**Naturalism about Health and Disease: Adding Nuance for Progress**

Accounts of health and disease traditionally come in two varieties: naturalism and normativism.[[1]](#footnote-1) Naturalists maintain that health and disease can be defined – at least in part – in value-free terms, whereas normativists maintain that health and disease are essentially value-laden concepts. The two positions have been in deadlock opposition for the past forty years, with Christopher Boorse firmly defending naturalism, and the vast majority of his interlocutors in opposition.

In this paper I argue that the above picture of the literature is too simplistic: there is not one opposition between naturalism and normativism, but many. In order to demonstrate this I shall examine existing debates in the literature in order to distinguish *four* different domains over which claims to value-freedom or value-ladenness can be staked out: (1) ‘health’ and ‘disease’ as *ordinarily used,* (2) *theoretical* or *conceptually clean* versions of ‘health’ and ‘disease’, (3) the *operationalisation* of dysfunction and (4) the *justification* for a given operationalisationof dysfunction. These different domains result in at least four possible versions of ‘naturalism’ and ‘normativism’, and at least four possible versions of ‘naturalist-normativist’ opposition. Most existing emphasis has been on the first two domains, but I offer the latter two as an essential contribution to the debate. They allow us to think of more nuanced, intermediate positions about a possible role for values in health and disease; help make sense of more recent contributions to the literature; and can assist in addressing relativistic worries about the value-ladennes of health and disease.

This paper’s emphasis is on elucidating possible versions of naturalism. As a result normativist positions are only presented as the negation of naturalist ones, and are presented very sketchily; important versions of and distinctions within normativism are overlooked.

As part of the main argument of the paper, I also present new arguments in response to Schwartz (2007) and Hausman (2012) and expose a link between the arguments made by Schwartz (2007) and Kingma (2010).

**Domain 1: The Ordinary, Applied and/or SocialDomain**

A traditional and widespread interpretation of the literature on health and disease is this: *Naturalists*[[2]](#footnote-2)claim that health and disease are value-free concepts that represent the world as it is, rather than our evaluation of how things are. *Normativists*[[3]](#footnote-3), by contrast, claim that health and disease are primarily value-laden concepts, representing or expressing what we value and disvalue, or how we think people ought – morally and/or socially – to be. In this debate, health and disease are somewhat artificially taken to be mutually exclusive umbrella-notions, where ‘disease’ is understood to encompass all departures from health, including e.g. trauma, disability, chronic illness, etc.[[4]](#footnote-4)

Normativists have, amongst others, presented the following argument in favour of their position[[5]](#footnote-5): an entirely value-free account of health and disease would be useless. We employ the concepts of health and disease in order to make practical decisions, such as decisions about who should get special treatment such as drugs, attention and social concern.[[6]](#footnote-6) But since those decisions have to be driven, ultimately, by normative concerns, health and disease – if they were to be completely value-free notions – could not determine them.[[7]](#footnote-7) Therefore, normativists argue, naturalism must be false; to label something a disease must express at least some form of disvaluation, or a call to action.

The observation that a completely value-free account of health and disease cannot directly determine moral and social decision-making is undoubtedly correct. But it does not amount to a counter-argument to naturalism because it is, at least in the above version, attacking a straw-person.[[8]](#footnote-8) No naturalist claims that a completely value-free account of health and disease should directly drive our social decision-making[[9]](#footnote-9), or that it corresponds exactly to how lay-people might use health and disease in a social, applied context. Instead all naturalists adhere to a ‘two-layer’ account of health and disease: a core naturalist concept – usually function/dysfunction – which they claim is value-free, but which gets overlaid or augmented with values as soon as it is to be applied to any particular question or used in a practical setting.[[10]](#footnote-10),[[11]](#footnote-11)

This ‘two-layer model’ distinguishes the first two domains where possible naturalist and normativist claims can be contrasted: the *applied* domain and the *theoretical* domain. The applied domain focuses on the concepts ‘health’ and ‘disease’ as they are used in ordinary language, and in common, messy social contexts. The *theoretical* domain is discussed in the next section.

The example of infertility may help us understand what a contrast between naturalism and normativism at the first, applied domain would look like. Consider that only some, but not other, versions of infertility are ordinarily considered *diseases* (or more broadly speaking, departures from health, or medical conditions). Unwanted infertility due to, for example, hormone imbalance or scarring on the tubae is considered a medical condition/disease, whereas no one seems to think that wanted infertility, in the form of taking hormonal contraceptives or having had a vasectomy, is a medical condition/disease. A naturalist about the applied domain would have to maintain that *one* of these widespread, ordinary social & medical usages is false; a misapplication of our language*.* For if, in the domain of *actual usage*, health and disease were value-free concepts, then all cases of infertility due to tubal damage or hormonal imbalance, which do not differ on a value-free description, would have to be labeled and treated similarly. Whether they are *desired* or not could not make a difference according to the (hypothetical) naturalist.[[12]](#footnote-12) A normativist, by contrast, recognizes that whether a condition is *desired* or not does make a difference to whether we consider it a disease, and can thus successfully distinguish between desired and undesired infertility.

Let me reiterate, however, – and as this example probably further illustrates – that the applied domain provides only a *possible* space where naturalists and normativists could oppose. In practice, nobody defends naturalism about the applied or ordinary domain; all agree the concepts ‘health’ and ‘disease’ as they are actually used in social and medical contexts are (at least in some sense) value-laden.[[13]](#footnote-13)

**Domain 2: The Theoretical or ‘Conceptually Clean’ Concept**

What, then, do actual naturalists defend naturalism about? Not concepts of health and disease as we actually use or apply them, but the *theoretical* or *conceptually clean* concepts that underpin that application.

The theoretical domain is where we strip away and simplify from some of the things we do with concepts in the *ordinary* or *applied* domain, and ask what the *core features* underpinning our conceptual usage are.[[14]](#footnote-14),[[15]](#footnote-15) Naturalists have defended that these core features are *biological function* and *biological dysfunction*.[[16]](#footnote-16)Normativists, by contrast, defend that these core features are not function and dysfunction, but some kind of evaluative feature, such as ‘undesirable/desirable’, ‘bad/good’, or ‘calling for a medical intervention/asking to be left alone’. The theoretical or ‘conceptually clean’ domain is thus the second domain I identify where claims that health and disease are value-free, or value-laden, can be staked out.

To illustrate the theoretical domain, consider again the case of wanted infertility. Assuming that infertility is a biological dysfunction[[17]](#footnote-17), Naturalists about the theoretical domain would maintain that any infertility is therefore at least *theoretically* a disease – whilst recognizing simultaneously that there is little point treating it as such in practice. Normativists, by contrast, claim that labeling wanted infertility a disease even in theory, makes a mistake: it fails to identify the correct unifying feature that diseases share. This unifying or identifying feature that, according to normativists, diseases share *even after issues of application have been set aside*, is not dysfunction, but some evaluative content along the lines of ‘being bad/unwanted’. Thus, according to the normativist, wanted infertility or any other desired condition cannot be a disease, even in theory.[[18]](#footnote-18),[[19]](#footnote-19)

To make the difference clearer, it may be helpful to contrast what would make naturalists and normativists change their views about fertility. Suppose we discovered that reproduction was not, in fact, a unifying feature of the biological world; once upon a time, all mammals, like *hydra*[[20]](#footnote-20), did not age and had immense regenerative ability, until an evil spirit banned them from paradise and foisted ageing, death, and reproduction on them. Suppose we found this out, also uncovered *how* the evil spirit did this – say it was a series of mutations – but did not yet have the ability to repair them. In this scenario at least some naturalists would start to regard ageing, death and fertility as diseases in theory (although there may not yet be any point in regarding them as such in practice): fertility rather than infertility would now be a dysfunction. Normativists by contrast, would not change their mind about fertility being a disease in this scenario, provided that we continued valuing reproducing.

Conversely, consider a different scenario in which we uncovered evidence that fertility and reproduction, although clearly functional, are in fact very bad for us. This would give normativists reason to start to regard fertility as a disease (at least in theory), whereas it would not make any difference to naturalists.

I will not say much about the actual arguments that have been made about the theoretical domain. Historically, most of the substantive opposition between naturalists and normativists in the literature – and thereby most debate about value-intrusion and focus in the literature – is located here, and this has thus been covered extensively.[[21]](#footnote-21) Instead I want to go on to identify two further domains where debates about value intrusion do or could take place. Although these two domains may not be completely distinct from the second domain, I think it is worth recognising them as such, for reasons that will become clear later. They have not been widely distinguished, and whether an involvement of values here would still imply a normativist or undermine a naturalist position will remain an open question for now – but I will return to this question towards the end of this article.

**Domain 3: The Operationalisation of Dysfunction**

Most arguments in favour of value-ladenness question whether ‘(dys)function’ is the correct (theoretical) analysis of ‘health’ & ‘disease’, and propose an explicitly value-laden alternative instead. But a subset of those arguments takes a different route: they question whether, assuming that an analysis of disease as dysfunction is correct, the concepts of function and dysfunction can themselves be defined or operationalised in value-free terms. This reveals a third domain where value-intrusion can be debated: the operationalization of function and dysfunction.

In what follows I examine several arguments that focus on this third domain.[[22]](#footnote-22) Few of these arguments originate with self-identified normativists, who have mostly engaged with the first and second level of value-intrusion only.[[23]](#footnote-23) Instead I identify them amongst, what I consider, recent debates *within* naturalism, and develop more arguments here that contribute to that literature. Although I develop these arguments further, my aim is not to endorse, oppose, or conclude them. My use of them is more limited: illustrating the various forms that opposition between naturalism and normativism can take.

My focus is on Boorse’s ‘Bio-Statistical Theory’ of function and disease (BST). This is for two reasons. First, because I take Boorse’s function account to be the most plausible interpretation of physiology and pathology.[[24]](#footnote-24) Second, and more pragmatically, Boorse’s account of function has been discussed more widely, and criticized in much more detail, than Wakefield’s.

*Schwartz and the line-drawing problem*

One place where a role for values *within* the concept of dysfunction can be debated is in the context of what Schwartz (2007) has dubbed *the line-drawing problem*.

For most biological functions, there is not one level of functional output that is normal and healthy, but rather a large rangeof such outputs. Think, for example, of the wide range of normal and healthy variation in muscle strength and flexibility, heart rates, blood pressure, cardiac output or kidney filtration rates. It is only at the extremes of these ranges that functional outputs become dysfunctional and diseased. The *line-drawing problem* is the problem of *where*,within this naturally widely varied range of functional outputs or performances, we should draw a line between healthy and diseased forms of function. That line may always be somewhat blurry – which is not a problem in itself. But it cannot be so blurry that it could be drawn *anywhere* on the scale, because that would make the health/disease distinction random, and/or too prone to being determined by non-naturalist considerations and/or convention.

Boorse has not focused on this problem much, suggesting that it would simply be a matter of identifying the rough lower percentage in the population distribution that picks out the lower, abnormal, tail of the functional distribution.[[25]](#footnote-25) But Schwartz (2007) convincingly argues that this solution – simple frequency – will not suffice: we cannot e.g. define the bottom 5% [or 2% or 1%] of functional outputs as pathological, because of the dual problem of *healthy* and *unhealthy populations*.

*Unhealthy populations* are populations where pathological output is common, so that not the bottom 1, 2 or even 5% of the population is pathological for a particular functional trait, but perhaps the bottom 10, 20, or even more percent. Examples are populations of elderly people, where substantial proportions may suffer from functional limitations such as heart failure, or the population of pregnant women amongst whom, for example, 10% suffers pre-eclampsia.[[26]](#footnote-26) *Healthy populations*, by contrast, are populations where pathological outputs are very uncommon, so that much less than the bottom 10, 5 or even 2% of the distribution is unhealthy with respect to a particular functional trait. For example, in young non-pregnant women, the vast majority of the bottom 10, 5 or even 2% of functional outputs is entirely healthy for most traits.

Different diseases differ quite a lot in prevalence, which illustrates poignantly that Schwartz’s problem is a real one.

As a solution to the problem he raises, Schwartz (2007) proposes what he labels the *frequency/negative consequences* view (FNC). In this view the cut-off line between the normal and the pathological is still located at a particular frequency of occurrence or in the population distribution, but that percentage is not the same for all traits in all populations. Rather, it varies with the consequences/characteristics of the outputs in the population under consideration. Thus if a large proportion of outputs is bad – as is the case in heart function in 75-year-old men – then the cut-off between normal and pathological shifts to a higher percentage of the population distribution: to the percentage that suffers the negative consequences start. If only very few outputs are bad, such as in heart function in young women, this means that the cut-off between the healthy and the pathological shifts again to the level at which outputs start to have negative consequences, which is now a very low percentage of the population distribution.

Schwartz’ solution may well work, but is it *value-free*? Schwartz suggests that it is, providing an interpretation of *negative consequence* that supposedly is not in evaluative terms, but as “effects that significantly diminish the ability of [the organism] to carry out an activity that is generally standard in the species and has been for a long period of time”.[[27]](#footnote-27) On the face of it, however, that solution cannot be successful, and for the following reason[[28]](#footnote-28): one main challenge for an account of function and health consists of accommodating the wide variations of functional output that are required to sustain a homeostatic organism through a range of environmental and situational demands.[[29]](#footnote-29) This means that sometimes, where the situation demands it, ‘the ability to carry out a standard activity’ needs to be suppressed or impaired. For example, during an erection a man’s ‘standard’ ability to urinate is normally impaired; during pregnancy and breastfeeding a woman’s ability to engage in the menstrual cycle is generally suppressed; and during sleep much of our established mental and physical activity is absent. But none of these suppressions or impairments is pathological. If Schwarz’ invocation of ‘standard activities’ is therefore to succeed in providing a value-free interpretation of his ‘negative consequences solution’ to the line-drawing problem, then he needs to demonstrate how his proposal can successfully differentiate between those impairments of ‘standard activities’ that indicate situation-specific requirements – and thus health – and those impairments that truly indicate a ‘negative consequence’ or dysfunction. On the face of it, it is not clear that the present installment of his solution can make this distinction; more work is needed.

I don’t consider this a conclusive argument against the naturalism of Schwartz’s solution to the line-drawing problem; a further elaboration of Schwartz’s view may well prove it successful after all.[[30]](#footnote-30) But then my aim here was never to settle the debate; it is to identify and distinguish the different domains where naturalists and normativists can disagree. And the very fact that we can have a debate about whether Schwartz’ solution is value-free or not provides an example of a debate about value-freedom vs value-ladenness at the third domain I identified: the *operationalization of* dysfunction itself.

*Kingma and Harmful Situations*

Here is another example of a possible discussion in this third domain. As already observed, normal functional outputs are naturally varied and responsive to the demands of particular situations and environments. I have argued elsewhere (Kingma, 2010) that this creates a problem for the BST: the problem of *harmful situations*.

This argument proceeded as follows: first, I argued that the definition of normal function employed by the BST needs to be reinterpreted. Because normal ranges of function are different for different situations and may not even overlap – compare e.g. heartrate or cardiac output during sprinting and sleeping, or LH production during the fifth and fourteenth day of the modal menstrual cycle – ‘normal function’ must be redefined as ‘the range of quantitative functional output that is statistically normal *in a particular situation, environment or circumstance’.* Then, with this interpretation on the table, I demonstrated that this results in the problem of *harmful situations*. These are situations in which the vast majority of a population becomes ill: e.g. exposure to large quantities of pathogens, environmental stress, toxic substances, etc. Harmful situations are a problem because the reinterpreted BST *must* label the statistically normal range of function in these situations as healthy.

There is an obvious connection between the problem of harmful situations and Schwartz’s problem of ‘unhealthy populations’: the former may be seen as a version of the latter. For if the BST relativises normal function to an environment or situation, as I argued it must (Kingma 2010), then one way to view an environment rich in carbon monoxide, is as an environment in which 99% of the population is unhealthy. Because of this connection, the ‘negative-consequences’ solution to the line-drawing problem – if successful in a value-free way that can accommodate situation-specific functional demands – may also provide a value-free solution to the problem of harmful situations. If not, then an obvious but evaluative solution to the harmful situations problem is to appeal to the harms generated by these situations.[[31]](#footnote-31)

Again I wish not to resolve this debate, but to take a step back from it and observe that the very fact that we can consider value-free and/or value-laden solutions to the problem of harmful situations indicates again that there is a the third domain – the *operationalization* of dysfunction – where value-intrusion can be debated.

*Intermezzo: Implications of value-ladenness on the second and third domains.*

At this point it is worth pausing to emphasise a difference between second-domain and third-domain claims to value-ladenness. If claims about value-ladenness at the second domain are correct, i.e. if the core-feature that diseases share is an *evaluative one*, then that has consequences that many consider impalatable; most notoriously, a society’s disvaluation of a condition may be enough to turn that condition into a disorder – which seems intuitively wrong to many of us.[[32]](#footnote-32) But that is not the case for claims about value-ladenness about domain three. For even if it were to be the case that there is a role for values at the level of operationalizing dysfunction, that role appears at most to be quite small and most certainly very limited. In the arguments about environments and line-drawing above, for example, values – if they do intrude – would be but one cog in a substantial piece of conceptual machinery that constitutes Boorse’s account of dysfunction. As such, and in contrast to value-intrusion on the second domain, third-domain value-intrusion does not imply that merely disvaluing a certain condition would be enough to make a condition a disease. Instead the account of dysfunction as a whole places considerable constraints both on what counts as a biological function, and on what sorts of entities are up for evaluative judgment. This constrains our judgments and might block some of the relativistic implications that value-ladenness on the second domain seems to have.

As an example, consider masturbation, which was once considered a disorder. Normativism about the second domain is generally committed to endorsing that judgment, at least from a contemporaneous vantage point, because masturbation was also deeply disvalued and considered sinful by society at the time. Normativists about the third domain, by contrast, are not so committed; because masturbation does not result in a negative outcome *in functional terms*, it can say that considering masturbation a disease was a wrong judgment in such a society, *even if* that society deeply disvalued masturbation; according to the third-domain normativist mere disvaluation of a condition is not enough to make that condition a disease. The condition must be a *biological dysfunction* first. And masturbation neither is, nor was, a dysfunction.

Suppose, however, that things were different: suppose masturbation *did* cause a negative outcome in functional terms. Suppose, for example, that the contemporaneous belief that masturbation, in addition to being sinful, caused blindness, was correct. For normativists-about-the-second domain that makes no difference: due to its being disvalued, they are committed to designating masturbation a disease at the time, whether it caused blindness or not. But for normativists-about-the-third domain, this would be relevant; for them, masturbation cannot be a disease for reasons of being disvalued *per se*, but it can be a disease for reasons of having a negatively evaluated *functional* consequence – such as blindness. And this, to me, seems correct. For if masturbation did cause blindness, it is not clear to me that it would not be considered a disease.[[33]](#footnote-33) This suggests that if values do play a role in the concept of health and disease, then level-three normativism might get them roughly right; certainly they seem to offer a way of accommodating value-judgment in a way that avoids some of main apparent disadvantages associated with normativism.

*Example*

Having, I hope, clarified the distinction between second- and third-domain normativism, I have yet to give an example to illustrate the distinction between third-domain naturalism and third-domain normativisim. Such an example is not easy to give because, as discussed earlier, these positions hinge on the details and feasibility of highly technical accounts health/function and disease/dysfunction, which are not yet concluded. But I hope the following clarifies.

Suppose that, as is currently the case, diets high in salt lead to high blood pressure. But now suppose that high blood pressure does not result in the higher risks of mortality/morbidity that it does now, but has only one effect: penises take longer to become erect.[[34]](#footnote-34) Also suppose that this does not affect time-to-ejaculation. Thus high blood pressure increases time from stimulation to erection, shortens time from erection to ejaculation, but keeps overall time from stimulation to ejaculation the same.[[35]](#footnote-35) Would this be a disease?

Imagine different societies/scholars grappling with this question. All agree that salt-penises are undesirable (because all of them value more time between erection and ejaculation as part of their sexual enjoyment). But all agree also that *mere* dislike of salt-penises is not enough to make them diseases; to be diseases, salt-penises must be *dysfunctional*.[[36]](#footnote-36) The third-domain *naturalist* now argues that a completely value-free answer to whether salt-penises are dysfunctional is possible. For example, she argues that the high-salt diet being statistically normal (or evolutionary abnormal) testifies to s-p’s being normal/healthy (or abmormal/diseased). Or she might argue that sexual pleasure is/is not a biological function of the penis that is compromised in salt-penises.

The third-level *normativist*, by contrast, argues that whilst the erection-time of the salt-penis clearly falls within the realm of functional descriptions, the further question of *where* the healthy becomes the pathological within the population-distribution of erection-to-ejaculation (or stimulation-to-erection) time, cannot be solved by appeal to statistical normality or functional description alone. Instead, the *normativist* on the third domain might argue, we can be partially guided in this particular case by the pragmatic reasons we have for negatively valuing the majority of the population-distribution of penile function in high-salt environments.

**Domain 4: Justification of, or Choice amongst, Operationalisations**

The fourth domain where people could disagree about a role for values does not concern the evaluative nature of the *terms* in which ‘health’ and ‘disease’ and/or ‘function’ and ‘dysfunction’ can be defined or analysed, but rather whether the *use* of those terms or concepts reflect a (value-laden) choice. I shall discuss three arguments at this domain.

*Harmful Environments, again*

In the previous section I discussed the problem of harmful environments, and the possibility of solving this by adopting a version (if successful) of Schwartz’s ‘negative consequences’ view. But I have previously examined and rejected an alternative way of solving the harmful situations problem (Kingma, 2010). This provides an entry point for debate about fourth-domain value-intrusion.

This solution was that as part of the BST one might delimit – and thereby assert – those environments in which statistically normal function is healthy (Kingma, 2010: 254). Thus, much as the BST asserts those subpopulations in which normal, group-specific, function is healthy as ‘reference classes’, those environments in which environment-specific normal function is healthy might be thought of as ‘reference environments’.

I (2010: 254-259) considered several possible naturalist justifications for asserting those ‘reference environments’ but rejected them all, concluding that an assertion of these environments most likely would reflect human or evaluative judgment, which undermines the value-freedom of the BST. Hausman (2012, forthcoming), however, claims to propose a value-free version of my (2010) solution: the BST should employ *benchmark environments* to specify normal functional capacities, where ‘benchmark environments’ are alternately specified as “relevant, wide-spread, long-lasting and stable”[[37]](#footnote-37) or “benign, common, and relevant”[[38]](#footnote-38).[[39]](#footnote-39)

It is beyond the scope of this paper properly to evaluate Hausman’s solution.[[40]](#footnote-40) What I wish to highlight is merely the existence of another debate about possible value-involvement in the BST. Note how the charge of value-ladenness is conducted here, however: it is not that health and disease, or even function and dysfunction could not be defined wholly or partially in explicitly value-free terms. Rather the charge is that *even if* a definition of health or function in completely value-free terms succeeds, that definitions asserts certain parameters – permissible environments in this case – that may be *describable* in value-free terms, but cannot be *justified* in a value-free way; they might have been stated differently, and using some rather than others may be driven by, and thus reflect, a normative judgment or evaluative choice.

*Reference Classes*

Here is a second and simpler version of such a debate about fourth-domain value-intrusion: whether there is a value-free justification for picking one particular operationalization of dysfunction amongst a number of competing options.

In (Kingma, 2007) I argued that a crucial role in Boorse’s account is played by *reference classes*, i.e. the groups in which we can define the statistically normal function as *normal function/health*. These, Boorse states, are age, sex, race. I pointed out that if these reference classes were chosen differently – as e.g. ‘having Down’s Syndrome’ or ‘being a long-term, heavy Alcohol-user’ – then a very different account of health and disease would be generated: one in which Down’s syndrome and liver cirrhosis were normal in these reference classes, and therefore healthy. Boorse’s choice of one particular set of reference classes only is thus essential for making his account work

I contended that Boorse cannot justify this choice without either begging the question – i.e. by making prior assumptions about what are and are not healthy human forms – or taking recourse to values or social judgment. Thus, I concluded, Boorse’s operationalization of dysfunction/disease incorporates a possibly value-laden or non-naturalistic element in terms of the choice or assertion of reference classes.

Whether right or wrong, my (2007) challenge exemplifies another instance of a debate about fourth-domain value-intrusion: the selection of key parameters to operationalize health/function and dysfunction/disease.

*Goals*

A third version of a charge of value-ladenness pertaining to the fourth domain is much older: it concerns the choice of goals on the BST.

Boorse operationalizes functions as causal contributions to goals, where those goals are specified as ‘survival and reproduction’. As was the case for reference classes, if Boorse employed different goals in his operationalisation, such as ‘countering climate change’, ‘pursuing hedonism’ or ‘achieving well-being, eudemonia, wisdom and/or virtue’, then some of the biological functions of our various traits might look quite different – and so would health and disease. And just as one can contend the assertion of reference classes or benchmark environments is value-laden, people have argued that Boorse’s choice of survival and reproduction as goals of the organism (instead of, for example, flourishing) is a value-laden choice.[[41]](#footnote-41)

In response Boorse claims that this challenge misfires: his account is not supposed to indicate that we *value* survival and reproduction, but simply that those are the goals that human organisms, qua biological entitities, strive towards.[[42]](#footnote-42)

That latter claim, however, is patently false – especially if one wants to include the mind within one’s functional biological descriptions. Humans, qua biological entities, are also social and cultural entities. And humans do not, as organisms, strive towards survival and reproduction *alone*. To return to our previous example of wanted infertility: many of us spend considerable parts of our lives striving to enjoy ourselves sexually, whilst taking elaborate precautions to *avoid* reproduction. To take one’s desire for sex to be ‘biological’ or ‘real’ but one’s desire to avoid reproducing (just yet) as not, is to either subscribe to a weird Cartesian dualism – where our minds are not part of our organisms – and/or to completely exclude the mental from one’s account of function and health and disease. Neither is an option for the BST, which is meant to ground an account of mental as well as somatic disorder.[[43]](#footnote-43)

Again, I do not want to settle this debate; Boorse’s account of function may yet remain defensible. I merely wish to highlight it as a third instance of a debate about possible value-intrusion on the fourth domain: *choice amongst alternative operationalisations of dysfunction*.

*Example*

Again, an example might help here, and perhaps we can pick a real one: suppose there are two legitimate biological accounts of function: causal role accounts and evolutionary accounts.[[44]](#footnote-44) Both are recognized as legitimate in the literature on philosophy of biology. But although these accounts largely classify conditions in similar ways, there are some differences. This means that, unless we have multiple concepts of health and disease, only one of these accounts of function can underpin an account of health-as-normal-function.

Now take a condition – such as dyslexia – that is a dysfunction according to one account, but not according to the other.[[45]](#footnote-45) Which account is the *correct* account of function, and gives the correct answer about health and disease? A naturalist at the fourth domain has to argue, or would maintain, that one of these accounts is the true operationalization of health/function without appealing to any value-laden or pragmatic considerations.[[46]](#footnote-46) The fourth-domain normativist, by contrast, could grant that both accounts are legitimate analyses of function, and that we can pick the one or the other as more suitable for describing health based on evaluative or pragmatic reasons.[[47]](#footnote-47)

**Conclusion: Nuance & Progress**

I have distinguished four different domains where disagreements over value-ladenness of ‘health’ and ‘disease’ can occur. These domains are, first, the domain of our ordinary, social usage of the terms ‘health’ and ‘disease’: are these value-laden?; second, the *theoretical* or *conceptually clean* concept, or *identifying feature,* underpinning health and disease: is this *biological dysfunction*, or an explicitly value-laden term (e.g. ‘harmful’)? Third, the *operationalization* of dysfunction: can this be completely defined in value-free terms? Fourth, the *choice of* or *justification for* picking a particular operationalization of dysfunction amongst a set of alternatives: is this guided by values? These four domains of opposition give us at least four different possible claims to value-freedom, and concomitantly four different possible claims to value-ladennes.

Note that the distinctions between these claims and domains are not absolute. They may, in some cases, be of degree, and some claims to value-ladenness on one domain can be translated into, or cashed out as, claims to value-ladenness in another domain. For example, and as already indicated, Kingma’s harmful environments objection can be characterized either as a third or fourth domain claim to value-ladenness. As another example, the fourth domain and the first domain are related, insofar as the values embedded into the *context of practical use* are what makes us select one operationalization of health/function over another.[[48]](#footnote-48)

At the same time, not everyone will want to recognise the distinctions I make. Some normativists’ commitments, for example, bar them from recognising a ‘theoretical’ concept as distinct from practical usage.[[49]](#footnote-49) And some naturalists may refuse to see a difference between naturalist claims at the second and third domain. Or, a naturalist claim on the second domain in combination with a normativist claim at the third domain may seem nonsensical and/or disingenuous to them.[[50]](#footnote-50)

Nevertheless, I think the distinctions I make are helpful for illuminating at least *some* claims and positions in the literature, in a way that I hope can help clarify and move forward the debate on health and disease in at least two ways.

First, my distinctions call for a lot more nuance in the literature on what is usually characterized as *one* opposition between *two* different positions on health and disease: naturalism and normativism. As I have demonstrated here, there are far more distinctions, and therefore more possible and actual positions with respect to the involvement of values in health and disease concepts, than this crude characterization suggests. Exposing this will, I hope, contribute to a more careful treatment and understanding of existing positions and debates in the literature, and ultimately lead to a better and more nuanced account of the role (if any) of values in health and disease on the one hand, and the extent of naturalists’ commitments on the other.

Second, it demands a re-examination of the relationship between naturalist and normativist analyses of health and disease, on the one hand, and the ‘worries’, commitments and implications associated with these analyses on the other. For example, one persistent worry about normativism is that value-laden concepts of health and disease would provide no conceptual recourse against possible misuses and abuses of medicine and psychiatry.[[51]](#footnote-51) With four versions of value-ladenness on the table, it is not obvious that this worry applies equally to every one of them. Indeed I have already indicated that this may be far less of a problem for value-ladenness on the third domain, and the same may well hold for domain four. Distinguishing these domains is thus important because different consequences and commitments follow from them. [[52]](#footnote-52)

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1. Murphy (2009), following Kitcher (1996), contrasts ‘objectivism’ and ‘constructivism’. [↑](#footnote-ref-1)
2. Ananth (2008), Boorse (1975, 1976a, 1977, 1987, 1997, 2011), Kass (1975), Kendell (1975), Scadding (1988, 1990), Schramme (2007), Szasz (1960) and Wakefield (1992, 1995, 1999a, 1999b, 2000; see also note 11). [↑](#footnote-ref-2)
3. E.g. Agich (1983), Clouser, Culver & Gert (1981, 1997), Cooper (2002), Engelhardt (1976, 1986), Goossens (1980), Margolis (1976), Nordenfelt (1987, 2001, 2007), Reznek (1987) & Whitbeck (1978). [↑](#footnote-ref-3)
4. See e.g. Boorse (1977), Cooper (2002). Clouser, Culver & Gert (1981, 1997) favour the term ‘malady’ and Wakefield prefers ‘disorder’ – but all are employed in similar functional roles. [↑](#footnote-ref-4)
5. See e.g. Agich (1983) Cooper (2002), Engelhardt (1975; 1986:171), Goosens (1980), Kopelman (1975) Margolis (1976) and Whitbeck (1978). [↑](#footnote-ref-5)
6. Indeed this is a main motivation for wanting to define ‘health’ and ‘disease’ in the first place (Cooper & Megone, 2007). [↑](#footnote-ref-6)
7. Though few explicitly invoke it, *Hume’s law* (Hume, 1739, Book 3) seems at work here. [↑](#footnote-ref-7)
8. See also Kingma (2012). [↑](#footnote-ref-8)
9. Although naturalist accounts are sometimes employed in this way: e.g. Daniels (1985). [↑](#footnote-ref-9)
10. For example, Kass (1975) denies that health is the highest good, and claims that medicine should serve other ends as well; Kendell (1975) and Scadding (1988, 1990) consider it appropriate for medicine to treat certain non-diseases; and Boorse, who has been the most heavily attacked on this point, is also most elaborate in his insistence that the concept he defines has no bearing on treatment or legal and social categories, unless it is augmented with values (e.g. Boorse 1975: 54-55, 60; 1997: 11, 12-3, 55, 95-99. See also Boorse, *forthcoming*). [↑](#footnote-ref-10)
11. This is why, for the purpose of this essay, I classify Wakefield (who defines disease as ‘harmful dysfunction’) with Boorse and the other naturalists; all share a commitment to *function* and *dysfunction* as naturalist components of the health and disease concept. For my purposes, this is far more relevant than the precise point where they think the label ‘disease’ is appropriately applied (see also Kingma, 2012). But I recognize that for other purposes, other ways of classifying them may make more sense. [↑](#footnote-ref-11)
12. I cannot rule out, of course, that one could construct a naturalist account that recognises these different forms of infertility; one could imagine one that appeals to how conditions were caused. But as far as I am aware no such account currently exists – because noone defends naturalism about the applied domain. [↑](#footnote-ref-12)
13. This is further supported by the earlier mentioned, somewhat artificial move towards an ‘umbrella’ concept of disease. This already indicated that the domain under consideration in the literature is not our *actual* use and application of ‘disease’ and related medical concepts, but rather a cleaned-up or theoretical version of them. [↑](#footnote-ref-13)
14. Here is an example that might help identify the relationship between the theoretical and the applied. One might think that underpinning our ordinary terms ‘water’ and ‘alcohol’ are the theoretical or conceptually clean(er) concepts ‘(liquid) H2O’ and ‘Ethanol’. But nobody would maintain that those meanings completely map onto or exhaust our ordinary applications of the concepts ‘water’ and ‘alcohol’: it is quite clear that when I ask for a glass of water, for example, I do not mean tea (even though tea is just as much ‘H2O with some impurities’ as any other glass of water that you could give me). None of those subtleties in ordinary usage, however, would make us think that the scientists’ claim that water is H2O – or that alcohol is ethanol – is false, or does not say something that is informative *even about our ordinary, messy and subtle* usageof ‘water’ and ‘alcohol’. [↑](#footnote-ref-14)
15. Recognising a distinction between applied and theoretical domains or concepts makes some assumptions. First, the assumption that we can analyse concepts into ‘underlying’ definitions, shared features and/or component parts; second, that that is the correct way to go about analyzing these concepts (as opposed to, say, focusing on exemplars or describing in detail (the context of) their usage); and third, an assumption that science ‘discovers’ rather than ‘decides’ the reference of our terms, and/or has some authority over that reference. These assumptions are controversial, and may not be warranted; one might reject the first two if, for example, one sees concepts as ‘family resemblance’ concepts (Wittgenstein, 1953. See Lillienfeld & Marino, 1995, for an analysis of disease that seems to reject the first assumption). See e.g. Dupré (1993) for reasons to reject the third assumption. I shall take these assumptions for granted in this paper because I have the impression that Naturalists make both assumptions, and that most normativists make at least the first two. [↑](#footnote-ref-15)
16. See, e.g., Boorse (1977), Wakefield (1992, 1995). Wakefield and Boorse differ in *how* they define biological function; Boorse employs a forward-looking or causal contribution account, and Wakefield a backward looking or aetiological account. Note that, in principle, a second-domain naturalist might defend that disease is a best analysed in terms of a *different* scientific concept. But in practice, dysfunction appears the main and only candidate on the table. [↑](#footnote-ref-16)
17. Which most naturalists do assume. [↑](#footnote-ref-17)
18. There are some complications here; a normativist account that might designate wanted infertility a disease still, is one in which diseases are not unwanted conditions, but *typically* unwanted conditions. Other normativist accounts do not appeal to want or desire at all, but may employ an evaluative standard that is more objective. I set these complications aside in this and further examples. [↑](#footnote-ref-18)
19. Boorse (1997) responds and refers to many such arguments; see also authors in footnote 5. Often it is not clear whether normativist arguments pertain to the first or second domain, because normativists rarely make this distinction (Kingma 2012); indeed on some normativists’ views of meaning and concepts, the distinction does not make sense (e.g. Fulford ,1989). [↑](#footnote-ref-19)
20. Hydra is a much-studied multicellular organism that does not age and is able to regenerate a full organismic form from any of its somatic cells. [↑](#footnote-ref-20)
21. See, e.g. Boorse (1997, 2011). [↑](#footnote-ref-21)
22. I only include discussions that pertain particularly to health and disease. For a more general argument about the value-ladenness of function see e.g. Bedau (1992a, 1992b). [↑](#footnote-ref-22)
23. For an exception, see Fulford (1989). [↑](#footnote-ref-23)
24. See Kingma (2013), Hausman (2012, p252 n4), Murphy & Woolfolk (2000a, 2000b). [↑](#footnote-ref-24)
25. Schwartz (2007: 372-4) provides a careful summary of Boorse’s comments on this issue. [↑](#footnote-ref-25)
26. Strictly speaking, the incidence of pre-ecclampsia in pregnancy is high (~10%), but the prevalence is low, because the disease is typically of short duration (especially when pregnancies are actively monitored, as they are). [↑](#footnote-ref-26)
27. Schwartz (2007: 379). [↑](#footnote-ref-27)
28. Hausman (2012:529) gives a different reason for rejecting Schwartz’ solution: some activities, such as close-range looking, are very relevant for determining dysfunction now, but may not have been standard for the species for very long. [↑](#footnote-ref-28)
29. In (Kingma 2010) I coined and elaborated this problem of ‘situation-specific function’ for the BST. See Hausman (2011) for a response and Kingma (forthcoming) for a reply and more examples. [↑](#footnote-ref-29)
30. See Hausman (2012) for an alternative solution that involves a detailed rewriting and elaboration of the concept of ‘functional efficiency’. It is beyond the scope of this paper to assess that proposal. [↑](#footnote-ref-30)
31. Kingma (2010: 257) [↑](#footnote-ref-31)
32. Note that this is not entailed by normativism; not every normativist commits to ‘social undesirability’ as the relevant evaluative critierion, and some substantive view on values deny ‘cultural relativisim’: the view that values differ with societies. In practice, however – because we don’t have epistemic access to the ‘correct’ account of values, even if such an account exists, and because societies do differ in their value-judgments in practice – the worry seems a legitimate one. [↑](#footnote-ref-32)
33. See also Boorse (1997:74-75). [↑](#footnote-ref-33)
34. This example is based on a real physiological mechanism: with higher blood pressure, it is more difficult to constrict blood flow *out* of the penis, which is an important part of the mechanism that achieves and sustains an erection. [↑](#footnote-ref-34)
35. This description of the stimulation-erection-ejaculation sequence is deliberately simplified and omits many relevant aspects. [↑](#footnote-ref-35)
36. This marks these societies as naturalists on the second domain. Those that consider dislike sufficient to make salt-penises a disease, are second-domain normativists, and not considered here. [↑](#footnote-ref-36)
37. Hausman (fortcoming: page 14 of draft). [↑](#footnote-ref-37)
38. Hausman (2012: 536). [↑](#footnote-ref-38)
39. See also Hausman (2011) and Garson & Piccinini (2013) for alternative solutions, and Kingma (forthcoming) for a response. [↑](#footnote-ref-39)
40. Although let me say briefly why I think it is not without problems. First, some relevant, wide-spread and long-lasting environments are not healthy. Schroeder (2012), for example – in the context of developing a comparative notion of health – gives the example of chronic iron deficiency that, he claims, would have been the norm for women of childbearing age during most of the middle ages. Second, Hausman’s solution – at least on the face of it – faces the problem that some ‘benchmark environments’ are not long-lasting; the right circumstances for fertilisation are pretty transient, for example, as is the case for many other aspects of reproduction, such as giving birth. (See Millikan, 1993:61, and Melander, 1997:47 for the former example, Kingma, forthcoming, for the latter.) Finally, it would need to be spelled out how ‘benign’ is to be naturalistically interpreted. [↑](#footnote-ref-40)
41. Engelhardt (1976, 1986), Brown (1985) and Agich (1983) all make a version of this argument. See Boorse (1997: 23-28) for a summary and reply. [↑](#footnote-ref-41)
42. Boorse (1997: 25-28). Boorse bases his analysis of organisms as goal-directed systems on Somerhoff (1950) (see also Boorse 1976b). Hausman (forthcoming) offers another justification for the choice of goals, contending that they are imposed by evolution by natural selection. [↑](#footnote-ref-42)
43. Boorse (1976a). [↑](#footnote-ref-43)
44. See note 16. [↑](#footnote-ref-44)
45. Dyslexia is a dysfunction according to the causal role account, because reading, we may suppose, makes a positive contribution to survival and reproduction. Whether it is a dysfunction on the aetiological account, is up for debate. (Lillienfeld & Marino, 1995 & Kingma, 2013 argue it is not, but Wakefield, 1999a: 382-383, 1999b: 466, 2000: 255-256 responds that it is.) For this example, suppose dyslexia is not a dysfunction on the aetiological account, because the ability to learn to read cannot have been selected; nearly all humans possess it, regardless of whether their ancestors have ever been exposed to script. [↑](#footnote-ref-45)
46. This is precisely the debate that has been had, for many years, in philosophy of biology. [↑](#footnote-ref-46)
47. And this is the conclusion that the literature on philosophy of biology has mostly arrived at. [↑](#footnote-ref-47)
48. Thus Boorse’s (1997: 27-28) response to the choice of goals objection – that it was *the practice of medicine* that chose to focus on *diseases* rather than other things, and that it is thus the *practice of medicine* rather than his account of disease that is value laden – attempts to push a claim to value-ladenness out of the fourth domain onto the first domain. [↑](#footnote-ref-48)
49. See e.g. Fulford’s (1989) commitment to ordinary language philosophy or Agich’s (1983) criticism of divorcing the concept of health from medical practice. [↑](#footnote-ref-49)
50. For example, if one firmly believes that scientific concepts, such as dysfunction, must be value-free. [↑](#footnote-ref-50)
51. Boorse (2011:13-14) lists many examples and sources. [↑](#footnote-ref-51)
52. I would like to thank Christopher Boorse and an Anonymous Reviewer for this journal for their careful reading of and helpful comments on earlier drafts. Versions of this paper were presented at King’s College London in July 2013, and the University of Southampton in January 2014, and I am grateful to audiences at both institutions for their encouragement and helpful suggestions. [↑](#footnote-ref-52)