Croatian Journal of Philosophy
Vol. XXVI, No. 76, 2026
https://doi.org/10.52685/cjp.26.76.4
Received: November 11, 2024
Accepted: February 22, 2026

Two Kinds of Conceptual Engineering

WALTER VEIT
University of Reading, Reading, UK

HEATHER BROWNING
University of Southampton, Southampton, UK

The last decade has seen an explosion of meta-philosophical work on conceptual engineering. Beyond simple analysis of concepts, conceptual engineering allows for evaluation and improvement of concepts according to the purposes for which they will be used. This paper sketches a pluralist account of conceptual engineering and provides a distinction between two different and often conflicting kinds of conceptual engineering: naturalist conceptual engineering (NCE) and moral conceptual engineering (MCE), distinguished not by their methods, but by their roles, functions, and purposes. Using the examples of health and animal welfare, we demonstrate the application of both MCE and NCE and show how the different contexts in which a concept is used can create conflicting demands but also how concordance between these demands can strengthen a concept.

Keywords: conceptual engineering; explication; ameliorative analysis; animal welfare; health; ethics; naturalism

> *We are as sailors who are forced to rebuild their ship on the open sea, without ever being able to start fresh from the bottom up. Wherever a beam is taken away, immediately a new one must take its place, and while this is done, the rest of the ship is used as support. In this way, the ship may be completely rebuilt like new with the help of the old beams and driftwood—but only through gradual rebuilding.* (Neurath 1921: 75–76)

1. Introduction

The last decade has seen a surprising and fruitful resurgence of methodological debates about the tools and methods of philosophy itself.[1]

[1] For overviews see Sytsma and Buckwalter (2016) and Cappelen et al. (2016).

Largely due to Sally Haslanger's influential work on ameliorative analysis (Haslanger 2005), conceptual engineering has become one of the most prominent subjects of recent philosophical debate. Yet, while conceptual engineering has arguably been practiced for as long as philosophy itself (see Burgess et al. 2020 for an overview), philosophers have only recently started to take a metaphilosophical perspective on this 'way of doing philosophy'.

One simple (though not entirely accurate) way to introduce conceptual engineering is as a reply to conceptual analysis, i.e. the analytical dissection of concepts.[2] Historically – at least in the Western analytical tradition of philosophy – conceptual analysis has played a dominant role, and perhaps still dominates today, as a 'comfortable' a priori armchair methodology that seeks to clarify and illuminate the meaning of concepts used in both ordinary language and science. Much of the literature that criticizes the dominance of conceptual analysis in philosophy highlights the limitations and deficiencies of this intuitionist approach to concepts (see Devitt 1981; Kornblith 2002; Papineau 2013; Machery 2016). Primarily, when a concept is deficient in various respects, we may wonder how much sense it makes to try and analyse its use, rather than improve or replace the concept with a better one. This allows us to understand conceptual engineering as a philosophical method or practice that builds on 'mere' conceptual analysis. Rather than just looking at what concepts *are*, we look instead at what we *want them to be* (Haslanger 2000).

There is little consensus, however, on how conceptual engineering and its methods should be defined (see Burgess et al. 2020 for the first edited volume on conceptual engineering).[3] Indeed, if there is any consensus, then it is an implicit agreement that one should actively resist the temptation to find any precise definitions, for applying this kind of conceptual analysis stands opposed to very the goals of conceptual engineering. This might perhaps be considered an unpromising start for a meta-philosophical paper on conceptual engineering. However, we do not intend to suggest that the excitement of many participants in the debate is misplaced. Indeed, we are confident that there is room to clear up some conceptual confusions and clarify the foundations of conceptual engineering – and thereby philosophy itself. While care must be taken not to overestimate what may be achieved, we believe that this paper will offer us the necessary space to improve conceptual engineering itself by drawing an important distinction between two different

[2] Rudolf Carnap (1950), for instance, was an early proponent of conceptual engineering by promoting what he called 'explication.'

[3] Cappelen and Plunkett (2020) in their editorial introduction to this volume suggest that it would have been impossible to play "editorial police" for standardisation of definitions amongst authors, deeming it a futile endeavour to attempt the development of collectively agreed upon definitions (p. 2).

and often conflicting kinds of conceptual engineering: *naturalist conceptual engineering* (NCE) and *moral conceptual engineering* (MCE).

The paper is structured as follows. Firstly, in Section 2 we will remove some potential stumbling blocks and clarify how we intend to use several terms and concepts present in the debate. Out of this picture a novel account of conceptual engineering emerges that is much closer to Otto Neurath, who we've placed in the epigraph of this chapter, than it is to Carnap. Section 3 introduces the distinction between NCE and MCE, clarifying important differences to the groundwork by Rudolf Carnap on 'explication' and Sally Haslanger's work on 'ameliorative analysis'. In Section 4, we illustrate how these two kinds of conceptual engineering can be applied, and how they may come into conflict, by discussing two concepts at the boundary between science and ethics: health and animal welfare.

2. What is, and why engage in, conceptual engineering?

In discussing conceptual engineering, it is important to establish what it is, and why it matters. The initial answer to the second question – why engage in conceptual engineering? – is a simple one. Philosophers and scientists alike have been engaged in conceptual engineering since the earliest days of their respective fields. Indeed, conceptual engineering is a phenomenon that will show up even within ordinary discourse. Let us illustrate the point with a thought experiment. *Imagine* a newly engaged couple that are planning their wedding. They intend to invite their family and close friends. While Brian's list of invited family members includes distant relatives that live in close proximity of their home in New York, Alex does not consider his genealogically proximate relatives living across Europe as part of his family. Brian is appalled by this and tries to convince Alex to invite ALL the members of his family. Conversely, Alex criticizes Brian for inviting what he would consider to be random acquaintances to their wedding. Eventually, they are led to discuss the very definition of what it means to be a friend or family. Unfortunately for them, neither of these concepts allows for a straightforward conceptual analysis that would allow either to determine whether a particular individual that stands in a genealogical or social relationship to them should be classified under either extension of the respective concept. To settle their conflict, they must engage in conceptual engineering and thereby clarify the purposes to which the concepts of family and friends are put to use.

As our thought experiment hopefully illustrates, concepts are not freefloating entities. They serve a variety of (sometimes conflicting) purposes forming the basis from which to evaluate and improve them. As our distinction between NCE and MCE will show, the two kinds of conceptual engineering raise important questions of what to do when scientific desiderata and moral and political values come apart. Even

when philosophers, scientists, or the public are engaged in what they merely consider the analysis of a concept, they will inevitably engage in at least a minor form of conceptual engineering. This will be contingent on the criteria they use to evaluate the purposes of the concept they are employing and trying to explicate.[4] Before we can introduce our distinction between NCE and MCE however, we are faced with the task of clarifying the way we intend to use several of the terms and concepts within the debate. While the rapid proliferation of different ways in which terms and concepts such as 'concepts', 'conceptual engineering', 'explication', 'revisionary analysis' and 'amelioration' have been defined and defended within the debate has led to a broad coverage of the conceptual space, philosophers in this debate have been faced with an almost damning criticism of the conceptual engineering method itself. As Cappelen and Plunkett (2020) allude to in their brief introduction to conceptual engineering, the improvement and change of existing concepts can lead to discontinuities in how a concept is understood and used by different individuals and groups. Rather than resolve conflict and improve our inherited concepts, we may end up with misunderstandings and merely verbal disputes, a problem that has indeed received much attention in the history, sociology, and philosophy of science not only since Kuhn (1962), but also in the Vienna Circle, who were concerned with eliminating vagueness from scientific concepts and language (see Uebel 2019).[5]

Perhaps most interesting here, is the conflict between scientific concepts and their parallel folk concepts among the public. As Nersessian (1989) argued early on, there is a surprisingly large discrepancy in how particular concepts are understood within and outside of science. Contested concepts include human nature (Linquist et al. 2011), genes (Dar-Nimrod and Heine 2011), and innateness (Machery et al. 2019). This raises important challenges for conceptual engineering and its role within science education that we shall partially address in Section 4, where we apply our bipartite account of conceptual engineering to the concept of animal welfare.

Though some degree of vagueness may be expected during the initial development and popularization of an idea, we would much prefer to offer a precise and clear contribution that aids understanding. A simple definition of conceptual engineering has been provided by Chalmers (2020): "conceptual engineering is the process of designing, implementing and evaluating concepts" (p. 2), which does a good job of capturing the initial motivation of those interested in going beyond conceptual analysis. However, it provides very little guidance on how

[4] While we are skeptical about the possibility of such pure logical conceptual analysis without some evaluative component, considerations of space prevent us providing an extended argument for this position here.

[5] See Chalmers (2011); Jenkins (2014); Jackson (2014) for recent philosophical discussions on verbal disputes and Thagard (1992) for an ambitious account of conceptual changes in science.

conceptual engineering looks in practice. A more expansive definition has been offered by Cappelen and Plunkett (2020) which we will use as an excellent scaffold to distinguish MCE from NCE:

> Conceptual Engineering = (i) The assessment of representational devices, (ii) reflections on and proposal for how to improve representational devices, and (iii) efforts to implement the proposed improvements. (Cappelen and Plunkett 2020: 3)

It seems surprising that Cappelen and Plunkett opt for 'representational devices', rather than concepts in their definition of conceptual engineering, given the very title of the practice. Their justification here, however, is far from satisfying, stating that this is "[p]urely for aesthetic reason: 'representational devices engineering' doesn't roll off the tongue in the way 'conceptual engineering' does" (Cappelen and Plunkett 2020: 3). Our concerns with this definition are twofold. Firstly, it is potentially misleading and will hence add confusion about conceptual engineering, rather than help to alleviate it. Secondly, it is overly broad and hence becomes less informative. While their definition is perhaps able to accommodate all the different methods and approaches proposed by different authors under the umbrella term of 'conceptual engineering', little has been gained if nothing is excluded either. Here, we should keep Godfrey-Smith's warning in mind that "[o]ne of the hazards of philosophy is the temptation to come up with theories that are too broad and sweeping" (2003: 5).

We see a strength in their pluralism and willingness to let alternatives proliferate, hence avoiding the danger of needlessly restricting the future direction of meta-philosophical work on conceptual engineering. However, we do not take representational devices to be the correct target, as they are manifold and so diverse that they hardly share any features beyond their representational function. In particular, we are concerned with this leading to the accidental combination of two separate philosophical debates: one on conceptual engineering, and one on the status of scientific models. While it is true that there has been too little overlap between the two debates, we should be careful not to overgeneralize and repeat mistakes such as the misguided focus of the philosophical literature on models on monistic attempts to provide a general account or framework of models in science (Veit 2020). Similarly, we argue that a broad definition of conceptual engineering as the evaluation and improvement of ALL representational devices must fail. Many scientific instruments, for instance, serve a variety of representational functions and are improved in what one could call 'engineering' efforts. These improvements, however, are highly contingent on their scientific context and the representational goals to which they are put to use, with a large diversity across the sciences. It would be quite surprising to say the least, if an account is able to generalize – not only over all these different representational instruments, but also across drawings, models, and lastly concepts – and still be informative.

However, we also think it to some extent misguided to seek something like a 'theory of concepts'. The reasons for this are twofold. Firstly, there are too many different definitions and uses of the word 'concept' in philosophy, psychology, cognitive science, and ordinary folk discourse (see Margolis et al. 1999 for an overview of the diversity of alternative views). Secondly, even a *concept of concept* itself is subject to improvement. We are well-advised to follow Neurath's (1921) anti-foundationalist dictum (as shown in the epigraph of this paper) to treat philosophy as a constant reworking of our concepts with concepts already in play. Unfortunately, Neurath's boat metaphor is often interpreted in different ways. Cartwright et al. (2008), for instance, argue that there are at least five different ways Neurath's boat metaphor can be interpreted. Partly resulting from Neurath's frequent use of the metaphor throughout his work, with the earliest use dating back to 1913, it has been influential as a slogan for naturalism (largely owing to Quine (1960)) and practical philosophy (of science). In line with Cartwright et al. (2008), we think that the following motivation is the core of Neurath's philosophy and, moreover, one of the most important instances of conceptual engineering:

> What propelled Neurath was an idea: the idea not simply that our stock of knowledge claims keeps on changing forever, but that a decisive revision of our concept of knowledge is required if reason is to fulfil its Enlightenment promise. (Cartwright et al. 2008: 92)

Unlike Carnap, who saw explication as something comparatively quite conservative and guided by both common usage and science, Neurath was open to the idea that our entire conceptual scheme of thinking about the world might be radically revised. In this, our account of conceptual engineering is closer to Neurath than it is to Carnap's narrower account of conceptual explication, something that will become apparent throughout this paper.

Let us now spell out the details of our account. We propose a modified alternative account of conceptual engineering that is faithful to the original label, provides a recognition of pluralism distinctive to other forms of *assessment and improvement*, and offers some genuine improvement on our understanding of the set of practices we label 'conceptual engineering':

> Conceptual Engineering = (i) The assessment of concepts, categories, and classificatory systems, (ii) determination of their relevant contexts and purposes to which they are and should be put to use, (iii) reflections on and proposal for how to improve them, and (iv) proposals for and active participation in the implementation of the suggested improvements.

The extension from *concepts* to *categories* and *classificatory systems* more generally is intended to cover the different senses in which the term 'concept' is generally used in cognitive science, philosophy, and ordinary language. Whereas concepts in philosophy are sometimes conceived as a narrow semantic definition, concepts in the cognitive

sciences often refer to something much more loose, such as a vague category or useful method for grouping entities and processes in the world. While this pluralist definition deliberately covers a broad range of devices or items, we deem these entities sufficiently similar to fall under the heading of 'conceptual engineering.'[6]

Importantly, in our definition we have emphasised the importance of identifying the relevant contexts and purposes for a concept, and how these will shape our evaluation. It is this that grounds the distinction we will provide between types of conceptual engineering, rather than specific methods for evaluation or implementation. We think it better to treat conceptual engineering as a diverse set of methods and practices with a loose degree of family resemblance, rather than equate it with either Carnapian explication or Haslanger's ameliorative analysis. These methods can include creating new concepts or fixing existing concepts (de novo conceptual engineering vs. conceptual re-engineering), and fixing meanings for existing words or creation of new terms (homonymous vs heteronomous conceptual engineering) (Chalmers 2020). While here we could only offer a sketch of our full account of conceptual engineering, the building blocks are now in place to turn to our main purpose in this paper.

3. Two kinds of conceptual engineering

Our goal in this paper is to draw a distinction between two distinct kinds of conceptual engineering that can come into conflict in practice - moral conceptual engineering (MCE) and naturalist conceptual engineering (NCE). They do not differ in their methods, but rather in the ends at which they are aimed. This differentiates the distinction from others that are based on method, such as between descriptive and normative analysis (Thomasson 2017) (where the latter, but not the former, would count as conceptual engineering), or on use, such as manifest, operative and target concepts (Haslanger and Saul 2006) (where the first two are subject to descriptive conceptual analysis and only the last a result of engineering). The basic process of performing both our types of conceptual engineering will be the same, but the selection of goals and desiderata for the concept will differ. In each case, we will still be performing a version of what Haslanger (2005) termed 'ameliorative analysis'. This follows from Haslanger's original description of ameliorative analysis as "a project that seeks to identify what legitimate purposes we might have (if any) [...] and to develop concepts

[6] Indeed, we think the metaphysical complexities of what concepts *really are* can be largely avoided. Such a demand would force us back into the confines of traditional conceptual analysis – an excessively lean diet which we ought to resist. Unfortunately, however, the present paper does not offer us enough space to argue for this claim at a length that would to it justice. For our present purposes it should be sufficient to recognize that our introduced distinction between NCE and MCE is largely independent of the *metaphysics of concepts*.

that would help us achieve these ends" (2005: 11). Crucial here are the identification of the purposes we have for the concept, and the subsequent development of concepts to meet these ends – also known as 'strategic conceptual engineering' (Brigandt and Rosario 2020).

In this paper we argue that the purposes to which conceptual engineering are put can be primarily grouped into two categories – scientific and moral. In the first instance, we aim at making concepts more scientifically adequate, and improving them for epistemic and pragmatic purposes. For the second, we often want our concepts to do work in the moral or political sphere, and must consider the relevant consequences there. It is not the different features of the concepts that leads to their classification under these headings, but their different uses. Importantly, the desiderata for a concept that will fill each of these two roles will be different, and thus conceptual engineering will move forward along a different path for each. We are not claiming that most concepts will fit neatly into one or the other - indeed, as we will show in the examples in Section 4, many concepts will be playing multiple roles - but simply that in engineering a concept for a particular purpose, it pays to be clear about which category or categories we're considering. As we will show, some current disagreements regarding preferred concepts could potentially be resolved through a specific recognition of the differing roles and aims that different sides are advocating.

We also do not mean to suggest that these two kinds of conceptual engineering are exhaustive. For example, one additional kind suggested when considering a kind of value that is different from both moral/political values and epistemic/scientific ones is aesthetic values (thus *Aesthetic conceptual engineering* (ACE)). However, we contend these will in most cases be philosophically less interesting and relevant. In the examples we will describe, it is typically the conflicting needs of NCE and MCE that have grounded the observed disagreements. Thus, we offer a bipartite account of conceptual engineering, broken down into *moral conceptual engineering* (MCE) and *naturalist conceptual engineering* (NCE), as will be elaborated in the following sections.

3.1 Moral conceptual engineering

The first type of conceptual engineering we wish to distinguish is *moral conceptual engineering* (MCE). This type of conceptual engineering is undertaken with specifically moral, political and/or social goals in mind, and thus is performed with reference to these types of norms. As mentioned, it is not a unique methodology that distinguishes MCE, but instead the ends at which it aims. We take all conceptual engineering to follow the general practices we have described above, but evaluated and improved according to norms associated with specific goals. For MCE, these purposes are moral, social and political: in aim of what enables promotion of values such as rights, wellbeing or justice. Words and concepts can have power, and be tied to social structures and in-

stitutions, and conceptual change can help shape attitude change. We will thus identify our desiderata for a concept under MCE as relating to the fulfilment of these ends. For example, changes in the concept of marriage from a partnership between a man and a woman to a partnership between two people of any sex/gender has allowed for greater recognition and acceptance of same-sex partnerships (Pollock 2019). Other examples of concepts that may fall into this category (though, as we will argue, most concepts will fall into both depending on the specific application) are poverty, race, gender, and welfare. We offer the following definition for MCE:

> Moral Conceptual Engineering = (i) The assessment of concepts, categories, and classificatory systems according to moral, political, and social norms, (ii) determination of their relevant context and purposes to which they are and should be put to use, (iii) reflections on and proposal for how to improve them, and (iv) proposals for and active participation in the implementation of the suggested improvements.

At first glance, MCE may appear to simply be what some take 'ameliorative analysis' to consist of. This process, developed by Haslanger (2005) relies on normative considerations in assessing and developing concepts. Normativity here is often taken to refer to moral, social and political considerations, such as those included within MCE. However, this is a conceptual confusion, likely arising from Haslanger's discussion of politically charged concepts such as race and gender. While it is true that Haslanger's ameliorative analysis overtly relies on moral norms in engineering/improving concepts, it need not. Instead, amelioration is simply the act of improvement and could cover both instances of moral conceptual engineering and naturalist conceptual engineering.

After analysing a concept and identifying its faults relative to some norms or purposes, amelioration is the process of modifying the concept such that it better serves these ends. It is true that these ends are often moral, political and social, such as Haslanger's own revisions of the concepts of gender and race formed by "considering what categories we should employ in the quest for social justice" (Haslanger 2005:11). However, they do not necessarily have to be - as will be discussed in Section 3.2, they could also be scientific. Normative considerations simply apply to the particular goals at hand: "whether or not an analysis is an improvement on existing meanings depends on the purposes of the inquiry" (Haslanger 2005: 24). While Haslanger's framework is useful to understand how we can move away from mere conceptual analysis, it has led to systematic misunderstanding about how moral and political values shape our concepts as an integral part of amelioration. It is this confusion we hope to resolve with our distinction between two different types of conceptual engineering. Part of this confusion is due to Haslanger, who has failed to demarcate these vary different ends for which concepts can be improved.

Thus, MCE is distinct from ameliorative analysis, instead forming a distinct part of analysis of this type. Both MCE and NCE are examples of Haslanger's ameliorative analysis, just with differing purposes.

3.2 Naturalist conceptual engineering

The second type of conceptual engineering we distinguish is *naturalist conceptual engineering* (NCE). This is conceptual engineering undertaken with scientific goals in mind. The method will not differ from MCE, but the goals and desiderata for the concept will rely on scientific norms rather than moral ones – such as explanatory power, measurability, or concordance with our best scientific understanding of the world (for some detailed examples of such epistemic goals, see Carballo 2020). One example of a concept that has undergone engineering within biology has been the concept of species, where a diversity of concepts have been proposed, each with particular benefits for their role in different sciences (Mayr 1992). Other examples of concepts that are engineered primarily for a scientific role could include genes, species, models, measurement, etc. There is an incredible diversity of different roles concepts play in science, and we do not dare to begin listing all of them here. Rather, we offer the following pluralist account of NCE:

> Naturalist Conceptual Engineering = (i) The assessment of concepts, categories, and classificatory systems according to scientific norms, (ii) determination of their relevant context and purposes to which they are and should be put to use, (iii) reflections on and proposal for how to improve them, and (iv) proposals for and active participation in the implementation of the suggested improvements.

It might be natural to take NCE to be a version of Carnap's (1950) concept of 'explication'. It would be a mistake, however, to equate all conceptual engineering within science as explication or to think that only Carnapian explication is a justified form of conceptual engineering within science. It is not our goal here to ameliorate Carnapian explication, a particular method with a rather clear but limited role in science, but instead we shall offer a brief survey of the diverse ways NCE can occur in science. Importantly, unlike Carnapian explication, NCE is instead a set of methods of which Carnapian explication is a mere member.[7] In Carnap's own words:

> The task of making more exact a vague or not quite exact concept used in everyday life or in an earlier stage of scientific or logical development, or rather of replacing it by a newly constructed, more exact concept, belongs among the most important tasks of logical analysis and logical construction.

[7] Novaes (2018) argues that Carnapian explication while not explicitly about moral or political values, is implicitly endorsing Enlightenment values such as emancipation and freedom – in line with Carnap's political stance (see Carus 2007). Ordinarily, however, Carnapian explication is merely seen as scientific concept refinement, which is the received view we shall follow. If Carnapian explication is political, then it would be even more of a mistake to equate it with NCE, rather than a hybrid of the two kinds of conceptual engineering discussed here.

> We call this the task of explicating, or of giving an explication for, the earlier concept. (Carnap 1947: 8–9)

Carnap, like other members of the Vienna Circle, is mostly concerned with the usefulness of concepts in the formulation of scientific laws. In this vein, he discusses the taxonomic concept of 'Pisces' as a scientific explication of the folk concept of fish – unlike its vague and intuitive counterpart within folk terminology, it is better able to play a role in scientific laws (1950). We can take a term common in ordinary language and try to refine it in various ways to study a phenomenon in nature, which then in turn leads to a further refinement of our terms. This is roughly what Carnap has in mind when he speaks of explication as a procedural improvement of our concepts. The philosophy of science, however, has long moved on from such a narrow conception of scientific progress and Carnapian explication is better conceived as one way among many possible ways of engaging in NCE.

The primary purpose of distinguishing NCE from MCE is to bring some philosophical clarity into debates about concepts that play a role in both science and society where the differing goals we put these concepts to use are kept obscure. Concepts are intended for a diversity of roles, and purposes are manifold. From Haslanger's discussion of race and gender to old philosophical debates on consciousness and welfare, many of the philosophical discussions attempt to untangle a muddled field of concepts, categorizations, and classificatory schemes. Where there is confusion such as this, philosophy has a useful role to play. To do so, however, we need to disentangle the different roles, functions, and purposes for which respective concepts are put to use.

Here the context in which the concept is used is key. This may be disappointing to those who try to provide a unified picture of all of conceptual engineering, but such monist aspirations should be resisted. Indeed, philosophers can still play useful roles, but they need to dive into the actual conceptual debates, taking constant care to resist the temptation of extrapolating from one conceptual debate to all others. We have given some examples of the uses of MCE and NCE for different concepts, however there are also many cases in which we will not have a single role for our concept and instead will want both. Let us now move on to illustrate how the competing demands of these two kinds of conceptual engineering can come into conflict in practice, through the examples of two concepts which squarely fall into both the scientific and moral/political domain: human health, and animal welfare.

4. Case studies: Health and welfare

4.1 Health

The first example of a concept that has received a significant amount of philosophical attention is health, or to expand it a little more: health and pathology. Indeed, the conceptual debate on the status of these

concepts is at the core of the philosophy of medicine. Yet, decades of debates have seemingly moved us farther away from a consensus, rather than towards it. Rather than taking this expansion of views as a mere indication of more philosophers entering the debate, we can see it as a conflict between different demands for which the concepts of health, disease, and pathology are put to use.

That this option has received fairly little attention is due to the widespread acceptance of conceptual analysis as the only tool needed to settle the debate (Schwartz 2007; Lemoine 2013; Schwartz 2014). This has perhaps been the result of an intention to eventually arrive at something like a list of necessary and sufficient conditions that would help us to demarcate 'normal' from 'pathological' states. But the search for something like a conceptual essence or correct criteria of application may have been overly naive. To think about health without the social and biological context in which these concepts are used is bound to lead to widely differing accounts. It is not surprising that the field is usually described as a conflict between so-called 'naturalists' who try to make these notions into legitimate scientific notions, and 'normativists' who emphasize non-epistemic values (especially moral ones) that go into our judgements of health and disease.

Instead of framing the debate as one with two competing camps fighting over the 'one true' definition of these concepts it may be more useful to think about the different goals these camps are interested in. For this purpose, our distinction between MCE and NCE provides a useful tool to think about the conflicts between the purposes to which we put these terms. We may even come to realize that there is no single concept that can play the different roles sufficiently well, due to inevitable trade-offs. Yet, it is only by paying attention to these larger trade-offs between naturalist and normativist goals that we can shed light on what our concepts *ought* to mean.

The Canadian philosopher of science Ian Hacking (1991) has previously made a similar argument when he pointed out that our concept of 'child abuse', which was once precisely defined and operationalized as 'battered child syndrome', has changed much over the years to encompass an ever-greater number of different actions deemed vile and in turn reformed "our values and our moral codes" about what is and what is not appropriate treatment of children (p. 253).[8] This is tempting, of course, because we can use moral language to advance our moral values, but in doing so the concept has also lost its grasp on something once deemed to be a natural phenomenon that we could make scientific generalizations about. There can be numerous trade-offs between designing a concept for the purposes of capturing a phenomenon in nature and for the purposes of morality that we need to pay attention to. Our point here is not to argue that this is how things *must* be. That would be a legitimate topic for a further stand-alone paper. Health

[8] We thank Paul Griffiths for alerting us to this early recognition of trade-offs.

merely provides a beautiful case for a concept in which MCE and NCE may pull in vastly different directions. As the Welsh psychiatrist Robert Evan Kendell once put it:

> The most fundamental issue, and also the most contentious one, is whether disease and illness are normative concepts based on value judgments, or whether they are value free scientific terms; in other words, whether they are biomedical terms or sociopolitical ones. (Kendell 1986: 25)

In thinking about the goals of 'health' and 'disease' it appears strikingly hard to maintain a strict binary dichotomy in which health is either entirely value-free or entirely political. Yet, such positions have been defended at length. A more useful approach may be to accept that the concept has both naturalist and ethical components to it. It is not every *undesired* or *unvalued* state, but neither is it just some biologically *dysfunctional* arrangement of a body. In thinking about the concept in terms of conceptual engineering, applying the distinction we introduce here, it may then be useful to accept that there could be different weightings we place on each dimension. How important are biological facts in thinking about disease? How should we think about unjust social arrangements that may be the true cause of a bodily difference being considered 'wrong'? In his earlier work, Christopher Boorse (1975) advocated for a distinction between two kinds of health, one of which is purely naturalist and opposed to *disease*, and one that ethical or normative and opposed to *illness*. Others, like Jerome Wakefield (1992), have argued for the need for a hybrid account that combines a dysfunction criterion with a notion of harm. How should we evaluate such competing proposals?

We suggest to put at the heart of the debate the question of what roles these concepts ought to play. As Kukla (2014) once put it: "in considering the best definition of health, we need to keep clearly in view the theoretical and practical purposes to which we want to put the concept, while keeping an open mind as to how unified a definition is possible" (p. 516). One radical solution such an approach may reveal is that these various uses of the concept cannot adequately be covered in a single concept. We may then become pluralists, or even try to eliminate some of its dimensions altogether if there are other concepts that could better play the required roles. Instead of thinking about whether a bodily state deserves medical treatment, we may stop to ask whether it is a pathology, and even ask the (perhaps more interesting) question of whether the condition decreases wellbeing or autonomy. This may expand the goals of medicine, but that is of course at least an option. The goals of medicine can be changed just like those of any institution or enterprise.

In the case of health and disease we can legitimately embrace some skepticism that the widely different purposes for which the concepts are put to use among different groups can be satisfied with a single concept. If a purely naturalist concept of disease is misused to discriminate

against gay or transgender people because of their alleged dysfunction and reduction of fitness, it may not be good enough to insist on a strict is-ought distinction or that no moral and political conclusions will follow from a purely biological set of criteria alone. There are good reasons to not label these conditions as pathological, precisely because that can inevitably be misused to justify homophobia or transphobia. Here, we are engaged in MCE. Yet, how to respond to the potential charge that 'ideology' is changing our concepts, by those who maintain that they are 'just stating biological facts?' Here is where we can emphasise the distinction between NCE and MCE, and the differing goals and desiderata accompanying each. In thinking about concepts, we have to keep in mind the sociopolitical context in which these concepts are put to use. To make a concept 'tidier' for the purpose of philosophical simplicity under NCE, would be a terrible mistake if it creates real harms or unjust treatment of already vulnerable groups. Too much thinking about health and disease in the philosophy of medicine has happened from the ivory tower. This is why Haslanger's call to pay attention to these issues has been so important and transformative for philosophy as a whole.

Normativists differ widely in their motivations. This is perhaps not surprising since concepts can play myriad roles, that can be good in some cases, while being bad in others. It may be inevitable to need to take tradeoffs between different goals seriously. Neither MCE nor NCE must point to a single solution. The concept of pathology, for instance, may play different theoretical roles in evolutionary biology, cancer research, veterinary science, animal production science, immunology, and economics. Reducing them to a single concept may not be possible. Fortunately, meta-philosophical discussions are becoming ever more prevalent in the philosophy of medicine. We hope that our distinction between MCE and NCE will help to progress its core debate further. There could hardly be a more illustrative example for the usefulness of it. Having discussed a concept in which a possible separation is likely, we will now turn to a concept in which MCE and NCE work much more closely together.

4.2 Animal welfare

Another example of a concept that lends itself to both MCE and NCE is animal welfare. This is a concept which plays both moral and scientific roles that have historically grounded deliberations about which concept to use. It is also one for which there is still much current debate about which concept to employ, often without making explicit the particular values or desiderata in play. This thus provides a fruitful example of the use of this distinction within conceptual engineering. Animal welfare is a useful case study for the application of these methods, as it is both the subject of scientific study and of moral deliberation. It is therefore important to ensure we have a concept that fulfils both roles.

Both MCE and NCE are relevant and important in deliberations as to the best concept of animal welfare.

Animal welfare plays a scientific role within animal welfare science. Scientists study welfare both to gain increased understanding of the behaviour and biology of the animals, and to provide information that can inform moral and policy decision-making. Scientific measurement of welfare will rely heavily on the concept of welfare in use, determining which measurements are considered valid, as well as which conditions will turn out to impact welfare. This tension can be seen in cases where different concepts are employed, leading to different conclusions. For example, there has been ongoing disagreement on the permissibility of the use of sow stalls between those holding different welfare concepts; with the different concepts employed leading one group to endorse and another to reject their use (Croney and Millman 2007). Both groups take themselves to be measuring welfare, but have identified a different target and are thus talking past each other. To implement NCE on the concept of animal welfare, we must identify the desiderata for this concept within the scientific role, and then assess which concepts best fill the criteria. Two such desiderata are measurability and fundamentality. As a target for scientific investigation, it is important for welfare to be something that scientists can measure. Additionally, if we take welfare to be the appropriate relevant target for investigation within welfare science, it must also be something which is fundamental. That is, whatever fills the role must be something which is not itself simply a property of or proxy for some other state, something itself an intrinsic part of the characterisation of welfare (Browning and Veit 2024).

Animal welfare also plays an important moral role. It is a central concept within much of animal ethics and is typically considered to have moral importance. Animal welfare is thus relevant to decisions made by legislators, producers and consumers with regards to housing and treatment of animals. Expenditure of time and resources on animal welfare improvements requires a clear understanding of what welfare is, in order to ensure interventions are effective. Otherwise, the risk is that efforts may be wasted on providing conditions that may appear to increase welfare without actually doing so. Similarly to NCE, applying MCE to animal welfare requires identification of the desiderata for this concept within the moral/social role from which to assess the suitability of different concepts for meeting these criteria. For the moral role, the most important criterion seems to be that the concept tracks something we take to be of normative significance. We also want it to be capable of identifying those bearers of moral worth. Welfare being morally important, then those individuals capable of experiencing welfare should therefore form part of the moral community. Establishing a welfare concept will make rulings on which individuals fall within this group, and our assessment of which they rule in and out will affect our judgment as to the suitability of the concept.

We thus have two different roles for our welfare concept, with differing values and constraints. The next step is to assess the candidate concepts according to the desiderata. Which set of desiderata we use will depend on the context of assessment – whether we are considering the scientific or the moral role for welfare and thus whether we are undertaking NCE or MCE. Although it is possible to advocate pluralism, so that the concept used varies depending on the different application (Veit and Browning 2021), in many cases the close link between the outputs of animal welfare science and moral deliberations means that it will be important to use the same concept for both so that our concepts in both areas to refer to the same entity. There are four primary concepts of animal welfare in use today: subjective welfare, physical welfare, teleological welfare and preference-based welfare (Browning 2020). Although this assessment could itself be the subject of a full paper, here we will briefly describe each of these concepts and indicate their suitability according to the desiderata, to give an idea of how this would be applied. As discussed, for the scientific role, the requirements are for a concept that is measurable, and fundamental; while for the moral role, the requirements are for a concept that delineates something of moral value and can identify its bearers.

The physical concept of animal welfare was common in earlier versions of animal welfare science, taking animal welfare to consist in some set of physical functionings – bodily health and comfort. These concepts were selected almost entirely as a result of NCE rather than MCE. Physical states are easy to measure but it is more difficult to make a case as to why they should matter morally. Most of the reasons we have for thinking that poor physical functioning matters is due to its negative effects on the subjective experience of animals, which means it is not fundamental. It also fails to delineate the bearers of moral worth from those without – if physical functioning is what matters, then animals, plants and microorganisms may all be said to have a welfare equally worth considering, and this is not a view many wish to accept.

Natural living, or teleological accounts (Browning 2019) of welfare, emphasise the overall 'flourishing' of an animal according to its nature; generally focussing on the performance of natural behaviours. This concept is popular within the general public (Lassen et al. 2006; Vanhonacker et al. 2008), as on the surface it appears to do well for both NCE and MCE - being based in species biology as well as seemingly morally important. However, a deeper examination shows this concept does poorly on both NCE and MCE. It is not easily measurable, as identifying what count as natural behaviours and how much of their performance counts as good welfare is unclear (Veasey et al. 1996). Additionally, it is not obviously of moral importance – although intuitive to some, there is no strong account of how or why naturalness should matter morally (Browning 2019). It also fails to delineate the boundar-

ies of our moral circle in line with common intuitions – again, all organisms are capable of natural functioning, but it is not common to extend equal moral consideration this distance.

The subjective welfare concept is perhaps most common in current use, and describes welfare as the balance of experience of positive and negative mental states (affects). It meets the requirements for MCE in being normatively significant, as the capacity for subjectively experienced pleasure and suffering provides cause for moral concern and delineates the boundaries for moral consideration. However, it is often taken as unsuitable for a scientific role (Dawkins 2017) due to inaccessibility to measurement; a view that is less common where it is accepted that subjective experience is not epiphenomenal - having no causal impact on the world - but instead that there must be behavioural and physiological effects of mental states, which we can then detect and can form the basis for measurement.

Another popular welfare concept is a preference-based account of welfare (Dawkins 2003), which takes welfare to consist in satisfaction of preferences. This concept also does well for MCE: preference-based accounts of wellbeing are common (e.g. Griffin 1986) and most consider the satisfaction of their desires to be highly valuable. The use of this concept has been advocated in welfare science (Dawkins 2017) due to one of the demands of NCE – they are easily measurable through preference-based behavioural tests, in which animals are presented with different options and observed to see which they choose, and how hard they will work to attain it. The primary deciding factor between these two is whether preferences or experience is more fundamental - whether subjective experiences are valuable because they are desired, or whether desires are valuable because they create positive experiences.

The example of animal welfare perfectly demonstrates the distinction between NCE and MCE. As shown for the different welfare concepts, these two roles can be in conflict, and the needs of NCE and MCE may not both be met within a single concept. However, when we are able to establish a concept that meets the requirements of both, this gives stronger reasons to adopt that concept, particularly when we want the two roles to intersect. This example has focussed primarily on the first three components of conceptual engineering - assessment of the concepts, determination of relevant context/purposes and proposals for improvement.

The stage of proposal for implementation of improvements is an important one - perhaps the hardest (Chalmers 2020) – but will be highly contextdependent and require more discussion than we can provide here. However, the discussion of teleological welfare can provide some insight – the discrepancy discussed between public and expert views on welfare also gives reason to think that part of the role of adopting or modifying scientific concepts is to assist in educating the general public as to the preferred concept and the reasons underlying its choice.

In this case, informing the public as to the defects within this concept could have wide-reaching effects in the decisions made by consumers and advocates for animal welfare. Switching out a teleological concept for an alternative, such as subjective welfare, will alter which conditions might be thought important for welfare. For example, zoo visitors often prefer seeing monkeys in naturalistic island-type enclosures, but in actuality, cage-style exhibits often provide more climbing surfaces and opportunities for activity, promoting good subjective welfare (Browning and Maple 2019).

Currently, the subjective or preference concepts appear to do best under both types of conceptual engineering and would thus be preferred in the contexts for which we want the two to coincide. More generally, this serves as an illustration of the method of applying NCE and MCE, in identifying the desired role(s) for a concept and the different desiderata required for each. In this case, it may be possible for a concept to fill both roles and we will prefer one that does. Making this process explicit can help shine light on previously muddled debates about which concepts should be preferred, demonstrating the context-sensitivity and the need to be clear about the goals for use of the concept.

5. Conclusion

To conclude, our distinction between *naturalist conceptual engineering* (NCE) and *moral conceptual engineering* (MCE) refers to the differing goals of conceptual engineering, and their associated desiderata, rather than its methods. While Carnapian explication is traditionally associated with the formal methods and tools of logic and the natural sciences, amelioration is often understood as the qualitative improvement of concepts by drawing on the humanities and social sciences (see Novaes 2018). Our pluralist account of conceptual engineering combines these and other forms of 'concept improvement' as mere methodologies for a diverse set of practices that fall under the umbrella term 'conceptual engineering'. Some of these ameliorative methods can be used for both scientific desiderata and moral/political purposes – something we may very well consider a feature, rather than a bug.

Nevertheless, where philosophers become engaged in highly divisive debates about concepts with very little consensus, it should be our task to alleviate and disentangle muddled conceptual confusions. In this paper we have illustrated how this might be done, using the examples of health and animal welfare. Care must be taken not to extrapolate from one conceptual debate to all others. To do so, however, we need to separate the functions, goals, and purposes for which particular concepts are put to use. After all, concepts, categories, and classificatory systems play too many roles as to allow for a single simple monist account of 'conceptual engineering'. This will require us to move much closer to examination of scientific practice, history, and sociology – and hence

endorse a pluralist and pragmatic form of conceptual engineering that is much closer in spirit to Neurath than it is to Carnap.

Rather than endorse a particular methodology for the revision of our concepts, we recognize a diversity of way concepts can be changed and altered, which can in turn be grouped into two general categories with different goals. They are distinguished by their functions, not their methods. This can be seen as a foundation for future metaphilosophical research on these two kinds of conceptual engineering and the potential use of this distinction in untangling the philosophical and scientific debates on controversial concepts such as race, gender, disability, and mental disorder.

References

Boorse, C. 1975. "On the Distinction between Disease and Illness." *Philosophy & Public Affairs* 5 (1): 49–68.

Brigandt, I., and E. Rosario. 2020. "Strategic Conceptual Engineering for Epistemic and Social Aims." In A. Burgess, H. Cappelen, and D. Plunkett (eds.). *Conceptual Engineering and Conceptual Ethics*. Oxford: Oxford University Press, 100–124.

Browning, H. 2019. "The Natural Behavior Debate: Two Conceptions of Animal Welfare." *Journal of Applied Animal Welfare Science* 22 (4): 325–337.

Browning, H. 2020. *If I Could Talk to the Animals: Measuring Subjective Animal Welfare*. PhD diss., Australian National University.

Browning, H., and T. L. Maple. 2019. "Developing a Metric of Usable Space for Zoo Exhibits." *Frontiers in Psychology* 10: 791.

Browning, H. and W. Veit. 2024. "Animal welfare science, performance metrics, and proxy failure." *Behavioral and Brain Sciences* 47: E70.

Burgess, A., H. Cappelen, and D. Plunkett (eds.). 2020. *Conceptual Engineering and Conceptual Ethics*. Oxford: Oxford University Press.

Cappelen, H., T. Gendler, and J. P. Hawthorne (eds.). 2016. *The Oxford Handbook of Philosophical Methodology*. Oxford: Oxford University Press.

Cappelen, H., and D. Plunkett. 2020. "A Guided Tour of Conceptual Engineering and Conceptual Ethics." In A. Burgess, H. Cappelen, and D. Plunkett (eds.). *Conceptual Engineering and Conceptual Ethics*. Oxford: Oxford University Press, 1–27.

Carballo, A. P. 2020. "Conceptual Evaluation: Epistemic." In A. Burgess, H. Cappelen, and D. Plunkett (eds.). *Conceptual Engineering and Conceptual Ethics*. Oxford: Oxford University Press, 304–332.

Carnap, R. 1947. *Meaning and Necessity: A Study in Semantics and Modal Logic*. Chicago: University of Chicago Press.

Carnap, R. 1950. *Logical Foundations of Probability*. Chicago: University of Chicago Press.

Cartwright, N., J. Cat, L. Fleck, and T. E. Uebel. 2008. *Otto Neurath: Philosophy between Science and Politics*. Cambridge: Cambridge University Press.

Carus, A. W. 2007. *Carnap and Twentieth-Century Thought: Explication as Enlightenment*. Cambridge: Cambridge University Press.

Chalmers, D. J. 2011. "Verbal Disputes." *Philosophical Review* 120 (4): 515–566.

Chalmers, D. J. 2020. "What Is Conceptual Engineering and What Should It Be?" *Inquiry* 63 (9–10): 954–970.

Croney, C., and S. Millman. 2007. "Board-Invited Review: The Ethical and Behavioral Bases for Farm Animal Welfare Legislation." *Journal of Animal Science* 85 (2): 556–565.

Dar-Nimrod, I., and S. J. Heine. 2011. "Genetic Essentialism: On the Deceptive Determinism of DNA." *Psychological Bulletin* 137 (5): 800–818.

Dawkins, M. S. 2003. "Behaviour as a Tool in the Assessment of Animal Welfare." *Zoology* 106 (4): 383–387.

Dawkins, M. S. 2017. "Animal Welfare with and without Consciousness." *Journal of Zoology* 301 (1): 1–10.

Devitt, M. 1981. *Designation*. New York: Columbia University Press.

Godfrey-Smith, P. 2003. *Theory and Reality: An Introduction to the Philosophy of Science*. Chicago: University of Chicago Press.

Griffin, J. 1986. *Well-Being: Its Meaning, Measurement and Moral Importance*. Oxford: Clarendon Press.

Hacking, I. 1991. "The Making and Molding of Child Abuse." *Critical Inquiry* 17 (2): 253–288.

Haslanger, S. 2000. "Gender and Race: (What) Are They? (What) Do We Want Them to Be?" *Noûs* 34 (1): 31–55.

Haslanger, S. 2005. "What Are We Talking About? The Semantics and Politics of Social Kinds." *Hypatia* 20 (4): 10–26.

Haslanger, S., and J. Saul. 2006. "Philosophical Analysis and Social Kinds." *Proceedings of the Aristotelian Society, Supplementary Volume* 80: 89–143.

Jackson, B. B. 2014. "Verbal Disputes and Substantiveness." *Erkenntnis* 79 (1): 31–54.

Jenkins, C. S. 2014. "Merely Verbal Disputes." *Erkenntnis* 79 (1): 11–30.

Kendell, R. E. 1986. "What Are Mental Disorders?" In A. M. Freedman, R. Brotman, I. Silverman, and D. Hutson (eds.). *Issues in Psychiatric Classification: Science, Practice and Social Policy*. New York: Human Sciences Press, 23–45.

Kornblith, H. 2002. *Knowledge and Its Place in Nature*. Oxford: Oxford University Press.

Kuhn, T. S. 1962. *The Structure of Scientific Revolutions*. Chicago: University of Chicago Press.

Kukla, R. 2014. "Medicalization, 'Normal Function,' and the Definition of Health." In J. Arras, E. Fenton, and R. Kukla (eds.). *The Routledge Companion to Bioethics*. New York: Routledge, 539–554.

Lassen, J., P. Sandøe, and B. Forkman. 2006. "Happy Pigs Are Dirty! – Conflicting Perspectives on Animal Welfare." *Livestock Science* 103 (3): 221–230.

Lemoine, M. 2013. "Defining Disease beyond Conceptual Analysis: An Analysis of Conceptual Analysis in Philosophy of Medicine." *Theoretical Medicine and Bioethics* 34 (4): 309–325.

Linquist, S., E. Machery, P. E. Griffiths, and K. Stotz. 2011. "Exploring the Folkbiological Conception of Human Nature." *Philosophical Transactions of the Royal Society B* 366 (1563): 444–453.

Machery, E. 2016. "Experimental Philosophy of Science." In J. Sytsma and W. Buckwalter (eds.). *A Companion to Experimental Philosophy*. Malden: Wiley-Blackwell, 475–490.

Machery, E., P. Griffiths, S. Linquist, and K. Stotz. 2019. "Scientists' Concepts of Innateness: Evolution or Attraction?" In R. S. D. Wilkenfeld (ed.). *Advances in Experimental Philosophy of Science*. London: Bloomsbury, 172–201.

Margolis, E., and S. Laurence (eds.). 1999. *Concepts: Core Readings*. Cambridge: MIT Press.

Mayr, E. 1992. "Species Concepts and Their Application." In M. Ereshefsky (ed.). *The Units of Evolution: Essays on the Nature of Species*. Cambridge: MIT Press, 15–26.

Nersessian, N. J. 1989. "Conceptual Change in Science and in Science Education." *Synthese* 80 (1): 163–183.

Neurath, O. 1913. "Probleme der Kriegswirtschaftslehre." *Zeitschrift für die gesamte Staatswissenschaft* 69 (3): 438–501.

Neurath, O. 1921. *Anti-Spengler*. Munich: Callwey.

Novaes, C. D. 2018. "Carnapian Explication and Ameliorative Analysis: A Systematic Comparison." *Synthese* 195 (3): 1013–1034.

Papineau, D. 2013. "The Poverty of Conceptual Analysis." In M. Haug (ed.). *Philosophical Methodology: The Armchair or the Laboratory?* London: Routledge, 166–194.

Pollock, J. 2019. "Conceptual Engineering and Semantic Deference." *Studia Philosophica Estonica* 12: 81–98.

Quine, W. V. O. 1960. *Word and Object*. Cambridge: MIT Press.

Schwartz, P. H. 2007. "Decision and Discovery in Defining 'Disease.'" In H. Kincaid and J. McKitrick (eds.). *Establishing Medical Reality: Essays in the Metaphysics and Epistemology of Biomedical Science*. Dordrecht: Springer, 47–64.

Schwartz, P. H. 2014. "Reframing the Disease Debate and Defending the Biostatistical Theory." *Journal of Medicine and Philosophy* 39 (6): 572–589.

Sytsma, J., and W. Buckwalter (eds.). 2016. *A Companion to Experimental Philosophy*. Malden: Wiley-Blackwell.

Thagard, P. 1992. *Conceptual Revolutions*. Princeton: Princeton University Press.

Thomasson, A. L. 2017. "Metaphysics and Conceptual Negotiation." *Philosophical Issues* 27 (1): 364–382.

Uebel, T. 2019. "Vienna Circle." In E. N. Zalta (ed.). *The Stanford Encyclopedia of Philosophy* (Spring 2019 Edition). Stanford: Metaphysics Research Lab, Stanford University.

Vanhonacker, F., W. Verbeke, E. Van Poucke, and F. A. Tuyttens. 2008. "Do Citizens and Farmers Interpret the Concept of Farm Animal Welfare Differently?" *Livestock Science* 116 (1–3): 126–136.

Veasey, J. S., N. Waran, and R. Young. 1996. "On Comparing the Behaviour of Zoo-Housed Animals with Wild Conspecifics as a Welfare Indi-

cator, Using the Giraffe (*Giraffa camelopardalis*) as a Model." *Animal Welfare* 5: 139–153.

Veit, W. 2020. "Model Pluralism." *Philosophy of the Social Sciences* 50 (2): 91–114.

Veit, W., and H. Browning. 2021. "Perspectival Pluralism for Animal Welfare." *European Journal for Philosophy of Science* 11 (1): 1–14.

Wakefield, J. C. 1992. "The Concept of Mental Disorder: On the Boundary between Biological Facts and Social Values." *American Psychologist* 47 (3): 373–388.