

IN SEARCH OF FEMINIST EPISTEMOLOGY

If we set aside gender as a source of an alternative form of knowledge or of epistemic access, is the door then closed on feminist epistemology? In “Can There Be a Feminist Science?” I suggested we think not about a feminist science, but about doing science as a feminist.⁶ This means eschewing any search for feminist first principles and instead approaching the many activities that constitute science practice with a feminist sensibility. Different activities and different sciences would be affected differently by different aspects of such a sensibility. This is a recommendation I would like to extend to epistemology as well. To do epistemology as a feminist is to engage the questions of epistemology with an awareness of the ways in which participation in socially-sanctioned knowledge production has been circumscribed, of the ways in which epistemological concepts like rationality and objectivity have been defined using notions of masculinity (and vice-versa), of the ways in which women have been derided as knowers, and of the need for alternative theoretical approaches to satisfy feminist cognitive goals. It is to ask how epistemology has participated in or sanctioned these disbursements of privilege and opprobrium and to ask whether the efforts to exclude women from knowledge generating activity has not also resulted in the exclusion from the analysis of knowledge of traits and capacities assigned to women (a shrinking of the conception of knowledge). What is important for the feminine or the female here is the perspective it affords on the construction of the concept of knowledge and the window it opens on alternatives. But it

functions as an object of reflection, not as a subject position. Under the description I've just given, many different projects will count as feminist epistemology. I would like to offer an example of how one might do epistemology as a feminist by drawing on feminist thinking in and about the sciences.

III

Underdetermination arguments are arguments to the conclusion that data serving as evidence for hypotheses or theories are not sufficient to support a hypothesis or theory to the exclusion of alternatives. Various considerations feature in the premises of such arguments. In general, they involve the observation that the kinds of phenomena described in reports of observation and experiment are different from the phenomena postulated in the hypotheses supported by such reports. For example, correlations are different from the causal relations postulated in hypotheses those correlations are used to support. What links states of affairs in evidential relations with hypotheses are background assumptions about the kinds of connection obtaining between kinds of state, event or process. To the extent they have evidential support it must be different from the support for the original hypotheses. To avoid an infinite regress, if one accepts some form of underdetermination argument, one must appeal to factors other than logic and observational and experimental data as grounds of hypothesis choice. One may do this from a naturalistic or a normative perspective, that is, either by appealing to factors scientists do take into account or to factors they ought to take into account. (Or, like Bas van Fraassen, one may claim that since observational data are the only legitimate grounds, any choice between empirically equivalent hypotheses is pragmatic.) In practice, the naturalist and

normative perspectives are not always distinct, factors cited as the ones scientists do take into account being treated also as factors that they ought to take into account.

Thomas Kuhn offered a representative selection in his essay, “Objectivity, Values and Theory Choice”: accuracy, consistency (internal and external), breadth of scope, simplicity, fruitfulness.⁷ Most of these are accepted as features of a theory enhancing the likelihood of its truth, or as features which count when choosing between rival theories. I find it instructive to contrast this with a list of theoretical virtues drawn from the writing of feminists. Here one finds empirical adequacy (a.k.a. accuracy), but also novelty, ontological heterogeneity, complexity of interaction, applicability to human needs, diffusion or decentralization of power. There are undoubtedly others, but (as Kuhn said about his list) to pursue the discussion of epistemology, this list is enough.

I have never seen these six virtues presented together. They are generally invoked, explicitly or implicitly, singly, and they are deployed in particular arguments with particular ends. To draw them out of context, as I’m doing, is, therefore, to flirt with foundationalism. As will become clear below, I intend to steer clear of that particular shoal. Let me begin my discussion by offering some interpretation of these standards based on the contexts in which they’ve been deployed. Then I shall offer some reflections on their status.⁸

1. Empirical adequacy

Empirical adequacy generally means agreement of the observational claims of a theory or model with observational and experimental data. A good deal of feminist effort has gone into

discrediting research programs that purport to show a biological etiology for differences ascribed on the basis of sex. The (feminist) scientists involved in this effort—scientists such as Ruth Bleier, Anne Fausto Sterling, Richard Lewontin, Ruth Doell—have concentrated on showing that such research fails minimal standards of empirical adequacy, either through faulty research design or improper statistical methodology. The standard of empirical adequacy is one shared with race- and class-sensitive research communities as well as with most mainstream communities. Empirical adequacy is not a sufficient criterion of theory and hypothesis choice. So, other values come into play in theory, hypothesis and model assessment.

2. Novelty

Several thinkers have endorsed the novelty of a model or theory as a value. Sandra Harding seems to have done so explicitly in her earlier book, when she calls both for “successor science” and for “deconstructing the assumptions upon which are grounded anything that resembles the science we know.”⁹ And she has interpreted Donna Haraway as supporting “an epistemology that justifies knowledge claims only insofar as they arise from enthusiastic violation of the founding taboos of Western humanism.”¹⁰ Without going that far, certainly one can read Haraway’s invocation of the visions of certain science-fiction writers as an appeal for or endorsement of a departure from entrenched assumptions, for the sake of a new framework (or new frameworks). Nothing less, she suggests, will be appropriate for the new circumstances of 21st-century life.¹¹ Treating novelty as a virtue reflects a doubt that mainstream theoretical frame works are adequate to the problems confronting us, as well as a suspicion of

any frameworks developed in the exclusionary context of modern European and American science. It may be that this criterion is appropriate only so long as feminism has oppositional status. I'm not sure about this, partly because I'm not sure that feminism has any status apart from an oppositional one.

3. Ontological heterogeneity

This criterion is found in two quite different sorts of discussion in the feminist literature on the sciences. Feminists writing about biology have urged that we take account of individual difference among the individuals and samples that constitute the objects of study.¹² Although she was not herself a feminist, Barbara McClintock's attention to the individual kernels of a cob of corn (which helped her to recognize an underlying pattern of mutability) has been taken as a paradigm of what a feminist attitude to nature ought to be. Primatologist Jeanne Altman has insisted on methods of observation that descriptively preserve the differences among the primates and groups of primates that she studies.¹³ Other feminists in science as well have rejected ontological homogeneity and have taken heterogeneity as a value. I think this is connected to the second discussion I draw on here: the rejection of theories of inferiority. Theories of inferiority are supported in part by an intolerance of heterogeneity. Difference must be ordered, one type chosen as the standard, and all others seen as failed or incomplete versions. Theories of inferiority which take the white middle class male (or the free male citizen) as the standard grant ontological priority to that type. Difference is then treated as a departure from, a failure fully to meet, the standard, rather than simply difference. Ontological heterogeneity permits equal standing for different types, and mandates investigation of the details of such difference.

Difference is resource, not failure. Nowhere is this more dramatically endorsed than in Donna Haraway's intrepid embrace of arti-factualism and of science fiction, which she lauds for their diffractive possibilities, the rejection of purity, or ontological homogeneity, and the insistence on the specific and local in all its heterogeneity.¹⁴

4. Complexity of relationship

Many feminist scientists have taken complex interaction as a fundamental principle of explanation. Evelyn Keller's account of the work of Barbara McClintock¹⁵ and her defense of an interactionist perspective in *Reflections on Gender and Science*¹⁶ may provide the best known example, but scientists from icons like Ruth Bleier and Anne Fausto Sterling to much less well known practitioners have eschewed single-factor causal models for models that incorporate dynamic interaction, models in which no factor can be described as dominant or controlling and that describe processes in which all active factors influence the others. This perspective has been employed in areas ranging from neuroscience to cell biochemistry by scientists self-consciously practicing science as feminists as well as, of course, by non-feminists. It has also been endorsed in texts devoted mainly to reflections about the sciences. The rationales offered for embracing this criterion have ranged from a metaphysical certainty that this is the way the world is to the notion that the criterion expresses a female quality of apprehension. Some rationales are less antecedently problematic than others. In particular, one might note that replacing simple models of single-factor control in social contexts with more complex models of social interaction makes visible the role of gender in the structure of social institutions and

the role of private, domestic (traditionally, women's) work in maintaining the activity and institutions of the "public" sphere.

5. Applicability to current human needs

Many, but not all feminists in the sciences have stressed the potential role of scientific understanding in improving the material conditions of human life, or alleviating some of its misery. Scientific inquiry directed at reducing hunger (by improving techniques of sustainable agriculture, soil preservation, etc.), promoting health, assisting the infirm, protecting or reversing the destruction of the environment, is valued over knowledge pursued either for political domination, i.e., science for "defense," or for knowledge's sake. As expressed in feminist contexts, this is not just a call for more applied science, but for research that can be directed towards meeting the human and social needs traditionally ministered to by women. This virtue is endorsed in conjunction with the final one I will mention.

6. Diffusion of power

This criterion is the practical version of the fourth criterion, the one favoring models that incorporate interactive rather than dominant-subordinate relationships in explanatory models. This one gives preference to research programs that do not require arcane expertise, expensive equipment, or that otherwise limit access to utilization and participation. This feature has emerged as a value in a number of different contexts. Feminists in engineering and in economics have condemned requirements of mathematical achievement far beyond what is required for successfully engaging in these fields. Other feminists, such as Hilary Rose and Ruth

Ginzburg, have urged a revamping of traditional distinctions to include widely distributed practices such as midwifery as scientific practices.¹⁷ They urge that such practices be used as models for feminist science practice. Feminist health professionals urge a preference for medical practices and procedures that empower the individual woman either to make decisions about her health or to retain control over her own body. And ecofeminists and feminists in developing regions urge the development of technologies that are accessible and that can be locally implemented.¹⁸ Some implementations of computer technology are valued for their ability to connect many different and highly specific sites in widely spread, potentially global communication networks. Other implementations, for example, the centralization of power made possible by computer monitoring of job performance and other functions are more problematic from the perspective of this standard. Diffusion or decentralization of power interprets the above cited elements of the applicability criterion as knowledge of soil conservation, intensive small scale sustainable agriculture, promoting health by preventive measures such as improved hygiene rather than high-tech interventive measures available only to the few, protection of the environment by conservation and widely dispersed renewable energy technologies.

The various proponents of these standards have had different ideas about how they work or ought to work in inquiry. If we treat them as components of a community set of public standards as suggested in n. 8, we take them as criteria to be applied to the assessment of theories, guiding theory acceptance and rejection (or perhaps in the case of the last two, what Allen Franklin calls theory pursuit). They are subject to the limitations noted by Kuhn, i.e., they require further interpretation to be applied in a given research context, they

are not simultaneously maximally satisfiable, and they are not subject to hierarchical ordering or algorithmic application.

1. There may well be more to this differential access that would be relevant to epistemology. I suspect that what more would depend on general views of the role of experience in knowledge.
2. Mary Field Belenky, Blythe McVicker Goldberg, Nancy Rule Goldberger, Jill Mattuck Tarule, *Women's Ways of Knowing* (New York: Basic Books, 1986).
3. Carol Gilligan, *In a Different Voice* (Cambridge, MA: Harvard University Press, 1982).
4. For further discussion, see Lorraine Code, *What Can She Know?* (Ithaca, NY: Cornell University Press, 1991), pp. 251-62.
5. Dorothy Smith, *The Everyday World as Problematic: A Feminist Sociology* (Boston, MA: Northeastern University Press, 1987) and *The Conceptual Practices of Power: A Feminist Sociology of Knowledge* (Boston, MA: Northeastern University Press, 1990).
6. Helen E. Longino, "Can There Be a Feminist Science?" *Hypatia* 2, no. 3 (1987): 51-64.
7. Thomas Kuhn, "Objectivity, Values, and Theory Choice" in *The Essential Tension* (Chicago, IL: University of Chicago Press, 1977).
8. In *Science as Social Knowledge* (Princeton, NJ: Princeton University Press, 1990) I developed one form of underdetermination argument and argued for a view I called contextual empiricism and extended into a thesis about the social character of scientific knowledge. The latter means that certain features of community structure are important to the knowledge-productive capacity of a community. I have proposed the following as criteria of knowledge-productive capacity: a) avenues for the expression and diffusion of criticism; b) uptake of, or response to, criticism; c) public standards by reference to which theories, etc.,

are assessed; d) equality of intellectual authority The theoretical virtues listed, whether feminist or the standard, Kuhnian set, are among the public standards in c) which vary from community to community, and which constitute criteria to which community members appeal in endorsing or criticizing features or products of scientific practice.

9. Sandra Harding, *The Science Question in Feminism* (Ithaca, NY: Cornell University Press, 1986).

10. Harding, p. 193.

11. Donna Haraway, "The Promises of Monsters: A Regenerative Politics for Inappropriate/d Others" in *Cultural Studies*, ed. by Lawrence Grossberg, Cary Nelson, and Paula Treichler, (New York, NY: Routledge, 1992).

12. See Ruth Bleier, *Science and Gender* (Elmsford, NY: Pergamon Press, 1983); Evelyn F. Keller, *Reflections on Gender and Science* (New Haven, CT: Yale University Press, 1985); Anne Fausto Sterling, *Myths of Gender* (New York, NY: Basic Books, 1985).

13. Jeanne Altmann, "Observational Study of Behavior: Sampling Methods," *Behaviour* 49: 227-67.

14. See the essays in Donna Haraway, *Simians, Cyborgs, and Women* (New York, NY: Routledge, 1991).

15. Evelyn F. Keller, *A Feeling for the Organism* (San Francisco, CA: W. H. Freeman and Company, 1983).

16. Cited inn. 11 above.

17. Hilary Rose, "Hand, Brain, and Heart: A Feminist Epistemology for the Natural Sciences," *Signs: Journal of Women in Culture and Society* 9, no. 1 (1983): 73-90; Ruth Ginzberg, "Uncovering Gynecentric Science" *Hypatia* 2, no. 3 (1987): 89-106.

18. Gita Sen and Caren Grown, *Development, Crises, and Alternative Visions* (New York, NY: Monthly Review Press, 1987).