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The Postmodern Attack on Scientific Realism[1]

In this paper I examine three themes which figure prominently in what can be termed 'postmodern' analyses of science and religion, namely relativism, sociological deconstructivism and anti-rationalism. There are a number of conceptual difficulties with the central tenets of what many post-moderns claim. I sketch these problems and extract a common moral, namely that robust, objective ideas of reason, meaning and truth are presupposed by the very activities of assertion and enquiry. If that is correct, then in so far as both science and religion involve these activities, it must be the case that the appropriate understanding of reason, meaning and truth in these domains is, contra many postmodernists, an objective one.

Keywords: Anti-rationalism, critical realism, incommensurability, objectivity, post-modernism, relativism, sociological deconstructivism.

1. Relativism

'All truth is relative': a common claim, but what, if anything, could be meant by it?

The relativist seems committed to the following:

'X is true' = X is true for me (or perhaps, for my community).

How satisfactory is this as a claim about the meaning of truth? One of the points in my using the predicate 'is true' is to commend a proposition as one that should be believed. An assertion such as 'What the President said this morning is true' carries the implication: 'You ought to believe what he said'. It would be nonsense to assert 'Everything he said is true, but you shouldn't believe a word of it.'

Yet exactly this kind of nonsense is involved in the claim that truth is relative. For if 'X is true' means 'X is true for me', then my assertion of X (or the equivalent assertion that X is true) precisely does not carry the implication 'You ought to believe X'. If truth is really 'truth for me/truth for my community', then when I assert that a proposition is true, my assertion need not be taken as a proposal for your assent, since you are a different individual and you may belong to a different community. But then, of course, I have not really made an

1 This paper was originally presented at the *Christians in Science* conference, September 2001. I am grateful to participants for their questions and comments.

assertion. All that has happened is that I have, in a roundabout, confused manner, expressed what I believe.

Effectively, then, what the relativist means by 'is true for me' is something like 'is believed by me'. But if that is what the claim really amounts to then it would seem better if it were in fact expressed this way. For once it is clear that the relativist's utterance is primarily an expression of their belief, it invites the response: yes, you may believe that – but should you? What reasons have you for believing that?

The confusion of truth and belief leads us into conceptual difficulty. What is the relativist to make of the rejoinder: relativism may be true for you, but it is not true for me? Are they to agree – in which case, they would seem to have given up trying to persuade us to become relativists, which should make us wonder what it is they really believe themselves? Or, are they to disagree – in which case, it would seem that some truth claims are in fact absolute?

It seems at first glance, then, that the relativist has failed to note the distinction between assertions that a proposition is true (the truth of which depends upon whether things are as the proposition says) and expressions of one's own belief or opinion. Someone who equates truth with opinion gets into a conceptual quagmire which makes genuine communication (the proposal and consideration of propositions) impossible.

Conversely, if we take it that genuine communication is possible (and, of course, nobody can tell you otherwise!), it must be the case that truth is more than simply mere opinion. Truth is what we aim at in the practice of assertion – but the assertion itself may not hit the goal. This is one part of my argument, then, for the claim that the practice of making assertions presupposes an objective notion of truth.

2. Sociological deconstructivism

There has in recent years been a heightened awareness of the significance of the social context of theory creation. Philosophers such as Wittgenstein have argued that language use is a social activity, so that the meaning of terms in scientific theories must be explained by reference to the social context the scientists inhabit. There is much enlightenment to be gained by this renewed interest in sociology. But how exactly should we understand the relationship between theories and social contexts? One radical stance is that of the sociological deconstructivist.

The deconstructivists, as I describe them, believe that it is possible to give a full explanation for the choices of scientists (or religious believers) which mentions only sociological causes of belief. That is, all processes of inference considered reasonable can fully be explicated by reference to the obtaining

social conditions.[2]

Sociologically reductive analyses have drawn upon Wittgenstein's rule-following argument. The idea here is that we are all members of particular linguistic communities. Our language embodies certain rules for the use of terms. These rules are not 'God-given'; they are based on consensus. What makes it right to apply a term in a particular way is that the community you belong to does. So it might seem that truth is reduced to human agreement.

The 'truth as consensus' model is expressed in blunt form by Rorty: truth is what one's peers will let one get away with.[3] If the model is right, it would follow that the epistemology of science is reduced to sociology: the explanation of what scientists believe to be true should proceed by looking at the social factors which lead to consensus.

The deconstructivist position embodies, I submit, a misconception about truth. I go about deciding whether there is cheese in the fridge by looking, not by conducting a straw poll. There is no difficulty in conceiving of propositions which are universally believed, yet are in fact false. There was once a widespread belief in the proposition that the earth was the centre of the universe. This did not make it true. Consensus is not a sufficient condition for truth; nor, of course, is it necessary. There are many facts about the past of which we are all ignorant.

It cannot be correct, then, to adopt the 'truth as consensus' model. A further difficulty for the deconstructivist remains one of self-reference: what are we to make of the reasons offered to us for denying that there can be good reasons? In other words, what is the status of the sociological theories that are supposed to supplant the 'rationalist' tales of scientific history? If they are offering us reasons, why should we not subject them to the same deconstructive analysis which they claim applies to science? And if they are not offering us reasons, why should we believe what they claim?

This latter argument really gets to the nub of the problem. The key point which should be made is that the very act of asserting propositions as worthy of belief (an act which deconstructivists partake of every bit as much as their opponents) presupposes that there is such a thing as 'worthiness of belief', i.e. reasonability. Participants in anything which could be called enquiry are bound, as a pre-condition of the meaningfulness of the activity itself, to mak-

2 This claim may seem outlandishly strong, yet it accords with the general tenor of deconstructivists such as Bloor and Barnes of the Edinburgh 'Strong Programme'. A more cautious deconstructivist might argue that considerations of social context may not fully explicate the claims being made but that, nevertheless, once the social context is in view, any claims to truth are undermined. This more qualified view is still vulnerable to the problems of self-reference discussed above. Early formulations of the sociological deconstructivist view can be found in Barnes, B. *Scientific Knowledge and Sociological Theory*, London: Routledge and Kegan Paul (1974) and Bloor, D. *Knowledge and Social Imagery*, London: Routledge and Kegan Paul (1976).

3 Rorty, Richard *Philosophy and the Mirror of Nature*, New York : Princeton University Press (1979), p. 176.

ing a distinction between what is reasonable and what is not. If any theory is as valid as any other, then there is no point in proposing any theory.

3. Anti-rationalism

Once upon a time, everyone believed in the rationality of science. Philosophers thought they could spell out the 'scientific method' which embodied this rationality. But the history of the philosophy of science in the past century is a tale of the failure of philosophers to do this (logical positivism didn't work, neither did simple empiricism, nor falsificationism, etc.). Then came a generation of philosophers and historians of science (led by Kuhn and Feyerabend) who pointed out, not just that the philosophers' accounts of scientific method were problematic in their own right, but also that, when we actually look to the practice of scientists, they never seem to do what, according to the rationalistic philosophers, they should be doing. In particular, the pioneering figures during periods of scientific revolution seemed positively to contradict the established scientific procedures.[4]

All of this led to the doctrine of the incommensurability of scientific theories. This is the claim that there can be no rational comparison between theories. There is a parallel claim which is made about religious belief: coming to believe is a fundamentally non-rational activity. The thesis of incommensurability has a number of sources, but two central arguments are as follows:

1. The epistemic argument for incommensurability

There are no neutral criteria to be used in assessing the merits of rival theories. The rules we follow in rational argument depend upon the theories which we already accept. Therefore, any appeal to 'rational' considerations in assessing theories must be circular. It is this argument which figured in the famous ninth chapter of Kuhn's *Structure of Scientific Revolutions*[5] and provides one of the motivations for his development of the idea of the incommensurability of scientific paradigms.

2. The semantic argument for incommensurability

Members of different belief systems speak different languages, and there is no possibility of translating the terms of one system into the terms of another. Therefore it is impossible even to comprehend, let alone rationally assess, what is being said by those who have a different belief system to one's own. This

4 See, for example, Kuhn T., *The Structure of Scientific Revolutions*, 2nd edition, Chicago: Chicago University Press (1970) and Feyerabend, P. 'Against method: outline of an anarchistic theory of knowledge', *Minnesota Studies in the Philosophy of Science* IV (1970).
5 Kuhn, *op.cit* (4)

argument also figures, notoriously, in Kuhn's thinking, although he is equivocal about the extent of the limitation on communication.

The incommensurability thesis has led to an entirely new research programme, of a piece with the sociological deconstructivist approach described above. Instead of seeking to assess the history of science as, even in part, a progression towards an objectively true picture of the world, sociologists of science now seek to explain the choices of scientists without reference to such 'dubious' notions as rationality or truth. If the incommensurability thesis is correct, then claims by scientists to possess rational grounds for their theories must be treated as propaganda. There is, then, a deconstructive task to be done by the sociologist of showing the real, non-rational determinants of belief which underlie the scientist's so-called 'rational' arguments. There has been a similar move towards the sociological study of religion, with the growth of 'religious studies' departments, a focus on phenomenological studies and the decline of theology.

Now, in fact, we can make pretty good sense of the claims of past scientists. Even at an elementary level, it is comprehensible what Galileo was doing when he opposed the Aristotelians. There may be subtleties of argument which we miss, but it is the task of the historian to try, as far as possible, to uncover these. Perhaps there is a sense in which our understanding will always be 'second-hand', but conceding this is far from allowing the idea that those who operated in other paradigms belong to a different world, with no basis for mutual intelligibility with our own. Kuhn himself allowed for the possibility of partial translation, but did not perhaps concede that this undercuts the grounds for some of his more trenchantly relativist comments.[6]

Once again, considerations of self-reference arise. The case for semantic incommensurability is made by describing two different paradigms, then seeking to demonstrate that there are terms in one paradigm for which no equivalent term (with either the same sense or reference) can be found in the other. Thus, for example, Kuhn famously argued that it was mistaken to suppose Newtonian mechanics to be a special case of Relativistic mechanics, since the very meaning of central terms such as 'mass' changed with the shift from Newtonian to Einsteinian physics, and no translation between these schemes is possible.

The difficulty here is that the very presentation of the case presupposes that we can understand the older paradigm well enough to see that the meaning of its terms differs from that of the modern one. But this means that we can in fact get a grasp of the meaning of the terms in the other paradigm. If there were real incommensurability then we could not even be sure that the other scheme had terms different in meaning from our own. A paradigm incommen-

6 *Ibid.*, p.198.

surable with our own would be a complete mystery: a string of signs and symbols of which we could make nothing.

It looks as though the semantic argument for the incommensurability doctrine rests upon a failure to distinguish between *difference of meaning* – which undoubtedly there may be, since what we believe may affect the meaning we give to terms – and *failure of translation* – which seems far less plausible. Newton did have a different conception of inertial mass than we now do, following Einstein. Yet we can still make sense of what he believed and recognise the extent to which he was still talking about the same property.

So much, then, for semantic incommensurability. What about the epistemic argument? Is it the case that the standards for assessing paradigms are internal ones, and that different paradigms bring with them different concepts of what a good paradigm should be?

There is no doubt that scientific practice is informed by exemplars. But if we step back from the particularities of individual controversies, we can perhaps discern something – a set of values, rather than rules, common to all scientists. Surprisingly, it was Kuhn himself who introduced the idea that there are in fact a number of 'scientific virtues'. These are values – accuracy, consistency, scope, simplicity and fruitfulness – which are sought by all scientists. They are to that extent 'paradigm transcendent'. Nor does Kuhn think these values are merely accidental. It is a presupposition of calling a theory 'scientific' that it is intended to exhibit these characteristics. To be scientific is to be involved in creating a theory which gives an accurate, simple, consistent and fertile account of the data.

There may be, as paradigms change, differences in the relative significance attached to individual values. For example, Aristotelian science looked for descriptive accuracy, whilst post-Galilean physics sought a simple model with explanatory and predictive power. It is these differences in weighting that account for the depth and intractability of the debate during periods of scientific revolution. But the fact that there is a framework of shared values to appeal to shows that there is the possibility of a debate which is rational in an objective sense. It is simply not the case, when assessing what counts as scientific method, that 'anything goes', as Feyerabend would have it.

4. Conclusion and proposals

I advocate a discriminating reponse to postmodernism. We clearly live in a time of rapid, deep-seated cultural change, and it can seem in such a context as though truth and reason represent unobtainable ideals. But if the line of argument I have been pursuing is correct, then we should be wary of the deconstructivist aspirations of postmodernism. An idea of truth as a goal of rational enquiry is eminently defensible, and is indeed presupposed in the discussion to which postmodernists wish to contribute. This is why relativism, sociological

deconstructivism and anti-rationalism all seem to be faced with serious conceptual difficulties and problems of self-reference.

On the other hand, there can be no doubt that the concepts of reason, truth and meaning are now subject to such intense discussion that Christians will seem naïve if they assume that what counts as true, reasonable or meaningful should be obvious to everyone. It may well be that when we get down to the details of thinking about these concepts, we will find that aspects of the post-modern critique have validity. We aspire towards objectivity in reasoning, but, as the postmoderns stress, given human contingency, finitude, and our embeddedness in particular social traditions, in our actual transactions with others we invariably fall short of this ideal.

Perhaps – I offer this tentatively – a way ahead might be found by arguing, as I have done, that the practices of communication and enquiry presuppose that there are standards of correctness and clarity. If there were not, speech acts would simply be noises in the air, rather than genuine assertions, and there would be no sense in the activity of enquiry. But acknowledging the indispensability of the ideal of objectivity is compatible with a clear eyed recognition of the very subjective nature of many of our actual attitudes and commitments. We may allow that 'postmodernity' is a good description of our actual cultural situation, without allowing the implication of the postmodernist rejection of objectivity as a norm for rational enquiry and truth.

This is all very much in the spirit of 'critical realism': realism, since we do not reject reason, truth or meaning as concepts with an objective basis; critical, since we keep our eyes open to the realities of our human condition which make achievement of that objectivity so hard.

The critical realist will take it that social factors do influence scientists, but that these influences do not rule out there being a place in an account of science for such epistemic notions as the search for truth. A critical realist analysis will allow that a full explanation of, for example, why scientists make the decisions they do, will involve reference to the social context in which they work. However, the critical realist does not allow that the scientist's decisions are determined solely by social factors external to the practice of science. For example, a critical realist will allow that factors such as who is providing research funding do not *determine the outcome* of the research – although they will be involved in determining the topics which are chosen for research, and, to some extent, the lengths researchers go to in tackling particular difficulties. Given the problems with the deconstructivist analysis there is much to be said for exploring this way of analysing the place of social factors in science.

The exact implications of a broadly 'critical realist' position need further exploration (particularly, once we move over to the religious sphere, as regards the vexed issues of hermeneutics and pluralism). There has been a tendency in recent Christian writings for discussions of postmodernism to be phrased in shrill polemical terms, undergirded by a sense that postmodernism constitutes

a grave danger to Christianity. I prefer a cooler appraisal, in which we sift through the complex currents of contemporary thought, probing to see whether the claims being made about reason, meaning and truth stand up to the scrutiny of conceptual analysis. The outcome of this process should yield, I have been arguing, a stronger conviction of the ineliminability of notions of objective truth and reason. These are inescapable presuppositions of the very dialogue to which postmodernism contributes. If that is correct, then the Christian engagement with the postmodern agenda in both science and religion need not be trenchantly polemical, but calm, clear-thinking and confident.

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ERRATUM

In Science and Christian Belief Vol. 14(1), p. 79, 2002, there was an unfortunate printing error in the Correspondence section. The second paragraph of the letter from Prof. Ted Burge should have read as follows:

> "Starting with the assumption or belief in the existence of a creator God, physicists deduce from their observations of the laws of nature *that God must be a God of order. Without this order, and the precise strengths of the forces of nature,* and the exact values of the masses of the constituent particles, evolution as we know it would be impossible. Some find in this 'Anthropic (human-making) Principle' an updated argument for design with a purpose. It leads directly to the belief that God is a personal God, with a special relation to humans and to the whole of creation".

The italicised words were omitted in the printed version and the Editors apologise to Prof. Burge for the change in meaning of the text that this error entailed.