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Health and Disease: Between Naturalism and Normativism

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Abstract

Traditionally, the debate about health and disease is characterized as an opposition between naturalism and normativism. However, recent contributions show that theories of health and disease need not be purely naturalistic or normative but may be located somewhere in between. The first purpose of this article is to further advance this line of nuancing. The second purpose is to argue in favor of a specific position, which the added nuances reveal. I call this position *subjectively salient naturalism*. If one is interested in scientific concepts of health and disease, subjectively salient naturalism is a more plausible position than naturalism.

1. Introduction

The modern debate about how to define *health* and *disease* goes back to the 1970s, when Boorse (1977) first presented his biostatistical theory of health and disease, a theory that defines *health* and *disease* as theoretical medical terms. Boorse's theory gave rise to much debate, which resulted in the emergence of two opposing camps. The first camp, including Boorse's theory, is naturalism. Typically, this camp is associated with terms like *value-freedom*, *objectivity*, *natural kinds*, and *science*. The opposing camp is normativism, which is typically associated with terms like *value-ladenness*, *subjectivity*, *social construction*, and *politics*. Still today, theories are standardly sorted into either the naturalist camp or the normativist camp. Recently, though, the dichotomous framing of the debate has been questioned. Contributions by Broadbent (2017), Kingma (2014), and Amoretti and Lalumera (2021) show that there is a much larger and more nuanced logical space of possible positions about health and disease than what the traditional naturalism–normativism opposition reveals.

The first purpose of this article is to further advance this line of nuancing. I do so in two ways. First, in relation to Kingma (2014) and to Amoretti and Lalumera (2021), I argue that we should pay extra attention to a certain distinction regarding value-involvement. Second, I argue that there is a so far unacknowledged but important distinction to make regarding objectivity: a theory of health and disease may account

for health facts as objective in one sense and simultaneously nonobjective in the another sense.

The second purpose of the article is to argue in favor of a specific position, which the added nuances reveal. I call this position *subjectively salient naturalism*. Subjectively salient naturalism is similar to naturalism, but differs in two important respects. First, it does not claim that a successful theory of health and disease is value-free at the level where its operationalizations are justified. Second, it does not claim that health facts are about natural kinds in any ontologically strong sense. I argue that if one is interested in the scientific concepts of health and disease, subjectively salient naturalism is a more plausible position than naturalism.

The article is structured as follows. Section 2 describes the traditional opposition between naturalism and normativism. Section 3 discusses contributions that question this traditional picture, and section 4 introduces further aspects questioning it. Section 5 argues that subjectively salient naturalism, made visible by the distinctions drawn in sections 3 and 4, is a more plausible position than naturalism. Section 6 discusses an important restriction on subjectively salient naturalism. Section 7 concludes.

2. Naturalism and normativism

Traditionally, the philosophical debate about health and disease is characterized as containing two opposite camps. The first camp is naturalism.¹ Typically, naturalists aim to define scientific concepts of health and disease, focusing on biological disciplines like physiology and pathology. The goal may be conservative, aiming to define *health* and *disease* in a way that describes how the terms are used in the biological discipline in question. Alternatively, the goal may be revisionary, aiming to define *health* and *disease* in a way that improves the theory of the discipline (i.e., makes it more clear, coherent, or theoretically fruitful).

The most common example of a naturalistic theory of health and disease is Boorse's (1977) biostatistical theory.² Roughly, the biostatistical theory defines *health* and *disease* as follows: an organ in an organism is healthy if and only if the organ is able to perform its physiological functions with an efficiency that is at least statistically normal for organs of that type in the organism's reference class. Otherwise, the organ is diseased. For illustration, consider the following example. We are interested in evaluating the health status of the heart of Anna, a forty-year-old human female. Because hearts have the physiological function of pumping blood, we need to consider Anna's heart's ability to pump blood. One of the valves in Anna's heart does not close properly, and this significantly limits her heart's ability to pump blood. We compare the ability of Anna's heart to what is statistically normal in Anna's reference class. According to the biostatistical theory, reference classes are individuated by species, sex, and age (Boorse 1977, 558). Hence Anna's reference class consists of human females at the approximate age of forty years. We compare how efficiently Anna's heart is able to pump blood with how efficiently statistically typical hearts of the reference class are able to pump blood. Efficiency here concerns how well the blood pumping contributes to the individual's survival or reproduction

¹ Related terms are *objectivism* and *descriptivism*.

² Other theories typically classified as naturalistic are proposed by Ananth (2008), Garson and Piccinini (2014), Hausman (2012), Schwartz (2007), and Thorell (2021).

(Boorse 1977, 559). Because most human females at the approximate age of forty years have hearts whose blood pumping contributes more to their bearers' survival than Anna's heart does, Anna's heart is diseased.

According to the standard picture in the health and disease debate, naturalism analyzes "health" and "disease" as value-free concepts that pick out natural kinds. For example, Kingma (2017, 49) writes, "Naturalists . . . contend that "disease" is an empirical, value-free concept: a scientific concept that picks out a natural, real-world category." Although Kingma does not use the term *natural kind* here, this seems to be what she has in mind by "a natural, real-world category."

There are many different ideas of what natural kinds are, including, for example, essentialism, cluster theory, and Dupré's (1993) promiscuous realism. In this article, I distinguish between ontologically strong and ontologically weak ideas about natural kinds. I take the important difference to be whether they take there to be a "true," that is, objectively determined, classification of nature. A much-used phrase when considering natural kinds is "carving nature at its joints." To carve nature at its joints, I take it, is what ontologically strong views—in contrast to ontologically weak views—assume natural kinds to do.

Essentialism clearly takes there to be a "true" classification of nature. According to essentialism, natural kinds are different from nonnatural kinds by having essences. Although there is disagreement about what these essences consist in, they are clearly objective. Commonly held essentialist requirements on natural kinds are (1) that all members of a natural kind share a set of necessary and sufficient properties; (2) that the members possess these properties in all possible worlds; (3) that the members possess these properties intrinsically, that is, independently of relations to other things in the universe; (4) that these properties are microphysical rather than macro-level ones; and (5) that these properties should be part of a completed science (Khalidi 2013, 12–13).

According to cluster theories, natural kind membership does not require possession of each and every property associated with the kind but possession of a certain number of those properties. A version of cluster theory is homeostatic property cluster theory. According to homeostatic property cluster theory, natural kinds are associated with a cluster of properties, and the clustering of these properties is caused by some underlying mechanism. Natural kind membership requires originating from the mechanism that causes the clustering of properties rather than possessing a certain number of the properties. Although cluster theories do not put as strong requirements on natural kinds as essentialist theories, they express ontologically strong ideas about natural kinds. Just like essentialist theories, they assume that there is a "true" categorization of nature into kinds. This categorization is determined either by naturally occurring similarities (i.e., property clusters) or by natural mechanisms that cause the property clusters (Khalidi 2013, 76).

A theory of natural kinds that does not assume a "true" categorization of nature into kinds is Dupré's (1993) promiscuous realism. According to promiscuous realism, the world can be structured in countless ways, none of them being more correct than the others from an objective point of view. All possible classifications are real, but different classifications may be more or less fitting for different human purposes.

The variety of accounts of natural kinds have not been incorporated into the health and disease debate; rather, this debate presupposes an ontologically strong

view where natural kinds carve nature at its joints. This is explicit in Varga's (2020, 938) description of naturalism:

... proponents of naturalism argue that diseases only involve departures from natural norms and can therefore be understood in purely descriptive terms. On such basis, proponents of a naturalist approach aim to engender demarcations that "carve nature at its joints," providing kinds that correspond to objective boundaries in the world that are entirely independent of evaluative judgments.

This is also clear in Lemoine and Giroux (2016, 22): "... what would remain of the idea that there is a natural distinction between health and disease, if health and disease are not natural kinds in the ontological sense?"

Naturalism is typically contrasted with normativism.³ Typically, normativists analyze the concepts of health and disease as shared between all language domains, that is, the everyday domain as well as the political domain and the scientific domain. However, more emphasis is typically given to the everyday or political domain. The goal is often of practical or political character—to define *health* and *disease* in a way that helps us answer difficult ethical questions. Examples of such questions are which conditions should be treated (by public health care) and which conditions should entitle a person to sickness benefits. Like naturalistic theories, normative theories may be either conservative, aiming to fit current language usage and disease judgments, or revisionary, aiming to improve how we use *health* and *disease*.

An example of a normative theory is Cooper's (2005).⁴ According to Cooper, a condition is a disease if and only if (1) the condition is a bad thing to have, (2) the afflicted person is unlucky, and (3) the condition is potentially medically treatable. To illustrate this definition, let us again consider the example of Anna's heart, which has a valve that does not close properly. According to Cooper's theory, Anna's heart is diseased because the condition of the heart valve fulfills all three requirements. When it comes to the first requirement, Cooper refers to general normative theories (24). Most normative theories would presumably agree that the condition of Anna's heart is a bad thing to have. Second, Anna is unlucky to have a heart valve that does not close properly. Here being unlucky means that, in many of the nearby possible worlds, one does not suffer from the condition (29). Because it is rare for human females at the age of forty years to have a heart valve that does not close properly, we may assume that Anna's heart valve does close properly in many nearby possible worlds. Third, heart valves that do not close properly are potentially medically treatable. The condition may be effectively treated by surgery.

According to the standard picture in the health and disease debate, normativism takes the concepts of health and disease to be value-laden concepts that pick out categories dependent on human ideas and values. For example, when Kingma (2017, 54) describes normativism, she refers to the following passage by Cooper (2002, 271):

By "disease" we aim to pick out a variety of conditions that through being painful, disfiguring or disabling are of interest to us as people. No biological account of

³ A related term is *constructivism*.

⁴ Other theories typically classified as normative are proposed by Agich (1983), Clouser, Culver, and Gert (1997), Engelhardt (1976), Nordenfelt (1987), and Reznek (1987).

disease can be provided because this class of conditions is by its nature anthropocentric and corresponds to no natural class of conditions in the world.

Similarly, Varga (2020, 937–38) writes about normativism:

... the main idea is that diseases involve departures from both natural and social norms and, therefore, cannot be adequately comprehended in purely descriptive terms.

I have given examples of naturalistic theories and normative theories. There are also so-called hybrid theories, that is, theories that combine typical naturalistic and normative elements. The most discussed hybrid theory is Wakefield's (1992). According to Wakefield, a condition is a disease (or, in Wakefield's terminology, a disorder) if and only if (1) "the condition causes some harm or deprivation of benefit to the person as judged by the person's culture" and (2) "the condition results from the inability of some internal mechanism to perform its natural function" (384). Here, (1) is a normative requirement and (2) is a naturalistic requirement. Usually, hybrid theories are put into the normative camp. This is, first, because they, in virtue of their normative requirement, take the concepts of health and disease to be value-laden and, second, because the normative requirement is standardly taken to imply that the concepts of health and disease pick out categories dependent on human ideas and values.

The dichotomy between naturalism and normativism might make the extensive debate about health and disease easier to grasp and handle. However, it restricts the debate to an unnecessarily limited space of possible positions, rather than stimulating progress. Recently, several novel contributions have illuminated the naturalism–normativism distinction and showed that theories of health and disease need not be purely naturalistic or normative but may be located somewhere in between. Next, I discuss these contributions.

3. Objectivity and value-involvement

This section examines contributions that question the traditional division of theories of health and disease into naturalistic ones and normative ones. First, I discuss Broadbent's (2017) point that naturalism and normativism disagree along two different dimensions: objectivity and value-involvement (section 3.1). Then, I discuss Kingma's (2014) and Amoretti and Lalumera's (2021) contributions about value-involvement (section 3.2).

3.1 Two dimensions of disagreement

Broadbent (2017) shows that the opposition between naturalism and normativism concerns not one but two distinct dimensions of disagreement. The first dimension regards whether health facts are value-free or value-laden. Whereas naturalism takes health facts to be value-free, normativism takes health facts to be value-laden. The second dimension regards whether health facts are objective. Whereas naturalism takes health facts to be objective, normativism takes health facts to be nonobjective. Broadbent then argues that the value dimension and the objectivity dimension are logically independent. This means that there are four possible positions:

1. Health facts are value-free and objective.
2. Health facts are value-free and nonobjective.
3. Health facts are value-laden and objective.
4. Health facts are value-laden and nonobjective.

Here naturalism is represented by position 1 (value-free + objective) and normativism by position 4 (value-laden + nonobjective). However, positions 2 and 3 are also logically possible positions, which the traditional debate—conducted in terms of a dichotomy between naturalism and normativism—fails to acknowledge. Broadbent points out that, in fact, a couple of advocated theories, or views, belong to position 3 (value-laden + objective), namely, Stempsey's (2000) "value-dependent realism" and the view of Kass (1975). According to both Stempsey (2000) and Kass (1975), health facts involve values that do not depend on human minds but exist objectively.

Broadbent (2017) then explores position 2, the view that health facts are value-free and nonobjective. Here Broadbent finds no advocated theory but instead sketches one himself. The idea he suggests to accommodate this position is that health and disease are secondary properties, that is, properties whose existence is partly dependent on our reactions to the world (Broadbent 2017, 619). The classic example of a secondary property is color. Whereas wavelengths exist independently of us, color arises when one's perceptual system interacts with the wavelengths in the physical world. Health is different from color in the sense that it is not a perceptual property. However, inspired by Menzies and Price (1993), who suggest that causation—which is not a perceptual property either—is a secondary property, Broadbent (2017) argues that health may be a secondary property. According to Menzies and Price (1993), causation seems to us to be real but is not apparent in the fundamental physics of our universe. A possible explanation of this fact is that causation depends not only on fundamental physics but also on one's interaction with the world. Health, Broadbent argues, is similar to causation in these respects: health facts seem to us to be real but are difficult to locate objectively in nature, and a possible explanation of this fact is that health is a property that arises from one's interaction with the world.

With Broadbent's (2017) distinction between the objectivity dimension and the value dimension, it is clear that there are two positions between, as it were, "pure" naturalism and normativism. However, Broadbent's framework may be developed to add further nuance to the debate, with regard to both the value dimension and the objectivity dimension.

3.2 Different types of value-involvement

Kingma (2014) and Amoretti and Lalumera (2021) discuss different types of value-involvement in theories of health and disease. None of them explicitly discuss their contributions in relation to Broadbent's (2017) framework; however, seen in relation to this framework, they focus on the value dimension. They show that there are more nuances to the question of value-involvement than what can be adequately represented by a dichotomous division between theories saying that health facts are value-free and theories saying that health facts are value-laden.

Kingma (2014) distinguishes between four different levels, or domains, where values may enter into theories of health and disease. She argues that it would be more

fruitful to discuss value-involvement in relation to these four levels, rather than to merely distinguish between value-free (naturalistic) theories and value-laden (normative) theories. Let us consider these four levels.

The first level is the “ordinary, applied and/or social domain” (Kingma 2014, 591). To claim that the concepts of health and disease are value-laden at this level is to claim that laypeople use *health* and *disease* in value-laden ways and that practical applications of these terms, for example, in decisions about medical treatment, are value-laden. However, at this level, naturalists and normativists do not really disagree about value-involvement, Kingma explains (592); rather, they agree that this level contains values: laypeople typically use *health* and *disease* in value-laden ways, and social decision-making always involves values. Because no disagreement is associated with this level, I do not discuss it further.

The second level is where naturalists and normativists start to disagree. This level consists in the theoretically and conceptually clean concepts of health and disease. Kingma (2014, 593) explains it as follows:

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. Naturalists have defended that these core features are biological function and biological dysfunction. 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.”

I will call value-involvement at this level *direct value-involvement*. Even if one takes this level to be value-free, there are two further levels where values may enter.

When considering how to understand the naturalist’s core features—biological function and dysfunction—a third level appears. Kingma (2014, 594) calls this level the “operationalization of function and dysfunction.” Value-involvement at this level means that *function* and *dysfunction* cannot be defined or operationalized in value-free terms (594). Kingma does not discuss the difference between a definition and an operationalization being value-laden. However, when Kingma illustrates what value-involvement at this level means by use of examples, the issue at stake is whether it is possible to cash out *function* and *dysfunction* in value-free terms and have sound implications. A theory may, as it stands, be incomplete in the sense that there are details that need to be further spelled out before it is completely clear what function and dysfunction consist in and what the theory implies in specific cases. If one—to have sound implications—needs to refer to values when spelling out the details, then the theory is value-involving at the third level. One of Kingma’s examples regards the “line-drawing problem,” the problem of where to draw the line between normal function and dysfunction (595–96). Schwartz (2007) has shown that Boorse’s (1977) purely statistical way of drawing the line has unsound implications: it falsely implies that common conditions cannot be diseases and that there cannot be populations in which everyone is healthy. Schwartz (2007) suggests to solve this problem by introducing an aspect of negative consequences: the more severe the negative consequences of a condition are, the higher is the frequency of disease. To make clear how to understand and employ this idea, *negative consequences* needs to be clarified.

Schwartz defines *negative consequences* in value-free terms: “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” (379). Now, Kingma (2014) argues that given the way in which Schwartz defines *negative consequences*, his suggestion fails. This is because standard activities sometimes need to be suppressed in a healthy organism (Kingma 2014, 596). To solve the line-drawing problem, Kingma argues, Schwartz (2007) might need to involve values in his definition of *negative consequences*. If that were the case—that is, if values are needed to cash out the distinction between function and dysfunction—then the theory would involve values at the third level. I call this type of value-involvement *indirect value-involvement*.

The fourth level where values may enter is the “justification of, or choice among, operationalizations” (Kingma 2014, 599). This level concerns, not the content of the theory itself, but the theoretical choices made when developing the theory. The point is that even if it is possible to define *function* and *dysfunction* without using value terms, values may still play a role in the theory’s formation. As an example, let us consider Kingma’s (2007) argument against Boorse’s (1977) biostatistical theory, which targets reference classes.

According to the biostatistical theory, reference classes are individuated by species, sex, and age, for example, seven- to nine-year-old (human) girls (Boorse 1977, 558). This means that the health status of an eight-year-old girl’s heart is determined by comparing how efficiently her heart is disposed to perform its physiological function—pumping blood—in comparison to the hearts of other seven- to nine-year-old girls. Now, Kingma (2007) points out that one gets different extensions of *disease* if one individuates reference classes only by species, sex, and age, compared to if one in addition individuates reference classes by sexual orientation or alcohol consumption. By the first definition, homosexuality and liver cirrhosis come out as diseases (in all human reference classes) by reducing the chances of survival or reproduction of the concerned individual in comparison to the reference classes. By the alternative definitions, on the other hand, these conditions are (mostly) not diseases, because they are normal within the reference classes in which they (most often) appear. Kingma then argues that there is no objective ground for choosing a particular definition of *reference classes* over another. No facts in nature by themselves determine which reference classes are the “right” ones. And without such an objective ground, Kingma concludes, Boorse’s (1977) choice of definition is value-laden: there are several different definitions to choose between when formulating the theory, and because no objective facts can settle the correct definition, the choice must depend on value judgments. I call value-involvement at the fourth level *justificatory value-involvement*.

It is crucial to distinguish between the different types of value-involvement. As Kingma (2014, 597–98) argues, we should distinguish direct value-involvement from indirect and justificatory value-involvement. According to a theory that is directly value-laden, disease has an evaluative core feature. This means that a certain type of condition may count as a disease merely by the fact that it is disvalued by society. This is not the case for a theory that is indirectly value-laden. Here no values figure as core features of disease. Although values are part of the operationalization of *dysfunction*, these values play a much more limited role than values figuring as core features. With this limited role, society’s disvaluation of a condition will not be enough to make it a disease. Neither according to justificatory value-involvement will a condition count as

a disease merely because it is disvalued in a society. Values are used only to justify a certain operationalization of *dysfunction*; they are not core features of disease. According to Kingma, even if the concepts of health and disease are indirectly or justificatorily value-laden, they are still genuinely normative. The important point is that indirect and justificatory value-involvement do not have the strong relativistic implications that direct value-involvement has.

Amoretti and Lalumera (2021, 54–59) also argue that we should distinguish direct value-involvement from indirect and justificatory value-involvement. In contrast to Kingma, they argue that indirect and justificatory value-involvement should not be considered a type of normativism. They propose that we sort theories that analyze the concepts of health and disease as directly value-laden into a camp called “normativism” and theories that analyze the concepts of health and disease as indirectly or justificatorily value-laden into a camp called “value-conscious naturalism.”

Amoretti and Lalumera (2021) argue that value-conscious naturalism is a position closer to naturalism than to normativism. First, it is closer to naturalism in its motivation and background assumptions (58). Second, they argue, many scientific concepts are in fact indirectly or justificatorily value-laden (56). Amoretti and Lalumera argue this by three examples: the World Health Organization’s definition of *underlying cause of death*, epidemiology’s definition of *confidence interval*, and the scientific definition of *water*. They show that values somehow play a role in applications of these terms. However, they do not spell out in which sense—indirect or justificatory—these concepts are value-laden. Hence it is not clear that both indirect and justificatory value-involvement should belong to their category of value-conscious naturalism.

In contrast to Amoretti and Lalumera (2021), I think it is crucial to distinguish justificatory value-involvement from indirect value-involvement. For a theory of health and disease that is indirectly value-laden, it is impossible to operationalize *function* and *dysfunction* in a way that leads to sound implications without referring to values. This means that functions and dysfunctions are dependent on values for their existence. Definitions of *health* and *disease* that use function and dysfunction as core features inherit this value-involvement. We saw that indirect value-involvement does not have the same strong relativistic implications as direct value-involvement. However, indirect value-involvement is still similar to direct value-involvement in the sense that health and disease ultimately depend on values for their existence.

In contrast, values that play a justificatory role are not needed for functions and dysfunctions to exist. The role of these values is only to justify or direct our attention to certain facts rather than others. This difference—between values constituting health and disease and values justifying a choice of definition of *health* and *disease*—is important. Whereas, as I argue in section 5.1, science should allow for concept choices justified by values, it is doubtful that science should allow for theories that account for properties in the world as dependent on values for their existence.

4. Distinguishing two dimensions of objectivity

I now turn the focus to the question of objectivity. As Broadbent (2017) pointed out, naturalists and normativists disagree about whether health facts are objective. In Broadbent’s framework, this opposition is represented by a dimension of objectivity. I will argue that there is not just one dimension of objectivity on which naturalism and

normativism differ but two. In the framework that I suggest, I replace Broadbent's single objectivity dimension by two distinct dimensions of objectivity. The first dimension regards objective existence, and the second regards what I call *objective salience*. By introducing these two dimensions, I make it clear that the logical space for theories of health and disease is even larger than indicated in the last section. Furthermore, I argue that the revealed space contains a new plausible and interesting position.

The first dimension of objectivity regards mode of existence. The opposition here is between existing objectively, that is, mind-independently (e.g., independently of thoughts, psychological setups, experiences, feelings), and existing nonobjectively, that is, mind-dependently. According to naturalism, health facts exist mind-independently. Normativism, in contrast, holds that health facts exist mind-dependently. It seems to me that this is the opposition that Broadbent primarily has in mind with his dimension of objectivity. In Broadbent's (2017, 620) view of health as a secondary property, he claims that health facts are nonobjective because their existence arises "from an interaction between us human observers and the world."

The second dimension of objectivity regards what I call *objective salience*. The opposition I have in mind here is between being and not being about natural kinds in the ontologically strong sense where natural kinds carve nature at its joints. According to naturalism, *health* and *disease* carve nature at its joints. According to normativism, in contrast, health facts are facts, not about natural kinds, but about kinds invented by us.

We can see that the two dimensions of objectivity are logically independent by showing that the following positions are theoretically possible:

- A. Health facts exist mind-independently and carve nature at its joints.
- B. Health facts exist mind-independently and do not carve nature at its joints.
- C. Health facts exist mind-dependently and carve nature at its joints.
- D. Health facts exist mind-dependently and do not carve nature at its joints.

Here naturalism is represented by position A (mind-independent existence + carving nature at its joints), and normativism is represented by position D (mind-dependent existence + not carving nature at its joints). What about B and C, then?

According to position B, health facts exist mind-independently but are not about natural kinds in any ontologically strong sense. True statements about health facts refer to states in nature, but these states do not carve nature at its joints. This position is compatible with ontologically weak ideas about natural kinds. For example, according to Dupré's (1993) promiscuous realism, there are countless ways of structuring the world. These ways are all real—they exist mind-independently. However, none of them is more "true" than the others—no categorization carves nature at its joints.

Position B is also compatible with theories of nonnatural kinds. One such view, which is interesting to highlight here, is Zachar's (2000) theory of practical kinds. Zachar engages in the debate about psychiatric diseases (rather than the debate about somatic disease or disease in general). Zachar argues that psychiatric diseases are not natural kinds but that it is still possible to categorize psychiatric diseases in a nonarbitrary way, guided by pragmatic considerations. He proposes a classification of psychiatric conditions into practical kinds, that is, kinds that are useful for meeting scientific

and professional goals. These goals may, for example, be “reliable diagnosis, prognostication, treatment selection and identification of genetic risk” (Kendler, Zachar, and Craver 2011, 1146). According to the theory of practical kinds, psychiatric diseases do not carve nature at its joints, yet they exist mind-independently. Although the choice to consider certain categories as psychiatric diseases is influenced by one’s scientific and professional goals, these goals do not create the categories. The categories exist independently of whether one chooses to consider them. The following illustration illuminates this point nicely:

Imagine you inherit a library of 20 000 volumes. You have to organize your new library. You could classify the books by author, color, size, subject or title. There is no “true” classification for these books out there in the world to be discovered. There are many possible taxonomies and different possible uses for which one or the other will be the best classification. The question becomes not which possible classification of the books is the “correct” one, but which will be most useful for our purposes. (Kendler, Zachar, and Craver 2011, 1145)

According to position C, health facts exist mind-dependently and are about natural kinds. Natural kinds need not be limited to mind-independently existing properties; rather, one might think that some types of mental states are natural kinds (see, e.g., Ellis 2002). If health facts exist mind-dependently and are about natural kinds, it would mean that health facts are judgments and that these judgments are judgments of a special kind—a natural kind.

As we have now seen, the logical space of possible positions about health and disease is stretched by at least six dimensions: four distinct dimensions of value-involvement (value-involvement at the ordinary/applied/social domain, direct value-involvement, indirect value-involvement, justificatory value-involvement) and two distinct dimensions of objectivity (objective existence, objective salience). Together these dimensions give rise to a wide range of theoretically possible positions about health and disease. Next, I argue for a certain position within this logical space, which I call *subjectively salient naturalism*. This position combines position B, that is, the view that health facts exist mind-independently but do not carve nature at its joints, with the view that health facts are justificatorily value-laden. I argue that this position deserves more attention because it serves as a more plausible alternative to naturalism.

5. Subjectively salient naturalism

Subjectively salient naturalism is a position that has not yet been recognized in the health and disease debate. I argue that if one is, like naturalists, interested in scientific concepts of health and disease, subjectively salient naturalism should be considered a more plausible position than naturalism. Subjectively salient naturalism agrees with naturalism on the following:

- i. The theoretical or conceptually clean concepts of health and disease are value-free.
- ii. The operationalization of dysfunction is value-free.
- iii. Health facts exist mind-independently.

However, subjectively salient naturalism differs from naturalism by claiming the following:

- iv. The justification of, or choice among, operationalizations is value-laden.
- v. Health facts do not carve nature at its joints.

Let us consider the two ways in which subjectively salient naturalism and naturalism differ: first, with regard to the question of whether health facts are justificatorily value-laden and, second, with regard to the question of whether health facts carve nature at its joints.

5.1 First difference: Justificatory value-involvement

Subjectively salient naturalism takes health facts to be justificatorily value-laden. Naturalism, as it is described herein, denies that health facts are value-laden in this sense. This description of naturalism might, however, be questioned. As stressed earlier (section 3.2), justificatory value-involvement is different from direct and indirect value-involvement in an important sense. In theories that are directly or indirectly value-laden, values are needed to cash out the distinction between health and disease, implying that health and disease depend on values for their existence. In contrast, in theories that are justificatorily value-laden, values merely play the role of justifying our choice to consider certain facts rather than others. This does not imply that the existence of the facts described by the theory depends on values, only that our attention directed toward these facts does. When naturalistic theories claim to be value-free, this can be interpreted in different ways. On a weaker interpretation, the claim is that the theory can fully account for health and disease in a sound way without using value terms. On a stronger interpretation, the claim is that the theory is not influenced by values in any sense. It is not obvious that the naturalist's claim about value-freedom should be interpreted in the stronger sense. Considering scientific theories in general, it is questionable whether it is even possible for a theory to be value-free in the stronger sense. Scientists' choice of research will always be guided by their own or someone else's interests. Even physicists' research about the basic particles of the universe is guided by values in this sense—they theorize about these particles because knowledge about the basic structure of the universe is highly valued (Thorell 2021, 47).

One might perhaps think that naturalists must deny justificatory value-involvement because if they do not, and if they are not value-realists (which they typically are not), they cannot consistently claim that health facts exist mind-independently. This is, however, not the case. To see this, let us observe how the question of justificatory value-involvement is related to the question of mind-independent existence.

If one is a value-realist, then it is possible to hold both (1) that health facts are value-laden in any sense and (2) that health facts exist mind-independently. However, if one is not a value-realist and holds that health facts are directly or indirectly value-laden, then one cannot also hold that health facts exist mind-independently. Then health facts are dependent on values for their existence, and these values must be dependent on our minds. With regard to justificatory value-involvement, the situation is different. Even if one is not a value-realist, it is possible to hold that health

facts are justificatorily value-laden and simultaneously hold that health facts exist mind-independently. This is because justificatory value-involvement does not imply that health facts depend on values for their existence.

To conclude, it is more reasonable to view health facts as value-laden than value-free at the justificatory level. This sort of value-involvement is common, perhaps even inevitable, for all scientific theories. Furthermore, we may note that there is no problem with claiming both that health facts are justificatorily value-laden and that health facts exist mind-independently, even if one is not a value-realist.

5.2 Second difference: Natural kinds

Let us consider the second way in which naturalism and subjectively salient naturalism differ. Naturalism takes health facts to be about natural kinds in an ontologically strong sense. Subjectively salient naturalism does not.

From the normativist side, Reznek (1987, 67–71) argues that disease cannot be a natural kind. This is first, he argues, because diseases are too diverse at the macro level for there to be an underlying nature that they all share. Second, he argues, we can conclude on a priori grounds that even if there were an underlying nature that all diseases shared, that would not be what makes them diseases. Rather, Reznek claims, what makes them diseases are directly observable features.

D'Amico (1995) convincingly shows that Reznek's (1987) arguments are not good reasons for denying that disease is a natural kind. In response to Reznek's first argument, D'Amico (1995) argues that even if conditions that we today classify as diseases are rather diverse at the macro level, this does not imply that diseases do not share an underlying nature. First, it may be that today's classifications are faulty. We may discover that several of the conditions that currently are being classified as diseases are not diseases at all. Looking back in history, such discoveries have been common (D'Amico 1995, 559). Second, that diseases are diverse at the macro level does not alone show that diseases do not share an underlying nature. Rather, such a macro-level diversity is typical in many other scientific disciplines (D'Amico 1995, 559). In response to Reznek's (1987) second argument, D'Amico (1995, 562) points out that the argument presupposes from the start that *disease* refers only to directly observable features. Hence the argument begs the question and therefore cannot be used to show that disease is not a natural kind.

I will argue that there are better reasons to deny that health and disease are natural kinds in any ontologically strong sense.⁵ Naturalism's claim that health facts carve nature at its joints is rather strong. Already from an intuitive stance, it is questionable whether health facts have the same strong ontological status as typical examples of natural kinds, such as physics' elementary particles and the chemical elements. Also, after some consideration, this seems questionable. Considering the accounts offered by naturalistic theories of health and disease, it is clear that health evaluations are rather complex matters, involving several parameters (typically, at least, reference classes, physiological functions, and a formula for drawing the line between health and disease). If health facts carve nature at its joints, then all these

⁵ By this I do not deny that specific diseases are natural kinds in an ontologically strong sense, which Dragulinescu (2010) and Pietarinen and Stanley (2022) argue.

parameters must possess objective justification. There must be a fact of the matter in nature of how reference classes are individuated, which the physiological functions are, and how the line distinguishing health from disease is drawn. But this is questionable. Recall Kingma's argument about reference classes (section 3.2). There are several ways of individuating reference classes, for example, by species, sex, and age, or in addition, by sexual orientation or alcohol consumption. The question of which of the possible individuations of reference classes an account of health and disease should use cannot be resolved on objective grounds; rather, that needs to be determined by our interests. Similar arguments can be made for the other components of naturalistic theories. For example, it has been argued that Boorse's account of physiological functions cannot be objectively justified because it refers to survival and reproduction as physiological goals. Kingma (2014, 601) points out that there are no objective facts justifying that physiological functions concern survival and reproduction but not "countering climate change," "pursuing hedonism," or "achieving well-being, eudemonia, wisdom and/or virtue." Given naturalistic theories' references to parameters that cannot be objectively justified, they do not fit into ontologically strong ideas about natural kinds, such as essentialism and cluster theories. Better fits are ontologically weak views about natural kinds, such as Dupré's (1993) promiscuous realism, or theories of nonnatural kinds that claim mind-independent existence, such as Zachar's (2000) practical kinds.

Why is it standardly assumed that theories aiming at scientific concepts of health and disease must consider health facts to carve nature at its joints? This, I believe, is because of a potential worry. The purpose of naturalistic theories is to contribute to medical theory. The worry is that if the concepts of health and disease do not carve nature at its joints, then they cannot be scientifically interesting or useful. Recall the question asked by Lemoine and Giroux (2016, 22): "... what would remain of the idea that there is a natural distinction between health and disease, if health and disease are not natural kinds in the ontological sense?"

I will argue that the concepts of health and disease can be scientifically interesting and useful even if they do not pick out natural kinds in any ontologically strong sense. I do so, first, by pointing out that there are other scientific categories that exist mind-independently and are considered to be interesting and useful, although they do not carve nature at its joints. Second, I discuss how the concepts of health and disease may be scientifically interesting and useful.

Two medical concepts that refer to mind-independently existing properties, but that presumably do not refer to natural kinds in any ontologically strong sense, are body mass index (BMI) and the ratio between low-density lipoprotein (LDL) and high-density lipoprotein (HDL). The BMI of a body expresses a certain relation between the body's height and its weight: the weight in kilograms divided by the squared height in meters. Similarly, the LDL/HDL ratio of an individual's blood expresses a certain relation between the amount of LDL ("bad cholesterol") and HDL ("good cholesterol") in the blood: the amount of LDL divided by the amount of HDL.

Facts about BMI and LDL/HDL ratios are not dependent on our minds for their existence. Irrespectively of our cognition, a body's height and its weight stand in certain relations to each other (inter alia the BMI relation), and an individual's blood's amount of LDL and its amount of HDL stand in certain relations to each other (inter alia the LDL/HDL ratio relation).

Although BMI facts and LDL/HDL ratio facts exist mind-independently, they do presumably not carve nature at its joints. Both measures describe relations in nature that medical scientists and health professionals find interesting and helpful for understanding and predicting physiological phenomena and for making certain decisions. For example, BMI is used in risk estimations of future physiological states of a body (e.g., risk of arthritis or diabetes), as well as when deciding on interventions (e.g., gastric bypass operations). The LDL/HDL ratio is used to understand how a body is disposed to handle fat. In combinations with other measures, the LDL/HDL ratio is used to make risk estimations of cardiovascular disease, as well as in decisions about medication. Although BMI and the LDL/HDL ratio are evidently useful, it would be a strong claim to make that these measures track natural kinds in any ontologically strong sense.

A similar story could be told for scientific concepts of health and disease. Health facts exist independently of our minds: irrespectively of whether we are interested in and consider a certain relation between a reference class, a physiological function, and a line-drawing function (all fully accounted for in value-free terms), this is a relation that exists objectively. For example, the blood pumping of a particular human female's heart stands in certain relation to the blood pumping of the hearts of other human females of the same age—for example, the relation at which a scientifically oriented theory of health and disease aims. However, this relation need not be a natural kind relation in any ontologically strong sense. What a scientifically oriented theory tries to describe lies in biological and medical scientists' interest, but it is doubtful that it belongs to a description of the world that carves nature at its joints.

How, then, are the scientific concepts of health and disease scientifically interesting and useful? They are so because they can be used to talk about interesting features of, and predictions concerning, physiological states. That a particular heart token is healthy means that it stands in a certain relation to other hearts in the heart bearer's reference class. Roughly, it means that the heart is able to pump blood as well, with regard to the heart bearer's survival, as could be expected of a heart token in the bearer's reference class. That a heart token is diseased means, roughly, that the heart is not able to pump blood as well, with regard to the heart bearer's survival, as could be expected of a heart token in the bearer's reference class. These kinds of facts are important, both in biology and in medicine. In these disciplines, we are interested in better understanding how various physiological functions and processes contribute to survival or reproduction. We are interested in making predictions about physiological states in relation to survival or reproduction. Furthermore, we are interested in coming up with possible interventions to affect survival or reproduction. Although these interests could in principle be pursued without using the terms *health* and *disease*, using labels for the described relations is quite helpful. We may use *health* and *disease* (or other terms) as shorthand to avoid having to spell out the rather complex relation between an organ token, a physiological function, a reference class, and a line-drawing formula.

To conclude, the more reasonable view is to consider health facts as not being about natural kinds in any ontologically strong sense. Given the complex structure that naturalistic theories have shown health facts to have—with several components that cannot plausibly be objectively justified—it is more reasonable to think of health facts as not carving nature at its joints. Furthermore, we should note that there is no problem in claiming that health facts do not carve nature at its joints and still holding that health facts are scientifically interesting and useful.

6. Can anything count as health or disease?

Given the subjective element of subjectively salient naturalism, one might worry that anything that exists mind-independently could count as health or disease—depending on what we care about—and that the position thereby allows for cultural relativism about health and disease.

In response to this possible objection, it is important to consider constraints on the subjective element. For the concepts of health and disease to count as legitimate scientific concepts, the values that justify their operationalizations cannot be just any values. The choice of operationalizations must adhere to scientific norms. I will not go into detail about scientific norms here, but some good candidates are projectability and generality. A concept of health that is helpful for explaining and predicting how various physiological states affect survival is reasonably scientifically legitimate. In contrast, a concept that expresses the ratio between a person's IQ and the length of her nose in centimeters will presumably not be scientifically legitimate, because this will not be very useful for making physiological explanations or predictions.

Possibly there are several somewhat different concepts of health and disease (which, for example, employ different individuations of reference classes) that are scientifically interesting, and perhaps it would be a good idea to allow for several scientific concepts of health and disease. Importantly, though, the requirement that the choice of operationalizations adhere to scientific norms blocks cultural relativism about health and disease.

An example discussed since the start of the modern health and disease debate is homosexuality. Not judging homosexuality a disease has almost been considered a desideratum for theories of health and disease. With the constraints on the subjective element described earlier, subjectively salient naturalism will not classify homosexuality as a disease on culture-relative grounds. However, if there is a legitimate scientific interest in reproduction, and if it turns out that homosexuality is a physiological state that generally results in fewer offspring, then it seems that subjectively salient naturalism may classify homosexuality as a disease. To what extent is this problematic? I argue that this implication is less problematic for subjectively salient naturalism than it is for naturalism and that subjectively salient naturalism may actually contribute to positively nuancing how we think about homosexuality in relation to disease.

Having homosexuality removed from the *Diagnostic and Statistical Manual of Mental Disorders* in the 1970s was a great victory, given common conceptions of what it would mean if homosexuality were a disease—roughly, that homosexuality is a defective biological state that is bad and should be treated. Subjectively salient naturalism does not exclude the possibility that homosexuality is a disease; however, it explicitly refutes the described view of homosexuality as a disease. First, according to both naturalism and subjectively salient naturalism, being a disease does not carry any normative implications. If homosexuality is a disease, this does not mean that it is a bad state to have or that it should be treated. Second, according to subjectively salient naturalism, and in contrast to naturalism, health and disease do not carve nature at its joints but merely describe certain relations (out of many) in nature. If homosexuality is a disease according to a scientifically legitimate definition of disease, this result is in some sense scientifically interesting, but it does not carry any ontologically heavier implications about homosexuality. In relation to this point, it

may also be emphasized that there may be many possible scientific definitions of *health* and *disease*, and not all of them carry the same risk of classifying homosexuality as a disease. It could be that reference classes are individuated by sexual orientation, or one may advance definitions that are not concerned with reproduction. For example, Thorell (2021, 69–70) distinguishes between two scientific concepts of health, survival-health and reproduction-health. Whereas homosexuality may affect reproduction-health negatively, it should not affect survival-health negatively.

Given the discriminatory historical background, one might think that it is important not to classify homosexuality as a disease irrespectively of what one takes *disease* to mean. A good idea may be to use other terms than *disease* for scientific concepts.

7. Conclusion

The health and disease debate is traditionally described in terms of a dichotomous opposition between two camps of theories, naturalism and normativism. However, this framing of the landscape of possible theories is misleading and even obstructive in the search for a better understanding of health and disease. Recent contributions reveal that not only one dimension is relevant for describing positions about health and disease; rather, as Broadbent (2017) showed, naturalism and normativism disagree both about value-involvement and about objectivity. Furthermore, as Kingma (2014) and Amoretti and Lalumera (2021) showed, one can disagree about value-involvement in several senses. As I have argued, it is important not only to distinguish indirect and justificatory value-involvement from direct value-involvement; it is at least as important to distinguish justificatory value-involvement from indirect value-involvement. Furthermore, I have argued that two senses of objectivity are important to keep apart: objective existence (mind-independent existence) and objective salience (carving nature at its joints).

One possible position that becomes visible once all these distinct dimensions of value-involvement and objectivity are explicated is the position that I call *subjectively salient naturalism*. This position is close to naturalism but differs in two important respects: first, it takes health facts to be justificatorily value-laden; second, it does not take health facts to be about natural kinds in any ontologically strong sense. As I have argued, these differences make subjectively salient naturalism a more plausible position than naturalism and hence a position that should be preferred if one is interested in the scientific concepts of health and disease.

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