Available online at www.sciencedirect.com
SCIENCE DIRECT®
Stud. Hist. Phil. Sci. 36 (2005) 135–148
Studies in History and Philosophy of Science
www.elsevier.com/locate/shpsa

Naturalized epistemology, or what the Strong Programme can't explain

Karyn L. Freedman

University of Guelph, Guelph, Ont., Canada, N1G 2W1

Received 26 September 2003; received in revised form 5 April 2004

Abstract

In this paper I argue that the Strong Programme's aim to provide robust explanations of belief acquisition is limited by its commitment to the symmetry principle. For Bloor and Barnes, the symmetry principle is intended to drive home the fact that epistemic norms are socially constituted. My argument here is that even if our epistemic standards are fully naturalized—even relativized—they nevertheless can play a pivotal role in why individuals adopt the beliefs that they do. Indeed, sometimes the fact that a belief is locally endorsed as rational is the only reason why an individual holds it. In this way, norms of rationality have a powerful and unique role in belief formation. But if this is true then the symmetry principle's emphasis on 'sameness of type' is misguided. It has the undesirable effect of not just naturalizing our cognitive commitments, but *trivializing* them. Indeed, if the notion of 'similarity' is to have any content, then we are not going to classify as 'the same' beliefs that are formed in accordance with deeply entrenched epistemic norms as ones formed without reflection on these norms, or ones formed in spite of these norms. My suggestion here is that we give up the symmetry principle in favor of a more sophisticated principle, one that allows for a taxonomy of causes rich enough to allow us to delineate the unique impact epistemic norms have on those individuals who subscribe to them.

Keywords: Strong Programme; Naturalism; Epistemology; David Bloor; Barry Barnes.

E-mail address: karynf@uoguelph.ca (K.L. Freedman).

0039-3681/$ - see front matter © 2005 Elsevier Ltd. All rights reserved.
doi:10.1016/j.shpsa.2004.12.007

> I cannot conclude without pointing out that to me the idea of turning for enlightenment concerning the aims of science, and its possible progress, to sociology or to psychology (or, as Pearce Williams recommends, to the history of science) is surprising and disappointing. (Popper, 1970, p. 57)

1. Introduction

Proponents of naturalized epistemology disagree on much, but there is a common thread that unites them.[1] For whatever else it may or may not be, naturalized epistemology is committed to a re-ordering of what counts as an important epistemic question. If one of the hallmarks of positivist epistemology is the tendency to divorce epistemological questions from psychological ones, one of the legacies of the post-positivist Quinean and Kuhnian revolutions is the attempt to reunite these two (alas, no doubt to Popper's surprise and disappointment).[2] For the modern day naturalist, epistemic priority is given to the *descriptive* question about belief acquisition. Its first task is thus to provide an answer to the question of *why* people hold the beliefs that they do. But while pretty much all epistemic naturalists share this meta-epistemological viewpoint, there is lots of disagreement between them on how best to cash it out. For many, the most pressing concern is whether a naturalized epistemology can be normative. Hilary Putnam told us long ago that reason cannot be naturalized.[3] Jaegwon Kim has argued that if naturalized epistemology is not normative, then it is not even epistemology.[4] And naturalist philosophers of science, such as Kitcher, Giere and Laudan, are equally unwilling to abandon the traditional normative dimension of epistemology.[5]

But there is another strain of naturalized epistemology that has developed within the sociology of scientific knowledge (SSK), which is decidedly not normative. Barry Barnes and David Bloor, the founders of the 'Strong Programme' of the sociology of knowledge, espouse a kind of naturalism that is strictly descriptive.[6] While they

[1] There are a number of recent taxonomies of naturalized epistemology in the literature. James Maffie (1990), is exhaustive, though a bit technical; Alex Rosenberg's 'field guide' is concentrated mostly on naturalism in the philosophy of science (Rosenberg, 1996), and Kitcher (1992) traces the contemporary development of epistemic naturalism. There is also a comprehensive bibliography (at least until its updated publication date) on the subject in Kornblith (1994), which lists 856 books and articles on epistemic naturalism, most published after 1980.

[2] Quine (1969) and Kuhn (1970).

[3] Putnam (1982). This point has been argued more recently (if somewhat differently) by both Siegel (1990) and Doppelt (1986, 1990).

[4] Kim (1988). Few mainstream epistemologists disagree with Kim, although arguments vary depending, in part, on one's epistemic outlook—for instance, whether one is an internalist or externalist about justification. See, for instance, Goldman (1994, 1999a, 1999b) and Kornblith (1994, 1999).

[5] Giere (1985, 1989), Kitcher (1992, 1993, 2001), and Laudan (1987, 1990).

[6] The book that first introduced the Strong Programme was Bloor (1991, first published 1976).

developed their position over two decades ago, it remains essentially unchanged today (a serious point of contention with some of their critics).[7] The Strong Programme is an explanatory framework for belief acquisition, consisting of four tenets: causality, impartiality, symmetry and reflexivity. Its main aim is to provide 'an adequate, naturalistic description of scientific knowledge' (Barnes, Bloor, & Henry, 1996, p. 3). And it is *exclusively* descriptive: the idea is just to explain, while respecting these four constraints, why people hold the beliefs that they do.

The Strong Programme is old school SSK, and from the perspective of those working on the vanguard of the science studies of today it arguably holds little more than historical value.[8] One could make the case that Latour, with his actants and his rejection of the natural/social dichotomoy, has been doing turns around Bloor and Barnes for years now, and certainly Cetina's detailed studies of epistemic cultures takes the idea of nonhuman agency to a new level.[9] Yet Bloor and Barnes remain a live (if not moving) target for contemporary philosophers of science, perhaps precisely because their approach is, in some respects at least, conventional.[10] Unlike Latour and Cetina, they maintain a firm distinction between the natural and the social, even as they challenge our traditional ways of thinking of it. For Bloor and Barnes, norms of rationality and truth are socially constituted, relative to a time and place. For most philosophers of science this relativism is the major sticking point of their account.[11] But it does not bother me at all. In fact, like Bloor and Barnes I embrace relativism, and for similar reasons (which I discuss below). What I am worried about, rather, is the Strong Programme's ability to fulfill its *descriptive* task. Specifically, I am concerned that the aim of the Strong Programme is at odds with its theoretical commitments. In what follows I argue that the principle of symmetry imposes serious—and unnecessary—limitations on the Strong Programme's ability to provide an adequate explanation of the growth of scientific knowledge. In their attempt to naturalize knowledge, I argue, Bloor and Barnes end up trivializing our particular cognitive commitments. Indeed, I intend to show that we will never get robust explanations of why individuals hold the beliefs that they do if we must invoke the *same types* of causes to explain *all* the beliefs that they hold.

This is a serious problem. After all, if a naturalized epistemology cannot provide a good *descriptive* account of the growth of knowledge, well, then, it could really be in trouble. But as someone who favors the idea of socially constituted norms of rationality, I would like to find a solution to this problem. One obvious one presents itself, and that is to abandon the symmetry principle. While some might think this is giving up too much, I hope to show otherwise. As it turns out, there are better ways

[7] Latour (1999), p. 115.

[8] For instance, Mario Biagioli's recent *Science studies reader* (1999) contains a selection of 36 articles in the area, and has nothing from either Bloor or Barnes.

[9] Cetina (1999) and Latour (1992).

[10] Three important new books in the philosophy of science discuss in detail Bloor and Barnes' views. See Longino (2002), especially Chapter 2; Kitcher (2001), especially Chapter 2; and Brown (2001), especially Chapter 6.

[11] Some of the classic responses to Bloor and Barnes on this point are collected in Hollis & Lukes (1982); see also Laudan (1984).

to drive home a message about the contingency of norms, ones that will not tie our hands when it comes to explaining belief acquisition.

2. Causality, impartiality and naturalism

Bloor and Barnes first formulated the Strong Programme when they were together at Edinburgh in the 1970s. Their intention was to give an analysis of the growth of scientific knowledge that illustrates the way it arises from the particular scientific culture in which it is acquired.[12] Deeply influenced by Kuhn, Bloor and Barnes share his picture of science as an importantly social practice,[13] and they argue that any analysis of the products of that practice—scientific knowledge—must take into account the interests of the practitioners of science. As Barnes once put it:

> All knowledge is actively produced by men with particular technical interests in particular contexts; its significance and its scope can never be generalized to the extent that no account is taken of those contexts and interests. (Barnes, 1977, p. 19)

This idea is captured by the causality tenet, which, by demanding that we trace the causal origins of belief, never lets us lose sight of context. And this goes for *all* beliefs—according to the impartiality tenet—true, false, rational and irrational. Essentially this is Bloor and Barnes' response to Lakatos, Laudan, and the sociology of error, neatly epitomized by Laudan's 'arationality assumption': '*the sociology of knowledge may step in to explain beliefs if and only if those beliefs cannot be explained in terms of their rational merits*' (Laudan, 1977, p. 202; italics in original). The rejection of the sociology of error is premised on much more than hurt feelings, however. As Bloor and Barnes see it, *all* beliefs demand a causal explanation, because, they argue, there is *no difference in kind* between any of the beliefs that we hold—rational or irrational, true or false (Barnes & Bloor, 1982, pp. 27–28; Bloor, 1991, p. 16).

This point can hardly be overstated. It is the driving force behind the symmetry tenet, as we shall soon see, and it is the substance of their relativism. The reason for *this* alleged sameness in kind, in turn, follows from a kind of constructivism about norms: the idea that community consensus *constitutes* the truth or falsity, rationality or irrationality of beliefs. As they state: 'there is no sense attached to the idea that some standards or beliefs are really rational as distinct from merely locally accepted as such' (Barnes & Bloor, 1982, p. 27). This basic point has been well rehearsed by Bloor and Barnes over the years. In their view, there are no transcen-

[12] For the sociologist, 'knowledge' is defined as collectively accepted belief. As Bloor states: 'Instead of defining it as true belief—or perhaps, justified true belief—knowledge for the sociologist is whatever people take to be knowledge. . . . Of course knowledge must be distinguished from mere belief. This can be done by reserving the word "knowledge" for what is collectively endorsed, leaving the individual and idiosyncratic to count as mere belief' (Bloor, 1991, p. 5).

[13] Kuhn (1970), pp. 22, 179–180.

dent norms—of rationality and irrationality, or of truth and falsity; all norms have the same prosaic origins in human social interaction. Consequently, there are not two different categories of beliefs: those that align with the way the world really is and are thus in sync with a universal norm of rationality, and those that are not, since *de facto* there are no universal norms of rationality. Standards of right and wrong, truth and falsity, these are social from the get-go, as Bloor recently put it:

> Processes of sociological interest do not begin when the 'outside' of science influences the 'inside'. They begin as soon as social interaction begins, and that means as soon as individual orientations to the natural world begin to be co-ordinated and coalesce into a shared cultural form. (Bloor, 1998, p. 627)

Thus, it is not just that epistemic factors are influenced by social factors: epistemic factors are *nothing but* social factors (Bloor, 1984, p. 297). To be clear, the contrast here is not between a social factor and, say, an evidencing reason, for like all sensible people Bloor and Barnes accept that, within any given culture, there are good reasons and true beliefs. The contrast is between *two types* of evidencing reasons: those whose source is in social interaction, and those whose source is transcendent (or otherwise supernatural). Bloor and Barnes, like all good naturalists, rightly reject this latter view, and instead emphasize the historical and social roots of all norms.[14] Thus, they claim that true beliefs and false beliefs, rationally held beliefs and irrationally held beliefs, do not fall into *different* natural kinds. At the end of the day, all of our beliefs are of the same garden variety, and the standards that we use to demarcate them are entirely of our own making, relative to the culture in which they are found. On this view, naturalism thus leads to a strong relativism, and it is this relativism that forms the basis for the symmetry principle.

3. Contingency, relativism and norms

The symmetry principle states that the *same types* of causes must be invoked to explain belief acquisition, regardless of the status conferred on the belief in question (for example, whether or not it is locally endorsed as rational to hold). Bloor and Barnes suppose that this follows directly from relativism and the idea that there is no difference in kind between any of the beliefs that we hold. These positions are often mistakenly run together, even by Bloor and Barnes, and it is a notable (if implicit) point of agreement between them and their critics that if relativism flies, then the symmetry principle follows. This set up is problematic, however, as it concedes the adequacy of this explanatory framework, if only strong relativism were right. The focus then gets displaced away from the merits of the explanatory power of the four tenets and into the arena of relativism. The real problem, however, is not relativism, but the unwarranted inference from it to the symmetry principle.

[14] Bloor (1997) discusses this in detail, especially Chapter 3.

Let us suppose, then, at least for the sake of argument, that strong relativism is right. Let us agree, in other words, that epistemic factors (or evidencing reasons) are, at bottom, social, and that there is thus nothing more to the question of whether a belief forming practice is rational than the question of whether it conforms to locally endorsed norms of belief formation. And let us see what, precisely, follows from this. The first thing to note is that this position does *not* entail the denial of the various norms of rationality prevalent in our society (or in any society). It is not, in other words, a rejection of 'evidencing reasons', not even as causes for beliefs. Bloor and Barnes are happy to accept that position (they call it 'nativism').[15] Strong relativism, rather, is a statement about the *source* of those norms or reasons. Talking more concretely about norms of rationality may help to illustrate this point.

Epistemic norms are norms that tell the individuals who adhere to them how best to formulate their beliefs. They tell us when our beliefs are justified and, more generally, they tell us what counts as a good reason for holding a belief. In our contemporary Western world, where norms of rationality are norms of scientific rationality, there is a handful that we can readily identify. To start with, there is one high-level or over-arching norm of rationality that governs the rest, which shapes our understanding of what it means for a belief to be rationally held. This norm ties good reason to evidence, and tells us that a belief is rational to hold if that belief is 'well supported'. The norms of rationality that are governed by this norm include that which we equate with 'good support'. For example, internalists about justification argue that 'good support' comes via a chain of deliberation or inference that is internal to our mental states.[16] Epistemic externalists, on the other hand, argue that a belief is well supported if it was acquired by a reliable process, that is, one that leads to more true beliefs than to false ones. Other norms of good reasoning include, for instance, means–ends or instrumental reasoning. This norm dictates that if we desire X, and discover that A is the best route for achieving X, then we ought to adopt A. Another norm of good reasoning is logical consistency. If we accept A, and B is inconsistent with A, then we should not also accept or adopt B. Still another norm of good reasoning is logical inference. According to this norm, if we accept a proposition P, and the entailment of Q from P, then we ought to accept proposition Q.

While this description of some of our current epistemic norms is admittedly both vague and incomplete, it does at least help to clarify what is at issue with Bloor and Barnes' strong relativism. To start with, what is not at issue is the existence of epistemic norms, or their pervasiveness in any given society (certainly, this would be an odd position for a sociologist to hold). What *is* at issue is their source. For Bloor and Barnes, the source of these norms, of all norms, is human social interaction. Norms of rationality do not belong to a different species of norms than, say, norms of sexual conduct, or norms of table manners. Like these more ordinary societal norms, norms of rationality are created by and for the members of a society.

[15] See Barnes (1982), p. 45.

[16] A new collection on internalism and externalism, edited by Kornblith (2001), brings together a number of important articles in this area, spanning the last few decades.

This can get tricky, however, because over time norms become so deeply entrenched that they begin to look like part of the furniture of the world. And while they might have developed differently, they did not; we are now more or less stuck with them, and thus can hardly avoid treating them as an integral part of our world (this is what Ian Hacking has called the irony of constructivism).[17] This is precisely why Bloor and Barnes' constructivism about norms is so important. But contingent or not, qua norms, standards of rationality, have enormous force in our society, and over particular individuals and groups. So we could agree, for instance, that norms of table manners are not universal, while maintaining that at least in our society, all things being equal, one ought to chew with one's mouth closed. Likewise, we could admit that our norms of rationality are not universal, while maintaining that, in our society, all things being equal, one ought not to hold inconsistent beliefs. Indeed, it is in virtue of the prevalent set of epistemic norms in a given society that there arises a legitimate distinction between those beliefs that are rational to hold and those beliefs that are not.

Thus far, there is nothing in what I have said that Bloor and Barnes should find problematic. I am not denying the contingency of norms of rationality, and I am agreeing with their naturalistic position that their source is in human social interaction. I am merely asserting what seems like an obvious sociological claim about the pervasiveness of said norms. This point, however, becomes particularly salient when we turn from relativism and the contingency of norms to the symmetry principle and its demand for 'sameness of types' of causes.

4. Symmetry and sameness of type

Once we have established this much, we are well on our way to seeing what is wrong with the symmetry principle. Strong relativism is supposed to show that rationally held beliefs and irrationally held beliefs do not, as Bloor and Barnes put it, 'fall into two different natural kinds' (Barnes & Bloor, 1982, p. 28). But even if this is true, there is of course *some* important difference in kind between rationally held beliefs and irrationally held beliefs: in the first case, the beliefs meet a deeply entrenched epistemic standard—*even if* that standard has rather pedestrian roots in human social interaction—and in the second case they do not.

This is a difference that makes a difference when it comes to the causal stories we tell about belief acquisition. Regrettably, in their attempt to rule out the notion of a universal or trans-historical notion of normativity, Bloor and Barnes go too far. They end up with the view that as far as causes for beliefs go, epistemic norms have no unique explanatory value, nothing that, even in principle, could distinguish them from other kinds of causes. The effect of this is that the particular cognitive commitments of individuals, and of social groups, are not merely naturalized, but *trivialized*. However, as Bloor and Barnes would surely agree, the cognitive commitments of

[17] Hacking (1999), pp. 19–20.

individuals are anything but negligible. As agents we sort through our beliefs, and toss some out and keep others, according to the standards, norms and values to which we subscribe. Epistemic norms, historically contingent or not, will be one factor—sometimes an indispensable one—in the causal history of at least some of the beliefs that we hold. What this means is that a comprehensive causal story of why we hold the beliefs that we do, *where appropriate*, must include a reference to these particular norms, specifically in those cases where we reflect on our beliefs in accordance with these norms. But if this is true then we need to ask, in what respect will this causal story invoke the 'same type' of cause as the story we would tell about the adoption of a belief that was acquired prior to an agent's evaluation of it according to some standard, or due to her ignorance of some standard, or even *despite* a particular standard? On what plausible notion of similarity, or 'sameness of type', can the persuasiveness of norms, as a cause for belief, be considered to be on a par with the absence of such a force?

Part of the problem here is that if we are told that we must explain all the beliefs that we hold by the 'same types of causes', then we need to have some idea of how to classify causes. In other words, what sorts of things are to count as the same kinds of causes? Are different epistemic commitments the same kinds of causes? Can an epistemic commitment be rightly thought of as the same type of cause as a grudge, or as a mind-altering drug? Are the same types of causes at work in the case of a belief that is formed through reflection on various cognitive commitments, and in the case of a belief that is adopted blindly, or one that is adopted through a kind of default reasoning? While Bloor and Barnes never elaborate a taxonomy of causes, surely if the notion of 'similarity' is to have any content, not all of these factors can be classified as one and the same. Indeed, unless *everything* that leads an individual to hold the beliefs that she does counts as the same, we will not think that a causal story that includes a reference to a deeply entrenched epistemic standard is similar to a causal story that does not. If this were the case, then the notion of 'similarity' will have been rendered so broad as to be essentially empty. In fact, when we give some thought to the matter, it becomes clear that the only sense in which all these kinds of causes are similar, or of the 'same type', is in the most basic and rather unhelpful sense that all such forces are fundamentally social. But surely it is in virtue not of this one point of sameness, but of the significant differences between types of causes, that we will be able to offer rich and nuanced explanations of belief acquisition.

Indeed, when we begin to look at why individuals hold the beliefs that they do we discover that, in certain cases, the fact that a belief is endorsed by a society as true or rational to hold is the *decisive* factor which leads an individual to adopt that belief, and likewise in cases where a belief is endorsed as false or irrational to hold. In this way, norms are powerfully and uniquely influential, and our causal stories of belief acquisition should allow us to delineate them as such. But, again, once we do this we are forced to move beyond all but the most elementary understanding of 'sameness of type'. A few examples should help to illustrate this point. These days, despite great advances over the last few decades by the feminist movement on a broad spectrum of women's issues, it remains a widespread and popular belief that women are responsible for the acts of sexual violence perpetrated against them, particularly so in the

case of date rape. The idea here is that women somehow provoke the men who attack them, either by their inappropriate dress, or through flirtatiousness, or by having a drink with them at a bar, or by being alone with them in a room, or what have you. From a feminist perspective, it seems relatively easy to explain (or explain away) this collectively held belief by reference to social, religious and political interests, for example by reference to misogyny and patriarchy. But the 'evidence' feminists would cite in support of this explanation is often discredited; indeed, the idea that women are responsible for the acts of violence perpetrated against them is such a deeply entrenched one that this feminist perspective is just as easily explained (or explained away) by the other side, again by reference to social and political interests. The explanation here would invoke the idea that feminists are anti-establishment types who aim to destroy religion, family, and all our cherished social institutions, and who see men as the source of all our serious social problems, including the problem of violence against women.

Here, we have collectively held opposing beliefs about violence against women. According to Bloor and Barnes and their symmetry principle, regardless of how one evaluates the rationality of these two sets of shared beliefs, they are to be explained in the same way. In both cases we are to point to the social, psychological and interactive processes that led various individuals to adopt them. Furthermore—and this is key—we are prohibited from making these explanations in any way contingent on how these beliefs are evaluated. The plausibility of this methodology, however, breaks down when we begin to look at the specifics of particular cases. What should our causal stories look like, for instance, in the case of the individual whose adoption of a belief depends crucially on her evaluation of that belief, when the decisive reason that an individual adopts a belief is *because* it is locally endorsed as rational? Certainly in this case, we cannot rule out an appeal to the local rationality of a belief in our explanation of why this individual adopted this belief. Since in this case our explanation will be contingent on how the belief is evaluated—by the individual, by her society, by us—our causal story *must* include a reference to epistemic norms. Moreover, and importantly, given the potency of epistemic norms, this part of our causal story is explanatorily salient, and this is precisely where the notion of 'sameness of type' breaks down.

So, for example, I know a rape survivor who is a Jehovah's Witness.[18] This woman was raped by a man whom she had met at a bar, had a drink with, and later gone home with. Through counseling and discussions with other rape survivors she has been made aware that, in the eyes of at least this particular group of supportive individuals, she is in no way responsible for her attack. But her religion forbids alcohol consumption and flirtation with men. Consequently, her friends, her parents, and indeed her entire community hold her responsible for the attack. Indeed, this women also blames herself, because, as she puts it, *that is the only rational explanation for what happened to her*. It is the only perspective, from where she is standing,

[18] I am keeping this woman's identity anonymous at her own request.

that makes any sense. Although she might not put it quite this way, this is the only alternative that allows her to see herself as being an epistemically responsible agent.

Of course, there are many complicated reasons why a woman might blame herself for her own rape, and I do not want to get into them all here. That said it seems clear that, in this case, the deep-seated norms within a community are pivotal. Indeed, an essential part of the causal story of why this woman holds the belief that she does is that, in her view, it is the rational belief to hold. She has been presented with two opposing views and weighed them both against a particular set of cognitive commitments. It is at least arguable, if not evident, that the norms of rationality within her community are the decisive factor for her attachment to one perspective and not the other. This is not to say, along with Laudan, that the rationality of a belief is its own explanation.[19] But it is to say that the fact that a belief is endorsed as rational by a community can be a unique and vital factor for belief formation, and it deserves to be acknowledged as such in our causal explanations. But in order to capture the force of these rhetorically shared imperatives, we need to relax our grip on the demand for 'sameness of type' of causes.

We can look at a slightly different kind of example to help further illustrate this point. Suppose that after getting out of bed yesterday morning, call this time $t1$, I glanced out my window and saw a bird perched on my windowsill. Thus, at time $t1$, I unreflectively formed the belief B, namely that a bird was perched on my windowsill. The causal story we tell to explain why I hold belief B will include, most importantly, a reference to my powers of perception. Now suppose that earlier today, at time $t2$, I reflected on belief B, and measured it against various norms of reliability, specifically of what counts as a reliable method for forming beliefs. Because the belief was produced under standard perceptual conditions, for example I was wide awake, the sun was out, there was nothing blocking my view of the bird, and I even heard it chirp—I concluded that belief B was reliably formed. Thus, at time t2, I *endorse* belief B, I judge myself as being an epistemically responsible agent with respect to B. I thus then form a new belief, belief B2, namely that yesterday morning there was indeed a bird perched on my windowsill. Now, there is some sense in which B2 is the same as B, specifically to the extent that the proposition expressed by both beliefs is the same. But as far as explaining why I hold these two beliefs, this analysis is too simple, for the causal history of belief B2 is significantly different from the causal history of belief B. While both beliefs are ones that we would endorse as rational for me to hold, the causal story we tell for belief B will *not* include a reference to epistemic norms, whereas the causal story for belief B2 will include a reference to my cognitive commitments to epistemic norms, in particular to various norms of reliability. If we omit this reference from the causal story of belief B2 then we will never get an adequate explanation for why I hold this belief, for why I feel an epistemic duty to hold it.

The fact that a belief that is formed through a deep commitment to a prevalent epistemic standard undergoes a substantially different kind of causal process than

[19] Laudan (1984).

one that is formed in the absence of such a commitment, or without reflection on such commitments, is what puts pressure on the symmetry principle. An explanatory framework that sees these causes for belief formation as similar will simply not be nuanced enough to adequately explains what makes the holding of a particular belief attractive or appealing to a particular individual. It will not be able to explain why we feel epistemic duties with respect to some beliefs and not others. Even if we agree that rationally held beliefs and irrationally held beliefs do not make up two different natural kinds and that, at bottom, epistemic norms are constructed, we should nevertheless insist on a sophisticated enough taxonomy of causes that allows us to recognize their distinctiveness in belief formation. Although I do not wish to elaborate this taxonomy here, I do want to claim that the symmetry principle, with its emphasis on 'sameness of type', is too restrictive to accommodate it.

To be fair to Bloor and Barnes, it certainly made sense, back in the 1970s, to emphasize the similarity between rationally held beliefs and irrationally held beliefs—after all, they were up against Lakatos and Laudan and the sociology of error. What was important then was to stress the contingency of norms, and it would have been counter-productive to emphasize the distinctiveness of those beliefs that are held precisely because they are sanctioned by a society. But in the climate of the science studies of today that kind of defensive posturing no longer seems necessary.

5. The asymmetry principle

There are a number of things to note about the kind of asymmetry that I am espousing here. First, and most important, is that the sociology of knowledge is not, on this view, the sociology of error. To say that an individual's commitment to a set of epistemic norms is sometimes a pivotal factor for why she holds the beliefs that she does, and that it is unique among the kinds of factors that lead to belief formation, is *not* to say, along with Laudan, that the rationality of holding a belief is its own explanation. In the account that I have developed here, all the beliefs that we hold call for some kind of causal explanation. It is just that the causal stories we tell will themselves be asymmetrical. In order to be sophisticated enough to be able to account for the unique and decisive role epistemic norms can have in belief formation, we must, in the first place, move beyond an elementary notion of 'sameness of type'. We must additionally alter our focus from the one point of sameness between all beliefs (that is, naturalism), to the rich differences in causal processes, whether psychological, interactive or social. To do this we will need to develop a taxonomy of causes, one that does not prohibit us from, where necessary, making our explanations of belief acquisition contingent on local endorsements of belief.

One final thing to note about the account I am offering here is that epistemic norms will be just one factor among many in our causal explanations. Even if an individual's adherence to an epistemic norm is an integral part of the causal genesis of a belief that she holds, there will likely be other relevant social factors that we will need to invoke to explain why she holds that belief. Thus, in the second example above, in order to explain why I hold belief B2 (that yesterday morning there was

a bird perched on my windowsill), we invoked all the factors that led me to hold belief B, *plus* my adherence to an epistemic norm. Epistemic norms are thus just one factor, albeit a special kind of factor, among many.

6. Conclusion

In this paper I have tried to show that the main aim of the Strong Programme to provide a robust descriptive account of the growth of knowledge is in tension with its principle of symmetry. And I have attempted to present this argument in terms that the founders of the Strong Programme would accept. Thus, I have accepted their principle of causality, and in doing so I have implicitly rejected the kind of asymmetry espoused by rationalist philosophy of science. Indeed, it should be clear that I think Bloor and Barnes have made a valuable contribution to the debate on epistemic naturalism with this principle, which demands that if we want to explain the growth of scientific knowledge, the context of belief acquisition cannot be ignored. I think they are right that we cannot have a deep understanding of the growth of knowledge without looking at the context in which knowledge grows. And I have even accepted, at least as a working premise, that at bottom so-called epistemic factors are really social factors, and I have embraced the strong relativism that follows from this. But I have insisted that, even in light of strong relativism, an individual's cognitive commitment to various epistemic norms is often a relevant and sometimes decisive factor for why she holds the beliefs that she does. And if this is right, then in these cases our causal explanations will be contingent on how beliefs are evaluated in light of locally endorsed epistemic norms. How much pressure does this put on the principle of symmetry? Just enough to demand a more sophisticated principle, one that allows for a taxonomy of causes that is rich enough to allow us to delineate the unique impact epistemic norms have on those who subscribe to them.

Bloor and Barnes have argued that epistemic norms, as causes for belief, are no different in kind than any other factor, as all such factors are rooted in human social interaction. I have argued that it is misguided to emphasize this one point of sameness between all potential causes for belief formation. This goes beyond merely naturalizing our cognitive norms, it effectively *trivializes* them, and consequently robs our causal stories of a richness that they deserve. Only a very basic and rather unhelpful notion of similarity sees beliefs that are formed in accordance with deeply entrenched epistemic norms as the same as ones formed without reflection on these norms, or ones formed in spite of these norms. I believe that we are in a strong enough position in the science studies climate of today to emphasize the construction of norms without needing to undervalue the unique and powerful role norms of rationality have over us, as individuals and social groups. Bloor once wrote that any explanatory framework worth its salt must 'locate the regularities and general principles or processes which appear to be at work within the field of their data. The aim will be to build theories to explain these regularities' (Bloor, 1991, p. 5). I hope to have shown that only if we can make a reference to the unique impact of our shared

epistemic norms will we come up with an explanatory theory that is rich enough to really shed light on why individuals adopt the beliefs that they do.

Acknowledgements

I would like to thank Jim Brown, Ian Hacking, Joe Heath and the anonymous referees at *Studies in History and Philosophy of Science* for their helpful and insightful comments on an earlier draft of this paper.

References

Barnes, B. (1977). *Interests and the growth of knowledge*. London: Routledge and Kegan Paul.
Barnes, B. (1982). *T.S. Kuhn and social science*. New York: Columbia University Press.
Barnes, B., & Bloor, D. (1982). Relativism, rationalism and the sociology of knowledge. In M. Hollis, & S. Lukes (Eds.), *Rationality and relativism* (pp. 21–47). Cambridge: MIT Press.
Barnes, B., Bloor, D., & Henry, J. (1996). *Scientific knowledge*. Chicago: University of Chicago Press.
Biagioli, M. (Ed.). (1999). *The science studies reader*. London: Routledge.
Bloor, D. (1984). The sociology of reasons: Or why 'epistemic factors' are really 'social factors'. In J. R. Brown (Ed.), *Scientific rationality: The sociological turn* (pp. 295–324). Dordrecht: D. Reidel.
Bloor, D. (1991). *Knowledge and social imagery* (2nd ed.). Chicago: University of Chicago Press. (First published 1976)
Bloor, D. (1997). *Wittgenstein: Rules and institutions*. London: Routledge.
Bloor, D. (1998). Changing axes: Response to Mermin. *Social Studies of Science, 28*(4), 624–635.
Brown, J. R. (2001). *Who rules in science: An opinionated guide to the wars*. Harvard: Harvard University Press.
Cetina, K. K. (1999). *Epistemic cultures: How the sciences make knowledge*. Cambridge: Harvard University Press.
Doppelt, G. (1986). Relativism and the reticulational model of scientific rationality. *Synthese, 69*, 225–252.
Doppelt, G. (1990). The naturalist conception of methodological standards in science: A critique. *Philosophy of Science, 57*, 1–19.
Giere, R. N. (1985). Philosophy of science naturalized. *Philosophy of Science, 52*, 331–356.
Giere, R. N. (1989). Scientific rationality as instrumental rationality. *Studies in History and Philosophy of Science, 20*(3), 377–384.
Goldman, A. (1994). Naturalistic epistemology and reliabilism. In P. A. French, T. E. Uehling, & H. K. Wettstein (Eds.), *Midwest studies in Philosophy, Vol. XIX. Philosophical naturalism* (pp. 301–320). Notre Dame, IN: University of Notre Dame Press.
Goldman, A. (1999a). A priori warrant and naturalistic epistemology. In J. E. Tomberlin (Ed.), *Philosophical perspectives, 13. Epistemology* (pp. 1–28). Oxford: Blackwell.
Goldman, A. (1999b). *Knowledge in a social world*. Oxford: Clarendon Press.
Hacking, I. (1999). *The social construction of what?*. Cambridge: Harvard University Press.
Hollis, M., & Lukes, S. (Eds.). (1982). *Rationality and relativism*. Cambridge: MIT Press.
Kim, J. (1988). What is 'naturalized epistemology'? In: J. E. Tomberlin (Ed.), *Philosophical perspectives, 2. Epistemology* (pp. 381–405). Atascadero: Ridgeview.
Kitcher, P. (1992). The naturalists return. *The Philosophical Review, 101*(1), 53–115.
Kitcher, P. (1993). *The advancement of science*. New York: Oxford University Press.
Kitcher, P. (2001). *Science, truth, and democracy*. Oxford: Oxford University Press.
Kornblith, H. (Ed.). (1994). *Naturalizing epistemology* (2nd ed.). Cambridge: MIT Press.
Kornblith, H. (1999). In defense of a naturalized epistemology. In J. Greco, & E. Sosa (Eds.), *The Blackwell guide to epistemology* (pp. 158–169). Malden, MA: Blackwell.

Kornblith, H. (Ed.). (2001). *Epistemology: Internalism and externalism*. Malden, MA: Blackwell.
Kuhn, T. S. (1970). *The structure of scientific revolutions* (2nd ed.). Chicago: University of Chicago Press. (First published 1962)
Latour, B. (1992). One more turn after the social turn. In E. McMullin (Ed.), *The social dimensions of science* (pp. 272–294). Notre Dame: University of Notre Dame Press.
Latour, B. (1999). For David Bloor. . . . and beyond: A reply to David Bloor's 'Anti-Latour'. *Studies in History and Philosophy of Science, 1*, 113–129.
Laudan, L. (1977). *Progress and its problems: Toward a theory of scientific growth*. Berkeley: University of California Press.
Laudan, L. (1984). The pseudo-science of science? In J. R. Brown (Ed.), *Scientific rationality: The sociological turn* (pp. 41–74). Dordrecht: D. Reidel.
Laudan, L. (1987). Progress or rationality? The prospects for normative naturalism. *American Philosophical Quarterly, 24*(1), 19–31.
Laudan, L. (1990). Normative naturalism. *Philosophy of Science, 57*, 44–59.
Longino, H. (2002). *The fate of knowledge*. Princeton University Press.
Maffie, J. (1990). Recent work on naturalized episetmology. *American Philosophical Quarterly, 27*(4), 281–293.
Popper, K. R. (1970). Normal science and its dangers. In I. Lakatos, & A. Musgrave (Eds.), *Criticism and the growth of knowledge* (pp. 51–58). Cambridge: Cambridge University Press.
Putnam, H. (1982). Why reason can't be naturalized. *Synthese, 52*, 3–24.
Quine, W. V. O. (1969). Epistemology naturalized. In idem, *Ontological relativity and other essays* (pp. 69–90). New York: Columbia University Press.
Rosenberg, A. (1996). A field guide to recent species of naturalism. *British Journal of the Philosophy of Science, 47*, 1–29.
Siegel, H. (1990). Laudan's normative naturalism. *Studies in History and Philosophy of Science, 21*(2), 295–313.