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Rehabilitating neutrality

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Abstract This article responds to Janet Kourany's proposal, in *Philosophy of Science after Feminism*, that scientific practices be held to the ideal of 'socially responsible science', to produce results that are not only cognitively sound, but also significant in the light of values '*that can be morally justified*'. Kourany also urges the development of 'contextualized philosophy of science'—of which feminist philosophy of science is exemplary—that is 'politically engaged' and 'activist', 'informed by analyses of the actual ways in which science interacts with the wider society in which it occurs, the ways in which science is shaped by and in turn shapes society', and that can contribute to understanding both the cognitive and social dimensions of science. Although I share Kourany's commitment to contextualized philosophy of science, I question her proposed ideal of 'socially responsible science' and the grounds she provides for adopting it. My argument leads me to defend rehabilitating the traditional ideal of the 'neutrality' of science, which I reinterpret as the ideal of 'inclusiveness and evenhandedness'.

Keywords Neutrality · Socially responsible science · Science as value free · Responsibility of scientists

Comments on Janet Kourany's Philosophy of Science after Feminism, Pacific APA, Seattle, April 6, 2012. All page references in the text are to this work (Kourany 2010).

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In *Philosophy of Science after Feminism*, Janet Kourany proposes that scientific practices be held to the ideal of 'socially responsible science' [I-SRS], to produce results that are not only cognitively sound, but also significant (valuable) in the light of values '*that can be morally justified*' (p. 79), those that nourish 'human flourishing, [and] what makes for a good society' (p. 71), social justice, egalitarianism (pp. 39, 68), environmental sustainability (p. 102). At the same time, to provide backing for the ideal, she urges the development of 'contextualized philosophy of science'—exemplified by feminist philosophy of science—that is 'politically engaged' and 'activist' (p. 128), 'informed by analyses of the actual ways in which science interacts with the wider society in which it occurs, the ways in which science is shaped by and in turn shapes society' (p. 29), and that can contribute to understanding both the cognitive and social dimensions of science.

I share Kourany's commitment to 'contextualized philosophy of science'. Elsewhere, I have maintained, "… there are rich dialectical relations among the questions: 'How to conduct scientific research?' 'How to structure society?' and 'How to further human well-being?' Science may be appraised, not only for the cognitive value of its theoretical products, but also… for its contribution to social justice and human well-being" (Lacey 2005a). Nevertheless, I do not endorse I-SRS; and I am not persuaded by her argument that I-SRS is needed to replace the 'ideal' of 'science as value-free' (pp. 54–71) [I-SVF]. According to I-SVF, she says, 'scientific investigations had to be kept strictly free of ethical or political commitments' (p. 54); '…. values [do] not belong in science at all' (pp. 17–18), apparently not even in 'sanction[ing] constraints on research topics, research methods, and modes of disseminating scientific results' (p. 101). Kourany considers I-SVF to be an influential and perhaps hegemonic 'ideal', but both cognitively and politically untenable, and so in need of replacement. She argues that I-SRS constitutes a better replacement than other proposals made by feminist philosophers of science.

I-SVF is indeed untenable in the ways Kourany indicates. However, I do not think that I-SRS gains cognitive or political traction in virtue of being proposed as a replacement for it. In the politics and rhetoric surrounding science, I-SVF (as characterized in the quotations above) has often been used as a demagogic ruse to dismiss critics (e.g., feminists), who diagnose that values are playing unacceptable roles in investigations whose results are used to provide backing for unjust (e.g., sexist or racist) practices. It serves to portray the critics as the ones bringing values into science, and therefore violating the canons of sound science. That does not mean that I-SVF (as characterized) is functioning as an 'ideal' of science—and I have not been able to identify any scientist or philosopher of science, *who has articulated and defended* that science should be responsive to the 'ideal' that "values [do] not belong in science at all" (pp. 17–18).

Labels can mislead. There is an idea, sometimes also labelled 'science as value-free', that has often been articulated and defended throughout the tradition of modern science. However, it is caricatured in the above characterization of I-SVF. According to it, *at their core cognitive moments*, there is no role for non-cognitive values in scientific practices, although there is plenty of scope for them at other moments (Lacey 1999). Consider five moments of scientific practices: M_1—adoption of

methodology, M_2—conducting research, M_3—cognitively appraising scientific theories, M_4—dissemination of scientific results, and M_5—application of scientific knowledge. The traditional idea maintains that ethical/social values play no proper roles in justifying judgments made at M_1 and M_3 (the moments most attended to in mainstream, non-contextualized, philosophy of science), but they have legitimate and often indispensable roles at M_2 and M_4, as well as obviously at M_5. It incorporates two distinct ideals, pertaining respectively to M_3 and M_5.[1]

> *Impartiality*: theories should be accepted—*as providing understanding of specified domains of phenomena*—if and only if they manifest the cognitive values well in the light of available empirical data.
>
> *Neutrality*: scientific theories (in principle) serve evenhandedly all viable value outlooks; their applications (and logical entailments) do not privilege some value-outlooks at the expense of others—science is not subordinate to special interests.

I will focus on neutrality in this article, and sketch a argument for its rehabilitation.

Neutrality does not follow from impartiality. How adequately it is embodied in actual scientific practices can be investigated empirically; and it can serve as an ideal only if its more complete embodiment in scientific practices is genuinely possible. Neutrality has often (mistakenly) been thought to be a by-product of the proper use of scientific methodology. 'Methodology' covers many things—including what kinds of *strategies* to adopt, i.e., what kinds of constraints to put on theories that are candidates for investigation and acceptance, and what criteria to use for selecting relevant empirical data (Lacey 1999). Mainstream scientific research has deployed almost exclusively what I call *context-free strategies*: under which theories are constrained to represent phenomena in terms of their underlying structures, processes, interactions, and the laws that govern them—dissociating them from their human/social/ecological *contexts* (Lacey 1999, 2005a; 2013), so that theoretical categories include no intentional and value-laden ones. Thus, it is a logical by-product of adopting context-free strategies that scientific results obtained under them cannot have value judgments among their logical entailments. But, only empirical investigation could vindicate that applications serve value-outlooks evenhandedly. Perhaps the widespread valuing of scientific applications—connected with, e.g., medicine, communication and energy—has been taken as sufficient empirical vindication. Be that as it may, adopting context-free strategies has been thought to ensure neutrality; and it certainly leads regularly to the expansion of the stock of scientific knowledge, mostly knowledge represented in theories properly accepted *of specified domains of phenomena* in accordance with impartiality.

The ideals of impartiality and neutrality obtained their grip on the scientific tradition, and on popular imaginations, in the context of the virtually exclusive role given to context-free strategies in mainstream scientific research. Neutrality is not

[1] See Lacey (1999, 2005a) for elaborations and non-abbreviated versions, and also discussion of a third ideal, *autonomy*, that has impact at M_1; and Lacey (2005b) for distinctions pertinent to understanding impartiality.

challenged simply by showing that values inevitably have roles at M_2, M_4 and M_5. (The role of values at these moments does refute I-SVF, as formulated by Kourany. Her illuminating discussion of codes of ethics for scientific research mainly deals with issues at M_2 and M_5.) And it is not challenged as an ideal for *context-free* science by showing its inapplicability to *context-sensitive* science, science that deploys strategies that do not dissociate phenomena from their social, etc., contexts.

Kourany's argument is built mainly around reflection on context-sensitive sciences (social and psychological sciences, biological-cultural evolution) in which: theoretical concepts include value-laden notions (e.g., equality, inferiority, intelligence, 'rational, autonomous, self-interested agents'); theories have been constrained to consistency with value-laden claims (e.g., males as primary agents of innovation); and phenomena especially important to women's interests have been ignored. Feminist criticism has convincingly shown that neutrality cannot be sustained under these conditions. But impartiality can sometimes be. Some feminists discussed by Kourany are committed to impartiality, insofar as they object to the use of sexist alongside cognitive values in appraising theories. Moreover, in what I interpret as indicating a role for values at M_1, they maintain that research conducted under certain strategies, whose adoption is reinforced by holding feminist values, may produce greater accord with impartiality. Certainly, there are no good reasons to hold that results that accord well with impartiality can only be obtained under context-free strategies (Lacey 1999, 2005a). Thus, when scientists opt to exercise their ethical/social responsibilities (at M_1) by engaging in research whose strategies are adopted because they have dialectical links with particular 'morally justified' values, they do not *ipso facto* bring illegitimate biases to their research.

Is it an ideal that in general scientific research be subordinated to 'morally justified' values? I do not think so. In the first place, 'morally justified' is contested; and, in a democracy and across cultures, a measure of moral pluralism is indispensable. I-SRS lacks sufficient specificity to serve a critical evaluative role; and scientific education and practices do not cultivate well the sensibilities needed to identify, interpret and defend 'morally justified' values, to make sound judgments about how to further their embodiment in society, and to maintain legitimate moral pluralism without reducing it to uncritical relativism.

Second, and more important, upholding I-SRS cannot be an effective counter to the main deformation of contemporary science. Science has tended to become (or to be widely regarded as) predominantly an instrument to produce technoscientific innovations that serve interests linked with economic growth (Lacey 2012). Thus, at M_5, science has come to privilege interests informed by values of technological progress, e.g., according high ethical value to expanding human capacities to control natural objects, especially as embodied in innovations that progressively increase intrusive technological penetration into ever more domains of life (Lacey 2005a, Chap. 1), and of capital and the market. Then, since there are mutually reinforcing relations between holding these values and granting priority to context-free strategies (Lacey 1999, 2005a), context-free strategies are adopted virtually exclusively in mainstream science, without considering their aptness for dealing with phenomena like risks of technoscientific innovations occasioned by socioeconomic mechanisms (Lacey 2012). Thus—at M_1—science today is largely subordinated to values that are

highly entrenched in dominant social/political/economic institutions and widely upheld throughout the world as 'morally justified'; but, recognizing this is clouded by the lingering myth that using context-free strategies is the source of neutrality. The role that these values are playing at M_1 needs to be brought out into the open. Then, challenging it has to go hand in hand with challenging the *virtual exclusivity* given to context-free strategies in mainstream scientific research. Questioning the moral justification of the values cannot have impact at M_1, unlike at M_2 and M_4, unless it is accompanied by potentially fruitful methodological proposals.

Traditionally, neutrality rested on the claim that there is no proper role for ethical/social values in making key judgments at M_1 and M_3. Feminist critique, however, has contributed to showing that they *can* have one at M_1—at least in context-sensitive science; and the values of technological progress *do* influence adopting context-free strategies virtually exclusively in mainstream science. Perhaps there are also fruitful strategies, whose adoption is dialectically linked with values that contest those of technological progress and of capital and the market, e.g., the values of empowerment of poor people and indigenous cultures, and environmental sustainability (Lacey 2005a, Chap. 11), or feminist values, that could compete with context-free ones in certain areas (e.g., agriculture, medicine), and enable investigation of phenomena, especially significant for interests shaped by these values, that may not be amenable to being grasped under context-free strategies, because they cannot be separated from their context. Sustainable agroecosystems (and long term environmental and social risks of using GMOs), e.g., are properly investigated under strategies that aim to take into account several contextual dimensions: productivity, ecological sustainability and preservation of biodiversity, social health and reduction of poverty, and empowerment of local communities (Lacey 2005a, Chap. 10). The potential fruitfulness of such context-sensitive strategies can only be gauged by engaging in research conducted under them. Exploring that potential is motivated by holding values like those just referred to.

What are the implications of admitting a legitimate—and pervasive—role for values at M_1? Traditional interpretations of modern science have maintained: (a) Progressively, scientific understanding would be obtained of more and more phenomena, with no phenomenon lying in principle beyond the grasp of scientific inquiry, hence (b) it would come to 'rationalize' progressively more of social life, as 'beliefs' that inform actions, policies and regulations would be appraised in the course of scientific inquiry; and (c) science belongs to the common patrimony of humankind. If context-free strategies are adopted exclusively at M_1, then some phenomena will lie beyond the grasp of scientific inquiry—contra (a) and (b)—and neutrality could not be well embodied at M_5, for phenomena of special interest for competing value-outlooks would not be investigated, and so projects aiming to embody their values would not be served—contra holding (c) as an ideal.

Values playing roles at M_1, however, opens up the possibility of a robust methodological pluralism, where a variety of strategies could be in play, each dialectically linked to a particular value-outlook. Then, (a) could be recovered: any phenomenon, *provided that strategies apt for the kind of object it is are adopted*, is prospectively open to being grasped in scientific inquiry. And, so could (b), provided that (in addition) research priorities are set so that the scope of ongoing

research includes investigating claims pertinent, not only to the efficacy of technoscientific innovations, but also to their legitimacy, taking into account that judgments of legitimacy vary with value-outlooks (Lacey 2005a, part 2; 2013). Provided that appropriate politics for science are developed, (c) too could be recovered. To see this, note that my abbreviated statement of neutrality is ambiguous: (i) does each item of scientific knowledge serve all value-outlooks evenhandedly? or (ii) is each value-outlook served by some of the items of scientific knowledge, but overall in an evenhanded way. Where values are playing a role at M_1, (i) will not generally be satisfied, but (ii) might still be. The further embodiment of neutrality—understood in terms of (ii)—would depend on a sufficient range of strategies being adopted at M_1 to ensure that interests of viable value-outlooks could be served more or less evenhandedly by the totality of scientific knowledge.

I suggest rehabilitating neutrality so that it incorporates (ii). It does not rest on denying a role for values at M_1—it is better called '*the ideal of inclusiveness and evenhandedness*'. That is the only coherent way in which neutrality can be defended, and it captures the spirit of the traditional idea 'science part of the patrimony of humanity'. Then, science shaped by the values identified by Kourany could be seen, not as an ideal for all science, but as one of the contributors towards recovering the traditional ideal of neutrality. In the current social context of scientific activities, the rehabilitated ideal is worth endorsing, provided that it is subordinated to democratic values. Furthering it requires that scientific inquiry in principle be able to address all phenomena of interest in the practical lives of everyone, regardless of their value commitments so long as they are *consistent with democratic values*, and so include methodologies apt for such inquiry. Topics for investigation would include not only the possibilities of efficacious technoscientific innovations, but also the full range of their effects on people and social arrangements and on the environment, and their variations with place, culture, gender, etc. They would also include the possibilities open to competing practices that do not depend on technoscientific innovations, e.g., agroecology (Lacey 2005a, Chap. 10), and the presuppositions of holding value-outlooks that are linked with scientific practices at M_1 and M_5 (Lacey 2013).

Then, the outcomes of scientific inquiry might confirm or disconfirm presuppositions of holding value-outlooks, and so have consequences for holding and rejecting values (Lacey 1999, Chap. 2). Among the presuppositions of holding the values of technological progress are that technological innovation (largely dependent on context-free science) contributes to the well being of everyone everywhere, and that there are no comparable or better alternatives (Lacey 2005a, Chap. 1). Such presuppositions would be empirically investigated in the framework proposed; and if disconfirmed, the rationale for holding the values would be undermined. The rehabilitated ideal is not compatible with constraining scientific research as a whole to fit with any particular ethical/social value-outlook. But, where there are value conflicts, it supports engaging in empirical investigation of the presuppositions of the competing value-outlooks. Instead of a specific values-based constraint on scientific investigation, I endorse fuller exploration of this kind of dialectical interplay between gaining scientific knowledge and making sound value judgments (Lacey 2013).

I conclude with an assertion: the primary responsibility of scientists today is to conduct their research within a worldwide body of institutions, with democratic oversight, that is responsive to the ideal of impartiality, to setting scientific priorities so that social life increasingly is informed by the well appraised results of scientific inquiry, and to the ideal of inclusiveness and evenhandedness—and, in the absence of this body of institutions, to work towards constructing it. A primary way to do this is to claim space to pursue research projects, whose strategies are linked with the values identified by Kourany. Then, what she regards as an ideal for science would be seen instead as framing one way to engage in scientific research, one that has political traction and also scientific legitimacy, for it helps to take issue with the distortions and contributions to injustice that accompany the contemporary conduct of science, and to move towards fuller embodiment of the rehabilitated ideal.

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