Rethinking health: healthy or healthier than?

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Abstract

Theorists of health have, to this point, focused exclusively on trying to define a state—health—that an organism might be in. I argue that they have overlooked the possibility of a *comparativist* theory of health, which would begin by defining a relation—healthier than—that holds between two organisms or two possible states of the same organism. I show that a comparativist approach to health has a number of attractive features, and has important implications for philosophers of medicine, bioethicists, health economists, and policy makers.

1 Introduction

The concept of health is important in a wide range of contexts. Whether an individual is healthy or not is crucial in determining the responsibilities of a doctor and the proper goals for public health officials. An individual with a health problem plausibly is badly off in an objective sense, and may have a moral claim on others for assistance. A defendant may properly be excused, legally or morally, for otherwise objectionable behavior if she is unhealthy.[1]

Given, then, the many situations in which its precise contours matter, it would be reasonable to expect there to be a substantial philosophical literature on the concept of health. To some extent, this expectation has been met: there are countless books and journal articles dedicated to health. This literature, however, focuses almost exclusively on a relatively small number of problems. The merits of naturalistic versus normative approaches to health, and the relationship between mental and physical

[1] See (Engelhardt [2008]) and (Ananth [2008], p. 1) for a discussion of these cases and many others.

health have been extensively investigated, for example.[2] But this narrow focus has left a number of other fundamental aspects of health unexplored.

In this paper, I'd like to pose one question concerning health that has not, I believe, previously been asked. Most of us think both that an organism can be *healthy*, and also that some organisms or states of organisms can be *healthier than* others. These are different kinds of judgment. The first predicates something of a single entity, whereas the second posits a relation between two entities. Given these two different kinds of health judgment, a question arises as to their relationship. Which kind of judgment is conceptually more basic than or underlies the other? In sections two and three of this paper, I'll show that there are two plausible answers to this question, which I'll call *comparativism* and *non-comparativism* about health, but that the existing literature has without argument pursued only the non-comparativist route. Sections four and five will argue that comparativist theories are in several respects more attractive than their non-comparative counterparts. Section six will tie up a loose end, section seven will say a bit more about what a comparativist account would look like and will address a possible objection, and then in section eight I'll end the paper by showing that quite a lot hinges on this issue: adopting a comparativist account of health has important consequences for philosophers of medicine, bioethicists, health economists, and policy makers.

Throughout, my sympathies will probably be clear. I suspect that the correct theory of health is a comparative one. A conclusive argument for that claim, however, would require a much wider-ranging investigation than I have the space for here. My aim in this paper will accordingly be the more modest one of getting the debate started—introducing the question, arguing that it is an important one, and then offering an initial case for the comparativist approach.

2 Comparative and non-comparative concepts

Let's begin by getting clear on what is, and what isn't, at issue. I'll assume that all sides agree that a theory of health should allow for both

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[2] The first question is addressed in virtually every article on the subject. See (Murphy [2008]) and (Ereshefsky [2009]) for brief overviews of the debate. For the relation between mental and physical health, see e.g. (Szasz [1961]; Macklin [1972]; and Papineau [1994]).

comparative and non-comparative judgments.[3] We think, for example, both that a person with a mild cold is *healthier than* someone bed-ridden with pneumonia (comparative), and also that at least the latter character is *unhealthy* (non-comparative).[4] So the existence of true judgments of each type is not at issue. What is at issue is what kind of relationship there is between the two kinds of judgment. There are two plausible possibilities, I think. In order to see what they are, it will be helpful to leave health for a moment, to look at other gradable concepts, which, like health, have both comparative and non-comparative forms.

First, take tallness. It's true both that some objects are *tall*, and that some objects are *taller than* others. What is the relationship between judgments of those two types? The answer is plausibly that the comparative judgements are more basic or more fundamental than the non-comparative ones. When someone says that Wilt Chamberlain is tall, she means that he is taller than most people, or most basketball players. To say that the Empire State Building is tall is to say that it is taller than most buildings, or most buildings in New York City. In general, to be tall is just to be taller than a sufficient number of objects in some relevant comparison class, or to be taller than some particular reference object.[5] In this sense, the

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[3] There is a question about whether an adequate theory of health must apply to both human and non-human organisms, or whether health might have different analyses in the two cases. All the theories of health I'll consider here apply at least to human beings. So as not to beg any questions, I'll therefore focus on human health.

[4] In this paper, I will largely restrict myself to assessments of health along a single dimension: asking whether someone is healthy or healthier than someone else with respect to respiratory function, for example. I believe single-dimension judgments are more basic than what we might call *composite* judgments of health: whether someone is healthy or healthier than others overall. Composite comparative judgments are plausibly radically indeterminate, unlike single-dimension ones. (Can we meaningfully talk about whether a person with a broken leg is healthier than a person with pneumonia? Many theorists who seem to allow for such judgments are in fact making judgments about the relative *value* of the two health states. See (Hausman [2006], [2010]).) And composite non-comparative judgments are plausibly based on single-dimension non-comparative judgments. If someone is unhealthy *simpliciter*, it is because there are some number of (single-dimension) respects in which that person is unhealthy—Bob is unhealthy *because* he has decreased respiratory function. (See (Boorse [1997]) and (Wakefield [1992]) for theories that explicitly work this way.) For these reasons, then, I think it is reasonable to look only at single-dimension assessments of health in an exploratory article like his one. I thank Norman Daniels for a very helpful discussion on this point.

[5] This is the standard view amongst semanticists, who typically analyze the positive (non-comparative) form of most gradable adjectives as including a (contextually-defined) reference to some degree of the relevant property. The adjective can properly be predicated of some object when the object has the property to at least that degree. So, Wilt Chamberlain is tall only if he possesses greater height than the reference point—that is, if he is taller than an object with the reference height. Different semantics for gradable adjectives specify the reference height differently. See (Kennedy [2007]) for a discussion of several options.

comparative form, *taller than*, is more basic than the non-comparative form, *tall*, since the latter can be defined in terms of the former. If you want to understand the concept of tallness, you should begin by trying to get a handle on *taller than*, not *tall*. I'll call concepts that work like this *fundamentally comparative*. Most gradable adjectives correspond to concepts that are plausibly taken to be fundamentally comparative. Consider, for example: heavy/heavier, rich/richer, and fast/faster.

There are, however, other gradable adjectives that don't work in the same way. A line can be *straight*, and some lines are *straighter than* others. Here, the formula that worked above doesn't seem as plausible. It doesn't seem correct to say that what it is for a line to be straight is for it to be straighter than most members of some comparison class. Instead, we have an independent grasp of what it is to be *perfectly straight* (e.g. as the shortest distance between two points) that doesn't depend on a prior understanding of what it is to be *straighter than*. For this reason, it seems more reasonable to begin an analysis of straightness by defining the perfectly straight, and then saying that one line is straighter than another if it experiences less deviation from perfect straightness. Call concepts that work like this *fundamentally non-comparative*.[6] In addition to straightness, ideas like squareness, hollowness, and dryness are plausibly fundamentally non-comparative, and many philosophers seem to assume that the same is true of fairness and justice.[7,8]

Now we can return to health. Is health fundamentally comparative or fundamentally non-comparative? Is health more like tallness, in that *healthier than* is more basic than *healthy*? Or is it more like straightness, with *(perfectly) healthy* more basic than *healthier than*? The answer, I think, isn't obvious, but it is of great importance for a theorist of health.

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[6] For obvious reasons, we might call these *Platonic* concepts.

[7] Kennedy ([2007]), following (Unger [1975]) and (Rusiecki [1985]), calls gradable adjectives like these *absolute*, in contrast to the *relative* ones, above. There are a number of semantic features that distinguish absolute from relative gradable adjectives. Health, though, is used in both characteristically absolute and characteristically relative ways, and so an analysis of semantically competent uses of health-terms can't tell us which type of concept health is. This is a result, I think, of our lack of an accepted definition of health. Whereas we know what tallness and straightness are, we don't have an uncontroversial definition of any health term. So it's not surprising that looking at usage isn't helpful.

[8] There is one complication here that is worth noting. When we call a road straight, we of course don't mean that it is perfectly straight. Instead, we mean that it is straight, relative to other roads—that it is straighter than most other roads. So, our colloquial use of 'straight' is typically comparative. But straightness is still not a fundamentally comparative concept, since the most basic idea is that of perfect straightness. (*Perfect straightness* is more basic than *straighter than*, which is in turn more basic than *colloquial straightness*.)

3 Traditional theories of health

If health is fundamentally comparative, a theorist should begin by defining a relation, presumably between organisms or states of organisms. If health is fundamentally non-comparative, she should begin by defining a state that a single organism might be in. These are very different starting points, and the difference matters. Trying to define *tall* (without a prior grasp of *taller than*) or *straighter than* (without the idea of *perfect straightness*) is difficult and unnecessarily confusing.

Given, then, these two different possible starting points for a theory of health, we might expect to be able to divide theories of health into two camps, comparativist and non-comparativist, based on what heath concept each takes to be more basic. In fact, however, virtually every theory of health in the literature—and every significant theory—is straightforwardly non-comparative.[9] Here are a few prominent examples:

> (1) The reference class is a natural class of organisms of uniform functional design; specifically, an age group of a sex of a species.
> (2) A normal function of a part or process within members of the reference class is a statistically typical contribution by it to their individual survival and reproduction
> (3) A disease is a type of internal state which is either an impairment of normal functional ability, i.e. a reduction of one or more functional abilities below typical efficiency, or a limitation on functional ability caused by environmental agents.
> (4) Health is the absence of disease. (Boorse [1997], pp. 7-8)

> A is healthy 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 jointly sufficient for his minimal happiness. (Nordenfelt [1995], p. 90)

> An individual *A* is in a state of health when *A* is able to reach or strive for a consistent set of goals actually aimed at by *A*. (Richman [2004], p. 56)

> A condition is a disorder if and only if (a) the condition causes some harm or deprivation of benefit to the person as judged by the standards of the person's

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[9] The only explicitly comparative proposal I've been able to find is in an article which doesn't seem to realize it is offering a very different approach to health (Kovács [1998]). Murray *et al.* ([2000], *cf.* [2002]) propose a framework which would seem to make *healthier than* more basic. But they are, strictly speaking, proposing a constraint on a *measure* of health—not the basis for a *theory* of health—and their proposal applies to populations, not individuals. That is, it is a proposal for determining when one population is healthier than another. And, once again, the authors don't seem to be aware that their proposal is unusual. If these are the closest things to comparativism in the literature, I think it is fair to call it virgin theoretical territory.

> culture (the value criterion), and (b) the condition results from the inability of some internal mechanism to perform its natural function, wherein a natural function is an effect that is part of the evolutionary explanation of the existence and structure of the mechanism (the explanatory criterion). (Wakefield [1992], p. 384)

Each of these definitions is clearly non-comparative—each tells you, of some organism, whether it is in a *state* of health.[10]

Before I can begin to explain why I think this has been a mistake, one more distinction is necessary. In addition to being non-comparative, these definitions share another feature. Each defines health such that a significant number of people living today are, in fact, healthy. Many people have functional abilities above statistically typical efficiency (Boorse), have the ability to realize goals sufficient for minimal happiness (Nordenfelt, Richman), and have internal mechanisms which perform their evolutionarily-defined functions (Wakefield). On these theories health is therefore a reasonable goal for many people. I'll call such theories, according to which a non-trivial number of people alive today are healthy, *realistic*. A theory is *idealistic*, on the other hand, if it defines health such that very few or no people alive today are healthy.[11] There are some idealistic theories of health, which I'll discuss later, but the majority are realistic, like the four above. For that reason, I will call a theory of health *traditional* if it is both non-comparative and realistic. For the next two sections of this paper, I'll set aside idealistic theories in order to focus on the choice between a traditional theory of health and a comparative one.

Perhaps because virtually all theories of health have been traditional, all commonly used health metrics are also traditional. The Health Utilities Index (mark 3) (HUI-3), for example, assigns 'perfect health' to anyone who scores at the highest level on each of its eight dimensions. Here are two of those dimensions:[12]

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[10] Some of these definitions may seem implicitly comparative. I agree. (But see note 27, below.) What matters, though, is that each is formally non-comparative. This has led to problems, as I'll show in sections five and eight. In any case, it is surely undesirable for the explicit presentation of a theory not to match its implicit foundation.

[11] I distinguish realistic from idealistic theories based on whether any actual people alive today are healthy—not based on whether *necessarily*, some people are healthy at any given time, or whether, *necessarily*, health is unachievable. The distinction between *necessarily realistic*, *necessarily idealistic*, and *contingent* theories may be a philosophically more interesting one, but the mundane distinction is all I'll need for my argument.

[12] Retrieved from <www.healthutilities.com/hui3.htm>, 1 September 2010.

HUI-3 scale for AMBULATION:	**HUI-3 scale for VISION:**
1 - Able to walk around the neighborhood without difficulty, and without walking equipment.	**1 -** Able to see well enough to read ordinary newsprint and recognize a friend on the other side of the street, without glasses or contact lenses.
2 - Able to walk around the neighborhood with difficulty, but does not require walking equipment or the help of another person.	**2 -** Able to see well enough to read ordinary newsprint and recognize a friend on the other side of the street, but with glasses.
3 - Able to walk around the neighborhood with walking equipment, but without the help of another person.	**3 -** Able to read ordinary newsprint with or without glasses, but unable to recognize a friend on the other side of the street, even with glasses.
4 - Able to walk only short distances with walking equipment, and requires a wheelchair to get around the neighborhood.	**4 -** Able to recognize a friend on the other side of the street with or without glasses, but unable to read newsprint, even with glasses.
5 - Unable to walk alone, even with walking equipment. Able to walk short distances with the help of another person, and requires a wheelchair to get around the neighborhood.	**5 -** Unable to read ordinary newsprint and unable to recognize a friend on the other side of the street, even with glasses.
6 - Cannot walk at all.	**6 -** Unable to see at all.

Many people will, obviously, score at the highest level on these two dimensions, and the other six are no different. The HUI-3, then, will count many people as healthy, and so is certainly realistic. And since it describes them as being *perfectly* healthy, the metric seems to be working with a non-comparative conception of health. Other major health metrics work similarly. See, for example, the QWB-SA, SF-36v2, EuroQOL, and DALY measures.

Both existing literature and practice, then, is characterized by a near-exclusive focus on traditional, i.e. non-comparative and realistic, conceptions of health. Nowhere in the literature, however, is there an argument in favor of the traditional approach. In fact, I haven't been able to find a single source which explicitly considers the merits of a comparative approach to health. In the next two sections of this article, I'll begin that task. In section four, I'll offer a general argument for comparativism, and then in section five, I'll suggest that certain influential theories of health are better served by taking a comparative approach.

4 An argument for comparativism: inter-generational assessments of health

So far I've suggested that given the kinds of health judgments we make, there is no obvious reason to favor a non-comparative approach over a comparative one. Nevertheless, theories of health and health metrics have exclusively and without argument been non-comparative. This is already, I think, reason enough to explore the possibility of a comparative theory of health: a reasonable possibility has, apparently for no good reason, been ignored. In this section and the next, though, I'd like to begin to make the stronger claim that there is reason to think that a comparative approach is quite attractive, having a number of advantages over traditional approaches.

First, consider what I'll call *inter-generational assessments of health*. I'll argue that traditional theories have trouble with them, but that comparative theories don't. To see why, consider the following two characters:

> *Alys* was a very successful early medieval farmer of child-bearing age. In addition to the vegetables and grains which composed the bulk of her peers' diet, she also had regular access to meats and dairy, and consequently to a nutritionally superior diet—including, among other things, much higher quantities of iron. As a result, she had a higher energy level, greater physical endurance, longer attention span, was less susceptible to certain pathogens, and was at lower risk for complications during pregnancy.[13]
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> *Allie* is a 21st-century factory worker. Thanks to fortified foods, her diet contains more iron than Alys's, although it is still deficient by modern standards. As a result, compared to her fellow workers she suffers from reduced energy levels, physical endurance, attention

[13] Iron deficiency, even when it doesn't rise to the level of anemia, has negative effects on cognitive ability, energy level, productivity, immune system response, temperature regulation, and can expose both mother and child to risks during pregnancy (WHO [2001], p. 7; Cook [1990]). It has likely been a chronic problem since the agricultural revolution (Denic and Agarwal [2007], Poskitt [2003]), and remains highly prevalent today (WHO [2001], p. 15). During the early medieval period, severe iron-deficiency anemia was perhaps near-universal among women, who lose substantial amounts of iron during menstruation and pregnancy (Bullough and Campbell [1980]). At that time, women had lower life expectancy than men, despite a lower infant mortality rate. By the thirteenth century, however, female life expectancy exceeded male life expectancy (Herlihy [1975]). Bullough and Campbell ([1980]) argue that this was the result of increased availability of iron in the diet, which would have disproportionately benefitted women. (See also Pearson [1997].)

> span, and is more susceptible to certain pathogens and complications during pregnancy.

What can we say about the health of Allie and Alys? Well, there seems to be a clear respect in which Allie was healthier than Alys, since Allie ate a better diet and reaped a number of benefits as a result. (Assume that the two are similar in other health-related respects.) For the same reasons, Alys was clearly healthier than most of her contemporaries, and Allie was less healthy than most of her contemporaries.

Now, according to many theories of health (arguably including all four I quoted above), the fact that Alys was healthier than most of her contemporaries means that she was healthy, and the fact that Allie was less healthy than her contemporaries means that she was unhealthy.[14] If so, we end up with this paradoxical triad:

(1) Alys was healthy.
(2) Allie was unhealthy.
(3) Allie was healthier than Alys.

There are are two obvious ways to resolve this tension. First, we could deny one of the three claims. Or, second, we could assert that 'health' is not univocal across the three claims. Let's see whether a traditional theory of health can take either route.

The first option is to deny one of the three claims. The least plausible option, I think, would be to deny that Allie was unhealthy. She has abnormally low energy levels, endurance, and attention span, and is at increased risk of contracting certain infections. All of these symptoms are easily treatable with an iron supplement or modified diet—which, in addition to improving her quality of life, will increase Allie's life expectancy. If Allie counts as healthy, then the bar for health is being set *very* low, and it will turn out that many people whom we would unhesitatingly call unhealthy will turn out to be healthy.

Also implausible, I think, would be to deny that Allie was healthier than Alys. Allie ate a more nutritious diet than Alys, and for that reason

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[14] It might seem that Boorse would not accept that Alys was healthy, since his theory doesn't make membership in a reference class relative to a time or culture. Allie and Alys, being women of the same age, should both be in the same reference class, and hence if Allie's functioning is sub-normal, so must be Alys's. This strikes me as a bad thing for Boorse to say, since it entails that whether or not my heart is healthy depends on the heart function of people who have yet to be born. (This is, essentially, a more radical version of Guerrero's ([2010]) objection.) In any case, what Boorse would say isn't especially important, since I'll consider below the possibility of denying that Alys was healthy and argue that it doesn't help a traditionalist.

enjoyed increased performance on several dimensions and decreased risk of certain acute problems. It would be odd to deny that those things make for superior health. The only justification I can see for denying that Allie was healthier than Alys would be a general refusal to accept inter-generational comparisons of health. That is, we might deny that Allie was healthier because we think that there can never be meaningful comparisons of health across generations. This is a possible response, but it comes with a price. We do in fact make such comparisons. We make them explicitly when we say that people today are generally healthier than they were a hundred years ago, and we may make them implicitly when we say that medical practice and technology have advanced over time. Many health professionals, researchers, and policy makers have the goal of improving health, oftentimes over generations. Intuitively, these judgments don't seem especially problematic. Rejecting all intergenerational comparisons of health therefore strikes me as both counterintuitive and *ad hoc*.

If, then, we're going to try to resolve the paradox by denying one of the three claims, the best bet is to deny that Alys was healthy. This doesn't seem like an unreasonable thing to say. After all, while Alys was healthier than most of her contemporaries, she ate what we now know was a very poor diet, which reduced her quality of life and functional ability below what it would have been with an adequate supply of iron. Therefore (we might say), although her contemporaries can be forgiven for not realizing it, Alys wasn't really healthy.

This response is reasonable, I think, but it's not open to defenders of traditional accounts. Recall that traditional accounts are both non-comparative and realistic, and that realistic accounts are those which allow that a significant number of people living today are healthy. This response says that Alys wasn't really healthy, because she ate a nutritionally poor diet by modern standards and suffered reduced energy levels, endurance, and immune system performance as a result. So far, so good. (Realistic accounts aren't committed to the claim that any medieval people were healthy.)

But of course it is likely that by the standards of some future society, our diet will look nutritionally poor and our energy levels, endurance, and immune system performance unnecessarily low. For example, certain research suggests that a calorie-restricted diet may have a number of health benefits, including increased physical and mental capabilities, and lengthened lifespan. Similar claims have been made about a diet with high concentrations of the phytoalexin resveratrol or supplemented with high levels of vitamin D.[15] The point isn't that these particular avenues of

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[15] See (Everitt *et al.* [2010]) on calorie restriction, (Baur and Pearson *et al.* [2006]) on resveratrol, and (Holick [2010]) for a popular treatment of vitamin D.

research are promising. (The evidence is far from conclusive, to say the least, on all counts.) Rather, the point is that it is very likely that some research like this will eventually pay off. It would be surprising if we didn't make *some* major advances along these lines at *some* point in the future. A future society with access to those advances could look back on us, today, and say that we aren't healthy because, given their scientific understanding, we eat a nutritionally poor diet and suffer as a result. So, if we deny that Alys was healthy because her diet led to a decrease in quality and length of life, then it seems to follow that none of us are healthy, either, since there is surely some change in our diet that would improve many of our abilities and increase our lifespan. Put another way: if poor diet and the resultant consequences entail that Alys wasn't healthy, the same logic implies that we aren't healthy, either, since our diet could also be improved, yielding similar functional benefits. This, though, is something a realistic account can't say. Therefore, however plausible it may be to deny that Alys was healthy, it's not a response available to a traditionalist about health.

If all of this has been correct, the traditionalist can't plausibly respond to the tension in saying that Alys was healthy, Allie was unhealthy, and Allie was healthier than Alys by denying one of the three claims. Denying the first isn't open to the traditionalist, denying the second would set the bar for health incredibly low, and denying the third seems *ad hoc* and leads to counterintuitive results. That means that the traditionalist will need to instead take the second escape route we noted earlier, and assert that 'health' isn't being used in the same way in all three claims.

In fact, I think this is the most obvious response to the original problem. If we say that Alys was healthy because she was better off than her contemporaries, what we really mean is that she was healthy *for a medieval woman*. Similarly, Allie wasn't unhealthy *simpliciter*; rather, she was unhealthy *by today's standards*. We might therefore reasonably interpret the first two elements of the triad like this:

(1') Alys was healthy$_{\text{THEN}}$.
(2') Allie was unhealthy$_{\text{NOW}}$.

The problem comes in figuring out how to interpret the third claim, that Allie was healthier than Alys. In particular, does 'healthier' get a subscript? Intuitively, it seems to me that it should not. While it is plausible to think that standards of health may vary across generations, it seems less plausible to think that what makes someone healthier does—at least when it comes to things like energy level, endurance, susceptibility to infection, and so

forth .[16]

So, the better route is to deny that 'healthier' has a subscript. There may be a way for a non-comparative theory to do this, but it is a much more natural thing for a comparativist to say. Recall that a non-comparativist says that *healthy* is more basic than *healthier than*. So, the non-comparativist will need to construct a non-subscripted concept of comparative health, from a collection of subscripted health concepts. That is, the non-comparativist will need to take a collection of $healthy_X$s, and turn them into a single *healthier than* relation. This will end up being a somewhat messy definition, may not result in a complete ordering, and will have counterintuitive consequences.[17]

A comparativist, however, defines *healthier than* first, and so doesn't face any of these problems. Since *healthier than* is more basic, it has no subscript, and then the various subscripted health concepts are defined in a very natural way. Someone is healthy by contemporary standards, or $healthy_{NOW}$, if she is healthier than a sufficient number of people living today. This should be familiar, since it is precisely the way other fundamentally comparative concepts are typically analyzed. Except as part of a bad joke, there is nothing even *prima facie* paradoxical about this triad:

(1*) Usain Bolt is fast.
(2*) Amtrak trains are slow.
(3*) Amtrak trains are faster than Usain Bolt.

Usain Bolt is fast *for a human being*, or $fast_{HUMAN}$, since he is faster than the vast majority of humans, while Amtrak trains are slow *for passenger trains*, or $slow_{TRAIN}$, since they are slower than most passenger trains. Nevertheless, Amtrak trains are faster, *simpliciter*, than Usain Bolt. This is precisely how

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[16] Even if we were to allow for a collection of subscripted 'healthier's, that wouldn't appreciably help traditional accounts. Alys ought to be able to recognize some sense of 'healthier', such that Allie was healthier than she was. (Fully aware of the consequences, she would swap her diet for Allie's.) Similarly, we ought to be able to recognize that future people—on a calorie-restricted diet, say—are healthier than we are. This doesn't sit well with a traditional account. Other non-comparative gradable adjectives, like *straight*, *hollow*, and *pure*, are naturally associated with terms like 'complete' and 'perfect'. That is, our basic idea of straightness is of *perfect* straightness. So this proposal would have us say that although some people today are *perfectly* or *completely* healthy, we could all be healthier (in some sense that we can recognize).

[17] The most obvious proposal would say that X is healthier than Y iff there exists some (subscripted) concept of health according to which X is healthy and Y isn't, and no concept of health according to which Y is healthy and X isn't. Combined with a realistic account, this will produce oddities: both I and the future calorie-restricted dieter will be perfectly $healthy_{NOW}$, but she will be healthier, *simpliciter*, than me.

the comparativist handles the original triad.

The comparativist, then, can offer a very natural and familiar account, which accommodates inter-generational assessments of health. The traditionalist, on the other hand, is either unable to account for inter-generational judgments, or else must offer an account that is in certain respects *ad hoc* or unnecessarily complicated. I conclude that in the case of inter-generational assessments of health, a comparative approach is preferable to a traditional one.

5 Another reason to be a comparativist: functionalist theories of health

In the last section, I suggested that inter-generational assessments of health are better handled by comparativist approaches to health than by traditional ones. That argument was intended to be as theory-neutral as possible, applying to just about any account of health. In this section, I'll offer considerations that don't reach quite so broadly, but are nevertheless applicable to most traditional theories of health.

A large majority of the theories of health on offer could be described as broadly *functionalist* in the following respect: they declare an organism healthy based on whether the organism (or some part of the organism) can *do* something. As we saw above, for example, Boorse declares an organism healthy (roughly) if its parts function with at least statistically typical efficiency. Wakefield asks whether an organism's internal parts can perform their evolutionarily-defined functions. Nordenfelt asks whether an organism can achieve its vital goals. Richman asks whether an organism can reach or strive for a consistent set of its goals. Health metrics, like the HUI-3, are also straightforwardly functionalist. Functionalism, therefore, unites a range of theories that are in other respects quite different. I believe that most functionalist approaches to health are better suited to a comparative analysis. In other words, most traditional, functionalist theories of health have a comparative counterpart that is, in important respects, more plausible. In the remainder of this section, I'll show that this is true in the case of Boorse's theory. (With a few modifications the argument could be applied to many other functionalist theories, though I don't have the space to discuss them here.)[18]

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[18] The basic idea is: with most functions, there is the possibility of performing them to a greater or lesser extent. For example, suppose health is defined relative to goal-achievement. An agent can achieve more or fewer goals, and can sometimes achieve individual goals to a greater or lesser extent. A non-comparativist will generally need to specify the minimum level of goal-achievement consistent with health. A comparativist need not do so, instead saying that a greater level of achievement implies greater health.

Boorse's first gloss on health is that it is statistically non-subnormal functioning. But, as Boorse recognizes, things can't be quite that simple. This leads him to introduce several complications into his theory. First, there are some things that seem clearly to be diseases or health problems that have very high or even universal prevalence in a population. If the prevalence is high enough, the diseased state can be statistically normal and therefore wouldn't count as a health problem if health were defined relative to statistical normality. Dental caries are statistically normal, yet seem to be a health problem. Even if pollution affects an entire population, the lung problems which result are still a health problem. If health were defined relative to statistical norms, then one way to make a sick person healthy would be to give everyone else in the population the same problem. The possibility of this kind of "leveling down" is theoretically perverse.[19]

In order to avoid this objection, Boorse tinkers with his definition, adding that something counts as a disease if it is a 'limitation on functional ability caused by environmental agents,' even if it is statistically normal. There are, however, reasons to doubt that Boorse's amendment is successful.[20] I don't have the space here to evaluate these objections or Boorse's replies, so I'll instead simply note that, at best, the possibility of universal diseases introduces an epicycle into Boorse's theory; at worst, it constitutes a decisive objection.

The central place for statistical normality within Boorse's theory also causes a second problem. Boorse doesn't think that that someone in the 49th percentile with respect to visual acuity counts as unhealthy, even though that person does have statistically below-average vision. Rather, Boorse thinks that someone counts as unhealthy only if she is functioning at below 'typical efficiency', where the line between typical and atypical

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[19] Guerrero ([2010]) objects to Boorse's theory on this ground, finding it implausible that a mere "Cambridge change" could affect an individual's health. This objection doesn't apply in the same way to the comparative version of Boorse's theory I offer below, since the comparativist makes *healthier than* more basic than *healthy*. I believe Guerrero would agree. (See his note 17.)

[20] See (Richman [2004], pp. 23-4), (Hare [1986]), and (Boorse [1997], e.g. at p. 67). There are also the general problems that there is not always a clean line distinguishing the organism from the environment (Lewontin [2001]), and that we seem to recognize the possibility of universal *internally*-caused diseases (e.g. genetic ones). Finally, certain kinds of limitations imposed by the environment don't intuitively seem like health problems. (I'm not diseased, even if a higher oxygen concentration in the air or manna-raining-from-heaven would improve my athletic performance.) These objections are related to a (much more serious) objection of Kingma's ([2010], especially §3). I should note that the proposal I offer here does not address the heart of Kingma's worry, and so a Boorsean would need to make further revisions to deal with her objection.

efficiency is 'arbitrarily chosen' ([1997], p. 8).[21] Now, Boorse suggests that this isn't likely to be a serious problem, since in most cases it will be obvious on which side of the line a given person's function falls ([1977], p. 559). While this may be true in some cases—it's usually clear enough whether or not someone has a broken leg—it's certainly not true in all cases. Sight, hearing, IQ, respiratory function, and a host of other attributes exist on a spectrum. If we define health relative to functional ability, there will be patients whose function falls very close to whatever line we draw. So on Boorse's theory there will be borderline cases of health (Boorse [1997], p. 19).

Now, this by itself isn't an objection. Many concepts have vague or arbitrary boundaries. Boorse regards health as fundamentally non-comparative, though. With fundamentally non-comparative concepts, the comparative form is defined in terms of the non-comparative form. So, since Boorse begins by defining *healthy*, he'll later need to define the relation *healthier than* in terms of it. That means that *healthier than* will be defined in terms of a vague and/or arbitrary concept of health. It would be surprising if the *healthier than* relation didn't end up inheriting that vagueness or arbitrariness.

Compare that to what happens if we instead try to formulate a comparative version of Boorse's theory. Suppose we take Boorse's central insight to be that health is about functional ability, where functions are defined relative to the goals of survival and reproduction. It's easy to use that to formulate a simple, comparative theory of health:

> X is *healthier than* Y in respect R, iff X's R-functioning is superior to Y's R-functioning (given the goals of survival and reproduction).[22]

From this, we could then define *healthy* just as you would expect for a fundamentally comparative concept:

> X is *healthy* in respect R iff X's R-functioning is superior to the R-

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[21] See (Schwartz [2007]) for a good discussion of this issue and its importance for Boorse and Wakefield. I believe that the considerations I note below show that it becomes a much less serious problem for a comparativist.

[22] There is a difficulty here, of course, about what 'superior' means. How are we to figure the impact of a particular trait on an organism's survival and reproduction? (What background conditions should be assumed? What if a trait increases survival in some common environments, but decreases them in others? What if a pair of traits increase survival when together, but decrease it when alone? What if a trait increases the likelihood of survival, at the cost of reproduction?) These problems are serious, but they are ones that Boorse must answer in any case. Objections of this sort apply equally to comparative and non-comparative Boorsean theories and therefore can't adjudicate between them.

> functioning of a sufficient number of the members of some relevant comparison class.

This definition of health still has the arbitrariness of Boorse's, since being healthy depends on functioning superior to a 'sufficient number' of others in an as-yet-unspecified comparison class. (In fact, depending on how these are defined, it could deliver *exactly* the same health judgments as Boorse's theory.) But instead of defining *healthier than* relative to this vague standard, on a comparativist theory *healthier than* gets defined first, and precisely. So, the comparativist is guaranteed of having at least one precisely-defined health concept.

And the precisely-defined concept seems like the more important one. When faced with a borderline case of health—say, someone with 20/40 vision—a Boorsean seems to be stuck. The best he can do is try to decide where an arbitrary line is to be drawn. A comparativist, on the other hand, can step back and say that whether or not the patient is *healthy*, she is without doubt less healthy than people with 20/30 vision, and more healthy than people with 20/50 vision. In much the same way, two people arguing over whether LeBron James is a tall basketball player could agree that he was taller than exactly 70% of basketball players. Does that make him tall? That's debatable, but the question doesn't seem especially important. The more basic question is the comparative one, and that has been answered precisely. Whether or not we agree on whether James is *tall*, we can all agree, for any given player, whether James is *taller than* that player. Further argument about whether or not he is *tall* would seem beside the point. For a comparativist, about health or tallness, the more basic form also seems more important, and it gets defined precisely.

For these reasons, I think that the comparativist version of the Boorsean approach can better deal with the arbitrariness that Boorse thinks attaches to the concept of health. Note, also, that the comparativist has avoided the problem of universal diseases. If we all have tooth decay, then all of us are less healthy than our decay-free counterparts. If pollution reduces respiratory function across an entire population, then the whole population becomes less healthy. True, the comparativist has not said whether or not these people are healthy, but as we've seen, this question is the less important one on the comparativist model. Universal diseases, then, pose no real trouble for the comparativist.

I conclude, then, that a Boorsean—or, more generally, a functionalist about health—should consider adopting a comparative analysis. The considerations presented here aren't dispositive, of course. It's possible that some non-comparative Boorsean theory could adequately deal with the problems of universal disease and arbitrariness. But even if that is possible,

the comparative version we've seen here is, I think, much simpler and therefore *prima facie* preferable.

6 A non-comparative alternative?

Before moving on to see why all of this matters, we need to tie up one loose end. In section three, I noted that most existing theories of health were both non-comparative and realistic. In the last two sections, I argued that comparative theories have certain advantages over such theories. That ignores, however, the obvious third possibility: a non-comparative, *idealistic* theory. Recall that an idealistic theory is one that defines health in such a way that few or no people living today count as healthy. Such a theory wouldn't be tripped up by the Alys/Allie example. A non-comparative idealist about health would say that neither Allie nor Alys was completely healthy (with respect to energy level, endurance, etc.), although Allie was healthier than Alys. An idealist would also be in a good position to avoid the problems of vagueness, arbitrariness, and universal diseases, which in the last section we saw affected some functionalist theories, like Boorse's. In this section, then, I'll briefly consider whether non-comparativism might be saved by a move to idealism about health.

Unlike comparativism, idealism about health isn't an unknown position. The preamble to the World Health Organization Constitution famously defines health as 'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity' ([1948]).[23] And the 'positive health' movement, discussed primarily in the mental health literature, similarly thinks of health as extending far beyond the state that most of us occupy.[24]

Is idealism, then, an adequate response to the worries I've raised here? It may be, but I think there is still reason to prefer a comparative account. Suppose idealism about health were true. Even if that were the case, in practice we would still have to be comparativists, at least about many aspects of health. We simply don't know what the maximum human lifespan would be (or even if there is such a thing). We don't know what the optimal immune system would look like. We don't know what level of vision human beings are capable of. If an idealist defines health as

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[23] As Bok ([2008]) notes, the drafters of the WHO's constitution were influenced by Henry Sigerist's positive account of health, as 'immeasurably more than just the absence of disease' (Sigerist [1941], p. 53). But the obviously idealistic element of the definition, that health is a state of *complete* well-being, is not found in Sigerist, and was in fact a very late addition, appearing only in the final few drafts.

[24] See e.g. (Ryff and Singer [1998], [2000]).

including maximum lifespan, optimal immune system, and perfect vision, we have no way of knowing what that is.

We can, however, easily identify differences in lifespan and vision. And we can say, of some immune systems, that they're better than others. If we were to proceed in that way—as we surely would—we would, essentially, be adopting a practice that is comparativist. We would be directly making judgments about what states are healthier than others, without knowing what would count as the ideal, perfectly healthy state. So, even if idealism were true and we knew it, our practice would nevertheless *look* comparativist. Given a choice between a non-comparative, idealistic theory and a comparative one, then, it seems reasonable to favor the comparative one. Absent some compelling reason for adopting an idealistic approach, if our practice is going to be comparativist, we should let our theory be comparativist, too.

This is, of course, a weak result, one that could easily be outweighed were idealistic theories shown to have other advantages. In the end, though, I'm not sure how important it is to reject idealism. In the final section of this paper, I'll explain why the debate about comparativism matters—why adopting a comparativist approach should affect debates in the philosophy of medicine and bioethics, and why it should affect the practice of health measurement. Most of these consequences would still follow if we were to move from a traditional to an idealistic theory, instead of to a comparativist one. So a move to idealism is, like a move to comparativism, a big step away from the *status quo*.

7 An objection to comparativism?

In sections four and five, I argued that comparativist theories of health have a number of advantages over their non-comparative counterparts. That, though, doesn't mean much by itself, since it's possible that comparativist theories also have disadvantages that outweigh their virtues. It therefore makes sense to briefly take a critical look at comparativist approaches to health, to see if any major objection is lurking. This, however, is a difficult task. Comparativism isn't a theory of health; rather, it's a type of theory of health. It's hard to assess the merits of comparativism in the abstract, without some actual comparativist theories to look at. Until we have at least a few, worked-out comparativist options on the table, it's difficult to predict how plausible such theories will turn out to be, or what objections they will face.

That said, there is one general feature comparativist accounts will share which might be thought implausible. One of the characteristic

features of fundamentally comparative concepts is that objects which satisfy the non-comparative form can differ with regard to the comparative form. The Empire State Building and the Sears Tower are both indisputably tall buildings, but the Sears Tower is taller. Bill Gates and Warren Buffett are both wealthy by any definition, but Gates is wealthier. By contrast, if two lines are perfectly straight, one can't be straighter than the other.

This suggests that a comparativist theory of health will allow that two people can both be very healthy in some respect, although one is healthier than the other. In practice, this will likely mean that what is ordinarily thought of as talent or fitness will sometimes be categorized as health by the comparativist. The basic idea is this: in many cases, ill health is associated with a particular range on a spectrum. When eyesight gets bad enough, it is considered a disability. Hypertension is diagnosed when blood pressure reaches a certain level. Mental retardation is defined relative to an IQ threshold. A comparativist theory of health will say that there can be differences in health in other parts of the range. Sometimes, this doesn't sound too odd: even if my blood pressure is considered non-pathological, it wouldn't seem strange to ask my doctor what I could do to make it *even healthier*. In other cases, though, it does sound counterintuitive. Psychologists make no health distinction between someone with a 90 IQ and someone with a 100 IQ. Extreme weakness or fatigue is plausibly a health problem, but at the other end of the spectrum we wouldn't ordinarily say that the difference between a gold medal-winning endurance athlete and a mere olympic qualifier was one of *health*.

Everyday discourse and medical practice, then, seem to recognize a difference between disease or disability, on the one hand, and something like fitness or talent or superior ability on the other. A comparativist theory of health, since it recognizes health differences even amongst the healthy, threatens this distinction. For any trait where we call a severe deficit pathological or disabling, a comparativist theory of health will be pressed to make all other (non-deficient) levels potentially differences in health, too. This is, certainly, somewhat counterintuitive. When we call someone disabled because she can't walk up a flight of stairs, we seem to be making a different kind of claim than when we call someone fit because she can climb a mountain. When we say someone is autistic, we seem to be making a different kind of claim than when we say someone is a gifted communicator, at home in any social situation.

Is this a serious objection to comparativism? I cautiously believe it is not. As I noted, there are a number of contexts in which this doesn't seem strange. (Even if my weight is healthy, it wouldn't be out of place to ask my doctor what I could do to make it even healthier.) And in other cases,

the comparativist will have several options. First, if in a particular instance the consequences are counterintuitive enough, a comparativist might be willing to revise her assessment of what counts as a health problem. If we don't want to say that there are mental health differences between someone with a 100 IQ and someone with a 110 IQ, we could deny that having an IQ below 70 is itself a health problem. People with very low IQs, of course, might still have certain claims on us for assistance and accommodation. But, the comparativist could say, we shouldn't think that they have a mental *health* problem.

The second option is to redefine certain acknowledged health problems. If we want to maintain both that the autistic person has a health problem and that the skilled communicator isn't especially healthy, we could say that merely exhibiting the behaviors which are currently taken to be definitive of autism does not constitute a health problem. Autism, we might say, also requires the presence of a particular underlying cause. Two people could exhibit exactly the same kind of social and communicative impairment, with only one of the two being autistic, owing to different causes of that impairment.[25] On this account, we needn't say that the skilled communicator is especially healthy, unless her abilities are a result of the same causal process that is constitutive of autism.

This response may seem compelling, and it does square with a certain conception of medical practice. But it doesn't come without trouble. If we say that a certain kind of ability or behavior constitutes a health problem when caused by X but not when caused by Y, we'll need to explain why X-causes, but not Y-causes, are pathological. Sometimes this may be reasonable, but in many cases providing a principled distinction will be very difficult, I think.[26]

A comparativist about health may be able to make some headway by invoking the first and second responses in particular cases, but I think that ultimately she will need to bite a number of bullets. She will have to admit that in many cases, what we think of as talents, abilities, and extraordinary fitness are really just higher levels of health. Superior eyesight may not

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[25] This is not the way autism is currently defined. The DSM-IV characterizes autistic disorder purely in behavioral terms. And current research suggests that 'autism lacks any clear unifying pathology at the molecular, cellular, or systems level' (Geschwind [2008]).

[26] This kind of debate is familiar from the philosophical and medical literature. There is general agreement that stunted growth due to growth hormone deficiency is pathological. But whether idiopathic short stature—extreme shortness, due to unknown causes—is a pathology or disability is controversial. (See Freemark [2004], Gubitosi-Klug and Cuttler [2005], and Voss [2006].) Distinctions like this are difficult to draw on most theories of health. If health is about survival and reproduction (Boorse, Wakefield) or goal-fulfillment (Nordenfelt, Richman), it's unclear why the underlying cause should make a difference. If I'm unable to see well, run fast, or interact with others socially, *that* seems to be the relevant fact.

seem to be a kind of superior health, but it really is. The gold medalist is, in a certain respect, healthier than those she regularly defeats. We can continue to use different labels, of course, calling superior functioning talent or fitness and inferior functioning disease or disability, but we should do so knowing that the difference is one of degree, not one of kind. In the end, I think this shouldn't be too hard to swallow. After all, there is one clear sense in which these differences are just ones of degree: they're simply different levels of functioning (Boorse), goal-fulfillment-ability (Nordenfelt), or whatever it is that is constitutive of health. A full accounting of the importance of this objection will have to wait, though, until we have several spelled-out comparativist theories of health, so that we can see, for each theory, how often and in what cases this third response needs to be invoked.

8 Why this matters: the consequences of comparativism

In the last section, I considered what I take to be the clearest objection to comparativist theories as a group. Whether or not you agree with my assessment—that it points to a real, but not necessarily a serious, problem for comparativism—I hope I've said enough to convince you that it is at least possible that comparativism's virtues outweigh its vices; there is at least a reasonable chance that comparativism is true. Nevertheless, even if I've convinced you of that, you might still wonder how important the issue really is. The difference might seem merely academic, in the pejorative sense of that term. It might also seem like I've been arguing against a straw man. Even though theories of health have, formally, been non-comparative, couldn't we simply and charitably interpret theorists of health as implicitly holding comparative theories, but publishing them in non-comparative form because the health of individuals is what doctors, WHO delegates, and others want to know about?[27] (The WHO charter would have much less rhetorical force were it rewritten comparatively!) I'd therefore like to conclude by showing, in increasing order of importance, three ways in which moving from a traditional to a comparative account would have significant consequences.

First, and most obviously, if a comparative account is correct, we should be having different debates in the philosophy of medicine. I

[27] Although, such charity can be difficult to muster. Boorse, for example, is quite explicit in his non-comparativism: 'We have supposed that the basic notion is 'X is a healthy Y'[...] As long as the efficiency of all functions exceeds a minimum, any value of these traits is as healthy as any other. In this way, our definition [...recognizes] a wide range of individual differences of equal intrinsic health' ([1977], pp. 562-3).

showed earlier that universal diseases are no longer a serious problem for Boorse, once he moves to a comparative account. The problem of arbitrariness also isn't as important. Similar things hold for other functionalist theories of health. For example, a theory like Nordenfelt's no longer needs to worry about defining 'vital goals' or 'minimal happiness' in the same way. These are all topics on which philosophers of medicine have written extensively. If comparativism is correct, these discussions can end, or at least carry much less weight. Moving to a comparativist account, therefore, should change what philosophers of medicine write about, since a number of philosophical puzzles arise only on the assumption that a non-comparativist theory is correct.

Second, if comparativism is right, we should think about a number of issues in bioethics differently. Whether or not someone is healthy seems to carry important ethical implications. For example, whether a medical intervention counts as a treatment or an enhancement is, at least in many circumstances, dependent on the health of the patient. Laser eye surgery on a patient with 20/200 vision is a treatment, whereas laser eye surgery on a patient with 20/16 vision would usually be thought of as an enhancement. Now, on the simplest comparativist account, to be healthy is to be healthier than a sufficient number of people in some comparison class. That means that whether or not you have healthy eyesight depends on how healthy other people's eyes are. So, on a comparativist account, health ends up being an extrinsic property. But if health is an extrinsic property and health marks the difference between treatments and enhancements, then there won't be any intrinsic quality distinguishing treatments from enhancements. Many moral objections to enhancement, however, rely on identifying such an intrinsic quality.[28] If comparativism is correct, these lines of argument aren't promising.

That doesn't mean, however, that there is nothing wrong with enhancement. An extrinsic quality is still a real quality, so it remains possible that a good, non-instrumental objection to enhancement could be found. Fairness is on most accounts an extrinsic property (since whether your share is fair depends on what others receive). Kantian universalizability arguments appeal to extrinsic factors (since we must ask what would happen if others also acted on the same maxim). And sufficientarian accounts of justice may include an extrinsic element, depending on how the line for sufficiency is drawn. So, philosophers concerned about the moral status of enhancement should focus on arguments based in fairness, Kantian universalizability, sufficiency, and the like, rather than on arguments which assume that there is an intrinsic

[28] See e.g. (Sandel [2004], [2007]) and (Kass [2003]).

difference between treatment and enhancement.

Finally, and of greatest practical importance, if comparativism is true, the practice of health measurement should change in quite drastic ways—changes which have the potential to dramatically affect the distribution of health resources. As we saw above, health metrics are implicitly traditional. The HUI-3, for example, purports to be measuring up to full or perfect health, but it measures eyesight only up to the ability to 'read ordinary newsprint and recognize a friend on the other side of the street, without glasses.' It measures ambulation only up to the ability to 'walk around the neighborhood without difficulty.' The HUI-3, then, measures only the very bottom of the possible range of visual and ambulatory function. Most people will score at the highest level for vision, and most will also score at the highest level for ambulation. Now, on many non-comparativist views, this would be defensible. For Boorse, something counts as a health deficit only if it involves functioning at below typical efficiency, which is an arbitrary range around the statistical mean. The HUI-3, then, might actually measure the full range of possible health states. It would distinguish various levels of health below "typical" functional ability, and would correctly identify people above that line as having full health. Someone with 20/200 and someone with 20/100 vision would be assigned different levels of disability, and anyone with (say) 20/30 vision or better would be declared to have perfectly healthy eyesight.

As we saw in the last section, though, a comparativist will recognize a much wider range of health. There can be differences in health between two people who are both healthy, just as one tall person can be taller than another tall person. A comparativist might agree that patients with 20/30, 20/20, and 20/16 vision are all healthy—but nevertheless would recognize that each successive patient has healthier eyesight than the last. Similarly, a comparativist will recognize a health difference between the person who can walk around the neighborhood without difficulty and the person who can also run a mile without fatigue. Health differences of this sort will be missed by traditional metrics like the HUI-3, because those metrics capture only the bottom portion of the range of health.

It's important to see that the comparativist is not merely objecting that traditional metrics fail to distinguish among people who have different levels of health. No metric can possibly be fine-grained enough to distinguish all possible levels of health. (The HUI-3 only recognizes six levels of health on each of eight dimensions—it obviously does not aspire to a high level of precision.) So the objection is not just that there are some health differences that traditional metrics don't capture. Rather, the comparativist is pointing out that the range in which the metrics do discriminate health states is incredibly narrow, relative to the actual range of

human health. Traditional metrics distinguish some number of health states at the extreme low end, but lump all health states above that into one "bin". The comparativist is therefore not asking for a more precise metric; she is asking for a metric that measures a wider range, more representative of the range of health states that most people experience.

If comparativism is true, then, metrics like the HUI-3 measure only a small portion of the actual range of human health. This calls for one of two responses. The first and simplest response would be to change the metrics, so that they do capture the full range of health. The HUI-3 questionnaire could be revised to ask, not just whether someone can walk around the neighborhood without difficulty, but whether that person can run a mile—or five. This would require a drastic change in practice, but such revised measures could then claim to be true measures of overall health. The other response would be to leave the metrics themselves untouched but to offer some kind of justification for their current, limited focus. A restaurant inspector measuring freezer temperatures may only need a thermometer that goes to 0ºC.[29] Temperatures below that are real temperatures, of course, but they're not relevant, given the inspector's goals. Similarly, we might try to argue that, although there are real health differences between people with average and above average health, those differences aren't important, given the purposes for which these health metrics are used. Given limited resources, the bottom portion of the range of health is all that it is important to measure.

Now, this kind of argument can't be universally applicable, I think. Health metrics are used for some purposes that do require looking at the full range of health. If we want, for example, to measure the health of a population, to compare the health of one population to another, or to calculate the cost-effectiveness of an intervention, we need to measure the full range of health. To make claims about overall population health on the basis of traditional metrics would be like making claims about the average winter temperature in Boston using a thermometer that only goes down to 0ºC. To conduct an effectiveness analysis using traditional metrics would be like analyzing the economic impact of a new tax policy, while assuming all incomes over the poverty line were equal; or, like evaluating an educational program, while assuming that all grades above a C- were equivalent.

Those examples aside, however, the thought that bottom-range health differences are the important ones does have a lot of intuitive plausibility. We frequently measure health in order to determine where to allocate resources. Philosophers coming from many different moral

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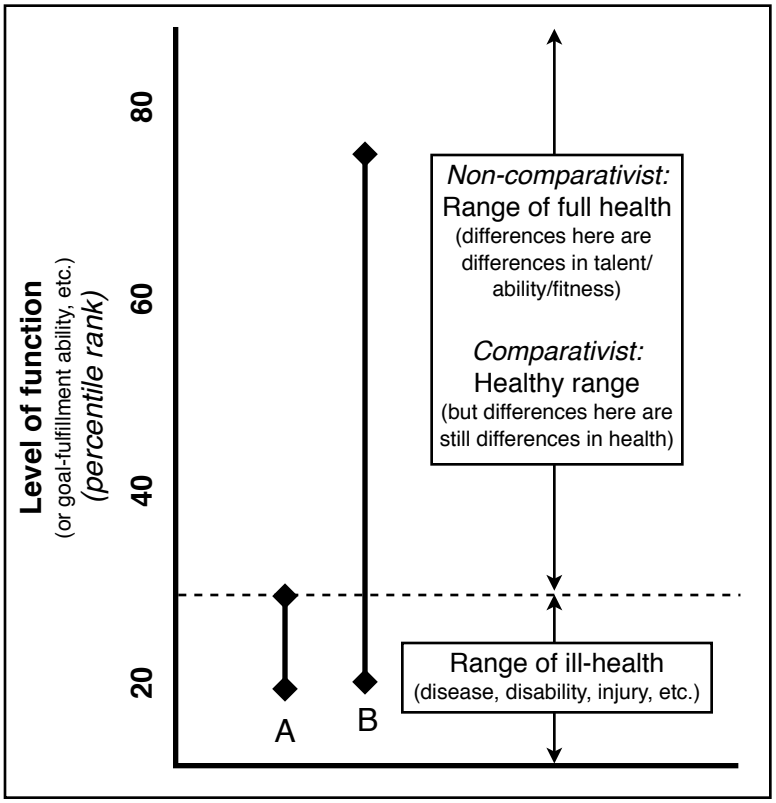
[29] I thank Daniel Wikler for suggesting this example.

perspectives agree that it is generally of greater moral urgency to attend to those who are worse off. So, it might seem that if our aim in measuring health is to determine how to distribute resources, then it will be especially important to learn about the people who are at the bottom end of the health spectrum. Accordingly, just as a restauarant inspector only needs a thermometer that goes down to 0ºC, the health policy maker only needs data that cover those who are in especially bad health, since those people are the ones to whom health resources should be directed.

Is this argument a good one? I suspect not. It seems to me that differences in (what the comparativist calls) middle-range health can sometimes be of great moral importance for resource allocation. First, better health status might partially compensate for other deficits. If we're interested in helping the worst off, according to most moral theories we shouldn't be especially concerned with helping the worst off *with respect to health*. Instead, we should be trying to help those who are worst off *overall* (Hausman [2007]). Health is, at most, one component of well-being. Suppose we have two populations, both of which are poorly off economically and educationally. Each member of the first population experiences normal, good health: each is free from what we would ordinarily describe as disease or disability, but is otherwise unexceptional. The second population is full of people in extraordinary health: not only are they free of disease and disability, they are also eagle-eyed, super-strong, have incredible endurance, and are socially gifted. This second population is, on a comparativist view, better off with respect to health and therefore plausibly better off overall. A policy maker interested in helping the worst off here would need a health metric that distinguished mid- from upper-range health.

Mid-range health differences can also matter in other ways. Suppose two conditions, A and B, both cause poor health. Those afflicted with A are on average in the 19th percentile of functioning, ability to fulfill goals, or whatever it is that defines health. Those with B are just barely better off, in the 20th percentile. We have to choose between treating A, bringing those patients up to the bare minimum level consistent with health (say, the 30th percentile); or treating B, bringing B-patients up to the 75th percentile. (See Figure 1.)



Intuitively, if the patient groups are of the same size, it seems to me that health-related considerations suggest we should treat B. A non-comparative approach to health measurement, however, won't be able to make sense of this. As we saw, traditional metrics capture only the bottom of the possible range of function, because that is the full range of health variation according to traditional theories of health. Using a traditional metric like the HUI-3 to measure the effectiveness of A- and B-interventions, then, we'll get the result that A-interventions have greater health benefit than B-interventions. Since traditional metrics only measure differences in the area below the dotted line, treating A will register an improvement from the 19th to the 30th percentile, and treating B will register an improvement from the 20th to the 30th percentile. The additional health gain associated with treating B—from the 30th to 75th percentile—will be ignored by a traditional metric.

The important point isn't just that a traditional metric will endorse treating A, when treating B seems intuitively preferable. (You might reasonably disagree with me about which is the right condition to treat.) Rather, a traditional metric is unable to even make sense of choosing B for

health-related reasons. It makes A obviously the right choice. But, whatever you think the right answer is, you should at least recognize that a reasonable case could be made for choosing B, if comparativism is true. According to comparativism, B has something going for it, health-wise, that traditional metrics can't capture.

That, then, is a second kind of case where middle-range health differences can plausibly be of moral importance. Let me conclude with a third, real-world case. Malnutrition and parasitic infections cause small but significant intelligence losses in whole populations in many parts of the world (WHO [2005]; Berkman *et al.* [2002]; *cf.* Eppig [2010]). The net social and economic effect of this collective loss in intelligence can be huge. Given the effective and relatively inexpensive treatments available, it seems that this is exactly the kind of thing that should be a priority for resource allocation. However, as Wikler ([2010]) points out, this cognitive loss will likely be missed by traditional health metrics. The problem is that a drop of five IQ points won't take most people out of the normal range for intelligence. Someone whose IQ drops from 100 to 95 or from 90 to 85 as a result of a roundworm infection will still be within the Boorsean 'typical' range. That loss therefore won't be registered by metrics which focus only on the bottom of the range of health. As before, it's important to note that this is not because the loss of intelligence is too small to measure. The problem is *where* the loss occurs. Since it largely affects people who can lose five IQ points without being labeled as having a cognitive disability, it won't be picked up by metrics that don't measure the middle range of cognitive function. If health problems such as this seem like they should be priorities for resource allocation, then we should reject the idea that measures of health can justifiably ignore the middle and upper portions of the spectrum of health.

If any of these cases is convincing—if very good health can compensate for or counterbalance other deficits, if gains into the middle-range of health can be relevant in evaluating interventions, or if many small mid-range health effects can collectively add up to a significant one—then we need to rethink the way we measure health. If comparativism is correct, we should revise our metrics so that they capture a fuller portion of the range of health.

We've seen, then, several respects in which moving to a comparativist account of health has important consequences for the philosophy of medicine, for bioethics, and for the measurement of health. I think there are others, but hope that these three are enough to show that the truth of comparativism matters. If the early sections of this article succeeded in showing that comparativism is a reasonable proposal, and if the middle

sections have shown that there are some advantages to a comparativist account, then this last section should make it clear that comparativism is definitely worth investigating further.

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