

Reframing the Disease Debate and Defending the Biostatistical Theory

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Introduction:

Philosophers and others trying to define “disease” often frame their projects as conceptual analysis, aiming to identify the concept’s meaning or proper application. Christopher Boorse’s work certainly fits this model. In his presentation of the Biostatistical Theory (BST), he provides short and precise definitions for “disease” and “health,” shows how they fit expert usage, and argues that alternative accounts do not do so as well (Boorse 1975, 1977, 1987, 1997, 2011). Debates in contemporary analytic philosophy are framed as conceptual analysis in a wide range of areas, from discussions of “knowledge” and “justification” in epistemology, to “free will” and “personal identity” in metaphysics, to “justice” in moral theory (Ramsey 1992, Bealer 1998, Margolis and Laurence 2012)

But the project of conceptual analysis has been convincingly critiqued as relying on problematic assumptions about the existence, meaning, and use of concepts (Ramsey 1992, Millikan 1989, Stich 1992, Margolis and Laurence 2012). I agree with these critiques and have argued that attempts to define “health,” “disease,” and “function” should avoid any claim to be discovering the meaning or correct criteria of application of these concepts (Schwartz 2004, 2007a). Instead, I believe that philosophers of medicine and biology should adopt an approach described by W.V.O. Quine and Rudolf Carnap that presents philosophical accounts of concepts as *new* definitions for old terms (Quine 1960, Carnap 1950). From this perspective, accounts should be evaluated as *proposals* about how to define a term in the future, not as *discoveries* about the current meaning or criteria of application (Schwartz 2004, 2007a).

Quine (1960) describes this project, which I term *philosophical explication*, as beginning with the recognition that a useful expression is “somehow troublesome”: “. . .

it is vague in ways that bother us," he writes, "or it puts kinks in a theory or encourages one or another confusion" (Quine 1960, 260). Philosophers respond by proposing new definitions for the expression that would allow it to continue to be useful without raising the problems:

We do not claim synonymy. We do not claim to make clear and explicit what the users of the unclear expression had unconsciously in mind all along. We do not expose hidden meanings, as the words 'analysis' and 'explication' would suggest; we supply lacks. We fix on the particular functions of the unclear expression that make it worth troubling about, and then device a substitute, clear and couched in terms to our liking, that fills those functions. (Quine 1960, 258-9)

Carnap provides a similar description for his project (Carnap 1950, 3-8).¹ Interestingly, in a recent article, Boorse has framed his approach in a way that would be consistent with philosophical explication (Boorse 2011, 20), but he does not appear to recognize the full significance of redefining his project in this way and does not follow through.

In this paper, I will review the attacks on conceptual analysis and describe the implications of reframing the disease debate as philosophical explication. Perhaps most importantly, adopting the methodology of philosophical explication focuses discussion on *normative* questions, in this case about how concepts of disease and health *should be used* in biology and medicine. This represents a key shift from conceptual analysis's focus on *discovering* what concepts mean. In the final two sections of the paper, I describe how framing the disease debate as philosophical explication helps clarify and respond to two criticisms that have been directed at the BST and, more generally, at the entire philosophical project of trying to define "disease" and "health" (Engelhardt 1976, 1984, van der Steen and Thung 1988, Hesslow 1993, Amundson 2000, Hausman 2011). From the perspective of philosophical explication, both attacks can be best understood as critiquing the assumption that these concepts have valuable theoretical roles to play in biology and medicine. Once the attacks are seen in this way, I argue that there are clear responses available to Boorse and others who aim to define "disease." These responses involve normative claims, and the ones supporting the BST are particularly strong, since they draw on essential aspects of biomedical science and can be linked to Norman

¹ For a recent discussion of Quine's approach, see Ebbs (2011, p. 623).

Daniels's influential account of healthcare justice (Daniels 2008). In addition, considering BST as a potential philosophical explication of disease helps defend Daniels's account from a recent criticism (Hausman 2011), as I discuss in the last part of Section 4. Understanding definitions of "disease" as proposed philosophical explications blurs the line between philosophy of medicine and medical ethics in ways that are probably salutary for future progress in both areas.

1. The Conceptual Analysis of Disease and Health:

Defining Disease as Conceptual Analysis:

The contemporary debate over how to define disease stems from uncertainty and controversy about how to apply this concept in medical practice, policy, and ethics (Boorse 2011, 13-15). Some of these controversies involve questions about whether a certain condition should count as disease, as in debates over how to classify homosexuality, alcoholism, or short stature (Boorse 2011, 13-19). On a more general level, "anti-psychiatry" writers such as Thomas Szasz question the reality of all mental illness (Szasz 1961). For some conditions, such as attention deficit disorder and depression, the debate focuses not on whether the condition is a disease but instead on where to draw the line between disease and normality. When is a short attention span or an overbearing sense of hopelessness extreme enough to be pathological?

Philosophers respond by proposing criteria for identifying and delimiting disease. The criteria are often presented as conceptual analyses, i.e., characterizations of the meaning of the concept or its proper criteria of application (Schwartz 2007a, Lemoine 2013). Boorse's writings fit this model well. He characterizes his project as "trying to sort out various notions of health" (Boorse 1977, 542-3). He refers to his theory as being "an analysis of disease" and asserts that it captures the "underlying concept of health" (Boorse 1977, 568). Later, he writes that his theory, now titled the Biostatistical Theory (BST), aims at providing "a clear analysis" of concepts of health and disease (Boorse 1997, 55).

In multiple places, Boorse acknowledges that the term "disease" is rarely used as widely as his theory assumes – to include injuries, syndromes, and congenital defects, for

instance – although he points out that at least some uses of the word range this widely (as in the title of the AMA’s *Nomenclature of Diseases and Operations* (emphasis added, cited in Boorse 1987, 362). He says he is interested in defining “disease” as a synonym of the scientific term “pathological,” and he asserts that “the distinction between normal and pathological conditions is the basic theoretical concept of Western medicine.” (Boorse 1987, 364-5) Boorse explicitly limits his focus to the concepts of health and disease at work in medical science, not the concept or concepts employed by laypeople.

Boorse’s arguments for his account also fit within the model of conceptual analysis. He shows that his account’s classifications match those of experts, often referencing biological or medical textbooks, and he argues that rival accounts fail to match as well (Boorse 1975, 1977, 1987, 1997, 2011). He treats his theory and rivals as attempts to *explain* the ways that medical science classifies conditions. For instance, Boorse critiques Engelhardt’s account of disease as doing little “to explain the actual medical inventory of disease. Such accounts cannot explain this inventory because they cannot predict it.” (Boorse 1977, 567) The expectation that an account of “disease” can *explain* current usage only makes sense if the definition aims to capture the concept’s intension, which then determines which objects fall within its extension.

Problems with Conceptual Analysis:

For all these reasons, Boorse’s project appears to be conceptual analysis, of a sort that is at least roughly similar to standard practice in analytic philosophy. But this sort of conceptual analysis faces important challenges, generally stemming from problems with key assumptions regarding the existence, meaning, and criteria of application of concepts (Ramsey 1992, Margolis and Laurence 2012). Perhaps most importantly, philosophers and psychologists question whether concepts have meanings that can be stated precisely (Margolis and Laurence 2012, Ramsey 1992). A central strand of analytic philosophy, seen clearly in Wittgenstein’s (1958) and Quine’s (1960) seminal accounts, challenges the assumption that terms or concepts have identifiable meanings that are the same for different competent speakers.

Even more questionable is the assumption that concepts’ meaning can be discovered through “armchair” philosophical methodology, i.e., reflecting on expert

usage in actual situations and intuitions about proper application in hypothetical cases. A large literature has arisen questioning whether philosophers' opinions and intuitions are reliable on such matters and whether certain sorts of experimental approaches might be more appropriate (Cummins 1998, Margolis and Laurence 2012, Ramsey 1992, Weatherson 2003, Weinberg et al. 2010, Horvath 2010).

Some philosophers defend the project of conceptual analysis by arguing that the goal is not to identify the meaning of concepts but instead the criteria of application that is understood implicitly by experts (Neander 1991). While this sidesteps questions about meaning, it raises other challenges. First, philosophers' accounts are often a short list of necessary and sufficient conditions and thus do not resemble the sort of criteria of application uncovered by psychological research, which involve mechanisms such as prototypes and similarity metrics (Rosch and Mervis 1975). Second, if the goal is to identify criteria of application that are currently being used by experts, it appears that empirical, psychological research would be more appropriate than philosophical reflection. Finally, if philosophical definitions are being offered as accounts of expert usage, then it should be at least somewhat concerning that those very same experts are often skeptical or dismissive of the definitions that philosophers offer.

Another basic criticism of conceptual analysis points out that philosophers pursuing this project often produce multiple incompatible accounts, where each one works well for some cases but not all: each proposed definition classifies many paradigmatic cases in currently accepted ways (i.e., in accordance with current usage or with intuitions about proper usage in hypothetical situations), but fails to do so for other cases. Supporters of each account then try to show that the failures of rival accounts are more concerning than those that face their own account, a debate that has been characterized as echoing with "the dull thud of conflicting intuitions" (Bigelow and Pargetter 1987, p. 196).²

² Lemoine (2013) has recently described these standoffs in the debate over "disease" and discussed how they limit the ability of conceptual analysis to settle the debate between naturalism and normativism. His proposed response to these problems with conceptual analysis, though, differs from mine.

Boorse's BST, for instance, matches expert usage of the terms "disease" and "health" extremely well, as he has defended in multiple publications over 40 years (1975, 1977, 1987, 1997, 2011). But even the BST deviates from currently accepted use in some ways. For instance, standard reference works characterize certain rare abnormalities as pathological, even though they do not involve dysfunction and thus would not count as disease according to the BST (see Boorse, this issue). Also, as Boorse has discussed, it appears that the BST would not count diseases that have been prevalent for a long period or at certain ages as pathological.³ Other accounts of disease produce even more striking discrepancies with current assumptions about proper usage. Wakefield's Harmful Dysfunction Account would not count depression as a disease if it were produced by a mechanism that was favored by natural selection in similar situations. Culver and Gert's Malady account classifies pregnancy as pathological, since it confers increased levels of risk (Gert, Culver, and Clouser 1997, 126).

There are two general strategies available for a theory to respond to such deviations from current usage. First, a philosopher can tweak his account to eliminate the discrepancy, i.e., to classify an actual case as experts do or to classify a hypothetical case as experts and/or philosophers think they should. Second, the philosopher can argue that the current usage or assumptions are incorrect. Boorse, Wakefield, and Gert/Culver/Clouser all take the second approach to the discrepancies described above, arguing that current assumptions about proper usage or meaning are mistaken or should be changed.

Can such recommendations be understood as consistent with the traditional understanding of conceptual analysis, as resulting from a discovery about the meaning or correct criteria of application of the concept of "disease"? Lemoine (2013) has recently suggested that such proposals should be considered as simply "marginal stipulations" that clarify or change current understandings in only small ways. From this perspective, the true meaning is not affected by such changes, since the cases are minor. While I cannot comment at length on this approach, one may ask for clarification of what it means for a change to be "marginal" rather than substantial, and to question whether classifying

³ Hausman's paper in this issue, though, proposes an approach for applying the BST that might be able to avoid this counter-intuitive conclusion.

universal disease (for Boorse) or depression (for Wakfield) as healthy can count as minor changes. It seems more likely that any change, even a clarification along the borders, should count as a change or modification in the meaning (both intension and extension) of the concept.

A way of interpreting recommended changes that is more consistent with the traditional view of conceptual analysis is to assert that the philosophical investigation has discovered the true meaning of the concept or the correct criteria of application, even though it differs from the best understanding of experts and philosophers up till now. From this perspective, there was a true intension and extension of the concept that existed but was not known before, but which has only now been uncovered. This view of changes imposed by conceptual analysis faces important questions about what sort of entity is *meaning* or *criteria of application* that could somehow lurk behind the usage of experts and only be uncovered through philosophical investigation? As mentioned above, the seminal work of Wittgenstein and Quine provides good reasons to question such a view.

Anti-individualist approaches to natural kinds fits this picture, where there are meanings that may not be known by experts and can be discovered through investigation. Ruth Millikan draws on this model to propose that her analysis of “function” is the sort that “the scientist gives you in saying that water is HOH, [or] that gold is the element with atomic number 79, ...” (Millikan 1989, 291). Dominic Murphy (2006) characterizes his analysis of “mental disorder” similarly. But while such an approach at least tries to address the question of how meaning can be discovered, it raises other problems, including whether definitions of natural kinds can be characterized as discoveries rather than decisions (Ebbs 2000, Laporte 2004). In addition, it seems unlikely that the terms “disease” or “health” are natural kind terms, or sufficiently similar to them, to use an anti-individualist approach. (For further discussion of problems with Millikan’s approach to characterize the discussion of “function” and “disease”, see Schwartz 2004, 2007a).

Instead of attempting to shoehorn debates over “disease,” “health,” and “function,” into a model where philosophical analysis uncovers the true meaning or criteria of application of these concepts, philosophers should accept that they are offering

new definitions for old terms or concepts. Such a shift, to a project I term “philosophical explication,” has important and salutary implications for this discussion.

2. Philosophical Explication:

Philosophical explication avoids the problems raised by conceptual analysis by eschewing any claim to be *discovering* the meaning of a term or the correct criteria of application. Instead, definitions are considered as *proposals* about how to use language in the future. Some philosophers reject this way of characterizing the project due to its appearing *pragmatic* rather than philosophical. A full response to such concerns would require a broad evaluation of pragmatism and its relation to other approaches in analytic philosophy, which I cannot provide within the scope of this paper (See Jackson 1998, Horvath and Grundmann 2010, and Margolis and Laurence 2012, Section 5). But the discussion so far should motivate at least an exploration of how the disease debate would change if it were reframed as philosophical explication. In this section, I will describe three implications of this shift.

First implication: Deviations from current usage:

Shifting from conceptual analysis to philosophical explication completely reframes deviations from current usage. From the perspective of philosophical explication, deviations are not just acceptable but actually expected. The currently used concept is not clearly defined, or it is defined in ways that are problematic, and thus a new definition is desirable. There is no reason to expect that the newly defined concept will apply to all and only the same things that the old concept did. Current ideas about “disease” and “health,” for instance, involve metaphorical ideas about how living things should be or perhaps what a designer planned when creating them (Schwartz 2007b). These are exactly the sort of problematic ideas that motivate a philosophical explication, and eliminating them, as the BST does, can be expected to create at least some shifts in application.

After acknowledging that his account does not perfectly fit expert usage, Boorse approvingly cites Nordenfelt’s view (Nordenfelt 2001, 26) that the BST “may be best described as a rational reconstruction of a scientific concept in the style of Carnap,

Hempel, or Quine, with stipulative precisifications and exclusions.” (Boorse 2011, 20) In this passage, Boorse suggests a project of philosophical explication, but he appears not to recognize the implications of this shift. Immediately after this comment, he aligns his work with Karen Neander’s, even though she unapologetically sees her theory as conceptual analysis (Neander 1991). And he describes accounts as being “wrong” if they fail to fit medical usage, although that term does not apply if the goal is to propose new definitions. Perhaps most importantly, he never explicitly redefines his task as creating a new definition, rather than as characterizing the concept currently being used in medical science.

Second implication: Reframing standoffs:

Shifting from conceptual analysis to philosophical explication also reframes the nature of debates between competing accounts. As described above, philosophers often propose incompatible accounts, each of which has advantages and disadvantages. According to conceptual analysis, only one of these accounts correctly captures the true meaning or correct criteria of application. In philosophical explication, in contrast, the two definitions may each have a reasonable claim to being the one that should be adopted in the future. For instance, one account may be somewhat better suited for one theoretical role while the other may be better suited for other roles. One definition may be easier to apply and the other may require fewer changes from current usage. There may still be debate between accounts, but that debate is over which should be adopted, not which is correct.

Third implication: Normativity and theoretical roles:

As this example shows, when the debate is reframed as philosophical explication, the focus shifts to clearly *normative* arguments about how concepts should be used in the future, and central to that question is identifying and justifying the specific theoretical roles these terms will play. These are issues that arise but are often downplayed when the debate is seen as conceptual analysis.

The key theoretical roles of “disease” and “health” seem to fall into two categories. First, there are roles in medicine, involved in directing medical practice,

ethics, and policy. Second, there are roles in biology, in organizing and pursuing the science, perhaps especially in the subfield of pathology. The disease debate stems largely from controversies in the first area, relating to debates over the disease status of particular conditions and types of conditions. Boorse recognizes the importance of such debates but focuses on the second area, writing that his aim is to “capture a concept of health – freedom from pathological conditions – in theoretical scientific medicine,” (Boorse 2011, 19), and to find “a lexical definition of ‘pathological condition’ in physiological biomedicine” (Boorse 2011, 20).

In the final two sections of this paper, I will examine and respond to two criticisms of the BST that assume that the definition is a proposed conceptual analysis. I will argue that both attacks are best understood as questioning the entire project of performing a conceptual analysis in this area at all, and thus, I argue, both can be answered at least in part by reframing the disease debate as philosophical explication. The first attack focuses on the theoretical roles of “disease” in biology and medical science, while the second one focuses on theoretical roles in clinical medicine.

Both responses involve defending the importance of crafting a philosophically adequate definition of “disease” to play these roles, and thus depend on the normative claim that such a concept should be used in biology and medicine in the future. Linking a definition of disease to normative claims might be expected to weaken the theory, since reasonable people may disagree about normative claims such as what *should happen* in the future. But I will argue that the normative claims associated with BST are strong enough that acknowledging them strengthens the account rather than weakening it.

3. Does Biology or Medical Science Need a Concept of Disease?

In biology, the key role for a distinction between health and disease is delimiting the range of conditions or states of an organism that can be characterized as “normal” in anatomy, physiology, etc. Any generalization about how some tissue, organ, or molecule is structured or what it does, and how it interacts with other parts of the organism, may not apply to individuals with certain diseases. The human heart pumps blood and maintains perfusion of tissues, for instance, but not in individuals with heart failure.

Therefore, some argue, biology relies on a notion of “health,” and a contrary notion of “disease,” in setting the range over which its generalizations hold.

A number of critics have claimed that a concept of “health” or “function” cannot play this role in modern biology (Engelhardt 1976, 1984, van der Steen and Thung 1988). These critics point out that biology recognizes that variation is central to living things and rejects the idea of a species type, at least since the discovery of evolution and natural selection (Sober 1980). They conclude that given this aspect of biological theory, any generalizations about how organisms are “normally” structured or work must be suspect (Engelhardt 1976, 1984, van der Steen and Thung 1988, Amundson 2000).

Boorse (1997) responds to such attacks in part by pointing out that biomedical science does, in fact, make such generalizations about both the healthy state and the impact of diseases. To illustrate, he reproduces a three-page table from a standard textbook regarding the functions, paths, and connections of the cranial nerves of humans, showing the many regularities that have been identified (Boorse 1997, 34-36). As he says, the recognition of the importance of normal variation, and the absence of species types, has not led to rejection of generalizations about how living things are structured and how they work. This *is* how biologists think and present their science, he argues, and thus his account can be defended as a conceptual analysis of the meaning of their terms.

Shifting to the perspective of philosophical explication changes the attack and the response. From the perspective of philosophical explication, the critic should be seen as arguing not whether medicine *does* make such generalizations but whether it *should*. Although biologists do make such generalizations, the critic could claim, the importance of variation and the rejection of species types should undermine acceptance of them.

But if the attack is taken in this way, there is also a possible response for Boorse or any philosopher defining “disease.” One can admit that there is tension in biology between making generalizations about living things and recognizing the existence of variation. In fact, this very tension requires a notion of “health” to explain the range over which generalizations apply. Boorse or others can admit that the current concepts of “disease” and “health” are vague and problematic, and possibly infected by metaphorical ideas about how things should be. But this does not undermine their accounts of “disease.” Rather, these are exactly the sort of “kinks in a theory” that Quine wrote about,

which make a currently useful concept troublesome and mandate replacement with a well-drawn term. The BST or any account should be tested for whether it involves only acceptable biological notions and whether it can play the theoretical role of determining the range of application for generalizations about the healthy state of organisms. It appears that BST fits both these desired characteristics.

Admittedly, the critic may still claim that instead of adopting the BST, biology should instead do without a notion of health and disease, and thus should stop making the sort of generalizations that it would allow. But this critique is well answered by Boorse's example of the successful generalizations about the human cranial nerves. Such generalizations appear to be valuable products of science and to be practically useful. It is thus attractive to accept BST or another workable account and continue making such generalizations, rather than simply giving up the practice. It is important to note that while this is a normative claim, about how science should be carried out, it is not clearly a moral claim.

A critic of the BST might accept the importance of the theoretical role but still claim that a simpler approach could be taken: perhaps generalizations in biology could be seen as just describing what typically happens. But this will not work well: As Ruth Millikan has pointed out, some examples of health and proper functioning may be quite unusual statistically: For instance, only one in 1000 turtle eggs may successfully develop into a healthy adult (Millikan 1993).

4. Does Clinical Medicine Need a Concept of Disease?

Theoretical Roles for "Disease" in Medicine:

The second sort of attack involves the theoretical roles of "disease" in clinical medicine. Since Hippocrates the medical profession has defined itself as focused on treatment of disease and illness, with doctors taking the famous oath to enter the homes of the ill. In the contemporary debate, prominent ethicists have argued that medicine should be defined as combating disease, in particular on preventing, curing, and ameliorating the effects of disease (c.f. Brody and Miller 1998, Miller, Brody, and Chung 2000, Miller and Brody 2001, Callahan 1996)

At the same time, there has been much controversy over whether and how to limit or direct the practice of medicine towards disease (c.f. Arras 2001, Beauchamp 2001). Doctors currently prescribe contraception and perform abortions, give botox injections to smooth out wrinkles in aging skin, and perform rhinoplasties (nose jobs), all in the absence of any disease. Some argue that such medical activities are inappropriate and that doctors should not perform them (Kass 1971, 1975). But there is general acceptance of such practices in many cases, certainly if the side effects are minimal and autonomous adults give informed consent. At the same time, most such medical interventions are paid for by the patient, reflecting the widespread belief that health insurance should pay only when disease is involved.

For some types of “enhancements,” cases where the target is not disease but instead making people “better than well,” controversy arises over whether it is ethical for doctors to act. Many would argue against allowing doctors to conduct certain types of genetic engineering or prescribe medication to increase memory or eliminate the need for sleep in perfectly healthy people, even if the patients were paying out of pocket (Kass 1971, 1975, Sandel 2004). At the same time, some ethicists argue that such interventions would be perfectly appropriate, perhaps as long as steps were taken to make sure they were widely available (Caplan, McGee, and Magnus 1999, Caplan and Elliott 2004). In summary, although there is controversy about many real and possible enhancements, there appears to be general acceptance that whether a condition counts as a disease is at least somewhat relevant to determining the ethical practice of medicine and health insurance coverage.

Hesslow’s Attack:

In a paper entitled “Do we need a concept of disease?” Germund Hesslow presents powerful criticisms of accepting this sort of theoretical role for “disease” (Hesslow 1993). First, he argues that the presence of disease is irrelevant for questions about what doctors should ethically do. The key issue, he argues, is just whether the condition has undesirable consequences and whether there is a safe and effective way to treat it. As an analogy, he points out that it would be ridiculous for a mechanic to refuse an owner’s request to adjust his car’s valves to increase acceleration just because there is

“nothing wrong” with the valves as they are currently adjusted (Hesslow 1993, 1-3). The question of whether to adjust the valves involves identifying any tradeoffs (e.g., perhaps reduced fuel efficiency) and making those clear to the owner.

Hesslow (1993) then moves on to critique the assumption that health insurance should cover only conditions where disease is present or threatened. He points out that the real goal of an insurance scheme is to “spread risks more evenly for events which are costly, difficult or impossible to predict, outside the control of the individual and undesirable by almost everyone” (Hesslow 1993, 8). House fires fit this model and thus are covered by home insurance; many diseases also fit this model and thus should be covered by health insurance. But what matters in that case, he argues, is not whether the condition is a disease or not, but instead whether it fits the scheme that justifies all sorts of insurance. As he points out, nearsightedness is clearly dysfunction, and thus disease by Boorse’s account, but its treatment is not covered since the condition is common and treatment is not particularly costly (Hesslow 1993, 8)

Hesslow presents his attacks as criticisms of pursuing a conceptual analysis of disease. At the same time, his points about what doctors and designers of medical insurance *should* do may appear somewhat irrelevant to the classic question of conceptual analysis, i.e., what is the meaning of concepts they are *actually* using. If doctors or insurers *do* care about what is and is not disease, why does it matter whether they *should*? Arguments about what they should do are much more relevant to philosophical explication. From this perspective, Hesslow’s points have more force: I.e., given that the current concept of disease is vague and problematic, he could argue that it is better to simply eliminate the concepts of “disease” and do without the theoretical role it has been playing, for the reasons he presents, rather than to adopt a more precise and scientific definition. In other words, he might have a stronger argument against BST (or another account) as a philosophical explication of “health” and “disease,” rather than as a conceptual analysis.

A Response: Daniels’s Account of Healthcare Justice

If Hesslow’s argument is taken in this way, as a critique of philosophical explication of “disease,” then responding to his points requires making a convincing

normative or moral argument that the concept of “disease” should play an important role in directing medical care or insurance. Luckily, there is such a normative account, presented, defended, and developed over the last 30 years by Norman Daniels. Daniels’s account of healthcare justice makes the presence of disease central to medical ethics and policy. I cannot do full justice to Daniels’s approach (for that see especially (Daniels 2000, Daniels 2008, Daniels 2009)) but let me introduce the key issues as a way to respond to Hesslow’s concerns.

For Daniels, the key role of medical care or public health, at least as far as they contribute to justice, is protecting *fair equality of opportunity*. According to the theories of John Rawls, which serve as a backdrop to Daniels’s account, it is acceptable for some individuals to have more primary goods than others as long as this inequality increases the primary goods available to the least well-off representative individuals (the “Difference Principle”) (Rawls 2001, 2005). But Rawls’s account also requires that all individuals must have a “fair equality of opportunity” to compete for the desirable goods or opportunities, or the positions that carry such rewards. This does not mean that everybody must have an *equal* opportunity to compete. For instance, those born with more intelligence or other skills may have a superior chance to obtain desirable positions and the opportunities or goods that go with them. But to satisfy fair equality of opportunity, individuals with similar levels of skill and willingness to apply those skills should have similar chances to obtain the desirable positions or goods (Rawls 2001, 43-44).

Although fair equality of opportunity plays this key role in Rawls’s account, and in other accounts of justice, it is admittedly somewhat difficult to define. It is certainly violated in a feudal society, where opportunities and life plans are determined largely by family of birth. Fair equality of opportunity is also clearly violated if opportunity is limited by law or practice based on race or ethnicity. But even after feudal or racist laws have been eliminated, a society will still have failed to achieve fair equality of opportunity if people born into families with limited resources have greatly limited opportunities to develop and apply their skills. (Daniels 2008, 51-56) For Rawls, the need to protect fair equality of opportunity provides argument that public schools and child labor laws are requirements of justice.

Daniels extends Rawls's theory to health and healthcare by arguing that disease also reduces fair equality of opportunity. If two people have similar skills and willingness to apply them, then if one of them has a disease and thus cannot compete effectively, fair equality of opportunity has been compromised (Daniels 2008, 57-60). In Daniels's account, this creates the basis for public health efforts and for a basic health insurance package available to all, through public or private mechanisms. To define "disease," Daniels favors a dysfunction-requiring account such as Boorse's, since it provides a relatively objective test for when disease is present (Daniels 2008)(see pp. 36-42).

Note that Daniels's theory does not imply that every possible treatment for disease must be covered by a basic health insurance package. He spells out a variety of mechanisms for making reasonable determinations about how to balance cost, efficacy, and adverse events in determining whether to include a specific intervention in a standard healthcare package. In addition, Daniels's account allows that some interventions may be covered even though disease is not present or threatened, as in the case of contraception or care for a healthy pregnancy, due to other issues of justice. (See (Daniels 2000, 313-14), and (Daniels 2008, 103-139).)

Thus, Daniels's account provides a way to answer Hesslow's attack on using the presence of disease to organize or provide healthcare insurance and public health. It provides a basis for making a distinction between treatment of disease, on the one hand, and enhancement of the normal, on the other. For example, if lead in a home would hinder a child's intellectual development, then removing that lead would serve fair equality of opportunity by eliminating an impediment to his fully developing and applying his skills. In contrast, if a medication could increase intelligence of perfectly healthy children, providing that medication would not increase fair equality of opportunity. That medication would not in any sense remove an impediment to full use of skills and willingness to use them.⁴

⁴ And this distinction has nothing to do with the level of functioning in the "untreated" cases: removing lead from the home is a proper focus of public health even when the lead-affected child would have had an IQ of 120 and elimination of the lead would raise that to 130. Similarly, even

Answering A Criticism of Daniels:

There is a voluminous literature of criticisms and defenses of Daniels's approach, which I cannot survey here. (See Daniels's statements of his theory and response to critics at (Daniels 2008, Daniels 2009)). But one recent criticism of Daniels can be answered in part by recognizing the attempt to define disease as philosophical explication. In this way, just as Daniels's account can help strengthen and justify the pursuit of a philosophical explication of disease, and thus answer some of the points that Hesslow (1993) made, so too can reframing the disease debate as philosophical explication help defend Daniels's account.

Daniel Hausman has critiqued Daniels account by pointing out the difficulty of determining whether a condition is a disease or a part of healthy variation (Hausman 2011). For instance, if a short attention span is classified as a disease, as in attention deficit disorder, then its negative impact on opportunity is a violation of fair equality of opportunity and treatment should be covered by health insurance. But if a short attention span is just part of normal variation –people have shorter and longer attention spans, after all – then any negative consequences on opportunity are simply limitations in the individual's skill set. In this case, there is no violation of fair equality of opportunity, and treatment is not justified.

Hausman points out that there are no clear rules for drawing the line between normal and disease (Hausman 2011, 184-6). In a previous paper, I termed this the "line-drawing problem" (Schwartz 2007b): the BST and any other dysfunction-requiring theory must distinguish between levels of functioning that are below average, and undesirable, but part of normal variation (and thus healthy) vs. levels that are so low that they represent dysfunction. This challenge can be seen in the example of attention span, but also applies to organs involved in physical function, like hearts' pumping blood. In men ages 40-50, for instance, an ejection fraction of 40% may fall below average and may reduce exercise capacity and thus be undesirable, but this ejection fraction may still fall in the normal range of variation and thus not count as dysfunction or disease. When is an

if the pill increases the IQ of the perfectly healthy child from 90 (below average but not abnormal) to 120, it is still an enhancement, not treatment.

ejection fraction low enough to count as not just undesirable but also abnormal or unhealthy? (Schwartz 2007b)

There is a significant challenge, I argued, to drawing this line. While Boorse has suggested that the line should be drawn based on prevalence in the reference class, this cannot work, in part due to the possibility of very prevalent disease (Schwartz 2007b). I have proposed that the line should be drawn at least in part based on facts about the severity of consequences of the level of functioning, and Hausman has offered some further proposals (Hausman 2012), including an excellent discussion in this issue.

But no matter what approach is adopted, there is no question that drawing the line between health and disease will be somewhat arbitrary. Given this, Hausman argues that putting so much weight on it, as Daniels does, is a serious problem for his theory (Hausman 2011, 185).

Here I would like to suggest that seeing the disease debate as philosophical explication helps weaken Hausman's complaint. It is a natural part of a philosophical explication that the new definition for a previously vague and problematic concept will impose at least some changes in proper usage and impose new precision. And, in keeping with philosophical explication, it may be that a range of ways of drawing key distinctions will be acceptable. But once such a line is drawn, there is no reason why it cannot be used to make important, even life altering, distinctions.

As an analogy, consider arguments over the proper definition of "fraud." Going back hundreds or thousands of years, people have distinguished between aggressive but fair business practices and unfair or criminal practices. There are always difficult cases, where opinions differ about whether the practice crossed the line into criminal or unethical behavior. There may also be disagreement about even the basis for drawing a line, perhaps in areas such as new types of commerce or products. In response, each society engages in an extended project of writing laws and developing case law regarding how to draw these lines, in essence going through a process roughly analogous to a philosophical explication. Similar points could be made about ideas such as manslaughter, self-defense, or negligence. In each case there are key ethical and policy commitments that need to be clarified, defined, and made precise to be used widely.

But note that in none of these cases does the need for drawing such lines, and even recognition that the lines could be drawn in a variety of places, make it unethical or unjust to make consequential decisions based them. And of course the implications are often serious: what counts as fraud may determine whether a businessmen goes to jail or is promoted to CEO. Similarly for the lines that a philosophical explication of “disease” must draw: the implications will be serious, and the lines will require key decisions that most likely express moral conclusions, but it is still ethical and just to rely on them in directing healthcare.

Conclusion:

I have argued that because of serious problems with conceptual analysis, the disease debate should instead be seen as philosophical explication. I have then described how, within such a project, the Biostatistical Theory can answer important criticisms directed towards its criteria or the general philosophical project of defining disease. Using this perspective, we can see how a theory from moral philosophy (i.e Daniels’s account of healthcare justice) can explain and justify a project in philosophy of science and medicine (i.e., the disease debate). In return, framing the disease debate as philosophical explication helps explain the need to draw lines between disease and health and the relevance of such lines to justice.

As mentioned above, one might think that acknowledging that accounts of disease depend on normative claims would weaken these theories, since reasonable people can disagree about normative issues. But a theory such as BST may be significantly strengthened by acknowledging and explicitly identifying the normative reasons for adopting it. In addition, supporters of a proposed philosophical explication who differ on normative questions may find varying, even incompatible, reasons for their support. A libertarian who accepts the BST might well reject support based on Daniels’s account of healthcare justice but could embrace other roles the concept could play in medicine or ethics. In this way, a sort of “overlapping consensus” (Rawls 2001) may be formed, of individuals who all support some account but do so for divergent reasons.

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