

CHAPTER 4

Values in Science

Against Epistemic Priority

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Chapter Overview

According to the ideal of value-free science, non-epistemic values have no role to play in science proper. Even among those who deny that science is value free, many hold that epistemic values (e.g., empirical adequacy, predictive accuracy, simplicity) must take priority over non-epistemic values (e.g., equality, health, safety) when it comes to the inferential processes in science. I argue that we should reject any strong version of this epistemic priority thesis. Rejecting the priority of epistemic values does not, however, lead us recklessly into biased or wishful thinking. I show that rejecting epistemic priority can lead us toward a more pragmatic and socially responsible image of science.

1. Introduction

Imagine you are a psychologist doing research on factors that contribute to intelligence. You have gathered data carefully, run your analyses, and your data seem to support the claim that race is a factor in intelligence, independent of socioeconomic status and education level. This is not what you set out to discover, just a result of your analyses of your data. You believe strongly in empirical rigor and scientific integrity, and you have held yourself to high epistemic standards. You are also a strong believer in racial justice, and the idea that there might be innate racial differences in intelligence is anathema to you. This belief has led you to apply even stricter standards in this particular analysis. Further, you know that in our racist society, publicizing such results is likely to have a negative impact on the racial justice you hope to promote.

What should you do? According to one common intuition, you should just follow the data where they lead, and accept and publish the results of your analysis. After all, isn't your responsibility qua scientist toward the evidence first, and social values second?

I will argue that the answer is no, that your responsibility as a scientist to epistemic standards does not trump your responsibility to promote social justice and racial equality, and while the answer to what you should do in this situation is complicated, the bad consequences of the conclusion, and the felt conflict with your deeply held value judgments, give you strong reason to doubt the results, despite the high standards you have applied.¹ The intuition that you must prioritize evidence, or epistemic standards, over considerations of values, I will call "*the epistemic priority thesis*." According to this thesis, values may only influence science if, in doing so, they respect basic epistemic standards, or criteria for what counts as adequate science. I will argue that we must reject this thesis, and I will show that in doing so we can still provide reasonable normative guidance for scientific practice.

2. Defining Epistemic Priority

I will start by defining some key concepts used in the debates about values in science (though not always used in the same ways), in order to provide a clear definition of the epistemic priority thesis.

I will define **epistemic standards** as non-algorithmic factors that characterize theories as epistemically good qua scientific theory (and so on for epistemic standards for hypotheses, models, the conduct of experiments, etc.), for example, empirical adequacy, logical consistency, predictive accuracy, quantitative precision, theoretical simplicity, unifying scope, fruitfulness for future research, severity of testing. I am using "epistemic standards" for what are often called "epistemic," "cognitive," or "constitutive *values*." They are called "values" to indicate their non-algorithmic or indeterminate character, their lack of a clear rank-ordering, or their openness to interpretation (Kuhn 1977). If the factors are instead regarded as determinate and algorithmic, then we have moved out of the realm of values and standards, and into the realm of theories/logics of confirmation (Norton 2008). Other terms for epistemic standards include "canons of inference" (Levi 1960) and "heuristics" (Longino 2008). The list of epistemic standards may be more broad or narrow, and is often different between different philosophers of science. In these terms, Heather Douglas (2009) accepts a very short list of epistemic standards²—logical consistency and empirical adequacy—and everything else fits under what I will call "values."

Values, then, are any potentially influencing factors—social, ethical, political, pragmatic, aesthetic—that are neither epistemic standards nor logical inference rules (deductive or inductive).³ Values that commonly play a role in

science include equality, health, safety, elegance, and beneficence. Whether a factor is considered a value or an epistemic standard will also vary depending on your views of epistemic standards. Douglas (2009), whose list of epistemic standards is quite short, labels everything else on the standard list of epistemic standards (or “epistemic values”) as “cognitive values,” and argues that they operate the same way as social or political values, rather than having priority over them.⁴ Justin Biddle has argued that we should cease using the general term “values” in favor of “contextual factors” or “auxiliary motives” (Biddle 2013).⁵ Whatever the advantages of alternative terminology, using the general term “values” is the clearest way to interface with the current literature.

The **value-free ideal** can be clearly defined in these terms: only epistemic standards may influence scientific judgments, that is, the “internal” or “inferential” parts of science. The value-free ideal is widely rejected in the science and values literature, for one of three reasons (see Douglas 2016 and this volume):

1. Underdetermination—The gap between theory and evidence must be bridged by background assumptions that can or should be decided according to values.
2. Inductive risk—The tradeoff between false positive and false negative errors, and the consequences of such errors, require the use of value judgment to determine standards.
3. Conceptual choice—Scientists often make use of thick ethical concepts that require both empirical and normative evaluation.

The denial of the value-free ideal is compatible with significant restrictions on the role of values in science; indeed, the first two major lines of argument, taken as positive accounts of the role of values in science, imply such a restriction (Brown 2013). One such restriction is at the heart of this chapter.

According to the **epistemic priority thesis** (EPT), epistemic standards trump, or generally strongly outweigh, non-epistemic values in guiding scientific research. Logically, but not necessarily temporally, epistemic standards of “adequate science” come first in determining scientific judgment, and values come second. Though the epistemic priority view accepts that the value-free ideal is false, it limits the extent to which values can play a role in scientific inquiry. In science, epistemic standards cannot be violated, while values should be met if they can.⁶ In prior work, I have called EPT, in its strictest formulation, “the lexical priority of evidence” (Brown 2013, 834).

Douglas (2009, 92–95) has a particularly parsimonious list of epistemic standards (what she calls “epistemic criteria”): empirical adequacy (or predictive competence) and internal logical consistency. She regards these as what Dan Steel (this volume, 8) calls “minimal criteria of adequate science.” Only epistemic standards and evidence play a “direct role” in supporting or rejecting

hypotheses, theory choice, characterizing data, and other “internal” or inferential aspects of science. All values (including the “cognitive values” that most philosophers of science think of as epistemic) play only an indirect role of raising or lowering standards of evidence, that is, how much evidence is necessary to make an inference. Rejecting EPT, in the terms of Douglas’s view, means rejecting the claim that there are minimal criteria of adequate science, or denying that the minimal criteria are only epistemic standards and not values, or denying the direct/indirect role distinction. It does not require rejecting the idea that “science as an institution should promote those aims by advancing knowledge” (Steel, this volume, 58), but it does mean rejecting the claim that knowledge is only advanced by satisfying epistemic standards.

Before raising arguments against EPT, I will first reflect on what kind of problem the thesis is supposed to solve.

3. Ideal and Non-Ideal Cases

Different views of the role of values in science agree in very general terms on what ideal scientific results should look like: a large body of strong evidence, unequivocally in support of an internally coherent hypothesis or theory that satisfies all epistemic standards *and* all relevant values quite well, that has been subjected to rigorous testing and been debated by a diverse and appropriately structured epistemic community. I take it as uncontroversial, once we recognize that there is some relevance of values to scientific inquiry, that the best case scenario is joint satisfaction of all epistemic and non-epistemic considerations, a complete integration.

It is only because we generally have to settle for less that the normative guidance provided by different approaches comes apart, and we thus have to worry about questions like epistemic priority. Our data might not be so strong or unequivocal, or it might be hard to come by, as when using the fossil record in paleontology (Havstad 2016). The data might appear to go against deeply held values, as seems to be the case for our hypothetical psychologist. The theory we’ve been using, despite some evidential support, may cease to be fruitful in solving new problems of interest, as was the case with classical physics in the early twentieth century. EPT tells us how we may proceed in such situations, particularly with tensions between standards and values.

In some cases, we need not settle for less, even if we find ourselves in non-ideal circumstances. In some situations, rather than rush to judgment, we can gather new data, re-examine and perhaps find flaws with or recontextualize the current evidence, revise or replace theories, examine our reasons for holding various values and consider revising those, or pursue entirely new approaches. In such cases, we can patiently wait until complete integration can be achieved.

So, to understand why we need EPT, or some alternative to it, we need to ask, Why do we settle for less, when we do? We do so under two conditions:

1. Joint satisfaction of epistemic standards and values eludes us at present.
2. We have to make an immediate decision.

Note that the immediate decision will be made for *non-epistemic* reasons. The non-epistemic reasons that guide us to bring inquiry to a close are various: we have to act, to pass a law, to graduate, to publish or perish, to get the next grant, to get famous writing a controversial book, or to move on to a more interesting problem. There are no epistemic reasons to bring inquiry to a close before ideal integration has been achieved. When we consider the conditions that require the close of inquiry under non-ideal circumstances, they problematize the general commitment to epistemic priority.

4. No General Justification of Epistemic Priority

In ideal cases, we do not need epistemic priority, because we can successfully satisfy both epistemic standards and social values. In the non-ideal cases, there are various reasons that scientists may make non-ideal decisions in which epistemic standards and non-epistemic values pull in opposite directions. Such cases do not generally justify epistemic priority.

Consider the case of primatology made famous by feminist philosophers of science (Fedigan 1986; Haraway 1986, 1989; Hrdy 1986; Strum and Fedigan 2000). Prior to the late twentieth century, primatology (like the rest of science) was male dominated, and the field was pervaded by sexist or masculinist bias, often implicitly so. This bias affected the theories of primate behavior and social structure, which treated males as active movers, and females as passive resources for males. It also affected the collection of data, where biased sampling favored alpha-male behavior but resulted in little data about females and subordinate males. Methodological reflection by primatologists circa 1950 would have likely shown that theory was well grounded in evidence, and evidence was gathered in a careful fashion. There was no crisis of epistemic standards at work at the time. Furthermore, there is no reason to think that a sense of crisis could have been evoked on purely epistemic grounds, no reason for doubts or criticisms of the methods to spontaneously arise. Apparently, influx of women researchers and feminist critique into the field in the subsequent decades were necessary conditions of seeing the problems with both standards and values. If the necessity isn't strictly logical, it wasn't merely a causal factor either; as is often the case with the analysis of scientific practice, the logical, causal, psychological, and practical are interwoven in complicated ways.

Another case is that of the small but lively group of so-called heterodox economists, mostly Marxians, Sraffians, and Keynesians (Colander, Holt, and

Rosser Jr. 2004; Dequech 2007; Lee 2009). They insist that the contemporary field of economics is and long has been based in mistaken assumptions and unhelpful methods, producing untenable results, all driven by pro-capitalist ideology. They lack access to the same quantity and quality of data that mainstream economists use to support their work, and they lack the resources to produce it. Some, such as Marxian economics, have serious problems with predictive competency. Thus, they can produce neither decisive refutations of mainstream economics, nor problem-solutions using their own approach that are widely acknowledged. Yet, they persist, continuing not only to pursue work in their heterodox traditions, but to believe in the fundamental correctness of their approach, and to teach that approach to students, and perhaps even to advocate policy on its basis. This belief or conviction functions in part as a hope that future research will bear out this approach, or at least bear out the critiques of the mainstream; it also functions to preserve Leftist values in the face of economically motivated challenges. Here, the perceived illegitimacy of the values at work in mainstream economics gives the heterodox economists a reason for continued resistance, and the lack of any urgent reason to switch to working in the mainstream makes it reasonable for them to continue working in their tradition and criticizing the mainstream.

These cases show complicated relations between epistemic standards and non-epistemic values, including cases where there is a failure to jointly satisfy them, but none points toward epistemic priority as a solution. Epistemic priority theorists are no doubt able to interpret such cases in their favor, but the emphasis on standards taking priority seems strained in such cases. This raises the further concern that it is rather difficult to tell when EPT has been violated. It may be such a trivial matter that really only outright fraud and deception constitute violations. If it is a substantive commitment, it is hard to see how to accept it in light of the interplay of standards and values in scientific practice.

If we need to settle for a non-ideal case, it is generally because we need to satisfy some non-epistemic value. Whether and to what extent various epistemic standards must be satisfied depends on the reason we are seeking a resolution prior to full integration. It is not as if we see how far we can take epistemic standards, and then allow values to play a role. We require values to select epistemic standards, interpret them, and determine how to apply them; they are intertwined and interrelated in such a way that talk of “priority” doesn’t make sense.

5. The Epistemic Status of Non-Epistemic Values

Another major problem with the thesis of epistemic priority is that it implies a problematic approach to the nature of social, moral, political, and pragmatic values. Epistemic priority implies, or is strongly associated with, a sort of noncognitivism or anti-realism about value judgments. At least we can say that such views about value judgments are rather controversial. In light of the

value-ladenness of science, such a dichotomy between the status of factual and value judgments seems rather untenable; I believe it should be rejected outright.

Let's step back and ask, when values and standards conflict, why does the defender of EPT insist that values must give way? I think it is because they hold that meeting epistemic standards has to do with evidence, reasons, and truth, whereas values do not. The idea is that evidence and satisfaction of epistemic standards contribute to the epistemic justification of a theory or hypothesis, whereas satisfying values is at best neutral, and at worst detrimental to epistemic justification. EPT says, in other words, that values have no standing in comparison to meeting epistemic standards, or very little, that whatever reasons we have for our value judgments, they are systematically less reasonable than empirical reasons.

The reason that EPT gives so little standing to values must be that values are something like mere wishes or preferences, and thus are epistemically flimsy. On such a view, they should only play a role if and when epistemic standards are satisfied. Otherwise, if we rely on mere wishes or preferences to guide us they will tend to lead us to wishful thinking. The need to avoid wishful thinking—a real, if epistemologically abstract problem—is what purportedly justifies the priority of epistemic standards over values. But this justification only works if the epistemic standards themselves cannot lead to wishful thinking, and if values are mere wishes or preferences. Both are questionable claims.

First, epistemic standards may indeed lead to wishful thinking. This concern drives Douglas's (2009) argument for a very restrictive list of epistemic standards. She argues that most putative epistemic standards, such as simplicity or scope, can lead to wishful thinking as much as any non-epistemic value: "Occam's razor notwithstanding, a simple theory may not be a true or reliable one. A simple theory, though elegant, may just be wishful thinking in a complex world" (107). A similar argument could be made even for Douglas's epistemic criteria. A logically consistent theory may just be wishful thinking if dialetheism is true (Priest 1987, 1995), if Bohr's complementarity approach is correct, or if we live in a "dappled world" which can only be properly described by a patchwork of partly overlapping, mutually inconsistent laws (Cartwright 1999). An empirically adequate theory may just be wishful thinking if our methods of gathering data are systematically misleading or if we live in a corner of the universe whose phenomena are unrepresentative. What's more, we may vary the empirical adequacy of our theory by varying the problem-field or phenomena under the theory's purview (some problems or phenomena may, after all, be wrongly excluded from or included in the domain of the theory), in a way that is vulnerable to wishful thinking.⁷ I do not want to advocate for any of these possibilities, some of which are admittedly far-out; rather, I think they show that standards and values are in the same boat when it comes to the mere possibility of wishful thinking.

The form of noncognitivism or anti-realism that treats values as mere wishes or preferences is also unreasonable. Value judgments can be made on the basis

of good reasons, including empirical reasons, evidence, and experience. Value judgments can be the result of evidence-based inquiry regarding decisions about conduct or practice (Dewey 1915; Anderson 2010; Brown 2015). Our emotional experiences consequent to adopting and acting on value judgments may also constitute evidence for or against those value judgments (Anderson 2004). If we make value judgments for good reasons, then those reasons lend those values epistemic weight when they play a role in scientific inferences, even when they clash with epistemic standards. So, for example, if racial equality is a value judgment that we have good reason to hold, then there is good reason to be critical of a seemingly racist (or racialist) theory, however strong the empirical adequacy, predictive accuracy, simplicity, and fruitfulness of that theory.

One could argue that the epistemic status of values depends on those values being grounded in evidence or experience, and so really the “epistemic status of values” is reducible to the evidence that supports it (as Steel argues, this volume, 60). On this view, rejecting a racist theory because it clashes with equality is reasonable if the background knowledge or evidence associated with those values supports that rejection. In some abstract epistemological sense, this may be the right approach, but it amounts to a problematic kind of “epistemic reductionism.” That is, we would be required to trace the epistemic status of some component of inquiry X back to the evidence that supports X, and to do so for all value judgments, and presumably all background assumptions, auxiliary theories, methodological and instrumental presuppositions, and so forth. Perhaps this kind of rational reconstruction is possible in principle and is the right way to think about epistemic status *sub specie aeternitatis*. But epistemic reductionism is not workable in practice, and it provides no normative guidance to scientists, nor is it useful to philosophers of science and others trying to understand or evaluate episodes of scientific *practice* in detail.

Is it possible to consistently affirm EPT and reject a subjectivist or noncognitivist account of values, that is, to affirm that value judgments, too, can be held for good reasons (as Steel does, this volume, 60)? Such a view presents a serious tension. Either the reasons for valuing and the reasons for believing/accepting hypotheses are commensurable, or they are incommensurable. On the one hand, Steel seems to accept that they are commensurable, but this implies that values should trade off with standards in ways that EPT denies. (I also find it unclear how to reconcile this concession with Steel’s epistemic reductionism.) On the other hand, if the reasons are incommensurable, there is still the question of how to integrate them in practice. Unless the reasons for valuing are systematically less reasonable than the reasons for believing/accepting (which, if it isn’t a kind of subjectivism, remains objectionable for the same reasons as subjectivism), the problem for EPT remains. The other option is to hold that there is a radical dichotomy of kinds of reasons, between reasons for believing, reasons for valuing, and so on. Such complete dichotomizing is an uncomfortable position for deniers of the value-free ideal. What’s

more, it effectively denies that standards and values can ever genuinely conflict, which would render “epistemic priority” unnecessary.

6. Against Criteria

EPT treats epistemic standards as criteria for successful scientific inquiry, rather than as values that are good if we can have them. There are strong reasons to reject the idea that anything, including epistemic standards, acts as a strict criterion for scientific inquiry. In fact, one of the most well-established results in philosophy of science is that science does not involve strict, non-negotiable, ahistorical criteria. The problems with thinking of science in terms of strict criteria are at the heart of many major accomplishments in the history of philosophy of science, from Dewey’s (1938) lesson about the contextual/situational nature of inquiry to Duhem’s (1954 [1914]) and Quine’s (1951) lesson about our inability to definitively test a hypothesis in isolation; from Kuhn’s (1962 [1996]) lesson about the priority of paradigms over explicit rules and standards to Feyerabend’s (1975) lesson about the limitations of any methodological prescriptions. I refer to these names not to name-drop or appeal to authority, but to remind us of the past achievements of philosophy of science as a field, and to encourage us not to forget them.

The lesson here is that there are no fixed points, no unmoved movers in scientific inquiry. Epistemic priority implies evidence or epistemic standards can guide inquiry without being changed or reevaluated in the course of inquiry. Imposing such criteria stifles inquiry, and ignores its particular context. What determines successful inquiry is first and foremost the ability to solve the problems that incite inquiry in the first place. We don’t need externally imposed criteria to recognize successful problem-solutions. Solving a problem in practice and experience, rather than satisfying some abstract criterion, suffices to settle inquiry. Indeed, prior success at problem-solving can be a good reason to adopt, reject, or alter epistemic standards, and can provide support for value judgments.

7. Science without Epistemic Priority

Suppose we reject EPT, as I have argued we should. What normative guidance can we provide to science, when it comes to standards and values, that is different from epistemic priority? One aspect of the normative guidance regards the function that values ought to perform in inquiry, different from the function of, for example, evidence or theory. Actually, there are two roles that should be distinguished, although this distinction is often missed by those on both sides of the epistemic priority debate. Values and standards might be related to the *aims* of that particular inquiry, or they might act as *side constraints* on that inquiry. Daniel Steel, in his defense of epistemic priority, notes this distinction

between aims and constraints, but whereas he sees two opposing views of the role of values in science, I see separate but equally important functional roles for values in scientific inquiry.

On the one hand, **aims**, as distinct from criteria, are the ends-in-view that a particular inquiry pursues. For example, health is a major aim of biomedical research, while theoretical unification is a major aim of contemporary fundamental physics. These aims are often complex, ambiguous, and negotiable in the course of inquiry. **Side constraints**, on the other hand, limit what kind of inquiry we're willing to pursue. For instance, animal welfare acts as a side constraint when using animal models in biomedical research aimed at human health. Side constraints are not necessarily less important than aims. Side constraints may violate EPT insofar as they might limit the conclusions we are willing to come to, as may be the case in the example of our hypothetical psychologist.

It is important that inquirers be conscious of the consequences of the various decisions made in the course of scientific inquiries. Each decision may have social impacts that need to be evaluated, as well as standards they may satisfy better or worse. While integration of standards and values, fact and theory is to be sought if possible, there are no unmoved movers in scientific inquiry. Since no constituent is infallible, each is up for possible revision in moving inquiry forward to problem resolution, standards included. What compromises we make will depend on (a) the specific reasons we have to bring inquiry to a close, and (b) the side constraints we are and are not willing to forego.

Recall our example from the beginning. What should our hypothetical scientist do when her epistemic standards seem to support a racist conclusion, or a conclusion with racist effects?

First, we should note, no purely epistemic norm tells us when to publish. Decisions about what to publish and publicize and when are subject to various value-driven factors. Second, racial justice might be acting as a side constraint or as one of the aims of the research, for example, if the study of factors contributing to intelligence was related to a larger project of promoting educational equity. As a side constraint, endangering racial equality may well be enough to forego publishing, even if it interferes with the original goals of the inquiry. We settle for epistemically inferior decisions all the time in science, because ethical side constraints won't allow us to, for example, experiment on humans in a certain way. So too, nothing can force us to accept an inference, nor publish it, no matter how epistemically compelling.

However, the situation is complicated. Suppressing the data, or foregoing publishing, aren't the only options, nor necessarily the best option for integrating your values. You might revisit your methods of data collection to see if they were biased. You might turn a critical eye to these concepts of "intelligence" and "race" that you are using in the study. You might publish with

strong disclaimers about drawing inferences about those particular connections, given open questions about the data and their interpretation. And so on. The lesson may not be “follow the data,” nor “suppress the results,” but “back to the drawing board.” Scientists do this all the time when they get results they suspect are wrong. And this makes sense—in any scientific work, the competence of the experimenter and the quality of the experimental procedure are always at issue, at least as much as the facts.

8. The Ibsen-Predicament Predicament

Daniel Steel, in giving a qualified defense of EPT (this volume), raises an objection based on what he calls “Ibsen predicaments.” **Ibsen predicaments** are cases in which information about the harmful effects of some X threatens the values of some community, because X is itself highly valued, or is linked to community values or objectives. As Steel argues, “Ibsen predicaments create a clear incentive to behave in a manner that runs roughshod over . . . epistemic values [standards] . . . and hence to run afoul of empirical accuracy (51).” The hypothetical case with which we began, of psychological results that threaten the cause of racial equality, can easily be considered an Ibsen predicament. In Steel’s terms, my recommendation to consider not publishing the results, or to go back to the drawing board, would amount to “corruption of science.”

Steel’s own examples of Ibsen predicaments are problematic in terms of gauging our intuitions about such cases, because most of them are ones in which the value judgments themselves are incorrect or illegitimate. Our hypothetical psychologist is well-meaning and has admirable values. Merck and the townspeople in Steel’s examples promote their own selfish aims (profits) over the proper aims of pharmaceutical and toxicological research (health and safety). Even if the aims were appropriate, such risks of health and safety surely violate important side constraints of any research. Our intuitions that the wrong decision is being made by suppressing data about the harms of Vioxx or the town baths are thus not indicative of our intuitions about Ibsen predicaments or the legitimate influences of values on science in general. While Ibsen predicaments are not defined in such a way that the values in question themselves are nefarious, the fact that Steel relies on such examples skews our intuitions. If the results of the Ibsen predicaments were beneficent, our intuitions may lead us to a more complex conclusion, as with our case of the hypothetical psychologist.

We can relate this discussion back to a worry raised earlier about wishful thinking. A related concern about research that is so deeply value-laden as I have argued it should be is that it might replace scientific integrity with wishful thinking. There are two kinds of problem with the worry about wishful thinking:

1. *Metaethical*—Value judgments, when based on good reasons, are not mere wishes, desires, and so on. We have good reasons to hold them, and their involvement in inquiry is not suspicious in itself. (See Section 5.)
2. *Logical*—Just because values play a deep, direct role in guiding inquiry, does not mean that they're being substituted for something that they're not. It would be wishful thinking to replace facts or judgments with how your values tell you the world ought to be, but that's not what values are for.

Values tell you what kind of result to aim for, and what the side constraints are on the way to producing them. It would be wishful thinking to move from the value of racial justice to assume that outcomes for white and minority Americans are, in fact, equitable, or likewise to assume that current measures to bring about racial justice are effective. But these aren't serious dangers; even if racial justice plays a very direct role in science, it doesn't play the *same* role as evidence and theory. It guides the decisions that scientists make about evidence, theory, methods, techniques, experiments—it doesn't stand in their stead.

Even if our hypothetical scientist is led to reject some connection between race and intelligence because it does not jive with her values, this does not amount to wishful thinking—it amounts to an appropriate level of caution about dangerous and potentially irresponsible claims. Although she does hold that her commitment to racial equality is well justified both in the ethical and the epistemological sense, she does not take that commitment to be evidence in the same sense as the data points produced by her study. Rather, she takes the conflict with her values to be reasons to be particularly doubtful of the work she has done in this research.

9. Socially Responsible Science

One still might think that the view I have laid out is overly permissive. Whereas the value-free ideal and epistemic priority both place significant restrictions on science, the view I have laid out here in principle allows non-epistemic values to influence any part of the scientific process.

I think of it differently. I think, instead, this view tends to be *more* demanding than epistemic priority. The value-free ideal lets scientists off the hook, so to speak, to only consider the narrowly epistemic standards that define their technical specialty. Epistemic priority likewise replaces the burden of judgment with an easy recipe—promote values only if you can while satisfying epistemic standards. This recipe may be difficult to know how to follow in practice, but it still removes the burden of judgment where values and basic epistemic standards conflict. I have argued that the burden can never be eliminated, but must be faced head-on.

Note that I have not argued that scientists may accept and advocate claims on the basis of values alone, without consideration for evidence or empirical inquiry.

Nor have I argued that epistemic considerations are unimportant, or less important than values considerations. There can be no doubt that epistemic constraints are a centrally important part of scientific inquiry. If acknowledging this is all that EPT required, no one could reasonably deny it. I do not rate epistemic considerations as less important than Steel, Douglas, and the other epistemic priority theorists rate them. The problem is, in my view, that value judgments are more pervasive, that the relation of values and epistemic standards necessarily is more complicated, and that the burden of judgment in non-ideal cases is greater than EPT can allow.

Rejecting EPT, as I understand it, requires at every stage the integration of social and epistemic concerns, responsibility both to standards and to values. While we may not always be able to completely achieve joint satisfaction of current standards of rigorous science and current values, trade-offs must be carefully weighed and considered. Good science, responsible science, is both epistemically and socially responsible. Scientists must consider social consequences of their work in a deep way. They need not do so alone—perhaps there is a role for others—such as philosophers⁸ or members or representatives of the public⁹—to play a role. But it is a burden they cannot avoid.

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Notes

- 1 In using this example to motivate the discussion, I assume it is more like the Ibsen predicament cases discussed by Steel in this volume, and not like the biological weapons research that we may have ethical reasons to prevent entirely, because of its very harmful impacts. That is, I presume that it is generally permissible for psychologists to record demographic data, to run statistical or factor analyses, and to draw conclusions from such data. It is the repugnant conclusion, and not a repugnant mode of research, that I mean to identify here. The defender of epistemic priority may want to argue differently; this speaks to a concern expressed later in the paper that it is difficult to determine when epistemic priority has and has not been violated.
- 2 She calls them “epistemic criteria.”
- 3 I personally harbor doubts about the standards/values distinction, what is usually called the non-epistemic/epistemic values distinction (see Rooney, this volume), but such a distinction is necessary to defining the epistemic priority thesis.
- 4 More recently, Douglas (2013) has described a type of “epistemic value” distinct from both “cognitive values” and “epistemic criteria” in the terms of her earlier book, which describes relations between evidence and theory (such as successful explanation or prediction over a broad scope of phenomena). Satisfying different epistemic values amounts to different types and degrees of evidential support.

- 5 The latter term is due to Otto Neurath (1983 [1913]).
- 6 Of course, the epistemic priority theorist will regard values as trumping in certain cases, when it comes to external decisions about what research to fund or pursue, or what methodologies to use. They may even allow us to treat whole forms of inquiry as impermissible, such as biological weapons research. Research that unnecessarily harms or violates the rights of human research subjects should be banned. Research on sensitive matters of national security might be classified. Research on weapons or diseases that could be used to nefarious ends might be restricted. And certain “external” questions, such as what research will be prioritized and funded, and how it will be applied, may be governed primarily by values. But in the “internal” aspects of scientific inquiry—characterization of data, statistical analysis, acceptance of hypotheses, theory choice—and outside the extreme cases, EPT holds that epistemic standards shall not be violated.
- 7 Consider Hasok Chang’s (2012) claim that, “Theories are not simply ‘tested against evidence’; we must always choose where they ought to be tested against evidence—which is to say, where we most wish them to be empirically successful” (20). Chang’s is one way of thinking carefully about the pervasiveness of anomalies for scientific theories.
- 8 Erik Fisher (2013) and his collaborators have explored the possibility of this sort of “midstream modulation” of scientific (and engineering) research. Their work is particularly interesting in term of the role that humanists, social scientists, or philosophers might play, embedded in scientific research, to help turn the focus to social and ethical considerations.
- 9 Ultimately, the social/cultural embedding of science means that we’d want to see public input into science, suitably understood in a democratic context, at least for some projects. That is obviously a much larger project, outside the bounds of this essay. (See Douglas 2005).

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