

ticularly it is not clear what is required to test a theory “severely enough”. In fact, subjective decisions about cutoff values for error probabilities and distances of alternatives from the  $H_0$  are required, and one can wonder whether calling a theory “severely tested” is as objective as MS imply. Mayo’s response concerns the dependence of such decisions on a “cost of errors”, which she calls a “policy or management issue”.

A major quality of the book not shared by many philosophical accounts of such issues is the statistical competence of MS backed up by the rich data analytic experience of Cox and Spanos. Mayo’s logical elaborations are sharp and convincing. In various places she rises metaphilosophical issues beyond standard ESP issues, e.g., the role of counterexamples in the philosophy of science. Spanos is well readable, though somewhat repetitive at times.

My personal concern with ESP is that its proponents seem to be overoptimistic about what it can achieve. I find myself in broad agreement with MS regarding the practical statistical implications, but less so with their philosophical interpretation. MS are somewhat ambiguous regarding the “truth” of models. On one hand, they are obviously aware that all probability models are idealisations. On the other hand, they often argue as if there is a true model, which can be more or less reliably approximated using the proposed modelling/misspecification routines.

MS suggest that models should be tested severely against model misspecification, but there are no examples in which severity calculations are actually carried out for model misspecification tests. Such calculations may often not be possible, and parametric inference may still fail if misspecification tests pass the model. To be fair, MS are aware of these issues.

Compared with some of the other contributors and other philosophers of science I have read on similar issues, particularly Mayo is laudably sceptical and modest about what theory testing can achieve. Still I believe that the merits of ESP could be better explained in pragmatist terms than in terms of “objective truth”. The Bayesian perspective is heavily criticised in the book and it is a pity that there is no contribution by a modern Bayesian statistician. Overall, this is a very valuable and thought-provoking book which makes a strong case in favour of ESP.

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JEROEN VAN BOUWEL, ed. 2009. *The Social Sciences and Democracy*. London: Palgrave Macmillan.

The idea behind *The Social Sciences and Democracy* is an exciting one: Pulling together scholars from philosophy of science, the social studies of science and historians of thought to explore the myriad of ways in which democracy and the social sciences are related. The connections drawn range from the analysis of groups of scientists as democratic communities, to the question of what role social scientists should play in a democratic society, on to how social scientific research can inform our normative

thinking about democracy. The editor's introduction to the volume suggests that the aim of this interdisciplinary project is to bridge the gap between the epistemic and the political. The individual contributions in fact do a very good job at bridging this gap. Reading through the volume, however, the real gulfs that remain are the disciplinary ones. Not only do the different authors address different questions within this broad field, they also tackle them in very different ways. The result is a volume which has a lot of variety to offer, with the best contributions containing interesting case studies and exciting explorations in the history of thought, but which lacks a common thread and delves into more debates than it can even begin to settle.

Part I of the volume is probably the most coherent and concerns the question of how to deal with the epistemic asymmetry between (social scientific) experts and the general public in a democratic society: What role should experts play in democratic decision-making? In the editor's introduction, three traditional positions are outlined, namely epistocracy, where experts can shape political decisions directly, technocracy, where scientists assist with and inform democratic decisions and their implementation, and democracy, where scientists are in a 'dialogue', and on equal footing with the public. The three articles in this part do much to clarify these traditional positions, but fall short of making a significant advance on them.

Baert, Jerónimo and Shipman give an informative account of the technocratic model and its history, and go on to argue that technocracy should be engaged in dialogue with democratic society, an idea which unfortunately remains rather vague. Special concern for the social sciences shows mostly in their highlighting how sociology of science points to the need for engagement of the public in science, for instance in questions of risk evaluation. Here their conclusions, informed by the social studies of science, align well with the philosophical literature on fact-value entanglement, a connection which it would be worth exploring more: In how far is the technocratic model incompatible with fact-value entanglement?

Solomon offers a very clear exposition of the political biases and epistemic problems that can arise when scientists have a monopoly over expertise and influence democratic decisions. She argues, however, that the call to democratise expertise which is often voiced in response is "philosophically incoherent" (p. 41). The reason lies in the nature of expertise: "The relationship between experts and laypersons is inherently neither egalitarian nor inclusive, but rather hierarchical and exclusive" (p. 49). Instead, the debate should revolve around where the proper line should be drawn between experts and laypersons, and whether expertise can be found outside the confines of 'science'. While Solomon surely helps to clarify what is at stake, her approach appears to be less a genuine refocusing of the debate than a more coherent rephrasing of an old problem.

Rolin defends Longino's social epistemology against what she calls the "paradox of outside criticism" (p. 63): While Longino claims that scientific communities should be open to outside criticism, it may be thought that criticism can only be effective when it is inside criticism, because standards of argumentation need to be shared in order for criticism to be effective. Rolin resolves this problem by redefining a scientific community more narrowly as sharing an object of inquiry, and not merely standards

of argumentation, which then allows for effective ‘outside’ criticism. One is left wondering whether we are dealing with a genuine philosophical problem when it can be solved by introducing a distinction and defining terms more clearly. Furthermore, Rolin suggest that she is introducing a stakeholder theory of knowledge, but what she offers is largely a commentary on Longino which makes no substantial reference to stakeholders.

Bohman’s paper opens the second part of the volume, which explores what social science can do for the practice and theory of democracy. His starting point is social science as praxeology: a science which aims at realising norms and ideals, but which is nevertheless pragmatic in taking social facts, and their possible entrenchment seriously. Apart from offering an insightful introduction of this idea, situating it its historical and intellectual context, Bohman explores what such a pragmatic social science has to offer for democracy today, providing very interesting and topical case studies.

Kincaid takes seriously the idea of fact-value entanglement in science and explores its implications for social science and democracy. He looks at normative democratic theory, the social scientific study of democracy, and naturalised philosophy of science and argues that the right lessons have not been learnt. In social science, value assumptions are usually not made explicit. In naturalised philosophy of science, a very idealised conception of democracy is commonly applied to the community of scientists. And normative democratic theory is inconsistent with social facts. While Kincaid’s theses are refreshingly bold and the paper is very well argued, his analysis, especially of normative democratic theory, lacks nuance at times. It is by no means obvious in which way social facts about real, current day, morally imperfect societies are relevant to normative theories of democracy, and Kincaid does not offer enough discussion of what kinds of factual assumptions are essential to these theories.

Part III shifts the focus away from democracy in society at large and to a democratic interpretation of scientific practice itself. The first paper, written by the editor, questions the ideal of consensus in politics as well as in science, and promotes the idea that dissent is valuable. The idea that social power is ineradicable and always presents an act of exclusion motivates a view called Agonistic Pluralism. The position is interesting in its rejection of even the kind of meta-consensus one finds in liberal democratic theories such as Rawls’: in contrast to other theories of pluralism in society and in science, Agonistic Pluralism argues that “consensus on pluralism eventually denies pluralism” (p. 125).

Bouvier’s contribution applies contractalist conceptions of democracy, as well as the ideas of positive and negative liberty to science. One of the central questions for Bouvier is whether scientific consensus can be seen as an expression of positive liberty, just like joint commitments in Gilbert’s contractalist theory. Using the wonderfully narrated story of the Copenhagen group of quantum mechanics and the personal cult around Niels Bohr as an example, he argues that consensus in science is often forced. Consequently, the more appropriate notion of democracy to apply to science is one of negative liberty as the absence of coercion.

Part IV takes us to the democratic governance of social science, and surprisingly close to the theme of part I. Turner explores the tension between democracy on the

one hand, and sociology as a publicly funded science studying questions of public interest on the other. Doesn't majority rule only make sense when the state remains neutral and has no influence on public opinion? But public funding of sociology may jeopardise the state's neutrality. Turner offers an excellent exposition of these problems, and a somewhat less satisfying solution. He gives a brief introduction to Burawoy's *Public Sociology*, where sociology can profess advocacy scholarship and the state maintains its neutrality by supporting a variety of viewpoints, while "improving the quality of public discussion through the subsidisation of opinion diversity." (p. 176). After Turner himself noted that sociology as a whole has gone left while public opinion went right, it is surprising that he does not problematise the possible lack of diversity in sociological research.

Weber provides a rigorous analysis of Kitcher's proposals for a democratic science policy, as well as a proposal to modify it. According to Kitcher, science should aim for both practically and epistemically significant truths, where what is significant depends on the values of the community. While agreeing so far, Weber does not think this warrants that all decisions regarding the funding of science should be made in a democratic way (by public representatives receiving advice from scientific experts). In particular, he thinks that scientists should be the ones deciding over the use of funds that have been (democratically) allocated to research with merely epistemic significance. Weber gives two arguments for this claim, both of which are not entirely convincing. The first, labelled "subsidiarity" (p. 187), assumes that in much of theoretical science, only scientists benefit epistemically from their discoveries, because only they understand and appreciate them. Hence they should decide themselves what to investigate. Weber's assumptions about theoretical science are debatable, but if they were true, this would seriously put into question why significant public funds should be delegated to theoretical research at all, in which case it is fairly insignificant who decides over these funds. Weber's second argument, labelled "serendipity" (p. 188), claims that unforeseen practically significant discoveries are often made in the course of theoretical research. When serendipitous practical discoveries are the goal, the only criteria that apply are methodological, and hence decisions are better made by scientists. However, firstly, it is highly contested whether truly serendipitous discoveries are frequently made, and secondly, even if they are, whether this is the best way to get at practically significant truths. If not, there would be little reason to let funding decisions be guided by the possibility of serendipitous results. Furthermore, even if we were to aim for serendipitous discoveries, it is unclear why decisions could not be made by public representatives under the advice of scientists – just like with all other practically significant research.

Mirowski recounts the history of what he dubs the 3E school (the new evolutionary economic epistemologists) in the economics of science. The moral of his story is that much of what economists have said about science ends up supporting the neoliberal privatisation of science. In this way the economics of science stands in the way of its democratisation. According to Mirowski, this is partly explained by a lack of engagement with the content of science, and the overidealisation of economic models: "Economists with their little two-person games and static optimisation exercises now

blithely pronounce on what should happen to ‘Science’ in the twenty-first century in the United States and the world without shame, pity, competence or any sense of reflexivity” (p. 213). While this message is clear in the end, Mirowski’s argument is hard to follow at times.

Remedios’ contribution is placed between Mirowski and Fuller, opening the last part on obstacles to democracy and the social sciences. It compares their respective views on the commercialisation of science, giving a nice summary and in fact making much of what they are saying clearer. Fuller’s concluding paper traces the history of the concept of humanity as the subject of social science. A focus on humanity, according to Fuller, is what makes the social sciences different from both the humanities and the natural sciences. It implies a special treatment of humans as opposed to other possible objects of study, and an equal treatment of all humans. Fuller’s explorations are very wide-ranging, from Duns Scotus to modern day threats to the idea. He concludes with a plea that humanity, and with it social science as a discipline, is worth defending. Surprisingly in the context of this volume, humanity is discussed mostly as an ethical ideal, and the consequences of its adoption for the practice of (social) science and democracy are little explored.

There is something in this volume for anyone interested in the social sciences and their place in a democratic society. The volume in its entirety gives a nice impression of the diversity of the work being done in the field. However, since the quality, as well as the subject matter and the approach of the individual contributions varies so much, I expect that readers will wish to pick and choose depending on their interests and backgrounds.

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