

A Dispositional Theory of Health

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ABSTRACT

A satisfactory account of the nature of health is important for a wide range of theoretical and practical reasons. No theory offered in the literature thus far has been able to meet all the desiderata for an adequate theory of health. This article introduces a new theory of health, according to which health is best defined in terms of dispositions at the level of the organism as a whole. After outlining the main features of the account and providing formal definitions of ‘health’, ‘healthy’, and ‘healthier than’, I present the main strengths of the proposed account. I argue that the proposed dispositional theory accounts for all paradigm cases of health and pathology, that it circumvents a number of problems faced by rival theories, and that it makes for a naturalistic theory of health with a rigorous metaphysical underpinning.

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1 Introduction

The nature of health continues to be a source of deep disagreement amongst philosophers and medical theorists, despite the concept’s foundational role in medicine, clinical psychology, welfare economics, health policy, bioethics, and numerous related fields. The theories of health that dominate the philosophical literature illustrate the sheer scope of disagreement: health has been

defined as the statistically normal functioning of internal parts of organisms (Boorse [1975], [1976], [1977], [1997], [2014]); as a way of functioning not negatively valued by cultures (Wakefield [1992], [2000]); as the ability to continue in one's ordinary ways of doing (Fulford [1989]); as a state of 'organic silence' (Canguilhem [1991], [2008]); as abilities required to realise a certain minimal degree of long-lasting happiness (Nordenfelt [1993], [1995], [2000], [2001]); and even as a form of 'home-like being in the world' (Svaneous [2000], [2011]); see also (Carel [2008]).¹

A clear and coherent conception of health is important for a number of reasons. It clarifies what medical interventions and other forms of therapeutics should aim for insofar as their goal is to improve people's health; it determines (to a degree) which conditions merit medical research and treatment; it affects how health is to be measured on individual and collective scales; and it informs how we should live our lives if we want to care for our own health and that of others.² The rapidly growing literature displays no convergence towards one account of health or the other—despite its theoretical and practical centrality the question of health remains open.

The primary aim of this article is to introduce a new theory of health and to explain its main advantages. I shall argue that the concept of health is best understood in terms of dispositions. Dispositions have proved to be helpful in a number of core areas of philosophy, including theories of causality (Mumford and Anjum [2011]), the metaphysics of colours (Dummett [1979]; McGinn [1983]; Johnston [1992]; McDowell [1998]), philosophy of action (van Inwagen [1983]; Steward [2012]; Alvarez [2013]), philosophy of mind (Ryle [1949]; Armstrong [1968]), and more recently (Martin [2008]), value theory (Lewis [1989]; Johnston [1989]), and accounts of conditionals and counterfactuals (Woolhouse [1973]; Martin [1994]; Bird [2006]). I will attempt to show that dispositions can also play an important role in the philosophy of medicine and psychiatry.

According to the account of health I shall put forward, the concept of health denotes the ratio of an organism's set of dispositions to the maximum dispositional set of its reference class. Sections 2 and 3 discuss the guiding motivation for a dispositional theory of health and offer formal definitions of the concepts 'health', 'healthier than', and 'healthy'. Section 4 offers an overview of the main advantages of the proposed account. Section 5 answers three potential objections, which should go some way to establishing the proposed theory as a viable alternative to existing theories of health. I won't have space to unpack the theory in every detail and answer every line of objection, so the

¹ For a helpful overview of thirty years of debate over the concepts of health and disease, see (Boorse [2011]).

² Not all medical interventions aim at improving people's health, nor should they—the termination of unwanted pregnancy being a case in point.

principle aim is to introduce the account in outline and to discuss its main strengths.

2 The Dispositional Account

A natural starting point for an inquiry into the nature of health are clear and widely recognized cases of healthiness and pathology, which I will refer to as paradigm cases. These paradigm cases of healthiness and pathology are necessary to bring the subject-matter into view, enabling the development of a coherent and informed account of it.³ I will assume that paradigm cases of pathology are the disease categories of medicine and psychiatry, and that the clearest instances of health-improvements are recoveries from such diseases.⁴ The motivation behind this assumption is relatively straightforward: if a theory of health fails to account for paradigmatic cases of medically recognized pathologies (or for their cessation), it would no longer be clear that this is indeed a theory of health instead of a theory of some other phenomenon. Hence, a reasonable requirement on a satisfactory theory of health is that it correctly characterizes the features that alter in most cases of recognized pathology and that are reinstated after recovery or successful therapy.

As several authors have recognized, a common denominator of both physical and mental pathologies is that they diminish the scope of what an individual is capable of doing: pathology incapacitates.⁵ Whether we consider orthopaedic, cardiovascular, neurological, congenital, immunological, or psychiatric disease categories, one thing that unites these conditions is a reduced scope of activities that a diseased individual is capable of performing. A shoulder lesion prevents one from lifting one's arm; intermittent claudication reduces the ability to walk; Broca aphasia constrains the capacity for speech, anxiety disorders limit people in specific actions (like appearing in public, or entering airplanes); depressions inhibit people more generally in activities of daily living (like getting dressed, preparing food, and going to work); and so on.⁶ Processes of recovery, by contrast, characteristically imply an expansion, sometimes a full restoration, and at times even an enhancement of what one can do. A healed ankle fracture means one can walk and cycle again; a successful recovery from Broca aphasia means one regains the ability to form

³ These paradigm cases and other common sense intuitions will not be used as absolute, unnegotiable starting points of the inquiry (as traditional forms of conceptual analyses would have it); rather, they will serve only as defeasible guides in the formation of a coherent theory of the subject.

⁴ This does not imply that the categories of the DSM-V, the ICD-10, or any future nosology, have to be viewed as immune to revision.

⁵ This has been pointed out by Boorse ([1977], p. 547, [2011], p. 21), Fulford ([1989], pp. 109–33), and Nordenfelt ([1993], p. 92, [1995], p. 36, [2000], p. 80, [2001], pp. 66–7).

⁶ There are recognized forms of diseases that do not appear to restrict what one can do. I will discuss these possible counter-examples in Section 5 below.

sentences and communicate verbally with others; alleviation from anxiety disorders means one can engage in previously precluded activities; and so on. Death, the analytic opposite of health, coincides with the point at which an organism can no longer do anything at all. These general observations constitute a first guiding motivation for the view that health is best understood in terms of what one can do; that is, that the concept of health is a certain quantitative measure of what an organism is capable of—a measure lowered by pathology, restored in recovery, and reduced to zero at death. I will present various other reasons why this may indeed be the best way to understand the nature of health in Section 4, but I shall first develop these basic observations into more precise definitions of health and health-related concepts.

Talk about what an entity ‘can do’ is in contemporary metaphysics often expressed in terms of dispositions.⁷ When X can ϕ , or when X is capable of ϕ -ing, or when X has the capacity for ϕ -ing, this just means that X has the disposition to ϕ . Dispositions are properties of objects defined on the basis of their manifestations under certain conditions. We ascribe the dispositional property ‘fragility’ to wine glasses and ceramic cups because they shatter under certain conditions, for example, when they are struck with a hammer. The solubility of salt denotes salt’s disposition to dissolve when placed in liquids. Although the manifestation of properties like fragility and solubility depends on the presence of the relevant manifestation-conditions, it is generally accepted that objects have these properties independently of their respective manifestations.⁸ If the relevant manifestation-conditions never obtain, the disposition will remain unexpressed. But if the manifestation-conditions do obtain as a matter of fact (and aren’t masked or finked), the manifestations must occur for an object to have the relevant disposition.⁹

As these general remarks about dispositions suggest, the best grip we have on dispositions is in terms of the conditional truths they entail:

- (1) Disposition: X has the disposition D to manifest M under conditions C , if and only if X will manifest M when conditions C obtain.

According to a longstanding philosophical tradition the ascription of dispositions amounts to nothing more than the assertion of a conditional statement, meaning that dispositions reduce to non-dispositional elements.¹⁰ Whether

⁷ Although some prefer the term ‘powers’ over ‘dispositions’, generally these terms are used interchangeably in the literature. I will stick with dispositions throughout this article.

⁸ See for instance (Molnar [2003] p. 57).

⁹ See (Molnar [2003], pp. 60–124) for a description of the basic features of dispositions (or powers).

¹⁰ Defences of such reductions include, most notably (Ryle [1949]) and, more recently, (Lewis [1997]). Conditional analyses have been challenged by Mellor ([1974], [1982]) and Martin ([1994]). For a helpful overview of the debate over conditional analyses of dispositions, see (Cross [2005]).

dispositional sentences reduce to conditionals sentences, or whether, instead, dispositions are best taken as primitive notions—as many dispositionalists now believe—does not really matter for our purposes. I will try to show that health can be fruitfully analysed in terms of dispositions either way.

Turning to dispositions helps to clarify and sharpen the point that pathology reduces what an organism is capable of doing. When a cherry tree is able to blossom under certain conditions, it has the disposition to blossom; when a bird is able to fly in certain circumstances, it has the disposition to fly; when a human is able to walk and speak, it has the disposition to walk and to speak. If the cherry tree, bird, or human are no longer capable of manifesting these activities, this implies there are no longer any conditions under which the tree will blossom, the bird will fly, or the human will walk or speak. The observation that pathology diminishes what an organism is capable of doing can therefore be more precisely expressed in terms of dispositions: pathology implies the loss of particular dispositions, while recovery means reacquiring these dispositions.

Following the guiding idea that paradigm cases of pathology diminish what an organism can do, the first thing to note about the dispositions I am now focusing on is that they are dispositions of organisms as wholes. Dispositions of wholes of course supervene on dispositions of parts: we cannot walk unless our knees have the disposition to bend, muscular tissue has the disposition to contract when stimulated, and so on. If pathology reduces the dispositions possessed by the organism as a whole, it must also affect the dispositions of its parts. The principle reason I think we should identify health with dispositions of the organism as a whole—thereby departing from Boorse ([1977], p. 555), who takes health to be a property of parts of organisms—is that dispositions of parts can easily change without affecting the disposition of the whole, and such part-changes often don't amount to impairments or improvements of health. If one cell dies off, for instance, that cell radically changes in terms of its dispositional properties. But taken by itself, one dead cell does not render the organism pathological.¹¹ A malign cancerous cell, however, does significantly affect the organism's health, but does so only because it heavily impacts what the organism as a whole will be capable of doing. Hence, the account of health I will define more strictly in a moment is one in which health is defined in terms of dispositions belonging to an organism as a whole.

Now, every organism is disposed to manifest certain behaviours or activities given the right conditions, regardless of whether it is healthy, ill, or dead—this does not yet give us much of a grip on the nature of health. Health is a certain measure of what a living organism can and cannot do, and precisely which dispositions it is a measure of requires further clarification. Given the long

¹¹ This point has been laboured by Nordenfelt ([1995], p. 28).

history of associating health with phenotypical and behavioural normality, the most natural way to proceed would be to assert that good health consists in having the kinds of dispositions that are normal in some given reference class. I reject this suggestion for reasons that I'll return to later. I will argue instead that the concept of health is a measure of an organism's dispositions relative to the maximum set of dispositions it could have given the kind to which it belongs.

To understand what I mean by a maximum set let me first point out that there is a lower limit to the kinds of dispositions that an organism can lose, even in the most severe cases of pathology. The dispositions of an organism to cast a shadow, for instance, or the disposition to fall downwards when falling out of a tree, are dispositions organisms have in virtue of being solid material objects. Although these dispositions are part of an organism's totality of dispositions, it is impossible for an organism not to have these dispositions as solid material object—these form the lower limits beyond which dispositional sets of organisms cannot diminish, which is why they are irrelevant in assessments of health.

Just as there is a lower limit to the kinds of dispositions that organisms have, so there is an upper limit to the kinds of dispositions they can have. Every living being has limitations to what it could possibly do given the kind to which it belongs; that is, restrictions obtain to the sort of activities an organism can perform given its species. Trees will never be able to fly, orcas shall never be able to climb up mountain slopes, and we shall never be able to grow mangoes from under our armpits. The absurdity of these examples is explained by the fact that upper limitations obtain to what these organisms can do due to the sort they fall under. The relevant upper limitations are first and foremost set by the species to which an organism belongs. Why species is the relevant category instead of other classificatory categories like kingdoms, phyla, and families, I shall explain further in Sections 3.1 and 3.2.

Speaking of upper limitations to what an organism can do on the basis of its species need not rely on an essentialist view about species—essentialism understood as the view that members of a species share certain intrinsic properties that are jointly sufficient to make them members of that species. Whether we demarcate species along essentialist or non-essentialist lines, once we have a theoretically defensible conception of species that carves up the natural world in a determinate way it becomes possible to find out, *a posteriori*, what members of that species are maximally capable of doing.¹² To be clear: I don't

¹² Kitcher ([1984]), Dupré ([1993]), and others have defended an ontological pluralism about species, arguing that there are various legitimate ways of carving up the biological domain. Such a view would complicate the account of health I am putting forward, as the upper limitations relative to which judgements of health measure actual dispositional sets will then depend on the particular form of categorization that is used. I don't think this will defeat my proposed account

propose to define and demarcate species on the basis of the set of dispositions members could maximally have. On such a view, organisms with dispositions outside the maximum set of dispositions would necessarily belong to a different species. On my view, if an organism falls under a certain species-description and proves to have dispositions beyond what we thought of as maximally possible for members of the species in question, we should adjust our beliefs about the relevant upper limitations. Distinguishing health from pathology, then, relies on a conception of species that allows us to group individuals together, which in turn allows us to investigate the limitations of this group, yielding knowledge that is always open to revision.¹³

Indexing which dispositions a member of a given species can have is an empirical task. A sufficiently large sample of specimens is to be observed in a variety of different environmental settings during all stages of their life-cycle. Observations of a single specimen, or only a small sample, won't support reliable inferences about the upper limitations of the species. Dispositions gained through various forms of enhancements—drugs, prostheses, exoskeletons, and so on—are not to be included: the relevant maximum is that belonging to the species, not that of a technologically enhanced species.¹⁴ Determining the upper limitations to what members of the species are capable of doing is a project that may never be fully completed, as more kinds of manifestations corresponding to different dispositions may always be identified. But it seems to me that incomplete knowledge suffices to generate relatively stable estimations of the kinds of dispositions an organism of a given species can maximally have. An organism belonging to a species that can climb trees lacks this disposition if it cannot climb trees; this is not the case for an organism belonging to a species that cannot climb trees. Approximate knowledge of what species are maximally capable of will suffice in most cases to cast a judgement on how closely an individual organism approximates the maximum dispositional set of the sort it falls under.¹⁵

of health, but it will render it equally pluralistic; organisms may turn out to be healthier or unhealthier depending on what categorization of species is employed. Note that other accounts of health, especially Boorse's ([1977]) BST would face similar implications. For reasons of simplicity, I will assume a monistic categorization of species.

¹³ See (Boorse [1997], pp. 38–41) for a similar defence of employing species without accepting essentialism.

¹⁴ If the maximum dispositional set of the technologically enhanced species were the relevant maximum, then every technological invention would make people without access to it *de facto* poorer in health. Moreover, since we presently do not know what is technologically possible in the future, we wouldn't have a clue about our present level of health. Both conclusions are absurd. My view is that once technological enhancement reaches a certain level, we should think of this group as constituting a different reference class: 'human beings with enhancement X', rather than human beings simpliciter.

¹⁵ Some dispositions come in degrees, while others are either present or absent. For instances, a frog's reproductive dispositions fall on a rational number between zero and one, depending on how much spawn it is able to produce. If it can produce only 20% of what is maximally possible

Once we accept the idea of a maximum range of dispositions an organism could have given its species, we can make sense of there being a ratio between what an organism can do in its present state and how much the organism could maximally do given the species to which it belongs; that is, we can form a conception of the ratio between an organism's actual set of dispositions and the maximum dispositional set of the sort it falls under. My central thesis is that the concept of health is best understood as denoting precisely this ratio. In other words, the account of health I propose is one according to which judgements about health are judgements about how much an organism can do vis-à-vis how much it could maximally do given the kind it falls under. Let me therefore suggest the following definition:

- (2) Health: Health is the ratio of a living organism's dispositional set compared to the maximum dispositional set belonging to its reference class.

On this definition of health, it becomes clear how we can compare states of health. We often speak of improvements or deteriorations of someone's health, or consider one person to be healthier than another. Health understood as the ratio of an actual set of dispositions and a maximum dispositional set renders explicit what kinds of comparison are made in such statements, namely comparisons between different ratios of actual sets of dispositions and maximum dispositional sets. On (2) even intra-species comparisons of health become possible. Even though intra-species comparisons are rare in ordinary talk about health, there is no violation of normal language use when we say that Mary's cat is in poorer health than her dog. If health is understood as denoting the ratio of an organism's dispositional set to a maximum dispositional set, also these intra-species comparisons become intelligible. We may, in any case, define the comparative 'healthier than' as follows:

- (3) Healthier Than: X is healthier than Y if and only if X 's ratio (X 's actual dispositional set compared to X 's maximum possible dispositional set) is higher than Y 's ratio (Y 's actual dispositional set compared to Y 's maximum possible dispositional set).

The concept of health is not only used in a non-comparative way defined by (2) (for example, 'Jones's health concerns me greatly') and in a comparative way captured by (3) (for example, 'Mary is healthier than Jones', or 'Mary's health has improved considerably'), but also in a more loosely comparative way, for

for its species and age, this can be quantified as 0.2. An elephant's reproductive dispositions, by contrast, are either zero or one, as it can either give birth to a baby elephant or it cannot. In determining the total quantity of an organism's dispositions, both types of scores can be cumulated.

instance when we say that ‘Jones’s excessive life-style has left him very unhealthy’. The latter sense of ‘unhealthiness’, and its opposite ‘healthiness’, implies a comparison not to one concrete individual, but to a wider comparison class—an average compared to which the individual contrasts relatively favourably or unfavourably. This sense of ‘healthy’ and ‘unhealthy’ may therefore be defined as follows:

- (4) Healthy: X is healthy if and only if X ’s ratio (X ’s actual dispositional set compared to X ’s maximum possible dispositional set) is larger than the averaged ratio of a sufficiently large number of members of the relevant comparison class.

And similarly:

- (5) Unhealthy: X is unhealthy if and only if X ’s ratio (X ’s actual dispositional set compared to X ’s maximum possible dispositional set) is smaller than the averaged ratio of a sufficiently large number of members of the relevant comparison class.

Definitions (2) to (5) make use of the idea of reference classes, while definitions (4) and (5) also make use of comparison classes. More needs to be said about these classes: what are they, and how can the choice of reference classes be justified. Another point in need of clarification is that certain dispositions seem more central to health than others, which runs against the purely quantitative account of health I have put forward in this section.

3 Further Specification of the Dispositional Account

In this Section I shall further unpack and clarify the definitions of health given above. In Section 3.1, I will explain the reliance on reference classes and specify the appropriate reference classes for this account of health. In Section 3.2, I will explain the need for the idea of comparison classes in the definitions of ‘healthiness’ and ‘unhealthiness’. In Section 3.3, I shall explain why certain dispositions are more central to evaluations of health than others, and why this is compatible with the strictly quantitative definition of health offered above.

3.1 Reference classes

When Boorse defined health as statistically normal functioning of internal parts, he also recognized that statistical normality had to be determined in suitable reference classes (Boorse [1977], p. 556). To assess whether some internal part functions statistically normal towards survival and reproduction, Boorse recognized that normality has to be specified for each species, sex, and age group—a group sharing a ‘coherent functional design’ (Boorse [1977],

p. 558).¹⁶ I will now explain why my proposed account of health equally requires reference classes.

In the previous Section I suggested that health denotes the ratio of an organism's dispositions compared to a maximum dispositional set determined by its species. This means species was already introduced as a reference class. The justification for doing so is evident: squirrels are capable of doing a great deal more than dandelions, just as human beings are capable of doing a great deal more than squirrels, but this does not render squirrels *de facto* healthier than dandelions and us *de facto* healthier than squirrels.

For species where males and females are capable of quite different activities the maximum relative to which an organism's dispositions is measured has to be further specified by sex. A female mammal isn't by definition healthier than her male counterpart in virtue of being able to give birth to her young, secreting milk, and so on. When a female mammal lacks these dispositions this indicates her health is compromised, while this is not the case for males. Next to species and sex, the dispositional account of health also requires age as reference class. A new-born baby is not less healthy than an adult just because it lacks the disposition to walk, form sentences, digest grains, and so on. Likewise, adults are not less healthy than infants by not having the disposition to increase in height.

As far as I can see, these are the only three categories required to specify which ratio the concept health denotes. Higher-order classificatory categories like kingdoms, phyla, classes, and families are too general: birds falling under the Chordata phylum aren't per definition healthier than reptiles (classed under the same phylum) in virtue of their disposition to fly. Moreover, as reference classes on the proposed view are already specified in terms of species, they are already distinguished in terms of these higher-order classificatory categories. There may be cases where further specification in terms of subspecies is called for. If geographical location gives rise to phenotypical distinctness to the point that maximum possible dispositional sets between subspecies differ significantly, this could justify specifying the reference classes further in terms of subspecies. The dispositional account of health, I conclude, turns out to require the exact same reference classes as Boorse's biostatistical theory of health (BST): species, sex, and age. Health, on the proposed dispositional view, is therefore the ratio of an organism's dispositions compared to the maximum of dispositions available to its reference class, specified by species, sex, and age.

¹⁶ Kingma ([2007]) has criticized Boorse's reliance on reference classes, arguing that it renders the theory both circular and dependent on implicit social biases and values, contrary to Boorse's proclaimed value-neutrality. I shall not address Kingma's concerns in this article, though I will briefly comment on where I see my proposed account of health on the normativism-descriptivism debate in the next section.

3.2 Comparison classes

One might wonder why further reference classes aren't possible or even required: doesn't one's degree of health not also depend on the time in which one lives, for instance, or one's geographical location? After all, what qualified as good health for or a Roman soldier or a nineteenth-century British factory worker, may on today's standards not be healthy at all. One might also think that evaluations of health are relative to reference classes specified by medical categories, like diabetes, myopia, amputations, alcoholism, and so on. One could, indeed be judged to be in good health for someone suffering from these and many other conditions.

This, however, would be to confuse the nature of health with a wider comparative notion of healthiness for someone from a certain time and place, or healthiness for someone with a particular medical condition. If we were to specify reference classes further with factors like historical periods and geographical locations, or indeed with medical conditions, we lose the universal notion of health that enables us to make claims of the kind that we are now, on the whole, healthier than people living in nineteenth-century Britain, or during the heyday of the Roman empire. For if these times and places were used as a further specification of reference classes, the degree of health would itself be relativized to historical periods and geographical locations. The same holds for medical conditions: if diabetes were accepted as further specification of reference class we could no longer claim that diabetics are less healthy than non-diabetics in the sense that we want to make (or deny) such claims, for the degree of health will have been relativized to the condition itself.

In addition to reference classes—specifying which upper limits actual dispositional sets are measured against—I therefore introduce comparison classes. Comparison classes, as employed in (5) and (6), do not constitute health in its universal signification, but are helpful to indicate whether an organism is healthy or unhealthy relative to a sufficiently large number of people or organisms of some given comparison group. Virtually everything can function as a such a comparison class. We could say that someone is healthy for someone having suffered a cardiac arrest, for someone living in the geriatric department of some particular hospital, for someone who lives only of fast food, and so on. In all such cases, the health of given person (defined by (2)) is compared to the average health (defined by (2)) of a sufficiently large number of members of the relevant comparison class. Distinguishing reference classes from comparison classes in this way explains why we can make non-comparative statements about an individual's health (for example, 'Jones is in poor health'); make relevant inter- and intra-personal comparisons of health, also over different generations (for example, 'Jones is healthier than Mary'); and more generally compare the health of

someone to a comparison class that is deemed relevant (for example, ‘Jones is really unhealthy for a white middle class Briton’). Whenever we say that someone is ‘healthy’ or ‘unhealthy’, such comparison classes are always at play in the background. But this should not distract from the fact that health itself does not rely upon these comparison classes—in fact, it is only because of the non-comparative and absolute signification of health captured by (2) that comparisons to average levels of health in comparison classes are possible.¹⁷

3.3 Which dispositions?

I have used the basic observation that pathology incapacitates and recovery re-capacities to introduce the view that health is a measure of what one can do versus how much one could maximally do given the kind of organism one is. In doing so, I combined two theses that could be picked apart and held separately. It is one thing to claim that health is to be understood in terms of dispositions of the organism as a whole—instead of, say, the functioning of organic parts (Boorse and Wakefield) or some quality of subjective experience (Canguilhem and Fulford). It is another to claim that the more one can do—that is, the greater the number of kinds of dispositions one has, hence the closer one approximates the maximum set of dispositions available in the reference class, and thus the higher one’s ratio of actual to maximum possible set of dispositions—the healthier one is. I hold both theses to be true, but will have to offer more support for the second.

Suppose I am granted the first thesis, that health is indeed best understood as a measure of dispositions of organisms as wholes. The obvious question then becomes which dispositions constitute an organism’s health. Certainly not every disposition is equally relevant when it comes to health. In Section 2, I already set aside a class of dispositions possessed merely in virtue of being a material object and said these form the lower limit below which dispositional sets cannot vary. But plenty of other dispositions remain that seem entirely trivial. The disposition to wiggle one’s little toe independently of other toes, for instance, is much less important to human health than the disposition to walk, to communicate, or to form true beliefs about the world. The loss of health following our inability to walk or speak is far more substantial than the loss following the inability wiggle one’s little toe. Similarly, a bird’s disposition to fly is far more central to its health than its disposition to scratch its own neck.

¹⁷ By defining ‘healthier than’ in terms of ‘health’, rather than the other way around, I deny Schroeder’s ([2013], p. 134) recent claim that health, like tallness, is fundamentally a comparative concept. Instead, my suggestion is that ‘healthier than’ requires an absolute notion of health, just as ‘tallness’ requires the non-comparative notion of ‘height’.

Let me now try to explain how these qualitative differences between dispositions can be accounted for while maintaining the idea that closer proximity to the maxim set of dispositions set always corresponds to better health. Certain dispositions are a necessary condition for the having of other dispositions. The disposition to walk is required for the disposition to run up and down staircases, to move an object from one place to another, to engage in various social activities, and so on, as well as the whole range of dispositions made possible by these more specific dispositions. Likewise, without the disposition to fly a bird would not have the disposition to locate and hunt down prey, migrate to warmer climates, escape from natural enemies, and so on. Our disposition to wiggle one toe independently of other toes and the bird's disposition to scratch its own neck, by contrast, are typically insignificant to their respective degrees of health because they hardly enable further dispositions—they aren't required for any other activities. The main idea, then, is that dispositions *prima facie* central to health often are central to health because they form a pre-condition for a great variety of further dispositions of the organism.¹⁸ Although certain dispositions are more central to evaluations of health than others, what gives them this central role is the fact that they bring about greater quantitative differences in an organism's total set of dispositions. The observation that certain dispositions matter more than others is therefore not just compatible with the definition of health offered above, it is explained by it.

The upshot is a hierarchy of dispositions for each species, whereby the most basic and broadly conditioning dispositions are located at the base and the least conditioning dispositions at the top. In order to assess an organism's health, we should primarily look at the most basic dispositions, as these have the greatest bearing on the total size of an organism's dispositional set. This

¹⁸ The distinction between basic and more specific dispositions is different from, and does not rely upon, the more familiar distinction between essential and non-essential (or accidental) traits—although both could be used to distinguish dispositions that are more important to health than others. An essentialist version of the basic/specific distinction will say that if an organism fails to have a trait essential to a species it is not a member of that species. This is not very useful in this context: when a human being can no longer walk or speak we want to say that it is a less healthy human being, not an organism belonging to another species. There are other forms of essentialism, however, that don't face this problem. Wilkins ([2010]), for instance, takes essential traits to be traits that members of a species 'reliably generate', therefore allowing more flexibility in which properties an organism must have to belong to a species. This view of essentialism might indeed come close to, and significantly overlap with, the distinction between basic and more specific dispositions that I draw here. Still an advantage of my non-essentialist, quantitative approach remains: the distinction between basic and more specific dispositions is not binary in the way the essential/non-essential distinction is. On my view dispositions can be more or less basic, which makes them more or less central to health. The ability to run, for instance, is probably not as fundamental as the ability to walk, but it is still more basic than tiptoeing or walking backwards. Such gradations of importance are important for a holistic theory of health, but more difficult to account for on an essentialist picture—even on that of Wilkins's.

meshes well with the fact that health metrics like HUI-3 measure precisely the basic dispositions that lie lower down the hierarchy, instead of more specific dispositions.¹⁹

4 Advantages of the Dispositional View

With these clarifications in place, I will now turn to the advantages of the proposed account of health. The most important strength of the dispositional view is its close fit with paradigm cases of pathology and healthiness. All uncontentious cases of pathology severely impact the quantity of activities one can perform and successful recovery implies the reopening of these possibilities for action. The importance of this close fit cannot be overstated: the philosophical literature on health and disease is dominated by discussions of counter-examples to existing theories of health, with critics focusing mainly on Boorse's account.²⁰ I shall discuss a few potential problem cases in the next section, but its overall fit with paradigm cases of health and pathology strongly pleads in favour of it.

The second advantage of the dispositional account is that it makes for a unified theory of health. Instead of distinguishing physical, mental, and social health, and somehow forging them together into a mysterious cumulative notion of 'health'—as the 1946 WHO definition of health famously has it—the idea of a total set of dispositions captures health as a unitary phenomenon.²¹ The dispositions of organisms endowed with a psychic life is determined partly by their psychic properties. A clinically depressed Olympic athlete, for instance, may become incapable of carrying out even the most basic of daily activities, and therefore turn out to be in very poor health. With regard to mental health, the dispositional theory of health has distinct advantages over theories of health based on proper functioning of functional parts, as they are committed to viewing the mind as a collection of discrete mechanisms that each make distinctive contributions to survival and reproduction—at least on Wakefield's and Boorse's view.²² When health is viewed as dispositions of organisms as wholes, no such picture of the mind has to be presupposed; all that matters is what mental properties enable or prevent a person from doing.

A third advantage is that it can explain differences in severity between different pathologies, just as it can account for differences in degree of health-improvements. The other theories of health I have mentioned all have trouble explaining levels of severity. For Boorse, internal parts either function

¹⁹ See <www.healthutilities.com>. Accessed 15 August 2016.

²⁰ See (Boorse [1997], [2014]) for an overview and response to these counter-examples.

²¹ See (World Health Organization [2002], p. 984).

²² See (Murphy and Woolfolk [2000], p. 242) for a critique of this kind directed at Wakefield.

statistically abnormally or they do not (although abnormality may come in degrees); for Wakefield biological functions either carry out their evolutionarily selected task or they do not; for Fulford one is either able to continue in one's ordinary doings or one is not; for Nordenfelt one either has the capacities to reach a state of happiness or one does not—these theories have a binary classificatory structure that renders individuals either healthy or pathological.²³ They thereby lose the power to explain why some pathologies are, in and of themselves, worse than others—that is, why they are more severe independently of our attitudes and responses to them. Health is understood as a continuum on the dispositional view, with death on one extreme and ideal or perfect health on the other. Some pathologies, like an ordinary cold, only slightly impact one's overall health and reduce the ratio of actual to maximum possible dispositions only marginally. Severe pathologies impact this ratio to a greater degree, with terminal diseases having the biggest possible impact, which explains why they are more severe. On the dispositional view, the greater the impact a pathology has on the ratio of actual to maximum possible dispositional set, the more severe the pathology is.

Fourth, closely connected, the dispositional view offers a transparent account of what positive health consists in. Generally, positive health refers to the kind of health that can be attained and fostered in the absence of pathology—the enigmatic health 'beyond' the mere absence of disease. Most theories of health struggle to explain the nature of positive health, and either defer the subject by dealing with it in terms of well-being, or simply ignore it. Boorse is one of the few who attempts to explain positive health more rigorously. He argues that it consists of supra-normal functioning of internal parts in their contribution to survival and reproduction.²⁴ One shortcoming of this view is that part-functioning irrelevant to survival and reproduction (so-called spandrels) will never count as improvement of health.²⁵ The dispositional view does not face such constraints and offers a more sweeping account of positive health: any expansion of what one can do amounts to an improvement of health, with basic dispositions having the biggest impact and more specific

²³ This objection has been levelled against Boorse by Venkatapuram ([2011], p. 56). Boorse's ([2014], p. 30) response is that on his account differentiations can be made between singular and multiple sub-normal functioning parts (that is, one or more diseases), and the degrees by which functional outcomes are depressed. Although this indeed goes some way to explaining differences in severity, it still does not explain why extreme subnormal functioning of, say, the distal joint of my left thumb, is less severe than then subnormal normal functioning of my eye's optic nerve, or something like kidney failure. Both are singular dysfunctions and could be statistically abnormal to an equal degree—yet the thumb's dysfunction will never weigh up to eye or kidney dysfunction. Only by reference to the dispositions of the organism as a whole can these differences in severity be explained.

²⁴ See (Boorse [1977], p. 572, [1997], p. 8) for his account of positive health and graphic illustration.

²⁵ See (Gould and Lewontin [1979]) for the first introduction of spandrels, and (Murphy and Woolfolk [2000]) for an explanation of why spandrel-functioning is a relevant issue in definitions of health and pathology.

dispositions adding only marginal gains. In human life, ways of improving one's health are practically endless—there are always more dispositions one can acquire and develop. Cultivating positive health, on this view, amounts to a process of self-development and widening of one's action-potential, as opposed to the narrower and more facile weight-loss and minimization of risk for diseases that is currently associated with (and often sold as) promotion of positive health. Note how the proposed account also diverges from theories invoking more subjective notions like happiness and life-satisfaction. These notions are all compatible with poor health and infirmity, as psychologists from the Hellenistic days until today's psychologist have been pointing out. In this respect, the dispositional view offers a compelling alternative account of positive health.

A fifth advantage of the dispositional account is its break with the long-standing tradition of equating health with normality—functional or otherwise. The problems with defining health in terms of normality are well known and have frequently been pointed out in the literature.²⁶ A sample of these problems shows why so many theorists have been unconvinced by attempts to define health in terms of normality. First, it renders individuals with supra-normal properties pathological (though this can easily be solved by stipulating that only sub-normality counts as pathological). Second, what is normal shifts over time and differs per location, making levels of health relative to where and when one lives (one could be in good health in one time and place, yet be pathological in another). Third, what is normal need not be healthy at all, as Wakefield vividly illustrates by imaging the state of humanity after a global nuclear war: what would statistically normal after such a scenario (on the level of biological functions as well as dispositions of the whole) will surely be very unhealthy.²⁷ Fourth, no matter how healthy the population becomes, there will always be a fixed percentage ending up at the lower margins of the distribution and therefore count as pathological. Fifth, the idea that normality is the defining feature of mental health is deeply problematic and has provoked critique throughout the twentieth century, mainly because equating psychopathology with abnormal behaviour could be, and has been, used to legitimize political control of social deviancy and human difference. It is because of these drawbacks that I defined health in relation to a maximum of available dispositions—ideal health, if you like—which individuals approximate in varying degrees. On this approach, what is normal in a population becomes irrelevant in evaluations of health. Normality only plays a role if one wants judge whether one is healthy or unhealthy compared to what is normal in a population, that is, when making comparative judgements about

²⁶ See (Barlett [2011]) for a recent book-length treatment of the topic.

²⁷ Wakefield ([1992], p. 378).

relative healthiness or unhealthiness to a relevant comparison class (see (4) and (5) above).

A sixth advantage is that the dispositional view is naturalistic. Generally, dispositional theories are in sway because they fit in a naturalistic worldview. Dispositional properties like ‘charge’ are used throughout physical explanations of the world and therefore play an ineliminable role in our best predictive and explanatory theories. There is of course a long-standing debate whether at the ultimate micro-physical level physical properties are also dispositional or whether all dispositions are underpinned by non-dispositional, categorical properties.²⁸ Regardless of the outcome of that debate, dispositions either figure directly in, or are otherwise entailed by, our best explanatory and predictive theories, which is what renders them naturalistic. Other theories of health, except for Boorse’s BST, cannot claim this advantage: Wakefield’s reliance on culturally shared values (determining the harmfulness condition), Fulford’s focus on experiences of ordinary doing, Canguilhem’s equation of health with ‘organic silence’, Nordenfelt’s proposal to tie health to long-lasting happiness, and Svaneous’s characterization of health as home-like being-in-the-world all define health in terms of features (subjective values and qualities of subjective experience) that are more difficult to square with a naturalistic ontology. Defining health in terms of dispositions offers a rigorous metaphysical underpinning to health, and makes the theory stand in direct continuity with naturalistic theories in other areas of philosophy.

In an important sense the dispositional theory of health is therefore also value-free: health does not depend on what any given person values, wants, desires, or how she views her condition or life in general—nor does it depend on prevailing cultural standards. The proposed account is therefore in line with the type of naturalism defended by Boorse’s over the years. In another sense, however, the dispositional theory of health clearly has a normative structure: health is a measure of an organism’s state measured against a certain norm—the norm being the maximum possible set of dispositions available in the reference class. Also in this respect the dispositional account is similar to Boorse’s BST, since for Boorse functional normality is the norm to which organic parts are compared in evaluations of health. The sense in which both the dispositional account of health and Boorse’s BST are normative, however, does not render them any less naturalistic. It has been a false meta-normative assumption underlying a great deal of literature in the philosophy of medicine that naturalism and normativism are mutually exclusive

²⁸ A classic defence of the latter thesis can be found in (Prior et al. [1982]), and more recently in (Armstrong [1997], pp. 79–84). Following Martin ([2008]), Heil ([2003], [2012]), has argued in recent work that the debate relies on a false opposition and that at the fundamental level properties are both categorical and dispositional—or qualitative and powerful, as he prefers to say.

categories.²⁹ I don't have space to elaborate on this issue here, but should emphasize that the way in which the dispositional view is normative need not compromise its naturalistic standing.³⁰

The seventh advantage of the dispositional view is that it is applicable to all forms of life, not just human life or sentient life. Lower animals and plants are no doubt capable of contracting diseases of various kinds, so a reasonable requirement on a viable theory of health is that it should be able to accommodate this. Some authors, however, are forced to assert that health and pathology are categories that only apply to human beings; when health is predicated over animal or plant life, they concede it involves a projection on our part. Sedgwick ([1973], p. 30), for instance, claims that 'outside the significances that man voluntarily attaches to certain conditions, there are no illnesses or diseases in nature'.³¹ Fulford ([1989], p. 122) also concedes that 'especially with very lowly organisms, [there is] a distinct element of "as if" in our use of the medical concepts in respect of them'. Nordenfelt ([1995], p. 143) too is forced to conclude that health 'outside the universe of humans, is used only "in a parasitic sense"'. Limiting the use of health-concepts to human adults is a concession that comes at a high price, especially in light of botanical science and veterinary medicine: diseases in animal and plant life would no longer be actual diseases, but something projected by us—animals can be pathological only when viewed 'as if' they were human beings. The dispositional view, by contrast, can realistically account for impairments and expansions of health in animal and plant life.

5 Three Objections and Replies

5.1 Objection 1: Counter-examples

One objection to the proposed theory of health is that its proclaimed fit with medical disease categories is not close enough; that is, important counter-examples remain. Boorse ([2011], p. 21) discusses three types of counter-examples when considering any type of theory that identifies health with abilities for action: (i) pathologies that are a-symptomatic in early stages (like most cancers); (ii) pathologies that do not affect dispositions on the level of the whole at all (like dental caries); (iii) and sub-clinical pathologies that are discovered only after death (like some cases of prostate cancer).

The first group is easily accommodated by stipulating that a necessary condition on pathology is systematic reduction of dispositions on the level of the

²⁹ See (Simon [2007]) for a good analysis and illustration of this point.

³⁰ I investigate this claim further in (Werkhoven [2015]). For an important and influential articulation of the view that naturalism and normativism are compatible views, see (Foot [2001], pp. 33–7).

³¹ Quoted in (Boorse [2011], p. 23).

whole in the present or the future. Cancers and a whole catalogue of other conditions may be a-symptomatic in early stages, but will significantly depress the ratio of actual to maximum possible dispositions at a later point in time. An implication of this stipulation is that it becomes possible to be in good health while at the same time harbouring a serious but as of yet a-symptomatic pathology. I do not see any serious problems here. We want to diagnose these pathologies timely and cure them where possible to protect and promote our future health, not necessarily our present health. Nothing appears to be gained by insisting that pathologies must be health-inhibiting even in their a-symptomatic stages.

This response extends to the third type of counter-example mentioned by Boorse: a-symptomatic pathologies discovered only after death. Pathologies, as just stipulated, must involve systematic reductions of dispositions on the level of the whole either in the present or the future. If the individual dies before the reduction takes effect, this does not undermine the fact that the individual would have undergone such a reduction had life continued up to the relevant point in time. Although there is a limit to how much post-mortem time is to be taken into consideration, pathologies evidently include processes resulting in systematic reductions of dispositions at points in time located beyond death; that is, pathologies can undermine both future health as well as counter-factual health.

This leaves only the second category of possible counter-examples: pathologies that do not influence what organisms as wholes are capable of doing. Boorse mentions dental carries as an example—a case of pathology Boorse himself has difficulty with because its high prevalence makes it fall under statistical normality.³² The case of dental caries case is easily answered on the dispositional view: some time down the line tooth decay will not only inhibit chewing and the intake of liquids, but the experience of pain will also be more generally inhibiting—as anyone who has ever experienced a toothache will know first-hand. Wakefield ([1992], p. 348) mentions other potential candidates that fall under the category of non-disabling pathologies: albinism, reversal of heart position, and fused toes. These are indeed good examples of conditions whereby there is no loss of dispositions of human beings as wholes, even though there are anomalies at a functional level. In these cases, I think we can safely endorse the consequences of the dispositional account and accept that these conditions are not genuine pathologies.

³² Wakefield ([1992], p. 377) levels this objection against Boorse's BST.

5.2 Objection 2: Issues with holism

Defining health at the level of organisms as wholes opens the account to two potential problems. The first is that some dispositions can only be acquired at the expense of others. Increasing one's ability to run long distances, for instance, typically reduces one's ability to sprint. This raises the question how the dispositional account of health copes with trade-offs between dispositions: in which case is one healthier? When different body parts are involved this issue also surfaces. A fibular bone graft used to reconstruct necrotic or shattered bones elsewhere may strengthen the recipient site (for example, vertebrae, humerus, or femoral head) and consequently enable a range of dispositions of the whole organism, but it may simultaneously weaken the donor site and inhibit other dispositions of the whole organism—again raising the question how such trade-offs bear on overall health.³³

The trade-off issue can be answered as follows. The first thing to note is that when two dispositions cannot be acquired or possessed simultaneously the maximum dispositional set available to the organism cannot contain both dispositions at once. Possessing only one of the incompatible dispositions therefore does not constitute a health-deficit: there is no departure from the maximum dispositional set. In addition, expanding one of the incompatible dispositions, for example, long distance running or sprinting, will both count as improvements of health, even if one inhibits the development of the other. The question what makes one healthier overall—being good at long distance running or sprinting—is just an open, empirical question. If one of the two dispositions is more basic than the other, it will make a greater contribution to overall health. But in cases where this is not evident, like in the running example, there is no obvious way of telling in which case one is in better health. In situations where different body parts are involved, for example, with bone or skin grafting, essentially the same response is available. If lower legs are somewhat weakened by fibula grafting while at the same time a shattered humerus is functionally restored, it is an open question whether the dispositional loss is compensated for and outweighed by the gains following the shoulder repair. In surgical interventions like bone or skin grafting, tissues are used that typically have little bearing on what one, as a whole, can subsequently do: fibulas, the iliac crests, and the scapular spine can often be removed without incapacitating people in any significant way. Using grafts to restore shoulder function, to stabilize the spine, or to reconstructing the femoral head, evidently comes with a monumental increase of what individuals as wholes can subsequently do.³⁴ Trade-offs, therefore, can in principle be

³³ See (Bumbasiveric [2010]) for a description of fibular grafting.

³⁴ Note that the dispositional theory of health has a clear advantage here over Boorse's BST. For Boorse, grafting amounts to substituting one statistically anomalous part (for example, the

health-inhibiting, health-promoting, or neutral with respect to health, depending on how the ratio of actual to maximum possible dispositions is affected.

A second issue with holism is that pathology-induced reductions of what one can do can be compensated for by developing compensatory mechanisms, to the point that one's overall dispositional is returned to its original state, despite the local defect not having been remedied. If an accident resulted in one's left hand losing its gripping function, for instance, this can be compensated for by developing a series of tricks with one's right hand, elbow, feet, mouth, and so on until one is no longer impaired in what one, as a whole, can do.³⁵ On Boorse's view, and all others that locate health at the level of part-functioning, the person can still be deemed pathological due to the local defect, no matter how the defect has been compensated for. But a defender of the dispositional view seems committed to saying the person is at this point no longer pathological at all, which seems problematic.

In response, it is true that on the dispositional view compensatory mechanisms that neutralize the effects of defective parts count as improvement of health. I consider this to be an advantage of the view rather than an objection to it: rehabilitation from chronic injuries will count as genuine improvements of health on the dispositional view. On Boorse's view, no matter how skilful and re-capacitated one becomes, the person's health remains equally poor as long as the relevant part continues to function statistically abnormally. The issue of compensation only begins to bite the dispositional view when compensation is so extensive that it annuls the original loss of dispositions on the level of the whole, because at this point the dispositional view states there is no longer any pathology at all. It is questionable, however, whether such extensive and complete compensation can ever become reality, or whether this is indeed only a theoretical possibility. No matter how skilful and deft one becomes, certain activities will be precluded when one hand has lost its gripping function: carrying heavy items in both hands, cutting a pumpkin on a countertop, playing the oboe, and so on—enough activities are excluded to reduce the ratio of actual to maximum possible dispositional sets to support the verdict of a pathology. But if there were indeed a case where someone would no longer be impaired by a local defect in any way, both in the present and foreseeable future, the dispositional view implies there is no pathology and impairment of health. Whether Boorse and others can claim an advantage here depends on the genuine possibility of such a scenario and the plausibility

necrotic femoral head) for another (for example, the removed fibular shaft). The clear contribution a successful orthopaedic intervention of this kind can make to overall health is difficult, if not impossible, to account for on Boorse's BST.

³⁵ This example is based on a discussion in (Lewens [2015], p. 183). I am thankful to the anonymous reviewer who pointed it out to me.

of the verdict that this person is indeed still pathological—I remain sceptical about both points.

5.3 Objection 3: Expediting medicalization

The proposed account of health might also be thought to expedite medicalization. Any expansion of what one can do amounts to an improvement of health; lacking any dispositions whatsoever amounts to a compromise of one's health and potentially even a pathology. In one sweep the proposed account of health thereby appears to subsume every sphere of human life under remit of medical knowledge, power, and influence.³⁶

In response, I should first point out that acquiring new dispositions does not always make for an improvement of health. Some dispositions are incompatible with a large number of other dispositions, meaning that acquiring them involves an overall reduction of what one can do. An example is osteogenesis (brittle bone disease), which involves the disposition to shatter bones easily and evidently entails the loss of large number of other dispositions. Certain delusional disorders, personality disorders, and anxiety disorders also fall under this heading: the disposition to form delusions, or to continuously fear to be ill (as with hypochondria), means having dispositions that effectively shrink the totality of what one can do. It is therefore not the case that any new disposition implies better health, or that any loss of dispositions corresponds to a loss of health.

It is also clear that a systematic lack or reductions of dispositions on the level of the whole is not a sufficient condition for pathology, despite my claim that it is a necessary condition. This opens the question which further conditions are required. I think multiple factors may be relevant here, but will not attempt to offer a comprehensive or conclusive answer. What matters in the present context is that, indeed, any systematic lack or reduction of dispositions could be medicalized, and thus viewed as a pathology. By conceding this, I neither support medicalization nor deny its serious drawbacks. In absence of criteria that are jointly sufficient for pathology (supposing they can indeed be identified), we have to look closely at each case of systematic reduction of dispositions and the reasons for accepting or denying it as a pathology, much like we do now with abnormalities. The severity of the impairment, knowledge

³⁶ A similar kind of objection has been raised by Schramme ([2007]) against Nordenfelt. On Nordenfelt's view, one is healthy if one has the capacities to realize one's vital goals, where vital goals are defined as together sufficient for a minimal degree of lasting happiness once realized (Nordenfelt [1995], p. 90). Schramme's concern is that conditions ordinarily perceived as problems of normal life (like not winning an Olympic medal), may then come to count as a disease. This means a risk of medicalization far beyond the level of medicalization we have witnessed so far. In a sense, my proposed account is even more prone to such an objection, as literally all dispositions determine one's degree of health and not just those causally linked to levels of happiness.

of underlying causes, consistency across individuals, availability of treatment, all probably play an important role in these decisions.

Having said that, understanding every expansion of what an organism can do as an improvement of (positive) health, means medicine no longer enjoys a monopoly over the domain of health. A much wider range of disciplines must be acknowledged as contributing to the understanding and improvement of human health. The dispositions to read and write, for instance, are basic dispositions, meaning that on my account illiteracy would make for a substantial health-deficit. The best way to improve one's health in this case is through schooling, not by consulting a doctor. Recognizing something as an impairment of health, therefore does not imply the condition has been, or should be, medicalized.

6 Final remarks

In this article I have introduced a new account of health, following the initial and guiding observation that pathologies incapacitate and recoveries re-open possibilities for action. Much more can be said about the details of the account, especially how it plays out in specific cases of mental health impairment. More must also be said about the individuation of dispositions, which will require further in-depth metaphysical reflection, and whether the epistemology of counting dispositions can ever transcend the rough and ready counting that I have resorted to in this article. What I hope the introduction of the dispositional account has shown is that it adds precision to our understanding of health, that it aligns well with current views in metaphysics and philosophy of action, and that it makes for a compelling naturalistic theory of health.

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