

# The source and status of values for socially responsible science

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**Abstract** *Philosophy of Science After Feminism* is an important contribution to philosophy of science, in that it argues for the central relevance of advances from previous work in feminist philosophy of science and articulates a new vision for philosophy of science going in to the future. Kourany's vision of philosophy of science's future as "socially engaged and socially responsible" and addressing questions of the social responsibility of science itself has much to recommend it. I focus the book articulation of an ethical-epistemic ideal for science, THE IDEAL OF SOCIALLY RESPONSIBLE SCIENCE, compare it to recent work in the same vein by Heather Douglas, and argue for some advantages of Kourany's approach. I then ask some critical question about the view, particularly with respect to the *source* of values that are to be integrated into science and the *status* of values that are to be so integrated. I argue that Kourany is too sanguine about *where* the values that inquirers will use come from and that these values seem to be accorded too fixed a status in her account.

**Keywords** Janet Kourany · Heather Douglas · Values in science · Feminist philosophy of science · Democracy · Pluralism

## 1 Introduction

Janet Kourany's *Philosophy of Science After Feminism* has at its center the project of articulating a new normative ideal for science to replace THE VALUE-FREE IDEAL, according to which scientists have an epistemic and perhaps ethical obligation to keep their work clear of influence from non-epistemic or social values. Kourany's alternative ideal articulates new ethical and epistemic standards for scientific practice

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which include a significant role for such values. Building on a significant body of work in philosophy of science, especially feminist philosophy of science, that undermines the view that science can or ought to be value-free, Kourany considers several alternative ideals for science before articulating her own, THE IDEAL OF SOCIALLY RESPONSIBLE SCIENCE (SRS).

SRS is a *joint satisfaction* account of the role of epistemic and social considerations, that is, it is committed to the principle of *the joint necessity of evidence and social values*. On such an account, science is held to both epistemic standards of evidence and reasoning and ethical standards of social responsibility. Neither component is prior to the other, nor in cases where evidence and values clash can epistemic considerations trump ethical ones (or vice versa). Neither well-meaning but epistemically poor, nor epistemically solid but reprehensible (e.g., racist, sexist, Nazi) science is acceptable. In this way, SRS is a self-consciously “less sophisticated” view (p. 68) than views like Longino’s SOCIAL VALUES MANAGEMENT view or THE EMPIRICIST IDEAL, according to which there are complicated relationships between epistemic and social values. On Kourany’s account, these considerations are relatively independent and parallel contributions to good science.

This new ideal provides a new vision of philosophy of science, a new research agenda for and new ideas about training philosophers of science. On Kourany’s vision, in addition to the current projects in philosophy of science, there would be a set of projects under the broad heading of “socially engaged and socially responsible” philosophy of science (vii). She discusses one important example of such a project in detail at the end of the book: engaging with scientists to craft better ethics codes for their professional societies. Such work requires a new way of training philosophers of science that emphasizes ethics and social and political philosophy as least as much as epistemology and metaphysics.

The book and its SRS ideal have much to recommend them. Kourany demonstrates the ongoing relevance of the tradition of feminist epistemology and philosophy of science and argues compellingly for considering the social responsibilities of science and philosophy of science. Kourany also gives a useful overview and taxonomy of other approaches to the role of values in science. I will focus my remarks on the SRS ideal, which I take to have a great but controversial strength of SRS over its rivals: that it denies the priority of evidence or epistemic considerations over values or ethical considerations. I want to raise two critical concerns about the view. The first concerns *whose* values are to play a role in inquiry, i.e. the *source* of values in SRS, especially where reasonable pluralism about values exists; the second is about how precisely values become integrated into inquiry, specifically their *status* in inquiry, and more specifically, how the view should handle situations in which epistemic and social considerations clash.

I begin with a comparison between SRS and another ideal which I believe Kourany should have commented on more thoroughly in the book: Heather Douglas’s position on the role of values in science based on inductive risks.<sup>1</sup>

<sup>1</sup> Kourany does mention Douglas (2000) on p. 73, but since then Douglas has turned her approach to a full-fledged ideal on the level of the others considered in Chapter 3 in a series of papers culminating in *Science, Policy, and the Value-Free Ideal* (2009).

Systematic comparison between the two views makes clear some important features of SRS, and helps to draw out the two critical questions I want to raise.

## 2 Socially responsible science versus inductive risk management

Douglas (2000, 2009) has revived a critique of the value-free ideal based on an argument by Rudner (1953) and perhaps ultimately due to William James (1896).<sup>2</sup> This argument depends on the uncertainties endemic to any form of ampliative inference. The sources of uncertainty are many: imprecision in data or calculation, the role of background assumptions, forms of underdetermination, the trade-offs between type 1 and type 2 errors, etc. Under these conditions of uncertainty, we always face a decision about whether to exercise relatively stricter or laxer epistemic standards. Sometimes, there will be consequences to that decision that bear on social values. For example, if the consequences of a false negative are generally worse than the consequences of a false positive—worse according to ethical, political, or pragmatic values—then we ought to adopt less strict standards. Call this the **INDUCTIVE RISK MANAGEMENT IDEAL (IR)**.

Consider research testing whether a certain chemical to be used in pesticides or some industrial process is toxic. If we make a false negative error—we say that it is not toxic when it is—that will have a variety of consequences: widespread use will lead to negative effects on the health and wellbeing of various people. If we make a false positive error—we say that it is toxic when it is not—there will be other consequences: unnecessary regulation, unavailability of a beneficial product, lost profits, etc. In deciding where to set our standards for acceptance of the hypothesis “chemical X is toxic,” taking such consequences into account is the morally responsible thing to do.

Douglas emphasizes the difference between *direct* and *indirect* roles for values in science. There are some aspects of scientific inquiry where value judgments are allowed to directly guide decisions, such as picking a scientific project to pursue, limiting methodological choices to protect human or animal research subjects, or determining appropriate ways to apply or disseminate results. By contrast, such direct influence of values in what we might call the “internal reasoning processes” of science—characterizing data, interpreting results, accepting hypotheses—is impermissible; rather, in these processes, values play a role in managing uncertainties. While in their direct role, values act as reasons for or against a decision, in their indirect role, values act as reasons for accepting a certain level of uncertainty in making a decision, i.e., they support the connecting of reasons or evidence to decisions.

This is something of an oversimplification,<sup>3</sup> but it will do to bring out some interesting points of comparison. Both SRS and IR require joint satisfaction of

<sup>2</sup> The connection to James has been pointed out by P.D. Magnus (2012).

<sup>3</sup> Douglas’s full view includes a much more robust account of scientific objectivity, more specific ideas about the role of values in different phases of scientific inquiry, and specific advice for scientists and policy-makers (Douglas 2009).

epistemic and ethical criteria. IR is very specific about how this works: (in the internal aspects of science) we set the strength of our epistemic criteria according to an ethical evaluation of the consequences of adopting various versions, and those epistemic criteria determine whether or not we accept the hypothesis. Social values only play this role in the space of uncertainty left by the evidence; we cannot, e.g., replace ordinary epistemic standards with Biblical authority on the basis of social values. Epistemic standards are *mostly* still set by epistemic considerations. This is a certain kind of strict priority of evidence (or epistemic considerations) over values—call it the *principle of lexical priority of evidence over values*.

The SRS ideal on the other hand runs the epistemic and ethical evaluations in parallel. While Kourany insists that the bearing of factual considerations on social values is a “complex, multifaceted undertaking,” the two types of evaluation are more or less independent in the assessment of scientific research. Neither takes priority over the other; good science has to satisfy both. Potentially this allows values to play a much deeper role in scientific activity on SRS than on IR, so long as that role does not interfere with the epistemic virtues of the research. This also differentiates Kourany’s approach from the brand of feminist underdeterminationism that likewise insists that the role of values comes in filling in the gap left by underdetermination, and thus in a different way assumes the principle of lexical priority.

This strikes me as a benefit of Kourany’s view, that it might allow values to play a more expansive role while preserving the epistemic integrity of science. If Kourany really means to deny the strict priority of evidence over values (or of epistemic evaluations over social evaluations), then she is taking a more radical stance than many feminist philosophers of science. There are various problems with a lexical priority approach,<sup>4</sup> so in this respect I would applaud SRS.

Why should we regard the denial of the lexical priority claim as a virtue of the SRS account rather than a vice? Douglas defends her view by arguing that a more extensive or direct role for values would be to turn science towards mere *wishful thinking*. If we are to retain what is valuable about science, don’t we have to limit the role of values?

Underlying this premise are two linked, untenable ideas about evidence and about value judgments—that the former are solid and reliable, while the latter are mere expressions of subjective preferences.<sup>5</sup> First, an uncritical stance towards the nature of evidence is a mistake, since evidence can turn out to be bad in all sorts of ways: unreliable, unrepresentative, noisy, laden with unsuitable concepts and interpretations, or irrelevant for the question at hand. More importantly, we may be

<sup>4</sup> These problems (summarized below), and the need for an ideal that is not committed to the lexical priority principle, are described in Brown (forthcoming).

<sup>5</sup> This may be a bit too strong. At least, values are regarded as systematically less grounded or reliable than putative evidence, which systematically underrates the strength of value judgments. Douglas (2009) for example does not hold the view that evidence is unproblematic, and indeed, she describes how choices of methodology and characterization of evidence can depend in complicated ways on value judgments. Nor does she commit herself to a non-cognitivist or mere-preferences view of values and value judgments. Nevertheless, in committing herself to the lexical priority principle, she does mark an indefensible difference in epistemic kind between evidence and value judgment.

totally unaware of why the evidence is bad; e.g., part of the genius of Galileo came in undermining the status of apparently reliable evidence, such as the tower experiment. The “evidence” that there was no stellar parallax took even longer to reject, yet this did not halt the Copernican revolution. Reflection on cases like this has lead many philosophers of science to recognize that we can be skeptical about particular pieces or sets of evidence based on its clash with hypotheses, theories, or background assumptions that we have other good reasons to hold on to, including values.

The lexical priority assumption also implies an untenable attitude towards values that treats them as mere expression of *preferences* rather than genuine *judgments*. If value judgments were given their proper due, it would be understood that as judgments, they should be arrived at by reflective decision based on good reasons, even that they are open to empirical tests of a sort, because they connect a valued state or course of action with the desirability of the consequences of pursuing and attaining them (Dewey 1915; Anderson 2010). The evidence by which we test value judgments may include the emotional experiences that follow on adopting and acting on those values (Anderson 2004). And if value judgments are supported by good reasons and evidence, it is unreasonable that they should *systematically* be trumped by evidential considerations of any kind.

Furthermore, SRS shows us that it is possible to deny strict priority without devolving into wishful thinking. Far from detracting from objectivity and rigor, SRS actually requires more rigorous standards of inquiry, as scientific inquiry must satisfy *both* epistemic *and* ethical constraints. On this account, conflicting evidence and social values do not trade off against one another. Inquiries that fail to meet the standards of social value judgments are just as deficient as those that fail to fit the evidence.

Both SRS and IR appear to leave open a question that the social values management and empiricist approaches answer:<sup>6</sup> if values are to play a role in science, *whose values* will do so? Douglas has argued that both scientists’ individual moral conscience (2009, pp. 73–75) and democratic analytic-deliberative processes (2005) must play a role. What is Kourany’s view?

### 3 Whose values?

SRS in its basic outlines also leaves this question open.<sup>7</sup> On the one hand, Kourany says that the values are determined by society: “the ideal of socially responsible science... recognizes that we, as a society, have a definite say...as to what these social values will be” (p. 68). On the other hand, Kourany frequently talks in more objectivistic/universalistic terms about the role of values in science: “these social values *should be chosen* so as to meet the needs of society... those would be the

<sup>6</sup> According to Longino’s views, the answer is either the scientists’ own values or as many values as possible. On the empiricist account, the values that will lead to more successful inquiry are the ones we ought to use.

<sup>7</sup> Which doesn’t mean that Kourany does not address it. See the next section.

*morally justified* political conditions under which scientific research would be pursued” (p. 68). These latter points seem to imply that the values are univocal, to be determined by a *philosophical* procedure that determines the needs of society or the morally justified constraints, rather than a democratic political procedure.

Kourany addresses the possibility that there may be significant disagreement over such values. While acknowledging that this is obviously the case, Kourany insists that “there is also crucially important agreement,” especially in actual rather than hypothetical cases (p. 76). To address the relative universality of basic feminist values, Kourany points to statements by organizations like the UN and the World Health Organization. This response suggests that such values must belong to what, in Rawlsian political philosophy, is called “overlapping consensus.”

Another Rawlsian idea worth focusing on, however, is “the fact of reasonable pluralism.” The basic idea is that, about many values, even fundamental ones, reasonable people will disagree. In Rawls’s political philosophy, while we may look to overlapping consensus when determining the basic political structure, the fact of reasonable pluralism justifies both democratic policy-making processes and the distinction between the public and the private spheres.

Kourany’s pluralist opponents like Longino easily accommodate reasonable pluralism about values into their view—though they may, if Kourany’s analysis is right, also accommodate *unreasonable* pluralism—but it isn’t clear how SRS deals with it. Here are several options:

1. Determine values according to normative ethics, denying the fact of reasonable pluralism in favor of a substantive view of the good.
2. Allow values to guide research only in the area of overlapping consensus.
3. Where reasonable pluralism rules, allow researchers to pursue SRS in concert with their personal conception of what is socially responsible.
4. Institute some form of democratic procedure by which public input and diverse perspectives are taken into account in determining which values will guide research.
5. An “ideal deliberators” view (e.g., Kitcher 2011) which combines the democratic impulse of (4) with the preference for philosophical rather than participatory procedures as in (1).
6. Some combination of the above.

So the question “whose values?” really breaks down into two questions: (a) What is the source of the values, actual social processes or ideal philosophical reflection?; (b) Are the relevant values restricted to those with some claim to universality (due to philosophical grounding or overlapping consensus)? Related to this latter question is the question about when value judgments have to be made. Are values determined outside of and prior to inquiry, or are they made in the process of inquiry? This question will become important for the status of values in inquiry.

#### 4 Ethics codes and values in science

On first reading, one might misinterpret the goal of Chapter 5 of *Philosophy of Science after Feminism* as being a mere application of SRS to one particular project,

that of crafting ethics codes for professional scientific societies. But as Kourany makes clear at the beginning of the chapter, its role in the book is in fact much more important: the discussion of ethics codes is meant to answer some crucial questions about the source of social values in SRS, the legitimacy and authority of the ideal amongst various groups, and the role of philosophers of science in forwarding SRS (p. 106). The ethics codes for the sciences would be comprehensive, specific, and authoritative by being constitutive commitments of the respective professional organizations (p. 118). Furthermore, philosophers of science have a special role to play in crafting the ethics codes.

What, then, is the source of values for constructing ethics codes and thus elaborating the ideal of SRS? Are they to be constructed by normative ethical reflection on the part of philosophers of science? Will there be input from scientists, industry, advocacy groups, or the public? The answer appears to be “all of the above.” Kourany regards the construction of adequate ethics codes a “highly interdisciplinary,” partly “empirical project,” requiring insider information from scientists, information about the field from sociologists and economists of science, and the values and concerns of stakeholders as communicated by the stakeholders themselves, advocacy groups, and observers, e.g., political scientists. But such codes are also “first and foremost... a normative project,” hence the special role of philosophers of science in contributing to both the epistemic and ethical aspects of those normative discussions (p. 118).

Does this approach resolve the question of the source of values for science? Recall that one of the motivating questions in asking about the source of values concerns the possibility and actuality of pluralism and thus conflict over values. Scientists, stakeholders, and other groups will disagree over which ethical, political, aesthetic, and other social values ought to guide scientific practice. How are such disagreements to be resolved? Will they be adjudicated by the normative reasoning of the philosophers? Will only those values within the overlapping consensus (in the Rawlsian sense) make it into the codes? Would there then be further room for individual conscience amongst scientists to play a role? Would there instead be some sort of democratic procedure, aimed at consensus-building through deliberation, say, that would aim to resolve such conflicts? Or some combination of the above?

Suppose that we resolve such problems and we achieve rational consensus amongst the various contributing parties, that an ethics code is constructed that is endorsed by scientists and used to self-regulate their activity, that sufficiently addresses the concerns of the public such as to improve the public trust in science, and that has been endorsed by the normative considerations of philosophers. Would this ethics code then be adequate to account for the role of values in scientific practice? Would conforming their activities to the principles of such an ethics code meet scientists’ ethical responsibilities in pursuing their work? We might hope so, as this would reduce the burdens of value judgment on the part of the scientists and, hopefully, the potentially arbitrariness of their value judgments vis-à-vis public concerns or normative ethics.

Unfortunately, it seems to me the codes would not be sufficient. As Heather Douglas’s inductive risk argument shows, in the course of their research, scientists

will have to make conscious choices based on the consequences of error, and the consequences and choices can not be determined ahead of time or from outside the process. Scientists will thus have to reason about these consequences and make value judgments in order to proceed with their research. Ethics codes may provide valuable guidance in these cases, but by virtue of their generality, they will not be able to determine particular cases that turn on specific questions about the methodology, evidence, hypotheses, and consequences in a particular case. And in thinking about what SRS should say about these specific value judgments, the question about the source of scientists' value judgments returns in force. Furthermore, thinking about such questions raises the further question: what do we do when values and evidence are in tension?

## 5 Values and evidence—conflict, dogmatism, and revision

Kourany responds to the concern about conflicting systems of values by pointing to the large areas of agreement, which implies that values must be settled before they can be made use of in inquiry. If the ideal of SRS requires that values are settled ahead of time (by philosophical procedure, social consensus, or the construction of ethics codes), then value judgments are prior to, rather than a part of, inquiry. This is supported by the way that Kourany responds to the concern that values and epistemic goals can conflict (pp. 71–72). Kourany considers the possibility that the attempt to jointly satisfy epistemic and social considerations might fail because the two are in tension, e.g., if some racist or sexist stereotypes were true. In such cases, whatever explanations, theories, or techniques are adopted in the aim to be socially responsible would turn out not to be very successful, and thus the epistemic goals would not be met and the ideal would not be realized. In the example of true stereotypes, research which set out to avoid the stereotypes or that adopted hypotheses that contradicted the stereotypes would likely languish epistemically and so eventually be given up. She points out that in such cases, the values are not allowed to contaminate the results, nor do they prevent us from learning that the anti-stereotype approach fails (though this does not necessarily justify rejecting the values that lead us to reject the stereotype).

In a very interesting footnote, Kourany asks us to think about values in terms of motivating a Lakatosian research program. We might consider a research program whose “hard core” consists of the denial of some stereotype(s);<sup>8</sup> the hard core is motivated by egalitarian social values. The negative heuristic protects the stereotype denial from refutation, and the positive heuristic provides methods for revealing evidence compatible with the egalitarian-friendly conclusions. Kourany claims that “there are conditions under which it will be rational to abandon (to consider ‘refuted’) [this sort of] research program, conditions that Lakatos tried to describe in detail” (p. 72). However, a significant concern about Lakatos's view—pointed out by Feyerabend—is that while it becomes rational to abandon a degenerating

<sup>8</sup> Kourany discusses the example of Carolyn West's research on race and domestic violence (pp. 69–75).



research program, it *never* becomes *irrational* to stick with it either (and if it did, this would have problematic results as well). The only thing that is expressly forbidden is to *call* a degenerating research program “progressive” (Feyerabend 1985, pp. 214–215, 1993, p. 158). Thus, Lakatos’s methodology has no bite, and the worry that dogmatic values-driven researchers can put off revision forever remains.

In the same footnote, Kourany points out that “the abandonment of [such a] research program would not necessarily justify the abandonment (‘refutation’) of [the] egalitarian social values [guiding it]” (p. 72). Are there conditions under which their failure in guiding inquiry would lead to a revision of our values? Or are values supposed to work as unmoved movers in scientific inquiry?

This raises a further concern about the SRS ideal. One way of understanding the lesson of much of twentieth century philosophy of science, from the Duhem problem to theory-ladenness to underdetermination, is that there are no unmoved movers in scientific inquiry. Theory, evidence, background assumptions, even logic and mathematics are up for revision in the course of science if such revision aids scientific progress.<sup>9</sup> Kourany’s naturalist / empiricist opponents extend this lesson to the role of values in science in a natural fashion. On the SRS view, when values pull in a different direction from epistemic standards, and that conflict stymies inquiry, is revision an option? While Kourany allows that our values might change, or that science and values might interact in complicated ways, SRS does not appear to sanction revision of our values or our evidence as a possible solution to an impasse in the course of inquiry.<sup>10</sup>

When confronting the problem that allowing values a normative role in scientific inquiry might detract from objectivity and lead to the problem of wishful thinking, Anderson (2004) has identified the source of the problem not with the influence of values at such, but with dogmatism about values.<sup>11</sup> Just as the main problem with an overly strict empiricism is an unreasonable dogmatism about the status of the evidence that stymies the development of better theories, a dogmatic approach to values could misdirect science.

An alternative is to supplement the joint satisfaction by a hypothesis of epistemic and social value constraints with the ability to revise any component of inquiry under the appropriate conditions. This would be to treat value judgments, sets of evidence, and hypotheses and theories as parts of a linked network modified by the process of scientific inquiry. Such an approach would retain the egalitarian treatment of evidence and values in Kourany’s account, while allowing more room for flexibility on the part of inquirers.

<sup>9</sup> In a local sense, scientific progress just amounts to getting closer to solving the problem that spurred an inquiry. In a global sense, scientific progress is a notoriously perplexing and difficult issue.

<sup>10</sup> A violation of Peirce’s dictum: “Do not block the way of inquiry” (c.1899/1931, p. 135)

<sup>11</sup> Notice that the deflationary picture of value judgments as mere preferences that the lexical priority of evidence over values implies is not compatible with such dogmatism, but perhaps most naturally paired with it.

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