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Science vs. Non-Science, Natural vs. Constructed Who is in Charge of Sorting Claims?

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Science vs. Non-Science, Natural vs. Constructed *Who is in Charge of Sorting Claims?*

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What one might call ‘junk science’ falls under a large umbrella that could include beliefs in astrology or those held by ‘anti-vaxxers’. The consequences of holding beliefs of these type generate a desire to empirically evaluate them. Many, if not all, historical attempts of this were through the development of a science/non-science demarcation. As established by Larry Laudan, this ‘demarcation problem’ is misguided in the criterion it attempts to establish. However, Laudan articulates several arguments for why the motives for establishing such a criterion ought to be directed towards a different task of assessing the reliability of knowledge claims. This contains its own complexities. One that will be examined here, as characterized by Sally Haslanger, is social construction in science. By threading a narrative through the works of Laudan and Haslanger, my aim is to ask what role the scientific community has, if any, in refuting beliefs it might have important reasons for refuting. This question is meant more broadly to examine the epistemic authority held by the sciences how appropriate that authority is.

In *The Demise of the Demarcation Problem*, Laudan describes the previous ways people have tried to mark off scientific beliefs from unscientific ones. Laudan’s purpose for analyzing this history is to “see what light it might shed on the contemporary viability of the quest for a demarcation device”.¹ It is useful for our purposes to show how the problem of ‘pseudo-science’ has not been solved, and likely *cannot* be solved, by trying to build a sorting mechanism for scientific and non-scientific knowledge. What Laudan terms the ‘epistemic heterogeneity’ of the sciences is taken to be evidence of the implausibility of a future demarcation criterion: “the evident epistemic heterogeneity of the activities and beliefs customarily regarded as scientific should alert us to the probable futility of seeking an epistemic version of a demarcation criterion.”² This ‘futility’ leads Laudan to assert that demarcation is a philosophical ‘pseudo-problem’.³ What, then, is the ‘real’ problem that the pseudo-problem points to the existence of? Laudan believes it to be distinguishing between reliable and unreliable knowledge- a task we are far from completing.⁴ Laudan states that we have managed to conflate two questions: “What makes a belief well founded (or heuristically fertile)? And what makes a belief scientific?”⁵ The first, unlike the second, is a philo-

¹ Laudan, Larry. “The Demise of the Demarcation Problem.” *Physics, Philosophy and Psychoanalysis Boston Studies in the Philosophy of Science*, 1983. 112

² Laudan, “Demise of the Demarcation Problem”, 124.

³ Laudan, “Demise of the Demarcation Problem”, 124.

⁴ Laudan, “Demise of the Demarcation Problem”, 124.

⁵ Laudan, “Demise of the Demarcation Problem”, 125.

sophically interesting problem because, as Laudan argues, the belief-worthiness of a claim is not dependant on its classification as science: “however we eventually settle the question of reliable knowledge, the class of statements falling under that rubric will include much that is not commonly regarded as ‘scientific’ and it will exclude much that is generally considered ‘scientific’”.⁶ Laudan’s conclusion states this:

Insofar as our concern is to protect ourselves and our fellows from the cardinal sin of believing what we wish were so rather than what there is substantial evidence for (and surely that is what most forms of ‘quackery’ come down to), then our focus should be squarely on the empirical and conceptual credentials for claims about the world.⁷

Laudan argues here that the way in which ‘quackery’ should be debunked is through evaluation on the basis of the ‘empirical and conceptual credentials’ of claims rather than their scientific status. One *misinterpretation* of this argument could be that, with a ‘clearer’ task in mind, our job becomes simpler or more ‘objective’. *If*, as Laudan suggests, the best way to protect ourselves and others from believing in claims that are unreliable, unsound, incorrect, immoral, etc. is to favour some sort of reliability demarcation to a scientific one, it becomes worthy to examine some of the issues that arise from that new task.

The ‘problems’ I will turn my attention to are those emerging from the recognition and acceptance of knowledge as *socially constructed*. I will use Haslanger’s *Resisting Reality: Social Construction and Social Critique* to show how we might come to this recognition and acceptance. First, some preliminaries ought to be specified. Namely, what is meant by ‘social construction’? and why is it worth considering when trying to identify the scientific community’s role in debunking ‘junk’ science? This explanation of social constructionism begins to answer our first question and alludes to the answer of our second: “social constructionism is a particularly radical form of conceptual *relativism* with implications for our understanding of the methodology and subject matter of the sciences.”⁸ The account of social constructionism delivered by Haslanger is directed towards the ‘paradigm cases’ of gender/sex and race/ethnicity. She states that “a disadvantaged social position is marked upon and lived through

⁶ Laudan, “Demise of the Demarcation Problem”, 125.

⁷ Laudan, “Demise of the Demarcation Problem”, 125. Emphasis mine.

⁸ Baghramian, Maria and Carter, J. Adam, “Relativism”, The Stanford Encyclopedia of Philosophy (Winter 2018 Edition), Edward N. Zalta (ed.), forthcoming URL = <<https://plato.stanford.edu/archives/win2018/entries/relativism/>>. 4.4.4

the body, and the resulting condition is taken to be fixed in the natural world.”⁹ Haslanger disambiguates the claim that sex is socially constructed by clarifying three constructionist terms:

I’ll use the term ‘socially distinguished’ for idea construction: it is plausible that males and females are socially distinguished. We distinguish males and females and by doing so we fulfill certain social purposes. I’ll use the term ‘socially caused’ for cases of social causation: the difference between beagles and greyhounds is socially caused (through breeding), and plausibly some differences between male and females are socially caused. I’ll use the term ‘socially constituted’ for those cases in which the features that make for the difference in question are social: landlords and tenants are socially constituted because the conditions that must be met in order to be a landlord or tenant are social conditions.¹⁰

Some difference (ie. male or. female, landlord or tenant) fitting the description of one of those three terms, or a combination of them, would mean, on Haslanger’s account, that the difference is socially constructed. Constructionists are often charged with defending a form of relativism that lends itself to particularly abhorrent views baseless in ‘real’ science. A contemporary example of this type of view could be climate change denial.¹¹ These views, however, are not legitimized by all forms of social constructionism. This charge, however, is often levied by those who take constructionism to *necessarily* contain within it some sort of ‘equal validity’ doctrine. Introduced by critic Paul Boghossian, this doctrine states that “there are many radically different, mutually incompatible, yet ‘equally valid’ ways of knowing the world, with science being just one of them.”¹² Haslanger’s text does not suggest that any claim, or ‘way of knowing’, is *as valid* as every other. Constructionism, of Haslanger’s charac-

⁹ Haslanger, Sally. “Resisting Reality.” 2012. 184. In this work I will focus on the idea of ‘sex’ as socially constructed. Haslanger clarifies what is meant by this and discusses the differences between gender and sex. Though this is important to understand, it did not feel necessarily to expand upon the gender vs sex f in this example Haslanger argues that erent uses and understandings of concepts, Id mean, on Halanger’

¹⁰ Haslanger, Sally. “Resisting Reality.” 190.

¹¹ See: United States GOP

¹² Boghossian, Paul. “Introduction.” *Fear of Knowledge: Against Relativism and Constructivism*. 2006. 1.

I realize the fairest use of this definition requires an examination of the terms used like ‘science’. As it is not my goal to critique or defend his view in depth I refer to his own literature.

terization, does not argue that there exists no graspable ‘reality’ and so all attempts to grasp what is ‘real’ or ‘natural’ are equally valid but, rather, that knowledge claims often contain social aspects in their construction, causation, constitution or some combination thereof. Haslanger’s project is not one of ‘levelling’ the truth value of every statement but rather an ‘unmasking’ of the processes and politics involved in the way that knowledge becomes naturalized and (in the case of race/colour, gender/sex, or disability) is lived through the body. For example, Haslanger suggests that an infertility specialist and intersexed teen may have different conclusions about what sex is as a result of the frameworks that their respective definitions are employed in.¹³ The idea that statements fit into exclusive categories of correct and incorrect, and it is therefore important to establish which statements belong to which, seems to be the basis for rejecting an ‘equal validity’ doctrine. However, this example shows how a statement might be both ‘correct’ or reliable in some frameworks and ‘incorrect’ or unreliable in others. Though shifting contextual frameworks may justify different uses and understandings of a term, Haslanger does agree that “it is a further question what is, and should be, the dominant public meaning, and what considerations are relevant to determining this.”¹⁴ Haslanger’s work as an ‘unmasking’ rather than ‘levelling’ includes the argument that it is less important that the infertility specialist and intersexed teen employ the *same* definition of sex but rather that they are able to communicate with one another. In terms of definitions and claims that should be taken to be the ‘publically dominant meanings’, in this example Haslanger argues that “what matters is whether their conclusions about what sex is give good answers to their questions, where good answers involve tracking the parts of reality that do the needed descriptive, explanatory, and normative work.”¹⁵ Haslanger argues that there are a variety of ways in which publically dominant knowledge may be constructed. This variety, and the variety of frameworks knowledge is employed in, refute the idea that constructionist viewpoints assign the same truth value to all claims. Dismissing this idea also dismisses the belief that social constructionists embrace the possibility of all sorts of ‘crank’ beliefs and allows one to consider cases where the reliability of claims is taken for granted because of social forces.

How does the social construction of a claim, and the acknowledgement that a claim is socially constructed, affect its belief-worthiness? Specifically, what purpose does arguing that gender or sex is socially constructed serve? Haslanger argues that one of

¹³ Haslanger, Sally. “Resisting Reality.” 191

¹⁴ Haslanger, Sally. “Resisting Reality.” 191

¹⁵ Haslanger, Sally. “Resisting Reality.” 191

the points of identifying and acknowledging a construction is this:

Social Constructionists are often introducing a distinction between a familiar kind of thing (sex), and a social kind (gender) that overlaps it substantially in its extension. In doing so, they provide a characterization of the social kind and highlight it as social because it is typically occluded in ordinary thinking about the phenomena in question...¹⁶

The ‘occlusion’ mentioned is argued to act as a barrier to social change and as an “(often obscure) mechanism of injustice”.¹⁷ Up until this point I have used phrases like ‘junk’, ‘pseudo’, and ‘crank’ science and offered (what I hope are) obvious examples. In presenting a question about the scientific community’s role in debunking these claims, I have taken for granted that we are generally in agreement about what kind of claims these are. That makes it *seem* that I am asking a pointless question. If I am able to write generally about debunking ‘junk science’, without needing to clarify what ‘junk science’ is, hasn’t the task been completed? Don’t we know what does and does not ‘count’? One important consideration arising from Haslanger’s text is how a desire to debunk certain beliefs extends from those relegated to the margin of social arenas (think flat-Earthers) to beliefs that many have never doubted as being based in nature. Neglecting to clarify what is meant by ‘junk science’ suggests that all of these evaluations matter to the extent that my questions addresses them with equal emphasis, but why?

In *Sexing the Body: Gender Politics and the Construction of Sexuality*, feminist scholar Anne Fausto-Sterling uses the case of intersexed individuals- those genetically or anatomically falling outside a male/female binary at birth, to show flaws in the binary itself.¹⁸ Fausto-Sterling argues that people born intersexed are frequently subject to surgery that is unnecessary because it is not life-saving nor does it improve physical well-being.¹⁹ She argues that “infant genital surgery is merely cosmetic and performed to achieve a social result- reshaping a sexually ambiguous body so that

¹⁶ Haslanger, Sally. “Resisting Reality.” 194.

¹⁷ Haslanger, Sally. “Resisting Reality.” 184.

¹⁸ Fausto-Sterling defines intersexuality with five categories. Her definition is seen by some as improper or unusual, see, e.g. Leonard Sax 2002. To know that intersexuality could (and most often does) involve an anatomical and chromosome pair correspondence typically not expected to be present in males or females is sufficient for my discussion of intersexuality.

¹⁹ Fausto-Sterling, Anne. “Should There Be Only Two Sexes?”. *Sexing the Body: Gender Politics and the Construction of Sexuality*. 2000. 79

it conforms to our two-sex system.”²⁰ Further, it is made permissible by the hierarchical power relations between patient and doctor²¹. This power dynamic seems to rest, at least in part, on the everyday work of doctors being perceived as scientific. Returning to Laudan’s work, wanting to be able to classify knowledge as scientific or un-scientific is described as coming from the authority of the sciences. Scientists often make larger salaries than non-scientists²², play a privileged role in institutions, and shape our beliefs about the natural world²³. This kind of authority can certainly be said of doctors. The amount of trust placed in them rests on our assessment of their scientific knowledge- the assumption that they aced university-level organic chemistry classes or the hope that the operations they perform are based on biology and anatomy rather than something more ‘subjective’. Most of us are willing to bet our lives on these assumptions. The case of these surgeries, which are shown to be harmful,²⁴ highlights why it is important to assess the reliability of claims we assume to be natural. On the view of Haslanger, beliefs regarding sex difference are invisibly impactful. The idea that nature insists on the existence of only two sexes results in the acceptance that a newborn ought to undergo a surgery because of ‘the way things are’. The argued meaninglessness here shows that those whose work is thought of as guided by science is also guided by social frameworks. One’s position as a doctors in this instance also make them an agent of ‘social distinction’ because their work fulfills a social purpose- manipulating an individual’s body to fit neatly into a constructed binary. Arguably, Doctors can also become agents of ‘social causation’ depending on the surgery performed.

Both the works of Laudan and Haslanger give us convincing reasons to evaluate *how* we come to believe claims and whether they are belief-worthy. The example I have provided regarding intersexuality aims to show how beliefs that are naturalized and inconspicuous are often harmful. An important question becomes: who is responsible for analyzing these beliefs? Can Laudan’s argument that no science/non-science demarcation exists, nor should exist, absolve the ‘scientific’ (whatever that now means) community’s role in sorting knowledge? This is absolutely not Laudan’s goal. Important to note, the absence of a demarcation between science and non-science

²⁰ Fausto-Sterling, “Should There Be Only Two Sexes?”, 80.

²¹ Fausto-Sterling, “Should There Be Only Two Sexes?”,101.

²² Laudan, “Demise of the Demarcation Problem”, 118.

²³ Laudan, “Demise of the Demarcation Problem”, 111.

²⁴ The work of Fausto-Sterling includes expansive case studies of intersex individuals. These studies offer insight into the harm of the surgeries performed on them and how this impacted future health.

does not mean that we don't generally think things *seem* scientific, and that, in itself, is important. Laudan states that:

The value-loaded character of the term 'science' (and its cognates) in our culture should make us realize that the labelling of a certain activity as 'scientific' or 'unscientific' has social and political ramifications which go well beyond the taxonomic task of sorting beliefs into two piles...Precisely because a demarcation criterion will serve as a rationale for taking a number of practical actions which may well have far-reaching moral, social and economic consequences, it would be wise to insist that the arguments in favor of any demarcation criterion we intend to take seriously be especially compelling.²⁵

The 'value-loaded character' of science is not just a reason for a compelling demarcation between science and non-science. It is a reason for assessing all sorts of claims on the basis of their belief-worthiness. And *because* beliefs (and contempt for beliefs) are modelled after those of the scientist, it would seem that the burden lies heavily on their shoulders. A possible answer to this may be adapted from Haslanger's view that terms, and for our purposes- titles, depend less on their definitions and more on the frameworks in which they are employed. In the case of surgeries for intersexed newborns it was argued that doctors employ meanings of sex in ways that cause harm to individuals and fulfill greater purposes related to the social meaning of sex. It may be argued, and *is* argued by Fausto-Sterling, that doctors are failing to employ a definition of sex that tracks the parts of reality that do the needed 'descriptive, explanatory, and normative work'. However, the issue brought forth by Fausto-Sterling lies in the work the doctors are doing, not the fact that they are the ones doing it. It is plausible that medical professionals and intersexed individuals have different reasons for understanding sex differently. However, the epistemic authority granted to medical professionals also means that they play a larger role in determining the 'dominant public meanings' of certain terms. It is also defeating to say that this, in itself, is wrong or unreliable. In fact, to say that would cause larger problems for sorting the reliability of claims. To argue that doctors aren't to be trusted with this type of authority has dangerous implications for views such as those held by anti-vaxxers. It must be recognized, however, that expertise coming from the righteous figures of authority is not manufactured in a way that escapes social meaning.

This work may be divided (though messily) into two goals. The first addresses the

²⁵ Laudan, "Demise of the Demarcation Problem", 120.

task of assessing the ‘empirical and conceptual credentials’ of beliefs instead of their status as science. Through the social construction of knowledge claims, I have attempted to show one way in which this task is challenging and why it is important that it seek to assess claims seemingly based in nature *as well as* claims that are taken to be obviously foolish or pseudoscientific. The second is to argue that the scientific community has an important role in this task, demarcation criterion aside, because of its epistemic and cultural authority.

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