A CAPABILITIES-BASED ACCOUNT OF PATIENT WELFARE

by

Peter Maloy Koch

Defense Date: August 8, 2016

A dissertation submitted to the Faculty of the Graduate School of the University at Buffalo, State University of New York in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

Department of Philosophy

*Table of Contents*

Abstract……………………………………….. vi

Introduction…………………………………… vii-x

*I: The Nature of Welfare*……………………… 1

The Etymology of Welfare…………… 2

Welfare: Marked and Unmarked Uses… 3

The Common Conception of Welfare … 4

Definitions and Contexts……………… 4

Common Related Terms…………….... 9

Welfare and Well-Being………………. 9

Welfare and Health……………………. 11

The WHO Definition of Health……….. 13

Capabilities and Health………………... 14

Welfare and Happiness………………… 17

Welfare, Happiness, and Flourishing …. 19

 Understanding Welfare in terms of ‘Good for’… 20

‘Good for’ and the Value of Welfare… 23

Welfare and Interests………………….. 24

Best Interests………………….. 27

Cognitive Interests…………….. 28

Tacit and Expressed Interests …. 28

Welfare in terms of ‘Benefit’ and ‘Harm’… 30

Subjects of Welfare…………………… 32

Beings with Cognitive Awareness… 34

Beings with Sentience ………… 36

Beings with Proper Functions … 37

Welfare and the Way that Subjects Should Be… 38

The Ordinary Conception and Theories of Welfare… 39

Theories of Welfare…………………. 40

Hedonistic Theories…………. 41

Desire-Fulfillment Theories…. 42

Objective List Theories……… 42

Capabilities and Welfare: The Capabilities Approach… 45

A Proposed Definition of Welfare…… 49

*II. Capabilities*……………………………….. 53

What are Capabilities? ………………. 55

Definitions of Capabilities…………… 56

Good Capabilities……………………. 57

General and Specific Capabilities…… 58

Elucidating Capabilities Using Basic Formal Ontology… 60

Introducing BFO Entities…………….. 63

Continuants…………………… 65

Dependent Continuants………. 66

Specifically Dependent Continuants… 67

Dispositions and Roles……….. 69

Special Dispositions: Functions… 72

Introducing Capabilities to BFO……... 75

Capabilities as Realizable Entities… 76

Capabilities as Dispositions… 77

Capabilities as Special Dispositions… 80

Features of Capabilities……………… 82

The Normative Feature……… 85

The Positive Feature………… 86

Objections to Positiveness… 91

Canonical Realizations……… 94

Ranges of Capability Realizations… 97

Failed Realizations………….. 98

Absent vs. Unrealized Capabilities… 101

Kind-Based Capabilities……. 103

Testing Capabilities………………… 105

Summary of Capabilities…………… 108

*III. Capabilities and Patient Welfare………...*  109

Welfare as a BFO Quality…………. 110

Welfare as a Determinable Quality… 111

Welfare a Multi-Dimensional Quality... 112

The Granularity of Qualities………. 114

The Process of Faring ……………... 116

Welfare, Faring, and Capabilities…. 117

Welfare Capabilities………………. 119

Beyond Welfare in General: The Welfare of Subjects… 120

Qualified Welfare…………………. 121

The Subject’s Environment… 127

Life Plans and Phases……… 128

Spans of Time ……………… 130

Why Reference Classes Matter……. 130

The Patient Reference Class: What is Patient Welfare?... 132

What is a Patient? ………………… 133

The Diversity of Patients …………. 134

The Patient as Ill…………………... 136

The Patient as Person……………… 137

Essentially Psychological Beings… 138

The Human Animal… …….. 139

Patient Capabilities: A Developing Animal… 139

Dehumanizing Patients? ………….. 140

The Canonical Life Phases of the Human Organism… 141

Welfare Capabilities, Health Capabilities, and Patients… 142

Promoting Welfare through Makeup and Environment… 145

Specific Patient Capabilities………… 147

Bio-Psycho-Social Capabilities……… 149

Applications of Capabilities-Based Patient Welfare… 152

Conclusion……………..…………….. 157

IV: Bibliography……………………………… xi-xix

*Abstract*

The promotion of patient welfare is a central goal of medical professionals and serves as a fundamental principle of medical professionalism. Despite its importance, however, it is unclear what is meant by patient welfare. In my dissertation, I explore patient welfare by analyzing the ordinary notion of welfare and applying this analysis to the patient population. I argue that welfare is best understood and expressed in terms of capabilities, which I define using the structure and vocabulary of Basic Formal Ontology. I conclude that patient welfare is a multi-dimensional quality of the human organism corresponding to the degree to which that patient has realized the array of capabilities typical of the human kind.

*Introduction*

Patients, medical professionals, and medical ethicists agree that the promotion of patient welfare is critical to the medical profession. Implicitly or explicitly, the notion of patient welfare regularly emerges in many different contexts, whether in selecting the best course of treatment, evaluating a clinical ethics consultation, or studying a textbook about medical ethics. Countless physician-patient interactions, professional oaths, and philosophical theories include reference to the notion of patient welfare in one of its many forms, whether in terms of a patient’s well-being, or a patient’s good, or a patient’s best interests.

We do not have to look far to see the importance of patient welfare. As a patient, your welfare matters to you. Considerations of your own welfare guide your selection of treatment, physician, and clinical setting. And when your loved ones are placed under the care of the medical profession, you work to insure that their welfare, too, is cared for. Your trust in the medical profession greatly depends upon how well the medical profession understands and promotes your welfare and the welfare of other patients, particularly those whom you care about.

Besides patients, medical professionals also rely heavily on the notion of patient welfare. In order to best care for their patients, physicians and nurses attempt to understand what is good for each of their patients—what makes a patient fare better or worse. The importance of patient welfare is reflected in the very goals of the profession and its advertised standards of behavior. The recent trend towards medical professionalism, for example, as evidenced by the widely-adopted *Medical Professionalism in the New Millennium: a Physician Charter,* identifies the primacy of patient welfare as a central principle in guiding the actions of physicians (ABIM 2002). In order to maintain the trust of society and patients—as this trust is essential to the continued success of the medical profession—the medical profession must prioritize, and understand, the welfare of those under their care. As James Bernat, a prominent voice of the medical profession, succinctly writes: “The essence of medical professionalism is placing dedication to the welfare of patients above physicians’ personal or proprietary interests” (2012, p. 1).

In the theoretical realm as well, and in particular with respect to medical ethics, patient welfare is of critical importance. Issues surrounding the distribution of medical resources, beginning-of-life and end-of-life care, the process of informed consent, and the principle of patient beneficence, for example, all rely on a notion of patient welfare in one form or another. In fact, it would be difficult to make sense of medical ethics at all if we did not already rely on some understanding of what is good for the diverse array of patients in the patient population.

Yet, despite the widespread recognition of the importance of patient welfare, the frequent reference to the phrase, and the critical role it holds in the workings of the medical profession, the nature of welfare is often assumed and so used as the basis of arguments without any further thought. If I express concern for the welfare of a certain patient, for example, you will likely understand the nature of my concern; in broad terms, I am concerned about how that patient is doing, or faring. Beyond this broad notion of welfare, however, opinions quickly diverge about the nature of ‘doing or faring well’. Given the central role of welfare in the medical profession, we ought to ask: What is welfare? Specifically, what is patient welfare?

The purpose of this dissertation is to address these questions and, in doing so, identify a theory of welfare that makes sense of the widely-accepted duty of medical professionals to promote the welfare of patients. Without this shared conception of welfare, medical professionals are open to interpret welfare in different ways. Some might understand welfare in terms of the fulfillment of the patient’s interests, others in terms of pleasure and pain, and still others certain in terms of certain objective human goods. Still others might identify welfare as identical to health. Each of these views implies different requirements for medical professionals, which in turn undermines the fundamental duty of medical professionals to promote the welfare of their patients.

These concerns about the understanding of patient welfare are not merely theoretical. Confusion about the nature of welfare has clinical implications on the practices of health care professionals, and recently these implications are gaining recognition (Graham et el, 2015). For example, some theories of welfare hold that what matters to welfare is the satisfaction of preferences. Your welfare is promoted when your preferences are fulfilled. But imagine applying this theory to patient welfare. This would mean that the duty to promote patient welfare is the duty to satisfy patient preferences. If a patient desires painkillers, then her welfare is promoted by granting her wish. This view is surely mistaken. Clinicians are not meant to merely fulfill the wishes of their patients, for doing so can often be detrimental to the welfare of their patients.

Here is another example. There is disagreement as to which sort of things have welfare: that is, what are the subjects of ‘doing or faring well’? Some theorists argue that only living, self-aware things can have welfare. Others argue that non-conscious things, or even non-living things like tables and rivers and cars, have welfare. After all, they say, these things can do better or worse. These conflicting assumptions yield importantly different accounts of patient welfare. According to the former theories, patients in a permanent vegetative state (PVS) do not have welfare at all since they lack consciousness. The latter theories imply that such patients can be said to have welfare, even if their welfare may be quite low. Thus, the care of such patients depends heavily upon whether or not, and to what degree, these patients have welfare.

These are just two of the many examples of the confusion surrounding welfare. If physicians really are to care for the welfare of their patients, then they should be able to make sense of the welfare of any patient that is placed under their care. To validate claims about welfare, therefore, we need to explore the nature of doing or faring (more or less) well and, once complete, apply our findings to the patient population. We will begin, then, with a discussion of the nature of welfare.

*The Nature of Welfare*

Welfare is an ordinary, non-technical term, used with ease by many people. You and I might engage in a conversation about the welfare of your new pet or your grandmother, for example, and, at a basic level, we will understand one another. The prevalence and importance of welfare suggest that we share a core understanding of the notion which permits us to discuss it in a meaningful way. We can begin our exploration of the nature of welfare, then, by identifying this shared notion of welfare. Once we have identified this shared notion, we can construct a definition of welfare that reflects our conclusions.

In this first chapter, we will work towards a definition of welfare in the manner that follows: First, I will investigate the common conception of welfare by examining welfare in relation to other similar notions, like well-being, interests, and happiness. Then, we will identify theories which are often referred to as ‘theories of welfare’ and demonstrate the various ways that these theories stray from the ordinary conception of welfare. Finally, I will propose an understanding of welfare based on capabilities, because such an account best reflects our shared conception.

The various components of the discussion could have been ordered in different ways. Because many elements of the discussion draw upon one another, this analysis is best understood as a cluster of fruitful arguments that together form a comprehensive picture of welfare—rather than a linear argument for the nature of welfare.

*Etymology of Welfare*

‘Welfare’ appears frequently in a variety of contexts—think of the countless policies, oaths, and laws that refer to the welfare of clients, persons, families, or nations. The word itself traces back to the middle-English terms ‘wel’ (well) and ‘faran’ (to get along) (Barnhart 1988). ‘To fare’, in turn, is defined in the *Oxford English Dictionary* as “To perform in a specified way in a particular situation or over a particular period of time.”[[1]](#footnote-1) Thus, there is an element of faring over time rather than at one moment or another. And one’s welfare can change. We speak of declines in welfare or of harm to one’s welfare, and also of improvements to one’s welfare, indicating that a thing’s welfare can be affected positively or negatively over time.

While the etymology of ‘welfare’ does little in the way of offering a nuanced account of the notion, it does suggest a basic understanding of welfare as faring, performing, or doing well or poorly, or in a good or bad way, over time. An individual with a high level of welfare is doing well and such welfare is good for the individual.

*Welfare: Marked and Unmarked Uses*

One source of confusion lies in the very term itself, which includes the root ‘wel’. When I say that you have welfare, do I mean that you are faring well? Can you have welfare, but still fare poorly? Many discussions of welfare are obscured by what linguists refer to as the ‘marked’ and ‘unmarked’ uses of words. For example, we might speak of Francesca as being tall, meaning that Francesca has above-average height. This is a marked use of ‘tall’ which carries some height-related value. On the other hand, I might also ask: “How tall is Shane?” Here I am asking about Shane’s height in general. This is the unmarked use of ‘tall’. Even if Shane is quite short, the term ‘tall’ is appropriately used in such a question.

In the same way, there are both a marked and unmarked uses of welfare. Consider the following:

1. The host guarantees the welfare of his guests.
2. Shane thought it important to assess his own welfare.

In the first example, welfare refers to the ‘faring well’ of the guests. This is the marked sense of welfare and means the same as: “The host guarantees that his guests will fare well.” The second proposition includes the unmarked use of welfare. In this case, Shane is assessing his welfare, which falls somewhere along a continuum. Thus, at times the ‘term’ welfare can describe ‘faring well’ but at other times it can describe a broad range of ways to fare. In discussing the welfare of animals, for example, D.M. Broom acknowledges that “welfare will vary from very poor to very good, that is to say, the individual may be in a poor state at one end of the welfare continuum or in a good state at the other” (1991 p. 4168).

There are many notions that are understood in this same way along a continuum. Health is parallel to welfare in this respect. Sometimes health refers to good health (‘He is enjoying his health!’) or to the general capacity of health (‘Diet affects your health.’). So, like health, we can use welfare in marked and unmarked ways.

*The Common Conception of Welfare*

Beyond ‘faring over time’, how might we come to establish further facts about the nature of welfare? One starting point is to analyze the varied appearances of welfare. Despite the prevalence of the term, most appearances of ‘welfare’ in the literature are accompanied by little more than a short list of equally broad synonyms or example constituents of welfare. In many cases, welfare is used ambiguously, such as when it is simply equated with ‘the good’. Other times, welfare is equated with similar but importantly distinct notions, such as when ‘welfare’ is defined as ‘health’ or ‘happiness’.

*Definitions and Contexts*

Welfare appears in a number of common sources, both in the theoretical and practical spheres, and many of which are intended to guide the behavior of individuals, such as medical or legal professionals. We can identify a number of related terms by considering the following references to welfare:

|  |
| --- |
| Table 1: Uses of ‘welfare’ in standard sources |
| *Source* | *Appearance of Welfare* |
| *Principles of Bioethics Edition V (2001)* | “Morality requires that we contribute to a person’s welfare.”  |
| *The Physician Charter: Medical Professionalism in the New Millenium (Project of ABIM 2002)* | “The Principle of Primacy of Patient Welfare: This principle is based on a dedication to the interests of the patient.” |
| *The Stanford Encyclopedia of Philosophy (Crisp 2013)* | “[Well-being is closely allied to] ‘welfare’, which covers how a person is faring as a whole, whether well or badly.” |
| *Merriam-Webster Dictionary (2015)* | “Welfare: the state of doing well especially in respect to good fortune, happiness, well-being, or prosperity.” |
| *Oxford English Dictionary (2015)* | “Welfare: the health, happiness, or fortunes of a person or group.” |
| *Welfare and Rational Care (2002)* | “This book concerns what we variously call a person's good, interest, well-being, or welfare: the good of a person in the sense of what benefits *her.”* |

We can see that Table 1 provides examples of the various uses and definitions of the term ‘welfare’, along with an array of descriptions of welfare. Some examples, like the *OED* definition, incorporate the marked use of welfare: that is, welfare understood as necessarily ‘faring well’ and not just ‘faring’. In these cases welfare is described in terms of other notions with positive connotations: good fortune, happiness, well-being, and health. This reflects the meaning as suggested by the etymology of the word. In other cases, welfare is used in the unmarked sense, when an individual’s welfare can be fulfilled in a greater or lesser degree.

The first two examples are drawn from literature related to medical ethics. Beauchamp and Childress’ *Principles of Bioethics* and the ABIM’s *Physician’s Charter* appear frequently in discussions and literature related to patient care.[[2]](#footnote-2) In each instance, however, welfare is assumed to be already understood and so no explication is provided. Beauchamp and Childress, for example, begin their chapter on beneficence with “Morality requires that we contribute to a person’s welfare” but they provide little by way of analysis, equating it throughout with “wellbeing” or “the good” (2001). The *Physician’s Charter* likewise refers to the importance of the patient’s welfare, reframing welfare in terms of patient interests. Without an analysis of welfare and its relation to these other terms—terms like wellbeing, benefit, the good, and interests—certain principles (e.g. the principle of beneficence) which are heavily relied upon in medical ethics lack the sufficient theoretical underpinnings required for practical application.

The *Oxford English Dictionary* offers a slightly broader definition which is intended to describe welfare in contexts beyond medicine: “the health, happiness, or fortunes of a person or group” (2015). And health, happiness, and fortune are indeed related in an important way to a subject’s welfare. But this definition does not reveal the nature of the relation at issue. It offers, for example, no way to differentiate between cases where just one of these dimensions is responsible for a subject’s welfare—as when welfare is constituted by health as opposed to happiness. Changes to health, for example, likely affect a change to welfare. In the same way, a loss of happiness likely indicates a decline in welfare. This does not entail, however, that health or happiness *is* welfare.

As the definition indicates, welfare can be attributed to persons and groups. It is unclear, however, in what way health, happiness, and fortune might apply equally to each. What might it mean, for example, to describe a group as happy? There is an important difference between ascribing psychological states such as happiness to an individual as opposed to a collection of individuals.

Here it is worth pointing out that welfare does not float freely like the Cheshire cat’s smile; welfare is always the welfare *of something*. Many of these definitions and contexts refer explicitly to the subjects of welfare: that is, the entity with welfare. Often times welfare is spoken of as it pertains to persons. But welfare is also a quality of plants and animals as well. They can fare better or worse. Botanists, for example, care for the welfare of their plants by battling pathologies and fostering development, reflected in phrases such as the title of a recent University of York study which claimed that “Plant welfare is improved by fungi in the soil” (2014).

The *Merriam-Webster Online Dictionary* defines welfare as “the state of doing well especially in respect to good fortune, happiness, well-being, or prosperity” (2015). This definition does not mention any candidate subjects of welfare (such as groups or persons) but, like the *OED,* does refer to happiness and fortune; well-being and prosperity are further treated as important to welfare.

Many of these various definitions and descriptions include examples of what I shall call *dimensions of welfare* and which are alternatively referred to as the *constituents of welfare*.Happiness, health, and fortune are examples of the dimensions of the welfare of a particular set of welfare subjects: persons. A person’s welfare is positively affected when these dimensions of that person’s life go well or poorly. The same holds true of other welfare subjects. When affected (and all else being equal), these dimensions in turn affect welfare. For some animals, for example, the ability to assimilate into a pack may be a welfare dimension. For other animals, and for plants, this may not be the case. Thus, welfare dimensions depend on the kind of thing the welfare subject is.

A common temptation, however, is to define welfare only in terms of these dimensions and so, rather than telling us what welfare actually *is*, many definitions tell us what *composes* welfare. A proper understanding of welfare will provide more than just a list of specific dimensions of particular welfare subjects. Instead, a good definition will provide a material understanding of what welfare is so that we can understand the entity towards which these dimensions are directed.

Consider a parallel example. Imagine that we wished to define ‘university’. We would be mistaken to define the term ‘university’ only in terms of its various parts, for example, by saying that a university is made up of classrooms, professors, administration, and students. That does not capture what a university *is.* A better definition identifies the relation between these parts and tells us why they are always part of a university in the first place. What sort of thing is a university such that it requires classrooms, professors, administration, and students? In the same way, what sort of thing is welfare such that it has a special relationship with happiness, or health, or fortune?

Our approach to welfare should reflect a wariness of defining welfare with respect to specific dimensions. A good definition will move beyond listing dimensions of welfare (such as health or happiness) and explore the nature of welfare in itself. We can begin this task by addressing the relation between welfare and related terms, beginning with well-being.

*Common Related Terms*

A number of related terms emerge in the different contexts and definitions. Here we will spend more time on the relation between welfare and each of these terms. The purpose of this exercise is two-fold. On the one hand, we are examining the various ways in which some terms are commonly used in relation to welfare. For example, some use ‘health’ to describe the same notion that ‘welfare’ describes. Others use ‘health’ to describe the absence of disease. These are descriptive facts about the usage of welfare and these other terms. On the other hand, I propose that we *should* use certain terms in specific ways so as not to confuse the notion of welfare and so we should refrain from extending the meaning of ‘health’ so that it is identical to ‘welfare’. Thus, in the following discussion we will also make normative claims about the use of welfare: the right and wrong way to use ‘welfare’.

*Welfare as Wellbeing*

As the *Websters* definition indicates, ‘wellbeing’ is often treated as synonymous with ‘welfare’ and so the two terms are used interchangeably. Roger Crisp, for example, describes welfare as a “closely allied term [to wellbeing] which covers how a person is faring as a whole, whether well or badly,” (Crisp 2013, Section I). However, no further explanation of this alliance is provided. Sumner, too, introduces the concept of welfare by stating that “a person’s welfare is more or less the same as her wellbeing or interests or (in one of its many meanings) her good,” (1996, p. 1).

While the terms can be used synonymously, there are at least two distinctions worth noting and which, in some contexts, are meaningful. One distinction is that wellbeing is more often applied to specific dimensions of a person’s welfare. For example, we may refer to the ‘physical wellbeing’ of an individual but we do not ordinarily refer to the ‘physical welfare’ of an individual. In this sense, and as Crisp suggests above*,* welfare describes how the subject fares as a whole, while wellbeing can additionally be ascribed to more particular elements of the subject, such as an individual’s psychological or physical condition.

A second distinction pertains primarily to discussions about welfare in certain contexts. When applied to animals, for example, the term ‘welfare’ is often distinguished from well-being. Welfare in these contexts often carries connotations of the success or failure of the animal with respect to environmental contributions, sometimes referred to as coping (Broom 1991). In these contexts, some view well-being as a dimension of welfare, where well-being contributes in a meaningful way to welfare but is not identical to welfare (Duncan & Fraser, 1997; Fraser, 1995). Thus, the welfare of an entity at times is used to describe its wellbeing and its ability to respond positively to its environment, while the wellbeing of an entity describes how that entity is doing without reference to its environment or with less emphasis on environmental contributions (Broom 1991). Concern for the welfare of farm animals implies an assessment of the conditions in which they are placed. In the same way, the ABIM’s *Physician’s Charter* use of ‘welfare’ as opposed to ‘wellbeing’ may carry connotations of the environmental contributions to the patient’s wellbeing—though the justification of the word choice is not explicated.

Many authors use the two terms interchangeably (Bradley 2014; Darwall 2002; Sumner 1996) while others distinguish between the two notions (Fraser 1995). For our purposes, we assume interchangeability between terms unless the cited author explicitly distinguishes between the uses of ‘welfare’ and ‘wellbeing.’

*Welfare as Health*

The *OED* is not alone in defining welfare in terms of health. We can see, however, that the two notions are distinct because good health does not necessarily correspond to a high level of welfare. You may be in good health and at the same time have a low level of welfare. Thus, your welfare and your health must describe different states.

The ordinary understandings of health and welfare suggest that health is narrower than welfare. Health has traditionally been defined as “the condition of being well or free from disease” (*Merriam Webster Online Dictionary*, 2016). In contrast, welfare reflects additional elements of a person’s life: social connections, familial relations, and self-worth, for example. In certain cases, however, health may be the primary indicator of a subject’s welfare as when, for example, we judge the welfare of an infant or a cactus. In these cases, their health largely determines their welfare. And in many cases if an individual is in poor health then her welfare will suffer. This suggests that good health contributes in an important way to welfare, but is not identical to welfare. It further suggests that, because other non-health factors contribute to welfare, welfare has a multi-dimensional nature.

Like welfare, health is also notoriously resistant to explication. Sridhar Venkapaturum points out the difficulty of defining health in a way that can inform, on a practical level, decisions, laws, and policies:

The uncomfortable truth, of course, is that behind the billions of dollars of health development assistance, the multi-trillion dollar global healthcare industry, far reaching reorganization plans to improve public health, or public agitation for greater action on health inequalities and global health, we do not have a shared or coherent conception of health. If this assertion seems polemical and far-fetched, ask more than one individual whose work directly involves health if they could provide a definition of health (2012, p. 271).

Venkapaturum’s concerns with the use of the term ‘health’ mirror our concerns with the use of ‘welfare’. It may even be the case that welfare is more problematic in that it has been received less formal treatment—at least with respect to the welfare of patients—than health, as seemingly more effort has been paid to health in recent years than to welfare.[[3]](#footnote-3)

References to both welfare and health appear frequently in the context of the medical profession, but we can see the distinction between the two with more clarity when we consider references to welfare in the context of other professions. Consider, for example, the use of ‘welfare’ in the legal profession. As is the case with the medical profession, the notion of welfare is taken to be both important and distinct from health. Legal professionals, like medical professionals, are tasked with promoting the welfare of their clients. Consider the NY Lawyer’s Code of Ethics:[[4]](#footnote-4)

Even when withdrawal [of services] is justifiable, a lawyer should protect the welfare of the client by giving due notice of the withdrawal […] and otherwise endeavoring to minimize the possibility of harm.

I take it that ‘welfare’ has the same meaning when used in the legal as in the medical context. When the law profession requires that its members protect the welfare of its clients, and the medical profession requires that its members promote patient welfare, the two requirements are essentially the same. And these welfare-based requirements are presumably distinct from other health-based requirements. The separate commitments to ‘health’ and ‘welfare’ are not isolated to the medical profession. One professional code of the legal profession, called the “Rules of Professional Conduct”, for example, states the following:

In adversary proceedings that will likely affect the health, welfare, or security of a child, a lawyer should advise the client to take into account the best interests of the child, where this can be done without prejudicing the legitimate interests of the client.[[5]](#footnote-5)

Here it seems that welfare and health are treated as two separate, but related, notions. If we are to make sense of this rule, and similar rules, of conduct, and given the gravity of the contexts in which they appear, then we must take welfare and health to represent importantly distinct notions.

Because health and welfare are distinct, I take it that any construction or revision of a definition of either health or welfare which results in the collapse of one into the other ought to be rejected. Each plays a separate and important role in many spheres of society and a proper understanding of each will reflect the important differences between them. The following definitions of health, we will see, overextend the notion of health and so fail to distinguish it from welfare.

*The WHO Definition of Health*

Some accounts of health stretch the notion beyond the standard understanding of health as freedom from disease. The World Health Organization (WHO) famously (re)defined health as “the complete state of physical, mental, and social wellbeing, and not merely the absence of disease or infirmity” (2013). Despite the broad sphere of influence enjoyed by the WHO, this definition has met with resistance on a number of fronts as the term ‘health’ is not often used in the medical setting to describe such a wide breadth of features. And besides criticisms targeting the utopian nature of the definition, this understanding of ‘health’ fails to make sense of health-related claims about most living things which are ordinarily understood to have health. Plants can be healthy, for example, yet plants can hardly be described as enjoying a “complete state of physical, mental, and social wellbeing.” It is unlikely that plants have any sort of mental or social well-being at all—at least, in any literal sense.

More importantly, the WHO’s understanding of health stretches the notion far beyond its commonly understood meaning:

It is at the conceptual level that the definition runs into the most serious problems, which impair its guiding role when the conflict between health needs and resources has become of paramount concern, nationally and internationally. In fact, a state of complete physical, mental, and social wellbeing correspond much more closely to happiness than to health. These two words designate distinct life experiences … Not only are health and happiness distinct experiences but their relationship is neither fixed nor constant. Having a serious disease is likely to make you less happy, but not having a serious disease does not amount to happiness (Saracci 1998, p. 1409).

Saracci’s criticism reflects an important feature of our earlier discussion. Redefining health so that it reflects social, mental, and physical well-being fails to account for the many instances in which changes to a person’s health does not produce a change in their welfare. Extending the notion of health in this way confuses health with welfare or (as for Saracci) happiness.

*Capabilities and Health*

Others have expressed dissatisfaction with the standard definition of health as ‘freedom from disease.” Recently Sridhar Venkatapuram followed a similar line as the WHO by rejecting this account:

Improving health means controlling disease, and controlling disease means improving health. Nevertheless, the concept of health for many people does not only relate to the presence or absence of disease. It has to do with how they feel and what they are able to do. And even in the medical professions, given that some chronic diseases can be managed for decades, it seems inadequate to indefinitely categorize or label a person as unhealthy despite her successful management of a chronic disease (2013, p 272).

Venkatapuram finds the notion of health as ‘freedom from disease’ to be inadequate because it fails to capture the scope of what being healthy and unhealthy meansto those who are in either state. In order to address this failure, Venkatapuram proposes that we expand our understanding of health by defining health in terms of the capabilities of persons:

The theory of health I am advancing is not centrally moored to the concept of disease, and rejects the plausibility and pursuit of value-free and scientific notion of health. Instead, I argue for health as a person's ability to achieve or exercise a cluster of basic human activities or capabilities. These basic activities are in turn specified through free-standing ethical reasoning about what constitutes a minimal conception of a human life with equal human dignity in the modern world (2013, p. 272).

Drawing partly upon the Capabilities Approach made familiar by Martha Nussbaum and Amartya Sen, Venkatapuram proposes that the health of individuals ought to reflect more than the absence of diseases (where disease includes illness, injury, poisoning, and so on) and instead reflect the goals that one can achieve through health, or the abilities to be certain ways that mirror human dignity.

One immediate problem is that this understanding of health is applied only to human beings and emphasizes the agency of persons heavily in its framework. We have seen, however, that many other things can be properly understood as having health. In principle, however, this objection can be remedied by describing the welfare subjects in terms of ‘entities’ and their capabilities in broader terms reflecting the different faculties of the welfare subject, and particularly those faculties which do not require agency.

More importantly, however, Venkatapurum has proposed what is better understood as a theory of welfare rather than a theory of health, and in doing so has committed the same mistake as the WHO by overextending the notion of health so as to deviate from our ordinary understanding of the concept. In fact his framing of the issue in the first place suggests such a trajectory: “Nevertheless, the concept of health for many people does not only relate to the presence or absence of disease. It has to do with how they feel and what they are able to do” (ibid p. 271).

It is certainly the case that, for many people, their health has to do with how they feel and what they are able to do. Despite the fact that health relates to how an individual feels and what an individual can do, this does not imply that health *is* how they feel and what they are able to do. To redefine health so that it captures the feelings and abilities of an individual *relating* to their health seems to be confusing a quality with the effects of the quality. Understanding blindness as a health issue, for example, does not require understanding all of the ways in which being blind may make an individual’s life more difficult and an individual’s reaction to being blind. Those are welfare issues. Welfare incorporates many important dimensions beyond health, including the feelings of the individual (in the case of persons) along with what they are able to do.

For the reasons presented above, we should preserve the notion that one can be unhealthy but faring well, and vice versa. Using ‘health’ interchangeably with ‘welfare’ is not simply an innocuous confusion—which may have been the case if welfare applied only to those entities whose health and welfare overlapped to a high degree, like plants—but their confusion can lead to importantly distinct responsibilities of individuals, for example.

Despite defining health in a way that infringes upon the meaning of welfare, many of Venkapaturum’s points are insightful and useful to our discussion of welfare. I think that it is certainly true that the relevant policymakers, lawmakers, and professionals ought to have a clear conception of health—but also of welfare. Such persons should focus on more than the mere elimination of disease when constructing standards of care and related policies. Introducing a coherent notion of welfare which complements health in the appropriate way would likely address this issue precisely.

*Welfare as Happiness*

As the *OED* suggests, happiness and welfare are surely related in important ways. But ‘happiness’ too is a notoriously ambiguous term. Traditionally, happiness is understood in one of two ways: as psychological contentment or as flourishing. Roger Crisp, for example, describes happiness as “1) A state of mind or 2) A life that goes well for the person leading it” (2013). We can speak of your happiness, then, and refer to your *feelings* of happiness or to your life going well (aside from your feelings), which are two different phenomena.

When we define welfare in terms of happiness, do we mean: experiencing pleasant mental states? It is ‘happiness’ in this sense that describes the way we feel when we are joyful or elated. There are good reasons, however, to distinguish between welfare and this sense of happiness, as it is “becoming an increasingly common view among philosophers that well-being does not just depend on one’s psychological responses,” including the psychological response of happiness (Sarch 2012, p.1). Rather, welfare seems to describe more than just happiness in this sense.

First, if our ordinary use of the term ‘welfare’ is a reliable indicator of welfare subjects, then collections, plants, and other non-mental beings have welfare. These entities, however, lack mental states. And if this is true, there cannot be a necessary relation between welfare and happiness. Since we can coherently speak of the welfare of corporations, orchestras, football clubs, palm trees, and orange trees, we should reject the notion that welfare is equivalent to feeling happy.

Even if we restrict such an interpretation to the welfare of persons, we should reject the notion that the welfare of persons is the happiness of persons. In a well-known thought experiment called the ‘Experience Machine’, Robert Nozick asks us to imagine a device that can offer us uninterrupted happiness (pleasurable experiences) for the duration of our lives (1974). We would even have the option of stipulating the details of these experiences. Nozick suggests that most people would forgo the experience machine in favor of living a ‘real life’ engaged with the outside world. This is because the experience of pleasure alone falls short of ‘faring well’. We can see this same point when we consider a man suffering from delusional episodes who is mistakenly convinced that he is an ancient king or when we consider the drug addict enjoying a transient high. Both may be thoroughly enjoying the pleasure of their experiences; yet it seems inaccurate to describe each as ‘faring well’. And if this is the case, and Nozick is correct in his conclusions, then we have to conclude that individuals can experience positive mental states, even a continuous stream of positive mental states, and still lack welfare.

Happiness understood as positive mental states often contributes to the welfare of persons, even if it is not one and the same as welfare. Experiencing a reasonable level of happiness, and often enough, is an important dimension of the welfare of human beings. We must not rule out, however, that experiencing unhappiness may also be important to welfare—at least, experiencing unhappiness is not necessarily detrimental to one’s welfare. We *should* feel the pain of grief at the loss of a loved one. In fact, we think that the person who is happy at the loss of loved ones is likely ill in some way. Thus, happiness is important to welfare, but it is not the same as welfare.

*Welfare, Happiness, and Flourishing*

Following Aristotle, the second reading of ‘happiness’ refers to the phenomenon of what Aristotle described as ‘eudaimonia’, a term which is also commonly translated as ‘flourishing’. This state of happiness describes the highest good for human beings, but it is not merely psychological contentment. Rather, it is living well:

Verbally there is a very general agreement; for both the general run of men and people of superior refinement say that the highest good is happiness, and identify living well and faring well with being happy (*NE* 1095a17).

We see here a link between ‘faring well’ and ‘happiness’. Aristotle, however, points out that the term ‘happiness’ is vague, and so he sees reason to go further and to ground an individual’s happiness in their doing what is appropriate for the kind of thing they are; when a thing flourishes, it functions in the way it ought to function according to its nature:

To say however that the Supreme Good is happiness will probably appear a truism; we still require a more explicit account of what constitutes happiness. Perhaps then we may arrive at this by ascertaining what is man's function. For the goodness or efficiency of a flute-player or sculptor or craftsman of any sort, and in general of anybody who has some function or business to perform, is thought to reside in that function; and similarly it may be held that the good of man resides in the function of man, if he has a function (*NE* 1097b10).

Thus, the flourishing of an entity is always a flourishing with respect to the nature of that entity. A person flourishes when his life goes well with respect to the kind of thing he is: a human being. And the same holds true of plants and other animals, which flourish when they act well according to their nature. If we are to equate happiness with welfare, then this interpretation of happiness as flourishing better captures our ordinary sense of (unmarked) welfare.

Despite its promise, however, this approach has problems. First, as Rosalind Hursthouse points out, some meanings is lost when we translate *eudaimonia* into English because the terms ‘flourishing’ and ‘happiness’ do not perfectly capture Aristotle’s use of *eudaimonia,* which is applicable only to rational beings and which does not depend on one’s psychological states (Hursthouse 1999). Apart from those engaged in a relatively insulated philosophical discourse, then, few people use ‘happiness’ in this way. Rather, most people use happiness in the more restricted way described above to refer to positive psychological states. Further, and more importantly, the English term ‘happiness’ is rarely (and then only metaphorically) attributed to plants, despite how well they may fare or despite their flourishing. On the other hand, however, we do say that plants flourish and have welfare.

Thus, happiness understood in this broader sense—as *flourishing*—does better capture the notion of welfare. But this sort of happiness seems to apply only when a subject enjoys positive welfare *and* experiences that positive welfare in the form of happiness. That is, happiness and a high level of welfare might incidentally correspond when positive (happy) psychological states and other dimensions of welfare constitute an individual’s positive welfare. In this sense, ‘welfare’ and ‘happiness’ describe the same quality of a specific subset of subjects of welfare: the flourishing of developed human beings. This is too restrictive of an understanding of welfare. In order the answer our initial question—what is welfare?—we have to address welfare as it pertains to all things that have welfare, and not just some proper subset.

*Understanding Welfare in terms of ‘Good for’*

Welfare is often described in terms of what is ‘good for’ an entity. In his commentary on ‘Well-being’ (2015), Crisp treats well-being and welfare as closely allied notions, and describes a subject’s well-being as that which is good for them. Other philosophers such as Sumner (1997) and Darwall (2002) understand welfare in terms of ‘good for’, and this phrase often emerges in ordinary conversations related to some subjects’ well-being or welfare. Eating vegetables, for example, is good for children because it contributes to their welfare. Reproduction is good for a species. Fertile soil is good for plants.

Introducing the phrase ‘good for’ as a means of understanding welfare is, in one sense, shifting the ambiguity for ‘welfare’ to ‘the good’—and so replaces one set of problems with another. However, we can draw upon these ordinary examples of the use of ‘good for’ in order to reveal some further features of welfare. We can see that the ‘good for’ relation can hold between different kinds of entities. If A is good for X, then A contributes to the welfare of X as an individual, or to X as a member of a community, or, in some cases, A contributes to X being the kind of entity it is supposed to be.

Richard Kraut, in *What is Good and Why: The Ethics of Well-Being,* describes this ‘good for’ feature in the following way:

Living things are not the only things for which some things are good and others things bad. Some things are good for a car, other things bad. But truths about what things are good for a car are truths about the ways in which they serve human beings … What is good for a living being, as opposed to an artifact, is what promotes the flourishing of that same living thing (Kraut 2007, p. 132).

Thus, in one sense, if A is good for X (as a particular), then A typically contributes to the flourishing of X. Eating vegetables and having a supportive family are typically good for a child. When children eat vegetable, they are healthier and this health contributes to their flourishing. To describe education as good for children is to say that education promotes the good of children. Perhaps certain features of their education will not affect these children until later in their lives—educating children to perform a task which will not be implemented until adulthood, for example—but it is good for them now. In this way, events or conditions can be good for a subject now while promoting that subject’s flourishing only later.

‘A is good for X’ can also mean that when X obtains/realizes/manifests A, and X is supposed to do so, either through design (as in the case of artifacts) or evolution (as in the case of organism parts), then A is good for X. This happens when X is supposed to do A, or is designed to do A. The general principle is that when things do what they are supposed to do, doing that is good for that thing—or at least good for whatever that thing is a part. For example, hearts are supposed to pump blood. When a heart does pump blood, it is good for the host of the heart because the heart is supposed to perform this function. To pump blood is the typical way that a heart contributes to the organism (its host) and so when a heart performs this well it is good for the host. Parts are functioning as they should function.

Artifacts, too, can have good features, and this value claim describes those features which contribute to their functioning. In the case of artifacts, A is good for an artifact when A contributes to the artifact performing in the way that it is designed to perform. A sharp blade is good for a knife because a knife is designed to cut. Thus, the sharp blade contributes to the good performance of the knife: it is good for the knife. We do not use such language ordinarily, but we do speak of good or bad knives, and improvements to knives (or other artifacts), and such value-laden claims correspond to this ‘good for’ relation.

Some events or changes can be good for broader communities or groups as well. Certain activities such as reproduction and survival are said to be good for the species of the entity that reproduces or survives. Profits are good for companies. Further, that which is good for a group is not necessarily good for members of the group. For example, reproduction is good for a species as a whole but it may be bad for a particular member of the species. A particular wolf may be threatened by reproduction if that wolf is too weak to survive birthing its offspring, but the reproduction is good for the species as a whole. Or, a pack may leave a sick member behind in order to survive: bad for the individual, but good for the pack.

Good for *and the Value of Welfare*

At this point in our discussion it is worth noting that a subject’s welfare is only valuable insofar as the welfare *subject* is valuable. In other words, welfare tells us about what is good for the welfare subject, but it does not necessarily tell us the right way to act when interacting with the welfare subject, or whether or not the welfare subject has moral value (Feldman 2004, p. 10). Consider the welfare subject grass, for example. Sunlight is good forgrass and so it promotes the welfare of grass. This fact does not tell us anything about the value of grass itself—whether we have to work to preserve grass, or whether we do something wrong by killing grass. Welfare claims only tells us what is good for grass.

This distinction may appear innocuous but it is important to our understanding of welfare in the context of the medical practice. By divorcing the value of welfare from the nature of welfare, we can recognize that a PVS patient has welfare (to some degree) without implying further claims about the value of PVS patients. Thus, we reduce the risk of prematurely sliding into the ethical considerations that stem from an entity’s having welfare. So while it is true that the welfare of an entity is closely related to considerations about the value of that entity, the two notions are distinct.

*Understanding Welfare in terms of Interests*

Returning to our list of related terms, we often see welfare described in terms of interests, and, commonly, best interests. When we discuss the welfare of a patient in the clinical setting, for example, we often do so by describing the patient’s welfare as the patient’s interests: Does the family of the patient have the best interests of the patient in mind, or their own interests? Is the attending physician considering the interests of the patient when prescribing this drug? Underlying questions like these, and implicit in many uses of the term ‘interests’, is an assumed relation between interests and welfare. In some cases, interests are explicitly used to define patient welfare. The American Board of Internal Medicine, for example, defines what it calls the ‘Primacy of Patient Welfare’ as ‘the dedication to the interests of the patient’ (2002). Others view welfare as: that which is in the best interests of the subject. Speaking of interests may indeed be useful when discussing welfare, but both the nature of interests and their relation to welfare can be defined in different ways. Consider the use of ‘interest’ in the following:

1. “It is in your child’s best interest that you refrain from smoking while pregnant.”
2. “After reflecting on the options, Anna communicated an interest in addressing her condition through fitness and diet.”
3. “When Bill wants attention he expresses an interest in joining the terrorist movement.”

Interests come in many varieties and relate in different ways to welfare. Some interests are implied and others are expressed. Some expressed interests are genuine, others are not. The fulfillment of some interests would promote one’s welfare, others would not.

In example (1) above, we speak of the interests of a fetus. In this case, the subject of welfare (i.e. the fetus) does not have the cognitive capacity required to form an interest, nor can she communicate an interest. Despite this, we coherently refer to her best interests, and we do so because we can presume that the fetus wants her life to go well. Both her current and future welfare are at stake, and we attribute interests to her which are directed towards this welfare. These interests—unexpressed yet presumed—are *implied interests.*

We attribute implied interests to many subjects of welfare, from plants to infants to competent adults. A plant has implied interests in sunlight and water, for example, and a human being in health. All of these—sunlight, water, and health—are good for their beneficiaries; they promote those subjects’ welfare.

Some beings (like competent adults) are able to express their preferences. In example (2), Anna prefers to address her condition through exercise and fitness. Notice that Anna’s preference will not necessarily promote her welfare. She may very well have done better to address her illness through another means. But, Anna has preferences and she has expressed these preferences. When a person has conscious preferences or desires, these are best understood as *cognitive interests*. Some cognitive interests are expressed and others are not. When a cognitive interest is accurately expressed, it is an *authentic interest.*

Not all expressed interests are cognitive interests, however. In (3), Bill’s expression of his interest does not correspond to a cognitive interest. In fact, Bill has one cognitive interest—gaining attention—and a different expressed interest—joining a terrorist movement. In the clinical setting, this is not uncommon. A patient may express an interest in pain relief but really have an interest in opiates to feed his ddiction. When a patient expresses an interest that does not accurately reflect his cognitive interests, this expressed interest is an *inauthentic interest.*

When we describe welfare in terms of interests, it is necessary to differentiate between kinds of interests, to identify which sort of things can be said to have interests, and also to recognize the distinction between what is an interest for a subject and what is merely expressed as such.

The distinction between types of interests emerges—though often implicitly—in a number of different contexts, from discussions about environmental concerns to topics in medical ethics to debates over animal rights. Tom Regan, for example, recognizes the different uses (and thus ambiguities) of interests in his writings on the ethical treatment of animals:

When we speak of a being (A) as ‘having an interest’ in something (x), we may mean either (a) that *x* is in A’s interests, that *x* is conducive to A’s good, or (b) that A is interested in *x,* that, for example, A likes or desires or is aiming at *x* (1983 p*.*487).

Besides this distinction between ‘having an interest’ and ‘being interested in’, which Regan refers to as interest1 and interest2, there are further noteworthy distinctions among interests. These different types of interests relate to welfare in different ways.

Figure 2: Types of Interests

*Best Interests (‘Welfare Interests’)*

On August 24, 79 AD, the citizens of Pompeii slept as lava and ash from Mount Vesuvius poured towards the homes. Many were killed in their sleep, never having a chance to escape the path of the deadly eruption. In one sense, those who slept never had an interest in escaping from the approaching lava. This is because they never held the cognitive desire to flee. Yet, in another sense, they certainly had an interest in escaping. Fleeing would have been good for them. Thus, we can say that it was in their *best interests* to flee from the approaching disaster—even if they were never interested in fleeing.

Certain interests, like the residents’ interest in fleeing, are objectively good when fulfilled. These are ‘best interests’ and are often referenced as the standard for welfare considerations for the incompetent or incapacitated, and most commonly for children, infants, or the disabled.[[6]](#footnote-6) An individual’s best interests do not necessarily correspond to that individual’s subjective—that is to say, cognitively held—interests. Eating healthy when we are young is in our best interests though we may lack a cognitive interest in many healthy foods. We may even have an aversion to many healthy foods. Best interests are presumed to be directed towards the welfare of the individual, though they are not necessarily expressed or even held by the individual. If X is a best interest, then X is in A’s interest and is directed to A’s welfare. Cats, a sleeping person, and plants can all be said to have best interests even if they may lack cognitive interests.

At times best interests are explicitly framed in terms of welfare. John Kleinig, for example, describes these interests as “those interests that are distinguished not primarily as those in which we have some conscious stake, but as those basic prerequisites for the pursuit of whatever we may have or come to have stake in. Welfare interests predate any choice behavior or preferences on the right-holder’s part” (1991 p. 185-186). We can see that these certain interests are not necessarily held as cognitive interests, or interests in which we have conscious stake, but can nevertheless be attributed to an entity because its welfare depends in some way on the fulfillment of those interests.

*Cognitive Interests*

Some familiar uses of the term ‘interest’ refer to an individual’s cognitive interests or desires and are not necessarily directed towards the individual’s welfare. These interests are preferences or desires that an individual holds regardless of whether or not they are good for the individual. Augustus Gloop’s obsessive desire for chocolate, for example, was a cognitive interest that conflicted with his own welfare. Some desires, of course, may promote an individual’s welfare if fulfilled, as seen in Anna’s desire for exercise and sleep.

*Cognitive Interests: Tacit Interests and Expressed Interests*

Some cognitive interests are held by the individual but not expressed by the individual. These interests I call *tacit interests*. Cinderella held the tacit interest of escaping her evil step-family though she feared to express it. Because tacit interests are also cognitive interests, they are not necessarily directed towards the welfare of the individual. A tacit interest in heroin would typically not promote one’s welfare when fulfilled. Other tacit interests, like those interests in nutrition, would typically benefit the individual. But there is no necessary correlation between welfare and tacit interests.

Other cognitive interests are expressed by the individual, often verbally, but also through other behaviors such as nods of agreement. These are expressed interests. “I would like a private room” is an expressed interest. A handshake may be an expression of the interest to abide by a contract. Many other cues would fall in this category as well.

Those expressed interests which accurately reflect the subject’s preferences are *authentic interests*. This means that the subject both desires X and expresses his desire in X. They are deemed authentic when they accurately reflect the cognitive desires of the subject. If you say that you want water, and you actually do want water, then you have expressed an authentic interest. But not all expressed interests are cognitive interests. Some expressed interests, such as in Bill’s scenario above, may be misleading, deceitful, or the jabbering of a lunatic. These *inauthentic interests* do not accurately express the preferences of the subject.

 There are, of course, natural limitations to knowing which interests are authentic and which are not, yet the difference is important. If a patient expresses an interest in opiates for managing pain, then the physician should gauge whether or not these interests are authentic (directed towards managing pain) or inauthentic (directed towards, for example, selling drugs). The authenticity of the interests will likely determine which course of treatment the physician will approve and recommend.

These many distinctions between types of interests are important because if, as the *Physician Charter* states, physicians are to be dedicated to the interests of the patient, then this obligation imposes drastically different requirements according to the salient reading of ‘interest.’ Do we wish that professionals promote our implicit interests or simply our expressed interests? Might patients reasonably expect professionals to have knowledge of our welfare, and thus our best interests?

*Welfare in terms of Benefit* *and Harm*

Stephen Darwall relates benefit to welfare by writing that welfare is “the good in the sense of what benefits her” (2002, p. 7). Ordinarily welfare is understood as a close relative to both benefit and harm, in that the former corresponds to an increase in welfare while the latter corresponds to a decrease in welfare. We can see the importance of welfare to an understanding of harm when we consider the leading theories of harm.

The most common account of harm, the counterfactual comparative account, compares two states in order to determine a harm: “a given event harms a person … provided that the person would have been better off, all things considered, if the event had not occurred” (Feit 2015). The event of breaking your leg is a harm because you would have been better off if you had not broken your leg.

The phrase ‘better off’ is a normative claim and thus requires a way of making sense of this better or worse off. How might we understand one state as better for you than another? Why are you worse off with a broken leg? Thomas Petersen (2014) points out that according to this understanding of harm:

 a person P is harmed by an act (or an event) a iff, as a result of a, P is made worse off in terms of well-being. One central question here involves the baseline against which we assess whether someone is ‘worse off’ (p. 199).

Petersen has answered his own question by referring to ‘well-being’, for this ‘baseline’ (or reference class) will be determined by a theory of well-being. We can make sense of comparing one state to another by describing the level of each in terms of the welfare of the individual at each state. Thus, if the level of your welfare is lower now that it would have been if X did not happen, then you have been harmed. One state (S1) is deemed better than the comparative state (S2) based on the welfare of the individual at each state. Thus, benefit and harm, according to the counterfactual account, import an understanding of welfare: of being better or worse off, with respect to one’s welfare at a given state.

Sometimes harm, benefit, and welfare appear to diverge. Ben Bradley describes a scenario in which a person’s welfare suffers, yet she does not seem to be harmed:

I buy a gift for a friend and leave it on her doorstep. She would enjoy the gift if she got it. Then I change my mind and take the gift back before she even knows anything about it. My friend is worse off than she would have been if I had not taken back the gift; but I have not harmed her (2015 p.72).

I am not convinced that this represents a case in which harm and welfare are unrelated, primarily because it is not clear to me that the friend is worse off at all. It seems that this would imply that I am worse off on account of there being *anything* that I could potentially have, but do not, and that I would enjoy. The very existence of better things would make me worse off. But this seems to be too broad a notion of ‘worse-off’. This would imply that, since I would enjoy owning a Porsche over my Honda, then I am currently worse off, and so my welfare suffers.

Further, as Bradley points out, if one disagrees and insists that losing the gift signifies a genuine drop in welfare, then it may also signify a harm—just not a moral harm. In other words, some might say that the friend is actually harmed by not getting the gift, but that the potential gift-giver did nothing wrong by retracting the gift. Taking back the gift was *harmful*, but not immoral. Thus, the non-moral harm still corresponds to a drop in welfare.

 Despite one’s interpretation of scenarios like the case of the gift-giving, however, there is good evidence of the important relation between welfare, harm, and benefit. It is difficult to make sense of harm and benefit without first making sense of welfare, and claims of both harm and benefit often import an underlying notion of welfare.

*The Subjects of Welfare*

As mentioned earlier, welfare does not float freely, like the Cheshire cat’s smile; welfare is always the welfare *of something*. It requires a subject. This leads us to ask: Which things are subjects of welfare? Aside from its relevance to our goal of understanding patient welfare, the answer to this question has implications on a number of issues, from the ethical treatment of animals to the proper care of the environment. If animals or the environment do not have welfare, then it is difficult to make sense of their doing better or worse. And if we are to treat things well, or care for things, then we must assume that they have welfare. Thus, we are left with the question of the subjects of welfare.

We can approach this question by identifying a basic array of standard (that is, uncontroversial) welfare subjects, and then using this array of subjects to develop a theory of welfare. For example, we might say that dogs and people have welfare and so a good theory of welfare should account for dogs and people (Bradley 2015). Then, we could construct a theory of welfare around the welfare of dogs and persons, and use that theory to identify further welfare subjects. For example, we would agree that you and your dog certainly have welfare. Then, we can construct a theory of welfare that accounts for the welfare of you and your dog, and then use this theory to see if cars and electrons also have welfare.

We can also avoid making any assumptions about welfare subjects, and begin with the *theory* of welfare, and then use the theory to filter *all* welfare subjects—which might entail, for example, that certain things which we thought were subjects of welfare, like you and your dog, are not subjects at all. For example, we can say that our account of welfare holds that welfare is the fulfillment of rational desires, and it turns out that your dog does not have welfare after all, even though we initially took your dog to have welfare.

The latter approach is unattractive because it would leave open the possibility that *all* of our intuitions about welfare subjects are mistaken. Following the likes of Sumner (1996), I adopt the first approach and so hold that we should identify a core array of welfare subjects and use these subjects as a check on a theory of welfare. A good theory of welfare should pass what Sumner calls the test of Descriptive Adequacy, and so be able to account for the array of things to which we ordinarily attribute welfare: standard welfare subjects. If a theory of welfare cannot account for certain basic welfare subjects, then we should amend the *theory* rather than the list of welfare subjects.

In order to identify this array, I propose that those things have welfare which can be understood to do better or worse—to fare, or perform. I take it that plants, nations, persons, and animals can all fare better or worse, a claim which is supported by the implausibility of the opposite. Denying that these things can fare better or worse would render incoherent the ordinary claims regarding the welfare of all of these entities by, for example, the claims of botanists, farmers, policy makers, and ordinary people about the welfare of each of these subjects. [[7]](#footnote-7)

That these are all welfare candidates is further supported by the fact that we have a general notion of the way that all of these things *should* fare, and so can tell when they fare better or worse. With the right facts, you and I can both identify a plant or nation that is faring poorly, and one that is faring well. Thus, speaking of the welfare of all of these things is a common and coherent use of the term ‘welfare.’

Some might point out that, in the case of plants and nations, for example, ‘welfare’ is merely used metaphorically and that these things do not have ‘genuine well-being’ (Bradley 2015). If welfare describes, in the most general sense, an entity faring better or worse, then I find it unlikely that claims about the welfare of plants or nations are merely metaphorical.[[8]](#footnote-8) Plants are living things that thrive in certain situations and not in others—they do better or worse according to different conditions, and this feature of ‘doing better or worse’ indicates that they fare in one manner or another. These changes constitute faring, and so constitute welfare.

Roughly, there are three candidate criteria for being a subject of welfare: cognitive awareness, sentience, and function.

*Beings with Cognitive Awareness*

A being with cognitive awareness has the mental capacity to form desires, even if crude desires. Some claim that this capacity is necessary for welfare. Only beings with awareness can be ‘interested in’ things, and the frustration or promotion of these things which a subject is ‘interested in’ determines a subject’s level of welfare. A thing does better when its interests are fulfilled and worse when its interests are thwarted. Therefore, if a thing does not have the capacity to be ‘interested in’ anything then it does not meet the requirements for having welfare. Such a view is held by Feinberg (1980), though here Feinberg uses the word ‘good’ instead of ‘welfare’. Regan summarizes Feinberg’s argument as follows (Regan 1984, p. 172):

The only beings who can have a good of their own are those who are or can be interested in things.

The only beings who are or can be interested in things are those who can have beliefs. The only beings who can have beliefs are those who have some form of cognitive awareness.

Plants and mere things do not have any form of cognitive awareness. Therefore, plants and mere things cannot have beliefs.

Therefore, plants and mere things cannot be interested in things.

Therefore, plants and mere things cannot have a good of their own.

For advocates of this view, beings who lack cognitive awareness (and thus desires) cannot be subjects of welfare. This is because it is a necessary condition that a thing has awareness in order for that thing to have welfare.

We should reject the view that cognitive awareness is necessary for welfare. Such a view cannot make sense of our earlier subjects of welfare: clubs, plants, nations, etc. Feinberg claims that plants cannot have welfare because plants do not have any cognitive awareness; they cannot be ‘interested in’ anything. But, as Regan points out, Feinberg’s argument assumes what he intends to prove—namely, that cognitive awareness is necessary for welfare. Since claims about the welfare of clubs, nations, and plants are coherent claims, we ought to reject the cognitive-awareness criterion.

*Beings with Sentience*

Some argue that in order to have welfare, a being must be sentient.[[9]](#footnote-9) In *Well-being,* Ben Bradley writes that “Dogs really do have well-being and cars do not; but what makes this so? Dogs are *sentient*, like humans; that is, they have conscious mental lives” (author’s emphasis, 2015 p. 14). Though there is debate about which beings have sentience, which behaviors count as evidence of sentience, and other surrounding issues, most understand sentience to be the ability to have subjective experiences of the world—a lower level of engagement than the criterion of cognitive awareness, which, as seen, implies that subjects can form beliefs.[[10]](#footnote-10) Importantly, sentience allows for the experiences of pain and pleasure, which are foundational to some theories of welfare (in particular, hedonism). Sentient beings can suffer and so fare better or worse on account of this suffering. Cats and adult human beings, for example, are widely considered to be sentient while mold and oak trees are not sentient. If a being can experience pleasure or pain, then despite that being’s inability to hold beliefs, that being has welfare.

Grounding welfare in sentience again fails to account for the welfare of plants (assuming that they lack sentience) and aggregate groups like nations or clubs, which are not sentient wholes yet still fare well or fare poorly. In order to make sense of welfare, we require a criterion which captures a feature common to any welfare subject.

*Beings with Proper Functions*

Following Aristotle and associated theories called Perfectionist Theories of Welfare, some accounts hold that for an entity to have welfare it is sufficient for that entity to perform as it should, given its purpose, or function (Aristotle *NE;* Bradley 2015 pp.40-43). An entity’s welfare depends on whether or not it is doing what it supposed to do, based on the kind of thing it is. A tree is supposed to flower and bear fruit—it has these functions—and so a tree can fare better or worse relative to the way that trees are supposed to be.

This Aristotelian framework reflects the plausibility of the welfare of non-conscious and non-sentient entities because the welfare of an entity does not rely on the entity’s *experience* of its functioning. A plant can be said to function well—develop roots, convert sunlight, produce fruits—without the plant ever experiencing these functions. Ben Bradley describes the objectivity of such views as: “Perfectionists deny that what is good for you depends upon what you think of the matter. It is not up to you what kind of thing you are; so it is not up to you what is good for you” (2015 p. 41). Your welfare does not require sentience of awareness at all. And, as Regan points out, understanding welfare in this way can help us make sense of mindless entities faring better or worse:

Some plants can be better than others, *qua* the kind of plant they are. A luxuriant gardenia, one with abundant blossoms and rich, deep green foliage is a *better gardenia* than one that is so deformed and stunted that that it puts forth no blossoms at all, and this quite independently of the interests other beings happen to take in them (1983, p. 179).

The advantage of this criterion is that it successfully broadens the scope of subjects to include aggregates and any entity with a proper function, such as plants. Further, this view can account for mistaken subjective welfare assessments. One can feel content, but in fact be faring somewhat poorly because of the failure to fulfill one’s function.

 Critics of this view, however, point out that these entities are merely doing better or worse based on the judgments of an outside observer (namely, persons) who impose values (‘doing better or worse’) on an essentially value-neutral entity (Feinberg 1980). Things just are the way they are, they say; there is no ‘should be’ in nature that is separate from the preferences or interests of persons. We might *prefer* that a withered plant is vibrant and blossoming; we might *value* a healthy plant over a withered plant; but this does not entail that the withered plant *should be* vibrant and blossoming.

Denying that things ‘should be’ a certain way does indeed undermine the plausibility of the function criterion. But it does more than that. It undermines the plausibility of the other criteria as well—and welfare in general. How are we to make sense of welfare without a notion of the way that things should be? The criterion of sentience imports the principle of ‘the way things should be’: namely, things should experience more good than bad (or, more pleasure than pain). The criterion of cognitive awareness does too: things should be such that their interests are fulfilled. We have already accepted that things *should be* a certain way. To deny this principle leaves us with an empty concept of welfare.

*Welfare and the Way Subjects Should Be*

We see from the preceding discussion of welfare subjects that any assessment of welfare requires some notion of the way the welfare subject typically should be faring, and what it means for that subject to fare well. Making sense of things faring well or poorly, or faring in a way that is better or worse, requires this normative standard. Thus, built into any welfare account is this normative component of the way that things *should* be. If we say that something is faring badly, then it should be another way and it is not. If a typical teenager does not know how to write her name, then we say that she is doing poorly in this respect. This is because she should (typically) be able to write her name. But if a plant is incapable of writing its name, we do not subtract points from its welfare assessment. In fact, ‘incapable’ is hardly an accurate term. The reason is clear: we do not think that plants should be writing in the first place. This demonstrates that welfare assessments imply a normative feature of the way things should perform and fare, and it is this standard that makes welfare assessments accurate or not. Put another way, the fact that I cannot fly does not mean that I am doing poorly. If somebody insists that I am doing poorly on account of my lack of flight, such an assessment would be inaccurate based on the normative feature of the way I should be as a human being.

*The Ordinary Conception of Welfare and Theories of Welfare*

According to Sumner, “the best theory about the nature of welfare is the one that is most faithful to our ordinary concept and ordinary experience” (1996, p. 10). We have, up to this point, identified a number of important features of welfare which are reflected in the ordinary understanding of the term. A good theory should reflect these features.

We saw that welfare can be used in a marked and unmarked way. In the unmarked use of the word, welfare is the faring of an entity across a period of time and with respect to certain features of the entity. In the marked sense of the word, welfare is the faring well of an entity across time. And welfare, we saw, always inheres in some subject. These welfare subjects need not be sentient or rational beings, because plants, animals, and humans are all welfare subjects. This implies that entities can fare well or poorly without ever experiencing their welfare.

We also saw that welfare is frequently understood in terms of well-being, health, happiness, flourishing, interests, and benefit. The relation each has to welfare, however, varies. Well-being is often used synonymously with welfare, although in certain spheres of literature ‘welfare’ carries connotations of appropriately relating to the environment of the welfare subject. Health and happiness each may contribute to the welfare of certain entities, yet they are importantly distinct from welfare. We also saw that interests, in the broad sense, have no necessary relation to welfare. There are, however, a number of sub-types of interests, and some are necessarily directed towards welfare. Finally, we saw that theories of harm and benefit incorporate an understanding of welfare, and each represents some change in an entity’s welfare.

Having explored the ordinary conception of welfare, we now turn to common theories of welfare. These accounts are meant to capture the ordinary conception of welfare. We will gauge the success of each based on our prior discussion.

*Common Theories of Welfare*

In nearly any philosophical discussion of welfare, one will encounter three basic theories of welfare: hedonism, desire-satisfaction, and objective list. This is largely because in the 1987 classic *Reasons and Persons,* Derek Parfit divided what he calls ‘self-interest’ theories into these three kinds, and these theories have since been referred to as ‘theories of welfare’. (Parfit 1984, pp. 493–502; Kagan 1998, pp. 29–41; Crisp 2006, p. 98; 2008; Sumner 1996, Chaps. 3–5; Woodard 2013; Bradley 2014). Though not every discussion of welfare makes mention of these theories, many current discussions of welfare fall into, or at least refer to, this framework. These three types of welfare theories are hedonist theories, desire-fulfillment theories, and objective list theories.

*Hedonist Theories*

Hedonist theories describe welfare in terms of the balance between pleasure and pain in one’s life. This general view, famously championed by Jeremy Bentham and John Stuart Mill, holds that life goes well for an individual if they experience a large amount of pleasure and a little pain, or, at least, if they experience more pleasure than pain (Bentham 1789; Mill 1861; Parfit 1984). Poor welfare is marked by much pain and little pleasure. Bentham and Mill used this calculus of pleasure over pain as the driving principle for their respective and closely related ethical theories. Mill differed from Bentham with respect to the quality of pleasures, which pleasures counted, and to which degree. On account of this, Mill divided pleasures into ‘higher’ pleasures (for example reading a brilliant novel) and ‘lower’ pleasures (getting a massage) and famously remarked that it is better to be an unsatisfied human than a satisfied pig (1861). At the foundation of any theory of hedonism, and regardless of the differences within those theories classified as hedonistic, is that a subject of welfare must experience pleasure and pain, and their welfare is the balance between these two kinds of experiences (Bradley 2015).

*Desire-Fulfillment Theories*

Desire-fulfillment theories, on the other hand, ground welfare in the satisfaction of the desires of the welfare subject. An individual’s welfare increases when her desires are satisfied and decreases when her desires are frustrated. Theories differ on how the realizations of such desires should be weighed and calculated in order to assess an individual’s welfare or which desires count as true desires. Regardless of these differences, all theories which fall into the ‘Desire-fulfillment’ category share that feature for which they are named (Parfit 1984). As Robert Mabrito summarizes: “The basic idea of a desire theory of welfare is that how good a life is for the person who lives it is a matter of how many of that person’s desires are satisfied. The more satisfied desires the better the life” (2013, p. 299). Your life goes better when you obtain those things or experiences which you want, and worse when you are prevented from obtaining that which you want. Apart from disagreements about what it means to have a true interest in something, or which interests count towards your welfare, etc., all share the same basic principle: your life is good for you insofar as your desires are satisfied.

*Objective List Theories*

Objective list theories are the third kind of theories which purport to provide a list of goods that, despite an individual’s preferences or objections, are still good for that individual. Objective list theories are those which, as the name suggests, propose a list of items which constitute welfare. This list extends beyond mere pleasurable experience or the satisfaction of desires. Some experiences or events just are good for individuals, whether they desire them or not. Examples of such items might be love, knowledge, friendship, or respect (Parfit 1984 pp. 493-502). Objective list theories are attractive because they leave room for certain things being good for individuals even when unwanted (contra desire-fulfillment) and even if causing more pain than pleasure (contra hedonism). The question that follows from objective list theories, then, is: What do these items have in common? Why do they all contribute to welfare?

A number of important criticisms have been lodged against each of these theories. For our purposes, however, I wish to point out an important feature of these theories which is often overlooked and which emerged in our earlier analysis of the ordinary conception of welfare. That is, despite being widely referred to as theories of welfare, hedonism and desire-fulfillment theories only tell us about the welfare of a (relatively) small number of welfare subjects: human beings. Because such theories aim to describe the welfare of beings like you and me, they fail to account for the welfare subjects discussed above. And so, it may very well be true that our welfare depends greatly on our experience of pleasure and pain. It may also be true that the fulfillment of our desires contributes to our welfare. But these theories cannot, in principle, tell us about the welfare of entities that cannot feel pain and do not have desires. What can hedonist and desire-fulfillment theories tell us about the welfare of plants, for example? One answer is that they tell us that plants have either a zero level of welfare or no welfare at all. But this answer seems wrong. Unless botanists are deeply mistaken, plants and crops can fare better or worse, and this faring better or worse is one and the same as their welfare. Because they can fare better or worse, they can have varying levels of welfare. This means that plants do not have merely zero levels of welfare. Further, they must have welfare since they fare well or poorly. Since hedonism cannot tell us about the welfare of plants because plants lack the ability to feel pain and pleasure, then hedonism fails as a theory about the nature of welfare. And since desire fulfillment theories cannot tell us about the welfare of plants because plants do not have desires, then desire-fulfillment theories also fail as theories of welfare.

Objective list theories do not fall prey to this criticism. In principle, objective list theories do not fail as theories of the nature of welfare, though they do fail in practice. First, the fact that objective list theories are taken to be alternatives to desire-fulfillment and hedonistic theories tells us that they offer answers to the same set of questions—questions about the welfare of persons. It is true, however, that in principle objective list theories could tell us something about the welfare of other entities. One could compile a list of things that are good for dogs and plants too. In practice, however, most objective list theories pertain to the welfare of human beings (see the examples of friendship and knowledge above). We are interested in welfare in general, and so we require an approach that tells us how we might compile a list for anything that has welfare.

Thus, objective list theories leave asking: Why are these items on the list? Why are these items objectively good for the welfare subject? Sumner (1996) argues that objective list theories violate the criterion of formality, which requires that a good theory of welfare to explain *why* X and Y contribute to welfare, and not just state that X and Y are good forwelfare. In other words, a good theory must tell us why X and Y are on the objective list at all. Thus, we are better suited to answer such questions by first examining the nature of welfare in itself and then applying our analysis to specific sets of welfare subjects.

In each of the three major theories of welfare, we see a trend towards anthropocentrism. That is, a common tendency in the welfare literature is to begin formulating theories of welfare about persons before properly addressing welfare in itself. Thus, it is often the case that these purported theories of welfare are not helpful in addressing the welfare of other non-persons. This tendency, of course, is understandable because it reflects the many contexts in which the primary goal of the discussion is to better understand the welfare of persons.

Thus, many theories and definitions about welfare are only nominally so. More often than not, these are theories of *personal* welfare and so are anthropocentric in nature. These theories fail to account for the welfare of those subjects which cannot feel pain and cannot be said to have desires—despite having welfare. We see anthropocentrism not only in these common theories but also in basic definitions. Definitions which equate welfare with happiness, for example, do little to explain the welfare of those non-persons which we do not judge as happy or unhappy. A good account of welfare will not only tell us about the welfare of human beings, but about the welfare of any entity that has welfare.

*Capabilities and Welfare: The Capabilities Approach*

One alternative to the Parfit-influenced theories is the Capabilities Approach, which surfaced earlier in our discussion of Venkapaturum’s theory of health (see the section titled *Welfare and Health*).[[11]](#footnote-11) Discussing welfare in terms of capabilities is a tradition traced back to Aristotle, but which has been adopted by a number of philosophers, most notably Amartya Sen and Martha Nussbaum (Sen 1993, 1999; Nussbaum 1988, 1992, 2011). The Capabilities Approach is also often referred to as the ‘Human Development Approach’ although Nussbaum has explicitly chosen the title ‘Capabilities Approach’ for use in her works because this word choice leaves open discussions of the capabilities of non-human entities (Nussbaum 2011, p. 18). This, of course, is an advantage of the approach given our earlier criticisms regarding the anthropocentric tendencies of other common theories.

The Capabilities Approach (CA) utilizes two basic notions which together constitute the essential features of any welfare assessment. The first refers to the ‘beings’ or ‘doings’ of an entity: that which an entity actually does, or the ways that it is. A person may *be* nourished and *doing* a job. Many features of a person’s life, or the life of any entity with welfare, can be described in both terms: *being* employed and *working* a job; *being* a father and *caring* for offspring. The second important notion describes the opportunities that an individual has to be or do. These are the *capabilities* of an entity. It is this notion of capabilities that is often left out of theories of welfare and that tells us about what something could do, and not only what it does do. Beyond asking about the way an entity is, the CA asks: what is an entity able to do? These two rather broad notions—‘beings’ and ‘doings’ coupled with the opportunities to ‘be’ and ‘do’—form groundwork for the Capabilities Approach.

The broadness of the Capabilities Approach has made it attractive in a variety of contexts, though Sen and Nussbaum are most well-known for their contributions in the contexts of economic development (Sen 1993) and social justice (Nussbaum 2011). Both emphasize the importance of capabilities in assessing welfare. Nussbaum summarizes the Capabilities Approach as:

The Capabilities Approach holds that the key question to ask, when comparing societies and assessing them for their basic decency or justice, is ‘What is each person able to do or be?’ In other words, the approach takes each person as an end, asking not just about the total or average well-being but about the opportunities available to each person (2011, p. 18).

The purpose of adopting such an approach is to highlight the importance of these real possibilities (capabilities) that subjects enjoy or lack and to include this feature in welfare assessments. In other words, when understanding welfare we should look beyond what entities do and the ways entities are and further explore what entities are *able* to do and the ways they are able to be. The welfare of a particular person is made up of many different dimensions (i.e. her education, nourishment, health) along with the real opportunities that she has to improve her life with respect to these dimensions.

We can see that value of the Capabilities Approach when we consider the welfare of two individuals who have not eaten for an extended period of time (Sen 1982). They both share a current state of hunger, and we may even say that they share a current state of health as a matter of stipulation. One person, however, is fasting while the other is unable to obtain food. Despite the fact that neither is eating, and even despite their identical levels of health, it is clear that the welfare of each (at least with respect to this dimension) is different, the latter having a lower level of welfare than the former. This is because one has the capability to obtain food while the other does not. Sen uses this example to demonstrate that an individual’s welfare is more nuanced than the behaviors and qualities—‘beings’ and ‘doings’—exhibited by an individual. Thus, instead of asking: Is she educated? We should further ask: What are her real possibilities for gaining an education? We can ask this about many other features of an individual’s life. Beyond: Is she eating a varied diet? We can ask: Does she have the opportunity to eat a varied diet? How does her actually eating properly compare to her opportunity to eat properly?

The Capabilities Approach is a general starting point for addressing welfare-related issues and it has been deliberately described as an ‘approach’ rather than a ‘theory’. This is because it provides a broad structure for answering those questions surrounding welfare rather than providing a fixed or precise theory of welfare. For this reason, it has been applied to a wide variety of domains, including the creation of economic and social policies, theories of human rights and welfare, and political philosophy. Sen and Nussbaum, for example, have applied the CA to development economics, the goal of which is to accurately evaluate the welfare of individuals in various countries and then create policies or laws that can help overcome hindrances to increasing welfare (Nussbaum 2011; Sen 1992). The CA has been regarded as successful because it allows for a plurality of welfare dimensions, rather than the traditional reliance on an individual pseudo-indicators of welfare such as property or subjective happiness. For example, the welfare of the individuals of a nation has often been gauged according to the average GDP of that nation (Nussbaum 2011, pp. 48-50). The capabilities approach recognizes that an individual’s welfare is made up of many different dimensions and the freedoms and opportunities—capabilities—that correspond to these dimensions. The amount of property or wealth that an individual has is just one of many features that contributes to their human welfare and so does not capture the full picture in the way of welfare.

While capabilities are properly recognized as relating to welfare in a meaningful way, current descriptions of capabilities frequently offer little in the way of offering a precise definition. Nussbaum, for example, describes capabilities in the following way:

What are *capabilities*? They are the answers to the question, “What is this person able to do or be?” In other words, they are what Sen calls “substantial freedoms,” a set of (usually interrelated) opportunities to choose and to act (2011, p 20).

Here Nussbaum describes only the capabilities of persons despite choosing the title ‘Capabilities Approach’ instead of ‘Human Development Approach’ in order to leave open the capabilities of non-persons. We are interested in the welfare of *anything* with capabilities. The central point of the CA is useful: beyond pain and pleasure, and beyond the fulfillment of interests, welfare is related in an important way to 1) what an entity is *able* to do and 2) the ways that an entity *is.* The relation between what an entity is able to do and the ways that it is captures the core meaning of welfare. The success of the approach is a testament to its accuracy, as advocates of the Capabilities Approach have fruitfully applied their broad framework to questions of social justice and human rights. Thus, the advantage of the Capabilities Approach is that it provides a general framework (an *approach*) for understanding the welfare of many different entities and it focuses on the way an entity is, given the way that it can be. These are general and essential features of welfare.

Our previous discussion leaves us with a number of criticisms of the current understanding of the nature of welfare, but also a number of features upon which to begin reconstructing the notion of welfare. The first step in doing so is to establish an informative and clear definition of welfare. Such a definition should avoid the frequent pitfalls of welfare discussions while still accurately reflecting the core idea of welfare as “faring well or poorly over time”. A good definition should allow for the welfare of any basic welfare subject and should avoid listing specific welfare dimensions. A good definition should further make mention of the normative element of welfare—that is, the component of welfare which allows us to mark welfare ‘better’ or ‘worse’. Further, a good definition should refer to both the way an entity is and the capabilities that the entity has to become certain ways and to do certain things.

*A Definition of Welfare*

Towards this end, I propose that welfare is **the degree to which an entity exercises the array of capabilities which, when realized, are typically good for members of that entity’s kind or relevant partition.**

Different components of this definition correspond to the various features of the preceding discussion:

**‘The degree to which…’**

This phrase reflects our earlier discussions that welfare is best understood along a continuum, a notion captured by the unmarked use of the word (See ‘Marked and Unmarked Uses of Welfare’). Unlike the OED and Webster’s Definitions, our definition allows for an individual to have welfare while still faring poorly. By defining welfare in terms of degrees, we allow for higher and lower degrees, or levels, of welfare. Thus, welfare is not just ‘faring well’, but faring at some level.

We should note, however, that the ideal degree is not necessarily a maximal degree, but rather an intermediate degree reflecting Aristotle’s notion of the Golden Mean:

By the intermediate in the object I mean that which is equidistant from each of the extremes, which is one and the same for all men; by the intermediate relatively to us that which is neither too much nor too little- and this is not one, nor the same for all … Thus a master of any art avoids excess and defect, but seeks the intermediate and chooses this- the intermediate not in the object but relatively to us (*NE*, 1106b5-8).

For example, maximally realizing one’s capability to achieve health at the cost of losing friends, isolating family, or suffering at a job is detrimental to one’s welfare. This represents an excessive realization of a capability. On the other hand, appropriately exercising this capability, neither to excess or deficiency, improves one’s welfare. Being healthy is good for the healthy individual.

‘…**an entity…’**

Welfare always belongs to a subject, and to a wide range of subjects. By referring to the subject as an entity rather than as a person or group (see ‘Welfare Subjects’), we leave open the possibility of many non-person welfare subjects such as plants, animals, and even artifacts.

**‘…exercises the array of capabilities…’**

Here I introduce capabilities, which we will discuss extensively in Chapter 2. Welfare discussions grounded in capabilities enjoy support by philosophers such as Amartya Sen and Martha Nussbaum, who approach questions of social justice and individual freedoms from a perspective of an individual’s capabilities (Nussbaum 1988, 1992; Sen 1993, 1999). Notably, however, Sen and Nussbaum deliberately describe their views as an approach (‘The Capabilities Approach’) rather than a theory because they offer a general perspective through which to view, or approach, questions of welfare. Our intention is to construct a theory which can be applied to the specific context of the medical profession and patient care.

By defining welfare in terms of an *array* of capabilities, we leave open the possibility of varying welfare dimensions for various kinds of welfare entities. By doing so, we avoid the mistake of specifying welfare dimensions for particular welfare subjects (see ‘Understanding Welfare as Happiness’ and ‘Understanding Welfare as Health’). Rather than referring to particular dimensions such as ‘happiness’ or ‘health’, we refer instead to ‘capabilities’ which can be attributed to any welfare subject.

The notion of capabilities, of course, plays a central in our definition. Chapter II is dedicated to defining and discussing this notion specifically within a particular framework (Basic Formal Ontology) which allows for a more rigorous analysis of broad terms such as ‘welfare’ and ‘capabilities.’

**‘…which, when realized, are typically good for members of that entity’s kind or relevant partition.’**

When an entity exercises a capability and on account of that becomes a certain way, or does a certain thing, this counts towards its welfare only if it is good for that entity (see the discussion of ‘Welfare and Good for’). If the exercise of a capability is good for some *other* entity, then this realization does not count as contributing to that entity’s welfare. Thus, we restrict the relevant capabilities to those which are good for the very entity who realizes them.

This clause reflects the important notion that an entity’s welfare is grounded upon that entity doing certain things, or being certain ways, that are good for it, but also in the notion that an entity *should* do certain things and be certain ways (See ‘Welfare and the Way Subjects Should Be’). We cannot identify the ways an entity should be without reference to some further class. As simply physical objects, entities are just the way they are: an aggregate of particles, cells, or systems. But when contrasted to other entities—in the most general classification, those of the same kind—we can recognize possibilities of entities: ways that they could, and should be. Thus, when an entity exercises certain capabilities or fails to exercise certain capabilities, we can assess whether or not the entity is faring well or poorly by referencing an ideal way that it should be.

The phrase ‘relevant partition’ refers to the various ways in which we can divide members of kinds with respect to certain features or properties such as age, sex, time span, location, production process, materials, and environment. The results of such divisions of kinds are what we will refer to as *partitions* (Bittner and Smith 2003). For example, I may wish to assess the welfare of a young Labrador with respect to other young Labradors. We may create a partition among the members of the kind *dog* for Labradors between the ages of six and twenty months and assess its welfare accordingly. As we will see in chapter 3, these partitions will play a role in the various ways that we understand the welfare of different subjects.

As seen, such a definition reflects many important features of our analysis of the ordinary notion of welfare. This definition, however, requires a further analysis of this notion of capabilities, towards which we will direct our attention in Chapter II.

*II. Capabilities*

At the end of the previous chapter, I proposed a definition of welfare as the realization of the array of capabilities which, when realized, are typically good for members of that welfare subject’s kind or relevant partition. This definition reflects many of the important features of welfare which emerged in our discussion so far.

First, by defining welfare in terms of ‘degrees’ along a continuum, this definition reflects the notion that a subject’s welfare can increase and decrease, that an individual can fare better or worse. Following the Aristotelian idea of the golden mean, the ideal degree of realization of the array of capabilities is based upon a canonical, rather than a *maximal,* value.

Second, this definition makes sense of many different welfare subjects, including persons and groups of persons, but also including entities of other sorts. This feature allows us for example to make sense of botanists’ claims about the welfare of plants and of veterinarians’ claims about the welfare of animals because our theory includes any welfare subject beyond just persons.

Third, welfare is the degree to which an entity exercises an array of capabilities that are typical for its kind. The realization of a capability often depends on both external and internal features of an entity—your capability to swim depends on your physical constitution, but it cannot be realized unless you are near a sufficient amount of water. Because welfare is based on the degree to which capabilities are *realized* (and not just whether or not the capabilities exist), an entity’s welfare depends upon its environment in an important way. This helps us make sense of the normative component of welfare, which allows us to compare the way a thing fares as compared to the way a thing *should* fare. Further, grounding this notion that an entity should be certain ways, or do certain things, is the notion that these entities must be *able* to do, have, or be these ways. The term which captures this notion—and which is indispensable to our understanding of welfare—is ‘capabilities.’ The purpose of this chapter, then, is to offer an elucidation of the nature of capabilities.

In order to better explore this notion of capabilities, I will discuss capabilities within the context of Basic Formal Ontology (BFO), a tested framework which provides a set of precisely defined terms with which to describe the attributes and roles of entities of different sorts. Introducing ‘capabilities’ into a such a framework allows us to explain capabilities in terms of other established notions and so provides supporting terms for our understanding of capabilities. After exploring the ordinary notion of capabilities, I will analyze this notion and its relation to welfare using the terms and definitions of Basic Formal Ontology.

*What are Capabilities?*

We saw in the first chapter that certain philosophers rely on the notion of capabilities in their respective theories. Martha Nussbaum, for example, answers the question ‘What are capabilities?’ in the following way:

[Capabilities] are the answers to the question, “What is this person able to do or be?” In other words, they are what Sen calls “substantial freedoms,” a set of (usually interrelated) opportunities to choose and to act (2011, p 20).

Persons are just one of many kinds of things with capabilities. You may have the capability to learn new things, to repair your car, to travel, or to organize your schedule. Some basic capabilities emerge universally among human beings, such as the capability to communicate through language, create non-decorative art, recognize threats, and play jokes (Brown 2002). Of course, not every human individual may have these capabilities, and some may perform these capabilities better than others. Further, at certain phases of development (infancy, for example), these capabilities may be latent or non-existent. Other capabilities may include the capability to enrich one’s life through learning, the capability to earn an income, the capability to reproduce, the capability to raise children, and the capability to be healthy.

While these are all capabilities of human beings, the most general idea is that the capabilities of an entity are the things it can do.[[12]](#footnote-12) Both capabilities and the means of realizing capabilities can vary from one entity to another – as they vary from one person to another. We may both have the capability to communicate with other human beings, which I realize through processes of speaking English and you through processes of speaking French. A tree has the capability to photosynthesize sunlight and grow fruit. A motorcycle has the capability to transport a person quickly and efficiently. A computer has the capability to process information.

*Definitions of Capabilities*

The Oxford English Dictionary reflects a similar understanding and defines ‘Capability’ as 1) “Power or ability: *he had an intuitive capability of bringing the best out in people;”* or 2) “The extent of someone’s or something’s ability: *the capability**to increase productivity.*”(2016).

The OED definition of ‘capability’ reflects its basic meaning as the range of activities that an entity can perform and the range of ways that an entity can be. Capabilities, however, are not merely just *any* way that an entity can be, or *any* act that it can do. Rather, capabilities carry connotations of achievement, success, or goodness. When you have capability X, then X is typically useful or good in some way when exercised. We would not ordinarily say that you have the capability to become diseased or the capability to fail at a job. Rather, we speak of capabilities as something positive, describing their realizations in terms of achievement and success: the capability to recover quickly from disease and the capability to succeed at a position, for example. This feature is evident in the OED examples of ‘the capability of bringing out the best in people’ and the ‘capability to increase productivity.’ Both capabilities, when realized, produce positive outcomes.

*Good Capabilities*

One use of ‘capabilities’ which explicitly reflects this notion of ‘goodness’ or ‘achievement’ appears in the literature on enterprise architecture, in which capabilities are understood strictly in terms of business, and so are defined as business capabilities. In “A Business-Oriented Foundation for Service Orientation,” for example, Ulrich Homann defines a business capability as:

A business capability is a particular ability or capacity that a business may possess or exchange to achieve a specific purpose or outcome. A capability describes what the business does (outcomes and service levels) that creates value for customers; for example, pay employee or ship product (2006 pp. 1-4).

In this context, Homann identifies a capability as a feature of a business which, when exercised, ‘creates value’ for customers—i.e. is good for those customers. This explicitly refers to our proposal that capabilities, when realized well, create value, or are good for something. The capabilities of a business, for example, are all of the things that a business could do which, if exercised well, would result in the business succeeding. The examples used—the capability to pay an employee and the capability to ship a product—both include an explicit goal against which to measure the success of the realization: Were all of the employees paid fairly? Were the products shipped promptly and safely? The success of the business relies upon the proper realization of these capabilities. The realization of the goal can be measured as ‘better’ or ‘worse’ depending on how well the goal was achieved.

*General and Specific Capabilities*

Most human beings have the capability to become healthy. Fewer human beings can do so by sprinting, and even fewer human beings by sprinting while jumping hurdles. Specific capabilities such as the capability to sprint include the general capability, or array of general capabilities, even if these general capabilities are not explicitly identified. Thus, the capability to sprint while jumping hurdles is a capability, in this case, which is directed towards becoming healthy.

From the more general to the more particular, examples of capabilities would be ordered:

Capability to become healthy

…To become healthy through exercise

 …Through sprinting

 …Through sprinting while jumping hurdles

Likewise, most dogs have the capability of responding to their environment and some of these dogs have the capability to respond to English words. Fewer still are capable of responding to the ‘sit!’ command by sitting:

Capability to respond to one’s environment

…To respond through audio cues

 …Respond to English words

 …Respond to ‘sit!’ by sitting

Or:

Capability to express one’s feelings

 …To express feelings through dancing

 …Through dancing to salsa music

Capability to have friends through socializing

 …Through socializing with strangers

 …Socializing with strangers in French

Capability of obtaining food

…Through hunting

 …Through hunting on the sea

 …Hunting on the sea for extended periods of time

 …Hunting whales on the sea for extended periods of time

General capabilities are the basic building blocks upon which more specific capabilities are and can be developed. Specific capabilities require these more general capabilities in order to exist. One could not have the capability to sprint, for example, without the broader capability of mobility. And broader capabilities give rise to more specific capabilities, which often differ from one individual to the next. For example, the general capability to obtain nourishment might give rise to the more specific capabilities to balance one’s consumption or obtain ethically-appropriate foods.

We can speak of the granularity of capabilities in two different directions. On the one hand, we can identify a general capability first and then more specific capabilities which result in the development of this general capability. For example, we can identify the capability to run, and from this identify a number of other specific capabilities: the capability to compete in a triathlon, the capability to sprint, the capability to play tennis, etc. Or, we can identify a more specific capability and identify which broader capabilities it requires. For example, the capability to compete in a triathlon requires the capabilities to swim, run, and bike.

In the ordinary use of ‘capabilities’ there are a nearly indefinite ways of describing a single action in terms of capabilities. For example, if you run, we might describe this as the realization of the capability to exercise, to move, to bend your knees, to control your own body, to escape from assailants, to interact with others, and so forth. Thus, the formulation of an act in terms of capabilities will often be filtered according to the reasons why one is discussing a capability in the first place. Many of the capabilities which we will discuss can be formulated in other terms or described in other ways.

Capabilities play a critical role in the way that we understand the array of things that an entity can and cannot do. In order to further explore this notion, we will use the benefits of a structure system of terms and notions: an ontology.

*An Elucidation of Capabilities using Basic Formal Ontology (BFO)*

Basic Formal Ontology (BFO) is one of a growing number of ontological systems used to organize data and information, for example, where large heterogeneous collections of data need to be integrated in ways which make the data they contain discoverable and analyzable. BFO, in particular, has proved particularly successful when applied to a variety of contexts, including biomedical sciences and bioinformatics.[[13]](#footnote-13)

As an ontology, BFO organizes the entities in the world into different types or categories. Entities are anything that exists—not just material things like stones and horses, but also immaterial things like love or fatherhood or the functions of bodily organs, and also processes such as mating behavior or childbirth. BFO will help us to orientate ourselves among the many entities that we deal with when dealing with a highly general and abstract topic such as *faring well*.

Ontology is the study of entities that exist in reality—the study of what sort of entities exist and their relation to one another. It is used to categorize entities and how they relate to one another. Ontological systems are useful because they provide ways of understanding the nature of things and they provide vocabularies for analyzing and sorting through the different kinds of entities and relations. There are a number of advantages of introducing capabilities into an ontological framework such as BFO. Two advantages are particularly motivating in our case.

First, an ontology is constructed, in part, for the purpose of efficiently organizing and relaying information and data. By discussing capabilities within a successful ontology, we have access to a number of precisely defined terms with which to describe what capabilities are. Specifically, we can draw on established BFO terms such as *realizable entity*, *disposition*, *function*, *quality*, and *independent continuant*. Identifying types of entities in the world by using these terms has already contributed to understanding other important notions used by the medical profession as well as in clinical research and bioinformatics (Arp et al., 2015).

Second, BFO and other ontologies are remarkably effective tools for constructing useful and standardized computer and informational systems. By placing capabilities into an ontology, we may potentially create information and data about patient welfare which can be shared between persons and institutions. Given that our goal is to find a workable account of capabilities-based welfare for the medical profession, and given the medical profession’s heavy reliance on data and inter-institutional communication (for example through Electronic Patient Records), we can benefit greatly from holding our discussions of welfare (and so patient welfare) to the standards of an ontology which has already been successfully incorporated into numerous information and computing systems (Arp et al. 2015, pp. xv-xviii).

This is no small advantage. Since patient welfare is, and ought to be, a central goal of the medical profession, medical professionals must have the right tools and vocabulary to relay information about the welfare of their patients. Thus, a precise vocabulary for accurately describing features of patient welfare and other related notions is necessary. Such a need is already implicitly recognized. The American College of Physicians (ACP) *Ethics Manual*, for example, explains that the appropriate treatment of patients demands the accurate and complete recording of patient information:

Physician entries in the medical record, paper and electronic, should contain accurate and complete information about all communications, including those done in-person and by telephone, letter, or electronic means (www.acponline.org 2016, “Patient Records”).

The standards of the medical practice indicate that a patient’s medical record should include an array of information that is critical to the proper care of the patient, and that the information contained within the medical record should be accurate and comprehensive. The recording of such information presumably requires a basic standardized vocabulary.

Thus, we are structuring our discussion with the necessity of precise communication and the inter-operability of terms in mind, and this purpose can be addressed, at least in part, by introducing capabilities and welfare into the structure provided by Basic Formal Ontology.

*Introducing BFO Entities*

BFO identifies two categories of entities (anything that exists in any way at all): *continuants* and *occurrents* (ibid, pp. 112-115).[[14]](#footnote-14) Continuants are entities that persist across time even while undergoing changes of various sorts. You, the reader, are a continuant. You were a child, and now you are older, but you have continued to exist through all of those changes which you have undergone. You exist fully when you exist at all, and this is so even though you are constantly gaining and losing molecules and cells in the course of your lifetime.

Occurrents are entities such as events or processes, which unfold through time and have beginnings, middles and endings. The process of becoming educated is an example of an occurrent. Your education process unfolds through time while you are always present as its identical subject—the entity receiving the education. You continue to exist through time while undergoing this process of education. In terms of welfare, you (a continuant) continue to exist despite changes in your levels of welfare.

Ordinarily we speak of both continuants and occurrents when describing the same reality. We might say, for example, that: “A patient is recovering.” In this case, ‘the patient’ refers to a continuant; ‘recovering’ refers to an occurrent. We can categorize any entity in the world as either a continuant or as an occurrent. The two categories of entities “correspond to two distinct and complementary perspectives on one and the same reality; neither of which can do full justice to those features of reality represented by the other” (Arp et al., p. 87). These two categories together constitute a comprehensive framework of entities in the world.

BFO has identified a number of subcategories of continuants and occurrents. Our analysis of capabilities falls primarily in the realm of continuants, and so I will focus only on those BFO-identified entities which are relevant to our analysis. These include dependent and independent continuants, realizable entities, dispositions, and functions. As a general overview, however, Figure 1 offers a chart of the BFO framework as a whole.

Figure 1: BFO Entities

*BFO: Continuants*

Continuants are entities that persist across time, meaning that if they exist, they exist fully from one moment to the next. BFO identifies three types of continuants (Arp et al., p. 87):

1. *Independent continuants*, including objects such as plants, cats, or persons, and object parts such as your cat’s tail;
2. *Dependent continuants* are what are otherwise called attributes or properties. In BFO terms they include qualities (such as height or temperature), dispositions (such as the disposition of iron to rust, or of a tree to lose its leaves­) and functions (such as the function of a lighter to make a flame).

*Independent Continuants*

A cat is an example of an independent continuant (an object, in BFO terms) which can have many properties such as being brown, or fat, or irritable. The cat *bears* the quality of brownness, or brownness inheres in the cat. These are different formulations of the same fact. Independent continuants include objects, object parts, and collections of objects. Objects are complete and unified; the category of objects include organisms, but also artifacts such as cars, and inanimate unified physical entities such as rocks and planets. All of these *bear* dependent continuants, in BFO terms, such as colors or temperatures or height. In the medical setting, for example, the relation between dependent and independent continuants might appear as:

The patient (object) is ill (dependent continuant);

or

The physician (object) is tall (dependent continuant).

The ill patient bears the quality of illness. This same feature can be described also in the opposite direction: Illness inheres in the patient. Likewise, the physician bears the quality of tallness; and tallness inheres in the physician. Dependent continuants *inhere* in independent objects; they require a material object in order to exist although they are not themselves material. For this reason BFO describes a dependent continuant (such as a color) as “parasitic on the thing that supports it” (p. 87). This particular instance of the color red stands in the relation of “inheres in” to this specific tomato and depends on the material object (the tomato) for its existence in reality.

Independent objects maintain their existence despite the gain or loss of parts and despite changes in their qualities. A tomato may change color, or dry in the sun, yet still be the same material object. A human being may grow taller, lose hair, tan, and yet remain that same human being. The human being (the independent continuant) bears different dependent continuant qualities throughout his life (p. 88).

*Dependent Continuants*

As suggested above, dependent continuants always depend upon some independent entity. They are never found existing independently of something else. As we have seen, a color is an example of dependent continuant. A color is always the color *of* something. The smile smiles always in a human face.

Some dependent continuants, when they inhere in you, are yours and yours alone, meaning that they cannot move from one entity to another. These are *specifically dependent continuants*. Instances of these are specific to one bearer. An example of such an entity is your tan, which cannot migrate or transfer to another person on the beach. Others on the beach may have their own instance of a tan, but your tan is only yours. Thus, specifically dependent continuants are particular in that they adhere in a specific object and cannot migrate to another object. Your baldness cannot move to another person. It can only be yours.

What BFO calls *generically* dependentcontinuants, in contrast, are dependent entities which can migrate from one object to another. A PDF file is an example of a generically dependent continuant because it can migrate from one hard drive to the next and can thereby inhere in multiple bearers. Generically dependent continuants always require at least onebearer, but this bearer need not be unique (p. 105).

*Specifically Dependent Continuants: Qualities and Realizable Entities*

Figure 2: Specifically Dependent Continuants

Specifically dependent continuants are divided into two types: *qualities* and *realizable entities.*

Independent continuants typically have many *qualities*. Qualities are dependent continuants which, if they inhere in an entity, are fully exhibited or fully realized (p. 96). Each quality inheres as a matter of necessity in some specific independent continuant which is its bearer. You will never find an instance of ‘blue’ which is independent some bearer in the world, whether it be a rainbow or a vase. Thus, every instance of quality is a quality *of something* (p. 96).

Some qualities are *relational qualities*, meaning that they exist on account of some relation between entities. Relational qualitiesare qualities that require multiple simultaneous bearers. Examples of relational qualities are *being in love with* or *being obligated to* -- qualities that necessarily obtain between two or more persons (pp. 97-98).

Qualities can inhere in both individuals and aggregates. Or, put another way, both groups and individuals can be bearers of qualities. A person can be excited; a forest can be healthy; a crowd can be noisy; and a country can be divided on political or religious lines. Qualities themselves can be simple or complex. The color of your entire skin, for example, is a complex quality, made up of patches of different colors merging continuously into each other over different parts of your body (and changing with time). The clinical picture of a given patient might comprehend multiple specifically dependent continuants (signs, symptoms) inhering in the patient and changing over time along a variety of different dimensions.

Shane can play tennis and he bears this feature even when he is not playing tennis. When Shane meets Francesca on the courts and Shane serves, he exercises this ability to play tennis. Shane’s ability to play tennis is an example of a realizable entity. Realizable entitiesare dependent continuants which are manifested through certain corresponding processes. These entities are of special importance to us because capabilities, we will see, are best categorized as realizable entities, and specifically as dispositions. The BFO definition of a realizable entity is:

a specifically dependent continuant that has at least one independent continuant as its bearer, and whose instances can be realized (manifested, actualized, executed) in associated processes of specific correlated types in which the bearer participates (p. 98).

Thus, realizable entities exist even when not being exercised or manifested. A vase is fragile even when it is not broken nor cracked; a trumpet has the ability to make a sound even when it is silent. When a corresponding process occurs (the vase falls; the trumpeter plays) then the realizable entity is manifested, or realized.

*Roles and Dispositions*

Within realizable entities, BFO currently identifies the two subclasses of *roles* and *dispositions*. Examples of a role include the role of a patient, the role of a lawyer, and the role of a caretaker. A *role* is a realizable entity that exists because its bearer is in some special external circumstance (e.g. recognized by an institution). One distinctive feature of a role is that its cessation does not necessarily correspond to any change in the physical make-up of the bearer (Spear et al., p. 9, forthcoming). Take your role of health care proxy, for example. You have this role because you have been authorized by the appropriate institution. If an individual becomes a proxy or ceases to become a proxy, there is no physical change to the person who has that role. Rather, the role is grounded in external circumstances. Roles differ from dispositions because the loss or gain of a role does not require any change in the bearer’s physical constitution, whereas the opposite is true of dispositions.

A *disposition* is a realizable entity which inheres in some material entity. The gain or loss of a disposition corresponds to some change in the bearer’s physical makeup (Spear et al., p. 8, 2016). Thus, if you have a disposition, you have it on account of your physical makeup. If you lose a disposition, your loss of the disposition is grounded in a change to your physical makeup. This holds true for any entity with a disposition. For example, a lighter has the disposition to produce a flame on account of its physical makeup. If it no longer has the disposition to light, it must have undergone some physical change—a broken piece for example. Familiar dispositions include the disposition of a glass to break (fragility) or the disposition of iron to rust.

According to BFO, the environment in which an entity finds itself may influence whether or not a disposition will be *realized*. However, the environment cannot, in itself, determine whether or not a disposition exists. Only the physical makeup of the bearer of the disposition can do that:

Changes in the environment of an object may also bring about the loss of dispositions, for instance, when a match is inserted into water. But the environment, from the BFO perspective, cannot bring about these effects alone. The dispositions that an object has are determined by its physical structure. Thus a change in the dispositions that an object has will imply that there has been some alteration also in this physical structure (ibid, p. 8)

Thus, your disposition to sing exists because of the physical makeup of your body. It does not exist strictly because you took singing lessons—although the singing lessons may have helped form certain relevant physical structures in your body. And if you lose the disposition to sing, it will be because of some physical change to you.

Therefore, BFO distinguishes between *roles* and *dispositions* on account of the relation of each realizable entity to the physical makeup of their bearer. The gain or loss of a disposition corresponds to a physical change in the bearer. If you no longer have the disposition to play tennis, then this loss of the disposition corresponds to some physical change in you. Perhaps you suffer from paralysis or severe brain damage and so you have lost the disposition. On the other hand, an individual can gain or lose a role without any physical change to the bearer at all. Gaining or losing the role of ‘patient’ *may* correspond with some physical change (i.e. restoration or loss of health) but does not necessarily correspond to a physical change. One can become a patient without any corresponding change to one’s physical constitution.

BFO understands dispositions in terms of the processes which would realize them (p. 7). To be fragile is to break under these or those circumstances; to be soluble is to dissolve in liquid under these or those circumstances. Each disposition will exist because of some physical quality or qualities of its bearer. But different quality patterns or arrangements may serve as this ground or basis under different circumstances or in different types of bearers. For example, the disposition of fragility might be instantiated in virtue of the different underlying molecular structures of a dry pine board, a sculpture, or the inflorescence of a rose.

Built into any understanding and description of dispositions, then, are the ways in which the dispositions are realized. We identify fragility (the disposition) in terms of its realizing process: breaking or shattering. Any disposition is described or understood, then, in terms of the realization of the disposition. The disposition, however, is ontologically distinct from the realized entity (which is often a quality, for example) despite the fact that a disposition is always understood in terms of the realized entity. The disposition to bald is a distinct entity from the quality of baldness.

A firefighter has the disposition to put out fires; a cell has the disposition to divide; a heart has the disposition to pump blood. Such realizable entities are actualized when the associated processes are performed — here: *extinguishing flames*, *fissioning, filtering blood.* We can see in these examples the complementary natures of occurrents and continuants; in other words, the complementary natures of processes and the entities that undergo processes. The processes (occurrents) bring about the realization of certain attributes (functions, dispositions, roles) of an entity (continuant).

*Special Dispositions: Functions*

Functions are currently recognized by BFO as a special subclass of dispositions (see Figure 2 on p. 10). Thus, they are realizable entities grounded in the physical constitution of their bearer. Functions, however, are special dispositions which reflect the purpose, or design, of the bearer (Spear et al., 2016 pp. 10-13). Functions tell us what the bearer *should* do. Examples of functions are the function of the heart to pump blood, the function of the match to create a flame, or the function of the eye to see. Thus, functions are not just any disposition of an entity, but particularly important dispositions which reflect something essential about the bearer. A match also has the disposition to bend, but that is not its function.

BFO identifies the functions of two kinds of things: artifacts and the parts of living things. We understand both artifacts (like lighters) and parts of living things (like hearts) in terms of their functions and are organized in such a way as to perform their functions. We can make sense of the structure of a lighter, for example, on the basis of its function to create a flame. In the same way, we can make sense of the structure of a heart on the basis of its function to pump blood.

According to BFO, functions are marked by five differentiating features (Spear *et al*., 2016 pp. 10-15). First, a function reflects the teleology of the bearer. In other words, a function reflects the purpose of its bearer and is often described in terms of what a thing should do*,* or what it is *for*. In this way, a function is an essential feature of its bearer. A knife has the function to cut because it is designed for that purpose: to cut. A knife can be used for many other things, of course, such as a weight on a stack of paper or as a decoration on a wall; but these other uses do not reflect the reason for the design and manufacturing of the knife. The functions of artifacts are often described in terms of ‘made for’ or ‘designed for’: the lamp is made for lighting the room and the vase is designed for holding flowers. The functions of the parts of organisms, on the other hand, are often described in ways that reflect what the part is supposed to do in the context of the organism. A heart, for example, is supposed to pump blood because that is what it has evolved to contribute to the organism.

Second, functions have a normative component. This means that functions allow us to make sense of something performing in better or worse ways. We can only make sense of ‘bad’ lighters or ‘good’ hearts if we know how lighters and hearts are supposed to be in the first place. The function of a part or artifact reflects the way that it should be performing. We can speak of how well a things performs its function based on the standard derived from its function. If you have a bad knife, it is bad because its blade is dull or because its handle is not well-connected to its blade—or because of some other feature. We can make sense of these ordinary claims because functions carry with them a normative component.

Third, functions are realizable entities which involve a distinction between those processes which realize the function and those processes which are mere side-effects. A heart has the function to pump blood. But there are side-effects of the exercise of this function, for example the pumping creates noise (thumping). Or, a drill has the function to bore holes. But there are side-effects of the exercise of this function, for example the increase in temperature and expansion of blade-width on account of the exertion of friction on the blade while cutting.

Fourth, a function is not only necessarily grounded in the physical structure of its bearer, but also in the history of how the entity came into being. Following Millikan (1984), BFO adopts the evolutionary view of biological function: “A part or system in an organism has a function now if having that part or system has contributed in the past to the survival and reproductive success of members (or ancestors of members) of the species to which the organism belongs,” (Spear et al., 2016 p. 21). The physical structure of a human heart, for example, is required for the heart to perform the function of pumping blood; but it is a function because that particular organ developed for that purpose over the course of the development of the human species.

This feature implies that certain dispositions can be functions in some entities but not in others—even if the two entities have the same physical makeup. Spear et al. (2016), for example, ask us to imagine two sticks in the forest which couldbe used as chopsticks because they have all the right physical properties. As these sticks rest on the forest floor, they have the disposition to be used to pick up food but not the *function* because they are not yet designated for this use. If you were to find them and then appropriate these sticks for help in eating your dinner, then they would then have the function of chopsticks. Thus, nothing changed about them physically, yet they were designated as chopsticks—and so the story of how the entity came to be matters to which functions it bears.

Fifth, any theory of functioning should be able to identify cases of malfunctioning, even in cases of the complete absence of the realization of the function. For example, if a heart fails to pump blood, we still speak of it as bearing the function to pump blood. It is merely malfunctioning, either completely or to some degree. A proper understanding of functioning will identify when a function ceases to exist and when a function is poorly realized, or not realized at all. Thus, when a lung fails to perform its function, we should be able to account for its *malfunction*.

The BFO account of ‘Function’ is constructed around these five features, and continues to evolve as the BFO framework is applied to and tested in an increasing number of contexts:

A function is a special kind of disposition. It is a realizable entity whose realization is an end directed activity of its bearer that occurs because this bearer is (a) of a specific kind and (b) in the kind or kinds of contexts that it is made or selected for. Thus a function is a disposition that exists in virtue of the bearer’s physical makeup, and this physical makeup is something the bearer possesses because of how it came into being—either through natural selection (in the case of biological entities) or through intentional design (in the case of artifacts). (Arp et al., 2015, p. 102).

Functions are currently the only subclass of dispositions identified by BFO. Beyond functions, BFO leaves open the possibility of other entities including further kinds of special dispositions: “It is possible that further subcategories will be recognized in the future in order to address as yet unidentified needs (for example arising from new scientific discoveries or from applications of BFO to new domains)” (ibid, p. 9). With this in mind, and towards the end of placing capabilities within the BFO framework, I will argue that we should understand a capability, like a function, as a special kind of disposition.

*Introducing Capabilities to BFO*

We saw earlier that the general notion of capabilities captures the ways that an entity can be, the things that it can do, or the powers or extent of abilities of an entity. Talk of a capability typically carries with it positive connotations. Examples of capabilities include the capability to motivate employees, the capability to become healthy, the capability to communicate with others, or the capability to reproduce. An individual can have a capability even if the capability is never exercised. A tree may have the capability to bear blossoms, for example, even if it is cut down before it can do so.

Yet, capabilities are not simply *anything* an individual can do. Capabilities are dispositions which are typical to your kind and which are good for you or for your community when realized. Being able to swallow food, for example, is a capability for an adult person, because typical persons should be able to swallow food, and swallowing food is good for persons. Being able to swallow a sword, on the other hand, may be a trick, but it is not a capability in the sense here.

*Capabilities as Realizable Entities*

Capabilities are properties which exist in an individual or group, and which exist even when the corresponding state (the realization) is dormant or latent. A person can have the capability to defend herself even when not realizing this capability. From this basic understanding of capabilities we can see that a capability is a realizable entity; that is, a capability is a “specifically dependent continuant that has at least one independent continuant as its bearer, and whose instances can be realized in associated processes of specific correlated types in which the bearer participates” (ibid, p 98).

Other features of capabilities confirm its categorization as a realizable entity. A capability always inheres in some subject—there are no capabilities floating freely in the world—and so are dependent continuants. The capability to gain financial security, for example, necessarily exists in somebody or something if it exists at all. And since capabilities cannot transfer from one entity to another, capabilities are *specifically* dependent continuants. Of course, one individual can assist another in developing capabilities, but, strictly speaking, your capabilities cannot transfer to me.

Capabilities are realizable entities, and realizable entities can be roles or dispositions. Are capabilities best understood as roles, dispositions, or do they constitute a distinct sub-class? Recall that the dispositions of an entity necessarily depend upon the physical makeup of the bearer. A role, on the other hand, is fully grounded in external factors, and the loss or gain of a role does not correspond to a change in the physical makeup of the bearer. If capabilities are necessarily grounded in the physical makeup of the bearer, then we can reject the possibility that capabilities are roles.

*Capabilities as Dispositions*

In the literature surrounding capabilities, it is often clear that capabilities are realizable entities in that they represent what could be, or what an entity could do. However, it is often unclear what grounds a capability. We saw from Sen’s and Nussbaum’s descriptions of capabilities that capabilities are often described in terms of the individual and the environment in which the individual exists. Thus, we can ask: Is a capability a feature of the individual alone, or a feature of the individual only in a certain environment, or just a feature of a certain environment? Put another way: do you have capabilities on account of your physical makeup, or on account of your physical makeup in a certain context, or just on account of a certain context?

It seems that we can reject the notion that capabilities exist *only* on account of a certain context. You can place a rock in any context and it will never gain the capability to play tennis. Further, rapidly switching contexts will not destroy or create capabilities in a bearer. For example, if you already have the capability to play tennis, you do not lose it when you leave the courts. It stays with you.

Yet, context plays some role. A good account of capabilities will make some mention of both the environment and the individual, though I propose that the best way of understanding this is to say that capabilities *exist* in virtue of the physical makeup of the bearer, and capabilities often *develop* in virtue of the bearer’s environment. Thus, the gain or loss of a capability corresponds to a change in the physical makeup of the bearer; however, we should understand the bearer’s physical makeup in terms of that bearer’s development in certain contexts. Human beings have developed in certain contexts that promoted the growth and use of hands. Thus, our hands (a physical feature) became the grounding of the capabilities which correspond to hands, namely grasping.

The idea that the historical context in which an entity developed (or was designed) mirrors the account of functions, and specifically the earlier example of the chopsticks. Recall that sticks in the forest and chopsticks can bear all the same physical features, yet chopsticks have a function which ordinary sticks lack. Capabilities, too, are understood in terms of the bearer’s history or design. You and a parrot might both have the disposition to speak English words. The parrot’s disposition is a mere disposition because speaking does not typically contribute to its good. For you, speaking a language is a capability. This is because the capability to speak is good for you when realized.

Context understood in the more superficial sense—namely, your current context—is important to capabilities in a different way. Your current context will determine to a high degree the possibility of the realization of capability. For example, the capability of a rose to deter predators by growing thorns is a property of a rose bush, and which reflects the history of roses. Whether or not this capability is realized and so actually deters some rose-eater depends upon the environment of the rose. If there are no sheep threatening to eat the rose, then this capability will not be realized. Yet the capability will still exist.

Likewise, if you bear the capability to play tennis, then this feature is grounded in certain physical features: an appropriate brain structure which permits you to understand the rules of the game and which supports your bodily coordination. functioning appendages, sensory organs, etc. This is why capabilities are a subset of dispositions—because they are grounded in your physical makeup of the bearer. Many physical components are needed to support this disposition.

But, beyond these physical requirements, you must have the right external equipment in order to *actually* play a tennis match—to realize this capability. You will need rackets, balls, a net, and an opponent, for example. You cannot realize the capability to play tennis without these things. Thus, if you have the right physical makeup to do X, then this is sufficient to say that you have the capability to do X. If you are in the right conditions to realize X, then your likelihood of actually performing X is improved. Thus, we have accounted for both the physical makeup of the bearer and the context in which the bearer exists. The physical makeup determines whether or not the capability is there at all; the bearer’s context largely determines whether or not, and to what degree, the capability will be realized.

The bearer’s context largely influences the development of new capabilities. For example, the capability to play guitar is the result of training, the effects of which are eventually reflected in the physical makeup of the guitar student. If one is in the right context for long enough, then capabilities develop. But these capabilities develop in the bearer, and so inhere in the bearer from one context to the next once developed.

Despite the importance of external factors in the realization of capabilities, capabilities are better understood as dispositions and not roles—though special dispositions. We can see this point made in the BFO discussion of dispositions, which emphasizes the critical role of the environment of the bearer in the realization, though not in the existence, of dispositions:

Whether a disposition is realized will in many cases depend on the situation in which the object possessing it is located. Matches have in normal circumstances the disposition to be flammable, and this disposition will be founded on certain qualities of the matches. However, a match possessing the normal set of flammable-making qualities will not be able to realize its disposition if it is located in an environment from which all oxygen has been removed (Spear et al., p. 8).

Given our understanding of capabilities as grounded in the physical makeup of their bearer, then capabilities, like functions, are best understood as dispositions rather than as roles. This understanding of capabilities as dispositions is sufficient so as to not require a third sub-class of realizable entities.

We should further consider the hypothesis that, while every capability is a disposition, not every disposition is a capability. For example, some people have the disposition to become ill or to become bald. We would not typically describe these as ‘the capability to become bald’ and ‘the capability to become ill.’ What, then, marks capabilities as distinct from certain other dispositions?

*Capabilities as Special Dispositions*

Consider a human being’s capabilities to become healthy, to become educated, and to make friends. Or consider the capabilities of a wolf to obtain food or to mate. What marks out these dispositions from other kinds of dispositions, such as the disposition to become ill, the disposition to mumble, or the disposition to become bald?

Beyond being mere dispositions of an entity, I take capabilities to be good for some entity or entities when realized in a typical way. By this I mean that the realization of this kind of disposition is typically good for either the bearer or the bearer’s community. When the disposition to become healthy is realized in a typical way, for example, it is good for the bearer. Thus, we can identify this disposition as the capability to become healthy. In the same way, a wolf’s capability to obtain food and capability to reproduce bear this goodness feature: It is good for the wolf (or for the wolf’s pack or species) when these capabilities are realized.

I shall define a capability as:

**A disposition which can be exercised more or less well and which is good for the bearer or the bearer’s wider community when realized.**

To begin, a capability is a specific *disposition* which is more general than a function. Any function is a capability. Any capability is a disposition. Some capabilities are functions. We can see the relationship between these three kinds of entities in Figure 3 below.

Figure 3: Dispositions, Capabilities, and Functions

*Features of Capabilities*

Thus, to identify C as a capability means that:

C is a special type of disposition;

& the realization of C can be achieved in a manner that is more or less effective;

& the typical realization of that goal (or end or purpose) is good for the bearer or for the bearer's wider community.

*Capabilities, Dispositions, and Functions: ‘Capabilities are a special type of disposition.’*

Capabilities are a special type of disposition. When realized, capabilities are good for some entity. Yet capabilities do not always reflect the purpose of the entity, which is what functions do. This means that, while every function is a capability, there are many capabilities which are not functions.

We can see that capabilities can be distinct from functions when we consider a human being. A human being may have the capabilities to reproduce, to share, to learn, to make friends, to communicate, etc. But a human being is not designed for the purpose of realizing any of these individual capabilities—these are not the *functions* of human beings. Bradley summarizes this point when he writes: “We can talk about the function of the human heart – to pump blood – even though nobody invented the heart. But it is less obvious what the function of the whole person is” (Bradley 2015, p. 42). In other words, there is likely no single purpose of the human being towards which each human being is directed. Yet human beings, and other things, have certain dispositions which are important in a special way, even if not necessarily reflective of a purpose.

Thus, capabilities tell us which dispositions are directed towards the good for the bearer or the bearer’s larger community, without requiring that these same dispositions reflect the *purpose* of the bearer. Capabilities can tell us what entities as wholes can do in virtue of their functioning parts and systems, and also of ways that an entity can perform acts that are good for it or its community. For example, your hands have the function of grasping and holding—they have developed for this purpose. We can say that your hands have this function, but *you* have this capability. It is not your purpose to grasp things, but it is something that is good for you, and it is something that people can typically do.

Any function of a part is a capability of the host. In other words, you have the capability to breathe because your lungs have the function to breathe. You have the capability to think because your brain has the function to think. And the same holds true of any function that your parts have. These capabilities do not reflect your *purpose* but are rather good for you when realized. Thus, we can say then that capabilities are special dispositions in that they are 1) good for some entity when realized in a typical way and 2) able to be realized in a better and worse way. Other sorts of dispositions—for example the disposition to become malnourished or the disposition to become bald—do not have these features. Neither is good for the bearer when realized in a typical way. But capabilities are typically good. If a kidney performs its function to filter blood well, for example, then that realization is good for the bearer. Thus, capabilities reflect a distinct kind of entity within the BFO framework. Figure 4 illustrates the identification of capabilities as a subclass of specifically dependent continuants within this broader framework.

Figure 4: Capabilities as a BFO Entity

*The Normative Feature of Capabilities: ‘Capabilities are realized in a way that is better or worse.’*

The second condition in our elucidation of ‘capability’ refers to the essentially normative component of capabilities, meaning that an entity can exercise its capabilities in a better or worse way. Thus, while capabilities do not necessarily share the teleological component of functions—i.e. they do not always reflect the purpose of their bearers—they do share this normative component of functions. The realization of a capability is better for the organism when done well; it is worse (or less good) for the organism when done poorly. The capability to obtain food, for example, carries with it a corresponding value: it can be done more or less well, in a way that is better or worse. When you obtain food well, then this is said to be good for you.

There is a certain way, or range of ways, that the bearer can exercise a capability well. A healthy and educated person, for example, has exercised the corresponding dispositions—to become healthy, to become educated—well. In describing the exercise of these corresponding dispositions we use the terms ‘well’ or ‘badly’ in a way comparable to our use of these terms in relation to the exercise of functions. A watch can perform its function well or badly, as can a heart. So too can a human being realize the capability of knowing a language well or badly.

These range of realization span, roughly, from a low value of ‘very poorly/not at all’ to a value of ‘very well’. A capability can be realized poorly if there is an excess or deficiency with respect to the necessary environmental factors or the physical makeup of the bearer. Thus, a lung may not function well if there is too much oxygen or not enough oxygen in the room. The range of ways by which a capability is realized well is best conceived as a ‘canonical’ or ‘prototypical’ range rather than as ‘maximal’. This is because it is often the case that a maximal realization is often not the ideal or canonical realization. Since capabilities are often in balance—for example, the capability to exercise must be balanced with the capability to be nourished—the *maximization* of one often implies the neglect of others.

We can see this point when we consider the capability of a person to be gainfully employed and the capability of a person to socialize. The *maximization* of one would likely negatively affect the realization of the other. The ideal realization of each capability would reflect a moderate level that would permit the exercise of other capabilities—and also to moderate levels.

*The Goodness, or Positiveness, of Capabilities: ‘The realization of the disposition is good for the bearer or the bearer’s wider community.’*

A capability which is realized effectively is good for the bearer or the bearer’s community; a capability which is realized poorly is either bad for, or has no affect on, the bearer or the bearer’s community. Many capabilities when realized can be good for both the bearer and the bearer’s wider community—the capability to be financially stable, for example. We can think of a capability as relating to dispositions in the way that velocity relates to speed. Just as velocity is speed with direction, so too capabilities are dispositions with direction, or valence. Capabilities are dispositions with a positive valence.

We can understand this ‘good for’ feature in different ways when applied to artifacts and their parts on the one hand and to living organisms on the other. The former—for example knives or hearts—fulfill this ‘good for’ feature when they do what they are supposed to do so, that is, when they perform the function that they have as a result of the way they came into existence (through design in the case of artifacts and through evolution in the case of organs or other functional parts of living things). Living organisms, in contrast, fulfill this ‘good for’ feature when they exercise those dispositions which contribute to their flourishing or the flourishing of their kind.

This ‘goodness’ feature differentiates capabilities from other dispositions which are detrimental to a bearer and the bearer’s community when exercised in a typical way (the disposition of brittle bones to break) or lack any valence at all (the disposition to bald). Not all dispositions have a valence associated with them (good or bad, positive or negative), but all capabilities have a positive valence associated with them—at least, when realized well.

The functioning (realization of the function) of a biological part, when things go well, is *good for* the organism of which it is a part. In the same way, the capability (and function) of a watch to tell time, when realized, is good in that the watch fulfills the purpose of its design. These are good in virtue of fulfilling some purpose, or some function.

 The capability of a person to obtain gainful employment, on the other hand, is good for the person in a way that is unrelated to the purpose of the person. Thus, these ways of being ‘good for’ entities can help us make sense of the capabilities of artifacts, like phones and watches, and biological parts, like hearts and livers, and whole organisms alike, like you and I.

Likewise, all functions share this feature of goodness or positivity. This is because the realization of a function is always the realization of the purpose of the bearer. Because functions strictly reflect purpose, however, we do not normally identify the function of a particular person (as BFO defines function). We do, however, often identify capabilities of human beings. Thus, we speak of Julio’s *capabilities* when we speak of certain ‘good’ dispositions which Julio bears. – however well Julio can play the violin, we do not say that it is his *function* to play the violin.

*Arguments for the Goodness of Capabilities: Contrary to Disabilities*

We can see the goodness feature of capabilities quite clearly when we contrast capabilities with their opposite: disabilities. As Lennart Nordenfelt writes: “Disability is a negative notion presupposing the semantic content of its positive contrary” (Nordenfelt et al., 2001, p. 67). Thus, if a capability is the positive contrary of disability, we have evidence of this goodness feature. A learning disability, for example, is the opposite of (or frustration of) the capability to learn, and it carries negative connotations. In the same way that ‘disability’ (or ‘inability’) imports negative connotations and may be understood as a frustration of that which is good for a bearer, so too do capabilities carry positive connotations and are good for the bearer when realized. The capability to learn is good for the bearer when realized.

 Here it is worth noting that disability is a relative term, and one that in itself implies no negative or positive value of the bearer. An individual can have a disability (in the strict sense) by having a physical deviation that *typically* inhibits the exercise of capabilities, yet that individual can still realize a capability on account of medical interventions (for example, prostheses) or environmental alterations (increased accessibility in building codes). We further emphasize that ‘disability’ imports no claims of negative value with respect to the bearer of a disability, just as ‘capability’ imports no claim of the positive value of the bearer.

We can see this negative-positive relation between disability and capability in a number of instances. We do not typically say that an individual with blindness has the capability of blindness or the hungry person has the capability of being malnourished. Rather, we say that a blind person has a disability because a blind person cannot exercise the corresponding capability to see, and that a hungry person is hungry because he is not exercising (or ‘exercising poorly’ or unable to exercise) his capability to become nourished.

Further, when juxtaposing ‘capabilities’ with ‘disabilities’ we can see that both notions extend beyond the working parts of the individual to reflect the broader manifestations and activities of the individual. In this way, capabilities extend far beyond the domain of the healthy functioning of an individual’s parts illustrated in capabilities such as to bend your knees or to grasp with your fingers. For the latter contribute to much more general capabilities to be mobile, to increase fitness, to create beautiful artworks, and so forth. Capabilities refer to the broader and valuable ends which an individual can achieve for herself or for the group to which she belongs, just as disabilities refer to the many ways that an individual can be frustrated from achieving these ends. We can see this in the following description of disabilities offered by the World Health Organization (WHO), which describes disabilities as a broad range of limitations and restrictions:

Disabilities is an umbrella term, covering impairments, activity limitations, and participation restrictions. An impairment is a problem in body function or structure; an activity limitation is a difficulty encountered by an individual in executing a task or action; while a participation restriction is a problem experienced by an individual in involvement in life situations

Disability is thus not just a health problem. It is a complex phenomenon, reflecting the interaction between features of a person’s body and features of the society in which he or she lives. Overcoming the difficulties faced by people with disabilities requires interventions to remove environmental and social barriers (WHO 2016).

It is interesting to note that, even though the WHO has a very broad understanding of health as ‘a state of complete physical, mental, and social well-being,’ the organization still describes disabilities as more than a health problem. This is because disabilities create difficulties for the bearer that extend beyond the physical, mental, and social well-being of the individual, though it is unclear which ‘features of society’ would not be included in ‘social well-being.’[[15]](#footnote-15) As we saw in Chapter 1, the WHO notion of health is overextended. The point here, however, remains valid: disabilities – just like capabilities – affect far more than the health of their bearers.

*Arguments for the Positiveness of Capabilities: Evidence from Ordinary Use*

In many other instances, too, our ordinary use of the term ‘capability’ reflects the goodness criterion. We do not typically say that a person has the capability of catching a disease, or that a plane has the capability of crashing, or that a flower has the capability of wilting. Rather, we use terms that bear negative connotations of failure: ‘susceptible’ or ‘liable’ or ‘prone’, for example. Planes are susceptible to crashing. Flowers are susceptible to disease and wilting. Poorly run companies are prone to failure but are not described as bearing the capability of failure. Thus, the goodness feature of our elucidation of capabilities is supported by ordinary linguistic usage.

Moreover, we can see that, while the OED definition of ‘capability’ referenced earlier does not explicitly refer to the positiveness of capabilities, the examples that it offers do suggest this feature. The ‘capability of bringing out the best in people’ and the ‘capability to increase productivity’ are both examples of dispositions which, when realized in typical ways and in typical environments are positive for the bearer or the bearer’s wider community. Further, the term ‘capability’ would likely not be used to describe the opposite dispositions: ‘he has the capability to bring out the worse in people;’ ‘he has the capability to decrease productivity.’ That is because these dispositions, when realized in typical ways, are harmful or detrimental to the bearer or the bearer’s larger community.

*Objections to the Positiveness Feature*

Some may be hesitant to accept this positiveness feature of capabilities. Some capabilities, after all, seem to be bad for the bearer when realized. Others may point out that there are plenty of capabilities that are not good for the bearer, or any other entity, whether realized or not.

*‘Bad’ Capabilities*

One might also point out that a number of disposition-realizations can be good in some instances and bad in others—yet still be the same act. For example, it is coherent to speak in ordinary language of the capability to shoot a gun. It is clear that not every realization of this disposition is good for the individuals involved. Given dispositions can clearly be not only beneficial but also harmful depending on how they are realized. The realization of the disposition to shoot a gun could be realized if I lose my temper and shoot my neighbor out of rage. But it could also be realized if I save the life of my neighbor by defending him from an attack by a rabid grizzly bear.

We should examine this objection carefully, however. First, the disposition in question is *not* the disposition ‘to fire bullets’ which inheres in the artifact ‘gun’. If this were the case, then since shooting bullets fulfilled the purpose of the gun, ‘to shoot’ would be considered a capability of the gun.

This objection, however, can be overcome by formulating a disposition in terms of broader dispositions. For certain actions like ‘shooting a gun’ which have quite different but multiple typical realizations, the manner in which the realization contributes to another disposition matters. If we can identify the broader disposition to which ‘shooting a gun’ contributes, then we can maintain that ‘shooting a gun’ is a capability, while the broader disposition is not.

‘Shooting a gun’ is somewhat unambiguously a capability when one is target shooting and exercising the (broader) capability to participate in a sport. If we reformulate the relevant broader dispositions which are exercised in the two shooting scenarios to reflect the purpose of the shooting, then we can see that one is better described as a capability than the other: the disposition to endanger others (or, disposition to satisfy my anger) vs. the disposition to contribute to community safety (or, defend my neighbor). In our understanding of capabilities, and drawing on support of the ordinary use of the term, the capability to contribute to community safety is coherent; the capability to endanger others is not. Both dispositions are realized in the outcome of shooting, but the broader disposition of which they are a part differ dramatically.

We can further see this when we consider the disposition to make noise. Understood in isolation, it is unclear whether this disposition is a capability or not. We can determine whether or not this is a capability when we consider the bearer of the disposition. Is the bearer of the disposition the sort of thing that is supposed to make noise? If it is a siren, then making noise contributes to its purpose and so it is a capability. If the bearer is a shoe, then making noise is a mere disposition and not a capability—it may even be a defect. Or, when considering organisms, we can ask: is the organism supposed to make noise? If the bearer is a human being, then this disposition is foundational to the capability to communicate, and so would be a capability. If, however, the disposition to make noise is realized atypically by a young deer (for example, a deer that whistles loudly when it breathes) and thus makes the deer vulnerable to attack, then the disposition would not be a capability.

*Conflicts of Capabilities: Overlapping Consequences*

Another related objection focuses on overlapping good and bad consequences of a realization. We use ‘capability’, for example, to describe an organism’s disposition to reproduce. Some organisms, such as grain and certain marsupials, die when they realize this capability. Their reproductive process is described as ‘semelparity’—a sort of suicidal reproduction. It seems then that the realization of the capability to reproduce is bad for those organisms and frustrates the capability to survive.

We have defined capabilities as good for their bearer *or* their larger community. One way to deal with this objection, then, is to point out that even if the capability to reproduce is bad for a bearer, it is still (when realized in a canonical way) good for the bearer’s larger community: its species. This is because the survival and growth of a species in a typical way is good for the species. Reproduction of the species’ members contributes to this good.

Thus, while capabilities are in general understood to be good when realized, the exercise of a capability may have negative results. Adolf Hitler had the capability to lead and, strictly speaking, he exercised this capability very well; he was – at least in the earlier phases of his military career – an effective leader. However, he used his capability to lead in service of a horrific end. In the same way, an individual might have the capability to gain employment (typically something that has positive valence) but exercise it in a way that is bad and atypical—through being a hired killer, for example. The same is true of the capability to gain an education or the capability to communicate effectively with others. When exercised in a typical way and in typical environments for the bearers in question, these capabilities are good either for the bearer or for the group to which the bearer belongs. But the powers which are acquired through the process of their realization can sometimes be used in negative ways. A well-educated person can use his knowledge for terrible purposes, just as a suave communicator can use his talents to manipulate others to perform unworthy acts.

 *Canonical Capability Realizations: ‘When Realized in a Typical Way’*

Underlying the notion of capabilities is the idea of the “typical realization” of a capability, where ‘typical’ is synonymous with ‘canonical’ or ‘paradigmatic’. To be realized in a canonical way means to be realized by certain processes that are typical for that kind of thing, which is primarily determined by the environment in which it, and its species or kind, has developed. This notion of canonical is important in the elucidation of capabilities because it tracks the idea that atypical realizations of capabilities may be harmful rather than good. Consider, for example, the human capability to reproduce. This capability, when realized in a typical way, is good for the species because it promotes the flourishing of the species. The typical way of reproducing for human beings is through intercourse between a male and a female, and in most countries a woman who lives to the fullness of her childbearing years will give birth to a typical range of zero to ten children.[[16]](#footnote-16) This reflects the realization of the capability to reproduce in a typical way.

Imagine an alternative scenario where the capability to reproduce is realized in an atypical way through the mass fertilization of eggs in a laboratory. Instead of the birth rate remaining at a number that promotes the flourishing and sustainability of the species, women may now bear thousands of children through this atypical realization of their capabilities to reproduce. Because of the flood of reproduction, the species is threatened by the realization of this capability. This atypical realization of a capability is detrimental to a species. Because of cases like these, capabilities are understood to be good for the bearer when realized in a typical, or canonical way.

This, of course, leaves us with the need to define ‘typical’, or ‘canonical.’ When applied to biological phenomena, BFO uses a notion of typical or canonical defined by the Foundational Model of Anatomy formulated by Rosse and Mejino (2003). For each organism kind there is a canonical anatomy which serves as the reference for the anatomy of kind members:

*Canonical anatomy* is a field of anatomy (science) that comprises the synthesis of generalizations based on anatomical observations that describe idealized anatomy (structure). These generalizations have been implicitly sanctioned by their usage in anatomical discourse (Rosse and Mejino 2003, p. 479).

The idea is that, given a generous sample of individual members of a kind over an extended period of time, and after extensive examination of the anatomical makeup of these members, we can infer what we can think of as an ideal anatomical plan for the members of that kind, which anatomists call a *Bauplan*.

Take the human heart, for example. No two human hearts are precisely identical in their structures, yet through the observations of thousands upon thousands of human hearts, we can construct a model human heart. The human heart should have certain features, even if no human heart has ever *precisely* the specifications of the human heart—even if there fails to exist one instantiation of the canonical heart in the world. And although these idealized models may not be *explicitly* endorsed in literature, they form the basis for much discourse.

For example, the simple observation that you are missing a leg rests on the presumption that you should have had a leg in the first place, which in turn requires that we have some idea of the typical human body. The *Bauplan* of the *human being* indicates that human beings ought to have two arms and two legs—although not every human being has two arms and two legs—and so we can make sense of claims about missing legs (Rosse and Mejino 2003). Many other typical features of human beings such as having spleens or gallbladders—but which are not present in every instance of a human being—are identified by the model of canonical anatomy, which represents the way that each human being should be (at least, anatomically). And this notion of canonical anatomy extends to any organism and organism part: mice, lizards, even cells and the structure of genes

In the same way that we can compare an individual’s anatomy to a *Bauplan* and thus determine whether or not the individual varies from the typical—perhaps by having one arm rather than two or having an oversized heart—so too we can compare other features of an individual to a typical, or canonical, plan. I propose that there are canonical ways of realizing capabilities. These are the ways which are best-suited (and thus become typical) for a bearer given the bearer’s design and design environment—the environment in which its species or kind has developed and evolved. Cases in which a bearer is in its design environment are the simplest cases, however. When a bearer is placed in an alternative environment, then the ‘best way’ of realizing a capability becomes more difficult to determine. This is on account of the interaction between the physical makeup of the bearer and the relatively unusual variables present in the environment.

Thus, to determine the canonical way in which giraffes realize the capability to obtain nutrition, one would sample a large number of the instances of giraffes realizing this disposition. One would find that giraffes typically realize their capability to obtain nourishment by feeding off of the leaves of high trees. This is the canonical realization of that capability not simply because it is common, but because giraffes are in environments containing tall trees and have the appropriate corresponding physical structure (long necks and flat teeth), and so this is the typical way of realizing this capability. Of course, some giraffes may obtain nourishment in other, non-typical ways, such as through an intravenous feed at a zoo, or through grazing on the ground, or through eating food from another giraffe’s mouth. But these instances would fall away from the typical way of obtaining food (though not for baby giraffes perhaps).

There is a relatively small range of canonical ways to realize a capability. On the other hand, there are far more ways to deviate from the canonical range, though instantiations of each way are less common. For example, there are relatively few ways to be healthy and many, many ways to deviate from health (be ill).

*Ranges of Capability Realizations*

There are many ways that an entity might fail to realize a capability and far fewer ways for an entity to realize a capability. To illustrate this point, we can imagine plotting all of the ways of realizing a capability on a circle (Figure 5). The canonical ways would be those which are farthest from the circumference of the circle in any direction, in the center. Atypical ways of realizing a capability, including a complete lack of a realization, are represented as further from the center of the figure.

Figure 5: Ranges of Capability Realizations

Each of these ways of realizing a capability, whether canonical or atypical, can be assessed further with respect to the normative component of capabilities—either well or poorly, or not at all. Thus, a canonical way of realizing the capability to obtain nourishment (for giraffes, eating leaves on high trees) can be done well (i.e. successfully) or can be done poorly. A giraffe might have a crooked neck or choose the wrong leaves, and so experiences difficulties while trying to realize its capability in a canonical way.

*The Failure to Realize Capabilities*

The failure to realize a capability, or the poor realization of a capability, can be a result of either environmental frustrations or hindrances grounded in the bearer’s own physical makeup—or both. For example, a cherry tree may have the appropriate physical structure to bloom and a match to light, but if both are in oxygen depleted environments then neither will realize their dispositions.

For any capability, there is a range of ways to realize that capability, and some ways are identified as better than others. The canonical ways of realizing a capability are those which effectively realize the capability and so are good for the bearer or the bearer’s community. We can see these various ways—canonical or not—of realizing capabilities through examples of certain capabilities of human beings:

Capability to feel content:

* Canonical realization (Figure 5a): Achieved by identifying and fulfilling life goals, and reflecting upon the fulfillment of these goals.
* Poor realization (Figure 5b): Achieved by using heroin.
* No realization (Figure 5c): Never achieved (a discontent person).

Capability to raise children:

* Canonical realization: Achieved by offering a supportive home, resources, affection towards children.
* Poor realization: Achieved by neglect, abuse, or lack of support of children.
* No realization: Refrain from having children.

Capability to become gainfully employed:

* Canonical realization: Achieved by working a fulfilling and financially stable job.
* Poor realization: Achieved by working a despised, exploitative job.
* No realization: Refrain from becoming employed.

Capability to become educated:

* Canonical realization: Gain some adequate level of institutional education (high school, possibly some university experience) coupled with specialized education (trade school, independent study, higher education).
* Poor realization: Attend two years of school, learn basic math, remain illiterate.
* No realization: Refrain from attending school.

Some capabilities, however, must be exercised to *some* degree and so the range of the realization does not include the complete lack of a realization. The capability to become healthy, for example, can never be left completely unrealized. One always exercises the capability for health to *some* degree—at least until death. Thus, realizations of the capability for health might range from the poor to the canonical realization:

Capability to Become Healthy:

* Canonical realization: Realized through proper diet, nutrition, exercise; controlled environmental factors.
* Poor realization: Lack of exercise, poor diet.

Capabilities can be exercised to a better or worse degree, or sometimes to no degree at all—the normative feature of capabilities. Some capabilities are always realized to some degree (like health); others may not be realized at all (like gaining a formal education). When a capability is realized in a canonical, or typical, way, then the realization is good for the bearer or for the bearer’s wider community. Sometimes, the capability is realized in a poor way, or to a lower degree. We have seen that this failure can stem from the environment (i.e. insufficient resources to realize the capability) or from the bearer’s makeup.

The latter cases—poor realizations grounded in the bearer—raise important questions regarding the lack of capabilities versus the absence of capabilities. Here we can identify a tension between interpreting such cases in terms of a complete absence of a disposition (i.e. no capability exists) and interpreting such cases in terms of a merely chronic frustration of a disposition (I.e. the capability exists but it is frustrated). For example, do a severely diseased yet living tree and a soaked match still bear the capabilities to flower and ignite, respectively, or do they lack these capabilities all together?

*Absent Capabilities vs. Unrealized Capabilities*

One might say that, since the physical structures of the tree and the match ground their dispositions in the first place, and since the physical makeup is such that the disposition cannot be realized at all, then it seems as though the underlying disposition does not exist at all. Such a view holds that such cases do not reflect the failure to realize a capability. Rather, they reflect the complete absence of the capability.

On the other hand, one could argue that matches and cherry trees still bear certain basic capabilities (such as the capabilities to blossom and ignite) insofar as they are members of the respective kinds and their physical structure is the *result* of this kind membership. When they do not blossom or light on account of their physical deviation from the canonical kind member, they fail to realize the corresponding disposition. Thus, as long as X is a member of kind K, X will bear certain dispositions that exist in virtue of having a general physical structure that has developed through the history of its kind.

This puzzle of distinguishing between a complete absence of a capability and unrealized capabilities is not unique to capabilities, but arises in discussions of functions as well. Spear et al. propose the follow scenario in which this distinction is at stake:

Consider for example a case where the carcinoma in the lungs of a patient is so severe that the lungs are incapable of providing oxygen to the body, yet the lungs (in some residual form) survive, and the patient survives because he is being kept alive by some artificial means. The relevant bearer, the lungs, have completely lost the dispositions that normally underlie their functioning: these dispositions no longer exist … What, in such as case, is the correct story to tell about the function of the bearer? (op. cit., p. 35)

The authors then leave open two interpretations, claiming that on the one hand:

In a case such as this there is no longer an instance of either *disposition* or *function* that inheres in the bearer in question. Both have been destroyed. What *is* the case is that the lungs in question are *supposed to have* the instance-level function of providing oxygen to the body but they *lack* this function. What grounds this *supposed to* is the kind of thing that the bearer is, in this case: an instance of the kind *lung*. On this view being an instance of a kind has normative entailments (pp. 35-36).

On the other hand, the second option:

denies that a completely and irreversibly malfunctioning lung can, at least under certain conditions, count as an instance of the kind *lung*. A relatively natural line of reasoning denies this and suggests, rather, that once an instance of a functional kind such as *lung* has been rendered completely unable to function as a lung, that entity is no longer an instance of the kind in question (p. 36).

I hold that, following the first interpretation, we can identify certain basic capabilities which any entity *should* have, in virtue of its membership to a kind. Well we would not make such claims about very specific capabilities—we would not say that an anencephalic child should be a high jumper—we do make such claims about more general capabilities. For example, these capabilities may include the capability of a human being to form relationships with other human beings, or the capability of a cat to obtain food, or the capability of a kangaroo to reproduce. Even if a child is born with severe autism, or a cat is born blind, or a kangaroo is congenitally infertile, we can coherently say that all of these individuals *should* have the respective capabilities based on their kind membership. Humans should be able to socialize, cats should be able to hunt; kangaroos should be able to reproduce.

*Kind-Based Capabilities*

Identifying kind-based capabilities—the capabilities that any member of a kind *should* bear—requires the same process as identifying the canonical capabilities of a kind. In fact, the kind-based capabilities are the canonical capabilities of the kind. Given a sample of the entities of the same kind, which capabilities do they typically bear? This is of course an empirical question, best answered by the relevant researchers who are most familiar with the behavior of the relevant kind of organism. In the case of human beings, we have additional resources offered by researchers in the fields of anthropology, sociology, and psychology, for example.

And given that this is an empirical question, the capabilities themselves will not be the objects of observation. We cannot observe entities which, by definition, may be realized. Rather, we can only observe the realizations of capabilities; and specifically, which realizations are typical of a kind in their design environment, and how realizations vary given a change of environment (for example, by being placed in a zoo). Thus, the observations will often include the interaction between the environment of an entity and the physical makeup of the entity.

We are primarily concerned with the capabilities of human beings, specifically patients. Thus, we will rely on the observations and theories of anthropologists, behavioral and evolutionary psychologists, and other qualified research specialists for insight into the canonical capabilities of human beings: that is, the universal capabilities that are found across cultures, from one to the other, though they may be realized in different ways given the different environments in which peoples find themselves (Arnhart 1998; Brown 1991).

We will see in Chapter 3 that welfare requires this notion of kind-based capabilities—the way that things should be, as members of a kind. If a child with Down syndrome does not perform intellectually at a certain level in a typical environment, then we may say that the child’s welfare suffers in this regard, even if minimally—and even if, given the chromosomal variance underlying the syndrome, the child lacks the physical makeup to be considered capable of that typical level of intellectual performance.

*Testing Capabilities*

I have proposed a view of capabilities as (1) special dispositions which (2) are good for the bearer (or the bearer’s community) when realized in a canonical way, and (3) can be realized in a way that is better or worse. We can test these features against a list of commonly referenced human capabilities found in Martha Nussbaum’s *Creating Capabilities* (2011, p. 33). Because these capabilities are widely accepted as examples of capabilities, our analysis should make sense of these capabilities and, ideally, offer greater insight into the nature of these capabilities. Nussbaum’s list (with abridged descriptions) is as follows:

1. Life.
2. Bodily health. Being able to have good health, including reproductive health.
3. Bodily integrity. Being able to move freely from place to place; to be secure against violent assault.
4. Senses, imagination, thought. Being able to use the senses to imagine, think, and reason.
5. Emotions. Being able to have attachments to things and people outside ourselves.
6. Practical reason. Being able to form a conception of the good and to engage in critical reflection about the planning of one's own life.
7. Affiliation. Being able to live for and in relation to others, to recognize and show concern for other human beings, to engage in various forms of social interaction; being able to imagine the situation of another and to have compassion for that situation; having the capability for both justice and friendship. . . . Being able to be treated as a dignified being whose worth is equal to that of others.
8. Other species. Being able to live with concern for and in relation to animals, plants, and the world of nature.
9. Play. Being able to laugh, to play, to enjoy recreational activities.
10. Control over one's environment. (A) Political: being able to participate effectively in political choices that govern one's life; having the rights of political participation, free speech and freedom of association . . . (B) Material: being able to hold property (both land and movable goods); having the right to seek employment on an equal basis with others . . .

I take it that most would agree that it is good for a person to realize in a typical way the capabilities listed above. There are certainly instances when the atypical realization of a capability can be bad for the individual. For example, there are inappropriate times and ways to realize the disposition to play (at a funeral), or perhaps to control one’s environment (as a dinner guest), or to live in relation to other animals (in the Coliseum). When exercised in a canonical way, however, each of these is good for the bearer: to maintain bodily integrity, to sense and imagine, and to control one’s environment, when done in the right way are beneficial to a person. If this is true, then we can see that each fulfills criterion (2), that a capability is good for a bearer when realized. Further, each listed capability can be understood to be realized in a manner that is better or worse. The capability to live one’s life, for example, is not simply a binary (the capability to be alive, the opposite which is to be dead) but the capability of living one’s life according to a full, canonical life plan: “being able to live to the end of a human life to a normal length” (p. 33). Each of these can be done better or worse. One can control one’s environment in a better or worse way, for example, just as one can play, experience emotions, or maintain bodily integrity in a better or worse way.

As suggested earlier, some may argue that these capabilities—and particularly the latter capabilities—are not grounded in the physical makeup of their bearers and so are not dispositions. One may say, for example, that the capability to exercise political control is not grounded in the physical constitution of the individual but rather is a fact referring to the society in which the individual is located.

In response to this, recall that environmental influences commonly determine the realization of capabilities. We saw that a match, for example, bears the disposition to ignite despite being in a room which lacks oxygen. This disposition is on account of the physical properties of the match. More particular and specific capabilities often reflect environmental features that appear to extend beyond the physical makeup of a bearer, but in fact are still grounded in the physical makeup of the bearer. For example, we might say that a match has the capability to light a beeswax candle. It has this capability even if there are no beeswax candles in its vicinity. The same is true of an individual’s capability to exercise political control. Fundamentally, this capability inheres in the physical makeup of the individual which permits her to reason, communicate, and express her will. Her environment may suppress or even make impossible the realization of these capabilities. But they do not negate the existence of these capabilities.

All capabilities are fundamentally grounded in the physical constitution of their bearer, but this feature is often disguised in the cases of more specific and complex capabilities such as the capability to exercise political control and the capability to live in mutual benefit with other species. Fundamentally these capabilities rely on certain physical characteristics of their bearer. And in these particular instances, most of the necessary material makeup is found in the brain structure of the bearer and those organs associated with gathering information about the world. In order to be the sort of entity that can exercise control over its own political life and live harmoniously with other species, one must necessarily bear certain physical features associated with cognition and communication. Placing a person in a environment which is conducive to realizing such dispositions—a genuinely democratic political society and an animal-friendly farm, for example—contribute to the exercise of, but not existence of, the capability.

Capabilities range from the very general to the very specific. Any specific disposition requires a more general disposition, which in turn is more easily identifiable as grounded in the physical makeup of a bearer.

*Summary*

Capabilities are dispositions which are good for the bearer or the bearer’s community when realized in a canonical, or typical, way. The realization of a capability can be exercised in a manner that is better or worse, or more or less effective; the better realizations are those which reflect the canonical realizations of the capability.

Capabilities, as BFO dispositions, are essentially grounded in the physical makeup of their bearer. Environmental factors do indeed affect capabilities, but they do this insofar as they affect the realization of capabilities in particular instances, or the formation of capabilities through their influence on the physical makeup of a bearer across time. It is this balance between the existence of capabilities and their realization which will inform our capabilities-based understanding of welfare.

*III. Capabilities and Patient Welfare*

In Chapter 2 we explored and developed the notion of a capability using Basic Formal Ontology. Capabilities are critical to our understanding of welfare, given that welfare, on our interpretation, is determined by the degree to which an entity exercises the array of capabilities which are typical for members of that entity’s kind or relevant partition.We can now, on the basis of this understanding of capability, address the issues we introduced in Chapter 1. I propose that we assess a subject’s welfare by comparing the *realized* capabilities of an individual to the canonical realizations for similar individuals of the same kind. The structure of the chapter is as follows: I will first define what welfare is in Basic Formal Ontology (BFO) terms—specifically by understanding welfare as a quality—and then relate welfare to capabilities. Then, I will discuss various modes of speaking about welfare subjects, and finally turn to the topic of patient welfare.

*Welfare as a BFO Entity*

We saw in Chapter 2 that BFO distinguishes two major categories of entities: continuants and occurrents. Continuants, like objects and qualities, persist across time despite changing in various ways, while occurrents, such as processes, represent changes across time.

Figure 3.1: BFO Entities

In Chapter I, we identified that welfare persists across time while changing for better or for worse. The welfare of a plant may change from one season to the next, but all the while the plant has some degree of welfare. Further, we saw that welfare cannot exist independently of a subject. There is always some *subject* of welfare. Welfare is also something that cannot migrate from one bearer to another. Certainly we can both be simultaneously faring well, perhaps because we are enjoying a pleasant meal together; but *my* welfare still cannot be shared by you: it cannot become your welfare.

These features of welfare indicate that welfare is best categorized, in BFO terms, as a *specifically dependent continuant.* Recall that a specifically dependent continuant is a property or attribute which inheres in a bearer and cannot migrate to another bearer. Recall also that specifically dependent continuants are either qualities, which are always present in a bearer when they exist at all, or realizable entities which, like dispositions, require some process in order to be realized or manifested. Given that welfare is present to some degree in its bearer whenever the bearer exist , we can see that welfare is a *quality*. John has the quality of welfare even when John fares poorly.

*Welfare as a Determinable Quality*

Following a distinction proposed by W.E. Johnson, BFO further distinguishes qualities as *determinable* and *determinate* (Johnson 1921, p. 174*)*. Determinable qualities are more general qualities which can manifest in different ways from one instance to the next. For example, all people have the determinable quality of *height*. This quality is then instantiated in more specific ways – which is to say in a 170 cm height, 175 cm height, and so on, which are more specific—indeed not further specifiable, and thus *determinate*—qualities.

While the determinable quality of height is in some sense essential to the instances of the kind human being, its determinate qualities are merely contingent, meaning they are not necessary to the bearer. For example, you may be 170 cm tall. This determinate quality can change as you grow older; it is only a contingent fact that you are 170 cm. However, it is necessary that you have *some* height. You will always be a bearer of the determinable quality *height.*

*Welfare* is a determinable quality like *height*. This feature corresponds to an understanding of welfare in what, in Chapter 1, we identified as the unmarked sense of the term. You have welfare whether you are faring well or badly. You always have welfare, because (on our view) welfare is a determinable quality that is essential to entities of certain sorts. However, when we speak of your degree of welfare at a given time (when you are faring well, for example), we are describing the determinate instantiation of your welfare.

*Welfare as a Multi-Dimensional Quality*

Some qualities, such as height, are simple in that they can be explained in terms of a single dimension measured in units such as centimeters or feet. Welfare, on the other hand, is a complex quality that can allow changes along a number of dimensions. The thesis that welfare is composed of a number of dimensions has enjoyed growing support in the academic community.[[17]](#footnote-17) Indeed Alexander Sarch (2012) offers in his “Multi-Component Theories of Well-being and their Structure” a survey of the rise of multi-dimensional views (or ‘multi-component’ views), which he considers a welcome alternative to mono-dimensional theories which describe welfare in terms of, for example, pleasure (hedonism) or desire-fulfillment. For Sarch, the views of human welfare which incorporate both response-dependent and response-independent dimensions best capture the notion of welfare, where response-dependent dimensions are those which require a subjective response from the welfare subject. The response that stems from the satisfaction of desires, for example, or the pleasurable response to a change of state, constitute welfare for desire-satisfaction and hedonistic theories, respectively.

The number and specific nature of these welfare dimensions will vary from one kind of entity to another. Single-celled organisms have fewer dimensions to their welfare than more complex beings such as persons. A cell’s welfare-dimensions may include energy conversion and reproduction, for example, while those of a person include health, reproduction, psychological contentment, and socialization.

We can see another example in the multi-dimensional quality *athletic*. A person is athletic when they instantiate qualities such as strength, endurance, coordination, and intelligence in performing activities of certain types. The athletic quality is affected as each of these dimensions is realized more or less effectively. The latter represents distinct contributions to athleticism. For example, one could thoroughly understand the strategy of a game involving physical exercise yet not be athletic because of a lack of fitness and coordination. One could be well-conditioned but not athletic because of a lack of coordination. Some components of a multi-dimensional quality may be qualities in their own right. This is so, for instance, of the qualities of coordination and of intelligence. Endurance, on the other hand, might be tied essentially to the realm of athletic activity.

One noteworthy feature of multi-dimensional qualities like welfare and athleticism is that excellence in one dimension does not fully compensate for the failed realization of another dimension. This is because the nature of the contribution of each dimension is distinct. For example, I can fully compensate for my lack of quarters by gaining dollars. Quarters and dollars contribute to my financial wealth in the same way. I cannot, however, compensate for a lack of friends by becoming healthier. My welfare will suffer with respect to the dimension of sociability until this dimension is addressed in some way.

This understanding of welfare as a multi-dimensional quality comports well with our discussion of welfare in Chapter 1, where we saw that health, happiness, and the fulfillment of interests may all contribute to—but are not identical with—a person’s welfare. Rather, each is better understood as a dimension of a *person’s* welfare, though these may not be dimensions of the welfare of welfare subjects of other kinds.

*The Granularity of Qualities*

In the Nicomachean Ethics, Aristotle reminds us that “it is the mark of an educated man to look for precision in each class of things just so far as the nature of the subject admits” (*NE,* 1094b). Aristotle’s point is that our knowledge of things depends very much upon the kind of thing we are investigating. When evaluating some qualities, such as height or color, we can expect to do so with a different level of precision than when we evaluate other more nebulous qualities such as welfare or health.

For example, we can measure particular instances of height or weight to a fairly high degree of precision (214.2 cm or 79.3 kg, for example) whereas we measure qualities like happiness or health in less precise terms (somewhat unhappy or very healthy, for example). And even within a single quality we can find varying degrees of specificity. For example, we can analyze a particular color from more to less general as follows (Arp et al., p. 97):

Quality

 Color

 Red

 Dark Red

 RBG 990033 Red

There are millions of measurable differences among shades of red and the corresponding wavelengths of light can be measured because we have developed the appropriate tools to measure them with ever greater precision.

Welfare is a more complex quality than color and wavelength, and so we can expect that our assessments of welfare will differ in both precision and approach. The precision of measurements differs according to the kind of entity which is being measured. In most cases of interest to us here, the complexity of the subject will imply a low precision in our measurement of that subject’s welfare. The more welfare dimensions there are, the more difficult it is to determine how well or poorly a subject is faring. We may be able to measure the welfare of an amoeba or a plant more precisely than the welfare of an adult person, for example, because there are more welfare capabilities which contribute to an adult person’s welfare than to the welfare of an amoeba or a plant.

This variation of precision also stems from the nature of welfare as a multi-dimensional quality, for the latter brings a variety of different levels of precision with which we can measure the particular dimensions involved. And the dimension with the lowest degree of precision in measurability will serve as the standard of precision for the whole. For example, if we are interested in determining the welfare of a particular adult person, we can likely measure the level of that individual’s bodily health more precisely than the level of their social integration—both of which go to determine that individual’s welfare. This leaves us with two degrees of precision in measuring two different constituents of welfare. And the measurement of the multi-dimensional quality as a whole cannot be more precise than the measurements of those other qualities which compose the more complex quality.

Thus we might measure the welfare of adult persons at levels of precision such using qualitative measures such as *faring well, faring poorly, faring very poorly, suffering*, etc. There are many ways for an individual to fare poorly, but fewer ways to fare well. We see this in Aristotle’s Nicomachean Ethics, where he writes:

It is possible to fail in many ways (for evil belongs to the class of the unlimited … and good to that of the limited), while to succeed is possible only in one way (for which reason also one is easy and the other difficult—to miss the mark easy, to hit it difficult); for these reasons also, then, excess and defect are characteristic of vice, and the mean of virtue; For men are good in but one way, but bad in many (NE, 1106b28).

Aristotle’s point mirrors our discussion in Chapter 2, in which we discussed the canonical realizations of capabilities, where the canonical describes the typical range of realizations: the mean range. There are certain, and few, typical ways to realize a capability but many ways of deviating from the typical.

*The Process of Faring*

Faring is the process which combines the changes in the quality of a subject’s welfare over time. Processes reflect the dynamic nature of welfare. Sometimes you fare well; at others times you fare poorly. In the same way that you retain the quality of *having a body* despite changes to your body from one year to the next, so you retain the quality of welfare while you fare better or worse.

The welfare of any subject is susceptible to change. These changes are all part of the faring process which takes place over the span of the subject’s life. Some sub-processes within this larger process have clear beginnings and endings. For example, *completing high school* is a process which begins on your first day of class and ends when you graduate. The boundaries of other processes will likely prove more challenging: becoming an adult, for example, or suffering from a chronic disease, or dying. It is often difficult to determine when precisely an individual becomes an adult (exhibits the qualities of an adult), suffers from a disease, or dies.

We will see that we often speak of welfare in terms of specific time spans: the welfare of a patient after surgery, the welfare of your dog while in the kennel, the welfare of a forest during drought. When we qualify welfare with respect to time, we indicate the beginning and end of a faring sub-process within the larger process spanning the subject’s life.

Welfare and faring can both be understood in terms of the BFO framework as illustrated in Figure 3.2.

Figure 3.2: Welfare and Faring in BFO

*Welfare, Faring, and Capabilities*

We have seen that welfare is a multi-dimensional quality that changes over time though the process of faring. Having placed faring and welfare within the BFO framework, we can now draw upon our understanding of capabilities in order to further complete our understanding or what welfare is.

In addition to qualities and processes, a subject of welfare also has dispositions. Entities in these three categories relate to one another as follows: each subject has an array of dispositions corresponding to the various dimensions of the welfare of a subject of the relevant type. The realization of each disposition in this array then corresponds to processes which are changes in some corresponding quality. We can see this relation when we consider the process of tanning and the quality of being tanned. You gain the quality of being tanned through the realization of the disposition of your body to produce extra melanin in order to protect your skin from the sun’s rays. One can bear various shades of tan, representing changes to the quality of ‘being tan’ through a tanning process.

Consider now the process of making friends in a new city. Through this unfolding process, you gain the quality of having friends through the realization of the disposition to form social bonds with certain other select people. You may have different friends at different times, sometimes fewer and sometimes more, representing changes to the quality of ‘having friends’ through the process of making friends.

We can hereby understand quite generally how the qualities, processes, and dispositions associated with welfare are interconnected. Welfare corresponds to the realization of certain sorts of dispositions, and the realization of these capabilities to a better or worse degree corresponds to the process we call *faring*.

These special dispositions we call capabilities. Not all capabilities contribute to welfare. Thus if you are an organism which has the capability to reproduce but only through a process which brings about its own death, then realizing this capability does not contribute to that organism’s welfare. This is because, on our understanding, welfare is determined by the degree to which an entity exercises the array of capabilities which are typical for members of that entity’s kind. These capabilities, when realized, are typically good for the bearer.

We can see what capabilities are by recalling, from Chapter 2, their relation to functions and other dispositions. Your heart, for example, has the function to pump blood. Over the course of human history, this is what hearts have developed to do—it is their purpose. *You*, as a whole, have the capability to pump blood through your body in virtue of your heart. It is not your purpose to pump blood. Rather, it is something that you can do which is good for you and is typically good for members of your kind.

Now consider the other parts of your body that have functions: your lungs to inhale and exhale air, your hands to grasp things, your brain to think. All of these dispositions are functions of your parts. But, all of these dispositions are capabilities of *you*. You can inhale and exhale air; you can grasp things; you can think. And all of these things, when realized in a typical way, are good for you. You can do these things better or worse, too. If you have asthma, a paralyzed hand, and a damaged brain, then you cannot realize the corresponding capabilities well. And this is typically bad for you, as a human being. Thus, if we understand your body part to have function A, then you, as a person, have the corresponding capability A.

*Welfare Capabilities*

We saw that some capabilities contribute to the good of the community, and others to the good of the bearer. Only those capabilities which are *good for the bearer* when realized contribute to the welfare of that bearer. I call these *welfare capabilities* and I understand a subject’s welfare to be the degree to which it realizes its welfare capabilities.

Welfare capabilities, in turn, correspond to the dimensions of welfare discussed above. These dimensions reflect both the welfare capabilities (entities which *can* be realized) and their corresponding realizations. The social dimension of your welfare, for example, can be understood as the family of interrelated capabilities (to have friends, to tell jokes, to empathize, and so forth) and all their relevant realizations. Thus, we can clarify the somewhat nebulous notion of ‘welfare dimensions’ by distinguishing corresponding welfare capabilities.

*Beyond Welfare in General: The Welfare of Subjects*

Welfare is a multi-dimensional quality, the dimensions of which correspond to welfare capabilities. When we assess the welfare of particular entities, like your welfare or the welfare of a nation, we qualify welfare with respect to the relevant array of welfare capabilities. At the most general level, we identify these welfare capabilities in terms of the kind of thing the relevant entity is, or the class to which it belongs. For example, frogs have a different array of capabilities than trees, and so we gauge the welfare of a particular frog against the array of capabilities that are typical for frogs.

And similarly: if you are a member of the human kind, then your welfare depends upon your capability to feel content, on your capability to contribute to society, your capability to enjoy financial security, and bodily health, among others. The processes which are realizations of these capabilities constitute your welfare (your faring well or less well).

Qualifying welfare with respect to the kind of thing an entity is represents the broadest kind of welfare qualification. But we can also qualify welfare with respect to other *partitions* such as gender, or wealth, social security numbers, or other *ad hoc* distinguishing features of individuals (Bittner and Smith 2003).These partitions can serve to highlight certain welfare capabilities, or to ground specific reference classes, or differentiate certain spans of time. This means that, instead of referring to the welfare of an entity across the entire span of its existence, and with respect to every relevant capability and corresponding realization, we can speak of the welfare of entities with respect to certain features and at certain times. When we speak about a subject’s welfare with respect to certain features and not others, we qualify welfare.

*Qualified Welfare*

How is Francesca? How did the indigenous populations of Australia fare during the nineteenth century? How did your avocado trees fare in the drought?

Such questions reflect welfare qualifications. Most ordinary discussions about welfare are, either implicitly or explicitly, about qualified welfare rather than about welfare in general. By ‘qualified welfare’ I mean welfare attributed to a certain subject, or to a certain set of subjects, or to certain features of a subject. The elements by which we qualify welfare vary:

In some cases a judgment about well-being may concern a person’s whole life, but it is more usual to talk about somebody’s well-being at a particular time. Sometimes we talk about specific kinds of well-being, such as psychological or social well-being. In these cases we are concerned with how well a person’s life is going in a particular respect, rather than on the whole (Taylor 2013, p. 10).

We can assess welfare across certain periods of time, or with respect to certain capabilities, or with respect to certain capabilities at certain times. We might also focus on a specific welfare dimension at a specific time—for example, the psychological welfare of a woman who has been recently diagnosed with breast cancer (Fallowfield & Baum 1989)—and the related welfare assessment will incorporate all of the relevant dimensions of that woman’s psychology during that period of time, including the woman’s capability to cope with stress, to maintain a positive self-image, to engage with others, and so forth.

When we qualify welfare in speaking of the welfare ofa particular entity, then we naturally identify a number of relevant facts about that entity. If the welfare subject is a plant, for example, then we know that it should be certain ways, and bear certain corresponding capabilities. It is good for a plant to be healthy, and the plant’s health is realized through nutrition, a proper environment, and so on. The more we know about an entity, the more specifically we can qualify its welfare. If we are made aware that a plant is a certain kind of cactus, then we know that it typically realizes its capabilities in certain conditions: a specific soil content, extreme dryness, a certain amount of sunlight, and other relevant factors.

Welfare is often qualified in implicit ways. For example, I may ask: How is your daughter? The question itself implies a welfare qualification with respect to a certain kind: your daughter is a human being. We assume that what is typically good for members of the kind *human being* is good for your daughter. The response, then, will reflect this assumption. But perhaps your daughter is two months old and born prematurely. When I ask about your newborn daughter, your answer would reflect certain important welfare dimensions which are uniquely important to premature infant human beings. You would likely tell me how she fares with respect to how infant girls *should* fare by telling facts which are relevant to this developmental stage. Beyond this, however, you would further qualify your answer with respect to how *premature* infant girls should fare. If you were to detail her welfare, you would probably tell me about her health, how well she sleeps and eats, her emotional dispositions, her weight, etc.

We can also qualify welfare with respect to a certain set of subjects, and thus their corresponding capabilities. For example, I may ask about the welfare of the refugees (as a whole) arriving in Germany. You would likely take note of different relevant facts such as their ability to find shelter and employment, their reception by native Germans. This is because I have qualified ‘welfare’ with ‘refugees’ in the particular context of Germany in 2016.

I could specify further and say ‘child refugees’, and the relevant facts would change based on this further qualification. We might now want to know if the children are safe from exploitation, if they will be given the opportunity to be educated, or if they have sufficient nutrition. We qualify welfare in this same manner when we assess the welfare of individual organisms belonging to specific species and assert that they are endangered, protected, or the like. Such assertions imply that a species as a whole should be a certain way: it should be reproducing, surviving, constructing habitats, obtaining food, engaging with other species in typical ways, and so on.

Returning to our example of the premature daughter in the species *homo sapiens*, we can see how such qualifications flow from the general to the specific. At the most general level, I am asking about a newborn human being: a human + newborn. More specifically, I am asking about an instance of

human + newborn + female

newborn + female + born prematurely

newborn + female + born prematurely + delivered under the care of western medicine

and so on. The corresponding levels of qualification may be structured as:

Human (Kind)

Neonate (Sub-class)

Neonate Female (Sub-class)

Premature Neonate Female (Sub-class)

Premature Neonate Female under Care of Western Medicine (Sub-class)

Each level of further specificity implies further welfare capabilities and means of realizing such capabilities. At each of these levels, there is some implied norm against which to gauge the progress of your daughter. If she is quickly treated and released from the NICU just this afternoon, then you would say that she is doing very well, and this despite the fact that she is not doing as well as a healthy child who was born at full term. Or, if despite expectations she is still unable to breathe without assistance and so we have to extend her care, then we might say that she is doing poorly. These more specific levels of qualification all bring with them corresponding expectations about the realization of welfare capabilities.

 For an individual human being understood as simply a member of the human kind, very basic capabilities belong to this canonical picture – the picture of what is the normal case, the case when things go as they should (when the individual fares as she should). But as we know more—for instance that the human being is an adult female—then we are able to draw on further capabilities that belong to the norm: the capability to make rational decisions, to take responsibility for others, to develop certain friendships, and so forth. We would not expect an infant to have these capabilities.

We can see that each of these qualification classes implies more specific welfare capabilities *and* more specific realization of welfare capabilities *and* a greater variety of ways in which individuals can depart from the norms. Consider the following:

Human: *Obtain Nutrition*

Neonate: *Obtain Nutrition Orally*

Neonate Female: *Obtain Nutrition Orally*

Premature Neonate Female: *Obtain Nutrition Non-Orally*

Premature Neonate Female under Care of Western Medicine: *Obtain Nutrition Intravenously*

For the last case the realizations that we can expect the infant to encounter are those typical of Western medicine. In our understanding of capability, any infant has the capability to receive nutrition through an IV even if born in a remote village with no such access. The capability exists in virtue of the child’s physical makeup, and despite that fact that it goes unrealized. Under certain circumstances, the likelihood of realization of certain capabilities increases and so these capabilities become salient to individuals in corresponding groups. For example, the capability to respond to penicillin will be salient to patients receiving Western medicine but not to patients in regions whose medical traditions do not incorporate the use of penicillin.

 Each of these levels constitutes what I refer to as a reference class, that is, the class of similar entities against which we compare the individual in question. Similar subjects form the reference classagainst which we compare the welfare of a subject; and each reference class is represented by what we can think of as a canonical or normal or typical member of the reference class, as discussed in Chapter 2. When the rose-grower or rose-buyer evaluates the welfare of this particular rose, then he compares it against a reference class composed of other similar roses in the same crop or using the same seed.

A canonical member is the paradigm of that reference class, but it may be that the canonical member is never instantiated in the world. For example, it may be true that the *canonical rose* representing all roses is not found in any particular garden. Yet, we can conceive of a canonical rose, though the rose will likely have very general features: not a particular number of petals on each rose flower, but enough petals, and vibrant ones. Once we conceive of the canonical, we can compare a particular entity to the canonical member of a reference class, which tells us how well that particular subject is faring.

Each reference class is represented by a canonical (sometimes idealized) member. In certain cases of specific reference classes—for example, a class representing a particular rose variety and not *rose* in general—the canonical member may be instantiated in the world. In the case of humans, there will be no idealized member because of the variety among human beings in general. Rather, the canonical representation of *human being* will represent the typically shared features of human beings. For example, the canonical human being would not represent a particular race or sex. Instead the canonical human being will have some race and some sex, but this will be a determinable quality of the canonical human being—and so not instantiated in the world.

Some features of the canonical human being are inherently value-laden—for example, health—meaning that you can have a better or worse state of each. The ideal state will reflect Aristotle’s notion of the Golden Mean: neither too much nor too little, but a moderate middle. This entails that the canonical representation of the human being is not geared towards *maximization* but *moderation.* For example, canonical health would reflect neither excess nor deficiency with respect to the conditioning or muscularity. In this regard, the canonical human is not a superhero—they are perfectly ordinary. This entails that individuals can deviate from the canonical by being too muscular or too conditioned; certain individuals can see *too* well; others might have a memory which is *too* retentive.

Canonical members represent a reference class which tells us how things should be. We might ask then, how might we determine a reference class—and in doing so, the corresponding canonical member—in any given case? Reference classes reflect those features which might influence the deviation of an instance from the canonical. In other words, if I want to see how a patient should fare, then I can form reference classes around those features which likely affect changes to the way that patients do fare. For example, a welfare subject’s environment will affect the way that the subject fares, and so we can qualify welfare with respect to the environment.

*The Subject’s Environment*

Your environment, both currently and during your childhood, has contributed greatly to your welfare. For example, a child living in comfortable (but not too comfortable) surroundings will likely fare better than another in abject poverty; some children in poverty will fare better than others in similar circumstances. The environment in which a subject is placed (or places itself) determines many of the ways in which that subject’s capabilities can be *realized*. Thus, we can qualify welfare with respect to the environmental processes to which an entity might be exposed: a drought, a famine, winning the lottery, an abusive father. The environment is an important factor in determining an entity’s welfare because it represents the collection of relevant external features (health-related variables, family and social structures) which surround it.

For example we can ask: How is Frida faring, given that she grew up in a chaotic home, with poor nourishment? A typical child in these conditions would likely not fare well. But perhaps we can say that she is faring *relatively* well if we take into account these circumstances—she managed to succeed in school and does not exhibit the health risks associated with malnourishment. She could even be faring particularly well if she has realized her capabilities similarly to one who was placed in a much more stable environment.

In reporting on someone’s welfare, then, we often create reference classes based on such external features, qualifying welfare with respect to all members who are in a particular environment. We often do this when there is a change in environment (how is your baby doing since he moved out of the hospital? how is your husband doing since you moved to the South?) or when the environment frustrates capabilities (how is her grandfather doing given that he is living in squalor? how is John faring in war-torn Syria? how is the restaurant faring, given the new competition?)

*Life Plans and Life Phases*

Another way we qualify welfare is by creating a reference class based on a phase, or stage, of a subject’s life. Here it is useful to introduce the idea of a ‘life plan’—an idea which has become familiar in certain models of human development as well as in work on definitions of disease (Erikson 1963; Mintz 2008; Scheuermann 2009). The idea of a life plan grows out of the idea that members of the same kind develop in a similar predictable manner throughout their existence. This expected pattern of development over the course of an organism’s existence is called the life plan for an organism of the relevant type. The development process over the course of this life plan can be divided into phases, or stages. The life plan of many plants, for example, begins at seed germination, includes a seed bearing phase, and ends at death. There can be many phases of development from the beginning to the end of a thing’s existence, catalogued for plants, for example, in the Plant Development Stage Ontology (Cooper et al., 2013).

Life plans and life stages, now, are important to the qualification of welfare. If we speak of the welfare of a particular subject, we may qualify the welfare of that subject according to the stageof its development. Each of these stages corresponds to different canonical welfare capabilities.

Though not every particular human being experiences each and every phase (for example due to early death), the canonical human being, which represents the ideal case, is understood to pass through each of these stages, and to enjoy the typical, healthy development of a typical human being. Thus, we can qualify the welfare of a human being with respect to the stage in which they are currently developing. This is evident when we consider the welfare of the newborn. It is not enough to classify the newborn as an instance of *human being*. We can only make limited welfare assessments based on this fact. We must further identify the relevant stage of development. A newborn, for example, should have welfare-relevant capabilities such as: to vocalize discomfort and to nurse. We can expect certain things of it—such as communication through gestures but not through language—that we would not expect of a human being at a different phase.

Living organisms are not the only entities with life plans. Other welfare subjects have life plans as well. If I ask, for example, how a corporation is faring, I implicitly qualify my welfare assertion by formulating it with respect to the phase of that corporation’s development. If a business is highly profitable after three months, it may very well be faring poorly despite the promise of its profits because of unnaturally rapid growth. If it is highly profitable after three years, it is likely faring well. Without properly qualifying the welfare of the corporation in terms of the phase of its life plan, we risk to inaccurately assess the dimensions of its welfare.

*Spans of Time*

Welfare can be further qualified with respect to a particular temporal span determined by factors external to the developmental biology of an organism. While welfare is a quality, welfare also unfolds over time in the form of a process, thus accounting for any changes which may occur. We might ask, for example, how an individual is faring since she returned to the United States; or, how a friend is faring since graduating; or how the nation is faring since the last election.

This temporal span can be in real time or in what we might call stipulated time. We can assess the welfare of an individual over the period of 2015, for example. But we can also assess welfare since giving birth, or since moving to Seattle, or since returning from the war. Both can be used to create reference classes. For example, we might assess the welfare of a city either in the year 2015 as compared to 2014, or since the earthquake, or since the flu epidemic.

Welfare, then, can be qualified in terms of the entity’s relevant life phase, but also with respect to particulars span of time, either real or stipulated.

*Why Reference Classes Matter*

As will be now be clear, determining the appropriate reference class is important for accurate welfare assessments. Consider a twelve year-old girl with Down Syndrome. We can assess this patient’s welfare in different ways, depending on the reference class that we create. These different ways correspond to different partitions. For example, if we create a reference class—twelve year-old human female—based on age and general kind alone, we might say that the subject is faring poorly. We might say this based on the facts that she fails to exercise the capabilities to read at a certain level and struggles to realize other capabilities associated with social assimilation. However, many parents of children with Down Syndrome prefer that their child’s welfare is assessed with respect to a different reference class—constructed around other children with Down Syndrome—and so we may then conclude that a given child is faring quite well (Layton 2016). It may turn out that she reads and performs arithmetic at a higher level than other girls her age with Down Syndrome. Perhaps she has an exceptionally high number of close and valuable relationships. In this way we can obtain more salient welfare assessments through the creation of a more appropriate reference class.

We can also be mistaken about reference classes and produce welfare assessments which are inaccurate. For example, if I am attempting to gauge the welfare of an individual with Aspergers Syndrome (AS) but assess her behaviors against a reference class constructed around individuals with Attention Deficit Hyperactivity Disorder (ADHD), then I will confuse the standards against which to judge the individual’s ability to socialize, succeed in school, and so on. A child with AS may be doing well *for having AS*, but not for having ADHD.

Misidentifying behavioral disorders is one way of constructing mistaken reference classes. We can also create reference classes which are too broad, and so we are may lose precision in our comparison. Take, for example, what medical professionals describe as the ‘reference range’ of random growth hormone in a healthy individual (Medscape 2013):

* The Men: < 5 ng/mL or < 226 pmol/L
* Women: < 10 ng/mL or < 452 pmol/L
* Children: 0-20 ng/mL or 0-904 pmol/L
* Newborns: 5-40 ng/mL or 226-1808 pmol/L

These levels reflect the canonical ranges of GH for four different reference classes and according to sex and age based partitions: man, woman, child and newborn. Imagine instead that there was only one broad reference class: human being. If this were the case, so we might say that the reference range of human beings is 0-40 ng/mL. If the GH level of an individual was determined to be 31 ng/mL, then this might indicate good health because that reading falls within the range. But if the individual is an adult male, then this would in fact be atypical and so unhealthy.

 In the same way, we should understand the canonical welfare subject and its related capabilities in a way that is broad enough to retain room for individuality but specific enough to be useful in identifying deviance from the norm. For example, we can say that a person should have good relationships in order to fare well, but at different life stages we can expect different kinds of friendships. The nature and quantity of your friendships differ from childhood to adulthood, for example, and so we should account for this when assessing an individual’s welfare.

*The Patient Reference Class: What is Patient Welfare?*

Our interest in identifying and developing a theory of welfare is ultimately directed towards an understanding of the welfare of patients. In Chapter 1 we saw that promoting patient welfare, despite that ambiguity of the term, is widely accepted as a primary goal of the medical profession and guides the standards of widely circulated accounts of medical professionalism. Given our understanding of welfare and capabilities, we now take patient welfare to be the degree to which a patient realizes the array of welfare capabilities that a patient *should* realize—i.e. those which are typically good for the patient’s kind, or *class*. The array of capabilities of an entity is determined by the kind of thing that an entity is, and, more specifically, to the relevant sub-class to which it belongs. Thus, we can ask: What is the patient class?

 *What is a Patient?*

*Webster’s Online Dictionary* (2015) defines a patient as “an individual who is awaiting or under medical care or treatment.” First, we can see that to be a patientis to fulfill a particular *role*, specifically of placing oneself or being placed under the care of the medical profession.

Recall that, following Basic Formal Ontology (BFO), a role is a *realizable entity*. We saw earlier that realizable entities inhere in a bearer and are realized through certain characteristic processes (Arp et al., p. 98). In order for a particular realizable entity to be categorized as a role, two criteria must be met. The first is that the realizable entity must exist because of some sort of external and contingent circumstances. These circumstances place the entity into that particular role. For example, a person takes on the role of patient by being placed in the circumstances we call ‘care of the medical profession.’ Likewise, firefighters have the firefighter role because they are tasked with controlling fires. The second criterion is that the physical makeup of the bearer of a role does not change upon gaining or losing that role. Your physical state is not changed by the fact that you are no longer a patient or that you have just been approved for appointment to the fire brigade.[[18]](#footnote-18)

*The Diversity of Patients*

Clearly, there is no way that a patient *should* be—a canonical patient, against which we could compare every patient in the entire patient population. This is because the patient population is composed of a wide array of individuals, each with importantly different features, and at distinct phases of development. If we visit a hospital we might find a pregnant mother placing her 17-week-old fetus under the care of the medical profession. Depending on the nature of the care, the mother may adopt the role of patient as well. She is a conscious, reflective, autonomous adult. The early fetus, however, is a non-conscious, non-sentient being. It is non-voluntarily playing the role of *patient.* A few floors above a patient with advanced dementia is seated in front of a television. Another patient who suffers from a psychotic episode is being admitted against his will. The ICU is home to a 26 year old stabbing victim in a medically induced coma. A premature infant is carted through the NICU as a nurse draws blood from a teenage girl on the third floor. A middle aged man rests in a persistent vegetative state next to a young woman who has been declared brain dead months earlier. Each is a patient; and each, presumably, has realized their welfare capabilities to varying degrees.

If a physician is to fulfill the obligation to promote the welfare of her patients, then this obligation has to be such that it can accommodate this large variety among the array of patients the physician will be called upon to treat. This means that the physician should have an understanding of the welfare of a mother, her fetus, a premature infant, a 26 year old stabbing victim, and so on without end.

Recall that we constructed our definition of welfare with the aim of accounting for the welfare of any entity that has welfare. Part of the benefit of structuring our definition in this way is that we can now apply the definition to the welfare of patients even despite this enormous diversity. We can do this by identifying the welfare capabilities that patients of each sort should have, and the extent to which they exercise this array of capabilities.

The diversity of patients poses a problem for many theories of welfare. Hedonistic and desire-fulfillment theories, for example, fail to guide the physician in determining (and thus promoting) the welfare of each of these patients. The hedonist would tell the physician to determine the welfare of a patient by balancing the patient’s pleasure over pain. But what would this mean for the early fetus and the brain-dead patient? Neither, presumably, can experience pleasure or pain in a meaningful way. But the fetus and the brain dead patient are surely faring differently. A fetus should *not* be able to experience pleasure or pain because early fetuses are not the kind of things that experience pleasure or pain. The brain dead adult, on the other hand, deviates from the canonical adult and so fails to realize something that *should* be able to realize. Hedonism fails to tell us about the welfare of these patients because, while these patients are qualitatively identical in terms of their experiences of pleasure and pain, they differ with respect to the quality of welfare.

Desire-fulfillment theories fail to reflect the patient population for similar reasons. All of the mentioned patients have some degree of welfare, yet not all have desires—and nor, in some cases, should they. Certain PVS patients lack cognitive affect and yet we can surely speak of the welfare of such patients, even if at a low or ‘zero’ level (Graham et al., 2015). Further, if desire fulfillment were to drive a theory of patient welfare, then to promote patient welfare would simply be to fulfill the desires of patients. This would entail that a physician could fulfill his obligation to promote patient welfare by giving patients what they want—whatever that may be. And this is surely not conducive to promoting what is meant by ‘patient welfare’.

Our capability-based theory of welfare can give an account of the welfare of each of the mentioned patients by pointing out that for each of them there are certain capabilities which they should be realizing according to the kind or class to which they belong, according to developmental phase, and so on. An infant is understood to fare well if she bears and realizes certain relevant capabilities; a young stabbing victim’s welfare is understood in terms of the capabilities that she should be realizing, and so we can make sense of claims about this patient faring poorly. Broadly, we can see that our view of welfare can make sense of the welfare of each of these patients.

In order to construct the appropriate patient reference class for each of the many different sorts of cases, we must explore further what it means to be a patient. Our preliminary answer to this question in terms of ‘being under the care of the medical profession’ We first deal with two other accounts of what it is to be a patient, both of which will be unsatisfactory to our purposes.

*Patients as Ill*

Some might say that patients are those who are ill. But we can see from ordinary experience that this is not the case. You might very well be a patient when you are not ill—for example, when you undergo a routine checkup. And you may not be a patient when you are ill, for example, if you forego a visit to the doctors and wait for the flu to subside. We can see that the role of *being a patient* does not require a particular state of health. It requires only the status of being under the care of the medical profession. Thus, we can see that illness is not a necessary feature of a patient.

*The Patient as Person*

A more promising (though still ultimately unsuitable) answer is to identify patients as persons *simpliciter*. This would allow us to determine the welfare of each patient by comparing him against the canonical person of a given gender, stage of development, and so forth. This notion of ‘treating the patient as a person’ has become common in certain circles, and some approaches to medical ethics rely heavily on such an understanding (Mezzich et al. 2010; Ramsey 1970; Stewart 2003*)*. Because the definition and criteria of personhood are far from settled, however, this answer tends to create more problems than it solves. As Sadegh-Zadeh points out:

In modern medicine, the physician is required to treat the patient as a person. There is as yet no common concept of a person, however. On the one hand, a person is obviously not simply identical with a human being; and personhood is not considered identical with consciousness, self-consciousness, psyche, or mind. On the other hand, fetuses, infants, and severely brain-damaged patients are not categorized as persons either. That means that the terms “person” and “human being” are not coextensive (2013, p. 185).

Despite its relative popularity, equating patients with persons—and in turn, understanding the canonical patient as the canonical *person—*does little to help us make sense of the diversity of patients and of the multi-dimensional character of patient welfare. In part, the inadequacy of the view stems from a lack of clarity about the notion of personhood. Some theories hold that persons are essentially psychological beings. Other theories see human persons as essentially human animals (organisms)—with or without a psychology.

*The Patient as Person: Essentially Psychological Beings*

Understanding persons as essentially psychological beings traces back to the view of John Locke, who argued that you, as a person, are identical to your psychology, that is, your thoughts, desires, memories, and other mental states (Locke 1694). He supports his point by asking us to imagine that the consciousness of a prince travels to the body of a cobbler, and suggests that the person of the prince would now be one and the same as the cobbler:

 For should the soul of a prince, carrying with it the consciousness of the prince's past life, enter and inform the body of a cobbler, as soon as deserted by his own soul, every one sees he would be the same person with the prince, accountable only for the prince's actions (Locke 1694, Ch II).

Locke’s point is that you and I, as persons, are only contingently related to our respective bodies. You, the person, could move from one human organism to another, and so you must not be identical to your human organism.

Such a view of personhood, the Lockean view, has already informed a number of debates regarding the treatment of patients, for example with respect to the brain dead, PVS patients, and the procurement of organs (e.g. Jensen 2011; McMahan 2006; Shewmon 1997). A main source of contention, however, is that such a view implies that human organisms who do not have such thoughts, desires, and memories are not persons, which implies that you (the person reading this text) could never suffer from advanced dementia and could never have been a fetus (Olson 1997). Depending on the nature of mental life that is required for personhood on this account, infants, the comatose, and the severely mentally disabled, for example, would not qualify as persons, and so would not qualify as patients (Chapell 2011). We wish to account for entire patient population, and not just a certain class of patients.

Equating a patient with a person, then, would fail to make sense of many patients who lack a mental life yet who are still clearly patients. Rather than grounding an understanding of the patient in terms of personhood conceived in Lockean fashion, whose qualities emerge only during certain phases of the human organism’s development, we should opt instead to define the patient in terms which accurately reflect the diverse features of the patients in our typical hospital.

 *The Patient as Human Organism*

The standard rejoinder to those who defend the psychological criterion of personhood is to propose instead that we understand human beings as organisms, or animals (Olson 2007; Snowdon 1990). Adopting this view can make sense also of those stages of development which do not include a robust mental life, as well as patients who, through illness or injury, lack a mental life, yet are still patients. And while not every patient fulfills the psychological criterion of personhood, every patient in a clinical setting is still a human *organism*.

*Patient Capabilities: A Developing Organism*

I propose that we should understand patients, then, as human organisms under the care of the medical profession; they are bearers of the role *patient*. Some of these human organisms are competent, conscious, and sentient. Others may lack any or all of these features.

If patients are human organisms, then the canonical patient is, at the most general level, the canonical human organism. It follows from this that we should identify the way that the human organism *should* develop, as this development implies the emergence of certain capabilities which, when exercised, are good for the human organism. In order to assess the welfare of a member of our patient population, then, we should compare the patient to the canonical human being at its respective life phase. For example, the stabbing victim should bear those capabilities associated with an adult; the infant should bear those capabilities associated with the canonical infant; and so on. This means that we can make sense of a geriatric patient doing well when he is realizing the welfare capabilities that a geriatric patient should realize; and we can make sense of the infant doing well when she realizes the capabilities that an infant should realize.

*Dehumanizing Patients?*

A concern might arise that identifying patients as ‘human organisms’ may threaten to dehumanize the patient. The reason for adopting the slogan of ‘treating the patient as person’ was, in fact, to emphasize the humanity and individuality of each individual the doctor is called upon to treat (Entwistle and Watt 2013). While the phrase ‘human organism’ has its problems, identifying patients as members of the kind ‘human organism’ is in fact *more* conducive to recognizing the individuality of patients. This is because it permits the identification of the capabilities of patients who not only do not bear the typical features of persons but further who are such that, given the kinds of individuals that that they are, they *should* *not* bear these features. For this reason we believe that the phrase ‘human organism—provided we understand that it is not intended to reflect any claims about the value of the patient—is in fact superior to ‘person’.

If we are to identify patient welfare with respect to the canonical human organism at certain developmental phases, then we should ask: What are these phases?

*The Canonical Life Phases of the Human Organism*

Social scientists have divided the human animal’s life into varying numbers of phases, at times four, such as infancy, childhood, adolescence, adulthood; sometimes five, such as in­fancy, childhood, adolescence, middle age, and old age, and sometimes dozens of distinct sequential phases, stretching from the early embryo to the final moments of life.[[19]](#footnote-19) Thomas Armstrong, for example, identifies the following stages: Prebirth; Birth; Infancy; Early Childhood; Middle Childhood; Late Childhood; Adolescence; Early Adulthood; Midlife; Mature Adulthood: Late Adulthood; Death & Dying (Armstrong 2007).

 Each stage corresponds to the emergence or fading of certain welfare capabilities. These are capabilities which patients, as developing human animals, should be exercising at corresponding phases through the course of their development. Different welfare capabilities emerge (or, should emerge) at different life stages, and the realizations of these capabilities determine the patient’s welfare.

 At some stages, patient health may be of primary importance, for example, during the Carnegie Stages of the development of the human embryo (O’Rahilly 1994). Health capabilities are those relevant capabilities which, when realized, determine the biological health of that entity. These capabilities vary across the lifespan of the human organism. We can see that the health capabilities of the fetus, for example, correspond to the reception and processing of signals and nutrients from the mother, as well as the transmission of signals and waste products to the mother.[[20]](#footnote-20) On the other hand, the health of postnatal human organisms is the array of capabilities which the human being has to breathe, to digest food, to be mobile, and so forth. These health-related capabilities differ from one stage to the next, but at each stage, these capabilities determine the health of the human organism.

 At later stages, additional capabilities typically emerge. As a child grows older they will develop more complex capabilities, such as those which promote interaction with other human beings, and which contribute to the welfare of the individual. At later stages, some capabilities will emerge and others fade. For example, John as a child has the capability to play with friends, and to enjoy food, and to memorize material for his exams. As he gets older, he develops finer capabilities from these more basic, childhood capabilities. John will develop the capability to form more complex friendships and to distinguish between refined tastes. On the other hand, his capability to memorize will diminish. The trajectory of development can change with a change of health or environment. If John is diagnosed with early onset dementia, for example, then his capabilities to memorize and to develop complex friendship will deteriorate with the progression of the disease.

*Welfare Capabilities, Health Capabilities, and the Patient Role*

Patients are developing human organisms, and so welfare assessments should reflect the typical stages of the human organism. But beyond being understood as human organisms, patients are qualified with respect to the patient role, in a way which needs to be reflected in concerns for their welfare. When we speak of your welfare as a patient in the clinical setting, we are likely more concerned about some of your welfare capabilities than others.

 Identifying a patient as an individual who is placed under the care of the medical profession indicates the sort of environmental processes and factors that will likely contribute to the realization of the patient’s capabilities. These processes and environmental factors are primarily directed towards the realization of the *health-related* capabilities of the patient. Thus, when a physician intends to promote the welfare of her patients, she likely does so primarily by promoting such health-related capabilities—those capabilities which typically contribute to the health of the individual when realized. If this account is correct however, and if physicians are tasked with promoting both health *and* welfare, then to what extent can we distinguish between these respective capabilities?

 We saw in Chapter 1 that health and welfare are distinct because an individual can fare poorly while enjoying good health. And this distinction must be preserved in order to make sense of the distinct professional aims of caring for a patient’s welfare and caring for a patient’s health. If patient welfare is understood as identical to patient health, then there would be no need to task physicians with the promotion of both the health *and* the welfare of her patients.

 According to our account, capabilities are grounded in the physical makeup of the bearer, understood with respect to the history of the individual’s kind. Thus, capabilities, like functions, are grounded in the physical makeup of the bearer in similar ways. But if both health and welfare are grounded in the physical makeup of the bearer, how are we to distinguish the one from the other? If a physician is treating a patient, how is the physician to interpret the physical makeup of the patient in terms of health on the one hand, and in terms of welfare on the other?

 To address this question, consider the following analogy. Imagine that an author requests that you edit a text. You can approach this task with different goals in mind, each of which is beneficial to the author. You might, for example, edit the text for spelling and grammar; or, you might edit the text to ensure that the author’s message is accurately and coherently reflected in the body of the work. In both cases, the various goals are achieved by adjusting the words and letters which constitute the text—thus, adjusting the physical makeup of the work as a whole.

 In the same way, a physician might adjust the patient’s physical makeup for the sake of his health or for the sake of his welfare. Recall that our understanding of capabilities as special sorts of BFO dispositions implies the grounding of these dispositions both in the physical makeup of the bearer and in the realization of capabilities through certain corresponding processes. Certain features of the patient’s physical makeup ground the patient’s capability. The capability to socialize, for example, is grounded in the patient’s capability to communicate, recognize emotions, laugh, and so on, and these in turn are grounded in physical features of the patient’s brain and other organs. Thus, the capability of socialization—and thus the *welfare* of the patient—can be promoted by restoring the meansof socialization which inhere in the physical makeup of the patients.

 On our account, *having* a capability is a matter of the physical makeup of the patient. The patient’s welfare, then, has to do with *exercising* the capability, a matter of the realization of the capability through certain processes. A patient’s health, on the other hand, has to do with how the physiological systems of the patient – it is a matter of whether they function as they should function (Boorse 1976). For example, a patient may be unhealthy on account of an aggressive cancer. The cancer causes the lungs to function poorly, and this is described as poor health. The patient, in turn, no longer has the capability to engage in conversations with friends, and so his welfare is diminished. This capability relies on the function of the lungs, yet is a capability of the patient as a whole.

 Or, a child who suffers from leukemia is unhealthy; her welfare suffers because she is unable to realize the capability to gain an education in a typical way on account of the prolonged malfunctionings of the various parts of her organism. Many such cases in which disease frustrates the realization of capabilities is a case in which health frustrates welfare.

 Such considerations may inform discussions about the social or familial cost of a treatment. A physician may offer chemotherapy as a treatment option for a child and discuss not only the health benefits, but also the social and personal costs that would result. A physician may further discuss the affects the non-health related effects of a treatment plan on one’s self-image (severe scarring). We can even imagine cases when the best way for a physician to promote a patient’s welfare is to *cease* medical treatment—if, for example, healthcare is futile and burdensome, and significantly detracts from the individual’s overall welfare.

*Promoting Welfare through Physical Makeup and Environment*

How might a physician promote a patient’s welfare? Given our understanding of capabilities and welfare, there are two primary methods of achieving this end. The first is through manipulating the patient’s *environment* so as to allow the patient’s welfare capabilities to be realized. This can be done in many ways, such as providing walking assistance to the patient in order to promote the capability of a patient to move independently, or structuring hospitals in a way which is conducive to the socializing of patients. In speaking of methods to promote the welfare of breast cancer patients, for example, Fallowfield and Baum suggest that “the waiting areas could be brightened up so as not to compound the feelings of gloom and despondency” (1989, p. 5). This is a rather direct example of manipulating an environment. However, the behavior of the physician towards the patient, the disclosure of information to the patient, or the security of confidentiality within the clinical setting all count as environmental contributions to welfare.

 The second way of promoting welfare is by adjusting the patient’s physical makeup so as to correspond to the patient’s environment. While this is often done through the promotion of the patient’s health, it can also be achieved through non-health related alterations: through a vasectomy, for example, or through the surgical removal of an unwanted skin-tag. Further, restoring an individual’s body (physical makeup) to health may function simply as a means of achieving other welfare goals. A father of two young children, for example, may wish to undergo a high-risk health treatment primarily so that he can fulfill his dream of raising his children. Thus, his own health is a mere means to that welfare-related end. Physicians can thus promote patient welfare either by adjusting the surrounding environment to realize the patient’s capabilities or by adjusting the patient’s capabilities to match the patient’s environment.

 These ways of promoting welfare are not mutually exclusive. It is often the case that the welfare of the patient is best promoted by balanced adjustments of both the environment and the physical makeup of the patient. For example, a particular patient may realize his capability to contribute to society through working as a landscaper. A physician might recommend certain shoes that best fit the patient’s (unusual) feet for the purpose of helping the patient better realize this capability, or he may advise the patient to work only certain hours so as to reduce the risk of melanoma.

*Specific Patient Capabilities*

We will address two additional questions here. First, how might we assemble an explicit list of patient capabilities? And, which non-health-related patient capabilities should the medical profession identifyand promote, in addition to health-related capabilities?

 The idea that there are certain universal capabilities which determine one’s welfare is shared by other advocates of the capabilities-based approach to welfare such as Nussbaum and Sen. Compiling a list of these basic capabilities, however, is a different, and difficult, task. Sen, in writing to promote the goal of social justice, has avoided creating such a list for fear that it would override the subjective values of an individual and undermine the democratic process (1999). And towards the end of gauging the welfare of individuals within certain political environments, Nussbaum has diverged from Sen and proposed a list of what she calls the Central Human Capabilities. She takes the realization of these capabilities to be necessary for any individual to be treated appropriately in a just society (2001, 2011). Nussbaum writes:

One obvious difference between Sen’s writings and my own is that for some time I have endorsed a specific list of the Central Human Capabilities as a focus both for comparative quality-of-life measurement and for the formulation of basic political principles of the sort that can play a role in fundamental constitutional guarantees. The basic idea […] is that we begin with a conception of the dignity of the human being, and of a life that is worthy of that dignity ... With this basic idea as a starting point, I then attempt to justify a list of ten capabilities as central requirements of a life with dignity (2003, p 40).

These capabilities are offered as a subset of human universals in general (qualities, norms, behaviors) that emerge in any culture. Varying lists of these universals have been proposed by a number of theorists, for example, by Larry Arnhart, who offered around twenty, or D. Brown, who identified hundreds of universals including: *tickling*, *joking*, *fear of snakes*, *envy*, *property*, *the use of antonyms* (Arnhart 1998; Brown 1991; see also Pinker 2002). This, of course, does not imply that every individual exhibits all such features. In any given society, however, they will emerge in some form and will be typical.

 Universal capabilities, such as Nussbaum’s Central Capabilities (2011), are those capabilities which are typically good for the members of the society who have and exercise those capabilities. Because these capabilities are applicable to members of any culture or society, they are often rather general capabilities, as we see when we examine Nussbaum’s list:

1. Life.
2. Bodily health. Being able to have good health, including reproductive health.
3. Bodily integrity. Being able to move freely from place to place; to be secure against violent assault.
4. Senses, imagination, thought. Being able to use the senses to imagine, think, and reason.
5. Emotions. Being able to have attachments to things and people outside ourselves.
6. Practical reason. Being able to form a conception of the good and to engage in critical reflection about the planning of one's own life.
7. Affiliation. Being able to live for and in relation to others, to recognize and show concern for other human beings, to engage in various forms of social interaction;
8. Other species. Being able to live with and have concern for other species.
9. Play. Being able to laugh, to play, to enjoy recreational activities.
10. Control over one's environment.

Clearly some of these capabilities still only apply to the certain life stages of individuals rather than to others. For example, ‘control of one’s environment’ applies only in a very attenuated sense to new-born infants.

 Our definition of capabilities within the framework of Basic Formal Ontology is compatible with the notion of universal capabilities advanced by Brown, Pinker, Nussbaum and others. The task of composing an exhaustive list, however, is best left to those whose research is directed towards human behavior and development. Yet, it is safe to assert that this array of basic capabilities develops in different ways in different individuals, manifesting in diverse ways from on society to the next, and from one person to the next.

 Because our understanding of the granularity of capabilities permits general as well as specific capabilities, we can avoid the concern voiced by Sen that the construction of a list will undermine the subjective values of individuals by imposing some objective list of what is good for a person and what is not. We avoid this implication because we have seen that we recognize subjectivity or individuality at the more specific levels of granularity while also recognizing universality at the most general levels of granularity. A comprehensive list of capabilities, then, would reflect these general capabilities.

*Bio-Psycho-Social Capabilities*

Nearly any list of capabilities will include some reference to the general biological, psychological, and social capabilities of human beings. The variation often arises when we consider how these capabilities spawn more specific capabilities at lower levels. For example, we can see in Nussbaum’s Central Capabilities list that the capability to socialize is reflected directly in the capability of affiliation, but also less directly in the capability to engage with other species in a meaningful way. We can see that the biological capability of a person directly correlates with the first three capabilities. Finally, we can see the psychological capabilities in the capability to have and express emotions, and again in the capability for affiliation. Often times it is the case that a listed capability corresponds to elements of more than one general capability. We see this in the capability for affiliation.

 The identification of three general capabilities of patients—biological, psychological, and social—reflects certain holistic approaches to clinical medicine, notably the biopsychosocial model developed by G. Engel (1977, 1980). This model was a response to the medical community’s emphasis on the physiological health of patients, and challenged healthcare professionals to acknowledge the psychological, social, and biological components of the patient when advising and acting upon medical decisions (Borrell-Carrió et al., 2004). This model is reflected here in our construction of a multi-dimensional account of capabilities-based welfare, and specifically in the recognition of three broad welfare dimensions common to all human beings (e.g. Arnhart 1998; Engel 1977).

 Of these three capabilities, the physician is surely tasked with those capabilities oriented towards the biological health of the patient (Kass 1985). But are there also *non*-health-related capabilities that physicians should intentionally promote in virtue of their being medical professionals?

 We have, from the start, assumed that the promotion of patient welfare is central to the medical profession, in particular as outlined by the ABIM’s *Physicians Charter* (2004). Given our account of welfare, we can now understand this to mean that medical professionals are tasked with promoting non-health related capabilities such as those related to the patient’s social capabilities and psychological capabilities. On the one hand, tasking physicians with promoting non-health-related capabilities such as these reflects the widely accepted view that physicians should promote the patient welfare by offering information sufficient to enable the patient to make informed choices about his healthcare. For the capability to choose one’s healthcare course is not merely health-promoting, but promotes other features of the patient’s welfare. But consider the broad capabilities suggested above: social and psychological capabilities. Should medical professionals develop resources to promote the realization of the *social* capabilities of patients? And to what extent? Should medical professionals be mindful of the patient’s psychological capabilities? If so, which specific sub-capabilities are relevant? Which non-health related capabilities should medical professionals target?

 Some authors such as Leon Kass (1985) deny altogether that medicine should be directed towards the promotion of non-health related capabilities such as psychological happiness or the fulfillment of patient wishes. The upshot of Kass’s view, however, is that it then becomes difficult to make sense of non-health related obligations (such as the obligation to achieve informed consent) and with acceptance of procedures such as vasectomies or aesthetic operations which typically do not promote the health of patients but may promote their welfare.

 This reflects a larger problem with the notion of promoting patient welfare as part of what it means to be a member of the medical profession. If patient welfare is of such importance in the way described by the *Physician Charter*, then the medical profession must identify which non-health capabilities of welfare the physician ought to promote, and to what extent. If there is too little clarity in this regard, then there is also too little accountability.

*Potential Applications of the Capabilities-Based Theory of Patient Welfare*

A capabilities-based theory of welfare, specifically one which employs the account of capabilities presented above, can be used, we believe, to bring the needed clarity, which we illustrate under the following headings.

*Information Selection:* Physicians must select appropriate information and relay this information to a patient during the process of informed consent. In *Rethinking Informed Consent in Bioethics,* for example, Manson and O’Neill write:

Discussions of informed consent assume that certain types of information – information *about certain things –*ought to be disclosed to patients and research subjects, while other types of information about different matters need not be disclosed (2007, p. 28).

This process of information selection requires of clinicians that they identify which information does in fact matter to the patient. This can be achieved by framing discussions in terms of what likely matters, given an individual’s general capabilities. Using our approach, we can identify the relevant information in terms of how knowledge of that information can contribute to that individual’s welfare.

 Understanding welfare in terms of capabilities can assist a clinician in determining what information does in fact matter to the patient by guiding the information exchange that occurs between the patient and the clinician. If a clinician is mindful of the typical welfare considerations of a patient—that is, what likely matters on a general level—then the physician will leave open the possibility of discovering more subjective interests of the patient. For example, a teenager could be particularly sensitive to which treatment choices are more noticeable to her peers than others. Thus, a physician who is discussing the various options for correcting irregular curvature of the spine with an adolescent patient may be more sensitive to the social implications of the treatment options. By fostering a general awareness of the welfare dimensions that are particularly important to an adolescent, the clinician may discover that certain specific information does in fact matter to that patient. Can she bike with the back brace? Because it turns out that this patient plans to bike through Europe in four months, and so prefers the more aggressive treatment in order to ensure that she can address this important part of her life. Thus, a physician may discover new and important information which guides, and enhances, the physician/patient dialogue.

*Transparency and Professionalism:* If I promise to promote your welfare—to put your welfare before my own—when you stay at my home, then an important part of this promise is that you and I share an understanding of welfare, or at least, you know what *I* mean by ‘welfare’. If I mean that I will do whatever you say you want, then you will have one set of expectations. If I mean that I will do whatever I think is good for you, then that produces a different set of expectations.

 This scenario parallels the medical profession’s claims about professionalism. We have seen that medical professionalism is centered around the promise to promote the welfare of patients (ABIM 2004; Bernat 2012). But what does this mean? The medical profession requires a transparent view about the welfare of patients in order to make meaningful claims about the primacy of patient welfare. Our theory of capabilities-based welfare provides a strong foundation for such a theory.

 Further, patients should be able to identify when a medical professional acts *unprofessionally* and violates this principle of the primacy of patient welfare. If there is no shared and transparent understanding of patient welfare, then it is difficult, if not impossible, to identify violations of professionalism. This can be addressed by formulating a notion of welfare beyond a “dedication to the interests of the patient.”

*Identifying Beneficiaries and Benefits of Emerging Technologies:* Another potential application of our theory of welfare has to do with emerging technologies. We can explore the ethics and uses of an emerging technology by analyzing how its use will enhance patient capabilities. We can ask: What sort of patient does this technology promote, and in what way? How does this technology realize that patient’s welfare capabilities?

 Consider for example emerging forms of prenatal testing, such as the non-invasive prenatal tests of cell-free fetal DNA (cff-DNA NIPT). These tests are used to gather data on genetic anomalies of the fetus (McCullough et al., 2014). Using our capabilities approach, we can ask: How does such testing promote the welfare of those involved, if at all? Because the two candidate beneficiaries of such tests—the fetus and the mother—are at different developmental phases, we can identify distinct welfare capabilities and explore the ways in which such information contributes to the realization of these capabilities (Oepkes et al., 2014). The mother’s social and psychological capabilities and the typical manners of realizing these capabilities make her welfare considerations distinct from those of the fetus.[[21]](#footnote-21) Thus, we can discuss the benefits of the test in terms of how the test information will affect the various capabilities of each patient. Our welfare model, then, can assist in clarifying discussions of the benefit of any emerging technology which is intended for to promote the welfare of patients. Which dimensions of the test subject’s welfare will be affected by the discovery of such information?

*Physician Consent:* When physicians are tasked with weighing between and eventually selecting certain courses of patient treatment, physicians should be given recourse to a framework in which to analyze the welfare and the requests of the patient (May 2005). For example, in one clinical consult, a patient requested the removal of a lifesaving Implantable Cardioverter Defibrillator device, which had saved the patient’s life at least twice in the past (Hodkinson 2016). Though deemed competent, the patient requested the removal of the device because he denied its benefit and was embarrassed of the physical marks left by the device.

 Our account provides a framework which recognizes the multi-dimensional nature of welfare and so can allow commentators and clinicians to verbalize the complexities of such cases. In this case, the effects on certain social capabilities (embarrassment about the device) and health capabilities (the functioning of his heart) of the individual were in conflict. Our theory, then, provides a useful method of categorizing and responding to the various welfare-dimensions of a patient by framing welfare considerations in terms of what a patient can do (capabilities), how a patient is doing (corresponding welfare quality and faring process), and what a patient should be doing (canonical welfare).

 It is worth pointing out that we have not indicated the *degree* to which medical professionals should consider the welfare of patients. Undoubtedly, the welfare of patients is important and should be a concern of physicians. Given its importance, we have provided an account of welfare which is applicable to patients, and comprehends within its scope the welfare of a variety of different sorts of patients. But as long as physicians are tasked with promoting the welfare of patients—and not merely providing what the patient requests—physicians must utilize some notion of what patient welfare is (Beauchamp and Childress 2001, pp. 185– 187; Glover 1977, p. 75).

*Conclusion*

Our account of patient welfare offers a number of advantages. First, it does justice to the complexity of welfare by defining welfare in terms of an array of capabilities. This array reflects the many dimensions of welfare and entails that patient welfare is not reducible to the patient’s interest satisfaction, psychological contentment, or health alone. Thus, when a physician is tasked with promoting the welfare of patients, the task is directed towards many features of that patient’s life, features that we understand in terms of capabilities.

 Second, our recognition of the granularity of capabilities allows us to identify general capabilities shared universally by all patients as well as more specific capabilities associated with different classes of individuals. Thus, the diversity of patients is both recognized and promoted by our theory. Along the same lines, the theory allows for a number of alternative ways of realizing certain basic capabilities. Thus, our capabilities account of welfare balances the subjective and objective dimensions of a patient’s welfare. All patients may bear the capability to be healthy, but one patient may realize this capability through jogging and vegetarianism, another patient through swimming and protein-based diets, yet another through leading an ascetic life.

 Third, by defining welfare, faring, and capabilities within the structure of Basic Formal Ontology, we have framed these notions within a system that is conducive to wide information sharing—a growing necessity of the medical profession. Welfare is now understood within a framework of defined terms. We have identified welfare as a BFO quality which is determined through the realization of those BFO dispositions which we have called capabilities.

 Fourth, our approach is applicable to any patient that is a member of the human kind, as well as any welfare subject at all. It can thus make sense of those patients at various life stages who fall outside the realm of what is normal or typical by allowing the determination of their welfare relative to the kind of thing that they are (human animal) at each particular life stage, or according to another partition. Medical professionals can assess the welfare of any patient relative also to a variety of more reference classes which track the typical life phases of human beings of different sorts.

 Fifth, by framing welfare as a dynamic, multi-dimensional model corresponding to the development of the human animal, the medical profession can work to specify, to a degree, the obligations and expectations of physicians, thus benefitting both the physician and the patient. And while we have progressed in terms of clarifying the notion of patient welfare, we have identified a number of important questions which merit further exploration. For example, which non-health capabilities should medical professionals promote and to what degree should medical professionals promote these non-health capabilities?

 It is evident that the medical profession requires a theory of patient welfare in order to make sense of the physician’s obligation to promote the welfare of patients. Such a theory should capture the welfare of the wide array of patients which are placed under the care of the medical profession; such a theory should account for the subjective and objective dimensions of welfare; and such a theory should make sense of patient health without reflecting the same notion as patient health. A capabilities-based theory of patient welfare, understood within the framework of Basic Formal Ontology, successfully addresses each of these objectives.

*Bibliography*

Armstrong, T. (2007). *The Human Odyssey: Navigating the Twelve Stages of Life*. NY: Sterling Press.

Arnhart, L. (1998). *Darwinian Natural Right.* New York: SUNY Press.

Arp, R., Smith, B., and Spear, A. (2015). *Building Ontologies with Basic Formal Ontology*. Cambridge, MA: MIT Press.

Aristotle. Trans. Ross, W. D., & Brown, L. (2009). *The Nicomachean Ethics*. Oxford: Oxford University Press.

Barnhart, Robert K., ed. (1998). *Barnhart Dictionary of Etymology,* H.W. Wilson Co. Online: http://www.etymonline.com/index.php?term=welfare. Accessed November 2015.

Bandrowski et al., (2016). The Ontology for Biomedical Investigations, *PLoS ONE*, PONE-D-15-55757R1.

Beauchamp TL, Childress JF. (2001). *Principles of Biomedical Ethics, Edition V.* Oxford: Oxford University Press.

Benson, G.J. and B.E. Rollins (eds) (2004). *The Well-Being of Farm Animals, Challenges and Solutions.* Oxford: Blackwell.

Bentham, Jeremy. (1962) [1789]) Introduction to the Principles of Morals and Legislation (Chapters I-V). In Mary Warnock (ed.), *John Stuart Mill: Utilitarianism, On Liberty, Essay on Bentham, Together with selected writings of Jeremy Bentham and John Austin (Merdidian).* New York: Plume.

Bernat, J. L. (2012). Restoring Medical Professionalism. *Neurology, 79*(8), 820.

Bittner, T. and Smith. B. (2003). A Theory of Granular Particulars. *Foundations of Geographic Information Science,* M. Duckham, M. F. Goodchild and M. F. Worboys (eds.), London: Taylor & Francis, 2003, 117–151

Boorse, C. (1976). Wright On Functions. *Philosophical Review,* 85, 70–86;

–––, (1977). Health as A Theoretical Concept. *Philosophy Science,* 44, 542–573.

Borrell-Carrió F, Suchman AL, Epstein RM. (2004). The Biopsychosocial Model 25 years later: Principles, Practice, and Scientific Inquiry. *Annals of Family Medicine*, 2, 576-582.

Bradley, B. (2014). Objective Theories of Well-Being, in Dale Miller and Ben Eggleston (eds.), *The Cambridge Companion to Utilitarianism*. Cambridge: Cambridge University Press, 199-215.

–––,. (2015). *Well-being*. Cambridge, UK: Polity Press.

Broom, D.M. (1991). Animal Welfare: Concepts and Measurement. *Journal of Animal Science*, *69*(10), 4167-75.

–––(2014). *Sentience and Animal Welfare.* Wallingford: CABI.

Brown, Donald E. (1991). *Human Universals*. Philadelphia, Pa: Temple University.

Chappell T. (2011) On the Very Idea of Criteria for Personhood. *American Journal of Bioethics*, 13(8), 29–39.

Cohen J, Brown Clark S. (2010). *John Romano and George Engel: Their Lives and Work*. Rochester: University of Rochester Press and Suffolk, UK; Boydell and Brewer Limited.

Cooper L., *et al.* (2013). The Plant Ontology as a Tool for Comparative Plant Anatomy and Genomic Analyses, *Plant and Cell Physiology*, 54 (2), 1-23.

Cribb A. (2005). *Health and the Good Society: Setting Healthcare Ethics in Social Context*. Oxford: Clarendon Press.

Crisp, R., (2006). *Reasons and the Good*. Oxford/New York: Clarendon Press.

–––, (2013). “Well-Being”. *The Stanford Encyclopedia of Philosophy*. Published Online: http://plato.stanford.edu/entries/well-being/. Accessed December 2015.

Darwall, Stephen. (2002). *Welfare and Rational Care*. Princeton Monographs in Philosophy. Princeton, NJ: Princeton University Press.

Dawkins, M.S. (2012). *Why Animals Matter: Animal Consciousness, Animal Welfare, and Human Well-being.* New York/Oxford: Oxford University Press.

Dennett, D.C. (1995). Animal Consciousness and Why it Matters. *Social Research*, *62*, 691–710.

De Lora, P. (2015). DCDD and Children: A Defense of the "Best Interests" Standard.*The American Journal of Bioethics,* 15, 8, 21-22.

Duncan I. J. H., Fraser D., (1997). *Understanding Animal Welfare*. Appleby & Hughes. CAB International.

Engel GL. (1977). The Need for a New Medical Model: a Challenge for Biomedicine. *Science.* 196, 129-136.

Engel GL. (1980).The Clinical Application of the Biopsychosocial Model. *American Journal of Psychiatry,* 137, 535-544.

Endowment for Human Development. (2016). Available online: [www.ehd.org](http://www.ehd.org). Accessed July 2016.

Entwistle, V. A., & Watt, I. S. (2013). Treating Patients as Persons: A Capabilities Approach to Support Delivery of Person-Centered Care. *The American Journal of Bioethics*, *13*(8), 29–39.

Epstein RM, Fiscella K, Lesser CS, Stange KC. (2010 ). Why the Nation Needs a Policy Push on Patient-centered Health Care. *Health Affairs (Millwood),* 29(8),1489-95.

Erikson, E. H. (Ed.). (1963). *Youth: Change and Challenge*. New York: Basic Books.

Fallowfield, L. J., & Baum, M. (1989). Psychological Welfare of Patients with Breast Cancer. *Journal of the Royal Society of Medicine*, *82*(1), 4–5.

Feinberg, J. (1980). *Rights, Justice, and the Bounds of Liberty: Essays in Social Philosophy*. Princeton, N.J: Princeton University Press.

Feit, N. (2015). Plural Harm. *Philosophy and Phenomenological Research.*90(2), 361-388.

Feldman, F. (2004). *Pleasure and the Good Life: Concerning the Nature, Varieties and Plausibility of Hedonism*. Oxford/New York: Clarendon Press.

Frankel RM, Quill TE, McDaniel SH (Eds.). (2003). *The Biopsychosocial Approach: Past, Present, Future*. Rochester: University of Rochester Press.

Fraser, D. (1995). Science, Values and Animal Welfare: Exploring the 'Inextricable Connection'. *Animal Welfare.* 4(2), 103–117.

Glover J. (1977). *Causing Death and Saving Lives*. Penguin Books, Harmondsworth.

Graham et al. (2015). An Ethics of Welfare for Patients Diagnosed as Vegetative With Covert Awareness. *American Journal of Bioethics.* 6(2), 31-41.

Haynes, R. P. (2008/2010) *Animal Welfare: Competing Conceptions and Their Ethical Implications* (1. Aufl. ed.). Dordrecht: Springer Netherlands.

Hobbs JL (2009).A Dimensional Analysis of Patient-centered Care. *Nursing Research,* 58(1), 52-62.

Hodkinson K. and Pullman, D. (2016) The Curious Case of the De-ICD: Negotiating the Dynamics of Autonomy and Paternalism in Complex Clinical Relationships. *American Journal of Bioethics .forthcoming.*

Homan, U. (2006). A Business-Oriented Foundation for Service Orientation. Available online: https://msdn.microsoft.com/en-us/library/aa479368.aspx. Accessed June 8, 2016.

Huang, J. et al., (2016) The Development of Non-Coding RNA Ontology. *International Journal of Data Mining and Bioinformatics*, 15(3).

Hursthouse, R. (1999) *On Virtue Ethics*, Oxford: Oxford University Press.

Jensen, M et al., (2013) The Neurological Disease Ontology. *Journal of Biomedical Semantics*, 4, 42.

Jensen, S. J. (2011; 2012). *Ethics of Organ Transplantation*. Washington: Catholic University of America Press.

Johnson, W.E. (1921).  *Logic*, Part I, Cambridge: Cambridge University Press.

Kagan, S. (1998). *Normative Ethics*. Boulder, Colo: Westview Press.

Kass, L. (1985). *Toward a More Natural Science: Biology and Human Affairs*. New York: Free Press.

Kleinig, J. (1991). *Valuing Life*. Princeton, N.J: Princeton University Press.

Kopelman, L. M. (2007). The Best Interests Standard for Incompetent or Incapacitated Persons of All Ages.*The Journal of Law, Medicine & Ethics, 35*(1), 187-196.

Kraut, R., (2007; 2006; 2009;). *What is Good and Why: The Ethics of Well-being*. Cambridge, Mass: Harvard University Press.

Kuwahara, S. S. (2011). An Overview of the Animal Welfare Act. *Journal of GXP Compliance, 15*(2), 48.

Layton, T. (2016). Developmental Scale for Children With Down Syndrome. *Extraordinary Learning Foundation.* Published Online: http://www.dsacc.org/downloads/parents/ downsyndromedevelopmentalscale.pdf. Accessed June 4, 2016.

Lerner, R. (2002). *Concepts and Theories of Human Development: 3rd Ed.* New Jersey: Lawrence Erlbaum Associates, Inc. Publishers.

Locke, J., (1975). *An Essay Concerning Human Understanding*, ed. P. Nidditch, Oxford: Clarendon Press (original work, 2nd ed., first published 1694); partly reprinted in Perry 1975.

Mabrito, R. (2013). Welfare and Paradox.*Journal of Philosophical Research,*38, 299.

Manson, N. C., & O'Neill, O., (2007). *Rethinking Informed Consent in Bioethics*. New York: Cambridge University Press.

May T. (2005) The Concept of Autonomy in Bioethics: An Unwarranted Fall from Grace. In: Taylor J.S. (eds) *Personal Autonomy: New Essays on Personal Autonomy and Its Role in Contemporary Moral Philosophy*. New York: Cambridge University Press. 299–309

McCullough, R. M., Almasri, E. A., Guan, X., Geis, J. A., Hicks, S. C., Mazloom, A. R.. . Saldivar, J. (2014). Non-invasive Prenatal Chromosomal Aneuploidy Testing - Clinical Experience: 100,000 clinical samples: E109173.*PLoS One, 9*(10).

McMahan, J. (2006). Alternative to Brain Death. *The Journal of Law, Medicine & Ethics*, 34(1), 44-48.

Medscape. (2013). *Growth Hormone*. Excerpt author: Muhammad Hammabi, MD. Online at: <http://emedicine.medscape.com/article/2089136-overview>. Accessed June 2016.

Merriam-Webster’s Learner Dictionary. (2016). “Welfare”. Available online: http://www.merriam-webster.com/dictionary/welfare. Accessed November 18, 2015.

Mezzich, J., Heath, I., Weel, C. v., & Snaedal, J. (2010). Toward Person-centered Medicine: From Disease to Patient to Person. *Mount Sinai Journal of Medicine,77*(3), 304-306.

Mill, John Stuart. (1861). *Utilitarianism.* Republished in 1957 by McMillan.

Millikan, R. (1984). *Language, Thought, and Other Biological Categories*. Cambridge, MIT Press.

Mintz, S. (2008). Reflections on Age as a Category of Historical Analysis. *The Journal of the History of Childhood and Youth*, *1*(1), 91-94.

Nagel, T. (1974). What is it like to be a Bat? *Philosophical Review*, 83, 435–450.

Nordenfelt. (1995). *On the Nature of Health: an Action-theoretic Approach*. 2nd revised & enlarged edn. Dordrecht: Kluwer Academic.

Nordenfelt et al. (2001). *Health, Science, and Ordinary Language*. Amsterdam: Rodop.

Nozick, R. (1974). *Anarchy, State, and Utopia.* Oxford: Basil Blackwell.

Nussbaum, M.C. (1988). Nature, Functioning and Capability: Aristotle on Political Distribution. *Oxford Studies in Ancient Philosophy*, 6, 145–84.

–––, (2011). *Creating Capabilities.* Harvard University Press.

–––, (1992). Human Functioning and Social Justice. In Defense of Aristotelian essentialism. *Political Theory*, 20(2), 202–246.

Nussbaum, M. and A. Sen (eds.), (1993). *The Quality of Life*, Oxford: Clarendon Press.

Oepkes, D., Yaron, Y., Kozlowski, P., Rego de Sousa, M. J, Bartha, J. L., van den Akker, E. S. . Tabor, A. (2014). Counseling for Non‐invasive Prenatal Testing (NIPT): What Pregnant Women May Want to Know.*Ultrasound in Obstetrics & Gynecology, 44*(1), 1-5.

Olson, Eric T. (1997). *The Human Animal: Personal Identity without Psychology*. New York: Oxford University Press.

–––,. (2007). *What Are We? A Study in Personal Ontology*, New York: Oxford University Press.

O'Rahilly R, Müller F. (1994). *The Embryonic Human Brain. An Atlas of Developmental Stages.* New York: Wiley-Liss.

Oxford English Dictionary. (2016). “Welfare”. Available online: http://www.oxforddictionaries.com/us/definition/american\_english/welfare. Accessed November 18, 2015.

Parfit, D. (1984). *Reasons and Persons*. Oxford [Oxfordshire]: Clarendon Press.

Petersen, T. S. (2014). Being Worse Off: But in Comparison with What? On the Baseline Problem of Harm and the Harm Principle.*Res Publica, 20*(2), 199-214.

Pinker, S. (2002). *The Blank Slate.* New York: Viking Press.

Project of ABIM Foundation, ACP-ASIM Foundation, and the European Federation of Internal Medicine. (2002). Medical Professionalism in the New Millennium: A Physician Charter. *Annals of Internal Medicine*, 136:243-246.

Ramsey, P. (1970). *The Patient as Person: Explorations in Medical Ethics*. New Haven: Yale University Press.

Regan, Tom. (1983). *The Case for Animal Rights*. California; University of California Press.

Rhodes P et al. (2006).What Does the Use of a Computerized Checklist Mean for Patient-centered Care? The Example of a Routine Diabetes Review. *Qual Health Res*. Mar; 16(3): 353-76.

Rollin, B.E. (1999). *An Introduction to Veterinary Medical Ethics; Theory and Cases.* Ames. IA. University of Iowa Press.

Rosse, C., and Mejino, J. L. V. (2003). A Reference Ontology for Bioinformatics: The Foundational Model of Anatomy. *Journal of Biomedical Informatics* 36, 478-500.

Sadegh-Zadeh, K. (2013). *Handbook of Analytic Philosophy of Medicine*. Springer.

Salter, E. K. (2012). Deciding for a Child: A Comprehensive Analysis of the Best Interest Standard. *Theoretical Medicine and Bioethics, 33*(3), 179-198.

Saracci R. (1997). The World Health Organization Needs to Reconsider its Definition of Health. *BMJ*, 314, 1409-10.

Sarch, Alexander. (2012). Multi-Component Theories of Well-being and their Structure. *Pacific Philosophical Quarterly, 93*(4), 439-471.

Scheuermann, R., Werner Ceusters, and Barry Smith. (2009). Toward an Ontological Treatment of Disease and Diagnosis. *Proceedings of the 2009 AMIA Summit on Translational Bioinformatics*, 116-120.

Sen A. (1993).Capability and Well-being. In: Nussbaum M, Sen A, eds. *The Quality of Life*. Oxford: Clarendon Press.

–––, (1985a) Well-being, Agency and Freedom: the Dewey Lectures 1984. *Journal of Philosophy,*  (82)4.

–––, (1985 ) *Capabilities and Commodities*. Amsterdam: Elsevier.

–––, (1999), *Development as Freedom,* New York: Knopf.

Shewmon, D. A. (1997). Recovery from "Brain Death": A Neurologist's Apologia.*The Linacre Quarterly,* 64(1), 30.

Singer, P. (1990 [1975]). *Animal Liberation*. New York: Avon Books.

Smith, K. (2012). *Governing Animals: Animal Welfare and the Liberal State*. Oxford: Oxford University Press.

Snowdon, P. (1990). Persons, Animals, and Ourselves. *The Person and the Human Mind*, C. Gill. (ed.), Oxford: Clarendon Press.

Spear, Andrew D., Ceusters, Werner & Smith, Barry. (2016). Functions in Basic Formal Ontology. *Applied Ontology,* *11*(2),103-128.

Stewart, M. (2003). *Patient-Centered Medicine: Transforming the Clinical Method* *2nd ed*. Abingdon, U.K: Radcliffe Medical Press.

Sumner, L.M.(1996). *Welfare, Happiness, and Ethics*, Oxford: Clarendon Press.

Taylor, T. (2013). Well-being and Prudential Value. *Philosophy and Public Policy Quarterly.* 31( 2). Oxford: Oxford University Press.

University of York. (2014). Plant Welfare is Improved by Fungi in Soil. *ScienceDaily*. Published Online May 2014: [www.sciencedaily.com/releases/2014/05/140512101404.htm](http://www.sciencedaily.com/releases/2014/05/140512101404.htm). Accessed December 2015.

Venkatapurum, Sridhar. (2013). Health, Vital Goals, and Central Human Capabilities.*Bioethics.* 27(5), 271–279.

WHO: World Health Organization. (2016). Disabilities*.* Published Online: http://www.who.int/topics/disabilities/en/. Accessed May 28, 2016.

World Bank. (2016). The World Bank: Data on Birth Rates. Online: http://data.worldbank.org/indicator/SP.DYN.TFRT.IN/. Accessed May 8, 2016.

Woodard, C. (2013). Classifying Theories of Welfare.*Philosophical Studies,*165(3), 787-803.

1. Online at http://www.oxforddictionaries.com/us/definition/american\_english/welfare. Accessed November 11, 2015. [↑](#footnote-ref-1)
2. As of December 2015, *Principles of Bioethics* was cited in 17,966 articles and the *Physicians Charter* has been endorsed by more than 130 organizations worldwide. [↑](#footnote-ref-2)
3. See for example: Boorse 1976, 1977; Crob 2005; Nordenfelt 1987, 2001. [↑](#footnote-ref-3)
4. Available online: (https://www.law.cornell.edu/ethics/ny/code/NY\_CODE.HTM, 2016). Accessed May 23, 2016. [↑](#footnote-ref-4)
5. Available online: (http://www.lsuc.on.ca/WorkArea/DownloadAsset.aspx?id=2147489379, 2016): Accessed May 23, 2015. [↑](#footnote-ref-5)
6. For examples of uses and critiques of the notion of best interests, see e.g. De Lora (2015), Kopelman (2007), and Salter (2012). [↑](#footnote-ref-6)
7. For references to the welfare of each of these welfare subjects, see, for example, Fraser (1995), Kuwahara (2011), University of York (2014), Smith (2012). [↑](#footnote-ref-7)
8. I admit that I am not sure what it means for something to metaphorically fare. [↑](#footnote-ref-8)
9. See, for example, Singer (1990). [↑](#footnote-ref-9)
10. See for example: Dennett (1995), Dawkins (2012), or Nagel (1974). [↑](#footnote-ref-10)
11. Capabilities-based approaches are often categorize as Perfectionist Theories of welfare (Bradley 2015 pp. 40-47). [↑](#footnote-ref-11)
12. Nussbaum refers here to the capabilities of persons, but we are interested in the capabilities of any entity that has welfare. Despite choosing the title ‘Capabilities Approach’ instead of ‘Human Development Approach’ in order to leave open the capabilities of non-persons, Nussbaum commits the error of explaining capabilities in terms of what a ‘person is able to do or be’ instead of what *anything* with capabilities is able to do or be. [↑](#footnote-ref-12)
13. See for example: Mark Jensen, et al.(2013); Anita Bandrowski, et al. (2016); Jongshan Huang, et al. (2016). [↑](#footnote-ref-13)
14. Arp, R., Smith, B., and Spear, A. D. 2015. Building Ontologies with Basic Formal Ontology, Cambridge, MA: MIT Press: pp. 110-125 [↑](#footnote-ref-14)
15. The WHO’s understanding of disabilities explicitly supports the view that disabilities and capabilities extend beyond health. Further, describing disabilities as ‘reflecting the interaction between features of a person’s body and features of the society’ supports the view I have presented here that disabilities (and capabilities) are grounded in the physical makeup of the bearer (in this case, the person’s body), while the ‘features of society’ are those processes which bring about the realization of capabilities or disabilities to varying extents. [↑](#footnote-ref-15)
16. The World Bank, http://data.worldbank.org/indicator/SP.DYN.TFRT.IN/, accessed May 8, 2016. [↑](#footnote-ref-16)
17. See, for example, e.g., Diener, (2009); Michaelson, Abdallah, Steuer, Thompson, & Marks, (2009); Stiglitz, Sen, & Fitoussi (2009). [↑](#footnote-ref-17)
18. When your patient role begins and ends may be somewhat unclear (Scheuermann et al., 2009). In a typical case the patient role begins when the patient first visits the doctor and ceases when she discontinues the treatment and is restored to health. But imagine that a physician recommends a dietary change as a means of restoring and then maintaining health. The patient continues to abide by this regimen for an indefinite period of time. Does the individual in question continue to bear the role for the corresponding indefinite period? [↑](#footnote-ref-18)
19. For a comprehensive historical survey of human development plans see Richard Lerner’s *Concepts and Theories of Human Development* (2002). [↑](#footnote-ref-19)
20. *The Endowment for Human Development*. Accessed online at [www.ehd.org](http://www.ehd.org). June 2016. [↑](#footnote-ref-20)
21. The *weight* of the welfare of each is a distinct question. That the welfare of each is at stake in some form, however, is widely recognized. [↑](#footnote-ref-21)