope of  
58 goal-directed explanation would thereby become vacuously  
59 extended.

60 Bedau expands this example by asking us to consider a marble-  
61 shaped object in a bowl. The tendency of the marble to return to the  
62 bottom of the bowl does not make the 'marble-plus-bowl' a goal  
63 directed. The example is obviously trivial and a systems' theorist  
64 might propose that we project goals onto systems to the extent that  
65 we are interested in them and on this account the reason that the  
66 marble-plus-bowl system is not truly goal-directed is the fact that  
67 no one is interested in it. This example parallels the projectivist  
68 claim concerning health and disease and faces similar problems.  
69 Presumably there would still be goal-directed systems in nature  
70 without the existence of human beings and similarly we must  
71 assume that there currently are innumerable such systems of which  
72 we are unaware and in which we could not be interested. By the  
73 same token, it might be possible for someone to take an interest in  
74 whether the marble returns to the bottom of a bowl without it being  
75 genuinely goal-directed. Crooked casinos notwithstanding, rou-  
76 lette wheels are not goal-directed systems.

77 After considering and rejecting a number of further standard  
78 defences of the systems approach to teleology, Bedau argues that  
79 'equilibrium systems fail to be genuinely goal-directed, when their  
80 equilibrium maintaining behaviour is of no value for anything'  
81 [29]. Goal-directed systems, whether natural or artefacts, benefit  
82 some living being. Bedau illustrates this by considering the cir-  
83 cumstances under which the marble-plus-bowl system could  
84 become genuinely goal-directed. Perhaps a creature has evolved  
85 with 'marble-plus-ball' organ which enables it to balance cor-  
86 rectly. Possession of this organ benefits the creature to the extent  
87 that it needs to balance in pursuit of its characteristic life activities.  
88 Similarly, we can imagine a 'marble-plus-bowl' style instrument  
89 that someone uses to measure flat surfaces. Nothing has changed  
90 in the mechanical principles upon which the marble-plus-ball  
91 system operates. What has changed is the context. Both the organ  
92 and the instrument are now of benefit to something and it is this  
93 which entitles us to regard them as genuinely goal-directed.

## 94 Conclusion 95

96 While all living beings suffer disease and at least some of them  
97 may fear it, none have the ability to conceptualize it and orientate  
98 their individual and collective responses to it in the way that we do.  
99 Moreover, the pursuit of health provides a compelling reason to act  
100 for rational beings such as ourselves. Thus veterinarians give  
101 advice to owners but not to their pets. Other animals act or fail to  
102 act in ways that promote their health. We, by contrast, can be said  
103 to have a responsibility, all things considered, to protect health. We  
104 should of course be mindful of the continuities between ourselves  
105 and other animals. Darwinism teaches us this much. But we should  
106 also attend to the differences. The naturalistic perspective I have  
107 attempted to outline here gives us a framework for doing this.

108 When we start to consider living beings concepts like values,  
109 goals and interests seem inescapable. For the purpose of this paper,  
110 I have not attempted to engage with the thornier metaphysical  
111 question of whether this inescapability represents an inherent  
112 feature of our conceptual scheme or whether it is built into the  
113 nature of reality.<sup>5</sup> What I have hopefully succeeded in doing is  
114 undermining the projectivist account of value in such a way that  
115 neither a bare naturalist account such as Boorse's or a projectivist  
116

117 <sup>5</sup> My own preference is for a moderate realism.



R. P. Hamilton

Health – beyond normativism and naturalism

1 version of normativism seems attractive. Given that all our inter-  
2 actions with the world and each other are mediated through our  
3 concepts there is a trivial sense in which values are projections of  
4 our interests. But in this trivial sense, so to is the conceptual  
5 framework with which we understand living things.

6 If we take projectivism seriously, then it seems to inevitably  
7 degenerate into the claim that our values are mere projections. But  
8 if this is so, we seem forced to admit that our perception of living  
9 beings as self-organized goal-directed entities must also be. But if  
10 the claim that the existence of health and disease somehow pre-  
11 suppose the existence of human minds is implausible, then the idea  
12 that the very existence of other living beings, for whom 'to exist is  
13 to live', depends upon us is even more so. Idealism seems too high  
14 a price to pay for naturalism<sup>6</sup>.

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39 <sup>6</sup> Idealism in this context is the philosophical thesis that the world (or some  
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