

What the Sokal hoax ought to teach us

The pernicious consequences and internal contradictions of "postmodernist" relativism

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In the autumn of 1994, a New York University theoretical physicist, Alan Sokal, submitted an essay to *Social Text*, the leading journal in the field of cultural studies. Entitled "Transgressing the Boundaries: Toward a transformative hermeneutics of quantum gravity", it purported to be a scholarly article about the "postmodern" philosophical and political implications of twentieth-century physical theories. However, as the author himself later revealed in the journal *Lingua Franca*, his essay was merely a farrago of deliberate solecisms, howlers and *non-sequiturs*, stitched together so as to look good and to flatter the ideological preconceptions of the editors. After review by five members of *Social Text's* editorial board, Sokal's parody was accepted for publication as a serious piece of scholarship. It appeared in April 1996, in a special double issue of the journal devoted to rebutting the charge that cultural-studies critiques of science tend to be riddled with incompetence.

Sokal's hoax is fast acquiring the status of a classic *succès de scandale*, with extensive press coverage in the United States and to a growing extent in Europe and Latin America. In the USA, over twenty public forums devoted to the topic either have taken place or are scheduled, including packed sessions at Princeton, Duke, the University of Michigan and New York University. But what exactly should it be taken to show?

I believe it shows three important things. First, that dubiously coherent relativistic views about truth and evidence really have gained wide acceptance within the contemporary academy, just as it has often seemed. Second, that this has had precisely the sorts of pernicious consequences for standards of scholarship and intellectual responsibility that one would expect it to have. Finally, that neither of the preceding two claims need reflect a particular political point of view, least of all a conservative one.

It's impossible to do justice to the egregiousness of Sokal's essay without quoting it more or less in its entirety; what follows is a tiny sampling. Sokal starts off by establishing his postmodernist credentials; he derides scientists for continuing to cling to the "dogma imposed by the long post-Enlightenment hegemony over the Western intellectual outlook": that there exists an external world, whose properties are independent of human beings, and that human beings can obtain reliable, if imperfect and tentative knowledge of these properties "by hewing to the 'objective' procedures and epistemological strictures prescribed by the (so-called) scientific method". He asserts that this "dogma" has already been thoroughly undermined by the theories of general relativity and quantum mechanics, and that physical reality has been shown to be "at bottom a social and linguistic construct". In support of this, he adduces nothing more than a couple of pronouncements from physicists Niels Bohr and Werner Heisenberg, pronouncements that have been shown to be dubious by sophisticated discussions in the philosophy of science over the past fifty years.

Sokal then picks up steam, moving to his central thesis that recent developments within quantum gravity – an emerging and still speculative physical theory – go much further, substantiating not only postmodern denials of the objectivity of truth, but also the beginnings of a kind of physics that would be truly "liberatory", of genuine service to progressive political causes. Here his "reasoning" becomes truly venturesome, as

he contrives to generate political and cultural conclusions from the physics of the very, very small. His inferences are mediated by nothing more than a hazy patchwork of puns (especially on the words "linear" and "discontinuous"), strained analogies, bald assertions and what can only be described as *non-sequiturs* of numbing grossness (to use a phrase that Peter Strawson applied to the far less deserving Immanuel Kant). For example, Sokal moves immediately from Bohr's observation that in quantum mechanics "a complete elucidation of one and the same object may require diverse points of view" to:

In such a situation, how can a self-perpetuating secular priesthood of credentialed "scientists" purport to maintain a monopoly on the production of scientific knowledge? . . . The content and methodology of postmodern science thus provide powerful intellectual support for the progressive political project, understood in its broadest sense: the transgressing of boundaries, the breaking down of barriers, the radical democratization of all aspects of social, economic, political and cultural life.

He concludes by calling for the development of a correspondingly emancipated mathematics, one that, by not being based on standard (Zermelo-Fraenkel) set theory, would no longer constrain the progressive and postmodern ambitions of emerging physical science.

As if all this weren't enough, *en passant*, Sokal peppers his piece with as many smaller bits of transparent nonsense as could be made to fit on any given page. Some of these are of a purely mathematical or scientific nature – that the well-known geometrical constant pi is a variable, that complex number theory, which dates from the nineteenth century and is taught to schoolchildren, is a new and speculative branch of mathematical physics, that the crackpot New Age fantasy of a "morphogenetic field" constitutes a leading theory of quantum gravity. Others have to do with the alleged philosophical or political implications of basic science – that quantum field theory confirms Lacan's psychoanalytic speculations about the nature of the neurotic subject, that fuzzy logic is better suited to leftist political causes than classical logic, that Bell's theorem, a technical result in the foundations of quantum mechanics, supports a claimed linkage between quantum mechanics and "industrial discipline in the early bourgeois epoch". Throughout, Sokal quotes liberally and approvingly from the writings of leading postmodern theorists, including several editors of *Social Text*, passages that are often breathtaking in their combination of self-confidence and absurdity.

Commentators have made much of the scientific, mathematical and philosophical illiteracy that an acceptance of Sokal's ingeniously contrived gibberish would appear to betray. But talk about illiteracy elides an important distinction between two different explanations of what might have led the editors to decide to publish Sokal's piece. One is that, although they understood perfectly well what the various sentences of his article actually mean, they found them plausible, whereas he, along with practically everybody else, doesn't. This might brand them as kooky, but wouldn't impugn their motives. The other hypothesis is that they actually had very little idea what many of the sentences mean,

and so were not in a position to evaluate them for plausibility in the first place. The plausibility, or even the intelligibility, of Sokal's arguments just didn't enter into their deliberations.

I think it's very clear, and very important, that it's the second hypothesis that's true. To see why consider, by way of example, the following passage from Sokal's essay:

Just as liberal feminists are frequently content with a minimal agenda of legal and social equality for women and are "pro-choice," so liberal (and even some socialist) mathematicians are often content to work within the hegemonic Zermelo-Fraenkel framework (which, reflecting its nineteenth-century origins, already incorporates the axiom of equality) supplemented only by the axiom of choice. But this framework is grossly insufficient for a liberatory mathematics, as was proven long ago by Cohen 1966.

It's very hard to believe that an editor who knew what the various ingredient terms actually mean would not have raised an eyebrow at this passage. For the axiom of equality in set theory simply provides a definition of when it is that two sets are the same set, namely, when they have the same members; obviously, this has nothing to do with liberalism, or, indeed, with a political philosophy of any stripe. Similarly, the axiom of choice simply says that, given any collection of mutually exclusive sets, there is always a set consisting of exactly one member from each of those sets. Again, this clearly has nothing to do with the issue of choice in the abortion debate. But even if one were somehow able to see one's way clear – I can't – to explaining this first quoted sentence in terms of the postmodern love for puns and word-play, what would explain the subsequent sentence? Paul Cohen's 1966 publication proves that the question whether or not there is a number between two other particular (transfinite cardinal) numbers isn't settled by the axioms of Zermelo-Fraenkel set theory. How could this conceivably count as a proof that Zermelo-Fraenkel set theory is inadequate for the purposes of a "liberatory mathematics", whatever precisely that is supposed to be? Wouldn't any editor who knew what Paul Cohen had actually proved in 1966 have required just a little more by way of explanation here, in order to make the connection just a bit more perspicuous?

Since one could cite dozens of similar passages – Sokal goes out of his way to leave tell-tale clues about his true intent – the conclusion is inescapable that the editors of *Social Text* didn't know what many of the sentences in Sokal's essay actually meant; and that they just didn't care. How could a group of scholars, editing what is supposed to be the leading journal in a given field, allow themselves such a sublime indifference to the content, truth and plausibility of a scholarly submission accepted for publication?

By way of explanation, co-editors Andrew Ross and Bruce Robbins have said that as "a non-refereed journal of political opinion and cultural analysis produced by an editorial collective . . . *Social Text* has always seen itself in the 'little magazine' tradition of the independent left as much as in the academic domain". But it's hard to see this as an adequate explanation; presumably, even a journal of political opinion should care whether what it publishes is intelligible.

What Ross and co should have said, it seems to me, is that *Social Text* is a political magazine

in a deeper and more radical sense: under appropriate circumstances, it is prepared to let agreement with its ideological orientation trump every other criterion for publication, including something as basic as sheer intelligibility. The prospect of being able to display in their pages a natural scientist – a physicist, no less – throwing the full weight of his authority behind their cause was compelling enough for them to overlook the fact that they didn't have much of a clue exactly what sort of support they were being offered. And this, it seems to me, is what's at the heart of the issue raised by Sokal's hoax: not the mere existence of incompetence within the academy, but rather that specific form of it that arises from allowing ideological criteria to displace standards of scholarship so completely that not even considerations of intelligibility are seen as relevant to an argument's acceptability. How, given the recent and sorry history of ideologically motivated conceptions of knowledge – Lysenkoism in Stalin's Soviet Union, for example, or Nazi critiques of "Jewish science" – could it again have become acceptable to behave in this way?

The complete historical answer is a long story, but there can be little doubt that one of its crucial components is the brushfire spread, within vast sectors of the humanities and social sciences, of the cluster of simple-minded relativistic views about truth and evidence that are commonly identified as "postmodernist". These views license, and indeed typically insist upon, the substitution of political criteria for the historically more familiar assessment in terms of truth, evidence and argument.

Most philosophers accept the claim that there is no such thing as a totally disinterested inquirer, one who approaches his or her topic utterly devoid of any prior assumptions, values or biases. Postmodernism goes well beyond this historicist observation, as feminist scholar Linda Nicholson explains (without necessarily endorsing):

The traditional historicist claim that all inquiry is inevitably influenced by the values of the inquirer provides a very weak counter to the norm of objectivity . . . [T]he more radical move in the postmodern turn was to claim that the very criteria demarcating the true and the false, as well as such related distinctions as science and myth or fact and superstition, were internal to the traditions of modernity and could not be legitimized outside of those traditions. Moreover, it was argued that the very development and use of such criteria, as well as their extension to ever wider domains, had to be described as representing the growth and development of "specific regimes of power". (From the introduction to her anthology, *Feminism and Postmodernism*)

As Nicholson sees, historicism, however broadly understood, doesn't entail that there is no such thing as objective truth. To concede that no one ever believes something *solely* because it's true is not to deny that anything is objectively true. Furthermore, the concession that no inquirer or inquiry is fully bias-free doesn't entail that they can't be more or less bias-free, or that their biases can't be more or less damaging. To concede that the truth is never the only thing that someone is tracking isn't to deny that some people or methods are better than others at staying on its track.

Historicism leaves intact, then, both the claim

that one's aim should be to arrive at conclusions that are objectively true and justified, independently of any particular perspective, and that science is the best idea that anyone has had about how to satisfy that aim. Postmodernism, in seeking to demote science from the privileged epistemic position it has come to occupy, and thereby to blur the distinction between it and "other ways of knowing" – myth and superstition, for example – needs to go much further than historicism, all the way to the denial that objective truth is a coherent aim that inquiry may have. Indeed, according to postmodernism, the very development and use of the rhetoric of objectivity, far from embodying a serious metaphysics and epistemology of truth and evidence, represents a mere play for power, a way of silencing these "other ways of knowing". It follows, given this standpoint, that the struggle against the rhetoric of objectivity isn't primarily an intellectual matter, but a political one: the rhetoric needs to be defeated, rather than just refuted. Against this backdrop, it becomes very easy to explain the behaviour of the editors of *Social Text*.

Although it may be hard to understand how anyone could actually hold views as extreme as these, their ubiquity these days is a distressingly familiar fact. A front-page article in the *New York Times* of October 22, 1996, provided recent illustration. The article concerned the conflict between two views of where Native American populations originated – the scientific archaeological account, and the account offered by some Native American creation myths. According to the former, extensively confirmed view, humans first entered the Americas from Asia, crossing the Bering Strait over 10,000 years ago. By contrast, some Native American creation accounts hold that native peoples have lived in the Americas ever since their ancestors first emerged on to the surface of the earth from a subterranean world of spirits. The *Times* noted that many archaeologists, torn between their commitment to scientific method and their appreciation for native culture, "have been driven close to a postmodern relativism in which science is just one more belief system". Roger Anyon, a British archaeologist who has worked for the Zuni people, was quoted as saying: "Science is just one of many ways of knowing the world . . . [The Zunis' world-view is] just as valid as the archaeological viewpoint of what prehistory is about."

How are we to make sense of this? (Sokal himself mentioned this example at a recent public forum in New York and was taken to task by Andrew Ross for putting Native Americans "on trial". But this issue isn't about Native American views; it's about postmodernism.) The claim that the Zuni myth can be "just as valid" as the archaeological theory can be read in one of three different ways, between which postmodern theorists tend not to distinguish sufficiently: as a claim about truth, as a claim about justification, or as a claim about purpose. As we shall see, however, none of these claims is even remotely plausible.

Interpreted as a claim about truth, the suggestion would be that the Zuni and archaeological views are equally true. On the face of it, though, this is impossible, since they contradict each other. One says, or implies, that the first humans in the Americas came from Asia; the other says, or implies, that they did not, that they came from somewhere else, a subterranean world of spirits. How could a claim and its denial both be true? If I say that the earth is flat, and you say that it's round, how could we both be right?

Postmodernists like to respond to this sort of point by saying that both claims can be true because both are true relative to some perspective or other, and there can be no question of truth outside of perspectives. Thus, according to the Zuni perspective, the first humans in the Ameri-

cas came from a subterranean world; and according to the Western scientific perspective, the first humans came from Asia. Since both are true according to some perspective or other, both are true.

But to say that some claim is true according to some perspective sounds simply like a fancy way of saying that someone, or some group, believes it. The crucial question concerns what we are to say when what I believe – what's true according to my perspective – conflicts with what you believe – with what's true according to your perspective? The one thing not to say, it seems to me, on pain of utter unintelligibility, is that both claims are true.

This should be obvious, but can also be seen by applying the view to itself. For consider: if a claim and its opposite can be equally true provided that there is some perspective relative to which each is true, then, since there is a perspective – realism – relative to which it's true that a claim and its opposite cannot both be true, postmodernism would have to admit that it itself is just as true as its opposite, realism. But postmodernism cannot afford to admit that; presumably, its whole point is that realism is false. Thus, we see that the very statement of postmodernism, construed as a view about truth, undermines itself; facts about truth independent of particular perspectives are presupposed by the view itself.

How does it fare when considered as a claim about evidence or justification? So construed, the suggestion comes to the claim that the Zuni story and the archaeological theory are equally justified, given the available evidence. Now, in contrast with the case of truth, it is not incoherent for a claim and its negation to be equally justified, for instance, in cases where there is very little evidence for either side. But, *prima facie*, anyway, this isn't the sort of case that's at issue, for, according to the available evidence, the archaeological theory is far better confirmed than the Zuni myth.

To get the desired relativistic result, a postmodernist would have to claim that the two views are equally justified, *given their respective rules of evidence*, and add that there is no objective fact of the matter which set of rules is to be preferred. Given this relativization of justification to the rules of evidence characteristic of a given perspective, the archaeological theory would be justified relative to the rules of evidence of Western science, and the Zuni story would be justified relative to the rules of evidence employed by the relevant tradition of myth-making. Furthermore, since there are no perspective-independent rules of evidence that could adjudicate between these two sets of rules, both claims would be equally justified and there could be no choosing between them.

Once again, however, there is a problem not merely with plausibility, but with self-refutation. For suppose we grant that every rule of evidence is as good as any other. Then any claim could be made to count as justified simply by formulating an appropriate rule of evidence relative to which it is justified. Indeed, it would follow that we could justify the claim that not every rule of evidence is as good as any other, thereby forcing the postmodernist to concede that his views about truth and justification are just as justified as his opponent's. Presumably, however, the postmodernist needs to hold that his views are better than his opponent's; otherwise what's to recommend them? On the other hand, if some rules of evidence can be said to be better than others, then there must be perspective-independent facts about what makes them better and a thoroughgoing relativism about justification is false.

It is sometimes suggested that the intended sense in which the Zuni myth is "just as valid" has nothing to do with truth or justification, but rather with the different purposes that the myth

subverses, in contrast with those of science. According to this line of thought, science aims to give a descriptively accurate account of reality, whereas the Zuni myth belongs to the realm of religious practice and the constitution of cultural identity. It is to be regarded as having symbolic, emotional and ritual purposes other than the mere description of reality. And as such, it may serve those purposes very well – better, perhaps, than the archaeologist's account.

The trouble with this as a reading of "just as valid" is not so much that it's false, but that it's irrelevant to the issue at hand; even if it were granted, it couldn't help advance the cause of postmodernism. For if the Zuni myth isn't taken to compete with the archaeological theory, as a descriptively accurate account of prehistory, its existence has no prospect of casting any doubt on the objectivity of the account delivered by science. If I say that the earth is flat, and you make no assertion at all, but instead tell me an interesting story, then that has no potential for raising deep issues about the objectivity of what either of us said or did.

Is there, perhaps, a weaker thesis that, while being more defensible than these simple-minded relativisms, would nevertheless yield an anti-objectivist result? It's hard to see what such a thesis would be. Stanley Fish, for example, in seeking to discredit Sokal's characterization of postmodernism, offers the following (Opinion piece, the *New York Times*):

What sociologists of science say is that of course the world is real and independent of our observations but that accounts of the world are produced by observers and are therefore relative to their capacities, education and training, etc. It is not the world or its properties but the vocabularies in whose terms we know them that are socially constructed . . .

The rest of Fish's discussion leaves it thoroughly unclear exactly what he thinks this observation shows; but claims similar to his are often presented by others as constituting yet another basis for arguing against the objectivity of science. The resultant arguments are unconvincing.

It goes without saying that the *vocabularies* with which we seek to know the world are socially constructed and that they therefore reflect various contingent aspects of our capacities, limitations and interests. But it doesn't follow that those vocabularies are therefore incapable of meeting the standards of adequacy relevant to the expression and discovery of objective truths.

We may illustrate why by using Fish's own example. There is no doubt that the game of baseball as we have it, with its particular conceptions of what counts as a "strike" and what counts as a "ball", reflects various contingent facts about us as physical and social creatures. "Strike" and "ball" are socially constructed concepts, if anything is. However, once these concepts have been defined – once the strike zone has been specified – there are then perfectly objective facts about what counts as a strike and what counts as a ball. (The fact that the umpire is the court of last appeal doesn't mean that he can't make mistakes.)

Similarly, our choice of one conceptual scheme rather than another, for the purposes of doing science, probably reflects various contingent facts about our capacities and limitations, so that a thinker with different capacities and limitations, a Martian for example, might find it natural to employ a different scheme. This does nothing to show that our conceptual scheme is incapable of expressing objective truths. Realism is not committed to there being only one vocabulary in which objective truths might be expressed; all it's committed to is the weaker claim that, once a vocabulary is specified, it will then be an objective matter whether or not assertions couched in that vocabulary are true or false.

We are left with two puzzles. Given what the basic tenets of postmodernism are, how did they ever come to be identified with a progressive political outlook? And given how transparently refutable they are, how did they ever come to gain such widespread acceptance?

In the United States, postmodernism is closely linked to the movement known as multiculturalism, broadly conceived as the project of giving proper credit to the contributions of cultures and communities whose achievements have been historically neglected or undervalued. In this connection, it has come to appeal to certain progressive sensibilities because it supplies the philosophical resources with which to prevent anyone from accusing oppressed cultures of holding false or unjustified views.

Even on purely political grounds, however, it is difficult to understand how this could have come to seem a good way to conceive of multiculturalism. For if the powerful can't criticize the oppressed, because the central epistemological categories are inexorably tied to particular perspectives, it also follows that the oppressed can't criticize the powerful. The only remedy, so far as I can see, for what threatens to be a strongly conservative upshot, is to accept an overt double standard: allow a questionable idea to be criticized if it is held by those in a position of power – Christian creationism, for example – but not if it is held by those whom the powerful oppress – Zuni creationism, for example. Familiar as this stratagem has recently become, how can it possibly appeal to anyone with the slightest degree of intellectual integrity; and how can it fail to seem anything other than deeply offensive to the progressive sensibilities whose cause it is supposed to further?

As for the second question, regarding widespread acceptance, the short answer is that questions about truth, meaning and objectivity are among the most difficult and thorny questions that philosophy confronts and so are very easily mishandled. A longer answer would involve explaining why analytic philosophy, the dominant tradition of philosophy in the English-speaking world, wasn't able to exert a more effective corrective influence. After all, analytic philosophy is primarily known for its detailed and subtle discussion of concepts in the philosophy of language and the theory of knowledge, the very concepts that postmodernism so badly misunderstands. Isn't it reasonable to expect it to have had a greater impact on the philosophical explorations of its intellectual neighbours? And if it hasn't, can that be because its reputation for insularity is at least partly deserved? Because philosophy concerns the most general categories of knowledge, categories that apply to any compartment of inquiry, it is inevitable that other disciplines will reflect on philosophical problems and develop philosophical positions. Analytic philosophy has a special responsibility to ensure that its insights on matters of broad intellectual interest are available widely, to more than a narrow class of insiders.

Whatever the correct explanation for the current malaise, Alan Sokal's hoax has served as a flashpoint for what has been a gathering storm of protest against the collapse in standards of scholarship and intellectual responsibility with which vast sectors of the humanities and social sciences are currently afflicted. Significantly, some of the most biting commentary has come from distinguished voices on the Left, showing that when it comes to transgressions as basic as these, political alliances afford no protection. Anyone still inclined to doubt the seriousness of the problem has only to read Sokal's parody.

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