

# Feminist Philosophy of Science: Values and Objectivity

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## Abstract

Feminist philosophy of science appears to present problems for the ideal of value-free science. These difficulties also challenge a traditional understanding of the objectivity of science. However, feminist philosophers of science have good reasons for desiring to retain some concept of objectivity. The present essay considers several recent and influential feminist approaches to the role of social and political values in science, with particular focus on feminist empiricism and feminist standpoint theory. The similarities and difference, as well as the strengths and weaknesses of these approaches are explored. The essay concludes with suggestions for future research in the area of feminist epistemology and philosophy of science.

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## 1. Introduction

Feminism is a social and political stance that minimally involves a commitment to egalitarian values, particularly in regard to women. Science, on the other hand, aims at the pursuit of objective empirical knowledge. That such a pursuit ought to be apolitical, that science should be “value-free,” was philosophy of science’s standard view during the first half of the 20th century. One reason for this has been that the objectivity of science is often thought to depend on science being value-free. Feminism’s explicitly social and political commitments would seem to be at odds with this view. As philosophy of science altered during the second half of the 20th century, understanding of the practice of science and production of scientific knowledge altered so that both the ideal of science as value-free and its necessity for objectivity were questioned. Feminist philosophers of science have been among the interrogators, but feminist philosophers of science have had strong motivation for retaining some revised notion of objectivity. The specter of a science shaped by ideology is a frightening one – the examples of Nazi science and Soviet Lysenkoism bear witness to both the moral and epistemic dangers. Science that is value-free promises to eliminate the evils of ideology. Much early feminist critique of science revolved around uncovering ways that science had been distorted by sexist values, failed to be value-free, and consequently was bad science. However some feminist critique has been more radical, suggesting that political and social values, specifically feminist values, play a more integral role in producing good science than had been believed. But if feminist philosophy of science does not endorse some standard of objectivity arguing coherently for the superiority of science informed by feminist values is problematic.<sup>1</sup> Consequently, feminist epistemologists and philosophers of science have generally aimed to develop an account of objectivity that does not require that science be value-free. There are a variety of ways in which they have approached this challenge. The focus here is on some prominent feminist approaches to these issues in philosophy of science from the past 25 years. The essay concludes with some suggestions about areas in which further work needs to be done.

## 2. *Feminist Empiricism*

Sandra Harding's (1986) classification of feminist epistemologies into three types – feminist empiricism, feminist standpoint theory, and feminist postmodernism – serves as a starting point for the current discussion of the differences and similarities and relative merits of these different approaches for feminist philosophy of science.

Harding originally characterized feminist empiricism (hereafter, FE) as the view that good empiricist methodological principles are the primary means of ensuring good science. Feminist scientists and philosophers of science point to the exclusion of women as researchers and as subjects of research and the negative effects of such exclusion. One frequently cited example is the failure to include women in research on heart disease and the negative consequences that ensued because of the assumption that the disease both manifested and progressed in women just as it did in men. The subsequent recognition of this failing led to revision of research protocols.<sup>2</sup> As more women entered the sciences in the 20th century, they brought with them an increasing awareness of the effects of ignoring women and the important areas of human life where women are the primary movers. For example, in failing to include women when researching labor, domestic labor was not recognized as work. Seeing it as work alters the nature of the sociological study of human labor. Thus the FE critique is more than a matter of “adding women and stirring.” Sociologists Judith Stacey and Barrie Thorne offer this account of the shift:

The initial period is one of filling in gaps – correcting sexist biases and creating new topics out of women's experiences. Over time, however, feminists discovered that...existing paradigms systematically ignore or erase the significance of women's experiences and the organization of gender. This discovery... leads feminists to rethink the basic conceptual and theoretical frameworks of their respective fields. (1985: 302)

As feminist philosophical critique of science has matured, FE has altered as well. Kristen Intemann summarizes the changes that have taken place. According to Intemann, contemporary FE differs from Harding's original characterization in at least three respects: current versions are contextualist, normative, and social (2010: 780). Advocates for this “new” FE include, *inter alia*, Helen Longino (1990), Lynn Hankinson Nelson (1990), Miriam Solomon (2001, 2006), and Sharyn Clough (2003).

A better understanding of the issues requires clarifying in what sense values might play a role in science and consequently in what sense good science should be value-free. The claim that science is value-free was never intended to eliminate all values from science. Cognitive values such as empirical adequacy, truth, explanatory power, predictive success, and possibly some others (fruitfulness, generality, and simplicity, for example) are considered legitimate in the production of scientific knowledge. These might be distinguished from non-cognitive values – social, cultural, and political values – that seem to challenge the objectivity of science.

Hugh Lacey (1999) distinguishes three different senses of “value-free.” Value-free science might be autonomous, neutral, or impartial. Science is autonomous if it is not dependent on any particular set of social, cultural, or political values – particularly if it is not under the financial control of a social, cultural, or political agenda. It is neutral if it does not presuppose values or have specific value implications, and science is impartial if judgments about its merits are based on cognitive values only.

Concerns about the autonomy of science – or the lack of it – have been a focus of attention in much of the discussion of values in science. Research requires the allocation of resources, therefore choices about funding research programs are policy decisions – this

means that in practice science is never fully autonomous. And social, cultural, and political values arguably *ought* to figure in policy decisions given that how we allocate resources ought to reflect social, cultural, and political values, at least to some extent. Janet Kourany (2010) argues that one of the main benefits of the feminist critique of science has been to highlight the need for a Socially Responsible Science (SRS) – one aspect of which is to shape such decisions.<sup>3</sup>

The main conflicts within feminist philosophy of science have involved neutrality and impartiality. The neutrality of objective science is linked to two ideas. First, the neutrality of science thesis depends on making a distinction between facts and values. Second, if theories/hypotheses either presuppose or imply values (are not neutral), then the evidence for or against them cannot be evaluated impartially. An “impartial evaluation,” in the sense intended here, is one based on cognitive values only. Thus neutrality appears necessary for impartiality. If this analysis is correct then one way to show that feminist values can play a legitimate role in science, is to show that impartiality does not require neutrality. It would follow that scientific theories might not be value-free in the sense of being neutral, but could still be impartial. Thus reconceived and clarified, the challenge for feminist philosophy of science is to show that science can be based on value assumptions and have value implications, but nonetheless be impartial.

Helen Longino’s (1990) “contextual empiricism” seems to meet this requirement. She uses Kuhnian arguments for underdetermination, claiming that because empirical evidence can never fully determine which theory we should accept, contextual values (social, political, and cultural) must play a role in that determination.<sup>4</sup> Therefore, evidence is only evidence for a theory relative to the contextual values against which the evaluation of the theory occurs. As a result, science is not neutral; it presupposes certain social and political values that are among the background assumptions against which the theory is evaluated. Longino offers the following summary of the view:

Data (measurements, observations, experimental results) acquire evidential relevance for hypotheses only in the context of background assumptions. These acquire stability and legitimacy through surviving criticism. Justificatory practices must therefore include not only the testing of hypotheses against data, but the subjection of background assumptions (and reasoning and data) to criticism from a variety of perspectives. (2008: 80)

The social nature of science provides the opportunity for “transformative criticism,” according to Longino. Such criticism is made possible through the adherence to social norms (Longino 1993, 1997, 2002).<sup>5</sup>

1. *Venues*. There must be publicly recognized forums for the criticism of evidence, of methods, and of assumptions and reasoning. ...
2. *Uptake*. There must be uptake of criticism. The community must not merely tolerate dissent, but its beliefs and theories must change over time in response to the critical discourse taking place within it. ...
3. *Public Standards*. There must be publicly recognized standards by reference to which theories, hypotheses, and observational practices are evaluated and by appeal to which criticism is made relevant to the goals of the inquiring community....
4. *Tempered Equality*. Finally, communities must be characterized by equality of intellectual authority....

When science is conducted according to these norms it promotes impartiality and hence objectivity through the public vetting of background assumptions and the values that

inform them. But such science is not neutral since it is informed by values that shape the context in which the relevance of evidence is determined.

Longino's account is not without difficulties. There are questions both about whether such a community will be adequate to produce objective knowledge even if all perspectives are included and there are also concerns about whether it may be legitimate to exclude some perspectives – Nazis, terrorists, and perhaps others (Crasnow 2003; Kourany 2010). Through requiring that equality of authority be “tempered,” Longino apparently believes that she has addressed the latter issue. This requirement should exclude “crazy” voices and yet include all the “relevant” voices at the metaphorical table. Appropriate exclusion depends upon distinguishing legitimate debates from those that are not, but what guarantee is there that legitimate disputes would be resolved in ways that would ensure impartiality, objectivity, or, more broadly, good science? It is either an article of faith or an empirical matter that communities of the sort Longino envisions produce the best knowledge. If the former, it seems reasonable to ask if such faith is warranted; if the latter, the evidence needs to be produced.

While Longino's account challenges the cognitive/non-cognitive distinction, there are FE approaches that revolve around the fact/value distinction. These accounts are holistic in that while the role of background assumptions in evaluating hypotheses is acknowledged, values are viewed as part of a network of beliefs, or a “web of belief” in the Quine and Ullian phrase (1978), subject to empirical constraint, as a whole. It follows that *all* judgments, including values judgments, are subject to empirical scrutiny.

Elizabeth Anderson in her 2004 article, “Uses of Value Judgments in Science: A General Argument, with Lessons from a Case Study of Feminist Research on Divorce,” describes how this holism may work in practice. She argues that at least some values can be shown to be subject to empirical constraint and can serve as evidence. She illustrates through a detailed analysis of Abigail Stewart, et al.'s research on divorce (1997 cited in Anderson 2004). Stewart began her research by consciously replacing the value presuppositions of previous research on divorce with feminist values. The research is therefore not neutral, although it is impartial in that Anderson offers an analysis that illustrates how the values incorporated into the research were subject to empirical scrutiny.<sup>6</sup>

One feature of such holistic views is that they offer an answer to the concern about which values would be appropriate to exclude that arises in Longino's approach. Values can be adjudicated *empirically*. The values that do not belong on the table are those that are not part of an empirically adequate belief system. Sharyn Clough (2003) has developed such a holistic argument to support the exclusion of sexist and racist views using a Davidsonian philosophy of language. She argues that beliefs that are not part of an empirically adequate belief system can be identified and consequently excluded from science since science incorporating feminist and non-racist values can be shown to be better, i.e., more empirically adequate science, than science incorporating sexist and racist values.

FE holism comes with its own difficulties. Holism claims that beliefs are underdetermined by the empirical evidence, but does not provide a means of singling out which particular beliefs are to be rejected. When we say that value claims are subject to empirical constraint, even if this is accurate, it is not clear that we will always have a way of using empirical evidence to decide between particular competing value claims. The idea that “bad” values will always be eliminated empirically also appears to be an article of faith. As Miriam Solomon (2012) has noted, the web of belief metaphor provides a way to talk about the interconnection of beliefs, values, and the empirical constraints on the entire system, but it does not provide a means to determine which particular values in that set of beliefs give rise to the empirical inadequacy of the entire set of beliefs.

### 3. Feminist Standpoint Theory

Feminist standpoint theories (FSTs) endorse some version of the following three theses: the situated knowledge thesis, the thesis of epistemic privilege, and what I refer to as “the achievement thesis” (Wylie 2001, 2003, 2004; Rolin 2009; Intemann 2010). The thesis of situated knowledge is that knowledge is *for* and *by* a particular set or class of socially situated knowers and so is always *local* in a profound way. The view has its roots in Marxism and so the set of knowers was originally conceived as a socio-economic class (Smith 1974; Hartsock 1983). Situated knowledge is best understood in contrast to the modernist view that it intended to oppose. This is the idea that there is one viewpoint from which the truth about reality can be discerned and there is a particular methodology through which to attain that knowledge. The situated knowledge thesis denies the possibility of such a “view from nowhere,” – in Thomas Nagel’s phrase (1986). Or it rejects “the god trick,” in Donna Haraway’s phrase (1988). On this view, knowledge as relative to cultural/social/political location and so situated knowledge poses a direct challenge to the objectivity of science. “Location” is used metaphorically (though it may include the non-metaphorical spatial or geographical location as well). FST is most specifically concerned with cultural/social/political “locations” and the power relations they enshrine. In part, because of the differential distribution of power, situated knowledge and differences in interests are closely related. As Dorothy Smith puts it, “From the point of view of ‘women’s place’ the values assigned to different aspects of the world are changed” (1974: 7). Among the differences that are most salient for FST are those that are in conflict with the interests of the dominant group. Thus the metaphor of situated knowledge and social location gives rise to one of the key ideas of FST– the idea of the researcher as an insider/outsider who has “double-vision.” Patricia Hill Collins (1986), for example, advocates the use of a standpoint to analyze race and class. She argues that the researcher who is marginalized may recognize that many of the concepts and procedures adopted by the discipline are problematic when her colleagues do not, precisely because she is able to see the objects of study both with the eyes of a researcher trained in the discipline and through her own experience from a marginalized social location.

Epistemic privilege has been one of the more contentious components of FST. FST suffered criticism early in the mistaken belief that epistemic privilege was claimed to be automatic. If this were the claim that FST was making it would either be trivial or false (Intemann 2010). It would be false since it is not the case that any woman can *automatically* know about the experience of all other women. It is trivial if it is the claim that only those who have had a particular experience know what it is like to be an experiencer of that experience. Even in this trivial version the thesis could generate difficulties for FST. The idea that only women can know the experiences of other women depends on a presupposition of some *sameness* of women. Epistemic privilege appears to be in tension with situated knowledge given that it is social locations that create epistemic privilege – differences in social location are relevant – whereas on this reading of epistemic privilege the only thing that matters about social location is being a woman. A finer-grained division of social locations might eliminate this worry, but could lead to an undesirable proliferation of social locations since different social locations could be specified through any intersection of gender with other social characteristics (race, ethnicity, class, etc.). As social locations proliferate, the result is a fragmentation of social/political unity. Naomi Zack (2005) has argued that such fragmentation is inimical to political effectiveness. The thesis of epistemic privilege has thus been challenged both because it commits us to an unacceptable relativism of knowledge when combined with the thesis of situated

knowledge (Pinnick 2005) and because it demands that we ignore socially/politically relevant differences among women.

Some of the difficulties with interpreting the situated knowledge and the epistemic advantage thesis result from thinking of them in isolation with each other and mistakenly taking them to be claims about individualistic knowledge. As the roots of FST in Marxism would indicate, the view requires thinking of the subject(s) of knowledge as a class rather than as individuals. While more recent accounts of FST distance themselves from these Marxist roots, the social nature of knowing remains key. A fuller understanding of this point brings us to the third thesis of FST – the achievement thesis. An account of the achievement theses requires distinguishing feminist standpoint from perspective. According to Harding FST

intends to map the practices of power, the ways the dominant institutions and their conceptual frameworks create and maintain oppressive social relations. Secondly, it does this by locating, in a material and political disadvantage or form of oppression, a distinctive insight about how a hierarchical social structure works....Third, the perspectives of the oppressed cannot be automatically privileged.... Finally, standpoint theory is more about the creation of groups' consciousness than about shifts in the consciousness of individuals. (2004b: 31–32)

This is work. Seeing something from a different perspective, on the other hand, *is* automatic and it does not seem to have anything to do with the awareness one would need to “map the practices of power” or understand the forms of oppression. Perspective also is not the right metaphor for understanding the way in which a groups' consciousness is created and differs from that of individuals. In this passage, Harding is emphasizing the deeply political aspect of FST and thus distinguishing it sharply from FE. This characterization also emphasizes the greater challenge that FST raises for objectivity. Both neutrality and impartiality seem violated with FST. Thinking through these difficulties requires a closer examination of the achievement thesis – the “work” that goes into forging a political, communal (as opposed to an individual) identity. The final section of the essay addresses the achievement thesis.

Harding's view is that FST supports an objectivity that she calls “strong objectivity.” “Strong objectivity” means that the subject of knowledge and the processes through which knowledge is produced are to be scrutinized according to the same standards as the objects of knowledge. The contextual elements that function as evidence, the selection of problems, the formation of hypotheses, the design of research, (including the organization of research communities), the collection, the interpretation and sorting of data, decisions about when to stop research, the way results of research are reported, and so on need to be open to critical evaluation. But such evaluation requires that these contextual elements are visible to researchers. The insider/outsider double-vision that FST produces gives rise to the epistemic advantage through which researchers have access to this information.

...[A] maximally critical study of scientists and their communities can be done only from the perspective of those whose lives have been marginalized by such communities. Thus strong objectivity requires that scientists and their communities be integrated into democracy-advancing projects for scientific and epistemological reasons as well as moral and political ones. (2004a: 136)

But Harding's strong objectivity leaves many questions unanswered. For instance, by what criteria are we to judge which values are more conducive to good science than others? The example that Harding offers is that democratic values result in better science,

but this is a very broad brush with which to paint values. There are, after all, competing versions of democracy. Similarly, it is likely that there is more than one feminist standpoint, as there are different ways to forge social/political classes and communities, and so more than one feminist standpoint (knowledge) project is possible. Such projects surely could be in competition with each other. If so, how can it be decided which is best among them (or even which is better)? Harding argues that rather than being an impediment to knowledge, the existence of multiple and competing standpoints is a resource for feminist epistemology (2004b; 2009). Our awareness of the different standpoint projects generated from race, class, sexuality, physical ability, and/or the intersections of these constrains our ability to universalize in ways that would reinforce the power relations of the status quo. But it is difficult to see how to reconcile this plurality with the claim that a virtue of FST is that it produces strong objectivity. The partiality of these various standpoints seems to challenge any familiar notion of objectivity.

Alison Wylie offers an alternative understanding of FST that is more clearly grounded in traditional standards of theory assessment. Wylie notes that ‘objectivity’ is frequently used to indicate a particular relationship between theory and the world and so is identified as a property of knowledge claims. She proposes that what we mean when we call these claims objective is that they conform to some standard set of epistemic virtues: empirical adequacy, explanatory power, internal coherence, consistency with other established bodies of knowledge.<sup>7</sup> Wylie reminds us of Kuhn’s (1977) caution that the epistemic virtues associated with theories can rarely, if ever, all be maximized. Which virtues are deemed most important at any given time depends on the interests, purposes, intentions, and goals of the knowers – all of which might be elements of standpoint. Standpoint increases objectivity because it aids in determining what sort of empirical adequacy, explanatory power, or other virtues is relevant for a particular knowledge project relative to interests, purposes, etc. For example, though empirical adequacy may be the most crucial of these virtues, “empirical adequacy” is itself ambiguous. It might mean either “fidelity to a rich body of localized evidence (empirical depth), or... a capacity to ‘travel’ (Haraway) such that the claims in question can be extended to a range of domains or applications (empirical breadth)” (Wylie 2004: 345). On this account, science is not neutral (values inform hypothesis and are implied by them), nor is it impartial, given that values determine which among the characteristics that determine objectivity are to be considered most relevant for *this* knowledge project. But impartiality has not entirely vanished in that what counts as empirical is not determined by values, although its relevance is. FST incorporates the idea that those in positions of subordination have an epistemic advantage regarding some kinds of evidence, special inferential heuristics, and interpretative or explanatory hypotheses. Wylie affirms this thesis (epistemic privilege) although she notes that such advantage is contingent. It is always relative to the specific knowledge projects, but in those cases the insights of the insider/outsider provides crucial leverage.

#### 4. Summary and Suggestions for Future Research

Both Harding and Wylie appeal to standards (cognitive values) that transcend any social/political (non-cognitive values) and yet nonetheless their accounts accommodate these social/political values and provide ways of understanding how such values play a positive role in knowledge production. Recently, Kristen Intemann, has argued that contemporary FE and FST have converged. Intemann identifies two remaining areas of difference: FE and FST differ over the kind of diversity needed for objectivity and they differ over the role that non-cognitive values play in enhancing objectivity (2010: 790).

Intemann contends that FE should adopt the FST understanding of diversity – i.e., that diversity of social locations rather than diversity of interests and values are what contribute to objectivity. The analyses of both FE and FST offered in the previous sections are consistent with Intemann’s claim. There the diversity of values and interests were identified as resulting from differences in social location and so the connection between the two views was made explicit. As for the role of social and political values, Intemann argues that the FST account is better in that it provides a better explanation of the positive role of feminist values in science rather than simply advocating for the diversity of values as FE does.<sup>8</sup> Whereas FE argues for a balancing of values through diversity and so embraces impartiality, Intemann claims that FST extols feminist values because they are *good* values rather than for their role in improving impartiality. The accounts of FE and FST from the previous section do not to bear out Intemann’s claim on this front, both because some versions of FE do seem to support the idea that at least some values are better than others in that they can be empirically vindicated (holistic FE) and because Wylie’s, and possibly Harding’s version of FST, do aim at impartiality. Nonetheless, the finer-grained analysis and comparison of the various forms of FE and FST that Intemann provides suggests a shift in the work on feminist philosophy of science for the future. Whereas, earlier feminist philosophy of science has been concerned with establishing that a consideration of social and political values is legitimate, contemporary feminist philosophy of science has begun to drill down into the specific roles for values and the differences among types of values.<sup>9</sup>

While Intemann’s approach is to argue for a convergence of FE and FST, what she calls “feminist standpoint empiricism” (2010: 794), Gaile Pohlhaus (2002) has suggested that there are distinctive features of FST that have not been fully developed. One way of thinking about her claim is through considering a more complete development of the achievement thesis, the third thesis of FST, which has been the least discussed and understood. Pohlhaus criticizes Harding’s explication of FST bordering on individualism and argues that the spatial metaphor of social location is the source of that problem. Pohlhaus notes, “[Harding] states ‘one must be engaged in historical struggles – not just a disembodied observer of them – in order to “occupy” social locations’” (2002: 289).<sup>10</sup> Harding puts “occupy” in scare quotes, but the metaphor individualizes the knower, through putting the knower in a location – only one individual can occupy a place at a time. Pohlhaus argues that FST requires a more social conception of the knower(s) – understanding the knower as a knowledge community, rather than as an individual. Such a conception is also a *political* conception of the knower, given that the social structures and is structured by the distribution of power. A more robust conception of the social/political community of knowers is also needed for a fuller account of the achievement thesis. Pohlhaus notes that though FST has been understood as achieved both through struggling against and struggling with, the emphasis is too often on struggling *against* the dominant understanding of the social/political world. She argues that we need a better account of struggling *with*. “To struggle-with would involve building relations with others by which we may come to know the world and understand one another, that is the project of building knowing communities” (2002: 292).

Political communities are built on shared interests. Building such a community requires acknowledging diversity and discovering those shared interests. This is the Marxist insight found in the origins of FST – an insight that seems to have been watered down in the contemporary versions reviewed in this essay. A feminist standpoint does not derive from some essential feature of women, nor is it one that is impossible because standpoints proliferate and categories are too fragmentary, and most importantly, it is not the perspective



of an individual. A feminist standpoint is one that is to be forged out of mutually negotiated shared interests. This conception can take us away from the Marxist roots of FST without giving up the crucial insight into the social/political nature of standpoint. The Marxist class analysis of mutual interests provides us with one among many possible negotiated knowledge communities. Giving a fuller account of the achievement thesis requires developing the conception of the (political) community of knowers more completely. Such a move would be a promising complement to the current state of FST and feminist philosophy of science more generally.

The achievement thesis, a more nuanced examination of social/political values and how they function as part of belief systems, a better understanding of the community of knowers, and of what it means to negotiate shared interests and how such negotiated values might enter into a revised notion of objectivity are the areas where more philosophical work is needed. In addition, feminist epistemologists are exploring and should continue to explore the ways that current research in social epistemology intersects with feminist philosophy of science. The work of Lorraine Code (1991) and Miranda Fricker (2007) might be particularly important to this part of the project. Currently a plurality of promising, if partial, answers to the puzzle of how objective science can nonetheless be shaped by values have been offered by feminist philosophy of science. This very pluralism makes the area one likely to be fruitful for a broader understanding of scientific knowledge.

### *Short Biography*

Sharon Crasnow is Professor of Philosophy at Norco College. Her research interests include feminist epistemology and philosophy of science, and the philosophy of social science. She is a co-editor with Anita M. Superson of *Out from the Shadows: Analytical Feminist Contributions to Traditional Philosophy* (Oxford University Press, 2012) and also co-edited *Philosophical Feminism and Popular Culture* with Joanne Waugh (Lexington Press, 2013). Her articles appear in *Philosophy of Science*, *Science and Education*, *Hypatia*, and *Philosophy of Social Science*. She is Secretary/Treasurer for the Women's Caucus of the Philosophy of Science Association, and a former president of the Society for Analytical Feminism. She earned her AB at Barnard College and MA and PhD from the University of Southern California.

### *Notes*

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<sup>1</sup> This problem has been identified as “the bias paradox” and Louise Antony (1993), Kristina Rolin (2006).

<sup>2</sup> For example, the NIH now requires that grant applications show that the funded studies be gender/sex-balanced (Public Law 103–43).

<sup>3</sup> Kourany also argues that the other feminist approaches discussed in the present article are not as useful for feminist goals as SRS.

<sup>4</sup> The fact that theory is always underdetermined by empirical evidence plays an important role in the changes that took place in philosophy of science in the second half of the 20th century. The view appears in Kuhn, but is usually referenced as the Duhem–Quine Thesis. The view is that empirical evidence is equally compatible with multiple theories and so can never determine which theory we should believe. Consequently, our choice of theory must depend on other factors.

<sup>5</sup> I have adapted this version from Longino 2002: 129–32.

<sup>6</sup> The alternatives to Stewart's approach were not neutral either, as they also include values judgments about divorce.

<sup>7</sup> Wylie attributes this list to Kuhn, but notes there are others (2004: 345). The list of epistemic virtues may vary and there could well be disputes both over what properties belong on the list and the degree to which each is important. For example, Longino has proposed a list in which simplicity is replaced with complexity (1995). Wylie's point does not depend on the specific contents of the list.

<sup>8</sup> Specifically, Intemann argues that it provides a better solution to the bias paradox (2010: 793).

<sup>9</sup> In addition to Intemann's essay, other recent works with different approaches are Miriam Solomon (2012) who distinguishes four types of FE and Kristina Rolin (2011) who argues that Longino's contextual empiricism should be read as an argument for increased epistemic responsibility rather than an argument that values play a role in science.

<sup>10</sup> Pohlhaus is quoting Harding 1991: 185.

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