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Does Boorse's account of disease being value-free survive the critique of Kingsma and Schwartz?

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Introduction

The concept of disease and its classification have long been subjects of debate in the field of medical philosophy. A central question in this discourse is whether the definition of disease can be considered value-free. Christopher Boorse, in his seminal work "Health as a Theoretical Concept," argues that the medical conception of health—defined as the absence of disease—is a value-free notion based on biological function and statistical normality. Boorse's Biostatistical Theory (BST) aims to provide an objective framework for distinguishing health from disease, devoid of normative judgments. This essay explores Boorse's BST, critiques from philosophers like Elselijn Kingma and Peter H. Schwartz, and the challenges inherent in maintaining a value-free definition of disease. The discussion will ultimately reveal that while reference classes can be defended as value-free, the classification of disease inevitably involves value judgments. First I will explain the theories behind Boorse, Kingma, and Schwartz. I will then provide my arguments for why reference classes can be considered value free. Lastly I will contend that classifying disease must be value-laden.

Terminology

Christopher Boorse's paper "Health as a Theoretical Concept" provides a comprehensive analysis of the concept of health, aiming to clarify its theoretical underpinnings. Boorse argues that the medical conception of health, understood as the absence of disease, is a value-free theoretical notion. The core elements of this concept include biological function and statistical normality, in contrast to various other ideas prevalent in health literature. The paper begins by challenging the traditional axiom that health is simply the absence of disease, proposing instead that health is normal functioning. This normal functioning is defined statistically and biologically: a healthy organism is one where all internal parts perform their typical functions with typical efficiency. This conception distances itself from value-laden judgments, focusing instead on empirical and functional assessments. Boorse highlights that health judgments should not be conflated with practical judgments about the treatment of patients. He argues that health as theoretical health, freedom from disease, is distinct from practical health, which is more concerned with the absence of treatable illness. This distinction is often overlooked in the literature, leading to confusion about the role of values in defining health. The paper further explores various themes in the literature on health, identifying seven major ideas that frequently appear in definitions of health. Boorse examines these ideas critically, showing that none provide a sufficient condition for defining disease on their own. These themes include value, disability, and adaptation, among others. Boorse also delves into the notion of species design,

arguing that normal functioning should be understood in the context of a species-typical functional design. This perspective allows for the recognition of polymorphic traits and variations that are statistically normal within a species. He contends that judgments about health should be relative to a reference class of organisms with uniform functional design, typically an age group of a sex within a species.

The paper by Elselijn Kingma titled "What is it to be healthy?" critically examines Christopher Boorse's Biostatistical Theory (BST) of health. Kingma's critique highlights that Boorse's selection of reference classes, which aims to provide a value-free, empirical basis for distinguishing health from disease, inadvertently involves evaluative judgments. For instance, if reference classes were defined differently, such as including habitual heavy drinkers, it would lead to different conclusions about what constitutes normal, and thus healthy, functioning. Therefore there is clearly a right and wrong type of reference class. This, Kingma argues, undermines Boorse's claim that the BST can provide an objective account of health without relying on value judgments. Kingma explores three potential sources of justification for Boorse's reference classes based on his proposal that they are "a natural class of organisms of uniform functional design": natural occurrence, uniform, and design. She dismisses natural occurrence because both appropriate and inappropriate reference classes occur in nature. Uniformity fails because unwanted reference classes, like those defined by certain diseases, can also be uniform. Design is problematic because both innate traits and genetic diseases can be considered designed. Therefore, none of these sources adequately justify the selection of appropriate reference classes in a purely empirical manner. Kingma concludes that Boorse's BST cannot be considered value-free as it claims. The choice of reference classes, which is central to distinguishing health from disease, involves normative decisions. Thus, while the BST might offer a systematic approach once the reference classes are set, these classes themselves reflect underlying evaluative choices, making Boorse's account intrinsically evaluative despite its empirical aspirations.

Peter H. Schwartz's paper "Defining Dysfunction: Natural Selection, Design, and Drawing a Line" addresses the challenge of distinguishing between low-normal function and dysfunction, a problem he terms the line-drawing problem. Schwartz critiques existing approaches that rely on natural selection (as proposed by Wakefield) or statistical distribution of functions (as proposed by Boorse), arguing that both have significant limitations. He suggests a refined approach that builds on the statistical distribution method to better delineate the boundary

between normal functioning and dysfunction. Schwartz's proposal aims to provide a more precise and applicable understanding of the terms function and dysfunction in both philosophical and medical contexts. His approach seeks to combine the frequency of a function with its negative consequences to draw a more accurate line between normal and dysfunctional states.

Defence of Boorse's Reference Classes

In this section I will be defending Boorse's claim that the reference classes of sex, age, and species are value-free.

Boorse's proposal that reference classes are a "natural class of organisms of uniform functional design" is unfairly analysed by Kingma. Instead of analysing the sentence as a whole, she singles out a particular term and attempts to have it account for its overall intended meaning. Of course this does not suffice. She analysis the words natural, uniform, and design, as explained in the terminology section. Natural - Kingma identifies multiple interpretations of "natural," such as occurring in nature, being statistically normal, or representing natural kinds. She argues that each of these interpretations fails to provide a non-arbitrary justification for the selection of reference classes. For example, she points out that both appropriate and inappropriate reference classes (e.g., those based on diseases) occur in nature, and that statistical frequency alone does not necessarily align with intuitive notions of health. Uniform - Kingma argues that while members of Boorse's proposed reference classes (such as age, sex, and race) may exhibit uniform characteristics, unwanted reference classes (like those defined by specific diseases) can also display uniformity. This undermines the idea that uniformity alone can justify the selection of appropriate reference classes. Design - Kingma considers "design" to potentially refer to innate traits or evolutionary intent. She critiques this by pointing out that some genetic diseases are innate and that certain traits which define appropriate reference classes, such as age, are acquired. Additionally, she highlights the difficulty in distinguishing between traits maintained by natural selection (e.g., sex differences) and those that are not (e.g., heart defects), suggesting that an appeal to design does not resolve the issue.

By breaking down the phrase into its individual terms and critiquing each separately, Kingma arguably misses the broader intention of Boorse's proposal. Boorse's use of "functional design" refers to the intrinsic biological roles and capabilities that define different reference classes. For instance, males and females possess distinct anatomical structures and physiological

functions, such as the presence of a uterus in females and its absence in males. These differences are not only statistically observable but also essential for the reproduction and survival of the species, underscoring their empirical and biological basis. Similarly, species distinctions, such as cats having claws and humans not, are rooted in evolutionary adaptations that define their survival and functionality within their respective environments. Furthermore, age groups demonstrate clear biological distinctions that change predictably over time. For example, the process of teething in children is a natural developmental stage that does not occur in adults. These age-specific functions are biologically predetermined and reflect the natural progression of growth and aging, making them valid reference classes for assessing health within the BST framework.

The notion of "natural" reference classes hinges on the idea that these groups are characterized by immutable biological boundaries. Men and women cannot transition into each other's reference classes due to inherent physiological differences. Similarly, an adult cannot revert to a toddler's biological state. These fixed boundaries ensure that the reference classes are distinct and non-overlapping, thereby providing a stable basis for defining normal functioning within each class. Kingma's criticism of using reference classes like heavy drinkers with fatty liver disease as inappropriate stems from the idea that such conditions are not biologically predetermined but rather acquired through behaviour. Any male, given sufficient alcohol consumption, could develop fatty liver disease, indicating that this condition does not define a separate, immutable biological class. This contrasts sharply with the biologically distinct and unchangeable nature of sex, age, and species, where the functional design is inherently tied to one's genetic and physiological makeup.

In this light, Boorse's proposal of reference classes based on sex, age, and species aligns with a naturalistic understanding of biological differences. These classes are empirically grounded in the biological reality that certain functions and capabilities are specific to and consistent within these groups. The distinction between appropriate and inappropriate reference classes, therefore, is not arbitrary but based on the inherent, unchangeable nature of biological design. This understanding supports Boorse's claim that health, as defined by BST, can be empirically assessed within these natural boundaries.

While the defence on Boorse's Biostatistical Theory (BST) primarily utilizes reference classes based on non-overlapping biological differences, there remains the complex issue of accounting for conditions like Down syndrome, which also do not allow for overlap within reference classes. This raises questions about how to classify such conditions without undermining the theory's empirical foundation. Here, statistical normality becomes a crucial criterion for distinguishing between typical variations within a reference class and conditions that constitute diseases. Down syndrome, for example, is characterized by a specific genetic anomaly which does not occur across the general human population but rather in a relatively small subset of individuals. Given this lack of statistical normality within the broader reference class of humans, Down syndrome can be classified as a disease rather than a separate reference class. This approach allows the BST to maintain its empirical and value-free stance by leveraging statistical norms to differentiate between what is considered typical (and thus healthy) and atypical (and thus diseased) within each reference class. The statistical normality criterion helps address the inherent variability within any biological reference class. While individuals within a class—whether defined by sex, age, or species—will naturally exhibit a range of biological functions, it is the statistical frequency of these functions that determines what is considered normal. For instance, most individuals within the reference class of 50-year-old males will exhibit certain physiological characteristics and functions that align with the statistical norms for that group. Deviations from these norms, such as those caused by genetic diseases like Down syndrome, can be identified and classified as diseases due to their statistical rarity and the impact on normal functioning.

With the addition of statistical normality still not all cases are accounted for. For example, being at an older age group such as 90 years old is both statistically unlikely and non-overlapping, much like the down syndrome disease. So why is age considered its own reference class and genetic diseases not? The distinction between using age as a reference class and not using genetic diseases, like Down syndrome, hinges on the different roles these factors play in defining normal species functioning. Age is a fundamental aspect of life, representing different stages of a typical biological process that every individual undergoes if they live long enough. These stages are characterized by predictable, normal physiological changes that are universally recognized across the species. For example, infancy, adolescence, adulthood, and old age each come with their own sets of normal functional parameters, and these changes are integral to the life cycle of the organism. In contrast, genetic diseases like Down syndrome represent deviations from normal development and functioning that are not a part of the typical

human lifecycle. While old age and its associated conditions, such as decreased mobility or cognitive decline, are expected and statistically normal for individuals who reach that stage of life, genetic diseases occur due to specific anomalies that are statistically rare and not part of the typical developmental trajectory. Thus, old age is considered a valid reference class because it represents a universal, expected phase of life, whereas genetic diseases do not because they are exceptions rather than stages of normal development. Moreover, the non-overlapping nature of age groups serves to demarcate distinct phases of biological development that are empirically observable and consistent across the species. Everyone who reaches the age of 90 will experience the physiological changes associated with that age, making it a natural and meaningful reference class within the BST framework. In contrast, the non-overlapping nature of genetic diseases like Down syndrome is due to a pathological deviation rather than a natural stage of life. These diseases do not represent a phase that every individual will pass through, but rather a specific condition affecting a minority of the population. The inclusion of age as a reference class in the BST is justified by the universality and predictability of the life stages it represents. These stages are biologically significant and expected, forming a continuous, coherent framework for evaluating health across an individual's lifespan. Genetic diseases, however, do not fit into this framework because they represent isolated deviations from normal species functioning rather than universally applicable stages of life. Thus, while statistical normality helps to clarify the distinction, it is the fundamental nature of age as a universal and expected aspect of biological life that justifies its use as a reference class, in contrast to the specific and exceptional nature of genetic diseases.

Schwartz's critique of BST

Schwartz critiques Boorse's Biostatistical Theory (BST), which relies heavily on statistical normality to define dysfunction. Boorse suggests that health is the absence of disease, defined as a reduction in functional ability below typical efficiency within a statistically normal range for a specific reference class. Schwartz points out that this approach, while systematic, fails to account for conditions that are prevalent yet dysfunctional. For example, if a significant portion of a population exhibits a certain dysfunction due to environmental factors, this condition might still be statistically normal but would not align with our intuitive understanding of health. To address these limitations, Schwartz proposes a refined approach that combines elements of both statistical distribution and the negative consequences of reduced functionality. He suggests that dysfunction should not only be defined by its rarity in the population but also by the harm it causes. For instance, Mr. Smith's case of heart failure, characterized by an ejection fraction that

falls significantly below the normal range, is clearly dysfunctional due to its severe impact on his health, regardless of how common this condition might become. By considering both the statistical frequency and the adverse effects of a condition, his proposal offers a more comprehensive framework for distinguishing between normal variation and pathological states. This dual consideration helps to avoid the pitfalls of purely statistical or purely evolutionary definitions and provides a more practical basis for medical diagnosis and treatment.

I agree with this perspective, however, it does seem that this will require the classification of disease to be somewhat value-laden, rather than value-free which was intended by Boorse. For how do we quantify negative consequences? Schwartz explains that negative consequences should impact standard activities or capacities that have been typical for the species over a long period, often linked to activities subject to natural selection. For example, dysfunctions like aphasia, blindness, and deafness represent significant decreases in essential organism-level capacities, regardless of their effect on survival and reproduction. Furthermore, Schwartz warns against defining negative consequences too broadly. They should not include purely subjective effects perceived as negative by an individual unless these effects significantly diminish the organism's ability to perform standard activities. Schwartz's emphasis on negative consequences inherently involves evaluative criteria about what constitutes a significant impact on standard organism activities. This shift necessitates subjective assessments about the importance and severity of these impacts, thereby embedding value judgments into the classification process. As a result, the ostensibly neutral, statistical framework envisioned by Boorse becomes intertwined with normative considerations about which functional impairments matter and to what extent, thus making the classification of disease more value-laden than Boorse's original intent. Regardless, it seems to have been a necessary addition.

Conclusion

Our examination of the Biostatistical Theory (BST) by Christopher Boorse and the critiques by Elselijn Kingma has highlighted the ongoing debate surrounding the value-free nature of health and disease classifications. I critiqued Kingma's view, which argues that Boorse's selection of reference classes—such as sex, age, and species—is inherently value-laden due to the evaluative judgments involved in choosing these specific classes. Kingma's critique is rooted in the belief that the justification for reference classes cannot be purely empirical, as their selection inevitably reflects normative decisions.

However, through our analysis, I have defended Boorse's reference classes as value-free. I found that these classes are based on immutable biological boundaries and natural, empirical distinctions that do not involve value judgments. Boorse's reference classes—defined by uniform functional design—are grounded in the inherent biological roles and capabilities that are statistically and biologically observable. For example, the physiological differences between males and females, are considered independent classes because there is no overlap between their functions. They cannot transition into each other's reference classes due to inherent physiological differences. Other diseases that are caused my certain behaviours cannot be given its own reference class such as fatty liver disease because people can move into that reference class at will. The same argument goes for the distinct developmental stages of age groups, and the species-specific characteristics all provide an empirical basis for defining normal functioning within these groups. The empirical and biological reality that certain functions and capabilities are specific to and consistent within these reference classes supports Boorse's claim that health can be assessed objectively within these natural boundaries. By focusing on statistical normality and biological design, I demonstrated that reference classes based on sex, age, and species are free from value-laden judgments, contrary to Kingma's assertion.

Despite this defence, it is crucial to acknowledge the complexities raised by Peter H. Schwartz regarding the classification of diseases. Schwartz points out that distinguishing between low-normal function and dysfunction requires considering the negative consequences of reduced functionality. This approach inevitably involves evaluative criteria, such as the impact on standard activities and capacities typical for the species, thereby embedding value judgments into the classification process. Thus, while Boorse's reference classes may be value-free, the broader task of classifying diseases cannot entirely escape normative considerations.

References

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