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Introduction: Four Senses of Objectivity

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"OBJECTIVITY" IS ON THE AGENDA—on various agendas—for rethinking. This collection registers a multidisciplinary discussion that was already going on; it did not call that discussion into being. But what is the "objectivity" that is being rethought? One of the points that the collection most clearly underscores is that there is no such thing as "the" objectivity question. Taken together, the papers suggest that in current discussion the terms "objective" and "objectivity" have four principal senses. In practice the senses are related, even overlapping; but they can be conceptually distinguished from each other, and it is often indispensable to do so.

There is firstly a philosophical or *absolute* sense of objectivity. This type of objectivity derives from (although it is not identical with) the ideal of "representing things as they really are"[1] that has played an important role in the modern philosophical tradition. It aspires to a knowledge so faithful to reality as to suffer no distortion, and toward which all inquirers of good will are destined to converge. Secondly, there is a *disciplinary* sense, which no longer assumes a wholesale convergence and instead takes consensus among the members of particular research communities as its standard of objectivity. Thirdly, there is an interactional or *dialectical* sense, which holds that objects are constituted *as* objects in the course of an interplay between subject and object; thus, unlike the absolute and disciplinary senses, the dialectical sense leaves room for the subjectivity of the knower. Finally, there is a *procedural* sense, which aims at the practice of an impersonal method of investigation or administration. Here, the exclusion of subjectivity prominent in both absolute and disciplinary objectivity is pursued in abstraction from the belief that truth or justice will actually be attained thereby.

I discuss each of the four senses in this Introduction. For a richer view, readers should turn to the papers themselves—yet these, too,

should be seen not as definitive treatments but as starting points for further reflection.

1. The Absolute Sense of Objectivity

The philosophers have worked longest with objectivity issues. The crucial figure for the philosophical discussion is Immanuel Kant, whose *Critique of Pure Reason* (1781, 1787) was important in establishing both the term and the concept. To be sure, well before Kant various conceptions of objectivity came into play—although not under the name "objectivity." Use of "objectivity" (French *objectivité;* German *Objektivität*) in something like the current philosophical sense arose only in the nineteenth century, largely under Kant's influence.[2] Earlier, in scholastic philosophy, "objective" and "subjective" referred, respectively, to objects of consciousness and to things in themselves, usages that are nearly the reverse of current usage.[3]

The *absolute* sense of objectivity is less a single notion than a set of loosely related notions; in fact, a large part of the history of modern philosophy is implicated in it. One should first of all note the twofold character of the project of "representing things as they really are": ontological (things "as they really are"), and epistemological (since we seek "to represent" these things, and can go nowhere without that representation). One can also identify normative and methodological dimensions of absolute objectivity.[4] Further, as Thomas Nagel has pointed out, the notion of absolutely objective knowledge is deeply paradoxical, since knowledge that is objective in this sense escapes by definition the constraints of subjectivity and partiality; yet if such a view is to be all-embracing it must include the particular views that also make up reality as we know it. Thus, ideally, the objective and the subjective sides of objectivity are joined. But they are only *ideally* joined; in fact, the absolute sense of objectivity comes up against unavoidable limits. This is why, taken to its extreme, absolute objectivity offers a "view from nowhere": it is a view that we find impossible to situate, for it would need to view itself viewing, and so on *ad infinitum.*[5]

However, it is misleading to focus too narrowly on the "view from nowhere" conundrum. In much twentieth-century philosophical discussion, objectivity is presented as less a matter of "representing things as they really are" than as a matter of arriving at criteria for judging claims to have represented things as they really are. These criteria of validity would then help us to advance toward knowledge-claims sufficiently authoritative that no rational person, after due investigation, would call them into doubt. And the criteria themselves ought to evoke a like universal rational assent. The knowledge produced would at least *move us in the direction* of the Cartesian (and Baconian) "absolute conception of reality."[6] Of course, we may never actually *arrive* at such a view, but as rational human beings we can be expected to converge toward an approximation of it. Absolute objectivity, then, presents itself as absolute not in its certitude or infallibility, but rather in the hold that it ought to have on us as rational beings.

Until the 1960s, the dominant assumption in philosophy of science was that rational acceptance or rejection involved bringing to bear the logical weight of observation on specific theoretical statements. This was true equally of Karl Popper and his followers, who maintained that scientific laws could never be verified but only falsified, and of such non-Popperians as Rudolf Carnap and Carl Hempel. The model presupposed that it was possible to test single sentences while leaving aside the question of the validity of the epistemological framework as a whole. More recent reflection has called into doubt both the logical model and the possibility of singular verification (or falsification). The result has been a lively discussion in philosophy. Most of the discussion currently takes place under the heading "realism"; proportionately, the term "objectivity" is much less widely used in current philosophical discussion than it was circa 1970.[7] Hilary Putnam and Richard Rorty have been prominent contributors to the discussion, but there have been many other contributors as well.[8]

Because the animating idea of the present collection is to illuminate by bringing together work from a variety of disciplines, it concentrates on *extra*-philosophical discussions of objectivity. Yet philosophical concerns are important to many of the extra-philosophical discussions, some of which began as debates with philosophers. In particular, philosophers' discussions of "rationality" and of "relativism" have had some impact on the wider discussion of objectivity issues. Two loci of debate are of special interest, because of the issues they raised and the attention they received. One locus, brought into being by the publication in 1962 of Thomas S. Kuhn's *The Structure of Scientific Revolutions,* was centered on the question of the rationality of science; the other, prompted by decolonialization and by the growing prominence of sociology and anthropology, concerned cultural relativism. In both instances, philoso-

sary. Or, people might eschew disciplinary objectivity-claims because they believe that they have developed a special sensitivity to the object of their investigation: for example, the biologist Barbara McClintock saw herself as having "a feeling for the organism."[16] Here, a claim is being made to dialectical objectivity, involving an interaction between researcher and object; in such a case, connoisseurship might well hold sway over the impersonality that absolute and disciplinary objectivity recommend. Finally, one can imagine investigators so confident of their personal vision, or, conversely, so modest about their ability to contribute to knowledge at all, that nothing remotely like a disciplinary objectivity-claim would be made. Edward Gibbon in *The Decline and Fall of the Roman Empire* might be taken as exemplifying the first type, Michel de Montaigne in his *Essays* the second.

It is significant that I here evoke two nonacademic authors—writers who did not see themselves as participants in a collective, unified, search for knowledge. Disciplinary objectivity-claims can arise only when such a project is in place, for they are a way of asserting, at least over a limited domain, the unity of knowledge. But disciplinary objectivity-claims are *also* products of epistemological insecurity. They are likely to arise only when the faith in one indivisible truth that accompanies absolute objectivity seems unsustainable, and when there are doubts about the reliability of personal vision.

Epistemological insecurity among social scientists and humanists helps to explain the enormous impact that Kuhn's *Structure of Scientific Revolutions* had beyond its special field, the history, philosophy, and sociology of natural science. As is well known, Kuhn went out of his way to deny that his account of natural science was applicable to the social sciences, let alone to the humanities.[17] Yet by the early 1970s acquaintance with *The Structure of Scientific Revolutions* was *de rigueur* in the social sciences, and was becoming so in the humanities.[18] The historian David Hollinger, writing in the *American Historical Review* in 1973, identified an important reason for the appeal that the book had: in Hollinger's words, it offered social scientists (including historians) a "sense of validity, or objectivity."[19]

To some, Hollinger's assessment of Kuhn's book will seem strange, for, as Hollinger noted, many philosophers insisted that Kuhn had "no sense of validity at all"—that he had "so relativized even the developed [that is, natural] sciences as to deny their claims to objectivity."[20] Clearly, to use my terminology, Kuhn denied the notion of *absolute*

objectivity; in this regard, Kuhn's "hard" philosophical critics were right in their reaction to his book. But they were wrong in thinking that to deny absolute objectivity is to deny objectivity generally. The paradigm, which holds together the members of a "mature scientific community,"[21] provides a court of appeal that will support objectivity-claims: not an absolute court of appeal, but one that will serve within a particular community at a particular time. If one's commitment is to absolute objectivity, the position that Kuhn articulated in *The Structure of Scientific Revolutions* can only appear as an arrant, and errant, relativism. Yet, as Hollinger pointed out, even though historians had long ago forsaken "pretensions to 'scientific history,' " they continued "to term good scholarship 'objective.' " The basis for this continued claim to objectivity lay, Hollinger contended, in the wide degree of intersubjective agreement among professional historians as to the criteria for a successful work of historical scholarship.[22] Kuhn's image of the "normal" scientific community united by a paradigm is simply a more cohesive form of this sort of professional agreement.[23]

Questions of disciplinary objectivity are currently of compelling importance in our knowledge-making institutions. The system is a multicentered one, in which academic authority is constantly being disputed and reimposed. In the absence of a neutral view, disciplinary objectivity stands as a highly important form of academic authority. After all, the perpetually recurring question, which one must answer if one is ever to be heard, is: by what authority do you speak? The claim to disciplinary objectivity, like the claim to absolute objectivity, offers an answer to the question.

3. *The Dialectical Sense of Objectivity*

Dialectical objectivity offers a different answer. A striking feature of both absolute and disciplinary objectivity is their negative relation to subjectivity. Absolute objectivity seeks to exclude subjectivity; disciplinary objectivity seeks to contain it. The opposition that is here assumed between objectivity and subjectivity is something that emerged historically. In a paper on seventeenth-century conceptions of objectivity, Peter Dear has noted a gradual disappearance of "objectivity" as referring to a *mental* object, a true representation "thrown up" by the mind, and its replacement by a category lacking features deemed inappropriate to true knowledge. The "inappropriate" features are anything having to do

with the subjective.[24] Studying nineteenth-century conceptions of scientific objectivity, Daston and Galison similarly note their "negative character."[25] Phrases like "aperspectival objectivity" and "view from nowhere" rightly draw attention to this negativity.[26] In contrast, dialectical objectivity involves a positive attitude toward subjectivity. The defining feature of dialectical objectivity is the claim that subjectivity is indispensable to the constituting of objects. Associated with this feature is a preference for "doing" over "viewing."

An orientation toward "doing" embraces a number of different philosophical schools or tendencies, and so it is not surprising that the notion of dialectical objectivity has appeared in a variety of contexts. One early articulation is to be found in Friedrich Nietzsche's *On the Uses and Disadvantages of History for Life* (1874). Lamenting that his fellow classicists often had no involvement whatsoever with the Greeks whom they studied, Nietzsche contended that unless the historian already has within himself something of what a particular moment of the past offers, he will fail to see what is being given him. In other words, *subjectivity* is needed for *objectivity;* or, as Nietzsche put it, "objectivity is required, but as a positive quality."[27] Working along the same general line, Martin Heidegger in *Being and Time* (1927) argued that objects first become known to us in the course of our action in the world, not through theoretical contemplation.[28] Similar conceptions have also been advanced by a wide variety of other thinkers, often linked to pragmatist, existentialist, or phenomenological tendencies in philosophy.[29]

For a sense of how dialectical objectivity is currently being rethought, we can hardly do better than rely on a paper in this collection, Johannes Fabian's "Ethnographic Objectivity Revisited: From Rigor to Vigor." Fabian first addressed the problem of ethnographic objectivity twenty years ago.[30] He now returns to the matter, well aware of the discussions of relativism and rationality that have occurred since—but that have not, he holds, properly addressed the objectivity question. Fabian does not regard objectivity as a virtue of individual researchers or as a property of methods or logical models. Rather, he sees it as the result of a process—the process of "knowledge production." And knowledge production involves "objectification"—that is, the making of objects.[31]

Fabian's emphasis on objectification arises directly out of his work as an ethnographer. How do anthropologists turn their experiences with a given culture into objects of anthropological investigation and reflection? In 1965 Fabian chose as his field work project a religious move-

ment, the Jamaa movement in Katanga. But Jamaa lacked almost all the usual identifying characteristics of a religious movement. It had none of the "ritual paraphernalia, . . . insignia, biblical attire, communal buildings, etc., typical for so many African religious movements"; its social activities were localized and not especially distinctive; membership was scattered and its distribution unrevealing; formal organization was lacking; and the founder and prominent followers denied that they had founded a movement.[32] In this situation, Fabian did not find helpful the positivist assumption that objectivity is a product of correct method; indeed, he finally concluded that positivistic approaches conceal everything that is important about objectivity. Positivism wrongly assumed that social scientific knowledge is based on facts that are simply "there"; in consequence, it ignored the problem of how the objects of anthropological investigation are constituted—how, for example, we come to see a particular set of phenomena as "a religious movement."

The problem has also been ignored, Fabian now contends, in more recent anthropological discussion, for the extensive discussion in anthropology of rationality and of cultural relativism and ethnocentrism has obscured, Fabian asserts, the *epistemological* question of objectivity—the question of how the object of investigation is produced. The question was left aside largely because of the directions that the "linguistic turn" has taken in anthropology. In its initial phase, the "linguistic turn" focused on questions of method. In its more recent, "postmodern" phase, the epistemological issue has again been obscured, as a result of "a displacement of focus from knowledge production to knowledge representation." Postmodern anthropologists, Fabian suggests, have tended to "ontologize" such key concepts as symbol, style, and authorship, thus excluding the question of how these objectifications come into being. "Re-presentation," he argues, "simply cannot be the fundamental issue"; the fundamental issue has to be presence, since "before there is representation there must be presence."

In 1971 Fabian emphasized that "communicative interaction" is crucial to the attainment of objectivity in anthropology.[33] Returning to the issue now, Fabian again advocates a "processual, historical notion of objectivity," as opposed to the "static, logical notion according to which objectivity is a quality that either exists or doesn't." Rejecting the model of "observation," he argues for a confrontational, "dialectical," and performative conception of anthropological investigation. He particularly emphasizes the role that the subjectivity of the anthropologist plays

in the production of anthropological knowledge; indeed, controversially, at the end of his paper he argues that ecstasis and passion are an essential part of ethnographic objectivity.

At first glance, dialectical objectivity seems antithetical to absolute objectivity. But consider Kant, whose *Critique of Pure Reason* offered an account of how the understanding, through its imposition of the categories of understanding (unity, plurality, totality, causality, and the like) on the confused manifold of subjective impressions, confers objectivity on those impressions. The account can be taken in two ways. Insofar as one stresses the *universality* of the categories—their sharedness by all rational beings—one will see Kant as a theorist of absolute objectivity, an objectivity stripped of everything personal and idiosyncratic. But insofar as one stresses the *active character* of the knowing subject, Kant appears as, despite himself, a theorist of dialectical objectivity.[34] Thus, there is a strange and telling symbiosis between absolute objectivity and dialectical objectivity. Indeed, one might even see absolute objectivity as a special case of dialectical objectivity, requiring the construction of a particular *sort* of knowing subject.

4. The Procedural Sense of Objectivity

Procedural objectivity, too, has a complex interrelation with the other types. It can be regarded as a modification of absolute objectivity, but one that focuses solely on impersonality of procedure, abstracting from the hoped-for aim of truth; thus it widens the gap between "truth" and "objectivity" that is already present in the discussion of absolute objectivity. It can also be regarded as an application in a particular direction of dialectical objectivity, one in which a rule-bound mode of action requires the construction of subjects appropriate to it—subjects, that is, who can apply and live by the rules. Yet the governing metaphor of procedural objectivity is not visual, as in absolute objectivity: it does not offer us a "view." Nor does it stress action, as dialectical objectivity does. Rather, its governing metaphor is tactile, in the negative sense of "hands off!" Its motto might well be "untouched by human hands."

To add flesh to these rather abstract assertions, consider Theodore M. Porter's paper in this collection, "Objectivity as Standardization." Porter is one of a group of talented historians of science who in recent years have made it their business to write the history—or, perhaps better, the histories—of objectivity.[35] Examining modern bureaucratic administration, Porter shows that objectivity in the bureaucratic sphere is best seen as a set of rules for narrowing the play of subjectivity. The rules provide an alternative to personal judgment. They substitute for personal judgment in an entirely negative way, appealing neither to transcendent value (as in absolute objectivity) nor to community standards (as in disciplinary objectivity). In a situation where values are in conflict and consensus elusive, such rules may well be the only thing that permits agreed-upon public action to continue at all.

Historically, the advance of impersonality in scientific practice went along with, and promoted, the progress of standardization (of measurements, categories, etc.). On the one hand, standardization has an *objective* side: categories are imposed on the world of objects, as in the creation of uniform measures and of statistical classifications that define homogeneous classes of people. Less obviously, standardization of *subjects* has also occurred, through the imposition of constraints intended to limit the exercise of personal judgment. For example, rules of statistical inference and rigid interview protocols are alike designed to make knowledge as independent as possible of the people involved in making it. Here Porter's research runs along a line also charted out by Daston and Galison, who have shown that suspicion of certain aspects of subjectivity—namely, of "interpretation, selectivity, artistry, and judgment itself"—became in the nineteenth century a prominent feature of objectivity in science.[36]

Porter's paper is full of examples of how objectivity in the bureaucratic sphere replaces "true" or "best" with "fair." One can find analogous examples in science where "true" is replaced by "procedurally correct"; for example, researchers often emphasize that they have followed impersonal procedures (e.g., inferential statistics in experimental psychology) without claiming that the procedures guarantee the truth of their findings. Note the overlap with disciplinary objectivity, for the definition of "correct" procedure is often disciplinary, a matter of conventions arrived at within a particular sphere of research (as, for example, when statisticians and others talk about "statistically significant" results). Further, procedural objectivity tries to maintain the letter of absolute objectivity, while denying its spirit—using its means, but turning agnostic with regard to its end, the attainment of truth. Finally, there are affinities with dialectical objectivity in the claim that the standardization of objects also brings with it a standardization of subjects.

5. *From Objectivity to Subjectivity*

These, then, are the four senses of objectivity—absolute, disciplinary, dialectical, and procedural—prominent in current discussion. Remember that these are *conceptual types,* intermeshing in practice. Moreover, in suggesting that clarity about them helps us to get hold of the current, multidisciplinary discussion of objectivity issues, I am not at all claiming to offer some sort of "resolution" to "the problem of objectivity." Those who look for such a resolution are either unaware of the theoretical complexities involved in "the problem of objectivity" or overconfident in their notions of what theory can accomplish. The aim of the present collection is more modest: it seeks to illuminate the matters at issue by offering a number of specific studies written from different perspectives. Accordingly, in this final section I introduce the papers (other than Fabian's and Porter's). I introduce them briefly, since the intent is that readers of this Introduction will go on to read the papers for themselves.

In "How Not to Do the Sociology of Knowledge," the sociologist of science *Barry Barnes* provides a point of contact with an earlier phase in the objectivity discussion, when philosophers rushed to attack the "relativism" that they saw in Kuhn and others. In the late 1970s and early 1980s, Barnes and his colleagues defended "relativist sociology of knowledge" against the charge that its relativism was pernicious and irrational.[37] In the present paper, Barnes now deflates the old "objectivism versus relativism" opposition and relocates himself in relation to it, cautioning sociologists of science not to react too strongly against the individualism, rationalism, and realism that have dominated philosophers' accounts of the growth and evaluation of knowledge.

In "Baconian Facts, Academic Civility, and the Prehistory of Objectivity," the historian of science *Lorraine Daston* deals with the invention of "fact" in the early modern period. The attraction of "Baconian facts" lay in their alleged freedom from theory. Since attachment to one's own theory was viewed as a leading cause of acrimonious dispute, the narrowing of academic discussion to "Baconian facts" seemed a plausible remedy for rivalries and polemics.

In "Why Science Isn't Literature: The Importance of Differences," the literary scholar *George Levine* warns against excessive emphasis on language and representation in science studies, pointing out that science presupposes a bounded (disciplinary) community and that it has a material, interventionist character that cannot be ignored.

The dialectical conception of objectivity advanced by the anthropologist *Johannes Fabian* was discussed in section 3, above.

In "Objectivity and the Mangle of Practice," the sociologist of science *Andy Pickering* offers a dialectical view of physics, one that emphasizes the resistance that the physicist encounters in the course of his material practice.[38] Like Barnes, Pickering distances himself from the unilluminating opposition between "objectivism" and "relativism."

In "The Shapes of Objectivity: Siegfried Kracauer on Historiography and Photography," the literary scholar *Dagmar Barnouw* offers us a view of Kracauer's dialectical approach to objectivity. Kracauer argued that the photo-image is differently accessible to different viewers, depending on their different subjectivities; likewise, the good historian develops "a sort of active passivity" vis-à-vis the material of the past.

Much current discussion of objectivity comes out of feminism. In "From Objectivity to Objectification: Feminist Objections," the political theorist *Mary E. Hawkesworth* looks at recent feminist critiques of objectivity. Strategies for objective investigation, it is often said, reduce women to the status of "mere objects." Examining these charges, Hawkesworth finds no necessary relation between the procedures of objective scholarship and the "objectification" of women. But she does find that feminist theorists are right to suggest that the uncritical internalization of social values may be as much an impediment to knowledge as individual idiosyncrasy. Conceptions of objectivity that obscure the social construction of subjectivity (as the "absolute" conception does) or that imply that intersubjective consensus is a sufficient criterion of truth (as the disciplinary conception does) thus need to be criticized.

In her article in this volume, "Who Cares? The Poverty of Objectivism for Moral Epistemology," the philosopher *Lorraine Code* draws attention to the use by large, impersonal organizations of the claim that "we care." She exposes the fraudulence of this claim—this professing of a care that is "*directed toward* inert and unknown recipients." The anonymity of the "we" mirrors the formal structure of absolute objectivity, which views the world "from nowhere" and which dissociates itself from emotions and values. In response, Code asks the question "*Who* cares?" This is an epistemological question, for it amounts to asking "Whose knowledge are we talking about here?"

The procedural conception of objectivity advanced by the historian of science *Theodore M. Porter* was discussed in section 4, above.

In "Accounting and Objectivity: The Invention of Calculating Selves

and Calculable Spaces," the accounting scholar *Peter Miller* develops a point noted in Porter's paper, namely, that procedural objectivity has a subjective aspect. Relying loosely on Michel Foucault's notion that human beings are transformed into subjects by "modes of objectification,"[39] Miller suggests that managerial accounting ought to be understood as seeking to create a subject primed to calculate the outcomes of alternative courses of action. It thus acts by indirection on the actions of others, leaving them "free" to make their own decisions.

The social psychologist *Kenneth J. Gergen* argues that objectivity is rooted in a particular form of language. Research reports, in psychology and in other fields, use *linguistic* means to separate subject and object, to distance the objective world, to establish authorial presence and absence, and to eliminate all hint of affect. Gergen contends that this rhetoric is socially and politically problematic, for it generates and sustains "unwarranted hierarchies of privilege" and excludes many voices "from full participation in the culture's constructions of the good and the real."

In the social and political sphere, one of the mainstays of the commitment to absolute objectivity is the claim that the claim to objective knowledge is *practically* necessary, however problematic it may be *theoretically.* Both the "left" and the "right" have made this argument, albeit with different emphases. In "The Unquiet Judge: Activism Without Objectivism in Law and Politics," the literary scholar *Barbara Herrnstein Smith* counters the objection from the "left" that nonobjectivism leads to political quietism.

As my summaries may suggest, much of the current discussion of objectivity hinges on questions of subjectivity. Absolute objectivity attempts to expel subjectivity, as does procedural objectivity; disciplinary objectivity attempts to subordinate subjectivity to the judgment of the group. But the cat keeps coming back. Subjectivity is fundamental to the dialectical sense of objectivity that Fabian, Pickering, and Barnouw develop in their papers. As Porter, Miller, and Gergen show, a particular style of subjectivity is implied, and even produced, by commitment to absolute and procedural objectivity. And the feminist approach to objectivity, discussed and in part exemplified by Code and Hawkesworth, likewise emphasizes that subjectivity is implicated even in conceptions of objectivity apparently antithetical to it.

It is thus appropriate that I end by evoking the brilliant and provocative paper by *Evelyn Fox Keller,* "The Paradox of Scientific Subjectivity." As Keller points out, in its notion of the vanishing point the classical perspective of Filippo Brunelleschi "locates . . . at least the tacit promise of a view from nowhere." The viewer is named by his location, but at the same time is made anonymous. The vanishing point mirrors his position, and yet at that point both image and viewer disappear. By analogy to classical perspective, Keller traces the construction of a progressively more abstract and dispersed scientific subject—until (in the nineteenth century) the scientist became a mere cipher, a depersonalized reporter of the recordings of a mechanical detector. Today, Keller points out, robotics and artificial intelligence give us a vision of the ultimate vanishing act: a prosthetic subject that needs the eye neither of God, nor of the artist, nor of an observer.

Three centuries ago, Sir Francis Bacon suggested that the "mind of man" is an "enchanted glass, full of superstition and imposture, if it be not delivered and reduced."[40] As late- or post-moderns, we can hardly hope that this delivery and reduction will ever occur, even in an apparently prosthetic intelligence. But I run ahead to a conclusion that is the outcome of *my* reading of these papers. Read for yourself what our authors have offered to us; let the argument continue.

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[1] Richard Rorty's phrase, in Rorty, *Philosophy and the Mirror of Nature* (Princeton: Princeton University Press, 1979), 334.

[2] On objectivity in Kant, see Henry E. Allison, *Kant's Transcendental Idealism: An Interpretation and Defense* (New Haven: Yale University Press, 1983), chapter 7, "Objective Validity and Objective Reality: The Transcendental Deduction of the Categories," 133–72. On natural philosophers' conceptions of objectivity before Kant, see Lorraine Daston, "Baconian Facts, Academic Civility, and the Prehistory of Objectivity," this collection, and Peter Dear, "From Truth to Disinterestedness in the Seventeenth Century," *Social Studies of Science,* 22 (November 1992): 619–31. On changing conceptions of objectivity in nineteenth-century science, see Lorraine Daston, "Objectivity and the Escape from Perspective," *Social Studies of Science,* 22 (November 1992): 597–618, and

Lorraine Daston and Peter Galison, "The Image of Objectivity," *Representations* 40 (Fall 1992): 81–128.

[3] Daston, "Objectivity and the Escape from Perspective," 597–98; Daston, "Baconian Facts." There is, however, some affinity between the scholastic sense of "objective" and dialectical objectivity, since both involve the constituting of mental objects.

[4] R. W. Newell notes all four dimensions in *Objectivity, Empiricism and Truth* (London: Routledge & Kegan Paul, 1986), chapter 2, "The Two Faces of Objectivity," 16–38.

[5] Thomas Nagel, *The View from Nowhere* (New York: Oxford University Press, 1986), 3–5, 18, and *passim*.

[6] The phrase "absolute conception of reality" is Bernard Williams's; see Williams, *Descartes: The Project of Pure Enquiry* (Atlantic Highlands, N.J.: Humanities Press, 1978), especially 64–67. Francis Bacon's discussion of the "idols" is, of course, the *locus classicus* for his conception of objectivity; see Francis Bacon, *The New Organon*, Aphorisms, XXXIX–XLIV, in Bacon, *Works*, ed. James Spedding, Robert Ellis, and Douglas Heath (14 vols.; London, 1857–74), 4: 53–55.

[7] *The Philosopher's Index* (Bowling Green, Ohio: Philosophy Documentation Center, 1967–) offers a convenient way of tracing the rise and fall of philosophical terms. I counted instances of the use of the terms "objectivity" and "realism" in the titles of articles indexed in *The Philosopher's Index* over the period 1967–90. Taking the years 1969–71 and 1988–90 as comparison points, use of the term "objectivity" increased 2.8 times between the beginning and the end of the period, whereas use of the term "realism" increased 7.2 times. It is clear from the literature that the two terms embrace a similar range of concerns.

[8] Hilary Putnam, *Realism with a Human Face*, ed. James Conant (Cambridge: Harvard University Press, 1990), especially "The Craving for Objectivity" and "Objectivity and the Science/Ethics Distinction," 120–31, 163–78; Richard Rorty, *Objectivity, Relativism, and Truth* (*Philosophical Papers*, 1) (Cambridge: Cambridge University Press, 1991), especially "Solidarity or Objectivity?" and "Science as Solidarity," 21–34, 35–45. See also Helen E. Longino, *Science as Social Knowledge: Values and Objectivity in Scientific Inquiry* (Princeton: Princeton University Press, 1990), especially chapter 4, "Values and Objectivity," 62–82, which brings recent philosophical discussions of objectivity to bear on gender issues in science—and vice versa. Note, finally, Richard J. Bernstein, *Beyond Objectivism and Relativism: Science, Hermeneutics, and Praxis* (Philadelphia: University of Pennsylvania Press, 1983).

[9] Thomas S. Kuhn, *The Structure of Scientific Revolutions*, 2nd rev. enl. ed. (Chicago: University of Chicago Press, 1970 [1962]), 103, 109–10, 122, 149–52, and *passim*. I confine myself here to Kuhn's view as articulated in the original edition, leaving aside the restatements appended to the revised edition.

[10] I condense and adapt the definition of epistemological relativism offered by Harvey Siegel, *Relativism Refuted: A Critique of Contemporary Epistemological Relativism* (Dordrecht: Reidel, 1987), 6.

[11] For one characteristic (and influential) early critique along this line, see Israel Scheffler, *Science and Subjectivity* (Indianapolis: Bobbs-Merrill, 1967), especially 15–19 and 74–89. *The Philosopher's Index* gives ready access to much of the discussion.

[12] Bryan Wilson, ed., *Rationality* (Oxford: Blackwell, 1970); Martin Hollis and Steven Lukes, eds., *Rationality and Relativism* (Oxford: Blackwell, 1982). See also Stuart C. Brown, ed., *Objectivity and Cultural Divergence*, Royal Institute of Philosophy Lecture Series 17, Supplement to *Philosophy* 1984 (Cambridge: Cambridge University Press, 1984); and Clifford Geertz, "Anti Anti-Relativism," *American Anthropologist* 86 (1984): 263–78, reprinted in Michael Krausz, ed., *Relativism: Interpretation and Confrontation* (Notre Dame: University of Notre Dame Press, 1989), 12–34.

[13] Steven Lukes, "Relativism in its Place," in Hollis and Lukes, eds., *Rationality and Relativism*, 261–305, quotation at 261.

[14] To refer to this view as "disciplinary" objectivity is in some respects a misnomer, since the convergence at which disciplinary objectivity aims is at least as likely to be situated at more specific levels than that of the discipline. Still, with its double meaning, "disciplinary" seems the most appropriate term.

[15] See, in particular, Longino, *Science as Social Knowledge*, especially the section "Objectivity by Degrees," 76–81. In its emphasis on scientific practice (66–68 and *passim*), Longino's account has affinities with the dialectical sense of objectivity, discussed below.

[16] Evelyn Fox Keller, *A Feeling for the Organism: The Life and Work of Barbara McClintock* (New York: W. H. Freeman, 1983), 197–98.

[17] Kuhn, *The Structure of Scientific Revolutions*, 164–65.

[18] This claim could be documented and perhaps in part corrected through bibliometric and citational research. In the absence of such an investigation, let the sales figures serve as a stand-in: from its original publication on 5 March 1962 through January 1991, *The Structure of Scientific Revolutions* sold 768,774 copies, an astounding figure for an academic work. It hit 22,500 copies in 1968–69, 40,000 copies per year in the early 1970s, and currently sells around 25,000 copies per year. (I owe these data to Douglas Mitchell, history and sociology editor, University of Chicago Press.)

[19] David Hollinger, "T. S. Kuhn's Theory of Science and Its Implications for History," in Hollinger, *In the American Province: Studies in the History and Historiography of Ideas* (Bloomington: Indiana University Press, 1985), 105–29, quotation at 115 (originally published in *American Historical Review* 78 [1973]: 370–93). For a survey of sociologists' (mis)use of Kuhn in the same period, see

Douglas Lee Eckberg and Lester Hill, Jr., "The Paradigm Concept and Sociology: A Critical Review," in Gary Gutting, ed., *Paradigms and Revolutions: Appraisals and Applications of Thomas Kuhn's Philosophy of Science* (Notre Dame: University of Notre Dame Press, 1980), 117–36.

[20] Hollinger, "T. S. Kuhn's Theory of Science," 116–17.

[21] Kuhn, *The Structure of Scientific Revolutions*, 162.

[22] Hollinger, "T. S. Kuhn's Theory of Science," 116. For a detailed account of historians' relation to objectivity, see Peter Novick, *That Noble Dream: The "Objectivity Question" and the American Historical Profession* (New York: Cambridge University Press, 1988).

[23] Hollinger, "T. S. Kuhn's Theory of Science," 117–19. To be sure, one needs to distinguish between "paradigm" construed as a generally accepted viewpoint, and "paradigm" construed as an instance of scientific practice that has turned out to be spectacularly successful at solving problems. If one emphasizes the latter meaning, Kuhn's affinities are with dialectical objectivity. But this side of Kuhn's account was of less interest to social scientists than was his emphasis on consensus.

[24] Dear, "From Truth to Disinterestedness," 619–21.

[25] Daston and Galison, "The Image of Objectivity," 82.

[26] The phrase "aperspectival objectivity" is Lorraine Daston's, "Objectivity and the Escape from Perspective." Additionally, Dear has suggested that Karl Popper's well-known notion of a "Third World" of objective intelligibility captures the negative character of [absolute] objectivity, since the Popperian "Third World" is hard to locate in any specific way and since the ideas in it "do not have to be, in any useful sense, *true*." In Dear's words, "objective knowledge is characterized by its not being *sub*jective. . . . Truth is beside the point" (Dear, "From Truth to Disinterestedness," 619–20; Karl Popper, *Objective Knowledge: An Evolutionary Approach* [Oxford: Oxford University Press, 1972], chapter 4, "On the Theory of Objective Mind," 153–90).

[27] Friedrich Nietzsche, *On the Uses and Disadvantages of History for Life*, sect. 6, in Nietzsche, *Untimely Meditations*, trans. R. J. Hollingdale, with an Introduction by J. P. Stern (Cambridge: Cambridge University Press, 1983), 89–95; quotation at 93. See also Friedrich Nietzsche, *On the Genealogy of Morals* (1887), trans. Walter Kaufmann and R. J. Hollingdale, Third Essay, sect. 12, in Nietzsche, *"On the Genealogy of Morals" and "Ecce Homo,"* ed. Walter Kaufmann (New York: Random House, 1969), 119, where Nietzsche attacked "the dangerous old conceptual fiction that posited a 'pure, will-less, painless, timeless knowing subject.' "

[28] Martin Heidegger, *Being and Time*, trans. John Macquarrie and Edward Robinson (New York: Harper & Row, 1962); see, for example, sect. 15, 95–102.

[29] See, for example, Maurice Merleau-Ponty, *Phenomenology of Perception*, trans. Colin Smith (London: Routledge & Kegan Paul, 1962 [1945]); John Dewey and Arthur F. Bentley, *Knowing and the Known* (Boston: Beacon Press, 1949); Michael Polanyi, *Personal Knowledge: Towards a Post-Critical Philosophy* (Chicago: University of Chicago Press, 1958); and Marjorie Grene, *The Knower and the Known* (New York: Basic Books, 1966).

[30] Johannes Fabian, "Language, History and Anthropology," *Philosophy of the Social Sciences* 1 (1971): 19–47. Significantly, at that time some anthropologists thought it unfortunate that anthropology was "pre-paradigmatic," i.e., that it did not conform to Kuhnian standards of disciplinary objectivity: see J. A. Barnes, *Three Styles in the Study of Kinship* (Berkeley and Los Angeles: University of California Press, 1971), xxi. This was not Fabian's worry; he declared in his 1971 paper that Kuhn's book "anoints the fetish of professionalism" ("Language, History and Anthropology," 19).

[31] It is important to note that Fabian uses the term "objectification" in a neutral, epistemological sense, rather than pejoratively, as many authors do, to designate the turning of "persons" into "mere objects." Mary Hawkesworth draws attention to the frequent tendency to conflate epistemological process with moral offense in her paper in this collection, "From Objectivity to Objectification: Feminist Objections."

[32] Fabian, "Language, History and Anthropology," 22.

[33] Fabian, "Language, History and Anthropology," 27.

[34] For further discussion, see Grene, *The Knower and the Known*, chapter 5, "Kant: The Knower as Agent," 120–56.

[35] Some of their work is cited in note 2, above. See also Peter Dear, "*Totius in verba:* Rhetoric and Authority in the Early Royal Society," *Isis* 76 (1985): 145–61, and Dear, "Jesuit Mathematical Science and the Reconstitution of Experience in the Early Seventeenth Century," *Studies in the History and Philosophy of Science* 18 (1987): 133–75. The sociologists of science Steven Shapin and Simon Schaffer have also contributed importantly to this historical study; see Shapin and Schaffer, *Leviathan and the Air-Pump: Hobbes, Boyle, and the Experimental Life* (Princeton: Princeton University Press, 1985) and Shapin, "The House of Experiment in Seventeenth-Century England," *Isis* 79 (1988): 373–404, among other publications. Closely related to Porter's essay in the present collection is the chapter "Numbers Rule the World," in Gerd Gigerenzer et al., *The Empire of Chance: How Probability Changed Science and Everyday Life* (New York: Cambridge University Press, 1989), 235–70 (although *The Empire of Chance* was written collaboratively by all its authors, this chapter was largely the work of Daston and Porter). That objectivity has become the object of historical investigation is itself interesting, a measure of the problematization of objectivity in our time; the fact thus illustrates a "dialectical" point.

[36] Daston and Galison, "The Image of Objectivity"; Daston, "Objectivity and the Escape from Perspective" (the quotation is from "The Image of Objectivity," 98).

[37] See especially Barry Barnes and David Bloor, "Relativism, Rationalism and the Sociology of Knowledge," in Hollis and Lukes, eds., *Rationality and Relativism*, 21–47, see 21, 33, and *passim*.

[38] In emphasizing nature's resistance to scientific practice, Pickering seems to nuance the constructivism suggested by his *Constructing Quarks: A Sociological History of Particle Physics* (Chicago: University of Chicago Press, 1984).

[39] Michel Foucault, "The Subject and Power," in Hubert Dreyfus and Paul Rabinow, *Michel Foucault: Beyond Structuralism and Hermeneutics* (Chicago: University of Chicago Press, 1982), 208–26; quotation at 208. Foucault's concern with objectification is perhaps most clearly expressed in Foucault, *The Archaeology of Knowledge*, trans. A. M. Sheridan Smith (New York: Harper & Row, 1972 [1969]), especially 31–49, where he suggests a co-emergence of "discursive formations" and "objects."

[40] Francis Bacon, *The Advancement of Learning*, Bk. 2, xiv.9, in Bacon, *Works*, 3:394–95.