Disagreement, Democracy, and the Goals of Science: Is a Normative Philosophy of Science Possible, If Ethical Inquiry Is Not?

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Abstract

W.V.Quine and Philip Kitcher have both developed naturalistic approaches to the philosophy of science which are partially based on a skeptical view about the possibility of rational inquiry into certain questions of value. Nonetheless, both Quine and Kitcher do not wish to give up on the normative dimension of the philosophy of science. I argue that Kitcher's recent argument against the specification of the goal of science in terms of truth raises a problem for Quine's account of the normative dimensions of the discipline. However Kitcher's alternative suggestion, that the goal of science is to be specified in terms of an ideal democratic procedure, does not escape this problem, given Kitcher's own limited skepticism about rational inquiry into certain questions of value.

1. Introduction

In 'Epistemology Naturalized' Quine presented an account of the relations between science and epistemology, according to which, epistemology is contained within natural science as a chapter of psychology, or more precisely, of cognitive engineering.[1] Quine's account was based on two kinds of considerations: the first pointed to the unattainability of certain goals of traditional empiricist accounts of epistemology, which assumed that epistemology should not be based on empirical facts of science and psychology. The second consideration pointed to the very limited possibility of rational inquiry into ethical and normative questions. This account of epistemology was however not supposed to deny the normative dimension of the discipline. Instead, Quine suggested, normative epistemology is to be

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[1]   W.V. Quine, 'Epistemology Naturalized', in W.V. Quine, *Ontological Relativity and Other Essays* (New York: Columbia University Press, 1969), 69–90.

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understood as the technology of truth seeking. That is, normative epistemology assumes a given goal of science, namely the attainment of truth, and studies a question of a causal nature, amenable to scientific inquiry, asking how this goal can be attained.

The assumption, on which Quine's account is based, namely, that the goal of science can be fully characterized as the attainment of truth, has met with powerful objections in Philip Kitcher's *Science, Truth, and Democracy*.[2] This paper will ask whether an account such as Quine's, of the normative dimension of the philosophy of science, may be preserved in light of Kitcher's objections, and given the claimed impossibility of ethical inquiry. I will ask, in particular, whether Quine's account may explain how the philosophy of science can perform the task required of it by our moral commitments: In light of our commitment to values, which call upon us to avoid unreasoned coercion, and in light of disagreement about the goals of science, can the philosophy of science suggest how organized scientific inquiry should proceed? I will consider whether a suggested democratic ideal of the kind suggested by Kitcher may serve to address this problem, if indeed rational value inquiry is limited in the way suggested by Quine. My conclusions will be negative, and I will suggest that either the Quinean account of the philosophy of science, or our morally inspired conception of the philosophy of science needs to be given up.

The next section will briefly present Quine's account of Naturalized Epistemology. Section 3 will attempt an initial presentation of the problem. In section 4 I will outline Kitcher's objections to Quine's assumed goal of science; section 5 will consider whether Kitcher's suggested goal of science, specified by an ideal hypothetical democratic procedure, may be able to solve the problem within the framework suggested by Quine.

2. Normative Epistemology as Cognitive Engineering

According to Quine's account of naturalized epistemology, 'Epistemology, or something like it, simply falls into place as a chapter of psychology and hence of natural science'.[3] Quine contrasted this picture with a foundationalist-empiricist conception of epistemology, which saw the aim of epistemology as that of

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[2]   Philip Kitcher, *Science, Truth, and Democracy* (New York: Oxford University Press, 2001).

[3]   *Op. cit.* note 1, 82.

somehow reducing natural science to sense data. Quine claimed that the possible goals of such an epistemological enterprise – clarifying, and legitimizing, our scientific concepts by showing them to be definable in observational terms, and justifying our knowledge of truths about nature by showing it to be derivable from observation sentences – were both unattainable. Once epistemology rejected these goals, it was free to reject the constraints, which the sought-after reduction required. It could jettison its self-imposed ban on using empirical truths, those of psychology in particular, to explain how evidence relates to theory. Thus, according to Quine's suggested account, epistemology is to be contained in natural science, as a chapter of psychology.

While in describing epistemology as a chapter of cognitive psychology Quine's primary intention was to reject the demand that epistemology refrains from relying on the findings of empirical psychology, situating epistemology within natural science seems to have another most significant implication: an account of epistemology as naturalized must either deny the normative dimension of epistemology, or claim that the normative dimension of epistemology could be naturalized and contained under natural science, together with the explanatory dimension of the enterprise. Quine, it seemed, could not opt for the first option: he maintained, e.g. that certain theories and hypotheses have certain virtues, which make them better than others;[4] and yet he did not think that normative questions of values could be studied as questions of science can: thus he argued for the methodological infirmity of ethics as compared to science.[5]

How then is normative epistemology possible, if, as Quine maintained, ethical inquiry is not? Quine, contrary to the assumptions of some of his critics,[6] did not think that naturalized epistemology

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[4]   See, e.g. W.V. Quine and J. S. Ullian, *The Web of Belief*, 2nd ed. (New York: Random House, 1978), 66–82, 135. For a somewhat similar point to the one made above, see e.g. Morton White 'Normative Ethics, Normative Epistemology, and Quine's Holism', in L. E. Hahn and P. A. Schilpp (eds) *The Philosophy of W.V. Quine* (La Salle: Open Court, 1986), 656–61.

[5]   W.V. Quine 'On the Nature of Moral Values', in W.V. Quine *Theories and Things* (Cambridge:Belknap Press of Harvard University Press, 1981), 55–66.

[6]   For an argument against Quine's account of naturalized epistemology, which rests on the assumption that a key element of this account is the elimination of the normative aspect of epistemology, see Jaegwon Kim, 'What is "Naturalized Epistemology"?' in James. E. Tomberlin (ed.) *Philosophical*

must give up on the normative. The clue to Quine's account of the normative aspect of epistemology is to be found in the very argument for his claim regarding the methodological infirmity of ethics. Quine's argument for the claim relies on identifying a restricted domain of questions of value, which can be answered empirically, disagreement over which admits therefore of rational resolution:

> [T]ake the question of white lies. If we once agree to regard truthfulness as good only as a means to higher moral ends, rather than as an ultimate end in itself, then the question becomes a question essentially of science, or engineering.[7]

Questions about ends, whose value is taken to derive from their being instrumental to the achievement of agreed ulterior ends, can thus be answered empirically; such questions are essentially causal questions about means to an end, thus questions of science or of engineering. The impossibility of rational ethical inquiry, or more accurately, its very limited possibility, hinges, according to Quine, on the fact that such causal reduction of ends to ulterior ends must be limited: 'there must remain some ultimate ends, unreduced and so unjustified'.[8] Thus, if normative epistemology is to be possible, it must take as given an assumed ultimate end of science; that end being, Quine points out, the attainment of truth, or predictive efficacy:

> Naturalization of epistemology does not jettison the normative and settle for the indiscriminate description of ongoing procedures. For me normative epistemology is a branch of engineering. It is the technology of truth-seeking, or, in a more cautiously epistemological term, prediction.[9]

Thus Quine maintains that naturalized epistemology may retain its normative import, while maintaining that the possibility of ethical inquiry is so limited.

This account of the normative dimension of naturalized epistemology has not gone unchallenged: All of its elements have been subject to criticism, from the very conception of epistemology as

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Perspectives, 2 (Atascadero, CA: Ridgeview Publishing Company, 1988), 381–405. Quine rejects this interpretative assumption in W.V. Quine, 'Reply to Morton White', in L. E. Hahn and P. A. Schilpp (eds), *The Philosophy of W.V. Quine* (La Salle: Open Court, 1986), 663–665.

[7] *Op. cit. note* 5, 64.
[8] *Op. cit. note* 5, 64.
[9] *Op. cit. note* 6, 664–665.

relying on the claims of empirical science, to the Quinean claim about the limited possibility of ethical inquiry.[10] In this paper I want to focus, however, on what Quine seems to take for granted here: that the ultimate end of science is the attainment of truth. This assumption has met with powerful objections in Philip Kitcher's *Science, Truth, and Democracy*. In light of this criticism, I would like to raise again the question: Is a normative philosophy of science possible, if ethical inquiry is not?

Kitcher's argument against the assumption that the ultimate end of science is the attainment of truth does not seem to be intended as an argument against the Quinean framework as a whole, and may be interpreted in a way that is consistent with the framework. Nonetheless, his argument suggests a way of undermining the Quinean framework from within: it suggests a way of showing that a normative philosophical enterprise that operates within the Quinean framework fails on its own terms; moreover, as I will suggest, Kitcher's own suggested account of the goals of science does not avoid this problem. There in no escape from the problem within the Quinean framework: if the means available to the philosophy of science are limited in the ways suggested by Quine, then such an enterprise cannot achieve the goals we understand it to have.

3. Disagreement on the Goals of Science: Setting the Question

The assumption that truth is the ultimate goal of science has been subject to heated debates. In the midst of the science wars, those outside the scientific camp have of course tended to reject this claim: radical antirealists have often rejected the very possibility that science can attain, or approach, the truth, and have accordingly rejected the suggestion that the attainment of truth ought to be the ultimate goal of science.

Kitcher, however, is clearly opposed to such an anti-realist position, and maintains that science can attain significant truths, and that such truths are valuable. While one strand of Kitcher's argument does rest upon a claim about the non-attainability of a certain conception of the goal of science, his central argument against the

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[10] See, e.g. Bas C. van Frassen, *The Empirical Stance* (New Haven: Yale University Press, 2002), 77–81 and White, *op. cit.* note 4, for two examples of objections to the two Quinean claims. There are of course numerous others. In any case, here I will not examine these Quinean claims, and will take them, for the sake of the current discussion, as given.

assumed goal of science is not based on such a non-attainability claim.[11] The argument that interests us is based on claims about the relations of the assumed end and other values we may hold. It is based, in particular on the observation, that to the extent that science is aimed at the attainment of truth, it is not aimed at the attainment of all truths, but only of those, which we deem as significant.[12]

Given that Kitcher's argument is not one that is based on a claim about the non-attainability of the assumed end of science, my suggestion that it can be used to undermine the Quinean framework *from within* can come into question: can we at all attempt to study the implications of Kitcher's argument from within the Quinean framework? If an argument against the characterization of the goal of science does not rest in its entirety on a claim about the impossibility of attaining that goal, can the argument be consistent with Quine's claims about the limited possibility of inquiry and debate about values and goals?

One way to proceed would be to take this problem head-on: to examine Kitcher's arguments and Quine's thesis about the methodological infirmity of ethics, and to confront them with each other; if the two are inconsistent, surely at least one of them must go. But to allow us to investigate our question in a paper of such limited scope, we may do better to avoid the problem than to solve it. To do so, we must reinterpret Quine's methodological infirmity thesis or Kitcher argument against the assumed end of science in a way that would be sure to make the two consistent with each other, while respecting their fundamental claims and intuitions. We can do this, I suggest, by substituting talk about agreed acceptance of values and goals within a hypothetical community, for talk about what goals and values one ought to accept. The latter question would fall beyond the limits set by Quine's thesis about the methodological infirmity of ethics, in as much as the question requires that we consider goals that are not accepted as purely instrumental. In contrast, the

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[11]   While Kitcher maintains that science can attain significant truths, one strand of his argument does rest on a claim about the non-attainability of a certain specification of the goal of science in terms of truth. Kitcher maintains, that an influential conception of the goal of science must be rejected, because that goal cannot be had: the goal of obtaining a single unified store of truths, which would allow us to explain all other truths. See *op. cit*. note 2, 69–75.

[12]   *Op. cit*. note 2, 65.

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legitimacy of the question about the acceptance of values and goals within a community is not affected by Quine's thesis.[13] Thus by studying this question, we may be able to study the implications of Kitcher's argument from within the Quinean framework; we can study its implications for a hypothetical community, whose members hold values and commitments, which conform to Kitcher's reasons for rejecting Quine's assumed end of science. If the hypothetical community is close enough to ours in its values, commitments and beliefs, then we should take notice of these implications, for they may hold for us as well.

To allow us then to represent Kitcher's criticism, and to see how this gives rise to our problem, we need to put some restrictions on the nature of the hypothetical community to be considered. These restrictions will not be arbitrary; in fact, our hypothetical community will be an idealized version of our own modern liberal societies; and members of the hypothetical community will be assumed to hold values and commitment which will conform to some of Kitcher's reasons for rejecting Quine's assumed end of science. I will assume that, as in contemporary modern liberal societies, members of our hypothetical community have diverse interests and are committed to diverse goals, beliefs and values. They will however be assumed to share a limited set of beliefs and value commitments: they believe, with Kitcher, that science can attain the truth; and each member of the community believes it would be valuable for science to attain true answers to at least some limited set of questions. More than that: all members of our hypothetical liberal community value freedom, democracy, and rational discussion. All in all, it may seem, our Hypothetical Liberal Community (HLC) is not very much unlike actual modern liberal societies; or, to put it more realistically, not very much unlike the image we may believe our liberal societies ought to have.

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[13]   There are other elements in Quine's philosophy, namely, his thesis of indeterminacy of translation, that may be used to cast doubt on the legitimacy of the suggested terms of agreed acceptance of values and goals: attribution of mutual acceptance of values and goals may require a claim about the synonymy of utterances expressing the accepted values and goals in various agents' idiolects; but Quine famously argued that there are no facts of the matter with regards to some synonymy claims (W. V. Quine, *Word and Object* (Cambridge: The M.I.T Press, 1960), 26–79). I will not be able to touch here upon these implications of Quine's discussion of radical translation, and will presume, for the sake of this discussion that the terms of acceptance of values and goals are unproblematic.

We can now, at long last, give an initial presentation of the problem. The basic question, which members of our community want to answer, concerns the nature, which scientific institutions within the community ought to have. Given their beliefs and value commitments, given, in particular, that their commitments are inconsistent with mutual agreement on Quine's description of the ultimate end of science, and given that they are committed to rational debate, can they tackle the question regarding the nature of legitimate scientific institutions? Can they tackle this question in a rational way, if rational inquiry into values is limited in the way suggested by Quine?

A short recent history of HLC may serve to clarify the nature of the problem: Members of HLC have closely followed the debates of 'the science wars'. They have read with interest the antirealist criticism of science, and its portrayal of science as a means of coercion, undeserving of its claim to be based on rational discussion. These arguments have left members of our imagined community unconvinced. They were more sympathetic to the claim of the defenders of science (although, committed as they are to rational discussion, they followed the way in which some of these claims were advanced with much uneasiness). Now, however, their reassurance in the value of science, and in the legitimacy of the institutions, within which science is pursued, has once again been shattered. For reasons that would soon be explained at greater length, members of HLC find that they do not agree that the attainment of truth is the ultimate goal of science. They realize instead that science can only aim to attain significant truths; that judgments of the relative significance of various truths vary widely within their community; and that along with valuable significant truths, scientific inquiry engenders both benefits and harms, which differently affect different members of the community. They thus understand that different members of society have very different interests with respect to the way science is to be pursued. They know, at the same time, that science can only be pursued within social institutions providing necessary economic resources, political backing, and legal protection. Their worry is then this: Can the social institutions required by the scientific enterprise be legitimate? Or would science require, as members of the anti-scientific camp have always suspected, coercive measures that cannot be backed by reasons in a rational debate? In their distress, they turn to the philosophy of science: But if value inquiry is not possible, can the philosophy of science tell them how they should set up legitimate scientific institutions?

4. Truth as the Ultimate Goal of Science

To be able to understand why this problem, which our hypothetical community now faces, is of any relevance to us, let us suspend this 'science-fiction' talk, and briefly look into the structure of Kitcher's argument against the assumed goal of science. This may of course take us beyond the limits set to our discussion by Quine's methodological infirmity thesis; but we now know how to reinterpret such 'forbidden' talk within the limits set by Quine. Where an argument seems to suggest that it is unreasonable to accept an attainable end as the ultimate goal of an enterprise, we can reinterpret the argument as showing why it is unreasonable for members of a hypothetical community, given some specified commitments implicit in the reasons on which the argument rests, to accept such an ultimate goal.[14]

To begin, let us observe that there may be different ways in which one may accept the claim that the attainment of truth is the ultimate goal of science (TUGS): The simplest case is when one accepts:

(I)   'The monist defense of truth': Truth is the only value worth pursuing.

But even if one does not take truth to be the only thing of value, one may accept TUGS if one accepts one of the following:

(II)   'The defense from the denial of harmful subversive truths': The attainment of truth is always beneficial, whatever it is that is valuable.

(III)   'The defense from the autonomy of pure science': While under certain circumstances the attainment of truth may be harmful (and at others beneficial) to the attainment of some things of value, it is the ultimate goal of pure science to attain the truth. That is, avoiding (seeking) these harms (benefits) is not the responsibility of pure science.

If one rejects (I), (II), and (III), one believes that some things other than truth are valuable, that truth may be harmful to the pursuit of some of these valuable things, and that it is the responsibility of science to avoid such harms. If so, one cannot accept TUGS; even

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[14]   I will not suggest a full translation of Kitcher's arguments into the language of agreed acceptance among members of HLC; I trust that such an exercise can be done, and will leave it unfinished here.

if truth is to feature in formulating the ultimate goal of science, it cannot be that only truth can feature in the formulation of its goal.

Kitcher does not seem to argue against a possible endorsement of TUGS on the ground of the monist defense of truth. He simply seems to assume that some other things but truth are valuable: e.g., the well-being of fellow human beings, and the satisfaction of some of our basic needs and desires. I hope that no one will find this assumption (and the corresponding attribution of commitment to members of HLC) too unattractive to make the remaining discussion seem irrelevant. At the same time, Kitcher does maintain that the attainment of some significant truths – those that are epistemically significant – is inherently valuable (2001, 65). His rejection of TUGS would thus rely on an examination of the relation between the value of significant truths, and other interests and goals, which are of value. This examination would amount to a rejection of the defense of TUGS from the denial of harmful subversive truths, or from the autonomy of pure science.

The first thread in Kitcher's argument is based on the observation, that it is not all truths, but only significant truths, whose knowledge is valuable. Of those, some are valuable because they are instrumental to the attainment of other valuable goals, while others, those that are epistemically significant, are inherently valuable (there are also those that are both epistemically and practically significant). Kitcher's key claim is then that there is no contextually independent concept of epistemic significance; what we judge to be epistemically significant depends on our varying values and interests, concerns and capacities for curiosity.[15] Two implications of this are important for our discussion: First, that the description of the goal of science, as being that of the attainment of truth, is inaccurate; and that even a revised description, according to which it is only the attainment of significant truths, which science should aim at, is not sufficient to specify what kinds of truths ought to be sought without taking into account the various concerns, interests, and circumstances of various groups and individuals. Second, since the concerns, interests, and circumstances of different individuals are inevitably in variance, we can expect judgments of epistemic significance to likewise vary in society.[16]

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[15] *Op. cit.* note 2, 63–76, 80–2.
[16] Given the results of the second thread of Kitcher's objection, this variance in judgment of epistemic significance will then be a problem that scientific institutions would need to address. The agenda of science, as a communal enterprise, cannot respond in an optimal way to the significance

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The second thread of Kitcher's argument tries to establish a more ambitious claim: that the goal of science should not be the unrestricted attainment of significant truths. Here Kitcher argues against the defense of TUGS from the denial of harmful subversive truths, and from the autonomy of pure science. To argue against the first of these, Kitcher points to possible truths, whose knowledge may do disservice to goals we may hold as valuable, and analyzes in a more general way how knowledge may be harmful: Knowledge of some truths may make us unhappy, or less able to pursue our valuable goals; or it may force us to abandon projects that have been important to us. In light of these possibilities, Kitcher looks for a counter argument that will show that in such cases, one's well-being is nonetheless improved by the discovery of subversive truths. His rejection of various suggested counter arguments does not constitute a conclusive argument against the considered defense; it shows instead, that the only candidate argument for this defense is unconvincing.[17] But the fact that this defense is not ruled out does not have to worry us here: We can assume that members of HLC will not agree with such a position, hoping again that this will not diminish the relevance of our discussion.

There remains the defense of TUGS from the autonomy of pure science. This is perhaps the most difficult case: for most often it is this defense, which seems to supply the basis for the acceptance of TUGS. Defenders of TUGS on this basis may acknowledge that knowledge produced by scientific discovery may be harmful. They claim however, that science, *as science*, is to be judged only in terms of truth or knowledge. How the resultant knowledge is used is not the responsibility of science; this is a matter for moral, social or political debate. So the defense goes.

Kitcher's argument against this defense rests on the conclusions of the first thread of his objections to TUGS: on his claims, that there is no contextually independent concept of epistemic significance, and

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judgments of all member of society. In light of the competing significance-claims of different individuals, the question is, how are we to allocate social resources to different programs of inquiry?

[17] Of the various types of argument he considers, that which seems to be the best candidate for a possible argument for the defense is one that relies on an objectivist conception of what is valuable, in whose list of objectively valuable goals appear only goals to which knowledge and scientific inquiry are instrumental. Kitcher's objection to this view amounts to showing that it is doubtful that those who hold such a conception will be able to convince others that their list is the true list of objectively valuable 'items'.

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that judgments of epistemic significance depend on our varying interests, goals and values. The argument is based first on the claim that the autonomy defense can only work with respect to pure science; the defense thus requires a distinction between pure and applied science. Kitcher then claims, that the only way to make this distinction is in terms of the justified intentions of individual inquirers to promote epistemic significance;[18] but given the conclusions of the first thread of the objections, to make the distinction in such terms involves just the moral and social consideration, freedom of which was sought by the considered defense.

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This outline-presentation may not be sufficient to persuade those committed to TUGS to abandon their commitments. But it is not our goal here to persuade them to do this, for we are only interested in examining some of the implication of the acceptance of Kitcher's objections. So it is enough for us to note, that given our assumptions, members of HLC will not agree that the goal of science is to seek the truth, nor even that its goal is to seek significant truth. They will understand that different members of society have very different interests with respect to the way science is to be pursued, despite the fact that each of them values the pursuit of some truths.[19] We should also remind ourselves that members of HLC are committed to diverse goals, beliefs and ethical views, while they all value freedom, democracy, and rational discussion.

Given the resultant disagreement about the goals of science, which can be expected to be found among members of HLC, and given our assumption, that ethical inquiry is impossible, can Quine's account of the normative dimension of naturalized epistemology and of naturalized philosophy of science be preserved? We should not too hastily answer this question in the negative. That someone does, or does not, hold a certain belief or value commitment is not in itself a reason for acceptance or for rejection of such a belief or value commitment as true or justified. Each member of HLC may still accept a view of what the ultimate goal of science is, while acknowledging that his compatriots may not share his view: As Quine writes, 'We can still call the good good and the bad bad, and hope with Stevenson that these

18 *Op. cit.* note 5, 89.
19 One reason for this variance, which was mentioned earlier, is that along with valuable significant truths, scientific inquiry engenders both benefits and harms, which differently affect different members of the community.

epithets may work their emotive weal'.[20] Each may find normative import in the philosophy of science, given the hierarchy of values and goals accepted by her. The view of the philosophy of science as a chapter of cognitive engineering does not have to be rejected once we acknowledge our disagreements about the ultimate goal of science, just as engineering itself does not end because of our disagreements about what makes the products of our engineering valuable or harmful. Of course, our understanding of the nature of discourse in the philosophy of science would have to accommodate itself to the realization that even rational lovers of truth may not agree on what the ultimate goal of science should be. Philosophers of science would not be able to see themselves as offering recommendation and supporting arguments that ought to persuade all lovers of truth. Arguments can only be addressed to those lovers of truth who happen to accept an ultimate value on which the argument rests. In a sense, to allow for discussion beyond the unavoidable divide in HLC, philosophers of science would need to adopt the language of hypothetical imperatives: If one wants to increase the probability of discovering certain significant truths, one should do this; if one wants to reduce the probability of finding one's community in a position where it needs to revise previously held beliefs, one should do that… There remain those, to whom no recommendation seems possible: Those who, perhaps because they have found that two values to which they were committed were inconsistent with each other, find themselves unsure about the ultimate value, which should guide scientific inquiry. To sum, conjoined with the realization that even a community of truth lovers may very well find itself entangled in disagreement over the goals of science, the claim about the impossibility of ethical inquiry may have some troubling implications. This resulting troubling picture is however just a copy of the picture painted by Stevenson and Quine to describe ethical discourse, redrawn to describe the normative discourse in the philosophy of science.

The problem facing HLC, however, is more specific, and perhaps more worrying. For the impossibility of rational debate about the goal of science may be particularly worrying, given the values held by members of HLC, when one considers the reliance of science on political institutions. Not agreeing on what science should aim at, members of HLC seem to have two options before them: to live in a community where science is not pursued, or to allow science to be pursued within coercive institutions, whose coercive nature cannot be backed by reason in a rational debate. Given the value

[20]   *Op. cit.* note 5, 65.

commitments of members of HLC – to freedom and democracy, to rational debate, to truth – both options may seem inadmissible. It is to address this question that we imagine them seeking the philosopher's counsel. But given the general inability to offer rational advice, which is not of the instrumental kind, it would seem that the philosophy of science might not be able to deliver such counsel.

5. The Goals of Science: Disagreement and Democracy

The suggestion that science is inherently a coercive enterprise, the coercive nature of which cannot be rationally justified, was a main issue of the science wars. The view was suggested by those who have denied that science can seek the truth and attain its professed goals. Now we see, that even if these claims about the possible attainment of truth are denied, still this grim picture of science may be justified if we can find no way to rationally justify a view of the goals of science. This is surely a troubling picture. If it is, that is because we are committed to values which call upon us to settle disagreement in the domain of politics on the basis of rational debate in a democratic framework among free and rational persons; we believe we should avoid resort to coercion where we can give no reasons for the ends at which the coercive means aim.

The realization that the source of our worry is to be found in our value commitments may suggest however that it is there that we may find the answer to these worries. For we value democracy, and are committed to a democratic method of settling disagreements between free, equal and rational persons. This may suggest that it is a democratic ideal that is to specify what the goal of science ought to be.

A suggestion along these lines is at the center of Kitcher's positive discussion of the goals of science. His reasons for suggesting this kind of solution, and the problem he seeks to solve by it, are to a certain extent similar to those discussed here. Of course, our reasons for rejecting Quine's assumed goal of science *just are* those suggested by Kitcher, as are our reasons for realizing that different members of society have very different interests with respect to the way science is to be pursued. There is also significant similarity, though not identity, between the nature of the question raised here as a result of the rejection of TUGS, and between the question originally raised by Kitcher; and between the reasons that lead in both cases to the suggestion of a democratic ideal as a possible solution. The fundamental question raised by Kitcher concerns the collective values that

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organized inquiry ought to promote, in light of the diverging prefer-ences and views of different people within a community. Thus, while the question raised here may have been set up differently than in Kitcher's discussion, both questions are questions of values relating essentially to the political domain. In the context of our discussion it is perhaps most significant to note that Kitcher is led to suggest a democratic ideal by considering the possibility of answering his ethical question through inquiry. Kitcher, it is true, does not seem to assume, as I have done for the sake of my discussion, a view such as Quine's, which rules out the possibility of rational debate into fun-damental questions of value. He does however seem to be led to his suggestion of the democratic ideal by a certain skeptical view about the possibility of value inquiry into questions of a more limited scope: questions about the right way of integrating the interests of different individuals. Accordingly, he seeks to circumvent this general question, and to rely instead on the fact that in our commu-nity democratic ideals are taken for granted, to limit his discussion to societies that honor such democratic ideals. One possible way to interpret Kitcher's reasons for suggesting the democratic ideal thus fits well within the framework suggested by Quine, and with the way we have arrived here at the suggestion of a democratic ideal for science: because of the limited possibility of ethical inquiry, we must decide on the goals of science on the basis of some given values, agreed upon within our community.[21]

A solution of this form faces however a problem we have already met. As we have seen, a community whose members are all com-mitted to the value of significant truth, and to the value of science as a possible means for attaining it, may not – or should not – agree

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[21]   *Op. cit.* note 2, 114–116. As I will claim later, a more plausible way to interpret Kitcher is based on Rawlsian ideas, whose fit with the Quinean framework is only partial. Kitcher's reasons for skepticism about the possi-bility of value inquiry into questions regarding the right way of integrating the interests of different individuals are based first on his objection to suggested ways of divorcing what is good for a person from a person own re-flective preferences. In particular, the most promising attempt to do this is through an essentialist appeal to particular kinds of ends, which are consti-tutive of human nature, and in terms of which the human good is to be defined. But such an appeal must either be caught in circularity, or define the human good in terms that would be completely unacceptable (*Op. cit.* note 2, 162–6). If however we admit to the impossibility of divorcing one's well-being from one's preferences, then we must face a problem, which may seem unsurpassable: that of interpersonal comparison of well-being.

that the goal of science should be specified in terms of significant truth. So while it may be true that the value of democracy is almost unanimously recognized in our community, this fact may not suffice for us to agree upon the claim that the ultimate goal that science ought to follow is one specified by an ideal democratic procedure. If despite the assumed unanimous acceptance of the value of truth in our imagined community we were led nonetheless to recognize our problematic position, it was through reflection on the relations between the value of truth and other values we may affirm. In a pluralistic community such as ours, or such as we assumed HLC to be, we can expect no agreement on the relations between the value of democracy or truth, and that of other things we may value, even if all recognize that the former are valuable. But where there is no such agreement, then under our assumptions here, there are no rational means that would allow members of the community to agree that they should follow a goal specified in terms of either of the accepted values.

By considering three familiar types of defenses through which one may try to defend the claim that a democratically specified goal is the ultimate goal of science (DUGS), we can see how, committed as we are to the value of democracy, we may nonetheless reject the above goal; for even though we share a commitment to democracy, none of these defenses may strike us as convincing:

(I)   'The monist defense of democracy': a democratically specified goal is the only valuable goal worth pursuing.

(II)   'The defense from the denial of harmful democratic procedures': Attainment of a democratically specified goal is always beneficial, whatever it is that is of value.

(III) 'The defense from the autonomy of pure democratic science': While under certain circumstances the attainment of democratically specified goals may be harmful to the attainment of some things of value, pure democratic science has no other goals or responsibilities but the attainment of the democratically specified goal.

Perhaps other possible ways of defending a democratically specified goal for science might be suggested. In any case, it would be instructive to note why we may seem to be suspicious of the defenses suggested above.

The monist defense of democracy is so bizarre, that it is hard to see how it can constitute a coherent view. Why should the acceptance of a view by a certain number of people constitute in itself a reason for the view? It is hard to see how this question could be answered without

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pointing to some other value, which would be served by such acceptance. Such a view would thus either seem to be absurd, or would collapse onto a non-monist defense of DUGS. The two other defenses seem thus more plausible. They require, however, that we admit, as we should, that other things but democracy are valuable. Once we do that, the door is open to some familiar objections. The world as we know it does not seem to support the claim that the attainment of everything that is of value is always best served by the institution of democratic procedures. Truth and justice are of course cases in point: Both may prosper within societies in which some basic institutions are governed democratically; but both would arguably wither within societies, in which answers to all questions are determined in a democratic manner.[22] Similarly the defense from the autonomy of pure democratic science may also seem suspicious: According to such a defense, to paraphrase Rawls, 'Democracy is the first virtue of scientific institutions, as justice is of social institutions.'[23] But should not other virtues – primarily those of truth and justice – figure more predominantly in the specification of the goal of scientific institutions?

These *prima facie* reservations about the claim that a democratically specified goal is the ultimate goal of science do not amount to any serious argument against such a claim. But the task of testing arguments for or against such a goal is beyond the limitations we have assumed for the sake of our discussion. All that the reservations thus can suggest in this context is why, within a community committed to democratic values, there may be no agreement on whether a democratically specified goal for science is one that ought to be followed. Thus we find that despite unanimous commitment to democracy, our communities may remain in conflict. And we remain in the troubling position to which we were led by our hypothetical endorsement of Quine's thesis about the impossibility of ethical inquiry, by acknowledging the political conditions necessary for the science to be pursued, and by our dislike of unreasoned coercion.

Having acknowledged that while we share a commitment to certain values, we may remain disagreed on what it is that makes these

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[22] This may of course suggest, that the question whether the goal of science is to be specified by an idealized democratic procedure is best decided by the democratic basic institutions of society. This I do not wish to dispute; I will discuss the import of this suggestion later.

[23] For the original comparison of virtues of theories with those of social institutions, see John Rawls, *A Theory of Justice* (New York: Oxford University Press, 1971), 3.

valuable, it may be suggested that we ought to make our decision on certain fundamental issues of politics, where coercion is involved, on the basis of those concepts and values that we can all accept. We should exclude from consideration, according to this suggestion, those values and beliefs on which mutual agreement is not possible. On the basis of such an idea of public reason, as developed, e.g. in Rawls,[24] a defense of a democratically specified ultimate goal of science may perhaps be possible. Indeed it would seem that a more plausible interpretation of Kitcher's appeal to democratic ideals taken for granted in our communities would be based on such Rawlsian ideas.[25] What is important here to note, however, is that this use of the idea of public reason is itself not one, on which we should expect to find agreement in contemporary society, not even among those who are committed to basic liberal values which may make this idea seem plausible.[26] To note this fact in this context is not to join in the debate, whether this principle of public reason ought to be accepted; for given the frustrating limitations we have accepted for the sake of our discussion, this question is beyond what we can rationally debate, unless we were agreed that the value of such a principle of public reason is dependent on its being instrumental to the attainment of an ulterior end.

[24]   See, e.g. John Rawls, 'The Idea of Public Reason Revisited', in J. Rawls, *The Law of the Peoples: With The Idea of Public Reason Revisited* (Cambridge: Harvard University Press, 2001).

[25]   *Op. cit.* note 2, 211. Rawls' influence on Kitcher is evident in Kitcher's formulation of the ideal goal for science, 'well ordered science' (for explicit references to such influence, see *op. cit.* note 2, 117–135, 209, 211, 213). It should be noted however, that in formulating his ideal, Kitcher does not require that the hypothetical parties exclude from consideration their own moral conceptions, if these are unacceptable to others; that is, the hypothetical procedure does not require that the hypothetical parties act in accordance with what they believe that others would be able to accept as fair; but that their decision will conform with what they themselves take to be fair (*op. cit.* note 2, 119; compare with Rawls, *op. cit.* note 24, 136–137). Thus the question, to what extent Kitcher's ideal can be interpreted as following Rawls' idea of public reason, is one that requires further consideration.

[26]   It is partially for this reason that Rawls states that the idea of public reason belongs to a conception of a well-ordered society. It is within such an ideal society that this idea may be accepted by all (*op. cit.* note 24, 131). For a rejection of Rawls' reliance on the idea of public reason from within a liberal morality, see Joseph Raz *The Morality of Freedom* (Oxford: Clarendon Press, 1986), 127–130.

Our discussion thus leads to the conclusion, that neither our shared valuation of democracy, nor our shared dislike of forms of coercion, can supply us with the kind of basis that is required by Quine for the possibility of rational debate about the goals of science. But can it be objected that our discussion has not given due consideration to the claim that has suggested an ideal democratic procedure in the first place? It was, after all, the limited possibility of ethical inquiry, which has led us to consider a goal specified in this way. The suggestion is, thus, that *because* we do not know how to aggregate the different interests of individuals into a single measure, or *because* we do not know how to revise our views when we find them to contain conflicts, we better let the answer to these questions be determined by a democratic procedure. The problem with this suggestion is that nothing of the sort follows from our mere ignorance, or belief in the impossibility of ethical inquiry. Our doubts about the possibility of successful inquiry in the domain of values do not in themselves constitute a reason to trust ourselves to the hands of a democratic procedure. To recommend putting our trust in the latter, we need reasons that can show that by relying on it we can do better than by some other alternative. Mere ignorance is not a reason to act one way or another.

If we are to give up on the hope that we may give such reasons, can we attempt a solution to our problems by mere stipulation? This too would seem unhelpful. We could certainly stipulate that the goal of science just is whatever is specified by an ideal democratic procedure. But such stipulation merely appropriates a certain name, 'the-goal-of-science', and decrees a certain use for it. It gives us no reason to aim at 'the-goal-of-science' and to act in order to attain 'the-goal-of-science'. Stipulation can introduce discipline into our use of language; it cannot tell us how to act, and what we should aim at.

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All this does not mean that we do not have reasons to aim at a goal specified by a democratic procedure. What it does show is that the type of agreement that may be found in our community on the value of truth, or of democracy, is not of the kind that would allow us to agree on, or rationally debate, the goal of science, if normative inquiry is possible only within the limits suggested by Quine. Such agreement or reasoned debate would require not only a basis of shared values and commitments, but a basis of shared views about what makes what we may value valuable. It is highly doubtful if agreement of this type may be found in contemporary societies.

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True, within a society governed by democratic institutions the question, whether a goal specified by a hypothetical democratic procedure is the goal, towards which scientific institutions ought to aim, is within the scope of decisions of democratic institutions. However, as long as we restrict ourselves to a framework of the form suggested by Quine, we will not have an account of how this democratic decision can be guided by rational deliberation.

In arguing for his account of naturalized epistemology, Quine claimed that the goals of epistemology, as understood by many philosophers from Hume to Carnap, were unattainable. This required a reformulation of the goals which epistemology must aim at, and a reevaluation of the means it may be able to use to attain its goals. The result was an account of epistemology and of philosophy of science as a chapter of science, whose normative dimension was to be a result of values we were assumed to hold, and which were taken as given. However, as our discussion may have made clear, the values we hold partly determine our conception of the goal of the philosophy of science, as of science itself. And in light of our valuation of rational debate about the goals of scientific institutions, we see that naturalized philosophy of science cannot attain its goals, as we seem to understand them, if it is to be limited to the means suggested by Quine. Thus we have reached again a point which requires a reevaluation: of our values, of the goals we have set to the philosophy of science, and of an account, such as Quine's, of the means available to the discipline. It is possible that Quine's account may be preserved, and that it is our values and our conception of the goals of the discipline which may need to be revised; but if so, then we have no means within Quine's framework that may suggest how we should revise our conception of the goals of philosophy of science, and the values that shape them. Thus, while my discussion, being merely of a negative nature, cannot rule out this possibility, it may suggest that we have reasons to rethink Quine's account of the normative dimension of a naturalized philosophy of science.[27]

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