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# What Health Is: The Blueprint View

Fabian Hundertmark[1]

1 Departament de Filosofia, Universitat de València, València, Spain. Email: mail@fhundertmark.net

## Abstract

This paper introduces the line-drawing challenge for ability-based accounts of health. What degree of which abilities is required for complete health? I argue that the answers provided by existing theories are flawed and propose the Blueprint View. On this view, an organism is completely healthy if and only if it has the abilities it would have in its design state, where design is determined by the etiology of its traits. This view provides an objective, naturalistic distinction between health and non-health. It strikes a balance between pure physiology and well-being, and distinguishes treatment from enhancement, as well as real pathology from pathologized variation.

## 1. Introduction

One of the central questions in the philosophy of medicine is what health is. This question lies at the heart of several more concrete disputes. The first concerns the boundary between health and non-health. This question fuels debates about treatment versus enhancement (Juengst and Moseley 2019), whether psychiatry is part of medicine (Szasz 1970), and the concern that medicine pathologizes normal human variation (Hoffman 2019; Chapman 2021). The second question is which conditions should be considered diseases or disorders. This issue is connected to concerns about overdiagnosis and overmedicalization (Hofmann et al. 2021). Third, many questions about distribution and policy are connected to health. For instance, health is a critical criterion for determining which interventions should be covered by healthcare systems (see, for example, Williams 1973, 240). Fourth is the epistemic question of how to determine, in practice, whether and to what extent an individual's health is impaired. Though a single, neat definition of health is unlikely to resolve all these issues, it can structure and constrain them (cf. Barnes 2023).

This paper develops and defends the Blueprint View, a new account of health designed primarily to answer the demarcation question. According to the Blueprint View, an organism is healthy if and only if it possesses the abilities it would have if it were in its design state—that is, if all its traits with etiological functions were fully functional. On this view, the concept of health is more fundamental than its antonyms, such as disease, illness, pathology, malady, and infirmity. The Blueprint View is naturalistic and largely



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nonevaluative since it is grounded in biological functions and abilities, rather than well-being or social value. It is anchored in physiology but also has the resources to explain why health is tightly connected to well-being. In this sense, it is an attempt to articulate a medium-level account of health, of a kind that Elizabeth Barnes (2023, section 5.2) is skeptical of.

As an answer to the demarcation question, the Blueprint View is not designed to settle questions about classification, distribution, or epistemic access by itself. Rather, it is intended to structure and constrain those debates. Notably, it distinguishes between treatment and enhancement, explains why psychiatric conditions are medical conditions, and clarifies why differences that do not involve dysfunction should not be considered health limitations.

Section 2 introduces and motivates the idea that an organism's health depends on its abilities. Section 3 outlines the line-drawing challenge for ability-based accounts and criticizes existing responses to it. Section 4 presents the Blueprint View of health, spelling out the underlying notions of design, full functionality, and functional modal profiles in selection-based terms. Section 5 argues that the Blueprint View's response to the line-drawing challenge is superior to alternative approaches. Section 6 addresses objections, including concerns that the view categorizes too many or too few conditions as unhealthy, and presents a corresponding practical notion of health. Section 7 summarizes my findings and draws out the implications for demarcation, classification, distribution, and epistemic questions.

## 2. Health and Abilities

Broken legs, Covid-19 infections, and social anxiety disorder limit our health. In this section, I motivate the thesis that they do so because they limit what we can do. In other words, our health depends on our abilities. For example, a broken leg limits our ability to walk, a Covid-19 infection (among other things) limits our ability to concentrate, and social anxiety disorder limits our ability to interact socially. Our wanting to avoid these limitations is what makes us strive for health. Successful treatment or natural recovery ensures that we regain the corresponding abilities. After the leg has completely healed, we can walk again. After a complete recovery from Covid-19 infection, our ability to concentrate is restored, and a successful recovery from social anxiety disorder consists of regaining the ability to interact socially. However, if a patient becomes increasingly ill, there is less and less she can do. If she eventually dies, she thereby reaches the opposite of a healthy state and can no longer do anything at all.

I share the view of many other authors that these connections between health and abilities are conceptual (for example, Pörn 1984, 1993; Fulford 1989; Nordenfelt 1995, 2000; Tengland 2007; Huber et al. 2011; Venkatapuram 2013; Werkhoven 2019; Leder and Zawidzki 2023; Dembić 2023a; Wren-Lewis and Alexandrova 2021; Varga 2024, chapter 6; Lalumera 2025, chapter 5). Consequently, only types of systems that can possess abilities also possess health; every limitation of health is accompanied by a limitation of ability, and the limitation of relevant abilities below a certain threshold implies a health limitation.

A central motivation to assume a conceptual relationship between health and ability is that it avoids two implausibly extreme positions. On the one hand, purely biologically based, theoretical definitions of health (for example, Boorse 1977, 2014; Fagerberg 2025) leave

open why health and pathology are practically significant. On the other hand, theories that link health too closely to well-being cannot distinguish between the domain of medicine, on the one hand, and motivational, environmental, and social concerns, on the other (Barnes 2023, section 2.1; Lalumera 2025, section 7.3). A good example is the World Health Organization's famous definition of health as "a state of complete physical, mental, and social well-being" (WHO 1946; see Callahan 1973 for a critical discussion).

To further substantiate the conceptual connection between health and abilities, I define abilities (section 2.1), show that abilities and health are attributed to the same types of systems (section 2.2), and give reasons to believe that this ability-based approach yields a plausible view of what makes mental health *mental* (section 2.3).

### 2.1 What Abilities Are

We know many examples of abilities from everyday life. My son has the ability to recognize Birdo from *Super Mario Bros. 2* (non-Japanese version) and to ride a bike, but he is not (yet) able to solve complex mathematical problems. Some people are able to run more than 40 kilometers per hour, but no human is able to fly unaided. With eagles, it is the other way around.

Abilities are modal properties: People only possess abilities if they can do certain things (for example, ride a bike or solve complex mathematical problems), and people have abilities they never exercise. Most people have the ability to kill. If their intentions and circumstances aligned, they would. But, fortunately, they rarely do.

Abilities share these modal characteristics with dispositions—such as fragility, mortality, irascibility, or evolvability. Nevertheless, abilities are not simply dispositions (Vetter and Jaster 2017). This is because abilities are conceptually linked to success, while dispositions are not (Jaster 2020, chapters 4–6). Consequently, not every disposition is an ability. Irascibility and an obsessive-compulsive disposition are not abilities since their manifestations are not cases of success. Conversely, when my son exercises his ability to recognize Birdo, or when Usain Bolt exercises his ability to run more than 40 kilometers per hour, it is a success for them. These examples should make it clear that I understand abilities in a broad sense. Accordingly, the success of abilities is not necessarily due to the realization of an intention but rather to the fact that a system has achieved one of its goals—for example, by producing the appropriate response to a stimulus (Jaster 2020, chapter 1, section 4; chapter 5).

Abilities, just like dispositions, come in degrees. One can be more or less able to ride a bike or solve complex mathematical problems. How able one is depends on the reliability and extent of one's success (Jaster 2020, chapter 1, section 3). Two baseball players who are both able to hit a home run may differ in the degree of this ability because one of them does it more reliably. In contrast, two trumpeters may have the ability to play the trumpet to different degrees because one can play the notes and rhythm of "Hey Jude" halfway while the other can play them brilliantly. Additionally, the degree of ability might also depend on how much effort is required. Someone who performs a task with ease may be more able than someone who needs to strain to achieve the same result.

In sum, when I say that an organism's health depends on its abilities, I understand abilities as gradable modal properties that manifest themselves in the successful activities of the organism. Furthermore, it is plausible that the health of an organism depends on so-

called general abilities (Jaster 2020, chapter 1, section 2). These are abilities that an organism has regardless of the specific situation in which it finds itself. For example, a person with bound legs cannot walk, a person in a noisy and chaotic kindergarten cannot concentrate, and a person in prison cannot interact socially. Yet these people still have the general ability to walk, concentrate, or interact socially because they could exercise these abilities if the situation were different. So, people are not less healthy just because they have tied legs, are in a noisy and chaotic kindergarten, or are in prison.

### 2.2 Extensional Adequacy

Philosophical discussions about health have focused on the health of humans, as this is what has the most significant practical relevance for us. However, few would deny that other organisms can be healthy or unhealthy as well. Veterinarians are concerned with the health of nonhuman animals. The health of plants can also be impaired, for example, by infestations of spider mites or rust fungi.

Similarly, the philosophical discussion on abilities has focused on human abilities. However, few would deny that other organisms also have abilities. For example, many birds have the ability to fly, orcas have the ability to communicate with one another, and many believe that great apes have the ability to attribute mental states. Plants are also regularly ascribed abilities. For example, most plants have the ability to direct their growth toward the sun, while some plants have the ability to catch and digest small insects.

We attribute health and abilities to humans, nonhuman animals, and plants. On the other hand, objects and systems with no abilities cannot be more or less healthy. Air molecules, basketballs, mountains, continental plates, suns, or galaxies have no abilities, and are therefore also not more or less healthy. Besides these clear paradigmatic cases, there is a range of cases where it is unclear whether health and ability ascriptions are accurate. Examples include ant colonies, ecosystems, companies, economies, cities, and states. In these cases, questions about whether these systems can exhibit abilities or health are arguably intertwined.

In sum, we are inclined to attribute a certain degree of health to objects and systems to which we attribute abilities. Conversely, we are inclined to deny that objects or systems can be healthy or unhealthy if they cannot possess abilities.

### 2.3 Mental Health

In response to anti-psychiatrists who question the medical status of mental disorders (for example, Goffman 1961; Szasz 1970; Laing 1990), much of the philosophical debate on mental disorders has focused on what makes mental disorders medical. While this is an important issue for the status of psychiatry as a medical discipline, it has drawn attention away from a related question: What makes mental disorders *mental*?

However, in recent years, several authors have addressed this question, independently arguing that mental health involves having certain abilities, while mental disorders involve a lack of these abilities. For example, Sam Wren-Lewis and Anna Alexandrova maintain that "mental health concerns the capacities of each and all of us to feel, think, and act in ways that enable us to value and engage in life" (2021, 696) while Garson Leder and Tadeusz Zawidzki hold the view that "mental health is skilled metacognitive self-regulation. 'Self-

regulation,' here, refers to the process of altering or controlling one's responses to align with one's goals or standards" (2023, 8). In several articles (2021, 2023a, 2024a, 2024b) and in her book, *Philosophy of Mental Disorder: An Ability-Based Approach* (2023b), Sanja Dembić develops her Rehability view, on which an individual has a mental disorder only if they lack the ability to respond adequately to some of their available apparent reasons

Despite their differences in specifying what counts as successful thinking, feeling, or acting, all three approaches agree that mental health involves the possession of certain abilities, and that mental disorders involve the lack of them. This convergence provides a third important reason for supporting an ability-based account of general health. Recent and promising theories of mental health rely on the notion of ability.

## 3. The Line-Drawing Challenge

In the last section, I argued that an organism's health is a matter of having particular abilities. A broken leg impairs health because it limits the organism's ability to walk; a Covid-19 infection impairs health because it limits the organism's ability to concentrate; and social anxiety disorder impairs health because it limits the organism's ability to engage in social interaction. On the other hand, congenital right-hemispheric dominance does not impair the health of a left-handed person, even if it limits their ability to write with their right hand; the low level of melatonin in a Caucasian's skin does not impair her health, even though it limits her ability to spend long hours in the sun without sunburn; and never having learned Mandarin does not impair an Argentinian's health, even though it limits his ability to engage in social interactions with Chinese people. Clearly, some abilities are health relevant and others are not. Hence, every ability-based theory must explain which abilities matter for health. In other words, such a theory has to answer:

(1) *The Inclusion Question:* What abilities are relevant to the health of an organism?

Furthermore, even abilities generally relevant for health are only relevant if they are reduced below a certain threshold. Even without a Covid-19 infection, the ability of humans to concentrate is limited. While this limit may be expanded by certain measures (for example, mindfulness; cf. Hong and Cho 2012), not every improvement of this ability is a health improvement. Similarly, humans have limited abilities to engage in social interaction. The individual's ability to do this depends not only on pathology but also on practice and more stable factors such as personality traits (introversion or extroversion). Consequently, a person with a social anxiety disorder that steadily improves her ability to engage in social interaction will gradually become healthier until she reaches a threshold. However, once the person has reached this threshold, she will stop improving her health, even though she still keeps improving her ability. A gradual improvement in ability can initially be a treatment. At a certain point, however, it becomes an enhancement. So, ability-based approaches need to determine the threshold at which this shift occurs:

(2) *The Threshold Question:* Given that an ability to $\varphi$ is relevant to an organism's health, how high must the organism's ability to $\varphi$ be for the organism to be completely healthy?

The line-drawing challenge I tackle in this paper is to give a plausible answer to the inclusion and threshold questions (see Figure 1 for a visualization).[1]

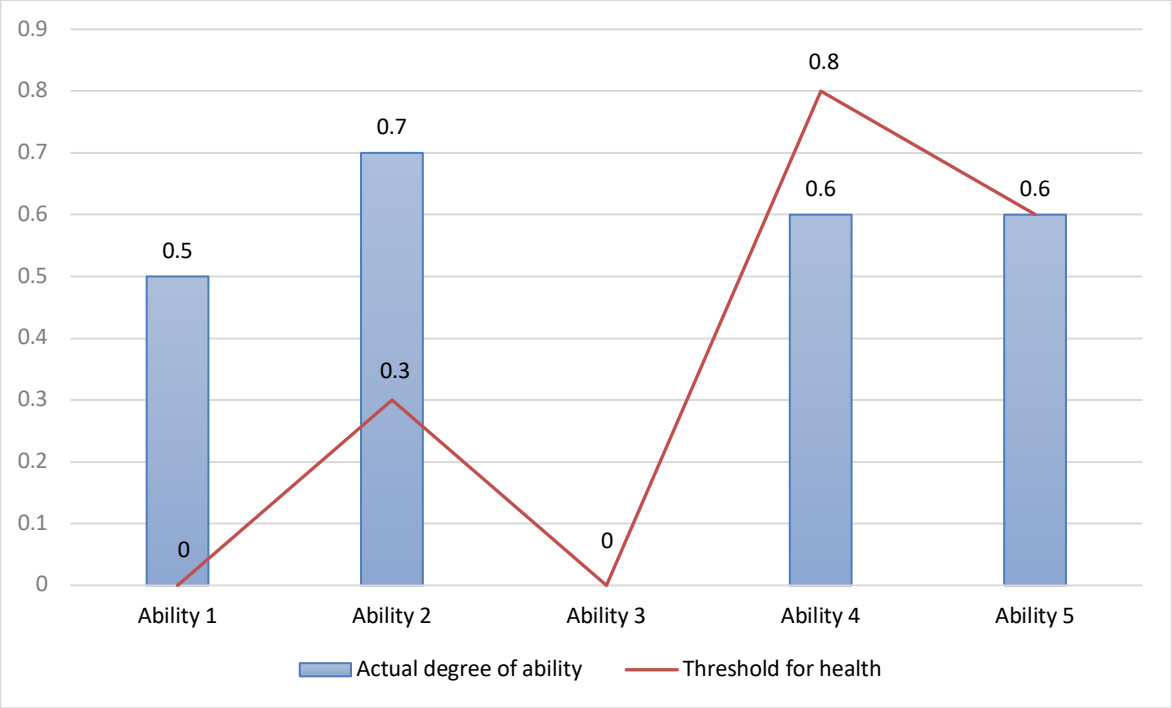


**Figure 1.** Visualization of the line-drawing challenge.

Although the line-drawing challenge for ability-based approaches to health has never been made explicit, existing accounts have implicit responses to it. In the following subsections, I present some of these responses and work out their fundamental problems. I set aside responses that are explicitly context-dependent (for example, Werkhoven 2019), as they risk trivializing health by allowing almost any state to qualify as healthy relative to a suitably chosen context.

### 3.1 Ordinary Action

The first way to deal with the line-drawing challenge comes from Bill Fulford. According to Fulford, an ability is relevant for health only if it is an ability one usually just goes on exercising without reflecting on it (1989, 117). Consequently, the ability to solve a complex mathematical problem will typically not be relevant for health, while the ability to walk is.

Fulford's appeal to ordinary action does capture an important phenomenological point. Restricted health is usually bad precisely because we can no longer perform actions that are normally easy for us. However, it is difficult to see how this proposal can deal with the fact that we sometimes learn to accept health restrictions as the new normality after some time. For example, a person with back problems can no longer perform certain movements. Over time, they become accustomed to these limitations, and these movements are no longer

[1] This challenge is distinct from Schwartz's (2007) line-drawing problem about distinguishing function from dysfunction.

ordinary actions for them. According to Fulford, this would imply that back problems stop limiting health as soon as the person has become accustomed to them. This conclusion is problematic, however. While it is true that the urgency of a health restriction can be reduced by habituation, a resolution of back problems and the subsequent recovery of abilities would still be a clear case of regained health. Thus, in addition to a subjective, practical concept (see section 6.1), there is also an objective concept of health, which is the main subject of this paper. Therefore, an adequate solution to the line-drawing challenge must capture the following fact:

I. An organism does not become healthy just by getting used to its health limitations.

### 3.2 Second-Order Abilities

The second way to deal with the line-drawing challenge is to say that only second-order abilities are relevant for health (Nordenfelt 1995, 79). For example: "*A* has a second-order ability with regard to an action *F*, if and only if, *A* has the first-order ability to pursue a training-program after the completion of which *A* will have the first-order ability to do *F*" (Nordenfelt 1995, 50). So, roughly speaking, a second-order ability to $\varphi$ is the ability to acquire the ability to $\varphi$. This appeal to second-order abilities has the advantage that it explains, among other things, why an Argentinian's health is not affected by the fact that she has never learned Mandarin. After all, the fact that she did not learn Mandarin does not mean that she does not have the second-order ability to do so.

A significant problem with this view is that it cannot capture evident health problems that can be overcome by one's second-order abilities. For example, the human body can heal from various health limitations, such as minor fractures, injuries, and infectious diseases. Diets, physiotherapy, and psychotherapy help patients acquire abilities and thereby directly or indirectly restore their health. However, a solution to the line-drawing challenge that appeals to second-order abilities has to deny that the patient's health is limited in these cases. After all, the patient's capacity to acquire abilities is evidently not impaired if these measures are effective. An adequate solution to the line-drawing challenge must, therefore, capture the following fact:

II. An organism with impaired health may still have the ability to overcome health limitations.

### 3.3 Happiness and Well-Being

The third approach to solving the line-drawing challenge is appealing to certain ends. According to Nordenfelt, "*A* is in health if, and only if, *A* has the ability, given standard circumstances, to realize his vital goals, i.e. the set of goals which are necessary and together sufficient for his minimal happiness" (1995, 90; see also 2000, 93). For humans, minimal happiness includes food, a sheltered home, some economic security, some intellectual pleasures, and some pleasures of locomotion (1995, 60ff.; see 2018, 14 for a slightly different list). Similarly, Wren-Lewis and Alexandrova argue that mental health requires having the capacities to feel, think, and act in ways that enable us to value and engage in life (2021, 696). According to these views (see also Pörn 1984, 1993; Venkatapuram 2013), an ability

is only relevant to health if it is required for happiness or well-being. To avoid basing health on idiosyncratic preferences, the relevant goals are usually defined as objective lists or vital goals. For the sake of argument, I concede that such an objective set of goals exists for human beings. However, even under this favorable assumption, happiness-based accounts cannot solve the line-drawing challenge.

First, the abilities needed to secure happiness are *not sufficient* for health. Organisms can adapt to restrictions on their health or compensate for them through external support. Consequently, health is not required for people to reach their goals, and to enjoy high levels of well-being (Barnes 2023, 48ff.). Second, the abilities required for minimal happiness are *not necessary* for health. In some environments (a world of catastrophic social and environmental conditions), even minimal happiness may be unattainable. But rather than concluding that nobody in these environments is healthy, it is more accurate to say that the environments are such that not even the healthiest individuals have the abilities required to achieve minimal happiness.

A natural diagnosis of these problems is that accounts based on happiness and well-being make the standards for health too dependent on an agent's environment and circumstances. Which abilities are required to reach even a minimal level of happiness can shift with social, economic, and material conditions. Just because ability *A* is needed in a particular environment, but ability *B* is not, does not mean that organisms need ability *A* to be healthy and that the absence of ability *B* does not constitute a health restriction. Consequently, the line between health and non-health cannot simply be fixed by whatever abilities are needed for happiness in the agent's current context.

To avoid environmental relativity, Nordenfelt ties health to the abilities required for minimal happiness in "accepted" and "standard" circumstances (1995, 99), which are to be determined by what members of a given society regard as the appropriate background conditions (2000, 72). However, if the circumstances that determine which abilities are necessary for health are set by communities, this makes the concept of health highly dependent on contested social assumptions about what constitutes normal living conditions. Furthermore, when the relevant circumstances are idealized, it becomes unclear why the resulting notion of health is suited to play the practical roles that originally motivated the appeal to well-being, such as providing guidance in clinical decision-making, prioritization, and self-understanding in nonideal environments.

The underlying problem is that theoretical and practical questions about health are conflated. Theoretical questions concern what it means for an organism to be healthy. Practical questions concern which health limitations matter and how they interact with well-being, values, and social context. In this paper, I focus on the theoretical concept of health (the practical concept is briefly discussed in section 6.1). A corresponding theory must capture the following fact:

III. What abilities an organism must have to be completely healthy is largely independent of its actual environment and social circumstances.

### 3.4 Reference Classes

The last approach I discuss appeals to reference classes to solve the line-drawing challenge (Tengland 2007, 268ff.; Werkhoven 2019, 934). Reference classes were introduced into the

debate by Christopher Boorse (1977, 555). He holds the view that reference classes are sets of all organisms of a given species, sex, and age group. The Boorse-inspired approach to the line-drawing challenge is that an organism is completely healthy if it has at least the *average abilities* of organisms of the same reference class. This theory can explain why people who have never learned Mandarin are not thereby restricted in health. After all, speaking Mandarin is not statistically normal for all reference classes (determined by species, sex, and age).

This example shows the first reason why statistical normality is not the right measure. The prevalence of Mandarin-speakers largely depends on cultural transmission and schooling. However, shifts in cultural prevalence should not affect health standards. The fact that the account yields this result suggests that typicality can reflect contingent factors, such as social conventions, which should not determine the health standard. Second, statistical accounts produce implausible results under regime shifts. For instance, if a population-wide pathology (for example, because of an epidemic, a pervasive environmental toxin, or a global change in diet) results in impairments that affect the entire reference class, those impairments may become statistically typical, even though they clearly impair health. Thus, typicality may track common pathologies, rather than health. (This mirrors the problem of pandemic dysfunctions for Boorse's biostatistical view of function—see Neander 1983, 184ff.; 1991a). Third, defining complete health by within-class typicality makes it unclear how to compare overall health across reference classes (for example, children versus elderly adults) without reintroducing a nonstatistical standard (for a similar concern, see Brusse 2021).

The Boorse-inspired solution to the line-drawing challenge faces many of the same issues as Boorse's biostatistical theory. Nevertheless, reference-class views have two repair strategies. One strategy is to allow for reference classes that are defined not only by species, sex, and age but also by additional traits, such as handedness, ethnicity, and native language. However, without an independent criterion for relevance, this approach risks ad hoc boundary drawing (Kingma 2007, 131ff.). Moreover, given the countless differences between organisms, especially those capable of learning and sexual reproduction, it is doubtful that the resulting reference classes would be large enough to license meaningful health standards.

Another option comes from Dembić. For her theory of mental disorders, she proposes to meet the line-drawing challenge through generic generalizations (Dembić 2023b, 99ff.). The idea is that an inability impairs an organism's health only if the ability is impaired below the level generally possessed by organisms of the same reference class. This is a genuine improvement insofar as generics can remain true even when there are many exceptions (Leslie and Lerner 2022, section 2). However, the problem of pandemic inabilities resurfaces. If a type of pathology is widespread and stable enough, it plausibly also affects the abilities that members of the class generally have. Blocking that result would require further semantic and methodological machinery that reference-class views have not yet supplied.

I do not claim to have refuted all possible reference-class-based answers to the line-drawing challenge. Nevertheless, it is worth asking why reference-class theories seem promising in the first place. The hope is that the abilities necessary for complete health can be determined by examining the typical or general abilities of organisms in the relevant reference class. For this approach to offer more than a restatement of the target verdicts, it

must presuppose substantive uniformity within the reference class. In general, reference classes have to be carved out so that there is a single, class-wide standard for complete health. In other words, an appeal to typicality can only serve as a reliable guide to the health standard if the reference class only contains organisms that require the same set of abilities to be healthy. Typicality is supposed to capture that shared standard, rather than merely tracking what happens to be common in the class because of contingent background factors, such as schooling or widespread impairment.

This is precisely where reference-class views are under pressure. If reference classes are kept broad, it is difficult to justify a single, class-wide health standard. Such classes pool organisms whose genetic recombination due to sexual reproduction generates novel trait combinations and whose life histories, developmental trajectories, and learning histories can make different health standards look reasonable. Consequently, typicality risks tracking what is common in the pooled population, rather than what is required for complete health. By contrast, if reference classes are refined to secure a shared, class-wide standard by creating a reference class for each trait combination that shifts which abilities are health-relevant for an organism, there will be a vast number of very small reference classes. This will undermine the role of typicality, whether statistical or generic, in establishing any standard.

This dilemma is easiest to see in comparison with artifacts. We routinely judge artifacts as being in good or bad condition. For mass-produced artifacts with a shared design, such as cars of the same model, it can be informative to compare a particular token with others in the same series because the series shares the same specification for what the artifact should be able to do. By contrast, for bespoke or individually configured artifacts, such as custom prototypes or individually assembled items, such comparisons are uninformative. In the absence of a shared specification, "what most of them can do" is a poor guide for what any particular artifact should be able to do. The point of the analogy is not that organisms are artifacts but that reference-class strategies implicitly rely on an analogous assumption: The reference class fixes a single shared ability standard that typicality can approximate, and this assumption is precisely what becomes doubtful in heterogeneous medical cases.

For these reasons, reference-class statistics or generic generalizations may still provide defeasible evidence for health standards in particular contexts, but they are ill-suited to ground these standards. Deviation from what is typical in one's reference class can reflect contingent conventions, idiosyncratic developmental or learning histories, or population-wide perturbation, rather than impaired health. Hence reference-class approaches struggle to capture the following fact:

IV. What abilities an organism must have to be completely healthy is independent of the abilities of other organisms.

## 4. The Blueprint View of Health

In this section, I motivate and elaborate on the Blueprint View of health. This view is based on the idea that an organism is completely healthy if and only if it has the abilities it would have if it were in its design state (section 4.1). I spell out "design state" by reference to full functionality (section 4.2) and full functionality by reference to functional modal profiles

(section 4.3). Finally, I give an account of functional modal profiles based on the selected effects theory of biological function (section 4.4).

### 4.1 What Health Is

In section 3.4, I argued that organisms are unique and therefore cannot generally be assessed by comparing them to other organisms. Organisms are more like custom-made artifacts than mass-produced ones. The basic idea of the Blueprint View is to take this analogy of organisms to custom-made artifacts seriously and to assess their health by reference to a counterfactual design state. Here is the view I am advocating in a nutshell:

> *Health:* An organism is completely healthy if and only if it has (at least) the abilities it would have if it were in its design state.

The abilities required for complete health are determined by a *ceteris paribus* repair counterfactual. By keeping the organism's environment and background conditions fixed, we can determine which abilities the organism would have if all its traits with a standard of functionality were fully functional. I call this idealized configuration of the organism's traits its "design state." In what follows, I use "design" as shorthand for the design state. Talking about an organism's design is simply talk of this idealized configuration of the same organism. This is the configuration it would have if all traits with a standard of functionality were fully functional.

The Blueprint View meets the line-drawing challenge by appealing to the design of an organism while allowing the organism to deviate from that design. A person who cannot walk because of a broken leg has impaired health because this person could walk if they were in their design state. Similarly, a person whose ability to interact socially is limited by social anxiety disorder is impaired in their health because that ability would be better if the person were in their design state.

In contrast, an introvert has a statistically subnormal ability to interact socially. However, since this person's introversion is not a result of a deviation from design, this subnormal ability does not limit their health. The same applies to the left-handed person who lacks the ability to write with the right hand, the Caucasian who lacks the ability to spend long hours in the sun without sunburn, and the Argentinian person who has never learned Mandarin. In these cases, the inabilities are not due to a deviation from but qua design. Therefore, the Blueprint View can account for the intuition that a condition only limits the health of an organism if it is a deviation from the organism's design. In contrast, every limitation qua design and every limitation solely due to external factors does not concern an organism's health.[2]

However, I readily admit that this intuitive appeal is of little value if the concept of a design is merely metaphorical or has problematic metaphysical implications. In the following subsections, I counter these concerns by showing how the concept of an individual's design state can be specified in a precise and naturalistically acceptable way.

[2] Although the Blueprint View appeals to design, it does not invoke Boorse's "species design" (1975, 57), which is determined by reference-class statistics. Rather, it invokes the notion of an individual design state. Unlike Wakefield's Harmful Dysfunction account, the Blueprint View grounds pathology in limitations of ability, rather than harm.

### 4.2 What Individual Design Is

The notion of design is central to the Blueprint View. Of course, I do not presuppose that organisms are intentionally designed. Instead, I agree with Ruth Garrett Millikan (2004, chapter 1), Richard Dawkins (2015, chapter 2), Daniel Dennett (2017, chapter 3), and Karen Neander (2017, chapter 3) that there can be design without designers. Accordingly, the notion of "design" should not be restricted to artifacts but can be extended to biological organisms that have arisen through natural selection and other natural processes.

To spell out what a system's design state is, Neander's concept of a normal system will serve as my starting point:

> A normal system is in the first instance one in which each component that was selected to do something has the capacity to do whatever it was selected to do. It is the system that is disposed to function "as designed," to the extent that it was "designed," so to speak. (2017, 61)

While the notion of a "normal system" is built to solve the generalization problem in physiology and neurophysiology, I want to use it as a starting point to capture an organism's design state. I develop this idea in three steps. First, I define design by referring to the full functionality of traits. Second, I define full functionality by referring to functional modal profiles (section 4.3). Third, I give a naturalistic account of functional modal profiles in terms of selection (section 4.4). Here is the first step:

> *Design State:* A system is in its design state if and only if all its traits (with a standard of functionality) are fully functional.

A trait has a standard of functionality if it can be more or less functional, whereas a fully functional trait is roughly one in perfect working order. A freshly unpacked coffee machine is typically in its design state, meaning all its components with a standard of functionality are fully functional. For example, the plug and cable can conduct electricity, the switch can regulate the circuit, the heating element can heat up when supplied with electricity, and the water container, pipe, filter, and pot can hold water. A coffee machine deviates from its design if at least one of these components is no longer fully functional. For example, the machine would deviate from its design state if the switch can no longer regulate the circuit or if the jug leaks.

The Blueprint View assumes that not only coffee machines and other artifacts are designed but that the traits of organisms can also be more or less functional and that they have a design accordingly. Giving precise descriptions of what full functionality requires for specific organs is much more difficult for complex organisms than for artifacts. Nevertheless, here are a few uncontroversial examples. Fully functional bones can provide structural support. Fully functional hearts can pump blood. Fully functional ovaries can release mature eggs. Fully functional muscles can enable movement. Fully functional pancreases can produce insulin. Fully functional visual systems can convert light into electric signals. Since design requires the full functionality of these components, a human

is not as designed if, for example, some bones cannot provide structural support or (in the case of a woman) if the ovaries cannot release mature eggs.

Some traits can be fully functional despite deviating from species-typical morphology or physiology. For instance, high melanin levels in individuals with dark skin reduce the efficiency of vitamin D synthesis in low-UV environments, yet the skin itself functions perfectly well. Likewise, variation in the development of Broca's and Wernicke's areas depending on early linguistic exposure does not indicate dysfunction. These examples show that standards of full functionality can differ across individuals, even within the same population.

### 4.3 What Full Functionality Is

In this section, I argue that a trait's full functionality is not just that it can fulfill its function but also that it has certain dispositions and lacks others.

Full functionality is the opposite of dysfunctionality. Both notions can only be applied to certain systems. Solar systems, mountains, and water cycles can neither be fully functional nor dysfunctional. These systems do not possess a standard of functionality in the first place (Millikan 1993, 20). Whether some system is fully functional depends on what it would do under certain "Normal" conditions—roughly speaking, on the prerequisites for the fulfillment of the function (as in Millikan 1984, 35, I capitalize "Normal" to distinguish it from statistical normality; see also Millikan 2012, 40; Sullivan-Bissett 2016, 2504). For example, a fully functional visual system must be able to convert light into signals. However, if it cannot do so due to an absence of light or energy in the form of ATP, its functionality is unaffected.

Given that full functionality and dysfunctionality are modal properties connected to function performance and Normal conditions, one might hold the following view (cf. Neander 2017; Garson 2019b, chapter 8): A system is fully functional if and only if it can fulfill its function under Normal conditions. Accordingly, a heart is fully functional if and only if it can pump blood under Normal conditions. Normal conditions are only present when, for example, blood reaches the heart, ATP is available, and corresponding signals arrive from the brain. If this account were accurate, a theory of full functionality would need an account of functions and their Normal conditions.

However, more than the mere possibility that a trait performs its function is required for it to be fully functional. The first reason is that a system can be dysfunctional due to its unreliability, even if it can still perform its function (Schwartz 2007, 369). For example, a heart that can only pump blood unreliably or a visual system that can only convert light into electrical signals unreliably are hardly fully functional. To solve this problem, we need a way to capture how reliably functions can be performed. This can be achieved by appealing to dispositions (Hundertmark and van den Bos 2024, 17), which, like abilities, come in degrees (Manley and Wasserman 2007; Vetter 2015, 36). Roughly, an object has a disposition to a greater degree in virtue of manifesting this disposition in more relevant possible situations. Consequently, one might think that a system is fully functional if and only if it has the disposition to fulfill its function to a sufficient degree. If this theory were accurate, we would also need to specify a threshold for full functionality, in addition to a function and Normal conditions. This account is a significant advance since it captures the fact that traits need

sufficient reliability in fulfilling their function under Normal conditions to be fully functional.

Yet unreliability is only one way in which traits can be dysfunctional (Wakefield 2020). First, traits can also be dysfunctional if they perform their functions in the wrong situations (Fagerberg and Garson 2024, section 4.1). A pineal gland that secretes large amounts of melatonin regardless of the time of day and light exposure is just as dysfunctional as one that does not secrete any melatonin at all. Second, a trait can also be dysfunctional if it has significant adverse side effects. A heart that pumps blood reliably but requires many times the usual amount of energy to do so is certainly not fully functional. So, full functionality requires traits to have certain dispositions (dispositions to fulfill their functions under Normal conditions) and to lack other dispositions (dispositions to not fulfill their functions in the wrong situations or have certain other adverse side effects).

I propose to capture this fact by using the term "modal profile," whereby a modal profile is a modal property that entities have by having certain dispositions (to a certain degree) and by lacking other dispositions (to a certain degree). Equipped with the notion of a modal profile, I can give my final account of full functionality:

> *Full Functionality:* A trait is fully functional if and only if it has a functional modal profile.

This view captures that a trait's functionality is a gradable modal property and that there are diverse ways in which traits can be dysfunctional. However, it requires the notion of a functional modal profile, to which I now turn.

### 4.4 What a Functional Modal Profile Is

In this section, I conclude my presentation of the Blueprint View by explaining what determines a trait's functional modal profile.

Even though the Blueprint View so far is compatible with different accounts of what makes a modal profile functional, I agree with Karen Neander (1983, 1991a, 1991b), Jerome C. Wakefield (1992), Justin Garson (2019b), and other proponents of the selected effects theory, that the functionality of traits depends on the etiology of these traits—paradigmatically on processes of natural selection. A detailed defense of this position is beyond the scope of this paper. However, there are strong reasons to take this option seriously: The assumption that functions are based on selection applies to biological traits, artifacts, and their parts, even if natural and intentional selection differ; alternative accounts face well-known difficulties (for example, Garson 2019a; Hundertmark and Turner 2026); and Paul E. Griffiths and John Matthewson (2018, 2020) have forcefully defended selection-based functionality, especially in medical contexts.

Existing selection-based accounts of dysfunction and its opposite, full functionality, start from an account of functions and Normal conditions. The former are equated with effects or activities for which a trait has been positively selected; the latter are understood as background or trigger conditions that were causally necessary for the traits to fulfill their function at the time the trait was selected (see, for example, Millikan 1984; Garson 2019b, chapter 8). As argued in the last section, accounts of this kind are unable to capture the

gradability of functionality and the diversity of dysfunctions. In response to these omissions, we should understand full functionality by referring to functional modal profiles.

Traits can be selected not only for their effects and activities but also for their modal profiles. What a trait is selected for depends on what caused the positive selection of that trait (Sober 1984, 100). Plausibly, however, the positive selection of traits is not only caused by the fact that they have positive effects but also because they do not have significant adverse effects.[3] If a mutated pineal gland constantly secretes melatonin, there would undoubtedly be intense selection pressure against this mutation. The same applies to a heart, which is reliable but consumes three times as much energy. If this is right, the pineal gland and the heart have been selected for modal profiles. Consequently, these selected modal profiles can serve as a standard for full functionality:

> *Functional Modal Profile:* A trait has a functional modal profile if and only if it has the modal profile for which it was selected.[4]

Roughly speaking, a trait has been selected for a modal profile if and only if that trait has been positively selected because it has this modal profile. The relationship described as "because" and the term "positive selection" are decisive here. That a trait was positively selected because it has a particular modal profile implies that a modal profile has only been selected if there is a counterfactual connection between that modal profile and positive selection (Hundertmark 2021, section 6).

A trait is positively selected in virtue of the fact that organisms with this trait have greater reproductive success than other organisms in a population. Besides this paradigmatic case of natural selection, many other selection processes have been recognized in the literature on biological function, such as operant conditioning, neural selection, antibody selection, intentional selection, and cultural selection (see, for example, Millikan 2004; Preston 2009; Dretske 1988). A full assessment of which selection processes determine functional modal profiles is beyond the scope of this paper. I therefore assume, for concreteness, a version of Garson's Generalized Selected Effects theory, on which functional modal profiles are those modal profiles that have historically caused differential reproduction or differential retention in a population (Garson 2012, 2017, 2019b, part 2; Garson and Papineau 2019). However, the Blueprint View only requires that traits have historically grounded standards for full functionality. In principle, it could be combined with alternative historical-etiological theories that provide such standards, as long as these theories acknowledge that the standards are rooted in the phylogenetic and ontogenetic histories of traits.

A functional modal profile for a trait does, of course, include all dispositions that have contributed to selection. Plausibly, every such disposition amounts to a function of the trait. As we have seen, traits can be dysfunctional by performing their function in the wrong situation and by having detrimental side effects. To capture this fact, a functional modal profile also contains the absence of all dispositions that were not instantiated but would

[3] Of course, all traits have adverse dispositions. However, any trait with a standard of functionality was positively selected because its beneficial dispositions outweighed the adverse ones.

[4] Traits can be selected for distal and interaction-dependent dispositions. Although such dispositions can generally constitute proper functions (Hundertmark and van den Bos 2024; Artiga et al. 2025), only proximal dispositions are relevant when determining a trait's full functionality (Garson 2019b, 8; Fagerberg and Garson 2024; Fagerberg 2025, section 4).

have prevented the trait from being positively selected. Since there are infinitely many such dispositions, it is, of course, impossible to list all of them. Consequently, it is impossible to fully describe what it means even for a single trait to have a functional modal profile. However, that is precisely how it should be; after all, it is impossible to list the ways in which a trait can be dysfunctional.

## 5. Advantages of the Blueprint View

The Blueprint View answers the inclusion question by saying that the abilities relevant to the health of an organism are those that it would have if the organism were in its design state. The threshold question is answered by saying that for each of these abilities, the ability must be at least as strong as it would be if the organism were in its design state for the organism to be completely healthy. This allows the Blueprint View to avoid the main problems of alternative approaches to the line-drawing challenge. As we saw in section 3, these alternatives have trouble capturing the following facts:

I. An organism does not become healthy just by getting used to its health limitations.
II. An organism with impaired health may still have the ability to overcome health limitations.
III. What abilities an organism must have to be completely healthy is largely independent of its actual environment and social circumstances.
IV. What abilities an organism must have to be completely healthy is independent of the abilities of other organisms.

The Blueprint View can capture these facts. In contrast to the approach that says that health limitations are always limitations in the ability to perform ordinary actions (section 3.1), it does not imply that an organism can become healthy simply by getting used to these limitations (I). Health is determined by the organism's design state, which is historically determined. So, mere changes in the organism's attitudes do not change what it means for this organism to be healthy.

In contrast to approaches that focus on second-order abilities (section 3.2), the Blueprint View does not imply that limitations to health cannot be overcome by themselves (II). According to the Blueprint View, there are two ways in which such recovery can take place. On the one hand, an approximation of the organism to its design can occur by the organism's traits approximating their functional modal profiles. This is the case, for example, when a broken leg heals, or when someone recovers from a Covid-19 infection. On the other hand, the organism can also develop compensatory strategies to restore specific abilities despite deviations in its design. This is the case, for example, when blind people learn to navigate with the help of their hearing.

In contrast to approaches that seek to specify the abilities necessary for health through specific goals achieved with these abilities (section 3.3), the Blueprint View does not make the abilities necessary for complete health dependent on the environment in which the organism currently finds itself (III). According to the Blueprint View, an organism's design is ultimately determined by the selection histories of its components. The standard against which the health of an organism is set is, therefore, ultimately a historical one.

A significant advantage over the approaches based on reference classes (section 3.4) is that the Blueprint View considers health an individual matter and the abilities necessary for health are, therefore, independent of the abilities of other organisms (IV). The design of an

organism is determined by its traits and their respective selection histories. While some traits are shared by all members of a species, there are (at least) three ways in which trait functionality can vary across individuals:

1. *Population-level divergence:* Different subpopulations may have different traits due to divergent selection pressures in different environments—as famously illustrated by Charles Darwin's finches, the peppered moth's coloration, and by skin pigmentation in humans.
2. *Intra-population variation:* Even within the same population, variants of traits may persist because they have been positively selected—either because of specific advantages (for example, left-handedness in combat contexts) or balancing selection (for example, traits associated with homosexuality).
3. *Ontogenetic selection:* Traits like neural architectures for language or immune configurations are shaped by developmental selection processes (for example, Hebbian learning, antibody selection), resulting in individual-specific standards of functionality.

Taken together, these mechanisms show how traits and their functionality can vary and why, despite all the shared characteristics within a species, the design—and thus the standards—for complete health are ultimately individual.

## 6. Objections and Replies

In this section, I would like to address common concerns raised in previous presentations of the Blueprint View. These can be divided into concerns that the Blueprint View sees health impairments where there are none (section 6.1) and concerns that the Blueprint View overlooks health impairments (section 6.2).

### 6.1 Too Much Unhealthiness

The first concern is that the Blueprint View pathologizes nonpathological conditions. For example, contraception and voluntary sterilization reduce reproductive abilities by ensuring that the ovaries or ductus deferens are no longer fully functional. Deaf or blind people often reject the idea that their sensory dysfunction makes them unhealthy, even though it obviously limits their abilities. According to the Blueprint View, however, these are all cases of incomplete health.

This result is not surprising, as the Blueprint View targets a naturalist concept of health that is relevant not only for humans but also for animals and plants. The reason why these cases appear to us as counterexamples is that the people in these cases are content with their ability limitations or even consciously embrace them to gain other abilities (the ability to have sex without reproducing or the improvement of other senses). Where similar ability losses occur without such preferences, we are much more willing to classify them as health limitations.

To accommodate these intuitions, I propose to treat the theoretical notion of health delivered by the Blueprint View as the basis for a corresponding *practical* notion. According to this practical notion, an organism is completely healthy *in a practical sense* if and only if it has the abilities that it would have in its design state *and that are important to it*. This approach naturally raises the thorny question of what it means for an ability to be important

to an organism. The answer plausibly involves both the organism's preferences (where it has any) and objective needs, and these dimensions are not always easy to disentangle.

Even so, the practical notion helps explain why the cases above are not genuine counterexamples to the Blueprint View. The ability to reproduce is obviously not important to a person who takes the contraceptive pill or undergoes voluntary sterilization and, plausibly, some deaf and blind people do not experience themselves as less healthy because the abilities to hear and see are not important to them. Furthermore, the practical notion of health can also capture why many people rightly consider themselves healthy (in a practical sense), even if most have slightly dysfunctional traits that limit their abilities. These slight ability limitations are just not important to people. The practical notion also vindicates the core intuitions behind ordinary-action accounts (section 3.1) and accounts based on happiness and well-being (section 3.3). Abilities are important to an organism when they are typically exercised without reflection, or when they are central to its well-being.

A practical concept of health alone, however, cannot ground a theory of health. By itself, it does not tell us which impairments are health limitations, nor does it distinguish treatment from enhancement or identify which conditions qualify as diseases or disorders. We also need a theoretical concept to identify objective impairments, regardless of their practical relevance. In my proposed model, the theoretical notion of health, as developed in the previous section, provides an objective standard for identifying health limitations. The practical concept, then, identifies the limitations that are significant enough to inform decisions about treatment, accommodation, and the allocation of medical resources. Rather than competing, the theoretical and practical notions complement each other.

### 6.2 Too Little Unhealthiness

The second type of objection is that the Blueprint View considers pathological conditions to be nonpathological. This objection comes in two flavors. First, some conditions are taken to be pathological, even though there seems to be no deviation from an organism's design. Second, some are taken to be pathological, even though the organism's abilities appear to be unimpaired.

The first concern is that the Blueprint View does not allow for health impairments without dysfunctions. It has, for example, been claimed that conditions such as the flu (Lilienfeld and Marino 1995, 415), dyslexia (Kingma 2013, 375ff.), generalized anxiety disorder (Richters and Hinshaw 1999; Garson 2021), and major depressive disorder (Nesse 2000; Woolfolk 1999, 662f.; Murphy and Stich 2000, 81) do not involve any dysfunctions. If that were right, these conditions would not involve deviations from design. Consequently, the Blueprint View would entail that there is no health limitation in any of these cases (and the same worry would apply to the practical concept of health introduced in the last subsection).

Indeed, I accept this conditional consequence. If all the traits of a person with major depressive disorder, flu, or dyslexia are fully functional, then that person is healthy. After all, healing in these cases could not mean restoring or compensating for the functionality of a trait. Rather, recovery would entail improving the organism's abilities beyond what they would be in their design state. There is no reason to call this "healing" rather than "enhancement."

As a naturalistic theory, the Blueprint View acknowledges the possibility that our understanding of what constitutes a person's health may be incorrect. This is an empirical matter. Therefore, my claim is conditional: Organisms in these conditions are not unhealthy if they do not deviate from their design. However, two features of the theory make it unlikely that there is no deviation from design at all. First, the Blueprint View is not committed to the claim that, in these cases, a particular trait has to be dysfunctional. Functional responses to certain stimuli (for example, influenza viruses in the case of the flu, or severe losses in the case of depression) may have side effects that make certain traits no longer fully functional. Fever, chills, fatigue, and cough may be functional responses to the influenza virus, but whether the same is true for head, muscle, and neck pain is questionable. In the same way, while sadness, exhaustion, and loss of pleasure may be functional reactions to significant losses, insomnia and suicidal thoughts may be side effects associated with dysfunction. Second, the Blueprint View does not claim that an organism's design is solely determined by phylogenetic natural selection (see section 4.4). Ontogenetic processes can also shape an organism's design. So, there may be deviations from ontogenetically acquired design, even without deviations from phylogenetically acquired design.

The second worry is that there are health impairments without inabilities. Examples include single cancer cells, symptomless tumors, or an inactive herpes simplex virus. In these cases, the organism's abilities seem unimpaired. However, there is an intuitive pull toward the position that an organism with these conditions is not completely healthy.

My first response is to deny that the organism's abilities are in fact unimpaired. Cancer cells, for example, are dysfunctional cells because they have the disposition to replicate uncontrollably. The risk of this disposition manifesting itself limits the ability of affected organisms to realize long-term plans—such as seeing one's children grow up or being successful in a particular career. For this to be the case, it is not required that the cancer necessarily breaks out. After all, an ability is already limited if its pursuit leads to success less reliably (section 2.1). Similar arguments can plausibly be found for the other cases. However, if no abilities are affected, I accept that the person is actually (still) completely healthy (see also Wakefield 2014). This does not imply that medical intervention is inappropriate. Subclinical conditions may still warrant monitoring as part of early detection, or even preventive intervention, before health deteriorates.

## 7. Conclusion

I have argued for the Blueprint View—a hybrid account that combines ability-based and function-based approaches. Section 2 motivated the claim that health is grounded in abilities (gradable modal properties manifesting in the organism's success, section 2.1) by showing that health and abilities are attributed to the same kinds of systems (section 2.2) and that an ability-based framework helps explain what is distinctive about mental health (section 2.3). Section 3 formulated the line-drawing challenge for ability-based theories (specifying which abilities matter for health and how able one must be to count as healthy) and argued that existing accounts fail to meet it. In response to this challenge, section 4 developed the Blueprint View, which appeals to an organism's design state (section 4.1), understood in terms of full functionality and functional modal profiles grounded in selection histories (sections 4.2–4.4). Because it appeals to individual design, the Blueprint View treats health as an individual and objective matter, fixed by the etiological functions

of an organism's traits, rather than by species averages, ordinary action, happiness, or reference-class norms. Section 5 showed that it thus avoids the main problems of rival answers to the line-drawing challenge. As a naturalistic theory, the Blueprint View does not consider organisms' values and preferences. However, it can serve as a basis for a practical concept of health that takes into account the importance of abilities for the organism (section 6.1). The Blueprint View captures that dysfunctions without ability limitations are irrelevant to us and that ability improvements beyond the level of design are enhancements, rather than treatments (section 6.2).

Finally, we can return to the four questions from the introduction. For the *demarcation question,* the Blueprint View offers an objective standard for when an organism's health is compromised, supporting principled distinctions between treatment and enhancement, between psychiatric conditions that qualify as medical conditions and those that do not, and between genuine health limitations and pathologized normal variation. For the *classification question,* it provides an account of health limitations as a plausible necessary condition for disease and disorder. However, it leaves open how best to carve the resulting space into disease categories. For *distribution and policy questions,* it identifies one objective dimension that matters for coverage and priority setting: whether a condition involves a health limitation in the Blueprint sense. This helps distinguish cases where appeals to "health" are based on genuine health limitations from cases where health language is primarily used to secure resources or recognition. However, it does not decide how to weigh health-related and non-health-related disadvantages. For the *epistemic question,* it clarifies what we are trying to determine when we assess impairment: the extent of the mismatch between an individual's actual and design-state abilities. In many cases of bodily health, where organs and systems are shared due to similar evolutionary histories, design and dysfunction can be inferred with relatively simple tools, such as reference classes. In cases involving individual genetic traits and, especially, mental health (where learning and other ontogenetic selection processes play a major role) design states are more individual and generalizations less reliable.

In this respect, the Blueprint View shows how a function-based account that links health to abilities can fill the medium space that Barnes (2023, section 5.2) is skeptical of, which lies between bare physiology and broad quality-of-life notions.

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