
Session 4 – Reason and Evidence in Ethics

Science, Reasons and Normativity

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Science is often seen as empirical inquiry that aims at proof or explanation, but eschews normative considerations. This, I shall argue, is inadequate. Scientific thinking and practice also depend on additional standards, including a range of norms that are not and cannot be established by empirical methods. It follows that science cannot and should not aspire to be value free.

Normativity

The distinction between empirical and normative aims is clear enough. When we make empirical claims we seek to fit our words to the world, to ensure that they are true to the way things are. When we make normative claims we claim that action should live up to the standards formulated by those norms, thereby shaping the world (in some small part).

Norms come in many kinds. And for present purposes I shall not say anything specific about ethical and political, legal and prudential norms, or other norms that we invoke in everyday practical matters. It is widely accepted that where the primary aim of any reasoning is practical, norms of one or another sort must be deployed, and that we can gain no traction by ignoring this fact, or by focusing solely on the descriptive or (even more narrowly) the (supposedly) explanatory aspects of reasoning. This is simply a reflection of the Humean adage that it is impossible to derive *ought* from *is*. We expect discussions of norms of various types to be commonplace in practical matters.

Yet despite this recognition that norms are needed in any discussion of practical matters, until recently there has been less recognition of the full scope and importance of normativity for all systematic inquiry, including scientific reasoning and practice. I think that this is largely a matter of intellectual history. The term *norm* belonged – in some ways still belongs – to sociology and other branches of social inquiry, which investigate the standards, rules and norms that certain people or groups actually accept and aim to live by. In such inquiries, questions about the justification of those standards are typically set aside, because the focus is on whichever norms that are actually accepted, whether or not they are justified. Here, the appropriate method of inquiry is indeed empirical, and is

widely used in the social sciences and other popular forms of social inquiry – most obviously in polls that investigate public opinions or attitudes.

Such inquiries bracket questions about justification. Many widely accepted norms have been morally and politically contentious, even dire, such as those adopted by political extremists and terror groups. Others conflict with norms that are widely accepted and adopted by others in the same groups, let alone by those in other groups. However, where the aim is solely sociological or historical, it does not matter whether norms are contentious or acceptable, since the focus is on empirical investigation, and not on condemning or justifying.

However, in many other contexts we aim and indeed may need to say something about the justification of norms. This can be demanding. The gap between *is* and *ought* is rather like one of those fatal spots to which would-be suicides are drawn, and we have seen in the last century increasingly sophisticated – or perhaps desperate – attempts to bridge the chasm by intensive focus on empirical claims about actual norms, and sometimes by implausible assumptions that there are ways of moving from claims that certain norms are accepted to claims that they ought to be accepted. As I see it, these attempts end in failure, or in various forms of relativism, and typically gain any apparent justificatory success they achieve by invoking one or another argument from authority.

In the proper contexts, arguments from authority have weight. In a court of law an appeal to statute and precedent has weight. In a commercial context an appeal to contract has weight. In international political discussion, treaty obligations have weight. Within a Church, appeals to the authority of Scripture or its authorised interpretation, or to ecclesiastical traditions, may have weight. In professional life, appeals to agreed and established standards of professional conduct have weight. In these defined settings there are authorities to whom we can appeal.

But in appealing to these or other authorities and their conventions we leave open the question of whether they are justifiable. Have they set the right standards? If we seek deeper justifications, we embark on a more difficult journey: can justifications of standards, rules and norms avoid appeals to authority? In particular, can any justification of the epistemic, logical and other norms on which scientific (and other) practices of inquiry rely avoid appeals to authority?

If we do not think arguments from authority acceptable, where can we turn? To what extent can we expect to justify normative claims? Can we even get started unless we accept certain norms as given? If so, must we not eventually appeal, even in the supposedly dispassionate realm of scientific inquiry, to the authority of conventions, traditions or the edicts of supposed authorities? Perhaps it is not possible to secure any deeper normative (or perhaps other) justification at all. This line of thought has, of course, been quite widely adopted in sociological and historical work on the natural sciences, and is the conclusion with which relativists end up.

Appeals to authority are increasingly controversial in a globalising world of social and religious pluralism, in which the limitations of appealing to local or traditional norms is more apparent and has more severe practical, including political, costs. In an era of globalised trade, different norms can, for example, cause conflict where they contradict, for example because they reflect different conceptions of corruption and bribery, or of

distinctions between public and private life. Equally, in an open world, clashes between evidence-based and other forms of medical practice are endemic – and not only in developing societies. If we can say nothing about justification without simply presupposing that some standards are authoritative, we face not merely conflict but severe limits to the very justifications to which scientists aspire.

Can Normative Disagreement be Resolved?

The resolution of conflicts over norms has been a staple topic in political philosophy during the last half century. A number of prominent writers have claimed that we can anchor normative justifications in processes of public reasoning, by which agents who lack a common tradition or culture, and who may be in marked normative disagreement, can move from disagreement towards agreement. In this way, it is hoped, it may be possible to avoid appealing to the (ungrounded) authority of the *actual* social and moral norms of any single group, which may be rejected by other groups.

Various conceptions of public reason have been proposed by Jürgen Habermas and John Rawls – the two most prominent political philosophers of the last 50 years; many others have suggested variations. Habermas in *The Structural Transformation of the Public Sphere*^{1,2} offered an account of the emergence during the European enlightenment of a public sphere no longer dominated by the power of church or state. From the late seventeenth century, communication could take place more freely, for example in salons and coffee houses, in conversation and correspondence, in newspapers and in periodicals. Habermas saw this Enlightenment world as a precursor to a world that supports participation in debate by all competent persons within (perhaps beyond) states, so as a precursor to an increasingly democratic (perhaps global) conception of public reason in which reasoning is free from coercion and can lead across time to convergence and even consensus.

In short, Habermas's account of public reason focuses on the conditions for reasoners to participate rather than on the norms of reasoning that can be justified. It is premised on, and does not aim to justify, norms of freedom, equality and democratic process. This focus underpins the close links Habermas forges between reason and deliberative conceptions of democracy, in which citizens exchange views and seek agreement. Any agreement they reach may indeed count as democratically legitimated, but given the lack of an account of reasoning it may well lack justification: not every consensus is justifiable. The various assumptions that citizens bring to public discussion will shape and limit the normative positions they will reach, however intensive or prolonged the discussion.

John Rawls developed a related conception of public reason, which he characterises as taking place among the citizens of a bounded, liberal and democratic political society, who 'enter by birth and leave by death' and are willing to accept constraints if others too will accept and abide by them.^{3,4} Rawlsian public reasoning breaks free of the specific normative assumptions that are internal to specific social groups. It is reasoning that can be used by fellow citizens with varying comprehensive ethical and political views, and is not defined or bounded by categories or beliefs that some accept but others reject. Rawls does not think that this disagreement will be overcome in some ideal future, in which processes of public reasoning lead all to a consensus or even to a shared outlook. He sees persisting

pluralism of outlooks and ideologies within societies as the natural outcome of the free public use of reason, and sets aside aspirations to justify a comprehensive moral outlook.

That is why Rawls calls his form of liberalism specifically political liberalism. He too focuses on a context for reasoning that presupposes the norms of actual liberal democratic states, including specifically their norms of citizenship. These normative assumptions will shape and limit any normative conclusions reached by public reason, as Rawls conceives it. Only limited justifications can be secured by Rawlsian public reasoning, and these justifications will invariably be relativised to the underlying norms of actual liberal democratic polities. A similarly context-bound account of norms of scientific reasoning would seem inadequate to many.

Normative Reasoning and Scientific Practice

If we are to say more about norms of reasoning, we must dig deeper than either of these accounts of public reason. Normative claims can only be justified by showing how rigorous normative arguments can be built up. Needless to say, such arguments make assumptions, just as the empirical claims of the natural sciences or the empirical claims in the social sciences and humanities make assumptions. However, in the case of normative reasoning at least some of those assumptions must themselves be normative.

Justifying normative claims may not, in principle, be more difficult than justifying the patterns of empirical reasoning that we use to describe or predict aspects of the natural world. The distinctive feature of normative work is not that it makes no assumptions, but that its direction of fit is unashamedly the converse of that characteristic of empirical or descriptive work that aims at truth claims. It does not aim to be true of the way things actually are, but to specify standards or principles that things should be made to satisfy.

Normative reasoning is neither explanatory, nor interpretive, nor formal. Its aims are neither *Erklärung* nor *Verstehen*, nor proof. Rather than arguing that certain truth claims, or representations or attitudes actually are true of the world, it claims that parts of the world, and in particular certain actions, should meet certain standards. That is simply what it is for work to be normative or prescriptive rather than empirical or descriptive.

Arguments about standards and attempts to justify standards are not confined to daily life, ethics, law or politics – or other domains of practice. The pursuit of knowledge, including scientific knowledge, also requires normative reasoning, and it is therefore important to think about the justification of the sorts of normative claim that are made within and needed for scientific practice.

If normativity is pervasive across all types of inquiry, questions about the justification of normative claims will arise within all forms of inquiry. Attempts to justify normative standards that are widely relied upon in scientific investigation are now widely discussed in work in the philosophy of science and epistemology, just as ethical, political and legal norms are widely discussed in contemporary work in jurisprudence, political philosophy and ethics.⁵ The most obvious examples are discussion of the justification of domain specific norms – for example, norms of using specific notations, metrics or conventions – that are often indispensable for scientific practice.

However, in the last 20 years there has also been widespread recognition of the importance of norms and standards that are not domain specific, both in epistemology and in the philosophy of science. The norms most discussed articulate conceptions of epistemic responsibility in and beyond scientific practice. They include norms of consistency and coherence; norms of seeking and respecting evidence; norms of qualifying, rejecting or revising beliefs in the face of contrary evidence.

In my view, certain norms for communication, including those of seeking to secure intelligibility to intended audiences, and of aiming to ensure assessability by those audiences are also indispensable for practices of scientific inquiry. So too are norms of honesty in truth seeking, and in responding to others' checks and challenges. And it is plausible, as well as traditional, to argue that scientific reasoning also relies on at least some aesthetic norms and standards, such as simplicity and elegance. In short, it is hard to see how science could be practised by anyone who insists that it is possible, let alone essential, to maintain scrupulous value-neutrality.

It may, however, not be feasible to provide any clear or definitive taxonomy of the norms that matter for scientific inquiry. I doubt whether we can, for example, neatly classify the norms that are taken to be important for the practice of science as purely logical, or purely epistemic, or as solely ethical or solely aesthetic. However, I shall set aside this intriguing question, in order to ask whether there is any prospect of justifying any of the broad constellations of norms that matter for the practice of scientific and other forms of inquiry.

Justifying of Norms of Reasoning

My own belief is that the most promising route to justifying the norms that are indispensable for scientific practice would be to focus on the conditions for scientific communication. Science aims to reach claims that are not only to hold for all cases falling under them (that is also true of the ordinary empirical claims of everyday life), but that offer reasons and evidence to all comers: their audience is intended to be universal. The claims of science are, to use a phrase of Kant's, to reach the world at large. They are potentially addressed to each and to all.

If this is the case, then certain normative standards must be met. Reasons that are addressed to each and all must be ones that others (without restriction) could in principle follow in thought (in practice many will lack the background to follow or assess scientific – and many other – claims). Proposing to others that specific claims are credible and should be accepted will fail if proposals are not even comprehensible to their intended audiences. If the reasons are practical – reasons for action – then they must not only be comprehensible, but also potentially adoptable as principles of action by all those to whom they are addressed. Proposing to others that they act and behave in specific ways will fail unless the request is comprehensible to the intended audience.

Scientific claims, however, must not only be in principle intelligible to all others: they must also be assessable by others. The openness of science is not some nice additional feature, which we can all enjoy in an era of vastly improved communication technologies, but a standard that is not met by mere disclosure or dissemination. The openness of science is a matter of intelligible and assessable communication to unrestricted audiences.

During the long post-positivist hangover that afflicted so many discussions of scientific method for much of the twentieth century, these thoughts were often buried, or indeed rejected. It was often suggested that the aims of science were narrowly negative: a matter of avoiding pseudo-science, and that this required rigorous value neutrality. Avoiding pseudo-science matters, of course. But avoiding pseudo science is not a matter of achieving value neutrality.

If we are to gain some clarity about the demands of scientific reasoning we need to take a wider look at the assumptions that are made in scientific practice, and at their justifications. And as we do so, I believe, we will discover that the norms that are necessary for scientific practice are norms that must, as a minimum, reject standards that would limit the communication of science to specific audiences, with whom we share certain assumptions – for that very narrowness of aim reveals acceptance of the authority of some local norm or standard. I suggest, although it is far more than I can show here, that generic norms of intelligibility and assessability are the basis of the epistemic and ethical norms that are essential to scientific inquiry and practice. The universality of science depends on these, as well as on other, more domain specific, normative commitments.

References

1. J. Habermas (1962) *The Structural Transformation of the Public Sphere: An Inquiry into a category of Bourgeois Society*, trans. Thomas Burger, 1989 (Cambridge: Polity Press).
2. J. Habermas (1995) Reconciliation through the public use of reason: remarks on John Rawls's political liberalism. *Journal of Philosophy*, **92**, pp. 109–131.
3. J. Rawls (1993) *Political Liberalism* (New York: Columbia University Press).
4. J. Rawls (1999) The idea of public reason revisited. In: S. Freeman (Ed.) *Collected Papers of John Rawls* (Cambridge, MA: Harvard University Press) 573–615.
5. For a lucid recent example see P. Kitcher (2011) *Science in a Democratic Society* (New York: Prometheus Books).

About the Author

Onora O'Neill studied philosophy, psychology and physiology at Oxford University, and went on to complete a doctorate at Harvard, with John Rawls as supervisor. She was a professor of philosophy at the University of Cambridge, a former President of the British Academy and chaired the Nuffield Foundation 1998–2010. In 2003, she was the founding President of the British Philosophical Association. She has written widely on political philosophy and ethics, international justice, bioethics and the philosophy of Immanuel Kant.