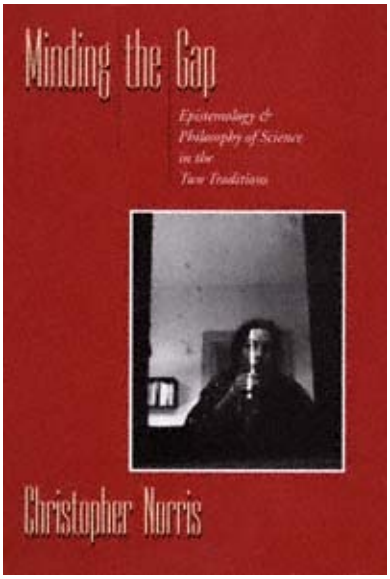


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Minding the Gap

Epistemology & Philosophy of Science in the Two Traditions

Christopher Norris

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For Clare and Jenny

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Preface

My main purpose in writing this book has been to provide a critical-comparative review of recent developments in epistemology and philosophy of science. It is unusual in devoting equal attention to work on both sides of the notional rift between 'continental' (i.e., post-Kantian mainland-European) movements of thought and 'analytic' approaches in the line of descent from Frege and Russell. I challenge this conventional view by remarking the numerous points of convergenceas well as the salient differences of emphasiswhich have often been ignored by more partisan commentators. Thus the two central projects of Husserlian phenomenology and Fregean philosophy of logic and language can be seen as jointly addressing a range of issues about truth, knowledge, and representation that cut across the standard disciplinary divide. (See especially my introduction and chapters 1 and 3.) Their different approaches are deeply bound up with the distinctive self-image of each tradition yet offer the prospect of a critical dialogue that would serve to extend and to deepen their powers of self-reflective conceptual grasp.

This dialogue is pursued more specifically in chapters on Frege and Husserl; on Bachelard, Canguilhem, and the French legacy of epistemo-critical thinking or *rationalisme appliqué*; on 'postanalytic' developments in the wake of logical empiricism (Quine, Kuhn, Davidson, and Rorty); on the issue between descriptivist and causal theories of reference as discussed by philosophers such as Kripke, Putnam, Donnellan, and Evans; and on Derrida's early readings of Husserl where he raises questions that should be of interest to philosophers working in the 'other' (mainly Anglo-American) tradition of thought. These topics come together in the book's extended

treatment of recent episodes in the history of debate between realist and antirealist philosophies of science. Here I argue that the widespread drift toward forms of antirealismalong with cultural-relativist doctrines like that advanced by the 'strong' programme in sociology of knowledgemay in part be explained as a response to the prolonged (post-1900) 'crisis' in theoretical physics, itself brought about by conceptual problems in the foundations of quantum mechanics. Hence (chapter 2) the appeal of certain Quinean/Kuhnian ideas

ontological relativity, paradigm change, radical meaning-variance, the under-determination of theories by evidence, and the theory-laden character of observation-statementsreflecting as they do a more general sense of the limits imposed on our knowledge of reality by factors intrinsic to the quantum-physical domain. However, it is a strange inversion of rational priorities that would claim to derive such radical consequences from a theory so rife with unresolved puzzles and paradoxes.

Chapter 5 puts the case for a realist interpretation of quantum mechanicsbased on the hidden-variables theory developed by David Bohmand also for a realist approach to other issues in epistemology, philosophy of science, and philosophical semantics. In particular I reject those varieties of current antirealist thinking, such as Michael Dummett's, which deny that we can possibly have adequate grounds for asserting the existence of objective or 'verification-transcendent' truths. What these arguments amount to is a more sophisticated update on old-style logical positivism that is nonetheless vulnerable to all the same criticisms (including the charge of self-refutation) which undermined that earlier programme. For there do exist alternatives to episte-mological foundationalism which don't entail anything like so drastic and disabling a break with the tenets of scientific realism. In various fieldssuch as non-Euclidean geometry, relativity theory, and quantum mechanicsit is no longer possible to seek a grounding for scientific knowledge in a realm of *a priori* self-evident truths or primordial intuitions. Derrida's commentaries on Husserl make a similar point as regards foundationalist arguments in geometry, arithmetic, philosophy of mind, the phenomenology of time-consciousness, and other realms of enquiry. But they also demonstrate the 'absolute and principled' necessity of thinking these issues through with the greatest degree of conceptual precision and a rigorous

attentiveness to textual detail in the writings of philosophers such as Kant and Husserl.

This aspect of Derrida's work has yet to be appreciated by Anglo-American commentatorsDummett among themwho are themselves currently in process of revising the standard 'analytic' *versus* 'continental' account of developments in the history of post-Kantian thought. Chapters 1 and 3 set out to correct that particular omission and also to encourage a wider critical reassessment of those alternative resources for philosophy of science provided by thinkers in the mainland-European tradition. It is only on a highly artificialhistorically and geographically distortedview that we can treat the predominant problems and concerns of analytic philosophy in the wake of logical empiricism as belonging to a world quite apart from the interests that have typically animated work in the French and German contexts of debate. Indeed, it may be argued that analytic philosophy has run into a number of false dilemmas or dead-end predicaments as a result of its becoming so far out of touch with developments elsewhere.

Chapter 2 takes up this particular story from the landmark date when Quine first published his well-known attack on the two 'last dogmas' of old-style logical empiricism. In brief, it traces the consequences of Quine's argument for a thoroughly naturalised epistemology, one that would view philosophy of science as 'all the philosophy we need', and which moreover defines 'philosophy of science' in narrowly physicalist terms. I contend that this amounts to a third residual dogma of empiricism and that its effect has been chiefly to restrict the range of post-Quinean debate by setting an agenda which preemptively excludes all interest in the wider (i.e., critical and normative) dimensions of philosophic enquiry. Its influence can be seen in various responses to Quine, among them those of Donald Davidson and Richard Rorty, both of whom adopt a similar, reductively physicalist approach to issues of meaning, knowledge, and truth. Where Davidson takes issue with other Quinean doctrines such as framework-relativism and radical meaning-variance, Rorty pushes those doctrines right through to a wholesale relativist position despite his argument that perceptual states are directly caused (at some very basic level) by incoming physical stimuli. What unites themand thus lays Davidson open to construal on Rorty's favoured termsis the Quine-derived thesis that beliefs can be explained in terms of a reflex stimulus-response psychology that finds no room for normative issues of epistemological warrant or justification. For it will then seem plausible for Rorty to claim that beliefs acquired by such a rudimentary mechanism are compatible with pretty much any higher-level theory or description that one cares to place upon them. Chapter 2 goes on to criticise Rorty's most extreme statement of the casein his essay 'Texts and Lumps'and then (more constructively) to suggest a way forward from this post-empiricist predicament.

Of course there are some notable exceptions to the rule in recent

Anglophone debate. John McDowell's book *Mind and World* (1994) is one such attempt to redirect the interest of analytic philosophers toward certain hitherto neglected themes in Kantian and post-Kantian 'continental' thought. Only thus, he thinks, can we hope to move beyond the problems encountered in recent philosophy of mind and language, among them the various unsatisfactory attemptsby Quine, Davidson, Rorty, and othersto achieve a naturalised epistemology that casts off the various residual 'dogmas' of old-style logical empiricism. In particular, McDowell suggests that we return to Kant's ideas of 'spontaneity' and 'receptivity' as the two jointly operative powers of mind which enable thought to transcend the otherwise unbridgeable gulf between sensuous intuitions and concepts of understanding. However, I argue that his project miscarries for several reasons. Chief among them is the highly problematical nature of Kant's claims, taken over by McDowell without reference to their subsequent history of reinterpretation at the hands of subjective and objective idealists such as Fichte and Schelling. Hence his failure to tran-

scend or reconcile the mind/world dualism and also his tendency to fall back into different versions of the same vexing dichotomy that he finds still present in Quine and Davidson.

I then point out certain problems with McDowell's idea that Kant can be 'naturalised' by reinterpreting his claims from a more hermeneutic or communitarian standpoint with its chief sources in Hegel, Wittgenstein, and Gadamer. For the result is to deprive Kant's philosophy of its distinctively critical dimension not only with regard to epistemological issues but also in relation to matters of ethical and sociopolitical judgement. McDowell might well have strengthened his case by turning his attention to later continental movements of thoughtespecially within the phenomenological line of descent from Husserlwhere these problems have been most actively engaged but which have so far found little resonance in mainstream analytic debate. Thomas Nagel's *The Last Word* is another recent effort to steer the conversation onto different ground by proposing a return to certain basic principles (of truth, reason, and justificatory warrant) which are taken as simply proof against sceptical attack but which philosophers have often lost sight of through their overconcern with narrowly technical or intraphilosophical disputes. Yet here againI suggestNagel fails to follow through on his own best insights by attempting to square this claim with a reading of Wittgenstein that runs into all the same problems and opens the way to a sceptical response along all-too-familiar lines. What is needed is a fresh approach to these issues that would break their compulsive hold or at least provide a different, more expansive sense of the various possibilities that have been closed off through zealous policing of the continental/analytic divide. In this book I have sought to do just that while avoiding any vaguely ecumenical approach that would ignore the often productive sources of conflict or tension between them.

As usual there are many people to thank for their interest in this project and their willingness to read and discuss various chapters in draft form. In particular, I should mention my colleagues and graduate students in the Philosophy Section at Cardiff, all of whomwhether knowingly or nothave contributed ideas or influenced my thinking at some crucial stage as the work went along. I am also grateful to Manuel Barbeito for inviting me to talk about some of these topics at the University of Santiago de Compostela; to Reg Coates for his friendship, good humour, and patience; to Stephen Knight and David Skilton for their help and encouragement in matters too many to recount; to Joe Margolis (once again) for coming up with all the best and most challenging counterarguments; to Sean Sayers, whose work has influenced my own over a long period and who probably converted me to realism before I knew it; to Shiva Srinivasan for showing me around Delhi during a memorable trip which was also the occasion of some stimulating seminars and post-lecture discussions; to Alessandra Tanesini for keeping me philosophically on my toes; to Barbara Palmer for her expert assistance at the copy-

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CHRISTOPHER NORRIS
CARDIFF, WALES

Introduction
Epistemology and Philosophy of Science in the Two Traditions

Historical Contexts

In philosophy of science, as in other fields, it would be wrong to exaggerate the depth or extent of the rift that is very often assumed to exist between work in the Anglo-American ('analytic') tradition and work carried on by thinkers in the broadly 'continental' line of descent. In this book I shall stress the various points of contact while also seeking to explain just why that perception has arisen. After all, it is a strangely foreshortened perspective that ignores their common origin in the various issuesof truth, logic, knowledge, representation, causality, laws of nature, and the status of explanatory theorieswhich preoccupied philosophers (rationalists and empiricists) on both sides of that notional rift and which received their most elaborate treatment in Kant's *Critique of Pure Reason*. [1]

On one account there occurred a decisive parting of the ways after Kant, with certain of those issues (chiefly concerning logic, language, and representation) taken up into the mainstream of recent analytic debate, while continental philosophy inherited Kant's emphasis on judgement as the faculty called upon to mediate between phenomenal intuitions and conceptual understanding. Thus, according to some commentators, logical positivism can best be seen as a version of neo-Kantianism distinguished from others by its taking the natural sciences as a source of epistemological guidance. More specifically, Anglo-American philosophy of science has been much concerned with two central issuesthe *justification* of scientific truth-claims and

the *demarcation* of science from pseudosciencewhich are also the topics, respectively, of Kant's 'Transcendental Analytic' and 'Transcendental Dialectic' in the First *Critique*. Among continental philosophers of science (especially those in the broadly hermeneutic tradition) the emphasis has tended to fall more often on the 'Transcendental Aesthetic', and on those aspects of Kantian epistemologysuch as the mediating role of judgement and the teleological structure of all understandingthat are held over for extended treatment in

the Third *Critique*. [2] Then again, this story is sometimes pushed back to Descartes as the inaugurator of a subject-centred (foundationalist) epistemology that referred all questions of knowledge and truth to their presumed grounding in the act of self-present conscious reflection. On the other hand, Descartes also has a claimlike Kantto be a source of many themes and preoccupations that have come to characterize both traditions of thought. No doubt his *Meditations* have exerted the greatest influence on a line of thinkersfrom Kant to Husserlfor whom such questions were of crucial importance in accounting for our knowledge of the world. But elsewhere, as in portions of the *Discourse on Method*, Descartes can be seen to have laid out a programme for those various 'analytic' approaches that have stressed the procedural or logical aspects of scientific enquiry, thus seeking to avoid such dubious appeals to the subject as ultimate locus of knowledge and truth.[3]

Nor is it possibleexcept on a highly selective and hence distorting accountto treat philosophy of science in the twentieth century as falling into two clearly marked camps with nothing in common save an attitude of mutual mistrust. One has only to list some of the main protagonists on the 'analytic' sideCarnap, Hempel, Neurath, Popper, Reichenbach, and Schlick among othersin order to see just how unreal is the impression thus created. In part this has to do with contingent geopolitical factors, namely, the large-scale westward migration of mainland-European intellectuals brought about by the Nazi rise to power and the postwar redistribution of material and cultural resources. However, it also reflects the inadequacy of those textbook dichotomies'continental' *versus* 'analytic', 'rationalist' *versus* 'empiricist', and so onwhich have all too often set the terms for debate in epistemology and philosophy of science. At best such labels can be said to point up some more-or-less salient differences of interest,

emphasis, and approach. My purpose here is therefore to flag a number of supposed distinguishing features (in line with the orthodox account) and then whittle away at these distinctions so as to emphasise the areas of shared concern.

Language

There are several respects in which questions of language are central to any discussion of recent (i.e., post-1920) continental philosophy of science. One is the fact that so many Anglo-American commentatorsfrom the logical positivists downhave objected to what they see as its wilful obscurities of style and phrasing. While doubtless justified in some cases, this charge more often reflects a deep difference of views as to the relationship between language and thought, that is to say, the extent to which conceptsscientific concepts among themare themselves linguistically mediated or (in more extreme statements of the case) discursively produced. Then again, following from this, there is the question whether science (and philosophy of science)

should aspire to the kind of analytical clarity that so far as possible avoids any dealing with metaphor, ambiguity, or other such sources of natural-language vagueness and imprecision. Historically this attitude characterizes both the rationalist ('continental') quest for clear and distinct ideasa quest carried on by thinkers from Descartes to Husserland the empiricist tradition from Locke to Carnap. All the same, it is fair to say that analytic philosophy during the past six decades has defined itself partly as a movement of thought directed against what is commonly perceived as the bewitchment by language that typifies much post-Hegelian continental theorizing. The *locus classicus* here would be Carnap's well-known contemptuous dismissal of Heidegger in his essay 'The Elimination of Metaphysics through Logical Analysis of Language'. [4]

The governing assumption behind such claims is that language can (and should) be logically 'analysed' so as to revealand, it is hoped, 'eliminate'the kinds of verbal mystification that pass themselves off either as common-sense wisdom or as deep philosophical insight. This belief was especially strong among the logical empiricists (Carnap included) but can also be seenjust to complicate matters yet furtheras carrying on the critique of speculative metaphysics that Kant thought prerequisite to any future philosophy of mind, knowledge, or science. Indeed, it may be argued that the linguistic (or hermeneutic) 'turn' in recent continental thought is one that has its origins in the period after Kant when the question was raisedby Herder among othersas to how far philosophy can possibly achieve a critical stand-point above or outside the very language in which all its concepts are framed.[5]

This issue is one that continues to divide philosophers of science even though the terms of debate have changed on both sides as a result of the increasing centrality of language as a focus for analysis and/or reflection on the contexts of scientific enquiry. In brief, the division

falls out between an approach that takes the truth-claims, propositions, or observation-statements of science as its prime objects of analysis, and a more interpretive or hermeneutically inspired approach that rejects this atomistic conception and treats such items as meaningful only insofar as they emerge from some deeper context of informing values and beliefs. Where such questions were once raised with regard to contending (rationalist or empiricist) construals of the so-called way of ideas, they now involve differing views of the relationshipor order of prioritybetween language, knowledge, and scientific practice.[6] That is to say, there is widespread agreementexcept among a few 'direct realists'that philosophy of science must involve some dealing with issues of language or with the structure of scientific theories as revealed through their various forms of logico-linguistic representation.

However, this agreement has sharp limits when it comes to defining the scope and proper function of 'analysis' *vis-à-vis* 'language'. On the logical-empiricist account, scientific theories are constructed out of observation-

statements along with various linkages between them, these latter being subject to analysis in terms of valid deductive inference. This approach had much in common with the logical positivism of the Vienna Circle, a school whose membersincluding Carnap, Neurath, and Schlickwere 'continental' in background and early training at least, even though the main impact of their thought was on subsequent Anglo-American philosophy of science and language. [7] What united both schools was a firm belief in the virtues of logical analysis, a deep mistrust of 'metaphysics' (or empty verbalism), and a commitment to the basic empiricist idea that scientific observations were the bedrock data of any science (or philosophy of science) worthy the name. However, this approach gave rise to some intractable problems. Chief among them was a difficulty in making sense of the Verification Principle, that is to say, the argumenta main plank in the logical positivists' programmethat the only meaningful (scientifically valid) statements were those which were either borne out by direct empirical observation or guaranteed as a matter of purely analytic (hence tautological) truth.[8] Since this principle could be shown to satisfy neither of its own requirements it clearly fell prey to a self-refuting paradox. Besides which, it left unanswered a range of questions having to do with the meaning or content of observation-statements and their (presumed) correspondence to real-world objects or states of affairs.[9]

Neurath and Schlick were at odds on this issue, since Schlick insisted that there *must* be some ultimate point of contact between such statements and that which rendered them observationally valid, whereas Neurath maintainedon the contrarythat their meaning could only be cashed out in terms of their instrumental efficacy or their hanging together with other statements in a theory which had so far passed all the tests of warranted assertibility. Thus Neurath took it that

"'science keeps within the domain of propositions, that propositions are its starting point and terminus'", whereas Schlick argued that 'science is "a means of finding one's way among the facts", its confirmation-statements being "absolutely fixed points of contact" between "knowledge and reality"'.[10] This dilemma resulted chiefly from the problem of explaining just what should count as a 'protocol sentence', that is, the kind of firsthand observational report (of pointer deflections, microscopic sightings, or particle tracks in a cloud chamber) that could not in principle be subject to doubt since it had to be takenon empiricist termsas a matter of plain self-evidence. For, as Neurath argued, this failed to answer the question as to *why* such sentences should be viewed as somehow incorrigible, merely on the strength of their containing various deicticsfirst-person pronouns, temporal indices, locative markers, and so onwhich signalled the fact of their once having been experienced by this or that on-the-spot observer. Such experiences could provide an epistemic anchor point only on condition that (1) they were somehow guaranteed proof against various kinds of perceptual illusion, and (2) they could be shown to hold firm across subsequent changes

of interpretive standpoint or shifts in the overall structure of scientific belief. Thus a candidate sentence might take the form: 'Otto's protocol at 3.17 o'clock: "[At 3.16 o'clock Otto said to himself: (at 3.15 o'clock there was a table in the room perceived by Otto)]"'. [11] However, such a sentence was still highly ambiguous as regards both its perceptual content and its possible range of later construals from any spatiotemporal standpoint other than Otto's.

This is where the two traditions in philosophy of science'analytic' and 'continental'can be said to diverge most sharply. Hegel had made a related point about so-called primitive sense-certainty and the way that firsthand reports of experience relinquished their character of seeming self-evidence as soon as they became divorced from that original context by the passage of time or by shifts from one to another deictic frame of reference.[12] Of course Neurath was himself no Hegelian, sharing as he did the hostility toward idealist metaphysics that formed such a major plank in the programme of the Vienna Circle. Nevertheless, his argument against Schlickthat is to say, against the notion of protocol-sentences as affording 'fixed points of contact' between 'knowledge and reality'was also an argument which opened the way to those various critiques of 'naive' sense-certainty that have characterized continental philosophy in the phenomenological and hermeneutic traditions. Thus, according to Neurath, '[e]very law and every physicalistic sentence of unified-science or of one of its sub-sciences is subject to change. And the same holds for protocol sentences'.[13] From which it followed that phenomenalist (or experience-based) accounts of scientific theory construction must always at some point run up against the problem of assigning determinate content to observation-statements, given that these were *in the first place and continually thereafter* subject to various possible interpretations. So the issue between Schlick and

Neurath has a relevance in the present context despite their not being 'continental' thinkers in the usual (doxographic) sense of the term. What it brings out is that internal division *within* the logical-empiricist camp which was also a main point of departure for various approaches to philosophy of science that are nowadays thought of as distinctly mainland-European.

Postempiricist Directions

The great difficulty with phenomenalism was always its appeal to a realm of 'sense-data' taken to constitute the basic elements of protocol-sentences, and hence as providing a secure foundation for the process of scientific theory building. This appeal brought along with it a host of problems concerning the nature of those putative 'data', that is to say, their status as veridical perceptions of real-world (mind-independent) objects oron the sceptical viewas phenomenal (observer-relative) constructs out of this or that cognitive framework, perceptual scheme, subjective mode of apprehension, or whatever. This issue had a long prehistory going back to Berkeley's ingenious

argument that Lockean empiricist talk of 'sense-data' or 'primary' and 'secondary' qualities could be neatly turned around so as to obviate the need for any world outside our subjective perceptions, and hence prove the case for absolute idealism with God as the last guarantee behind phenomenal appearances. The irony has not been lost upon commentatorsPopper among themwho perceive Berkeley's influence on a range of present-day movements in philosophy of science, from the phenomenalism of the Vienna Circle to various forms of instrumentalist, conventionalist, and pragmatist thought. [14] What these schools have in common is a reductive (and underspecified) appeal to 'experience' or observational warrant, together with a proneness to follow that Berkeleian slide from sense-data as our sole source of knowledge to scepticism regarding the 'external world' and our epistemic access to it. After all, there would appear little hope of success for a theory of scientific knowledge that gives up 'naive' realist talk of mind-independent objects, processes, or events while substituting talk of 'sense-data' whose very existencelet alone their precise ontological or epistemological statusis open to doubt.

Still it would be highly misleading to suggest that phenomenalism was a doctrine that took firm hold only among Anglo-American or 'analytic' thinkers in the first half of this century. Indeed, one of its main sources was the work of Ernst Mach, the great Austrian physicist and historian/philosopher of science whose commitment to the programme of a sense-data based (empirically adequate) language of physical description led him to reject any realist construal of talk about entitieslike atomsthat lay beyond the limits of human observation.[15] In Mach's case, however, this insistence went along with a number of strongly marked interests which disappeared from view in later applications of the logical-empiricist approach. Thus he emphasised not only the importance of detailed enquiry into the

history of experimental science but also, as one recent commentator notes, 'the art of the researcher' and 'the technical and social flair essential for the practice of the experimental life of the sciences'.[16] If his stance was resolutely antimetaphysicallike that of the Vienna Circleit was mainly in order to cure philosophers of the delusion that science (whether past, present, or future) could ever be held strictly to account by any ground rules or theories they might come up with. Least of all could scientific progress be explained by application of covering-law principles or hypothetico-deductive schemas whose generality of scope was inversely related to their power to iluminate particular episodes in the history of science.

Mach is perhaps the most striking example of a thinker whose many-sided influence cannot be straightforwardly parcelled out in 'analytic' or 'continental' terms. On the one hand, his phenomenalism was taken upand applied in doctrinaire fashionby the Vienna Circle and by logical empiricists for

whom it became a means of shifting interest from the real-world historical contexts of scientific enquiry to the analysis of various linguistic items (observation-statements or theories) at various levels of abstraction. Thus, as Babich pointedly remarks, 'the rupture between theory and experiment that followed from the increasing logicization of empiriocriticism or critical positivism related to the rise of analytic-style philosophy of science has no precedent in Mach'.[17] On the other handand for just that reasonhis work continued to exert a strong influence on thinkers who rejected the analytic paradigm and adopted a more historically sensitive, context-specific, or sociologically informed approach. It is this latter mode of thought that is most often considered distinctively 'continental', along with the allied turn toward holistic conceptions of meaning and truth and the further (depth-hermeneutic) appeal to background contexts of knowledge and belief that cannot be analysed in reductive (e.g., logical-empiricist) terms.

Here again one has to enter the caveat that a good deal of work that must count as 'continental' according to the above criteria has in fact been produced by Anglo-American philosophers, historians, and sociologists of science. Indeed, their approaches very often owe as much to the empirical tradition of social-sciences research as to the kinds of speculative thinking more typically associated with post-Kantian continental philosophy. Thus it is, at best, a partial truth to claim that the 'return to history' in recent philosophy of science is also and intrinsically a turning away from Anglophone sources and an opening up to continental ideas. Certainly this caveat would have to apply to such movements as the 'strong' programme in sociology of knowledge, premised as it isoddly enoughon a confident appeal to the facts of social history as if these were somehow more objective or reliably established than even the most confident posits of the physical

sciences.[18] The same applies to Thomas Kuhn's *Structure of Scientific Revolutions*, even though that work offers little in the way of detailed sociological content.[19] For here also there is a curious mix of positivist social science and holistic (or culturalrelativist) talk of paradigm changes as somehow entailing that scientists on either side of such a change quite literally inhabit 'different worlds'.

That Kuhn has very often been enrolled among the 'continental' thinkersat least as a matter of elective affinityis a further indication of the difficulties faced by anyone attempting to draw the map along clearly marked geohistorical lines. For in Kuhn's case, as in that of Quine, there is a point at which certain postanalytic (more specifically, certain post-logical-empiricist) themes may be seen to converge with movements of thought in continental philosophy of science. These include, most importantly, the turn toward meaning-holism and the concomitant denial of any hard-and-fast distinction between analytic and synthetic statements (or, in the traditional parlance, 'truths of reason' and 'matters of fact').[20] In which caseit is arguedthere

should now be room for an *entente cordiale* between postanalytic philosophy of science, once freed of its residual logicist and empiricist leanings, and that strain of hermeneutically oriented thought which offers to restore a lost dimension of meaning and historical depth. [21]

At this stage, however, we need to draw some finer discriminations within and between those two lines of descent whose common starting point, I have suggested, is Kant's First *Critique*. Analytic philosophy may be seen to have pursued one aspect of Kant's thought, namely, that of showing how phenomenal intuitions could be 'brought under' adequate concepts and thus provide the basis for a theory of knowledge that would not fall prey to metaphysical illusions. From the hermeneutic viewpoint, conversely, this project foundered on Kant's inability to explain just *how* intuitions and concepts could be thought of as somehow 'corresponding' one with another, given their utterly different character. This problem gave rise to some notoriously obscure passages in the 'Transcendental Aesthetic' where Kant referred to an 'art of judgement'an art, moreover, 'buried in the depths of the soul'whereby the two orders of phenomenal experience and conceptual understanding might somehow be bridged or reconciled. It was just these passages that Heidegger singled out (in *Kant and the Problem of Metaphysics*) as exposing the limits of Kantian epistemology and revealing a dimension of 'authentic' depthhermeneutical thought which lay beyond its utmost powers of explanation.[22]

Hence the Heidegger-influenced trend toward holistic modes of thought which seek to situate the 'praxical' aspects of scientific research within the various contexts, cultures, or experimental life forms that constitute the 'horizon of preunderstanding' against which science emerges as a project of humanly significant activity.[23] To this extent hermeneutics may be seen as a challenge *both* to earlier (e.g.,

neo-Kantian) movements in continental philosophy of science *and* to mainstream analytic approaches. At the same time, philosophers such as Nancy Cartwrightworking within a broadly 'analytic' framehave emphasised the limits of covering-law or deductive-nomothetic theories by pointing to the inverse relation that exists between the generalised scope of scientific laws and their truth to the empirical data obtained through experiment and close observation.[24] These latter are 'phenomenological' insofar as they involve a jointly perceptual, epistemic, and interpretive process which cannot be neatly factored out in the manner prescribed by positivists or logical empiricists. So once again it proves hard to distinguish clearly between the two lines of philosophical descent, at least beyond the stage where that original programme encountered just such problems with its own professed methodology. Moreover, issues of knowledge and truth have figured centrally in the work of two French philosophers of scienceBachelard and Canguilhemwhose contribution can in no way be counted marginal to the development of twentieth-century continental thought.

Epistemology versus 'Rational Reconstruction'

Epistemology has to do with issues of knowledge, with the scope and limits of human understanding, and hence with questions of scientific truth and method insofar as they are taken to require such treatment. Broadly speaking 'continental' philosophy of science has laid more stress on this epistemological dimension, while 'analytic' thinkers (at any rate, those in the mainstream Anglo-American line) have tended to focus on the logic of scientific enquiry and the issue of justificatory warrant. That is to say, they have offered 'rational reconstructions' concerned not so much with whatever went on in the mind of this or that scientist as with such questions as 'What counts as a good (rationally warranted) scientific theory, truth-claim, discovery procedure, inductive generalization, or explanatory hypothesis?'

On the one side, as I have said, this difference of approach can be traced back to the enduring legacy of Cartesian and Kantian philosophies of mind and knowledge, while on the other there exists a clearly marked continuity from Locke, Hume, and the British empiricists to the programme of logical positivism and its various successor movements. However, this is is a broad-brush picture and one that conceals important differences of emphasis not only between but within both camps. To some extent these can be signalled by contrasting the 'French', post-Cartesian or critical-rationalist line of thought taken up by philosophers of science such as Bachelard and Canguilhem with the 'German' line that has its origin in Kant and which continues, via Husserl, to raise questions regarding the grounds of scientific knowledge from a transcendental (or 'conditions-of-possibility') standpoint. But again we should do better to treat these contrasts as a very rough map of the country subject to all kinds of boundary crossing and detailed internal revision.

Bachelard's work was mainly concerned with the process of scientific theory formation, the occurrence of radical changes in the history of scientific thought, and the way that certain metaphorsor heuristic fictionshave at times played a crucial or formative role in bringing such changes about. [25] Thus described, it bears an obvious resemblance to Kuhn's *Structure of Scientific Revolutions*. What distinguishes Bachelard's approach is his much greater interest in the epistemological aspects of theory change, that is, the kinds of thought-process that have typically produced some decisive break (some switch of Kuhnian 'paradigms') in the history of the physical sciences. For Bachelard, such changes occur most often at points of crisis for the existing paradigm when its predictions are challenged or disconfirmed by a sufficiently large body of conflicting observational evidence, or when discrepancies arise between the old theory and a new, more powerful conceptual scheme. There ensues a period of widespread uncertainty and doubt, characterised by the prominence of metaphor over concept, or by the way that speculative think-

ing tends to outrun the resources of empirical observation or adequate conceptual grasp. (Kant, rather than Descartes, would seem to be a main point of reference for Bachelard's philosophy here). At length this crisis is resolved through a decisive 'epistemological break' with earlier modes of thought. Among the new theory's virtues are (1) its yielding a more adequate account of observations, measurements, or data in conflict with the old paradigm, (2) its capacity to find room for certain parts of the previous model where these still apply within some limited framework or context of enquiry, and (3) its transformation of *metaphors* into *concepts* through a process of ongoing 'rectification and critique'. For despite their undoubted heuristic valueespecially in fields such as particle physics and astronomy where they have often enabled thought to advance beyond the limits of currently possible observationstill there is a sense in which such metaphors are not yet adequate to the purposes of a mature (conceptually rigorous) science.

Bachelard is thus in agreement with Kuhn as concerns the basic character of paradigm change. However, they differ very sharply when it comes to assessing scientific theories with regard to their truth-content or validity as measured by our present-best state of knowledge. On Kuhn's accountmuch influenced by Quine on the topic of 'ontological relativity'there is simply no way of judging the issue as between rival ('incommensurable') paradigms except on pragmatic grounds, or the extent to which they happen to fit with the rest of our currently accepted beliefs. [26] Any paradigm change will always be 'underdetermined' by the best empirical evidence and subject only to loose theoretical constraints in accordance with some given ontological scheme. Hence Kuhn's very marked cultural-relativist leaning, that is, his tendency to treat such changes as best explained by an appeal to history and sociology, rather than through any notion

of the physical sciences as having developed their own increasingly reliable procedures and methods of theory validation. For Bachelard, conversely, such judgements cannot be avoided if one is to practise philosophyor indeed historyof science in a way that answers to our current understanding of the issues involved. Thus, for instance, there is a crucial distinction to be drawn between past theories or research programmes that can now be seen (with the hindsight of present-day science) to have taken a wrong track and others which may have been superseded by later developments in scientific thought but which nonetheless constitute a genuine advance toward our current best conjectures or hypotheses. Such would be the difference between Priestley's phlogiston-based theory of combustionone that contained a nonreferring term ('phlogiston') and was thus rendered obsolete by Lavoisier's rival oxygen-based accountand cases such as Black's caloric hypothesis which led to the theory of specific heat and thence, via further theoretical refinements, to our current understanding of heat as the mean kinetic energy of molecules.

It is on this point chiefly that Bachelard differs with Kuhn and with other,

more extreme proponents of cultural relativism or the 'strong' programme in sociology of science. [27] On their account any talk of 'progress', 'advancement', more or less 'adequate' concepts, and so on, can only be a kind of Whiggish backward projection which treats *our* science as providing the criteria for what should count as genuine contributions to knowledge. Thus for Kuhn it is the caseborne out by the evidence of radical paradigm changethat scientists working with different theories 'live in different worlds', from which it follows that they (or we) can never be in a position to compare and evaluate those theories in point of observational adequacy, explanatory grasp, predictive power, and so forth. To think otherwise is merely to betray one's adherence to a parochial ('presentist') viewpoint which ignores the plain factor the overwhelming likelihoodthat our own best theories are likewise destined for replacement with the advent of some later, presumptively more 'adequate' but no more definitive paradigm.

Here again Bachelard comes out strongly opposed to any such wholesale cultural-relativist stance, or any such view of scientific truth as just a product of shifting paradigms, discourses, conceptual frameworks, ontological schemes, or whatever. To be sure, his work has often been read in just that way by cultural theoristsnotably Foucaultwho have used it for their own very different purpose. Thus Foucault interprets Bachelard's conception of 'epistemological breaks' as licencing the view that different scientific discourses give rise to radically different regimes of truth and knowledge, such that we possess no criteria for judging between them except those provided by our own (discourse-relative) concepts, aims, and priorities.[28] However, this goes clean against Bachelard's argument that we *can* distinguish progressive from nonprogressive episodes in the history of science and can do so, moreover, precisely with reference to a range ofepistemological criteria such as the metaphor/concept distinction or

the replacement of inadequate (sensuous, intuitive, image-based, or anthropomorphic) ideas with more rigorously elaborated scientific theories. For there could otherwise be no resisting the Nietzschean conclusionmstrictly unthinkable to Bachelardthat 'truth' and 'progress' in the physical sciences are in fact nothing more than fictions sustained by our self-deceptive will to endorse them.

Hence his distinction between *histoire perimée* and *histoire sanctionée,* that is, between marginal episodes in the history of science that can now be seen as scientific dead ends and episodes whicheven if they yielded to some later, more decisive advancestill have a place in the record of progress to date. Hence also the argument (taken up from Bachelard by his student Georges Canguilhem) that historians of science are in need of philosophyscientifically informed philosophyif they are not to write the kind of anecdotal history that hunts out cases of chance anticipation, such as that of the ancient atomists having somehow 'discovered' the fundamental truths of modern atomic physics, or Aristarchus having somehow 'realised' long before Coper-

nicus that the earth revolved around the sun. What such claims typically ignore is the crucial distinction between genuine advances in scientific knowledgethose possessing an adequate conceptual or epistemological basisand the kinds of intuitive guesswork (however inspired) that have not yet broken with the realm of prescientific metaphor or 'reverie'.

Canguilhem extended this critical approach to the history of biology, medicine, and the life sciences. [29] However, he laid rather less emphasis on the idea of science as breaking altogether with alternative (e.g., metaphoric or ideological) modes of thought. On the one hand, there existed 'scientific ideologies' which, while themselves lacking in conceptual rigour, might yet prepare the wayor provide the motivating forcefor some decisive future advance. On the other it was necessary, Canguilhem argued, to explain both how scientific *concepts* were distinguished from the order of commonsenseintuitive knowledge, and, again, how those concepts could come to play a role in different (possibly conflicting) theories. In the first place this was a precondition for avoiding the sorts of anachronistic judgement that confused protoscientific with scientific thought, or that mistook early uses of a term (often carried over by analogy from other fields) as grounds for pushing back the date of emergence for some novel concept in the life sciences. However, there was no valid deduction from the merely lexical (or semantic) to the conceptual domain, that is to say, from the fact that those terms had a role in the earlier vocabulary to the claim that they must already have entered the discourse of scientific knowledge. In the second place, therefore, this distinction served to warn against the more extreme varieties of historical, cultural, or linguistic relativism as applied to the natural sciences. Such arguments typically took hold at the point where historians and sociologists ignored the *specificity* of scientific

conceptstheir emergence as well-defined operative termsand viewed them as wholly context-dependent, that is, as meaningful just to the extent that they figured in some particular theory, discourse, paradigm, or whatever.

Thus concepts possessed a high degree of autonomysufficient to justify the concept/metaphor or science/ideology distinctionseven though the same concept might well play a role in different (historically successive or concurrent and conflicting) theories. For otherwise the way was wide open to those kinds of wholesale relativist approach that argued from the meaning-variance of terms between one theory and another to the idea of paradigm incommensurability, or the claim that we can possess no adequate (paradigm-transcendent) criteria for judgements of scientific truth, progress, descriptiveexplanatory warrant, and so on. On the contrary, Canguilhem maintained, it was just insofar as concepts retained their identity *across and despite* such changes of paradigm that they were able to provide a point of comparison for assessing different theories.

Ontological Relativity and the Hermeneutic Turn

At this point it is worth cross-referring, once more, to developments in recent Anglo-American philosophy of science. We have, perhaps, seen enoughthrough this brief engagement with the thinking of Bachelard and Canguilhemto challenge the idea that 'continental' approaches are typically given over to forms of far-gone cultural relativism, whereas 'analytic' philosophy has mostly held out for the virtues of rational theory assessment and conceptual precision. Here again, it is Kuhn who most readily comes to mind as resisting all the standard classifications. His work is mostly viewed as having its sources withinif also as reacting strongly againstthe kinds of approach that have dominated Anglo-American philosophy of science over the past sixty years and more. Thus his thesis of paradigm incommensurability derives in large part from those twin postulatesthe underdetermination of theory by evidence and the theory-ladenness of observation-statementswhich Quine used in order to subvert the two 'last dogmas' of logical empiricism. This argument is then taken (by Quine and Kuhn) to require a thoroughly contextualist approach in which theories or belief systems as a whole confront the sum total of 'experience' or empirical data, so that no single statement, proposition, or item of belief can ever be confirmed (or disconfirmed) by any particular result produced in the course of scientific enquiry.

To this extent the Quine/Kuhn case for ontological relativity belongs squarely within the history of Anglo-American ('analytic') debate on issues in epistemology and philosophy of science. However, it brings that debate much closer to some prominent themes in recent 'continental' debate, among them the tradition of hermeneutic thought carried on by Heidegger, Gadamer, and others from nineteenth-century thinkers such as Schleiermacher and Dilthey. [30] Here also there is a marked turning away from empiricist (or positivist)

conceptions of truth and method, along with a more holistic approach that allows for no one-to-one match or correspondence between veridical statements and clearly individuated real-world states of affairs. Rather, truth is what emerges against a background horizon of situated being-in-the-world (Heidegger's *Dasein*) whereby human knowers or agents enter into various forms of practical involvement, as for instance through the use of implements or tools that are 'ready-to-hand', that is to say, which enter our everyday life-world invested with a sense of significant purpose and value.[31] In this way, Heidegger suggests, we can start upon the path toward an overcoming of those various age-old epistemological issueschief among them the subject/objection dualismthat have plagued philosophy and every aspect of our technologically dominated life-world. For when we think of objects as merely 'present-to-hand', that is to say, as somehow existing out there in a realm of humanly indifferent 'ontic' or 'factical' objecthood, then we confront not only

the problem of knowledge debated by thinkers from Plato down but also the more urgent problems bequeathed by a ruthless exploitation of nature in the interests of material and economic gain. Environmental destruction goes hand-in-hand with the rise of a narrowly calculative (technocratic) reason whose instrumentalist values are entirely divorced from any care for its immediate or long-term effects.

Heidegger's case has lately found support among a number of AngloAmerican thinkers seeking a direction beyond the doldrums of 'old-style' analytic philosophy. Thus voices have been raised for abandoning that project altogether (in the wake of such internal critiques as those of Quine and Kuhn) and for adopting a frankly eclectic approach that combines pragmatism and meaning-holism with Heidegger's alethic conception of truth. [32] However, this proposed alliance has certain drawbacks, at least where Heidegger is concerned. One is the fact that hermeneuticsat least in the strong or 'depthontological' modetends very often toward a low estimation of science and all its works. Thus Heidegger treats the scientific 'world-picture' as a product of the technological drive that reduces everythingnature and humanity aliketo the role of a mere 'standing-reserve' in the service of a crassly instrumental or means-end rationality. Moreover, this same diagnosis applies to philosophy of science insofar as it inherits the epistemic will-to-power which, for Heidegger, has always been deeply complicit with the Western 'metaphysical' tradition from Plato and Aristotle, via Descartes and Kant, to Husserl and beyond.[33]

So there are, to say the least, certain problems to be faced by those Anglo-American thinkers in the wake of logical empiricism who envisage some means of restoring a lost dimension to philosophy of science through this current *rapprochement* with Heidegger's mode of

'deep' hermeneutical enquiry. Such enquiry has nothing whatever in common with the kinds of discovery that scientists makeand that realist philosophers of science typically discusswhen they investigate beyond the phenomenal appearances of things to those various depth-ontological attributes (subatomic or molecular structures, chemical affinities, causal dispositions, etc.) which mark a further stage of advance in the process of inference to the best explanation. Logical empiricism refused to countenance such claims since it adopted a Lockean-Humean sceptical stance with regard to the very possibility of advancing from 'nominal' to 'real' definitions or providing an adequate explanatory account of *de re* causal attributes and structures. More recently these scruples have been set aside and the case for causal realism strongly reaffirmed by philosophers who define their position against that narrow empiricist programme.[34] However, it is important to distinguish such arguments from those other (often Heidegger-influenced) varieties of 'postanalytic' thought that adopt a thoroughgoing holistic conception of meaning and truth and that tend to consort with antirealist positions in epistemology and philosophy of science.

Where the alignment with Heidegger seems more promisingat any rate from its advocates' standpointis in that strain of 'deep ecology' that shares his perspective on the ills endemic to Western civilisation.[35] For similar reasons they endorse his belief that those ills have arisen through an epochal 'forgetfulness of Being' whose history is coterminous with Western metaphysics and the fateful divide between subject and object installed in philosophy since its ancient Greek inception. On this account science (and philosophy of science) can redeem itself only through a radical break with all those deep-laid epistemological assumptionslike truth-as-correspondence or the progress toward more adequate forms of theoretical or causal-explanatory thoughtwhich have so far determined its course. This is not the place for a detailed critique of Heidegger's massively encompassing but grossly indiscriminate indictment of Western technoscience. Sufficient to say that it leaves no room for criticising particular aspects of scientific thought orgiven his idea of its predestined emergencefor holding scientists or policy makers in some degree ethically and socially accountable for its consequences.

Phenomenology and Beyond

There do exist other, less extreme versions of the hermeneutic turn which retain a respect for the distinctive achievements of science while seeking to place those achievements within the context of a *Lebenswelt* (life-world) that inherently eludes systematic or reductive description. For there is also the tradition of phenomenologicai thought, descending chiefly from Husserl, which pursues a sustained reflective enquiry into the origins of our modern (post-Galilean) scientific world-view and the limits of objectivist or positivist approaches in the physical and human sciences alike.[36] Husserl's project underwent various complex changes of aim and priority. Broadly speaking, it moved from an early 'psychologistic' stage to a

concern with the transcendental conditions of thought and knowledge, and thencein his late writingsto reflection on the contexts of lived experience (historical, communal, cultural) involved in every act of human perceptual or cognitive grasp. On one point at least Husserl was in agreement with Heidegger: that this life-world had been subject to damaging encroachment by technoscience, by the rise of a narrowly means-end rationality, and by positivist conceptions of knowledge and truth that found no room for such modes of reflective or criticalevaluative thought. However, he remained acutely aware of the need to explain how the exact sciencesmathematics especially, or the mathematisation of physicshad so transformed our knowledge of the world as to constitute epochal discoveries in thought, rather than the mere exchange of one 'paradigm' for another.

That those discoveries should possess both apodictic certainty *and* a historically emergent character (that is, the fact of their having occurred in a certain

cultural milieu and at a certain stage in the development of science) is a paradox that constantly engaged Husserl's thinking, early and late. It is posed most directly in his essay 'The Origin of Geometry', where he asks how it is possible that geometrical truthssuch as those formulated by Euclidcould be known as a matter of intuitive self-evidence and yet have their place in a tradition of thought that must in some sense be conserved and passed down in order for each new learner to repeat (or comprehend) the original act of discovery. This was Plato's theme in the *Meno* where Socrates purportedly demonstrates the existence of *a priori* knowledge by inducing a slave boy to 'discover' such truths with reference solely to his own intuitions as drawn out by a process of educative questioning. It is also the starting point of Jacques Derrida's reflections on the status of writing in Western philosophical tradition, since it is only through writingalbeit in Derrida's extended sense of that termthat knowledge can break with its confinement to the realm of pure self-present intuition and hence become subject to an ongoing process of discovery, refinement, and critique. [37] Indeed, Derrida's early texts on Husserl are among the most penetrating treatments of this issue of priority between 'structure' and 'genesis', or knowledge conceived as an access to truth in timeless, *a priori* self-validating terms and knowledge conceived under its aspect of progressive acquisition or temporal development.[38]

This issue has been central to debates in philosophy of science during the past century and more. In part it has to do with the discovery of alternative (i.e., non-Euclidean) geometries which, while consistent in themselves, cannot be squared with the Kantian requirement that such concepts should always correspond to our pregiven spatial intuitions. However, this is just one example of the way that advances in recent ('postclassical') science have often involved a decisive break with received ideas of what properly counts as adequate scientific

knowledge. Thus in various fieldsamong them geometry, mathematics, relativity theory, and quantum mechanicsit has become increasingly evident that science can no longer appeal to an order of synthetic *a priori* knowledge, such as Kant thought self-evident from the existence of Euclid's proofs and the achievements of Newtonian physics and astronomy. Rather, we are confronted with the emergence of theories that are mathematically precise or borne out by the best observational evidence to hand, but which are nonetheless strongly counterintuitive. Indeed, it may be argued that some of the chief developments in scientific thought since the mid nineteenth century have been such as to require a progressively more rigorous suspension of the Kantian precept that equates understanding with the match between concepts and grounding intuitions.[39]

Kant himself did not doubt that non-Euclidean geometries were *logically* possible, only that they could be given any representation in terms compatible with the scope and limits of intuitive understanding. However, it was shown by Helmholz that such geometries could indeed be represented, as for in-

stance through various kinds of thought-experiment involving our perception of parallel lines on a curved or nonplanar surface. In which case, it seemed, there was no special privilege attaching to those forms of 'pure' *a priori* intuition that figured so centrally in Kant's First *Critique*. Rather, they must henceforth be thought of as *conventions* adopted by stipulative warrant within a certain geometric scheme and therefore as justified solely in virtue of their logical consistency with the various postulates (including or excluding Euclid's unproven Fifth Axiom) that made up the particular scheme in question. So it was, in Coffa's summation, that such thinkers as Russell and Poincaré became 'allies in the struggle to remove Kantian intuition from the field of geometry and transform it into a purely conceptual discipline'. [40] In this they were continuing the critique of intuition-based philosophies of space and number that had been set in train by earlier thinkers such as Bolzano, Helmholz, and Hilbert. Thus there might well be *a priori* judgements in the sense of judgements that preceded and made possible any further reasoning on matters of geometric or mathematical truth. However, those judgements could claim no privileged epistemic or intuitive warrant, depending as they didfor whatever truth-value they possessedon their role as defined within this or that system of well-formed logico-syntactic functions.

Thus, according to Poincaré's strong conventionalist thesis, there was always the possibility of renouncing or adapting any *a priori* postulate whose consequences were at odds with some new discovery produced in the course of more advanced or fruitful mathematical research.[41] In a similar vein, Karl Popper was to argue that although there might be synthetic *a priori* judgements, these could always turn out to be *a posteriori* false if they conflicted with the best scientific evidence to hand. Mathematicians might continue to perform calculations on the basis of certain *a priori* indispensable termssuch as function, limit,

continuity, the infinitesimal, and so forthwhich were all the same acknowledged to possess no absolute (intuitively valid or self-evident) character, since their meaning was assigned entirely in virtue of their logico-syntactic role. However (as is well known), this logicist project itself ran into trouble as a result of GiSdel's Incompleteness Theorem, that is to say, his demonstration that for any mathematical system of sufficient complexity there would always be at least one axiom within the system whose truth or falsehood was strictly undecidable. Indeed, Gödel's result can now be seen as having played a large role in the eventual demise of the logical-empiricist programme, a programme that in many ways epitomised the character and ambitions of mainstream analytic philosophy. Of course there were other contributory factors, among them Russell's famous discovery of the set-theoretical paradox ('the set of all sets that are not members of themselves'), Quine's later assault on the analytic/synthetic dualism, and Kuhn's kindred argument against the idea that philosophy of science possessed any criterion for distinguishing clearly between observation-statements and the

various theoretical beliefs or presuppositions that were always involved in interpreting such statements. Where these developments all converged was in prompting a widespread movement of retreat from the logical-empiricist conviction that scientific knowledge could be built upor its claims reliably justifiedthrough analysis of the logical relations obtaining between firstorder empirical observations and higher-level (i.e., covering-law or hypothetico-deductive) theories.

Such is at least one plausible account of the emergence of 'postanalytic' philosophy within and against the main current of Anglo-American thought up to approximately 1950. What began as the banishment of Kantian (intuition-based) philosophies of space, time, and number in favour of a logicist or purely conceptual approach ended up with the problematisation of logic and conceptual analysis under pressure from a range of holistic or contextualist arguments whose effect was precisely to remove the basis for any such clear-cut distinction. And at this stageas some commentators have urgedthere is not much point hanging onto the typecast distinction between Anglo-American analytic philosophy of science and its so-called continental or mainland-European counterpart. For the way is then open to a wished-for *rapprochement* with developments in that 'other' tradition that have likewise stressed the interpretive nature of all understanding, the lack of any ultimate (context-transcendent) constraints upon the logic of scientific enquiry, and hence the need for a context-sensitive (historically, socially, and hermeneutically oriented) approach that would avoid the dead-end dilemmas of logical empiricism. On this view, a work like Carnap's *Logical Structure of the World* would mark both the high point of that programme's ambitions and the clearest sign of its predestined collapse under the strain of defining just what should count as basic (empirical) data on the one hand and, on the other, their logical 'construction' according to strictly analytic criteria

of meaning and truth. [42]

Such was Quine's argument in his 'Two Dogmas of Empiricism', an essay that took Carnap's project as its prime target, and which is widely regarded as having signalled an end to that whole way of thinking about language, logic, and philosophy of science.[43] But it was alsomore to the point in this contextan argument that found various preechoes in the broadly continental tradition. At one extreme there was Nietzsche's strong-interpretivist attack on the 'myth of immaculate perception', that is to say, the idea that we could ever have access to pure sensory data or straightforward empirical truths-of-observation.[44] Then again, in less drastic vein, there was Dilthey's hermeneutically inspired distinction between the modes of understanding typically sought by the physical and the human or social sciences. Where the former laid claim to a knowledge that was properly assessed in terms of conceptual adequacy or strict hypothetico-deductive warrant, the latter sought a different kind of knowledge (*Verstehen*) that arose within the context of lived ex-

perience (*Erlebnis*) and which therefore involved a corresponding exercise of judgement, intuition, and sympathetic insight. [45] For whenever it is a question of interpreting meanings or motivesof judging, say, what an author intended by this or that choice of words or what a historical agent meant to accomplish by pursuing some particular course of actionthen we cannot get very far (or perhaps cannot even make a start) by applying the sorts of criteria that obtain in contexts of natural-scientific enquiry.

A similar argument was later put forward by neo-Kantian philosophers such as Rickert and Windelband, who expressed it in terms of the basic methodological distinction between 'deductive-nomothetic' sciences on the one hand and 'ideographic' sciences on the other. In the one case it was a matter of bringing particular instances (data, observations, experimental findings, etc.) under hitherto exceptionless covering-law statements from which they could be deduced. In the other case those instances were taken to possess a quality of uniqueness or interpretive deptha distinctively human aspectwhich resisted any treatment in the covering-law mode. To some extent it is an artefact of linguistic difference that both sorts of knowledge should have counted as genuine 'science', that is, as types or varieties of *Wissenschaft* in the broader German usage of that term, a usage that carries less sense of strain than is felt with such English-language locutions as 'the human sciences'. However, there is also Kantian warrant for the claim that these various orders of thoughtscientific understanding and aesthetic experience, determinate and reflective judgements, phenomenal cognition and pure or speculative reasonshould properly be treated as playing their role within an overall system or 'architectonic' of the faculties, whatever the problems that inevitably arise in cases of categorial confusion or illicit boundary crossing. It is this, more than anything, that helps to

explain why 'continental' approaches in philosophy of science have been more receptive to modes of hermeneutic or interpretivist thinking, as compared with the clear-cut demarcation criteria required by most philosophers in the mainstream analytic tradition.

To be sure, the various 'back-to-Kant' movements of thought among German philosophers have often developed in direct response to perceived excesses on the hermeneutic side. This happened especially during the 1920s and 1930s when Kant seemed to offer a welcome defence against the more extreme forms of interpretivist doctrine promoted by thinkers such as Nietzsche, Scheler, and Heidegger.[46] All the same, it is clearly the caseand not just on Heidegger's strong-revisionist accountthat Kant's epistemology and philosophy of science involve an appeal to interpretive judgement as the mediating term between concept and intuition.[47] This in turn looks forward to those passages in the Third *Critique* where interpretation assumes a more central (indeed preeminent) role, and where mind and nature are thought of as somehow united through a teleological doctrine of the faculties. It is chiefly their greater openness to this proto-hermeneutic aspect of Kant's thinking

that distinguishes continental philosophers of science from those in the Anglo-American tradition who have inherited, adapted, or sometimeslike Quinechallenged the basic terms and categories of Kantian epistemology. For when Quine rejects the analytic/synthetic dichotomy it is not at all with a view to restoring some lost dimension of hermeneutic depthsome aspect of humanly meaningful experienceto the arid discourse of logical empiricism. Rather, it is proposed as a means of shedding all that otiose Kantian 'metaphysical' baggage, *a priori* knowledge in particular, and thus finally opening the way to a fully naturalised epistemology that would take the sciencesphysics preeminent among themas a model or a methodological primer for work in philosophy of science.

We are now, perhaps, better placed to make sense of that typecast 'analytic'/'continental' distinction, even where the terms have no clear-cut geographico-historical import and even in cases where there seems much in common between thinkers working on opposite sides of the notional dividing line. Thus, for instance, the split is often dated to Frege's highly critical review of Husserl's work on the foundations of arithmetic, a project which he (Frege) regarded as overly 'psychologistic' and hence as conspicuously failing to account for the objective status of mathematical truths quite apart from the history or genesis of human beliefs concerning them. [48] More recently this view has been called into question by philosophers such as Michael Dummett who have perceived a much greater convergence of interestsdespite some very real differences of emphasisbetween the two traditions at that early stage in their development.[49] Also, as I have said, there is evidence enough that Husserl was himself much concerned to give an adequate account of those 'absolute ideal objectivities' of thought that characterised geometry and mathematics. (He was, after all, closely connected with the Göttingen Circle of

eminent mathematicians and physicists during the first decades of this century.) Indeed, it is wrong to suppose that phenomenological approaches to philosophy of science are necessarily 'subjectivist' or 'psychologistic' insofar as they seek to derive such truths from the structures of human perception, consciousness, or intentional (object-directed) thought and judgement. On the contrary Husserl's project had its source in that school of Austrian realism whose previous representatives (Brentano and Meinong among them) had been at great pains to distinguish between the various orders of intentional object, whether real, fictive, imaginary, hypothetical, or whatever.[50] Here again there is little use for the standard territorial markers since Bertrand Russell was also much influenced by Brentano and Meinong in his early attempt to devise a logical means (through the celebrated 'Theory of Descriptions') for holding such distinctions in place.[51]

However, it may still be saiddespite all the caveats entered abovethat this logico-linguistic orientation in the work of Frege and early Russell was precisely what set analytic philosophy apart from the various post-Husserlian

schools of mainland-European thought. On their side, the phenomenological appeal to consciousness (or intentionality) as a starting point for critical reflection gave way to a range of alternative emphases, mostly in response to successive waves of attack on subject-centred (or 'foundationalist') epistemologies. Among French thinkers this reaction had a strong precedent in Bachelard's theory of scientific progress as always involving a decisive break with the kinds of 'self-evident' (commonsense) knowledge that had not yet attained the conceptual precision required of any mature science. To this extent it formed a rationalist counterpart to Mach's programme of 'empiriocriticism', whatever their manifest differences of view concerning the relative importance of theory *vis-à-vis* empirical observation. At any rate there emerged a deep and widening rift between philosophies of science in the analytic mould that pursued some version of the logical-empiricist programme and continental philosophies of science which sought a way beyond the supposed dead-end of subject-centred or phenomenological approaches. For by this time there was too much evidencefrom geometry, mathematics, quantum mechanics, and other advanced fields of researchthat any adequate theory would need to break with the deliverances either of 'naive' sensecertainty (the empiricist route) or of *a priori* knowledge as standardly defined.

Revising the Tradition: Duhem and Quine

This situation has given rise to various responses among philosophers, historians, and sociologists of science. They can be ranged, roughly speaking, on a scale that extends all the way from current postmodernist or cultural-relativist arguments (that scientific 'truth' is no more than the product of some optional, strictly nonprivileged 'discourse', 'paradigm', 'language-game', etc.). [52] to work on various forms of alternative or 'deviant' logic designed to accommodate the

seeming paradoxes of quantum superposition or nonlocality.[53] Then again, some commentatorsthose of a more Heideggerian persuasiontake the view that such challenges to the received 'epistemological' paradigm require that we abandon the whole way of thinking that construed knowledge in representationalist terms as a matter of 'correspondence' between subject and object, mind and nature, or observation-statements and experimental data. ('In the most recent phase of atomic physics', Heideggger opines, 'even the object vanishes . . . the subject-object relation as pure relation thus takes precedence over the object and the subject'.)[54] Thus it is sometimes suggested that the received (Copenhagen) interpretation of quantum mechanics is one that points toward a depth-ontology revealed only through hermeneutic reflection on the limits of conceptual or causal-explanatory thought.[55] This idea may be joined to a 'strong' sociological approach, that is to say, an argument that the only way beyond these quantum-related paradoxes or antinomies is to recognise the socially situated character of all knowl-

edge, and hence the need to interpret scientific theories always with regard to their sociocultural contexts and conditions of emergence. [56]

To some extent these developments find a parallel in Anglo-American responses to the problems posed by quantum mechanics. Thus, for instance, those problems can be seen to have affected the thinking of philosophers such as Quine and Kuhn, in particular as regards the various *topoi*ontological relativity, meaning-variance, the revisability of logical ground rules, the underdetermination of theory by evidence, and the theory-ladenness of observation-statementsthat have left a deep mark on recent thinking in the broadly analytic (or 'postanalytic') tradition. However, it is fair to say that continental philosophy of science has gone much further in the resultant turn toward various forms of linguistic, hermeneutic, depth-ontological, and strong-sociological modes of enquiry. This can partly be explained as a reaction against the received (continental) tradition, from Descartes to Kant and Husserl, wherein questions of knowledge and truth were thought of as belongingexclusively or primarilyto the province of critical epistemology rather than the wider historical or sociocultural context. However, there are also some deep-laid ideological differences which have sharpened these issues for continental (especially for French) philosophers and historians of science. Thus the whole debate about scientific knowledge and progresshow far we can be justified in using such terms given the (presumptively) paradigm-specific or culture-relative status of all truth-claimsis one that has assumed a particular salience in twentieth-century French thought.

This difference emerges very clearly with regard to the so-called DuhemQuine thesis concerning ontological relativity and the claim that no scientific theory can ever be decisively refuted by the anomalous result of some crucial experiment or by an observation at

odds with what the theory had predicted.[57] For this always leaves roomso the argument goesfor a range of possible alternative strategies short of abandoning the theory in face of such apparent counterevidence. Thus, for instance, it may be saved by attributing the discrepancy to a wrong choice among various auxiliary hypotheses, by redefining certain object-terms or predicates in the observation-language, by redistributing those terms and predicates in a more wholesale fashion, or againif all else failsby conceding that the very 'laws' of logic (such as bivalence or excluded middle) may need to be revised under pressure from certain kinds of evidence including, quite possibly, experimental results in the field of quantum physics. For Quine, this signifies the collapse of logical empiricism as a doctrine premised on those two 'last dogmas', that is to say, the possibility of science coming up with discrete (empirically adequate) observation-sentences and of logic as providing the necessary framework for the rational assessment of scientific theories in point of conceptual rigour and consistency. Quite simply, that programme cannot survive the undermining of Kant's analytic/synthetic distinction, along with other variants

(such as 'truths of reason' and 'matters of fact') that are thrown into doubt by the turn toward a thoroughly holistic conception of meaning, evidence, and truth.

That Pierre Duhem's name is often linked with Quine's as having likewise arrived at this conclusion is something of an irony given their very different routes of approach. In Duhem's case it went along with an instrumentalist conception of scientific method and also a large-scale revisionist approach to the history of early modern science. [58] There has been much debate as to just how far Duhem was influenced in this regard by his religious (strongly Catholic) beliefs and his desire to subvert the established view of the great 'revolution' in scientific thinking brought about by Galileo's challenge to the church's authority in such matters. Whatever the extent of this influence, his arguments clearly have an aspect of ideological commitment that finds no place in Quine's treatment of kindred philosophico-scientific themes. This aspect is all the more striking since it placed Duhem at odds with an influential school of modern French scholarship, represented most notably by Alexandre Koyré's studies of Galileo as a crucial figure (not to say culture hero) in the passage from religiously imposed dogma to scientific enlightenment, progress, and truth.[59] For Duhem, on the contrary, such ideas manifested a fixed conception of the absolute hostility between religion and science, together with a blinkered view of late-medieval history which took it for granted that no real advances could possibly have occurred under conditions of enforced subservience to scriptural or church warrant. Thus much of his work was devoted to establishing the scholarly case for a challenge to this sharply dichotomised view of science before and after Galileo.

However, there are also connectionsalbeit subject to interpretive disputebetween Duhem's historical revisionism and his case for

treating scientific theories as assessable only in instrumentalist or conventionalist terms. That is, he took the view that we should accept such theories solely on grounds of observational warrant and predictive yield, rather than supposing that they actually refer to certain features of a real-world object domain whose properties, attributes, causal dispositions, and so on, it is the business of science to describe and explain. As I have said already, instrumentalism is a doctrine that finds support from various philosophical quarters, among them the school of radically empiricist and antimetaphysical thought descending from Ernst Mach. Indeed, Mach carried this programme to the point of refusing to accept the existence of atoms so long as they could not be observed, whatever their role as fundamental posits in the discourse of modern (post-Daltonian) physics and chemistry. However, it is misleading to press too far with the comparison between Mach's programme of empirio-criticism and Duhem's insistence that science should espouse no reality claimsor ontological commitmentsbeyond those that are well borne out by observation and predictive warrant. For Duhem, instrumentalism was a means of drawing

strict limits to the otherwise overweening pretensions of science as a source of ultimate truths. In Mach's case, conversely, it derived from a firm belief that science made progress by adopting the best methods to hand, trusting to experiment so far as possible, and maintaining a healthily sceptical attitude toward any doctrine which sought to place limits on its freedom of enquiry.

Beyond Truth and Method?

These convictions were shared by Paul Feyerabend, a self-proclaimed disciple of Mach whose case 'against method'the title of his best-known bookcan also be seen as a more extreme version of the antimetaphysical programme. [60] Feyerabend went much further than Mach in rejecting the idea that science should be subject to rules, procedures, validity-conditions, or methodological guidelines. Least of allhe arguedshould it take advice from philosophers or tidy-minded historians of science, those who set themselves up as arbiters of 'good' scientific practise or who presume to distinguish true from false, progressive from nonprogressive, or genuine science from pseudoscience. Such judgements merely reflect the standard self-image of mainstream scientists and philosophers, along with their preferred notion of the history of science as following an onward and upward path toward truth at the end of enquiry. Worse than that, they stifle creative thought by imposing a range of quasi-universal (though in fact merely local and contingent) values'truth', 'method', 'rationality', 'progress'which act as a brake on genuinely fresh or unorthodox research. Hence Feyerabend's well-known advice, that scientists should adopt an outlook of wholesale 'epistemological anarchism' (more snappily, the idea that 'anything goes') and thus feel free to explore any new and adventurous line of thought, whatever its lack of orthodox credentials. For in the end there is no deciding the issue between (say) voodoo magic and present-day Western medical

scienceor rain-dance rituals and meteorology as a means of affecting/predicting the weatherexcept by appeal to the beliefs endorsed by this or that 'expert' community.

Feyerabend's views represent just one (albeit an extreme and provocative) instance of the trend toward cultural-relativist thinking in recent philosophy of science. This trend has taken shape through a range of ideas that are often 'continental' in leaning or provenance, even when advanced by English-language writers of a markedly eclectic disposition. Then again, there are thoselike Jean-François Lyotardwho take it that our current 'postmodern condition' is such as to debar any possible appeal to standards of rational or truth-seeking enquiry beyond the presently existing range of discourses, language-games, 'phrase-genres', and so forth.[61] On Lyotard's account it is the chief feature (and virtue) of 'postmodern' science that it no longer seeks to monopolise truth in the name of some privileged method or theory aimed toward suppressing such differences of view. This situation has arisen in vari-

ous fields of researchquantum mechanics and chaos theory among themwhere science comes up against the limits of precise observation, or where reason encounters hitherto unknown problems and paradoxes. Hence the passage, as Lyotard sees it, from a modern ('Enlightenment') conception of science premised on constative criteria of truth and falsehood to a postmodern ethos where 'performativity' is the sole measure of success. Thus the aim isor should benot so much to secure a provisional consensus among those best qualified to judge but rather to maximise *dis*sensus by encouraging the widest possible range of diverse incommensurable viewpoints.

On the one hand this amounts to a stock-taking claim about the way things stand with respect to developments in certain scientific fields. On the other it amounts to an ethical prescription, namely, the imperative to multiply language-games (theories, hypotheses, thought-experiments, causal-explanatory conjectures, etc.) and thereby prevent any one of them from achieving excessive dominance. We can best do so, Lyotard believes, by guarding against the unwarranted privilegethe claim to pronounce the last word in matters of scientific reason, progress, or truthwhich typifies the constatire phrase-genre. For this entails a suppression of what Lyotard terms the narrative 'differend', that is to say, the conflict of interests that arises when two such claims cannot be reconciled except by adopting an adjudicative standpoint that inflicts a wrong on one or other (or indeed both) in the name of some higher 'metanarrative' authority. [62] Thus justice requires that one acknowledge their strictly incommensurable characterthe absence of shared criteriaand give up the quest for any truth of the matter that would settle the difference between them. What counts as good reason, adequate warrant, justified inference, and so forth, is always relative to the interests and values at stake on each side in some given

context of dispute. From which it followsaccording to Lyotardthat truth-claims in science can no longer be advanced with a view to achieving rational consensus over well-defined areas of knowledge. Rather, the aim should be to open up a space for the telling of 'first-order natural pragmatic narratives', stories that exist in as many different versions as there exist different tellers or variously situated narrative viewpoints.

I have no wish to suggest that Lyotard's idea of 'postmodern' science is by and large typical of recent 'continental' approaches. What it does bring out with particular force is the upshot of a certain way of thinking, namely, the linguistic (or hermeneutic) turn when pushed to a point where knowledge and truth are thought of as wholly internal or specific to some particular language, discourse, or phrase-genre. Such ideas have a mixed genealogy but may be called 'continental' at least insofar as they have filtered into Anglo-American debate from a variety of mainland-European sources. At one extreme they take inspiration from Nietzsche's resolutely sceptical assault on the values of 'disinterested', truth-seeking rational enquiry, and his attempt

carried on by Foucaultto expose the ultimate source of such values in the epistemic will-to-power. [63] Here, as with Lyotard, problems arise when one asks how it is possible to criticise particular aspects of science or technology given such an attitude of wholesale epistemological scepticism, coupled with the kind of reductive analysis that treats all knowledge (whether in the physical or the human and social sciences) as a reflex product of power-seeking drives and motives.

I shall have more to say about this normative confusion since it affects many variants of the current attack on Enlightenment conceptions of reason and truth. However, there are also more moderate, hermeneutically informed versions of the argument for viewing science as a range of practises, techniques, and more or less specialised modes of enquiry which emerge against the background of a shared life-world or horizon of humanly meaningful interests and concerns. This approach derives chiefly from thinkers such as Dilthey in the nineteenth-century hermeneutic tradition but can also be found strikingly prefigured in the seventeenth-century Neapolitan philosopher Gianbattista Vico.[64] For it was Vico who first arguedcontrary to the orthodox viewthat the human and social (rather than the physical) sciences are our best and most reliable sources of knowledge, since they alone give access to a realm of understanding that is properly and intrinsically human, rather than requiring a Cartesian divorce between subject and object, mind and nature, human concerns and the order of nonhuman (mind-independent) reality. It may be said with some justice that Vico's time has come around at last, since a good many present-day philosophers and historians of science would subscribe to his thesis regarding the primacy of lived experience (or empathetic insight) over objectifying modes of knowledge. Charles Taylor makes the point rather nicely

when he observes how 'old-guard Diltheyans, their shoulders hunched from years-long resistance against the encroaching pressure of positivist natural science, suddenly pitch forward on their faces as all opposition ceases to the reign of universal hermeneutics'.[65]

Critiques of Positivism

This issue was joined with particular force by participants in the so-called Positivism Dispute (*Positivismusstreit*) which engaged many German philosophers, sociologists, and historians during the early 1960s. What the term 'positivist' came to denotefor its opponents at leastwas an attitude of blind or uncritical acquiescence in the methods of the natural sciences, joined to an equally naive belief that 'the facts' in any given case (whether historical, scientific, or social-documentary) could be read straight off from the evidence without need for interpretation. The arguments against positivism, thus narrowly construed, were (1) that it ignored the interpretive dimension of all understanding, whether in the physical or the social and human sciences, (2)

that it involved a correspondence theorya notion of 'truth-to-the-facts'which reduced to empty circularity since 'facts' were themselves linguistic, discursive, or cultural items that could only be compared one with another, (3) that it promoted a conformist ideology by treating those facts as empirical data registered by a passive consciousness, and (4) that it systematically excluded all concern with the historical and sociopolitical conditions of emergence for scientific and other kinds of knowledge. This critique was carried furthest by the Frankfurt School theorists, Adorno chief among them, who equated the positivist fetishization of 'facts' with the workings of a modern (late-capitalist) mode of economic production which had penetrated every aspect of human social and cultural existence. [66] Hence Adorno's conception of 'negative dialectics', a mode of reasoning that stubbornly affirmed the distinction between fact and truth, the non-self-identical character of thought (or its inevitable failure fully to subsume intuitions under adequate concepts), and the need always to respecteven cherishthose unique particulars that held out against the dominant drive toward commodification of the life-world.[67]

To this extent Adorno and his Frankfurt colleagues can be seen as continuing a line of thought which had also been pursued, albeit with very different ends in view, by such thinkers as Nietzsche, Husserl, Weber, and Heidegger. However, he was equally firm in rejecting any retreat to Nietzschean irrationalism or to the mystified 'jargon of authenticity' (Adorno's phrase) that went along with the Heideggerian appeal to a realm of primordial Being disclosed through depth-hermeneutic enquiry.[68] Moreover, Adorno was quick to reject any version of the 'strong' sociology of knowledge that relativized truth to the values and beliefs of this or that community, professional class, or specialised interest group. For this amounted to a mere mirror image

of the positivist approach in the natural sciences, that is to say, a crudely reductive conception of knowledge and truth that treated them as reflex products of the power structures operative in various social contexts. What critical thinking needed to maintain was a properly dialectical tension between, on the one hand, a due respect for the relative autonomy of various disciplinesphilosophy among themand, on the other, a keen sense of the social and political interests that always exerted a pressure to conform with the ideological self-images of the age. This tension is evident everywhere in Adorno's writing, determined as he isin opposition to other, more reductive forms of Marxist *Ideologiekritik*to allow for the various complex mediations that exist between material-economic 'base' and sociocultural 'superstructure'. However, it is true that Adorno retained a deep mistrust of the natural-scientific enterprise, resulting partly from the polarization of attitudes brought about by the Positivism Dispute, and partly from his fixed conception of it as a mode of knowledge inseparably linked with a rampant technocratic will-to-power over nature and humanity.

No doubt this goes a long way toward explaining the current high stock of those cultural-relativist or social-constructivist approaches which would treat science as just one language-game (or culture-specific 'form of life') among others. For we shall then do justiceso the argument runsto the whole range of social interests and values that have suffered the violence of an instrumental reason whose hallmark is the brutal exploitation of nature. In this respect postmodernism picks up the line of argument first developed with a certain gloomy relish by Adorno and Horkheimer in their book *Dialectic of Enlightenment*. [69] And it is open to much the same criticisms, among themas Jürgen Habermas has justly remarkedthe fact that it adopts a reductive, monolithic, or undifferentiated concept of 'reason', one that ignores the various roles or functions that have separated out within the 'public sphere' of informed participant debate.[70] Thus it fails to acknowledge the crucial distinction between reason as a form of narrowly instrumental (means-end) rationality and reason as the exercise of critical or reflective intelligence brought to bear upon precisely such real or potential abuses. In Adorno's case this failure gave rise to what Habermas terms a 'performative contradiction', that is, a way of thinking that continues to rely upon forms of rational argument (critique, analysis, diagnosis of errors and ideological blind spots) while expressly denouncing 'reason' and all its works. Indeed, one can think of no other theorist whose writing exhibits this strange inconsistencythis tension between overt or programmatic statement and actual procedures of thoughtto the degree that is manifest everywhere in Adorno's work.

Habermas speaks for the second generation of Frankfurt theorists in taking issue with Adorno's grim prognosis while seeking to maintain his critical stance with regard to the various distortions or perversions of instrumental reason. Thus in *Knowledge and Human Interests*

Habermas traces their origin back to the split between uncritically positivist ('value-free') conceptions of enquiry in the natural and social sciences and, on the other hand, a reactive movement which led to forms of extreme irrationalist or counter-Enlightenment thought. What is required in order to remedy this bad situation, Habermas argues, is precisely a renewal and radicalization of that critical impulse which the Enlightenment had once represented, but whose energies had since been turned toward other, more oppressive and socially conformist uses. Such is the 'unfinished project of modernity' which Habermas sets out to defend against its various detractors, whether those (like Adorno) who had fallen into postures of well-nigh terminal despair or thoselike the current postmodernist heirs of Nietzschewho cheerfully proclaim an end to the 'discourse' of enlightened truth-seeking thought.

In his more recent work Habermas has moved some distance toward acknowledging the force of these antifoundationalist arguments. Thus he now puts the case for a theory of communicative action (or a 'universal pragmatics') that would derive its normative values from languagefrom the condi-

tions for free and equal exchange among parties to an 'ideal speech-situation'rather than confront all the problems associated with a subject-centred epistemological paradigm. [71] The various sciences would then take their place as so many relatively specialised discourses subject both to internal constraints (of consistency, evidential warrant, deductive or inductive validity, etc.) and to debate in the wider ethical and sociopolitical spheres, that is to say, insofar as their activities impinge on issues of human well-being or environmental concern.

To this extentjudged from the standpoint of philosophy of scienceHabermas's thinking represents an advance over Adorno's unrelievedly bleak and pessimistic outlook. It is also far preferable to Foucault's Nietzsche-derived sceptical genealogies of knowledge, despite the clear evidence that Habermaswhatever his express misgivings about Foucault's projectwas persuaded to change his own argumentative tack partly in response to Foucault's assault on the subject (more specifically, the Kantian transcendental subject) as presumed locus of knowledge and truth. Another strong point in favour of Habermas's approach is the fact that it preserves a space for the criticism of consensus beliefs or received ideas, whether in the natural or the human and social sciences. This comes out most strikingly in his well-known debate with Hans-Georg Gadamer concerning the relationship among tradition, critique, and interpretive preunderstanding.[72] For Gadamer, it is neither possible nor desirable to overcome those elements of 'prejudice'those foregone beliefs and assumptionsthat constitute the horizon of all human knowledge and in the absence of which we could not make a start in comprehending any text, any scientific theory, or other such product of cultural enquiry.[73] That is to say, there is always a circular movement whereby the present act of understanding takes rise from a tacit dimension of

presupposed meanings, values, and beliefs. Thus, according to Gadamer, we need to reevaluate the very idea and meaning of 'prejudice', treating it no longer as an obstacle to knowledge but as the simply indispensable background to all interpretation.

Of course there is an element of truth in this, as Habermas readily concedes. However, there is also a problem in explaining how advances in knowledge come aboutor how we can criticise false, inadequate, or ideologically motivated beliefsif indeed it is the case that all our truth-claims and judgements derive from a dimension of tacit preunderstanding which constitutes their very condition of possibility. It is the same problem that arises with Heideggerian (depth-hermeneutic) conceptions of truth, with the Kuhnian idea of paradigm change as inducing a wholesale transformation of scientific world-views, with Wittgensteinian talk of language-games (or cultural forms of life) as the limit-point of interpretation, and with strong-sociological approaches to science which relativise truth to its localised contexts of knowledge production. This is why Habermas takes issue with Gadamer on the

question as to whetheror just how farthinking can advance beyond preexisting forms of traditional (consensus-based) knowledge and belief. It can do so, he argues, chiefly through the criticism of just those prejudicial habits of thought which Gadamer regards as simply built into the nature and structure of human understanding in general. Such prejudices will at length show up as products of blocked or distorted communication, brought about very often by unequal or inadequate access to the relevant information sources. They should therefore be seen as instances of a false (or merely *de facto*) consensus that, in Habermas's typically awkward phrase, is 'pseudocommunicatively induced'.

Thus philosophy of science has something to gain from his theory of an ideal speech-situation which acts as a quasi-Kantian regulative idea for the advancement of mutual understanding in the various (more or less specialised) spheres of scientific, social, ethical, and political debate. However, this approach has its limits when one asks what could count as a properly *scientific* advance in knowledge, that is, an instance of progress achieved through more adequate conceptual or causal-explanatory grasp of objects, processes, or events that must be taken to exist or occur independently of our present best state of agreed-upon knowledge concerning them. This may be a good (indeed admirable) model for the conduct of open participant debate in the human and social sciences, as likewise in the wider public sphere of democratic decision making. But when applied to philosophy of (natural) science it fails to take account of that whole crucial aspect of experiment, detailed observation, disciplined data gathering, theory testing, refutation by observed counterinstances, and so on, where the appeal is not so much to intersubjective criteriaeven those achieved within an ideal speech situationas to standards of objective (real-world) accountability established by the best investigative methods to

hand.

This latter concession is often seized upon by Kuhnians, Wittgensteinians, 'strong' sociologists, and others, keen to make the point that 'objectivity' *just is* whatever counts as such according to those current best notions. [74] Habermas would no doubt respond that his theory differs crucially from theirs in allowing for the distinction between mere *de facto* consensus beliefs and those arrived at through critical debate among qualified and open-minded scientists. However, it may still be objected that this leaves unanswered the basic question as to just what distinguishes the physical sciences from other disciplinessuch as sociology, anthropology, psychology, or literary criticismthat are generally thought to involve much more in the way of interpretive judgement. Of course there are cultural theorists and some philosophers, Rorty among them, who would reject this distinction outright and adopt a thoroughgoing interpretivist (or textualist) approach to the physical sciences also.[75] But such arguments offer no help in accounting for our knowledge of the growth of knowledge, or explaining how scientific progress comes

about through the complex interplay of theory, conjecture, experiment, observation, and so forth. This suggests that there is perhaps more in common than he might wish to think between Habermas's 'universal pragmatics' and those other versions of the linguistic or pragmatist turn that would simply equate scientific 'truth' and 'progress' with whatever is contingently 'good in the way of belief'. What is missingas I have argued above by way of various comparisons, as for instance between Bachelard and Kuhnis precisely that dimension of critical epistemology which Habermas pursued in *Knowledge and Human Interests,* but which perhaps he has too readily abandoned in response to current antifoundationalist movements of thought.

Conclusion

I would hope to have made three main points in this introductory chapter. First, 'continental' philosophy of science has shared a great many of the themes and concerns (such as ontological relativity, the underdetermination of theory by evidence, and the role of interpretive judgement in scientific thinking) that have also figured centrally in recent Anglo-American debate. Second, it has approached them *sometimes but not always* with a distinctive slant toward hermeneutic or historically oriented modes of understanding which contrast with the mainstream 'analytic' stress on evaluating scientific statements and theories with regard to their logico-semantic structure or their status *vis-à-vis* the ground rules of inductive or hypothetico-deductive inference. For some continentally inclined philosophers this makes analytic philosophy of science an ultimately trivial or self-defeating enterprise, one whose programme, if carried through consistently, would reduce every such statement or theory to the level of vacuous (tautological) self-evidence. However, third, there exists a wide range of recent 'continental' approacheschiefly in the French and Austro-

German epistemo-critical traditionswhich have responded both to such internal problems in philosophy of science and to the kinds of challenge posed by developments in various fields of advanced scientific research. At any rate there are now few subscribers to the notion that Anglo-American philosophy of science has little or nothing to learn from its mainland-European counterpart. 'Fog over Channel: Continent isolated', as a London *Times* headline allegedly once reported.

1
Theory Change and the Logic of Enquiry: New Bearings in Philosophy of Science

Anglo-American philosophy of science has tended to define itself squarely against the kinds of (so-called) metaphysical approach that have characterised (so-called) continental philosophy in the line of descent from Husserl. Indeed, Husserl's project of phenomenological enquiry was the target of criticism by Fregeand later by Gilbert Rylewhich pretty much set the agenda for subsequent debate. [1] That project seemed to them just a form of illdisguised 'psychologism', one that purported to address issues of truth, validity, rational warrant, and so forth, but which fell far short of the logical rigour attained by thinkers in the other (analytic) tradition. Thus Husserl might claimlike Descartes and Kant before himto be raising questions about the *a priori* forms of human knowledge and experience, forms that were given (necessarily presupposed) in every possible act of cognition.[2] Moreover, he might claim to have advanced beyond Kant in distinguishing more clearly between formal and transcendental logic, or judgements whose necessity followed from the ground rules of this or that logically binding system of thought, and judgements that resulted from a rigorous reflection on the genesis and structure of human understanding in general.[3] However, these claims counted for little with Husserl's critics in the other (i.e., post-Fregean) 'analytical' camp. What they chiefly objected to in Husserl's project was the approach via thoughts and ideas 'in the mind' of some perceiving or reasoning subject, even though Husserl was very often at pains to reject any merely empirical (or psychologistic) construal of his claims. To their way of thinking, all this talk about 'transcendental' truth- and

validity-conditions was just another variant of the bad old Cartesian-Kantian retreat to consciousness as the last court of appeal in epistemological matters. Only by rejecting that entire line of thoughtthat is to say, by adopting a strictly analytical or logicosemantic approachcould philosophy at last break free of its attachment to naive, subject-centred, or 'metaphysical' notions of meaning and truth.

More recently some analytic philosophers, Michael Dummett among them, have begun to question this doxastic account and to offer a more nuanced appraisal of the differences between Frege and Husserl.[4] Nevertheless, there is

still a marked tendency to suppose that, wherever such differences show up, it will always be a matter of Frege's having pointed the best (most rigorous and logically adequate) way forward and of Husserl's having slippeddespite all his strenuous protests to the contraryinto some form of argument that unwittingly reveals his residual subjectivist approach. Now it seems to me that these belated, rather grudging gestures of atonement are partly a result of certain emergent problems within the analytic tradition, in particular those raised by Quine in his famous attack on the two 'last dogmas' or Camap-style logical empiricism. [5] That is to say, they have to do with the impossibilityas Quine sees itof maintaining any version of the logical-empiricist dichotomy between 'matters of fact' and 'truths of reason', or synthetic and analytic orders of statement. This distinction was crucial to the logical-empiricist programme and also, in a somewhat less doctrinaire form, to the whole enterprise of analytical philosophy in the wake of Frege and Russell. Whether Quine actually succeeded in giving it the *coup de grâce* is still very much an open question, not least (as I shall argue) in view of his failure to offer any convincing alternative approach to issues of truth, meaning, and interpretation.

So there is a case for taking a different view of the grounds for dispute between the two philosophical traditions. This revisionist approach would go much further than Dummett in acknowledging both the importance of Husserl's project and the various problems that analytic philosophy has encountered in its attempt to enforce the Fregean veto on talk of consciousness, intentionality, ideas, eidetic structures, the noetic/noematic distinction, and so forth. In so doing it would raise very different objections to logical empiricism from those put forward by Quine and other thinkers who continue to endorse that veto. After all, Quine is insistent that philosophy of language should adopt a strictly extensionalist semantics which finds no room for such 'opaque'

(intensional) items as beliefs or propositional attitudes. Thus, for instance, while it is jointly true that 'W. V. Quine is a Harvard philosopher and author of the essay "Two Dogmas of Empiricism"', there is no equivalent conjunctive truth-value which attaches to that statement when preceded by the phrase 'Rita believes that. . . .' For she might, as it happens, be in error about various facts, among them his academic calling or his institutional affiliation or his having written that particular essay, or perhaps about the *name* of whoever it was that answered to one or more of those identifying descriptions. (Maybe she thinks the essay was written by Hilary Putnam or some other well-known Harvard philosopher.) In short, such statements fail to meet the test of substitutivity *salva veritate* for termssuch as 'Quine' and 'the author of "Two Dogmas of Empiricism"'which pick out an identical referent and are therefore extensionally equivalent. Hence also his argument against the possibility of quantifying into modal contexts, a practise whichon Quine's submissioncreates all manner of insoluble problems, such as

the breakdown of logical equivalence between '9 is necessarily greater than 7' and 'The number of planets is necessarily greater than 7'. [6]

Thus Quine has basically the same reason for objecting on the one hand to intensional (belief-related) approaches in philosophical semantics and on the other to modal-logical talk of necessity, possibility, truth across various (more or less epistemically inter-accessible) 'worlds', and so forth. Where they both run into trouble is in failing to secure the functional equivalence of statementsthose containing names or definite descriptionswhose truth-values *must* be covariant if we are to uphold (as Quine thinks we must) the extensionalist doctrine that terms with the selfsame referent should always be interchangeable *salva veritate* in every context of usage. Nevertheless, it is hard to see how this argument can possibly work given his relentless attack, in 'Two Dogmas', on the various co-implicated notions (of synonymy, analyticity, truth-by-definition, etc.) which in Quine's view reduce to so many items of otiose circular reasoning. Some would argue on the contrary that such reasoning can have a certain ampliative function, that is, a capacity for drawing out the sense and proper usage of those terms, despite their apparent circularity when treated from a strictly logical point of view.[7] Then again, other critics of QuineRuth Barcan Marcus among themhave argued that the problem is not so much with quantifying into modal or intensional contexts but rather with providing an adequate extensionalist theory of meaning and truth. On this view Quine's standard objection (i.e., that modal/intensional approaches are 'referentially opaque') can in fact be turned around to claim that the opacity 'lies with Quine's use of such terms as "identity", "true identity", "equality"'.[8] Thus, according to Marcus, logical systems should be treated as 'more or less extensional', the criteria in each specific case depending 'on the kinds of contexts and predicates which

are prohibited, and the degree to which the relation of identity is equated to weaker forms of equivalence'.[9]

However, it is not my purpose here to adjudicate these issues within the broad spectrum of current analytical philosophy of language and logic. Rather, it is to make the more general point: that they all take rise from a certain preemptive narrowing of philosophic sights, namely the beliefone shared by Quine and Marcusthat we shall make progress or achieve more clarity in these matters only by eschewing the kinds of 'subjectivist' approach that are taken to characterise work in the other (i.e., post-Husserlian) continental tradition. In what follows I propose to question this belief and suggest that analytic philosophy has much to gain from a closer acquaintance with developments in continental epistemology and philosophy of science. In particular I shall focus on two such developments, both carried on (albeit from a critical-deconstructive standpoint) in the early writings of Jacques Derrida. These are the projects of Husserlian phenomenology and the distinctive approach to issues of scientific knowledge and theory construction adopted by

Gaston Bachelard. I shall argue that they offer a promising way forward from the various problemsespecially those remarked upon by Quinewhich have dogged the legacy of logical empiricism and its various successor movements. From this point of view the dispute between Quine and Marcus as to whether or not one can quantify into modal or intensional contexts is a regional dispute that has arisen in part as a consequence of their both foreclosing on that wider (inten*t*ional or consciousness-related) domain of enquiry.

'It seems to me', Marcus writes, 'that much of the discussion these past few years concerning the apparent breakdown of substitutivity principles in intensional contexts and its presumably devastating results for logic and mathematics are [*sic*] largely terminological'. [10] And again, more pointedly: 'the apparent difficulties of interpreting such [modal/intensional] systems are not genuine, but analogous to a rejection of non-Euclidean geometry because it allows parallel lines to meet'.[11] As it happens, both Husserl and Bachelard are much concerned with the processes of thought by which advances come about in fields such as mathematics, geometry, and physics, advances that can only be achievedso they arguethrough a break with hitherto accepted ideas of self-evident, 'commonsense', or *a priori* truth. What is at issue hereas Marcus brings out very clearlyis the question how far such processes of thought should figure in a properly logical account of the context of justification. For some analytic philosophers, Quine preeminent among them, there is just no place for intensionalist (let alone inten*t*ionalist) modes of talk when trying to make logical sense of such matters. For othersincluding Marcusthere is a firm line to be drawn between intentional approaches (which are strictly indispensable if one wishes to deploy modal, counterfactual, or other such causal-explanatory devices) and intentional approaches which supposedly open the way to all manner of psychologistic vagaries.

Thus, on her account, logic can perfectly well accommodate most of the items that Quine objects to ('"knows that", "is aware that", and in particular "is necessary that"') without fear of referential opacity. However, it requires that those qualifying phrases be properly construed, that is to say, in accordance with a modal-logical or strictly intensionalist approach which finds no place for such inscrutable matters as the discovery procedures or the processes of thought by which conjectural beliefs are transformed into adequate knowledge.

It is this dimension of enquiry that was firmly closed off by the 'analytic' turn against Husserlian phenomenology and, indeed, against all those later 'continental' developments perceived as not matching up to the highest, most rigorous standards of logical accountability. My case is that Anglo-American philosophy was thereby deprived of some useful epistemo-critical resources, not least for overcoming the various problems bequeathed by logical empiricism, problems acknowledgedin their different waysby Quine and Marcus. More specifically, the two projects of Husserl and Bachelard can be seen

to address crucial issues that were mostly disregarded by thinkers in the mainstream analytical tradition but which have often surfaced to vex that tradition in the form of such internal disputes as the rift over modal/intensional conceptions of meaning, logic, and truth. Hence the lately emergent strain of 'postanalytic' philosophy, conceivedvery often with reference to Quineas an outcome of just these intractable problems in the doctrine of logical empiricism. I have argued elsewhere that this reactive movement of thought is frequently in danger of swinging right across to the opposite extreme, that is, toward a 'strong' hermeneutical approach (derived from Wittgenstein and Heidegger) or a full-blown Rortian 'textualist' position which finds no room for such old-fashioned notions as reality or truth. [12] Indeed, Quine's argument in 'Two Dogmas' is itself a very striking example of the way that a thoroughly physicalist (or naturalised) epistemology can be made to square with an equally thoroughgoing doctrine of meaning-holism, one that takes the entirety of scientific knowledge or belief at any given term as the 'unit of empirical significance'. And from here it is no large step to those varieties of hermeneutic-textualist doctrine according to which interpretation goes 'all the way down', so that any results turned up (say) through 'direct' observation or empirical research must themselves be treated as interpretive constructs, or as making sense only against some background 'horizon' of communal belief. For if indeed, as Quine writes, 'it is nonsense, and the root of much nonsense, to speak of a linguistic component and a factual component in the truth of any individual statement', then equally it is the source of much confusionor so I shall argueto push this case for meaning-holism to the point where 'truth' becomes entirely a matter of contextual definition.[13]

Thus for Quine, famously, knowledge is 'a man-made fabric which

impinges on experience only along the edges', or again, 'a field of force whose boundary conditions are experience' (TDE, 42). At the centre of the fabric are those so-called logical laws of thought (bivalence, noncontradiction, excluded middle) which are taken to possess *a priori* validity or to function as the very ground rules of rational debate in the physical sciences and elsewhere. However, Quine cautions, we should not be misled into thinking that these rules are *absolutely or intrinsically* immune from revision. For this is after all just another doomed attempt to uphold the artificial dichotomywhether Humean, Leibnizian, Kantian, Camapian, or whateverbetween contingent 'matters of fact' on the one hand and necessary 'truths of reason' on the other. 'Taken collectively', Quine writes, 'science has its double dependence upon language and experience; but this duality is not significantly traceable into the statements of science taken one by one' (TDE, 42). And again, pushing the argument through: '[t]hat there is such a distinction to be drawn at all is an unempirical dogma of empiricism, a metaphysical article of faith' (37). Rather, what we feel ourselves bound to accept as logical 'laws of thought' should instead be treated as particularly well-entrenched precepts, principles,

or procedural guidelines which have so far proved to have great utility in working some manageable structure into the otherwise chaotic flux of incoming sensory stimuli. Any conflict at the edges of the fabric (i.e., any 'recalcitrant' experience or item of anomalous observation-data) can always be assuaged by making certain adjustments elsewhere in the system or by redistributing predicates and truth-values so as to restore equilibrium. At times this process may go so farunder pressure of conflicting empirical evidencethat it forces a change at or very near the logical heart of the fabric, that is to say, a revision to the hitherto sacrosanct 'laws of thought'. Thus '[a]ny statement can be held true, come what may, if we make drastic enough adjustments elsewhere in the system' (TDE, 43). And the same applies to those physical objects which we tend to think of as existing 'out there' beyond the boundary of the fabric, but which in factQuine arguesshould rather be viewed as so many 'posits' whose being is dependent on our various theories, ontologies, descriptive languages, conceptual schemes, and so forth.

No doubt, instrumentally speaking, 'the conceptual scheme of science' is a useful tool 'for predicting future experience in the light of past experience'. But this should not deceive us into thinking that the objects posited by sciencefrom quarks and gluons, via electrons, atoms, and molecules, to the whole range of middling and large-scale objectsare more or less 'real' according to some *ultimate* (non-scheme-dependent) standard of objective truth. For what, after all, could such a standard consist in if not our current best notions of 'reality' derived from a mixture of commonsense wisdom plus other, more specialised (and preferably up-to-date) items of scientific knowledge? In which casegiven the presumed nonfinality or the always revisable status of science as we have itthere is simply no distinguishing between various 'posits' (from centaurs and Homer's gods, via numbers and

mathematical sets, to brick houses on Elm Street) in point of ultimate reality or truth. Rather, as Quine puts it,

> [p] hysical objects are conceptually imported into the situation as convenient intermediariesnot by definition in terms of experience, but simply as irreducible posits comparable, epistemologically, to the gods of Homer. For my part I do, qua lay physicist, believe in physical objects and not in Homer's gods; and I consider it a scientific error to believe otherwise. But in point of epistemological footing the physical objects differ only in degree and not in kind. Both sorts of entities enter our conception only as cultural posits. (TDE, 44)

The same applies to those relatively abstract entities'classes and classes of classes and so on up'which constitute the object-domain of mathematical reasoning, and whose status has long been a topic of dispute among Platonists, conventionalists, intuitionists, and others. For Quine, such disputes must be seen as altogether pointless, presuming as they do that there exists some answersome ultimate, non-scheme-dependent answerto questions

concerning the 'reality' (or otherwise) of numbers, sets, or classes. 'Epistemologically', he writes, 'these are myths on the same footing as physical objects and gods, neither better nor worse except for differences in the degree to which they expedite our dealings with sense experience' (TDE, 45). In which case we had better just acknowledge that there is nothingat any rate nothing 'in the nature of things', whether physical objects, mathematical sets, centaurs, or Homer's godsthat could possibly justify our ranking those objects on a scale (or on different scales) according to their various well-defined orders of real, ideal, hypothetical, fictive, or presumptively mythic existence. Quite simply, they are all 'cultural posits' which 'enter our conception' just insofar as they allow us to construct some plausible framework for relating 'experience' (or sensory stimuli) to the various other theories, posits, and items of belief that make up our current ontological scheme.

Now the really odd thing about all this is that Quine can be a hard-headed physicalist as concerns those sensory 'stimuli' while nonetheless adopting a wholesale contextualist approach with regard to what counts, on some given interpretive scheme, as a candidate real-world object or entity. Indeed, this might be called the third dogma of empiricism, one that supposedly makes short work of the old analytic/synthetic or scheme/content dualism but which opens up a yet more problematic gulf between this or that item of stimulus-response and the overall 'fabric' or system of beliefs wherein such items have to be somehow accommodated. It is herein the space between causal stimulus and cultural 'posit'that a wide range of current antirealist or cultural-relativist doctrines manage to insert their claim, often in terms that avowedly disown any such characterisation. Thus, for instance, Richard Rorty can declare himself a full-fledged 'realist' in the sense that he accepts (1) the existence of a real-world or

mind-independent object domain, (2) the fact that this world impinges directly on our nerve ends or stimulus-response mechanisms, and (3) the necessity of defining 'truth' with reference to just this causal link between sensory stimuli and contents of belief. But he can then go on to claim that items (1) to (3) above have absolutely no bearingor exert no ultimate constraintupon the range of interpretive choices that exist with respect to our various theories, descriptions, or world hypotheses. For on this view it is a species of category-mistake to suppose that whatever transpires in the causal interaction between world and mind is in any way decisive as regards the construal to be placed on those various items of stimulus-input. That is to say, there is no passage from a Quinean physicalist (or naturalised) epistemology to an account of how certain stimuli are linked to certain perceptions, how these latter play a role in certain (more or less reliable) observation-sentences, and so on up to the stage of rational belief or theory formation. [14]

Thus, as Rorty sees it, there are two different kinds of 'aboutness' relation involved in the ascription of meanings and beliefs to people who can safely

be assumed to interact with their immediate physical environment in the way that Quine describes. One is the externalist viewpoint adopted by a Quinean 'radical interpreter' who *ex hypothesi* lacks any inside knowledge of what informants may think or believe and who therefore has to work on the basis of observing just such causal interactions, along with their responses (whether active or verbal) to various incoming stimuli. Then there is the kind of process that we ourselves and (presumably) other people engage in when trying to interpret, describe, explain, or rationally justify items of belief. Thus the first is a basically determinist theory having to do with 'an aboutness relation that ties s [the relevant item] to its objects', or which supposes a direct causal link between real-world occurrent states of affairs and beliefs (or belief-dispositions) on the part of real-world situated agents. The second is a quite different sort of theory, one that is essentially normative in character and has to do with 'the inferential relations between our belief that s and our other beliefs'. [15] Now, according to Rorty, it is simply an errorand the source of much epistemological confusionto conflate or assimilate these two kinds of 'aboumess' relation. For the causal theory is just the sort of thing that applies when we are taking the externalist view of how people acquire or manifest various states of belief. It is therefore wholly devoid of normative implications, issuing as it does from a standpoint of studious noncommitment as regards the likely reasons, evidential criteria, or justificatory grounds that those informants might be expected to produce by way of argumentative support. And conversely, there is there nothing in the normative accountthe 'view from inside'that could claim good warrant through a causal appeal to beliefs reliably attained by exposure to the right kinds of physical stimuli. Such beliefs are entirely unconstrained by the aboutness relation which, in Rorty's phrase, 'ties s to its objects'. Rather, they involve a rational (coherence-maximising) method for ensuring that

our various beliefs hang together in a broadly satisfactory way, and also for imputing beliefs to other people on the assumption thatmore likely than notthey will be applying the same principle.

What this amounts to is a version of the double-aspect theory, familiar at least since Kant, which requires a careful separation of realms between issues of causal explanation, on the one hand, and issues of rational justification on the other. More recently the theory has been given a new lease on life by Donald Davidson's idea of 'anomalous monism' as a means of resolving the mind-body problem, or at any rate helping to defuse the quarrel between physicalist and mentalist arguments.[16] Such problems arise from a failure to perceive that these two conceptions need not get into conflict just as long as one accepts that they involve quite different kinds of understanding, the one aimed toward a causal-explanatory (perhaps a neurophysiological) account of mental processes and events, and the other concerned to make rational sense of our own and other people's acts, intentions, meanings, and beliefs. So,

from this point of view, there is no difficulty about adopting even a strong (e.g., central-state materialist) position on the issue of mind/brain identity while also holding that the other (intentional or belief-related) mode of talk is perfectly validindeed indispensablewhen applied in the right sorts of context. Hence Davidson's theory of 'anomalous monism': *monist* insofar as it rejects the idea of any radical dualism between mind and body, but *anomalous* insofar as it rejects any version of the hard-line reductionist argument according to which mental events are mere epiphenomenal illusions brought about by the working of physical laws whose better understanding would leave no room for such otiose 'folk-psychological' talk. [17] Thus we can all be as realist as we like in the external (causal-explanatory) mode and yet leave room for a strong interpretivist or hermeneutic approach when construing people's utterances, thoughts, and intentions on the basis of a Davidsonian 'principle of charity' which brings them out with as many true or rational beliefs as possible.[18]

In the same way, Rorty suggests, we can surely go along with the realist's case for the existence of an objective, mind-independent, causally efficacious 'external world' which is not just a constructas the incautious relativist might have itout of our various language-games, conceptual schemes, interpretive conventions, or whatever. However, this gives absolutely no grounds for holding that our own or other people's beliefs concerning that world are in any way constrainedor their truth-value decidedby the causal link that 'ties *s* to its objects'. Rather, such beliefs are arrived at through an ongoing process of interpretive trade-offs or a Quinean pragmatic 'redistribution' of truth-values and predicates. Thus for Rorty, as likewise for Davidson and Quine, there is no sure routeperhaps no route at allfrom a naturalised (causal) epistemology to a theory of rational belief formation that

would take due account of this process and the normative values it brings into play. These latter belong to the 'inside view', that which we occupy in our role as self-conscious, reflective subjects for whom the word 'true' is a 'term of praise' applied to beliefs which optimise our sense of overall purpose and coherence. From the externalist viewpoint, conversely, 'true' is a term which properly applies to just those utterances or items of belief which display the right kind of causal history as tracked by a Quinean 'radical interpreter' with access to the relevant information sources but lacking any kind of privileged epistemic warrant. What is more, this restriction is equally in force when we adopt an externalist perspective on our own processes of knowledge acquisition. For in this case also, as Rorty puts it, we should resist 'the urge to coalesce the justificatory and the causal story', since they involve entirely different (incompatible) orders of truth-claim."[19] Epistemologically speaking, 'there is nothing more for us to know about our relation to reality than we already know' on the causal account, that is, as a result of simply observing how we and other people respond to certain stimuli under certain ambient condi-

tions. [20] To jump from this to a normative 'story' about what we ought or ought not to believe as a matter of rational inference is just the kind of error that philosophers typically fall into when they fail to take the pragmatist's simple point about the various senses of 'truth'. Thus (Rorty again): 'the understanding you get of how the word "true" works by contemplating the possibility of a Tarskian truth-theory for your language is utterly irrelevant to the satisfaction you get by saying that you know more truths today than you did yesterday, or that truth is great, and will prevail'.[21] Least of all should we suppose that the causal sense of the termapplying as it does to the rockbottom level of unmediated stimulus-responsecould possibly figure in a normative or justificatory account of our various holdings-true.

Now it might well be said that Rorty is untypical in pushing so far with the incompatibilist argument that it severs every link between the two kinds of 'aboutness' relation, that which 'ties s to its objects' in a straightforward causal way and that which concerns 'the inferential relations between our belief that *s* and our other beliefs'.[22] Clearly one motive for adopting this line is Rorty's desire to avoid being characterised as a downright antirealist (or cultural relativist) while still leaving maximum scope for his claim that we can 'redescribe' the world in as many different ways as there exist different language-games, 'final vocabularies', metaphors we can live by, and so forth. Nevertheless, Rorty's route to this wished-for denouement is one that follows a path well beaten by other analytic (or 'postanalytic') thinkers, Quine and Davidson among them. In Quine it takes the form of a naturalised or physicalist epistemology, along with a range of interconnected thesessemantic holism, meaning-variance, ontological relativity, the theory-laden character of observation-statements, the underdetermination of theory by evidenceall of which conduce to a radical split between the baseline (causal) and higher-level (normative

or interpretive) stages of belief acquisition.[23] In Davidson, likewise, the argument works out as a doctrine of direct realism which allows us 'to reestablish unmediated touch with the familiar objects whose antics make our sentences and opinions true or false', joined to an all-purpose Principle of Charity according to which we have no choice but to interpret other people's sayings and beliefs on the assumption that they must be counted 'right in most matters', and hence sufficiently in agreement with us for those sayings and beliefs to be rationally construable.[24] So it is that Rorty can enlist Quine and Davidson in support of his case for combining an outlook of sturdy commonsense realism *vis-à-vis* beliefs and objects-of-belief with the idea of their always being open to creative 'redescription' in line with our current best interests or most favoured cultural values.

From here it is a short step to those varieties of jointly 'postanalytic' and depth-hermeneutical thinking which look to Heidegger for a way beyond the apparent dead endor the seeming trivialityof truth-definitions of the type proposed by thinkers in the mainstream analytical tradition.[25] For these

latter reduce either to a Tarskian notion of truth as a purely definitional construct ('"snow is white" is a true statement if and only if snow is white') or else to a crudely empiricist conception according to which the truth-content of sentences, statements, theories, and so on, should best be construed as a matter of 'surface irritations'sensory stimuli of different kindsplus whatever is needed in the way of Quinean across-the-board pragmatic adjustment. So it is not hard to see why some recent commentators have thought this a somewhat impoverished account of what goes on when we actually engage in the process of trying to figure out meanings and beliefs. One response is to urge that this whole way of thinking is hopelessly in thrall to an outworn epistemological paradigm which conceives 'truth' in terms of correspondence (of accuracy, factual content, propositional form, or whatever), and which thus remains closed to that other, more authentic or primordial dimension where truth is a matter of unconcealment, of the bringing-to-light of a wisdom concealed by the accretions of so-called Western metaphysics. [26] On this view philosophy has much to gain by the turn toward Heidegger and depth-hermeneutics, even if temperedas in Rorty's caseby a measure of pragmatist scepticism as regards Heidegger's more portentous or *echt*-ontological pronouncements. To another way of thinking, no such drastic remedies are called for, but rather a careful reengagement with issues of truth, meaning, and interpretation that have so far not been adequately treated by philosophers in the broadly analytic camp. On this view, therefore, we had much better stick with the resources of conceptual analysis and critique, whatever the problems hitherto encountered in applying those resources to particular questions of epistemology and interpretation theory.

Thus, for instance, Simon Evnine remarks of Davidson that he seems to have 'two quite different projects . . . [o]n the one hand a causal,

explanatory project . . . [o]n the other an interpretative, hermeneutic project', and that he fails to bring them together in any convincing or coherent way.[27] This problem itself has two aspects, the one concerning Davidson's idea of 'anomalous monism' (which in effect leaves it entirely unexplained just how we are to conceive the mind-body issue or the question of intentional *versus* physicalist accounts of human action), the other concerning the Davidsonian Principle of Charity and just how it relates to his otherwise thoroughly causal or determinist theory of belief acquisition. For clearly there is a sense in which people (ourselves and others) *can* indeed be wrong about a whole range of thingswhether motives for action, grounds for scientific belief, items of everyday commonsense 'knowledge', interpretive ascriptions of meaning or belief, sensory perceptions, inferential reasoning on this or that item of evidencewhere the Principle of Charity would bring them out right merely as a matter of *a priori* warrant for the claim to understand them on the basis of a shared rational or truth-optimising strategy. In such cases what is needed, rather, is a jointly causal and normative epistemology which explains (1) how such

errors come about, (2) why we are justified in viewing them as errors, and (3) what should count as an adequate reason for proposing some alternativebetter informed or scientifically more adequateapproach to the issue. [28] Otherwise Charity will tend to work out as a kind of all-purpose hermeneutic pretext for counting people right (or rationally justified) no matter what they believe just in order to ensure that we don't lose touch and find ourselves forced into notions of radical paradigm incommensurability or meaning-variance across different languages, cultures, 'conceptual schemes', and so forth.

This is of course where Davidson takes issue with Quine, Kuhn, Feyerabend, Whorf, and other proponents of a relativist doctrine with just that unfortunate consequence.[29] But it is not at all clear that Davidsonian Charity is much better placed in this respect. For, if consistently applied, then it will always come out *either* by counting other people 'right' on their own terms as a matter of general (truth-optimising) principle *or* by simply reconstruing their utterances on the 'charitable' basis that they must agree with us in most of what they say and believe, and hence that we can safely (justifiably) impute meanings and beliefs in large-scale accordance with our own ideas of rational, truth-preserving warrant. In which case, again, the way is wide open to a strong-redescriptivist (Rorty-style) argument that interpretation in some sense goes 'all the way down', since there is nothing in the bottom-line causal theory of how beliefs hook up with objects-of-belief that could possibly serve to fix or individuate higher-level items of belief-content, propositional attitude, ontological commitment, and so on. Thus the hermeneutic 'turn' in some recent readings of Davidson is one that takes off from precisely what Evnine remarks (in the passage cited above) as the split between his causal-explanatory project and a charity-based theory of belief attribution whose normative or justificatory criteria are completely uncoupled

from any such appeal to our causal transactions with the world. One very welcome consequenceso Rorty arguesis to cut down the role of epistemology (or theory of knowledge) to a point where it is finally squeezed out between the claims of a naturalised causal etiology of beliefs and a hermeneutic theory premised on the notions of meaning-holism, Davidsonian Charity, and the pragmatist idea of 'truth' as whatever merits that name by our present cultural-interpretive lights.[30] Of course Rorty has no problems in reconciling this with Tarski's proposallikewise interpreted via Davidsonthat a theory of truth for any given language should amount to just a formal recursive device which can be seen as simply cancelling through for all practical purposes, and which therefore (arguably) lacks any kind of substantive ontological or epistemological content. So, on this account, the main drift of recent postanalytic philosophy has been to drive home the hermeneutic message: that epistemology is a hopelessly failed endeavour, since 'knowledge' and 'truth' amount to no more than our currently favoured ways of interpreting whatever is given at the basic

level of unmediated (causally determined) stimulus-response. In which case clearly the sole remaining task for philosophy of mind and knowledge is to follow Rorty's lead and devote its main efforts to deconstructing all those grand theories erected by philosophersfrom Descartes and Kant to the logical empiricistswho have laboured under the delusion that epistemology had other, more important or constructive work to do. [31]

As I have said, this message has not gone unchallenged among those who take a more sanguine view of the epistemological enterprise but who reject the idea of a strict separation between externalist (causal-explanatory) theories, on the one hand, and normative (reason-based or justificatory) arguments on the other. Thus, according to William Child, 'the idea that a normative, interpretative story is itself a causal story is essential for understanding the form of reason explanation'. Moreover, 'it is also essential for understanding the simple realist thought, that it is possible for us to have thoughts about, and knowledge of, "an objective public world which is not of our own making"'.[32] This last phrase is quoted from Davidson and may be taken to mark the latter's dissent from any version of the strong-descriptivist (Rorty-style) argument that would find no room for an 'objective public world' except as a kind of noumenal posit, a reality that exists (by very definition) beyond whatever we can know or believe concerning it, and which otherwise enters our conceptions merely as a useful shared point of reference in the languagegame of commonsense realism. All the same, it is far from clear that Davidsonian 'objectivity' amounts to anything more robust or secure than Rorty's pragmatist recasting of 'realism' as whatever is (currently and contingently) 'good in the way of belief'. For the effect of decoupling the causal and the normative conceptions of truth is to render the one entirely devoid of justificatory principles or grounds,

while the latter floats free in a generalised willingness to interpret beliefs on a wholesale principle of charity which makes no distinction between those arrived at by reliable (knowledge-conducive) means and those adopted in line with existing assumptions or habits of thought. Thus perhaps it is the case, as Davidson writes, that a propositional (or belief-based) psychology 'cannot be, or be incorporated in, a closed science' of the type aspired to by physical theory and those branches of cognitive psychology that take their model from the physicalist paradigm of law-governed causal explanation.[33] But the problems are just as great if one swings right across to the opposite (hermeneutic or strong-descriptivist) extreme, or indeed if one adopts a positionlike Davidson's 'anomalous monism'which on principle refuses to perceive any possible conflict between beliefs brought about by causal interaction with the world and beliefs entertained as a matter of maximal coherence with our own or other people's convictions, world-views, or truth-conditional hypotheses. For this gives Rorty just the argument he needs for declaring a complete severance between 'truth = what-

ever shows up in our unmediated causal interactions with the world' and 'truth = whatever we believe as a matter of cultural preference plus least resistance to incoming stimuli under this or that favoured (belief-preserving) interpretation'.

My point is that Davidson's doctrine of anomalous monism in effect gives us the worst of both worlds: a reductively physicalist account of causal explanation and a theory of interpretive 'charity' which equates truth (or rationality) with a precept of across-the-board optimal adjustment between various ontological posits and items of belief. Thus, in Quine's words, '[e]ach man is given a scientific heritage plus a continuing barrage of sensory stimulation, and the considerations which guide him in warping his scientific heritage to fit his continuing sensory promptings are, where rational, pragmatic'. [34] What drops completely out of sight on this account is the process of 'rectification and critique' that plays such a crucial role in Bachelard's epistemology, and which involves a very different understanding of the relation between sensory 'promptings', on the one hand, and the 'heritage' of received scientific thought on the other.[35] For Bachelard, this process cannot be reduced (as Quine would have it) to a matter of merely pragmatic adjustment, one that redistributes predicates and truth-values across the entire 'fabric' of existing beliefs so as to preserve maximum coherence with least disruption to cherished items 'Conservatism figures in such choices', Quine remarks, 'as does the quest for simplicity'.[36] But in that case it becomes hard to explain how science could ever have confronted a challenge to the orthodox wisdom of its time, or why 'normal' science (in Kuhn's terminology) should ever have found itself thrust into a phase of 'revolutionary' turmoil.[37] For there would always exist a whole range of alternative possibilities for reconstruing any item of 'recalcitrant' evidence so that it agreed with the body of accepted scientific lore. Or again, one could

always tweak a few threads here and there in the overall fabric so as to accommodate the rogue item while avoiding any challenge to deeply entrenched beliefs.

Such would be the 'rational' line of least resistance as Quine describes it in 'Two Dogmas of Empiricism', that is, the most pragmatically acceptable way of coping with anomalous data. However, this argument fails to account for those decisive 'epistemological breaks' which, according to Bachelard, mark the transition from metaphor to concept, or from the stage of prescientific image and 'reverie' to the stage of adequately theorised scientific knowledge. Above all, it evades the central issue of just why scientists should at times have broken so far with consensual norms as to postulate theoriessuch as Copernican astronomy or quantum mechanicswhich at first seemed completely at odds with all standards of rational scientific warrant. Now one might think that Quine is well placed to explain such episodes since it follows from his twin theses of ontological relativity and radical meaning-variance that *everything* is in principle always open to revision, from the construal placed

upon incoming sensory stimuli to those putative logical 'laws of thought' that occupy the centre of the fabric. Indeed, quantum mechanics is Quine's chief example of the way that new developments in the physical sciences (e.g., the wave/particle dualism) may force changes in the ground rules themselves, as for instance by requiring a suspension of excluded middle or bivalent truthvalues. Elsewhere, oddly enough, Quine retracts this claim by arguing that it could *never* be the best (most rational) option to relinquish those ground rules in response to some set of anomalous or conflicting data. [38] For thenas Aristotle pointed outwe should find ourselves in the unfortunate predicament of endorsing both of two contradictory statements, and thus (by implication) asserting every statement that could ever be made on any conceivable topic.

No doubt there are deep problems with the interpretation of quantum mechanics, problems that have led some physicists, philosophers, and formal logicians to propose an alternative (i.e., nonbivalent or many-valued) logic in order to save scientific appearances.[39] However, there is also reason to think that this is a somewhat desperate stopgap remedy adopted for want of any better understanding of events in the quantum domain. My point, more generally, is that *none of these issues could ever have arisen*from the break with 'classical' (pre-1900) ideas about the subatomic structure of matter to the further reaches of current debateif those concerned had simply followed Quine's advice and finessed any conflicts by revising the import of observation-statements or redistributing truth-values wherever required. In that case normal science would continue pretty much undisturbed by the occasional (short-term) problem of adjustment between incoming sensory 'stimuli' and the background 'heritage' of scientific lore. What cannot be explained on Quine's account is the emergence of a theorysuch as quantum mechanicswhich not only transformed the

fundamental concepts of physical science but created equally fundamental problems regarding its own interpretation, problems that are still (some hundred years on) just as far from being resolved.[40] It is therefore something of an irony that a good many currently *à la mode* doctrines in philosophy of scienceontological relativity, radical meaning-change, paradigm incommensurability, antirealism in its various formsare assumed to derive support from quantum mechanics, or at least to reflect the generalised uncertainty attaching to quantum phenomena. This is probably one reason for the widespread acceptance of Kuhn's ideas about 'revolutionary' science, not to mention the curious reversal of priorities by which some commentators (Rorty among them) have treated it as just the sort of thing that should always go on if we don't want to be stuck with boring old 'normal' science.[41]

However, there are several things wrong with the equation 'quantum mechanics = undecidability = truth as relative to whatever framework (system of measurement, paradigm, conceptual scheme, language-game, discourse, etc.) one happens to adopt'. First, quantum mechanics assigns a precise

valuethat given by Heisenberg's constantto the margin of uncertainty obtaining for any given measurement in any given case. Second, it is an error (and one with absurd consequences, as witness the strictly unthinkable predicament of Schrödinger's cat) to extrapolate directly from these paradoxes in the quantum domain to objects and events at the nonquantum (i.e., macrophysical) level. [42] Third, whatever the problems encountered in making sense of such phenomena, they are problems that arise precisely from the effort to stretch our minds around a range of well-attested experimental findingssuch as those of wave/particle dualism or nonlocal interactionwhich are *not* just artefacts of some chosen paradigm, observation-language, theoretical framework, or whatever. And this despite the fact (also well attested) that the so-called collapse of the wave-packet into one or another state is in some sense produced, or its outcome decided, by the act of observation/measurement.[43] For there is no good reasonantirealist prejudice asideto derive the conclusion that quantum 'reality' is whatever we make of it according to this or that interpretive scheme. Rather, it is a matter of allowing for effectslike that of observation on the system observedwhich would themselves have a place in any complete (so far unobtainable) description of the various physical factors involved. In short, these are*pace* Bohr and his disciplesproblems of a basically epistemological rather than an ontological nature.[44] That is to say, it is at least more rational to suppose that they reflect our current limited knowledge of events at the quantum level, and not some ultimate mystery at the heart of things that places such events forever and intrinsically beyond reach of scientific understanding. Thus what decides the truth of any given hypothesisas between, say, the standard Copenhagen view and Bohm-type 'hidden-variables' theoriesis whether or not it provides an accurate description of just those physical events, irrespective of any beliefs that we or others may happen to hold concerning them.[45]

For the antirealist, conversely, it cannot make sense to posit the existence of 'verification-transcendent' truths, items of fact (of rational warrant or logical necessity) that would render our beliefs determinately true or false even in cases where we didn't know enough to ascertain the correct answer, or where currently available proof-procedures (e.g., in mathematics) were inadequate to the task in hand, or where the evidence gave no means of settling the issue one way or another.[46] Thus for some analytic philosophersnotably Michael Dummett'warranted assertability', not truth, is the most that we can justifiably hope for in assessing the content of various statements in mathematics, science, history, and other disciplines of thought.[47] Such statements can only be evaluated in terms of our current best methods for bearing them out, whether through processes of mathematico-logical deduction, empirical evidence testing in the physical sciences, or reference to reliable source texts and archives in the case of historical research. What cannot be sustainedso this argument holdsis the notion of truth-values that possess an objective, real-

world, evidence-transcendent, or non-belief-relative status. Still less can the realist have grounds for asserting that we might just be wrong about a whole range of itemsfrom mathematical theories to scientific or historical truthclaimsthat come out true according to our best procedures of verification but which are nonetheless false when measured against the way things stand 'in reality'. For this involves us in the strictly nonsensical claim (at least as the antirealist sees it) that we might have grounds for both asserting some putative truth and at the same time assertingwith reference to some higher, more objective tribunalthat our assertion could always turn out false when subjected to more rigorous examination or when all the evidence was in. Quite simply, there is nothing that can warrant such truth-claims in the first place except their conforming to acceptable standards of logical procedure, disciplined enquiry, observational warrant, investigative scholarship, and so forth. Any appeal beyond those standardssuch as the realist's typical appeal to verification-transcendent truthsis one that *by very definition* could never be made good within the limits of knowledge or existing proof-procedures at any given time. In which case, the antirealist argues, it is a mere dogma of naive 'metaphysical' realism that we can well do without since in giving it up we avoid all the sceptical problems that result from making this otiose distinction between 'truth' insofar as we can possibly know it, and 'truth' as determined by objective standards quite aside from our present best knowledge. For it is just because realists insist on that distinction that they set themselves impossibly high standards for the verification of belief, and are hencevery oftendriven into postures of reactive sceptical doubt. [48]

In Dummett's case the route to this conclusion started out from intuitionism in philosophy of mathematicsthe case that truth-values apply only to theorems for which we possess some adequate

(decidable) proof-procedureand then led on to kindred claims with respect to science, history, and other fields of enquiry.[49] However, it is not ham to see why quantum mechanicsat least on the standard Copenhagen interpretationhas often been invoked in support of similar antirealist positions. Thus it is argued (1) that quantum phenomena (such as wave/particle dualism or the collapse of the wave-packet) cannot be assigned a determinate value apart from our acts of observation/measurement; (2) that this entails the impossibility of positing a 'real-world' quantum domain beyond such effects of observer interference or outcomes contingent on the kind of experiment one chooses to conduct; and moreover (3), that it may also mean suspending certain axioms of classical logic (such as bivalence or excluded middle, if not perhaps noncontradiction) since these cannot apply to 'undecidable' instances like those mentioned in item (1), above. However, as I have said in connection with Quine, this whole line of argument is oddly out of touch with the actual development of quantum mechanics and the kinds of conceptual challenge it has posed during the past near-century of intensive discussion and research. For the quantum theory

could never have emerged and continued to raise such acute interpretive problems if scientists had actually worked on the premise that nothing was in principle immune from revision, whether our conception of a real-world (mind-independent) physical domain or the most elementary ground rules of logical thought. Had they taken this viewequating what is 'rational' with whatever is pragmatically best (or least vexatious) in the way of beliefthen they would always have reinterpreted any recalcitrant data so as to minimise the extent of their conflict with existing scientific theories. Dummett has his own differences with Quine on these and related issues. [50] But if one puts together his antirealist position and his case for the revisability of logic in response to certain (e.g., mathematical or quantum-theoretical) dilemmas, then it is no great distance to Quine's ideas of ontological relativity and radical meaning-variance. And from here the way is open to yet more extreme Rorty-type arguments for the 'reality'-constitutive powers of language, or Kuhnian/strong-sociological claims for the paradigm-dependent or culture-specific character of scientific theories.

I have argued that one alternative to this whole way of thinking is the approach to epistemology and philosophy of science developed by thinkers in the 'other' (continental) tradition such as Husserl and Bachelard. What this approach has to offer, more specifically, is a way of treating these issues that combines analytical rigour and precision with a phenomenological account of the various emergent conflicts and resistances'obstacles' to thought, as Bachelard describes themwhich have marked every major stage of advance in the modern physical sciences.[51] But in so doing it avoids the retreat to any kind of naive psychologism or any version of the 'subject-centred' appeal to Cartesian ideas of truth vouchsafed through privileged epistemic access. Rather, it involves a critique of precisely such ideas since they

'tend toward fulfilment in the realm of the image' and hence block the way toward more adequate modes of scientific conceptualisation.[52] This applies especially to those branches of modern sciencesuch as quantum physicswhose conditions of emergence included the earlier break with intuitive or *a priori* notions of truth in fields like mathematics and non-Euclidean geometry. However, this process can never be treated as a simple *fait accompli*, a once-for-all passage beyond the naive idea that phenomenal intuitions (in Kant's famous phrase) must be 'brought under' adequate concepts. On the one hand, it involves a *constant and repeated* questioning of truths that appear self-evident not only from the standpoint of commonsense (nonscientific) belief but also in keeping with received ideas of scientific theory and method. On the other, it cannot be conceived as somehow transpiring in a realm of absolute ideal objectivity cut off from the historically emergent processes of thought that led up to some crucial paradigm shift or (in Bachelard's terms) some decisive 'epistemological break' with previous scientific beliefs. It is herein a region

largely unexplored by rational reconstructions in the analytic stylethat philosophy of science can seek to comprehend the dynamics of scientific theory change and the various motivating pressures and conflicts that brought such changes about. [53]

Imre Lakatos made a related point (albeit from a different methodological perspective) when he modified Kant's dictum to read: 'philosophy of science without history of science is empty', while 'history of science without philosophy of science is blind'.[54] To which it might be addedwith reference to Husserl and Bachelardthat these two endeavours must at some point be linked by a common concern with the genesis and structure of scientific theories, that is to say, their emergence through a critical-reflective process of thought which always strives toward 'absolute ideal objectivity' yet can never be entirely detached from its origins in certain historically situated acts of consciousness.[55] In conjoining the terms 'genesis and structure' I am alluding to Derrida's early essay on Husserl, along with other texts (such as his near book-length introduction to Husserl's *Origin of Geometry*) which are likewise centrally concerned with issues in epistemology and philosophy of science.[56] For those texts stand outcontrary to received 'analytic' opinionas among the most rigorous and searching accounts of the difficulties faced by any attempt, like Husserl's, to reconcile these two ('genetic' and 'structural') approaches while avoiding the twin temptations of naive 'psychologism' on the one hand and empty formalism on the other. When read alongside Derrida's commentary on Bachelard in his essay 'White Mythology' they offer what amounts to a sustained engagement with just those problems that have preoccupied mainstream analytic philosophy of science since the high days of logical empiricism.[57]

I can best make the point by citing a passage from 'Genesis and Structure' which captures the gist of Derrida's argument concerning

the strictly undecidable order of priority between these terms. It seems to me that the passage will bear close scrutiny not only by those who equate deconstruction with a Rorty-style 'textualist' approach but also by those in the analytic camp who consider Husserl to have opened the way to a form of psychologism thinly disguised by his talk of ideality, consciousness-in-general, transcendental (as opposed to empirical) psychology, and the like.

> If Husserl gives up the psychological route when confronted by all the difficulties of accounting for a structure of ideal meaning on the basis of a factual genesis, he no less rejects the logicizing conclusion with which his critics wished to corner him. Whether in the then current Platonic or Kantian style, this logicism was preoccupied above all with the autonomy of logical ideality as concerns all consciousness in general, or all concrete and non-formal consciousness. Husserl, for his part, seeks to *maintain* simultaneously the normative autonomy of logical or mathematical ideality as concerns all factual consciousness, and its original dependence in relation to a subjectivity *in general; in general*, but *concretely*. Thus he

> had to navigate between the Scylla and Charybdis of logicizing structuralism and psychologistic geneticism (even in the subtle and pernicious form of the 'transcendental psychologism' attributed to Kant). He had to open up a new direction of philosophical attention and permit the discovery of a concrete, but nonempirical, intentionaliry, a 'transcendental experience' which would be 'constitutive', that is, like all intentionality, simultaneously productive and revelatory, active and passive. . . . Husserl will attempt to prepare an access to this common radicality through the diverse 'reductions' which are presented initially as neutralizations of psychological genesis and even of every factual genesis in general. The first phase of phenomenology, in its style and its objects, is structuralist, because first and foremost it seeks to stay clear of psychologism and historicism. But it is not genetic description *in general* which is disqualified, but only the genetic description which borrows its schemas from naturalism and causalism, and depends upon a science of 'facts' and therefore on an empiricism; and therefore, concludes Husserl, depends upon a relativism incapable of insuring its own truth; therefore, on a scepticism. The transition to the phenomenological attitude is made necessary, thus, by the impotence or philosophical fragility of geneticism when the latter, by means of a positivism which does not understand itself, believes itself capable of enclosure by a 'science-of-facts', whether this be a natural science or a science of the mind. The expression 'worldly genesis' covers the domain of these sciences. 58

I have quoted Derrida's text at considerable length since it brings together all the main lines of argument developed in the course of this chapter. In brief, they have to do with (1) the relation between deconstruction and phenomenology, (2) that between approaches to philosophy of science in the two ('analytic' and 'continental') traditions, and (3) the problems that result when analytic philosophers attempt to exclude all reference to the activity of thoughtthe conscious, reflective, or critical activityconcomitant with advances in scientific knowledge or episodes of scientific theory change. This is what Derrida calls (following Husserl) a 'positivism which does not

understand itself', one that 'borrows its schemas from naturalism and causalism', thereby becoming a 'science-of-facts' devoid of epistemological content or warrant. So it is that empiricism opens the way to those varieties of sceptical-relativist doctrine that typically arise when philosophy encounters the absolute limit (the in-built resistance to thought) of naive phenomenalist or sense-data theories. After all, as Derrida remarks elsewhere, 'empiricism has always been determined by philosophy, from Plato to Husserl, as *nonphilosophy,* as the philosophical pretention to nonphilosophy, the inability to justify oneself'.[59]

It is not hard to see how this remark might apply to epistemology and philosophy of science in the wake of logical positivism. For when that programme collapsed under the pressure of various sceptical critiques as well as through its own internal contradictionsand when Quine followed up with his famous attack on the two 'last dogmas' of logical empiricismthen the way appeared open to a range of relativist arguments which exploited the sheer inability of any such doctrine to explain or to justify our knowledge

of the growth of scientific knowledge. Some philosophers (Feyerabend chief among them) saw this as a happy deliverance, a liberating break with all those old oppressive notions of scientific truth, method, rational procedure, inference to the best explanation, and so forth. [60] Others againsuch as Quine, Kuhn, Davidson, Rorty (at times), and the later Putnamwent various ways around in attempting to formulate an approach that would hold the line against out-and-out relativism while retaining a commitment to what Derrida calls the 'schemas of naturalism and causalism'.[61] That is, they all took it that the best (indeed the only) way forward for epistemology and philosophy of science was one that treated knowledge as a direct product of our causal interaction with the world, with those objects and events whose impingement on our nerve ends and the rest of our sensory-cognitive apparatus was enough to keep us reliably informed.

Hence Davidson's well-known advice on how to throw out the third (i.e., the residual Quinean) dogma of empiricism and thus block the way to those sceptical worries that resulted from misplaced talk of 'paradigms', 'frameworks', 'conceptual schemes', and the like. 'In giving up the dualism of scheme and world', he writes, 'we do not give up the world, but re-establish unmediated touch with the familiar objects whose antics make our sentences and opinions true or false'.[62] One can find many passages to similar effect in Putnam, Rorty, and indeed (ironically) in Quine himself, all recommending the adoption of a thoroughly naturalised epistemology which is meant to put us directly in touch with reality by cutting out the needless epistemological detour through concepts, categories, schemas, *a priori* intuitions, forms of representation, and suchlike. But this whole line of argument is fatally weakened by its reliance on a crudely empiricist idea of sense-data (or phenomenal experience) as somehow immediately given to the mind through a process of passive

registration where nothing is required save a direct response to incoming sensory stimuli. Thus one need not be a card-carrying Hegelianor even a disciple of Husserlto note how implausible is Davidson's claim that the truth or falsehood of our various sentences (along with their role in our belief systems, commonsense ontologies, scientific theories, etc.) can be just a matter of 'unmediated' contact between our nerve ends and whatever impinges on them from one moment to the next.

With Quine this leads straight on to the doctrine of ontological relativity since there is nothing in the nature of those bare sensory 'stimuli' that could possibly impose any limit on the range of stimulus-compatible schemes, frameworks, or theories. Logical considerations might narrow it down to some extent; for example, by discounting conflictual hypotheses or theories entailing some clear violation of bivalence or excluded middle. Yet of course Quine also makes the case, in 'Two Dogmas of Empiricism', that these putative ground rules of logic or 'truths of reason' are themselves always open to

pragmatic adjustment under pressure from conflicting evidence, thus once again opening the way to full-scale ontological relativity. In Rorty, as we have seen, the causal theory of belief acquisition goes along with a yet more extreme variety of cultural-relativist thinking, that is, the notion that sensory 'data' do *nothing whatsoever* to fix or to guide the various interpretations that may be placed on them according to this or that theory, language-game, or currently acceptable (scientific or other) communal form of life. And in late Putnam the idea of 'internal realism'internal to this or that frame of referenceseems scarcely more promising, a Kantianism minus the transcendental subject (but still giving rise to all the problems of scheme/content dualism pointed out by Davidson), and a relativism that dare not speak its name but which lies open to the standard counterarguments rehearsed by philosophers from Plato down. [63]

My point about these various dilemmas in the wake of logical empiricism is that they all take rise from what Derrida discernsin the long passage on Husserl cited aboveas the *inevitable* upshot of a positivist 'science of facts' that rejects any form of phenomenological or epistemo-critical enquiry. When he remarks that this approach 'borrows its schemas from naturalism and causalism', the comment applies with particular force to attemptssuch as those of Quine, Davidson, Putnam, and Rortyto overcome the problems of logical empiricism by simply cutting out all that otiose talk of 'truth', 'correspondence', conceptual adequacy, and so on, and adopting a straightforward physicalist theory of 'unmediated' stimulus-response. However, this solves none of the problems, as can be seen most clearly from their various periodic changes of mind (or, in Rorty's case, his nimble balancing act) concerning the realist/antirealist debate and the associated issue of framework-relativism.[64] What leaves them in a quandary on both countsand thus gives Rorty his tactical room for

manoeuvreis the narrowing of epistemological sights to a point where only sense-data (or 'stimuli') possess direct veridical warrant, and where everything else (from observation-statements all the way up to high-level theories) must therefore be regarded as framework-relative products of interpretation.

This upshot is manifest in Quine's 'Two Dogmas' and alsowhatever his claim to have transcended such old 'metaphysical' habits of thoughtin Putnam's pragmatist recasting of Kantian themes under the name of 'internal realism'.[65] It emerges most poignantly is in certain passages of Kuhn's *The Structure of Scientific Revolutions,* most of them occurring in the 1969 secondedition postscript but some of them to be found in the original (1961) text. What they reveal is Kuhn's distinct unease with the Quinean (physicalist) theory of belief acquisition and also, closely related to that, his sense that there might be something quite wrong with his (i.e., Kuhn's) line of argument concerning such topics as paradigm change, radical meaning-variance, the

theory-laden character of observation-statements, the underdetermination of theories by evidence, and the idea that scientists somehow quite literally 'live in different worlds' from one paradigm to another. Thus, for instance:

> Is sensory experience fixed and neutral? Are theories simply man-made interpretations of given data? The epistemological viewpoint that has most often guided Western philosophy for three centuries dictates an immediate and unequivocal, Yes! In the absence of a developed alternative, I find it impossible to relinquish entirely that viewpoint. Yet it no longer functions effectively, and the attempts to make it do so through the introduction of a neutral language of observation now seem to me hopeless. 66

Compare this with the passage from Derrida on Husserl, cited above, and you will gain some sense of the extraordinary narrowness of historical and intellectual vision that led Kuhn to his doleful conclusion *vis-à-vis* the prospects for philosophy of science at the time. That vision is confined to just one major line of descent (broadly speaking, from Hume to his modern 'analytic' progeny) and, moreover, to just the kinds of problem thrown up by movements in the wake of logical positivism. Thus Kuhn's way of stating the issueas a matter of imposing 'man-made' theories or interpretations on 'fixed and neutral' sense-datawould appear remarkably crude to anyone possessing a knowledge of developments in the other main tradition of philosophic thought running from Kant to Husserl. He or she would also most likely want to challenge Kuhn's claim that this has been the 'epistemological viewpoint' that has guided Western thought on such topics for the past three centuries, one which leaves no room for any 'developed alternative' despite the hopelessness (as Kuhn sees it) of all attempts to establish a neutral observation-language. For there do exist other, highly developed alternativessome of which I have discussed in the course of this chapterthat avoid the predicament so plaintively evoked in the above passage from Kuhn. That is, they follow Husserl

in rejecting the positivist idea of knowledge as a product of raw 'sense-data' which are then somehow linked up with concepts (hypotheses, theories, covering-law statements) through a process of so-called rational reconstruction that bears no relation to the processes of thought by which scientific discoveries actually come about.

This approach was carried on by the logical empiricists who introduced a whole range of further distinctionsfor example, that between first-order (material) and higher-level formalised languages, enshrined in the Carnapian doctrine of semantic ascentwith a view to expounding the structure and logic of scientific theories quite apart from the everyday details of scientific practice.[67] But when that doctrine collapsed under sceptical pressure (especially from Quine's 'Two Dogmas') the way appeared open, via meaningholism, to various proposalsKuhn's among themfor relativizing truth to this or that framework of in-place consensus beliefs. Hence his two rhetorical

questions ('Is sensory experience fixed and neutral? Are theories simply manmade interpretations of given data?'), questions that Kuhn clearly regards as inviting a negative response but which he still feels driven to ask for want of any viable alternative approach. However, they will seem less pressingor at any rate not so far beyond hope of an answerif one looks outside the restrictive purview of debates within the analytic tradition, at least as standardly defined. For it will then become apparent that there exists a large body of work, some of it inspired by Husserl or Bachelard, that has engaged these issues at a high level of conceptual rigour and analytical precision while avoiding the various drastic dichotomies bequeathed by logical empiricism. Chief among these is the dichotomy imposed by its account of what constitutes a basic observation-sentence (grounded in empirical 'sense-data') and a properly formulated scientific theory (i.e., one constructed out of just such data through deductively valid or inductively warranted procedures of reasoning on the evidence). It is just this sharply disjunctive view of the relation between evidence and theoryalong with the consequent reactive slide into various forms of positivism, naturalism, scepticism, and relativismthat Husserl diagnosed as a 'crisis' besetting both the physical sciences and the very project of enlightened critical thought. [68]

Thus the great task for Husserl, in Derrida's words, was 'to open up a new direction . . . [to] permit the discovery of a concrete, but nonempirical, intentionality, a "transcendental experience" which would be "constitutive", that is, like all intentionality, simultaneously productive and revelatory, active and passive'.[69] By so doing it should yet be possible to reverse the tide of rampant unreflective positivism in the natural sciences and also the backwash that, according to Husserl, had produced the contemporary flight to a range of post-Nietzschean irrationalist philosophies. This task was by its very nature

interminable, Derrida thinks, since it involved certain deep-laid antinomies (structure/genesis, concept/intuition, 'active' and 'productive' *versus* 'passive' or 'revelatory' modes of understanding) which would always at the limit defeat any attempt to reconcile their various conflicting claims. Hence also the vital distinction (as Husserl described it) between *exactitude* and *rigour* as aims characteristic of different sciences at different stages or depths of phenomenological enquiry. Thus:

> an eidetic descriptive science, such as phenomenology, may be rigorous, but it is necessarily inexactI would rather say 'anexact'duc to no failure on its part. Exactitude is always a product derived from an operation of 'idealization' and 'transition to the limit' which can only concern an abstract moment, an *abstract* eidetic element (spatiality, for example) of a thing materially determined as an objective body, setting aside, precisely, the other eidetic elements of a body in general. This is why geometry is a 'material' and 'abstract' science. It follows that a 'geometry of experience', a 'mathematics of phenomena' is impossible: this is an 'attempt doomed to miscarry'. This means in particular, for what concerns us here,

> that the essences of consciousness, and therefore the essences of 'phenomena' in general, cannot belong to a structure or 'multiplicity' of the mathematical type. Now what is it that characterizes such a multiplicity for Husserl, and at this time? In a word, the possibility of *closure* . . . What Husserl seeks to underline by means of this comparison between an exact and a morphological science, and what we must retain here, is the principled, essential, and structural impossibility of closing a structural phenomenology. 70

So there is no question of finally resolving these issues in the philosophy of mathematics, geometry, and the physical sciences, a point that Derrida himself underlines by reference to Gödel's Incompleteness Theorem and other related developments concerning the limits of computable or axiomatic proof-procedures. But there is also no question of relapsing into the kind of naive positivist attitude that would treat such issues either as belonging to a realm of abstract mathematical concern beyond its own empirical remit orinsofar as they involve talk of Husserlian 'essences', structures of consciousness, or 'eidetic descriptions'as merely a species of misguided psychologism. For this doctrine goes so far in its rejection of 'metaphysical' talk that it effectively debars any genuine engagement with the processes of thought that accomplished those breaks with natural (commonsense-intuitive) understanding or received scientific ideas.

Even when it first appeared during the 1920s logical positivism was philosophically regressive and oddly out of touch with recent scientific developments. These included the emergence of quantum mechanics with its sizable challengeon whatever construalto the positivist conception of knowledge as acquired through a passive registration of sensory data that could then be cast in propositional form and brought under some suitable set of generalised covering-law statements.[71] Small wonder that Kuhn was at a loss as to how this

theoryin its later, logical-empiricist guisecould possibly provide an adequate basis for explaining the structure of scientific revolutions. Indeed, his whole approach to that topic is perhaps best viewed as the result of Kuhn's disillusionment with the programme of logical empiricism, along with his failure to conceive or envisage any viable alternative account. Thus the 'structure' that Kuhn rather vaguely refers to is one that seems to exist in an abstract realm quite apart from the particular featuresthe tensions, resistances, conflicts of allegiance, struggles to reconcile theory and observationwhich have marked periods of looming transition or prerevolutionary ferment. It is not so much that Kuhn ignores these factors (in a sense, his book is about little else), but rather that he treats them from a viewpoint that excludes all concern with the processes of thoughtat whatever conscious, unconcious, or preconscious levelthrough which they emerged as an obstacle or challenge to existing scientific beliefs.

In this respect, ironically enough, Kuhn's approach gives rise to something

very like the old logical-empiricist split between history and philosophy of science, or what actually went on in the 'context of discovery' (including the false starts, failed experiments, anomalous data, ambiguous observations, dubious conjectures, and other such messy details) and what should go on in the 'context of justification' when philosophers seek to rationally reconstruct the logic of scientific enquiry. [72] Of course Kuhn rejects this distinction in principle since he sees it as upholding the notion of science as a steady progress from stage to stage in the advancement of scientific knowledge. That notion has to go, he thinks, when we acknowledge the incommensurability of paradigms and the amount of semantic gerrymandering that has to occur before we can presume to rank different theories on a common evaluative scale, or claim to know more (compared with our scientific forebears) about historically shifting concepts such as 'mass', 'gravity', 'motion', 'space', 'time', and so forth. All the same, he still adopts an externalist approach that treats these issues, so to speak, from outside and above. That is, he assumes that they can make sense only from the standpoint of a present-day narrative account which relates various episodes in the history of science without judging their truth-content and without the kind of detailed enquiring-back into their epistemological conditions of emergence that would offer grounds for contrasting them in point of descriptive accuracy, explanatory power, or theoretical refinement. In other words, Kuhn rejects one kind of metahistorical perspectivethat which treats science as an onward and upward march toward standards of truth prescriptively defined by its own evaluative criteriaonly to espouse another such perspective according to which past and present theories must always be treated as relative to (or constructed by) this or that range of paradigm-specific beliefs. This approach may claim the liberal virtueas with the strong sociologistsof *not* rewriting the entire history of science to date in accordance with our own present notions of truth, rationality, and

method.[73] But in fact it operates on a kind of reverse-discrimination principle, discounting a whole range of past scientific achievements (and the often strenuous activity of thought which led up to them) as possessing no distinctive claim to validity or truth.

This results from Kuhn's highly generalised idea of what constitutes the 'structure' of scientific revolutions, that is to say, his habit of abstracting away from the particular intellectual contexts in which such revolutions occurred and the particular kinds of conceptual, theoretical, or epistemo-critical advance which brought them about. With the phrase 'epistemo-critical' I am once again referring to Bachelard's project of *rationalisme appliqué*, an outline of which I have sketched already, and which offers, I would argue, a promising way forward from the dilemmas of both logical empiricism and Kuhnian paradigm-relativism. More specifically, it shows how the process of scientific theory change can be treated from a standpoint that takes due account of the thinking that produced such changes, but which nonetheless avoids any naive

(philosophically and scientifically retrograde) appeal to *a priori* concepts, primordial intuitions, privileged epistemic access, or whatever. It is just this possibility that Derrida holds out in his reading of Husserl as constantly engaged in a strenuous attempt to navigate between the twin polesthe 'Scylla and Charybdis'of 'logicizing structuralism and psychologistic geneticism'. [74] It is also what Derrida finds most revealing in Husserl's text on 'The Origin of Geometry' where he raises the question: how is it possible that an axiomatic-deductive science, one supposedly grounded in truths self-evident to reason, should yet have developed through various stages of historically datable discovery, from Euclid down to the emergence of alternative (nonEuclidean) geometries?[75] In the end Husserl cannot answer this question, caught up as he ison Derrida's accountin a constant shuttling exchange of priorities between the rival claims of 'structure' and 'genesis'. On the one hand, 'it is always something like an *opening* which will frustrate the structuralist project. What I can never understand, in a structure, is that by means of which it is not closed'.[76] On the other hand, any too pronounced swing toward the opposite ('geneticist') pole will always run the risk of falling into a naive psychologism which fails to explain how sciences such as geometry, arithmetic, or physics could ever have accomplished a decisive break with intuition-based or *a priori* conceptions of space, time, and number.

In Husserl this aporia takes the form of an alternating rhythm, a constant switching of priorities, such that these two projects of thought (roughly speaking, 'structuralism' and 'genetic phenomenology') coexist in a kind of tense but revealing mutual interrogative exchange. In Derrida, it is taken up and developed to a point where those tensions are yet more visible but where they are seen as a *strictly inevitable outcome* of critical enquiry into the

structure and genesis of scientific truth-claims. Here again there is a pointed, by no means merely offhand or casual relevance when Derrida refers to the 'difficulties' posed for Husserl's philosophy by 'certain later developments of axiomatics and by Gödel's discoveries'.[77] What is in question is not some vaguely generalised notion of 'undecidability' that would take Gödel's theorem as a pretext for suspending all notions of objective truth, all criteria of right reason or standards of valid argument. Rather, it concerns the surprising fact that every formal systemfor example, that of arithmeticcontains certain strictly undecidable propositions, axioms whose truth is a matter of stipulative warrant but which cannot be proven within the system. As Roger Penrose states it: 'no formal system of sound mathematical rules of proof can ever suffice, even in principle, to establish all the true propositions of ordinary arithmetic'.[78]

In this case it might be supposed that there exist any number of different arithmetics, each of them equally valid by its own formal criteria, since none of them can be *both* consistent *and* complete. However, this is to mistake the import of Gödel's Theorem, according to which mathematical

truththe truth of that theorem includedis 'something absolute, there to be discovered, rather than invented'. [79] In other words, the very fact that mathematical reasoning can establish the incompleteness of its own formal proof-procedures is itself evidence that we possess other sources of knowledge, sources that exceed any possible power of computation or demonstrative proof. What the theorem tells us, Penrose suggests,

> can be viewed in a much more positive light, namely that the insights that are available to human mathematiciansindeed, to anyone who can think logically with understanding and imaginationlie beyond anything that can be formalized as a set of rules. Rules can sometimes be a partial substitute for understanding, but they can never replace it entirely.80

In making this case Penrose has his eye on the wider implications of Gödel's theorem, especially as applied to issues in the field of artificial intelligence, where it suggestsin line with the central thesis of his bookthat no computer could ever be programmed to achieve such creative-intuitive insights. However, the main point here is that he shows very plainly why the theorem *cannot* be construed as somehow 'proving' that arithmetic is an arbitrary construct, that mathematical truths are purely conventional, that there exist any number of possible ways of performing some given calculation, continuing some sequence of natural numbers, or whatever. On the contrary, according to Penrose, 'it is within mathematics that we find the clearest evidence that there must actually be something in our conscious thought processes that eludes computation'.[81] For otherwise there could be no explaining how Gödel arrived at his (on the face of it) highly counterintuitive result.

What the theorem thus demonstrates is the existence of truthsits own includedwhich are there to be discovered (not invented) but which lie beyond the reach of any rule-governed, algorithmic, or computable

process of thought. It is worth remarking, though Penrose doesn't make the point, that this issue about 'following a rule' (what counts as a rule? which of all the various conceivable rules that might apply in this or that case? how to place a limit on the regress from rules to rules-for-the-application-of-those-rules? etc.) is one that has been raised and most often pushed in a sceptical direction by various philosophers after Wittgenstein.[82] Indeed, it is one source of that drift toward forms of cultural-relativist thinking which has been such a prominent feature of recent 'continental' and 'postanalytic' philosophy alike.[83] So there is a further significance to Penrose's argument concerning the correct interpretation of Gödel's Incompleteness Theorem. What that argument shows, in brief, is that problems with the notion of 'following a rule'whether genuine or spurious problemsare in any case strictly beside the point when it comes to instances of reasoning (such as Gödel's proof) which pass beyond the limits of computable or rule-governed calculative thought. Thus 'no such system of rules can ever be sufficient to prove even those propo-

sitions of arithmetic whose truth is accessible, in principle, to human intuition and insightwhence human intuition and insight cannot be reduced to any set of rules'. [84]

On the standard construal of this problem from Wittgenstein the only resort is to a 'sceptical solution' (Kripke's phrase) which restates the problem in a slightly sharpened form and then proposes that we set it aside by appealing to shared practises or communal procedures within which those rules just *are* the way we do things as a matter of received (e.g., mathematical) convention. But of course this 'solution' solves precisely nothing if one asks (like Wittgenstein) what ultimate justification there could be for claiming that someone who said '2 + 2 = 5', or who continued the number series '2, 4, 6' with the sequence '11, 16, 29', was in some fairly obvious way failing to grasp the arithmetical point. It seems to me that this is just a pseudoproblem produced by the standard Wittgensteinian move of rejecting all truth- or validity-claims except those sanctioned by the fact of their playing a role in some given 'language-game' or cultural 'form of life'. Nevertheless, there is further support to be had from Gödel's theorem as Pen rose interprets it, namely, his argument that reasoning cannot be entirely rule-governed since we have access to a wide range of truths (in mathematics and elsewhere) which exceed the bounds of computability.

However, the chief point I wish to make is that Derrida's usage of 'undecidability'in his reading of Husserl and elsewhereis concordant with this understanding of the term and not with the kind of loose deployment to be found in some adepts of literary deconstruction, and likewise in the notion of 'postmodern' science entertained by thinkers such as Jean-François Lyotard.[85] On this interpretation it amounts to no more than a catch-all substitute for other ideas'uncertainty', 'chaos', 'paralogism', quantum nonlocality, the wave/particle dualism, or the

limits of precise measurement, to take just a few from Lyotardall of which supposedly signal the end of science as a rational, truth-seeking enterprise. For Derrida, conversely, the reference to Gödel occurs more than once at a specific juncture in his argument where the undecidability is that which results from a conflict between two *strictly indispensable but strictly incompatible* logics of enquiry.[86] In Husserl's case this conflict has to do with the issue of priority between genesis and structure, an issue that Derrida is unable to resolve (any more than could Husserl) but which he presses to the point where it reveals just why there should exist this deep-laid tension in the project of transcendental phenomenology. Moreover, it is a tension that will always emergeso Derrida argueswhen philosophy reflects on the conditions of possibility for scientific knowledge in general and on the various stages of historical development that have marked its progress to date. For the logical empiricists these were to be treated as two quite separate disciplines, the latter concerned with history of science and the so-called context of discovery, while the former pursued the more important task of

reconstructing and testing scientific theories with benefit of rational hindsight, or with respect to their success or failure as measured by standards properly pertaining to the 'context of justification'. As I have said, this dichotomy persists in the work of thinkers like Kuhn, those who reject the logical-empiricist programme but who still deploy the term 'structure' in a generalised sense that scarcely makes contact with the detailed processes of paradigm change or the particular conflicts of theory and evidence that bring such changes about. The result is on the one hand to empty that term of all genuine descriptive-explanatory content and on the other to leave an opening for just the kind of wholesale relativist approach (exemplified by the strong sociology of knowledge) that equates 'truth' with whatever holds good for some *de facto*, empirically determined community of belief.

Derrida's main concern in his work on Husserl is with the tension between structuralism and phenomenology, each being construed (as I have said) in a sense that goes beyond their normal application to recent European movements of thought. If 'a certain structuralism has always been philosophy's most spontaneous gesture', [87] then equally it is the case that a certain phenomenology has always asserted its claim whenever thinking has turned toward questions regarding the history and genesis of the various sciences. In the context of Derrida's early (pre-1970) work this issue was chiefly engaged by French phenomenology in the wake of Husserl and the emergent structuralist 'sciences of man' which defined themselves squarely against that previous, subject-centred or 'humanist' approach to questions of truth, meaning, and interpretation. These latter of course took their bearings from Saussurean structural linguistics and proposed to extend that pilot science to a whole range of other disciplines, among them anthropology (Lévi-Strauss), narratology (Greimas, Todorov, early Barthes), poetics (Jakobson), psychoanalysis (Lacan), history of ideas

(Foucault), and political theory (Althusser).[88] What they all had in common was a fierce repudiation of the earlier phenomenological paradigm which accorded priority to the human subject as a locus of thoughts, meanings, expressive intentions, or acts of will that by their very nature exceeded the grasp of any purely structural account. For some thinkers, mainly in the structuralist camp, this conflict of interpretations was such as to allow no possible compromise or *via media* between the two approaches. For others (Ricoeur and Merleau-Ponty among them) it required a patient and meticulous thinking-through of the various philosophical problems that arose in attempting to reconcile their different claims.[89] Where Derrida pursues a distinctive path is in showing that this tension between 'genesis' and 'structure' is one that *in principle* can never be resolved but which nonetheless opens onto questions of the profoundest import for epistemology, philosophy of science, and the humanistic disciplines. That is to say, those questions will simply not emerge if one adopts *either* a purebred phenomenological ap-

proach which denies the constitutive role of pregiven 'structures' or concepts, *or* (conversely) a thoroughgoing structuralist approach that ignores the extent to which thought and language may exceed and transform those preexisting structures or concepts.

Thus it is important to recognisedespite and against one common misreading of his workthat when Derrida 'deconstructs' the discourse of Husserlian phenomenology he does so not in order to discredit its claims but in order to demonstrate the 'absolute and principled necessity' of carrying that project forward in accordance with its own self-critical precepts. The following passage makes this case with particular clarity and force. 'All these [i.e., Husserl's] formulations have been possible', Derrida writes,

> thanks to the initial distinction between different and irreducible types of genesis and structure: worldly genesis and transcendental genesis, empirical structure, eidetic structure, and transcendental structure. To ask oneself the following historico-semantic question: 'What does the notion of genesis *in general,* on whose basis the Husserlian diffraction could come forth and be understood, mean, and what has it always meant? What does the notion of structure *in general,* on whose basis Husserl *operates* and operates distinctions between empirical, eidetic, and transcendental dimensions mean, and what has it always meant throughout its displacements? And what is the historico-semantic relationship between genesis and structure *in general?*' is not only to ask a prior linguistic question. It is to ask the question about the unity of the historical ground on whose basis a transcendental reduction is possible and is motivated by itself. It is to ask the question about the unity of the world from which transcendental freedom releases itself, in order to make the origin of this unity appear. 90

There is much that could be said by way of unpacking this densely argued passage, but I must here content myself with a brief commentary. First, it brings out the sheer distance that separates

Derrida's approach to these issues from the 'structuralist' approach manifested in works such as Foucault's *Les mots et les choses*.[91] I choose this particular text for comparisonand with a backward glance to what I said about Kuhn several paragraphs abovebecause it shows very clearly how 'a certain structuralism' affects the very project of historical enquiry into the various forms, stages, and developments of scientific knowledge to date. That Foucault rejected the 'structuralist' tag as applied to his own work is I think more a case of strategic track-covering than a genuine or deep-laid difference of approach. For there are two chief features of *Les mots et les choses* (and other works of that period) which lend themselves to precisely that description. These are (1) his resolute assault on all notions of the subject, whether the Cartesian 'subject-presumed-to-know' or again, more specifically, the transcendental subject as theorised by philosophers from Kant to Husserl; and (2) his idea that all claims to knowledge or truth must be seen as products of a certain 'structural *a priori*', one that has nothing whatever to do with any (pseudo)transcendental mode of argument

but which conforms to the dominant order of discourse at any given time and hence undergoes a more or less drastic mutation with every change in that order. [92] No doubt Foucault pushes both arguments much further in a sceptical-relativist direction than would be acceptable to Kuhn or like-minded thinkers in the Anglo-American camp. What they do have in common is a notion of 'structure' that is so devoid of epistemological contentso far detached from the kinds of thought-process involved in particular instances of scientific theory changethat there seems no choice but to give up seeking to explain such episodes and to treat them rather as periodic shifts in the prevailing paradigm or the dominant discursive 'order of things'. In which case there quickly ensue all the well-known problems of meaningvariance and paradigm incommensurability, problems that Kuhn (to his credit) perceived more clearly than Foucault but to which he could provideas I have argued elsewhereno more convincing an answer?[93]

It is in response to questions such as these that Derrida insists on the continuing necessity of thinking through the genesis/structure relationship as raised to a high point of critical consciousness in Husserl's writings. The various distinctions that he draws from Husserl in the above-cited passage ('worldly genesis' and 'transcendental genesis', 'empirical structure', 'eidetic structure', 'transcendental structure', etc.) are unlikely to carry much weight with philosophers in the Anglo-American tradition. However, I would suggest, it is chiefly for want of such epistemo-critical resources that this tradition gave rise to a doctrinelogical empiricismwhose perceived shortcomings have opened the way to Quinean, Kuhnian, and other varieties of scepticalrelativist thinking. That is to say, it engendered a series of well-known problems that were strictly insoluble on its own terms, among them problems concerning the

relation between theory and evidence, the status of empirical or observation data, the validity of generalised (covering-law) statements, and the question as to what should count as scientific progress given the lack of any sure criterion for evaluating theories in point of observational accuracy or conceptual-explanatory power. So it was that Quine could propound his sceptical thesesontological relativity, the underdetermination of theory by evidence, the theory-laden character of observation-statementsas a consequence of just these perceived failings in the logical-empiricist programme. From here it was but a short step to those varieties of full-fledged relativist doctrine (such as the 'strong programme' in sociology of knowledge) that likewise trade on the radical divorce between logicist conceptions of scientific method devoted exclusively to the context of justification, and empirical enquiries into the history of science that expressly reject all normative criteria of truth, reason, and progress. For the latter can perhaps best be seen as a reactive movement of thought, one that embraces the authority of the social (rather than the physical) sciences, and which does so precisely in a gesture of revolt against the narrownessthe lack of any genuine historical

dimensionthat typifies the dominant analytic approach in its rational-reconstructive mode. [94] However, the strong sociologists, like Kuhn before them, can be seen as reverting to just the kind of uncritical positivist outlook that comes of relying on the sheer self-evidence of sociohistorical or factual-documentary data. In short, their approach is still dictated by a version of the logical-empiricist dichotomy, one that rejects the logicist horn of this particular dilemma while scarcely questioning the methods applied and the results turned up by empirical research in the social sciences.

I should not wish to claim that these problems receive a definitive answer in the broadly 'continental' (post-Kantian) tradition of thought that is represented on the one hand by Husserlian phenomenology and on the other by that form of epistemo-critical *rationalisme appliqué* developed by thinkers such as Bachelard. Indeed, it is a chief point of Derrida's argument that these issues (e.g., that of 'genesis' and 'structure' or the relation between metaphor and concept in the discourse of science and philosophy) cannot be resolved but must always be addressed over again with each new stage in the history of thought. However, this is *not* to embrace some kind of irrationalist doctrine, any more than Penrose adopts such a view when he takes it (on the evidence of Gödel's Incompleteness Theorem) that there exist mathematical truths and powers of human insight 'beyond formal argument and beyond computable procedures'.[95] Derrida is coming at the same issuealbeit from a different philosophical anglewhen he remarks that 'it is always something like an *opening* that will frustrate the structuralist project'; moreover, that 'what I can never understand, in a structure, is that by means of which it is not closed'. And again, citing some passages from Husserl's *Cartesian Meditations:*

> [t]he results of phenomenology are 'metaphysical, if it be true that ultimate cognitions of being should be called metaphysical. On the other hand,

> what we have here is anything but metaphysics, in the customary sense with which metaphysics, as "first philosophy", was instituted originally'. 'Phenomenology indeed excludes every naive metaphysics . . . but does not exclude metaphysics as such'. For within the most universal *eidos* of mental historicity, the conversion of philosophy into phenomenology would be the final degree of differentiation (stage, that is *Stufe,* structural level or genetic stage).96

Clearly this passage takes aim against the use of 'metaphysics' (or 'metaphysical') as a routine term of abuse, one that has often been applied by analytic philosophers to signify the kind of meaningless talk that they think typical of work in the 'other' (post-Kantian continental) tradition.[97] For it is precisely that undifferentiating usagethe failure to distinguish 'naive' metaphysics from 'metaphysics as such'that characterised the discourse of logical positivism and also (in many cases) the thinking of its logical-empiricist heirs and successors. As a result, Anglo-American philosophy entered upon a period of

self-imposed isolation from developments that might have pointed a way beyond some of its more intractable dilemmas.

Now at last there are signsfor instance, in the recent work of Michael Dummettthat analytic philosophers are coming to question this received view, especially as concerns the orthodox charge (handed down by Frege and Ryle) that Husserl's project was really just a form of naive psychologism decked out in spurious 'transcendental' colours.[98] Also, there is a growing recognition that philosophy of science in the broadly analytic mode may yet have something of importance to learn from the critical-rationalist approach of thinkers such as Bachelard and his student Georges Canguilhem.[99] Perhaps the next stage in this process will be a reading of Derrida's early texts that acknowledges both their analytic power and their bearing on issues, such as those discussed here, that have been either ignored or inadequately treated by philosophers in the mainstream Anglo-American line of descent. In chapters 3, 4, and 5 I shall offer some further suggestions as to what such a reading might entail. Meanwhilein chapter 2I examine a number of recent analytic (or 'post-analytic') developments that have prompted this awareness of the need to engage with alternative modes of thought.

2
Treading Water in Neurath's Ship: Quine, Davidson, Rorty

Quine: Reductive Physicalism

For Quine, famously, philosophy of science is all the philosophy we need. What he means by 'philosophy of science' is basically a strong reductionist programme for shedding all that surplus metaphysical baggage that went along with previous approaches to issues of knowledge and truth. [1] Epistemology can be naturalisedrendered properly scientificby cutting out vague mentalist talk of 'ideas', 'beliefs', 'concepts', 'meanings', or 'propositional attitudes', and replacing it with hard-headed physicalist talk of assenting or dissenting dispositions. 'My position is a naturalistic one', he writes. That is to say:

> I see philosophy not as an *a priori* propaedeutic or groundwork for science, but as continuous with science. I see philosophy and science as in the same boata boat which, to revert to Neurath's figure . . . , we can rebuild only at sea while staying afloat in it. There is no external vantage point, no first philosophy.2

Epistemology must therefore take a lead from behavioral psychology which in turn takes its methods and investigative bearings from the natural sciences. Of course epistemologists have typically supposed themselves to deal in issues of knowledge and truth beyond any such merely psychological or naturalistic methods of enquiry. For Quine, however, this is just an old-style delusion of philosophic grandeur which should henceforth be abandoned along with the residual 'dogmas' (i.e., the lingering metaphysical commitments) of logical

empiricism.[3]

Philosophy of language falls into line by likewise rejecting all mentalist predicates, eschewing any notion of privileged access to meanings or intentions, and adopting a stimulus-response theory of verbal behaviour. This despite the problems that arise from Quine's equally well-known thesis of ontological relativity, namely, his case that there is room for doubt with regard to even the most apparently straightforward items of verbal behaviour, as for instance when the native informant points toward a rabbit and pronounces

the word 'Gavagai!'. [4] There is an interesting passage from *Word and Object* where Quine actually links this problem about the indeterminacy of translation with Brentano's thesis concerning the irreducibility of intentional idioms. One may accept that thesis, he writes, 'either as showing the indispensability of intentional idioms and the importance of an autonomous science of intention or as showing the baselessness of intentional idioms and the emptiness of the science of intention. My attitude, unlike Brentano's, is the second'.[5] In this respect Quine follows the dominant line among Anglo-American analytic philosophers for whom the issue was pretty much settled when Frege took Brentano's student Husserl to task for allowing his logic to be contaminated by elements of so-called psychologism.[6] On this view there is no genuine distinctionleast of all a transcendentally valid distinction such as Husserl sought to upholdbetween matters of empirical psychology and matters of apodictic warrant.[7]

Still, there is the question as to whether this charge was justified or whether Husserl's logical researches might possess a claim to genuine analytic rigour, despite being couched in the intentionalist idiom foresworn by Frege's heirs and disciples.[8] Just recently some analytical philosophers, Michael Dummett among them, have suggested that perhaps the lines of demarcation are not so clearly drawn, even ifas in Dummett's qualified revisionist accountit is most often Frege (not Husserl) who predictably has the last word in matters of logical truth and accountability.[9] Moreover, this leads to the issue of just how farand with what philosophical warrantone can rule out intentional (or intensional) predicates and contexts in seeking to explicate the structure and content of truth. For there is, I shall argue, a case to be made that the self-denying ordinance of Quinean physicalism is such as to foreclose any adequate account of what is

involved in even the most basic forms of perceptual, cognitive, epistemic, and linguistic-communicative grasp. That is to say, intentionality is indeed 'irreducible' in the sense that Brentano (and Husserl after him) maintained, rather thanas Quine would have itjust a remnant of our old psychologistic or prescientific modes of thought. On the contrary: Quine's reductionist physicalism is just what leads to such hyperinduced problems as that of 'radical translation' between different conceptual schemes or of deciding just which among the range of possible objects (rabbit? spatiotemporal rabbit slice? undetached rabbit part?) corresponds to some item of observed linguistic behaviour. In short, this approach makes no allowance for two main sources of shared and communicable knowledge. Thus (1) such knowledge presupposes the existence of a real-world object-domain containing manifold distinctive items along with their characteristic attributes, property clusters, natural-kind resemblances, causal dispositions, genotypal features, molecular or subatomic structures, and so on. And (2) we are able to identify those objects reliably enoughat least in the majority of

casesthrough a process of ongoing causal interaction with them and also through the further understanding that is typically acquired in various (everyday or specialised) contexts of enquiry. [10]

With respect to (1), Quine regards such claims as acceptable on pragmatist groundsthat is, insofar as they play some role in our present-best scientific theoriesbut sees no reason (convenience aside) for supposing them to capture anything more in the way of reality or truth. With respect to (2), he acknowledges the causal component in belief acquisition but treats it in purely physicalist termsas a matter of reflex responses to incoming stimuliand thereby effectively blocks the appeal to those deeper knowledge-constitutive features that emerge in our ongoing epistemic commerce with the world. Moreover, Quine has little choice but to adopt this approach given both his strict veto on 'intentionalist' talk (which would apply to any save a fully naturalised or hard-line physicalist epistemology) and of course his doctrine of wholesale ontological relativity (which rules out the prospect of our ever getting things right except with reference to the scheme-relative criteria of thinghood and rightness that happen to obtain within our own present-day scientific culture). Thus '[o]ur talk of external things, our very notion of things, is just a conceptual apparatus that helps us to foresee and control the triggering of our sensory receptors in the light of previous triggerings of our sensory receptors'.[11] Howeveras I have argued at length elsewherethis offers no adequate means of addressing those well-known problems (of ontological relativity, the nature of scientific paradigm shifts, the under-determination of theory by evidence, or the theory-laden character of observation-statements) that arise in consequence of Quine's physicalist-behaviorist approach.[12] That is to say, he pushes so far with the case for a naturalised epistemology that it leaves no room for any treatment of issues that must surely be central to

philosophy of science andno lessto related work in philosophy of mind and language. These include the basic question as to just how farand on what rational groundswe can claim to understand other people's meanings and intentions, or can make sense of scientific world-views (paradigms, theories, conceptual schemes, etc.) other than our own.

On Quine's account we have no choice in the matter since a behaviorist approach is the only viable option once we have taken his point about the perils in store for anyone who rashly has recourse to intentional or other such 'mentalist' idioms and predicates. Thus '[w]e depend strictly on overt behavior. . . . As long as our command of language fits all external checkpoints, where our utterance or our reaction to someone's utterance can be appraised in the light of some shared situation, so long all is well'.[13] But if this were the case then we could never make a start in construing other people's utterances, in understanding what led them to adopt (or to reject) some particular item of belief, or againas concerns philosophy and history of sciencein re-

constructing the various interrelated thought-processes (theoretical, observational, hypothetico-deductive, etc.) which produced some particular paradigm change. For, in Quine's view, these are just the sorts of issue that we should have left behind with the passage to a naturalised epistemology, one that is 'continuous with science' in the sense of rejecting all normative constraints on the conduct of enquiry other than those with a direct grounding in the methods of behavioral (stimulus-response) psychology.

In philosophy of logic also, Quine puts the case that we need nothing more than the quantified first-order predicate calculus joined to a strictly extensionalist semantics. In short '[t]o be is to be the value of a variable. There are no ultimate philosophical problems concerning terms and their reference, but only concerning variables and their values; and there are no ultimate philosophical problems concerning existence except insofar as existence is expressed by the quantifier ($x)'. [14] For we shall otherwise run into all sorts of trouble with the axiom of substitutability *salva veritate* for referentially synonymous terms in 'opaque' or belief-related contexts, that is to say, with the fact that there is no necessary truth-functional equivalence between pairs of sentences such as 'Mary believes that Cicero denounced Catiline' and 'Mary believes that Tully denounced Catiline' ('Cicero' and 'Tully' being different designations for the selfsame historical person).[15] This problem crops up if she should happen not to know that both names have an identical referent, so that one sentence is a true description of what Mary believes while the other is either false or lacking a determinate truth-value. In which case, he advises, we had much better avoid these intentionalist/intensionalist quagmires and stick to the austere Quinean regimen as described above.

There is a similar objectionQuine maintainsto the idea of quantifying into modal contexts, or supposing (in company with philosophers like

Kripke) that truth-values range over various alternative possible 'worlds', some of them logically compossible with ours and varying only in respect of contingent details, while others involve a more radical departure with regard to matters of necessary truth in the world we actually inhabit.[16] I have no room here for a detailed discussion of the far-reaching consequences that Kripke derives from this modalized theory of naming and necessity. Sufficient to say that Quine views them as a source of yet further 'metaphysical' bewilderment which can best be got over by returning to the firm ground of first-order quantified predicate logic, extensionalist semantics, and a straightforward physicalist ontology.[17] For it can always transpire on Kripke's account, despite his talk of 'rigid' reference fixing, that what ought to be synonymous (extensionally equivalent) terms acquire different criteria of valid application when translated from one such 'world' to another. They thus become opaque or resistant to logical analysis in much the same way as those other problem cases that involve various mind-states, beliefs, meanings, ascriptions of utter-

er's intent, and so forth. Moreover, this applies to any programme of epistemological enquiry that forsakes the narrow Quinean path and raises questions about knowledge or truth beyond the strict extensionalist remit.

Nevertheless, Quine's physicalism goes along with a doctrine of ontological relativity which appears to undercut any support it might offer for realist arguments in philosophy of science. On this viewas enounced in 'Two Dogmas of Empiricism'there exist as many objects (putative realia) as there exist variant ontologies or conceptual schemes for picking them out in accordance with prevalent notions of reality and truth. Thus, ultimately speaking, there is no differencein point of ontological statusbetween brick houses on Elm Street, numbers, mathematical classes, centaurs, and Homer's gods. [18] This is not to say that we should go the whole hog with cultural relativists and consider them all equally entitled to endorsement from a present-day informed scientific viewpoint. For it is Quine's opinionspeaking 'qua lay physicist'that the houses and numbers have a strong claim to rationally warranted belief, as compared with the gods, centaurs, and suchlike (in his view) mythic or nonexistent entities. Still, this preference can only be a matter of what counts *for us* as 'rational' and 'warranted', that is say, whatever has a role in our currently most-favoured ontological scheme. Thus:

> [p]hysical objects are conceptually imported into the situation as convenient intermediariesnot by definition in terms of experience, but simply as irreducible posits comparable, epistemologically, to the gods of Homer. . . . Moreover, the abstract entities which are the substance of mathematicsultimately classes and classes of classes and so on upare another posit in the same spirit. Epistemologically these are myths on the same footing with physical objects and gods, neither better nor worse except in the degree to which they expedite our dealings with sense experience.19

So the end result of Quine's intransigent physicalism and his vigorous stropping of Ockham's Razor is to leave us ultimately bereft of any means for distinguishing real from (say) fictive, imaginary, hypothetical, or nonexistent objects. Rather, we can and do make such distinctions readily enough, but only from within a given ontology or conceptual scheme which itself sets the terms for whatever counts as 'real' by our present best cultural, commonsense, or scientific lights.

This isto say the leastan ironic upshot if set alongside Quine's vigorous rejection of Brentano's thesis concerning the indispensability of intentional idioms. For one of his chief objections to that thesis, like Russell's before him, is that it leads to a massively inflated ontology replete with all manner of 'intentional objects' which should have no place in a physicalist (science-led) world-view. Yet it is just this narrowly physicalist conception which leads him to place the whole range of above-mentioned itemsbrick houses, numbers, classes, centaurs, the gods of Homeron the same episte-

mological footing, that is to say, as 'myths', 'posits', or 'convenient intermediaries' imported in order to 'expedite our dealings with sense experience'. Of course it might be said that the gods and centaursunlike the numbers and classesare scarcely the sorts of thing that can be thought to render any such service in helping us to make better (scientifically respectable) sense of our commerce with physical reality. But this is just as surely to miss Quine's point, namely, that 'reality' is always in the end what we make of it according to some given ontological scheme or some existing 'canonical notation' for assigning values to variables.

At times Quine describes this programme in a way that makes it sound perfectly compatible with the sturdiest form of epistemological realism. Thus '[t]he quest of a simplest, clearest overall pattern of canonical notation is not to be distinguished from a quest for ultimate categories, a limning of the most general traits of reality'. [20] And again: '[e]ntification begins at arm's length; the points of condensation in the primordial conceptual scheme are things glimpsed, not glimpses'.[21] However, these passages and others like them must be taken in conjunction with his statements elsewhere concerning the scheme-relative or pragmatically negotiable character of all such claims. For it is a curious feature of Quine's physicalism that it exerts so little constraint upon the range of items that he is willing to admitin principle at leastas candidates for 'entification'.

The main reason, I would suggest, is that Quine is himself still in the grip of at least one dogma that characterised old-style logical empiricism. This is the beliefgoing back to Locke and Humethat there exist certain ultimate problems confronting any realist or causal-explanatory approach to issues in epistemology and philosophy of science. Hence his well-nigh heroic attempt to maintain a hard-line physicalist or 'scientific' outlook while making such large concessions

to the case for ontological relativity, meaning-variance, underdetermination of theories by evidence, the theory-laden character of observation-statements, and so forth. On Quine's argument there is simply no routeother than the pragmatist line of least resistancefrom the basic observation-data or physical 'stimuli' to the theory that best accounts for those data or which provides the most adequate causal-explanatory framework. Rather, theories and observation-statements are always subject to revision under pressure from conflicts or anomalies at this or that point in the total 'fabric' of currently accredited beliefs. Thus it follows from Quine's combination of reductive physicalism and meaning-holism that there cannot be anything *in the nature of things*or in the grounds of our knowledge concerning themthat could warrant our asserting some particular claim with respect to some particular (non-scheme-relative) item of physical reality.

This is where the doctrine of ontological relativity strikes against any kind of realist theory concerning, say, the constituents of matter, their subatomic structures, molecular compositions, chemical valencies, causal dispositions,

emergent biological properties, and so forth. It is physicalist just insofar as it takes sense-data (or unmediated 'stimuli') as our sole means of access to the physical world. Otherwise it finds no room for any further epistemological grounds of appeal savein holistic termsto the notional 'entirety' of science as an ultimate framework wherein those data are accommodated through a process of ongoing revision or pragmatic adjustment. What drops out completely on this Quinean account is the concept of epistemology as a discipline aimed toward providing a *normative and justificatory* treatment of scientific knowledge or of the various procedures of thoughtevidential reasoning, theory construction, and inference to the best explanationthat characterise scientific enquiry. For of course it is precisely Quine's ambition to naturalise epistemology by purging it of all such intentional or 'mentalist' residues. Thus: '[o]ur acceptance of an ontology is, I think, similar in principle to our acceptance of a scientific theory . . . we adopt, at least insofar as we are reasonable, the simplest conceptual scheme into which the disordered fragments of raw experience can be fitted and arranged'. [22] But in that caseit might be askedwhat should count as a 'reasonable' way of assessing the results, given that this whole process is somehow thought to transpire in the epistemologically vacuous space between sensory inputs (physical stimuli) and overall, pragmatically adjusted 'conceptual scheme'? Then again: how is itlacking such epistemological resourcesthat the 'disordered fragments of raw experience' can be somehow transformed into a 'scientific theory' (along with its attendant ontology) capable of meeting the basic criteria of scope, specificity, empirical 'fit', conceptual-explanatory grasp, and so forth?

Quine's theory provides no answer to these questions, premised as it is on a reductive physicalist account of knowledge acquisition that

excludes them from the remit of a properly scientific (i.e., naturalised) approach. 'Epistemology is best looked upon', Quine suggests, 'as an enterprise within natural science. Cartesian doubt is not the way to begin. Retaining our present beliefs about nature, we can still ask how we have arrived at them'.[23] However, this passage also raises more problems than it can possibly resolve. For one thing it sets up the debate in a thoroughly skewed and unrepresentative way, as if the method of 'Cartesian doubt'and its supposed issue in certain indubitable truths of reasonwere the sole alternative to Quine's programme for a thoroughly naturalised epistemology. But this is to ignore the entire history of post-Cartesian argumentsfrom Kant to Husserl and beyondagainst such narrowly foundationalist ideas of the solitary *cogito* (or first-person knowing subject) as ultimate source and guarantee of knowledge. At very least it may be held, *contra* Quine's argument, that epistemology in the other (broadly speaking, 'continental') line of descent has produced some far more sophisticated analyses of the relation between sensory-perceptual experience and the various forms and modalities of conceptual understanding.[24] Also, it signally fails to explain what is involved in that naturalistic account whereby,

as Quine says, 'retaining our present beliefs about nature, we can still ask how we have arrived at them'. For on the physicalist account such a story would lack any kind of normative dimension, amounting to a kind of natural history of the various beliefs (or dispositional states) brought about by direct exposure to incoming physical stimuli. This is a causal-explanatory theory only in the crudest, most reductionist sense: that it 'explains' what we know (or think we know) by reference to our history of behavioral interactions with objects in the physical world whose nature, structure, defining attributes, causal capacities, and so on, are quite beyond reach of any deeper explanation in the causal-realist mode.

In short, Quine's behaviorism goes along with his attitude of deep-grained Humean scepticism regarding causal explanations, his aversion to 'intentionalist' talk in whatever (semantic or epistemological) guise, and his twin theses of meaning-holism and ontological relativity. For these doctrinal commitments all have their sourceas I have argued abovein Quine's hard-line physicalist approach to matters of meaning, knowledge, and truth. 'Meaning' becomes just an otiose term, one that can be happily dispensed with once we take the behaviorist point. 'Knowledge' becomes just a matter of pragmatic adjustment to the incoming 'barrage' of sensory stimuli plus whatever is needed in the way of theories and (so-called) logical 'laws of thought', themselves always open to revision under pressure from recalcitrant 'evidence'. And 'truth' becomes a concept entirely devoid of normative or justificatory force since, on this view, it is merely the name that attaches to whatever fits in with the rest of our beliefs or current (pragmatically adjusted) ontological commitments. Thus, despite Quine's avowals of sturdy commonsense realism with regard to the physical sciences, his outlook is thoroughly antirealist in the sense that it denies the very possibility of verification-transcendent

truths. Moreover, unlike Dummett and others who have propounded antirealism as a technical doctrine in philosophy of language and logic, Quine links this argument with a pragmatist conception of enquiry according to whichin principle at leastthere is nothing (right down to the so-called logical laws of thought) that might not conceivably have to be revised in response to some recalcitrant 'experience' or other. [25] In short, Quine's programme is one that would effectively spell an end to the entire enterprise of normative epistemology and philosophy of science.

Davidson and Rorty

Similar problems can be seen to arise with philosophers who have taken a lead from Quine's thinking but have sought to avoid its more awkward implications. Thus, for instance, Donald Davidson professes the same kind of bluff, no-nonsense physicalism with regard to beliefs and the real-world objects or events that purportedly cause those beliefs, while also rejecting the

idea that knowledge might involve *anything more*epistemologically speakingthan the right kind of causal relation between them. 'In giving up the dualism of scheme and world', he writes, 'we do not give up the world, but reestablish unmediated touch with the familiar objects whose antics make our sentences and opinions true or false'. [26] The dualism in question is of course Quine's idea of the various frameworks (or conceptual schemes) which are somehow imposed upon the raw data of our sensory promptings, an idea whichaccording to Davidsonconstitutes the third and perhaps last 'dogma' of empiricism. If Quine had only pushed the argument one stage further and given up this idea also, then he wouldn't have created all the well-known problems about framework-relativism and radical meaning-variance.

Still, it is hard to see how those problems could ever be resolved by adopting Davidson's direct realist approach, that is to say, his breezy assurance that there exists an 'unmediated' causal link between objects or events in the world and the content (as well as the truth-value) of our various 'sentences and opinions'. For this approach rules out a whole range of salient epistemological distinctions, among them the difference between perceptual knowledge-by-acquaintance and knowledge arrived at by other, more complex or elaborate inferential means. It is also ill equipped to cope with the sorts of difficulty that were first pointed out by Plato in the *Theaetetus* and which have lately been developed to a high point of subtlety by Edmund Gettier and others.[27] These have to do with the question whether 'knowledge' is synonymous with 'justified true belief', or whether there are casesingenious counterexamples of the type devised by Gettierwhere this identity fails. Thus one may hold a belief that is both true (as it happens) and justified (according to one's best current knowledge) but where the grounds one adduces for maintaining that belief are in fact

unrelated to its truth-conditions as revealed through a more adequate grasp of the relevant facts. This problem is most often raised in the context of descriptivist theories of meaning and reference, such that the most promising solution seems to involve something more in the way of a direct causal linkage. On this alternative ('reliabilist') account, knowledge can indeed be equated with justified true belief just so long as the justifying grounds include some reference to the objects, events, or circumstances which caused that state of mind in the believer and which allowed him or her to draw the appropriate conclusion.[28]

Nevertheless, there are serious problems with the causal theory if it is thought of as providing a full-fledged *alternative* to the descriptivist model, rather than a means of refining that model and closing gaps in the standard account. For if beliefs are justified solely in terms of their having been caused in an appropriate wayas with Davidson's idea of those 'familiar objects whose antics make our sentences and opinions true or false'then truth is just a matter of displaying or eliciting the right response to the right kind of stimulus in the right physical environment. However, this approach is plainly

inadequate to account for other, more complex processes of knowledge acquisition such as those that occur whenever it is a matter of deciding between alternative truth-claims, adjusting theories or predictions in the light of new evidence, or reinterpreting that evidence so as to conserve some particularly powerful or otherwise well-supported theory. In this respect Davidson is no better placed than Quine to explain what distinguishes genuine knowledge from true beliefs accidentally arrived at through a reflex process of causal triggering devoid of rational warrant or adequate justification. Of course Davidson differs with Quine on certain points, among them the latter's great mistakein Davidson's viewof retaining a version of the scheme/content dualism, thus opening the way to all sorts of unnecessary problems. [29] But Davidson is himself just as prone to veer across from the basic physicalist doctrinethat true beliefs are caused by direct stimulation of our nerve ends, sensory receptors, optical cortex, or whateverto a holistic doctrine of meaning and truth where equilibrium can always be achieved by making suitable adjustments here and there in the overall fabric of beliefs.

This is why, as Davidson nonchalantly puts it, 'truth of sentences remains relative to language, but that is as objective as can be'.[30] 'Objective', that is, insofar as language is thought of as comprising a collection of (actual or possible) 'sentences' whose truth-conditions are given directly by the role they occupy in the stimulus-response repertoire of this or that speaker in this or that physically specified context of utterance. However, there is not much left of this purported 'objectivity' if it is always construed as 'relative to language', and if by 'language' is meant the entire range of those sentences (or belief-dispositions) that characterise a speakeror community of speakersat any given time. For in that case the way is wide open for a relativist (or a Rorty-type pragmatist) to argue that any 'objectivity' thereby

secured is 'relative to language' in the full-blown sense of being wholly a product of the various meanings, construals, or interpretations that some community of speakers happens to place upon it.

Indeed, this is just Rorty's point in his essay 'Pragmatism, Davidson, and Truth' where he tries to coax Davidson back into the pragmatist fold by drawing out these tensions in his argument).[31] Thus Rorty quotes a passage from Davidson's essay 'A Coherence Theory of Truth and Knowledge' which appears to take the strongest possible line on objectivity and truth as causal products of our direct encounter with objects and events in the physical world. 'What stands in the way of global scepticism of the senses', Davidson writes,

> is . . . the fact that we must, in the plainest and methodologically most basic cases, take the objects of a belief to be the causes of that belief. And what we, as interpreters, must take them to be is what in fact they are. Communication begins where causes converge: your utterance means what mine does if belief in its truth is systematically caused by the same events and objects.[32]

But Rorty can then make the relativist case (at least to his own satisfaction) that this argument places no limitsother than pragmatic, communal, or localised culture-relative constraintson the range of possible interpretations to which all utterances are subject provided only that the sceptic is rebutted by the fact of such causal 'convergence'. After all,

> this is just what the pragmatist has been telling the sceptic all the time. Both the pragmatist and Davidson are saying that if 'correspondence' denotes a relation between beliefs and the world which can vary though nothing else varieseven if the causal relations remain the samethen 'corresponds' cannot be an explanatory term. 33

Thus Davidson really has no need to worry about issues of truth, objectivity, and right interpretation despite his continuing to fret about these issues, not least in response to Rorty's claim that he (Davidson) is a pragmatist at heart and shouldn't be prey to such needless anxieties. For if the causal theory is enough to secure basic communicative uptakeor (in philosophy-of-science terms) the basic possibility of transparadigm understandingthen no more is required in order to keep the cultural conversation going. On the other hand, this theory is *so* very basic that it imposes few (if any) ultimate constraints upon the various ways the conversation may go while still keeping all parties sufficiently in touch with each other. That is to say, it gives us pretty much *carte blanche* to reinterpret meanings, replace old beliefs, revise scientific theories, reconfigure those various 'metaphors we live by', and constantly reweave the fabric of belief according to present needs and purposes.[34] For the causal (reductive-physicalist) theory of meaning, knowledge, and belief fixation is itself specified in just such terms as to guarantee only the barest necessities of shared cognitive grasp, and hence to afford the widest possible scope for creative 'redescription' in Rorty's favoured style.

The same trick can just as easily be pulled, as Rorty shows, with Quine's version of naturalised epistemology, or his claim that philosophy of science is ultimately 'all the philosophy we need'. On this view the language of the physical sciences 'limns the true and ultimate structure of reality' to the best of our current understanding. It thus leaves no room for epistemology as traditionally conceived, that is to say, for conceptions of knowledge and truth that involve some reference to minds, meanings, concepts, beliefs, or other such 'opaque' entities, and which therefore cannot be cashed out in purely extensional or physicalist terms. Rorty takes issue with Quine about thisas might be expectedand also with regard to his further claim that 'the unit of empirical inquiry is the whole of science', rather than particular statements, predictions, or theories tested against particular (well-defined) items of empirical evidence.[35] But the reason for Rorty's disagreement with Quine is *not* that this approach would undermine the very project of scientific enquiry by

allowing truth-values to be redistributed in whichever way caused least upset to existing habits of thought. Rather, he objects that Quine has stopped short in talking about 'the whole of *science*', whereas he should have pushed right through with the argument and relativized truth to 'the whole of *culture*', or the entire going range of communal beliefs, with no special privilege attaching to the physical sciences. Thus 'Quine, and many other holists, persisted in the belief that the science-nonscience distinction somehow cuts nature at a philosophically significant joint'. [36] Much better had they simply let that distinction go, along with the two (or however many) last dogmas of empiricism. For they could still hang onto the basic physicalist assurance that our beliefs are reliably in touch with the world, or with the various objects whose 'familiar antics' (in Davidson's phrase) render those beliefs true or false. But they would also have the freedom to 'redescribe' that world in a great variety of ways since the physical dataor sensory promptingsare themselves under no particular description and hence incapable of fixing the terms or deciding the language that best (most accurately) represents them.

Thus one might think the language of present-day particle physics self-evidently best equipped for picking out just the sorts of entitysubatomic particlesthat physicists spend so much of their time trying to detect or describe. But this is a purely circular argument, Rorty maintains, since the only way of picking out the entities in question is by using some language (or descriptive scheme) that gives them a place in its range of putative realia. 'Normal' science is what goes on when scientists stick to conventional habits of talk and take it that their various descriptive schemes are *not* just preferential ways of interpreting the data but can actually 'cut nature at the joints' or offer some truthful (epistemically privileged) account of how things stand in reality. 'Revolutionary' science, on the other hand, is what occurs

when people cease to abide by the standard rules of the game and decide that there is probably more to be gained by crossing disciplines, mixing metaphors, or refusing to accept conventional ideas as to which sorts of language best 'correspond' to which sorts of notional entity.[37] Thus there is no reason 'in the nature of things' why particle physicists shouldn't make a breakthroughor at any rate move the conversation alongby picking up ideas from literary critics, or literary critics from particle physicists, or either party from any other discipline (so far as that term still applies) where there happen to be novel or intriguing developments afoot.

Such a notion will seem absurd only to those other, 'metaphysical' realist types who want something more than the basic Quinean assurance that our beliefs are causally in touch with the world simply in virtue of our physical constitution as creatures hard-wired to respond in certain ways to incoming sensory stimuli. Most often this involves an appeal to the nature (or 'essence') of the objects that science investigatessubatomic configurations, molecular

structures, chemical attributes, DNA proteins, and so onalong with a kindred division of labour among the different sciences concerned. Thus the realist's idea that the world comes prepackaged (so to speak) into natural kinds finds its counterpart belief in the idea of knowledge as organised into various fields of special expertise corresponding to their various distinctive objects of enquiry. In other words, it harks back to that old Platonic metaphor of knowledge as somehow 'cutting nature at the joints', or delving beneath surface appearances so as to get at the true, underlying structure of reality. However, Rorty argues, we can easily dispense with such outworn realist notions if we just follow Quine's and Davidson's lead toward a naturalised (physicalist) epistemology and accept that there is nothing more to be had in the way of 'correspondence', deep further facts, justificatory grounds, and so forth. We can then start getting used to the idea that there is no limit in principleas opposed to short-term pragmatic or cultural constraintson the range of new descriptions which might be applied to this or that physical datum. For if there is one thing that recent (post-Kuhnian) philosophy of science has taught us it is the fact that scientific revolutions come about through just such a strong-revisionist break with normalized habits of descriptive or classificatory thought.

Still the realist might come back with an argument that appears to concede both main points of Rorty's casethe physicalism and the strong revisionismbut which strengthens the former by giving it a greater degree of causal-explanatory force and thus cuts down the range of descriptions that can claim genuine scientific warrant. As Rorty preemptively puts it:

> [w]hen Galileo saw the moons of Jupiter through his telescope, it might be said, the impact on his retina was 'hard' in the relevant sense, even though its consequences were, to be sure, different for different communities. The

> astronomers of Padua took it as merely one more anomaly which had somehow to be worked into a more or less Aristotelian cosmology, whereas Galileo's admirers took it as shattering the crystalline spheres once and for all. But the datum *itself*, it might be argued, is utterly real quite apart from the interpretation it receives. 38

Now there is no obvious reason for Rorty to reject this line of approach, given that it seems to square pretty well with his own (Quine- and Davidson-derived) outlook of baseline physicalism plus a wide latitude of choice in interpretive matters. However, he does take issue with it insofar as it involves a sharp dichotomy between 'data' and 'interpretation', whereasto Rorty's way of thinkingany data adduced by Galileo or the Padua astronomers were *already* products of their differing world-views, theories, or conceptual schemes and could therefore provide no neutral ground for deciding the issue between them. What the Rorty-style pragmatist should therefore do when confronted with such arguments is stick to the basic physicalist line but also make it clear that nothing follows as regards the more substantive issue. Thus:

> he agrees that there is such a thing as brute physical resistancethe pressure of light waves on Galileo's eyeball, or of the stone on Dr. Johnson's boot. But he sees no way of transferring this nonlinguistic brutality to *facts*, to the truth of sentences. . . . As Donald Davidson says, causation is not under a description, but explanation is. Facts are hybrid entities; that is, the causes of the assertibility of sentences include both physical stimuli and our antecedent choice of response to such stimuli. To say that we must have respect for facts is just to say that we must, if we are to play a certain language game, play by the rules. To say that we must have respect for unmediated causal forces is pointless. It is like saying that the blank must have respect for the impressed die. The blank has no choice, nor do we. 39

I have quoted this passage at length because it shows very clearly how the Quine-Davidson project of a 'naturalised' epistemology can be taken on board by a strong descriptivist like Rorty and then turned around to undermine the very programme that led to its adoption in the first place. This is partly a result of the inherent ambiguity of phenomenalist termssuch as 'data'which on one interpretation refer to what is given as a matter of 'hard' self-evidence and on another lie open to relativist construals of the sort described above. I have written elsewhere about the problems created by the use of such strategically double-edged terms by various 'post-empiricist' thinkers, among them Quine and Thomas Kuhn.[40] But the main point here is Rorty's distinctionwith reference to Davidsonbetween matters of real-world (*de re*) causality and matters of *de dicto* causal explanation which necessarily pertain to some particular 'language-game' (e.g., those of particle physics or molecular biology) and which therefore involve some particular choice among the many such games available. For it is only by decreeing a radical split between bare, unaccommodated sense-data and whatever interpretation is placed upon them that Rorty can bring off his standard trick of relativizing truth to what counts as such among the members of this or that ('normal' or 'revolutionary') scientific community.

Hence Rorty's curious claim (in the above-cited passage) that 'the causes of the assertibility of sentences include both physical stimuli and our antecedent choice of response to such stimuli'. It is hard to make sense of this claim if one takes it (*pace* Nietzsche) that causes by very definition precede effects, and hence that any 'choice' in the matter of interpretingor responding tocausal stimuli will necessarily *not* be 'antecedent' in the sense that Rorty apparently requires. Where the confusion comes in, as so often, is with the use of a phenomenalist (or sense-datum) terminology which tends to be ambiguous as between (1) the notion of raw sensory inputs prior to any perceptual or cognitive processing, and (2) data that have already been through such processing and can thus be thought of as 'theory-laden' at least at some basic level. This confusion was rife in the language of the logical positivists and their logical-empiricist successors. It is what allows Quine to maintain his hard-line physicalist approach in epistemological matters while espousing a

doctrine of ontological relativity with regard to even the most basic 'posits' of the physical sciences. With Kuhn, it takes the form of a constant equivocating play on the sense of various kindred terms ('stimuli', 'data', 'sensations', 'perceptions', 'observations', etc.) whose effect is once again to ease the passage from a highly reductive behaviorist epistemology to the notion that scientists on either side of a major paradigm change quite literally 'live in different worlds'. [41] In Davidson's case, as we have seen, the argument works out rather differently since he wants to undermine such relativist talk by showing it to rest on a dubious appeal to the 'third dogma' of logical empiricism, namely, the scheme/content distinction in its various residual forms. But here again there is a striking failure to explain how beliefs acquired in the way that Davidson describesthrough causal interaction with the world on the part of sentient creaturescan yield any means of assessing such beliefs in terms of their truth, their evidential warrant, the extent of their agreement (or disagreement) with currently prevailing scientific ideas, or whatever. For on this account knowledge (or veridical belief) *just is* the product of that causal interaction construed in a suitably holistic manner, that is to say, not as involving a one-for-one match between particular 'stimuli' and particular items of belief but rather as an ongoing process of adjustment at various points in the total fabric. In which case, as Rorty is quick to remark, one can be as 'realist' as one likes about objects, data, physical stimuli, and so forth, while still denying that one's beliefs are fixedor one's range of creative 'redescriptions' in any way limitedby the requirement that they should somehow 'correspond to reality'.

Thus, for Davidson, '[b]eliefs are true or false, but they represent nothing. It is good to be rid of representations, and with them the correspondence theory of truth, for it is thinking that there are

representations that engenders thoughts of relativism'.[42] All that is needed in order to shrug off the relativist challenge is a simple recognition that the problem it raised was a false problem all along, one that took rise from the Cartesian ideathe bugbear of epistemology ever sincethat the only kind of knowledge secure from doubt was the kind arrived at by somehow attaining accurate mental 'representations' of an objective, mind-independent world. The best way out of this false dilemma, so Davidson believes, is to drop that whole theory of knowledge and truth in favour of a thoroughly naturalised theory which requires nothing more of veridical beliefs than that (1) they are assigned some appropriate causal genesis, and (2) they fit in well enough with the totality of our likewise physically prompted (but always revisable since underdetermined) beliefs about the world at any given time. This will in turn have the double advantage of bringing epistemology more into line with the methods of the physical sciences and calling a halt to all those pointless 'metaphysical' disputes about truth, knowledge, representation, relativism, realism, antirealism, and the

rest. In short, it will teach us to stop worrying about whether our own (or other people's) beliefs are reliably 'in touch with the world' since there is just no wayon the physicalist/holistic accountthat we or they could be so massively in error as to lose touch either with the world or with each other. [43] This should put an end not only to sceptical and relativist arguments but also to Kuhnian talk of paradigm incommensurability and Quinean talk about the problems of 'radical translation' across disparate ontologies or conceptual schemes. What takes their place is the simple pointto paraphrase Madonnathat we are all in the end physical creatures who live in a material world. And this argument is supposedly an adequate cure for hyperinduced Cartesian doubts concerning the very possibility of knowing whether or not our ideas 'correspond' to this or that item of reality.

However, as I have said, there is not much support for any version of commonsense or scientific realism in an argument that takes so drastically reductive a view of our epistemological condition, or our capacity for acquiring veridical beliefs through mere exposure to the range of physical stimuli that bombard us from one moment to the next. Indeed, if there is a candidate for the fourthand, let us hope, the lastdogma of empiricism, it is Davidson's idea that one can avoid all those old sceptical-relativist problems simply by dumping the third dogma (i.e., the scheme/content dualism) and adopting a causal theory of belief acquisition which entails nothing more than the subject's habit of responding in certain predictable ways to certain kinds of physical stimulus. This is why Rorty can treat Davidson as a more than halfway convert to his own strong-descriptivist viewpoint, despite Davidson's occasional lapses into retrograde talk of truth-as-correspondence, reality as that which decides the issue between true and false beliefs, or other such otiose 'metaphysical' ideas. For if you just put together the two main Quinean components in Davidson's

thoughthis physicalist account of belief acquisition and his holistic theory of truth, meaning, and interpretationthen what comes out is a persuasive argument against that whole line of epistemological or representationalist thought.

The following passage is a good example of the way that Rorty talks Davidson around to dropping those regressive (= realist) beliefs and adopting a sensible (= pragmatist) view of the various issuesor nonissuesconcerned. 'Davidson', he writes,

> has no *parti pris* in favor of physics, and does not think that it, or any natural science, can provide a skyhooksomething which might lift us out of our beliefs to a standpoint from which we glimpse the relations of those beliefs to reality. Rather, he takes us to be in touch with reality in all areas of cultureethics as well as physics, literary criticism as well as biologyin a sense of 'in touch with' which does not mean 'representing reasonably and accurately' but simply 'caused by and causing'.44

This passage can best be read alongside the other lengthy extract from Rorty's essay 'Texts and Lumps' which I cited several pages above. His main point there was to exploit the full resonance of Davidson's argument that 'causation is not under a description, but explanation is'.[45] This he took to meanby permissible extensionthat although 'there is such a thing as brute physical resistance' [e.g., the light waves impinging on Galileo's eyeball], nevertheless there is absolutely no wayon Davidson's accountof 'transferring this nonlinguistic brutality to *facts*, to the truth of sentences'.[46] For facts, after all, are not objects or entities existing out there in the world and available for inspection in order to ensure that our various statements or beliefs somehow 'correspond' to them. Rather, they are *themselves* items of belief that may take the form of statements, propositions, attitudes, propensities, assenting or dissenting dispositions, and so on. They can all lay claim to factual warrant but cannoton pain of manifest circularitybe compared with or held up against 'the facts' as if these latter somehow belonged to a separate realm of (objective, real-world, language-independent) truth.

Hence Rorty's claim that the realist injunction 'we must have respect for facts' amounts to no more than the Wittgensteinian thesis that 'we must, if we are to play a certain language game, play by the rules'.[47] Hence also his kindred (Davidson-derived) argument that '[t]o say that we must have respect for unmediated causal forces is pointless'. For the causal forces, no less than the facts, are always already under a description by the time that they come to figure in our various language-games, hypotheses, theories, conceptual schemes, or whatever. Moreover, this argument can be pushed right back to the level of our 'basic' perceptual data, just so long as there remains the yet more basic (Quine-Davidson) appeal to a stage of purely physical stimulusresponse where we *must* be in touch with those 'familiar

objects' whose anticsto repeatare what 'make our sentences and opinions true or false'.

Figleaf Realism

Now there isI submitsomething very odd about a theory (Davidson's) which can make such a point of claiming to restore 'unmediated touch' between beliefs and world while also giving warrant for the claim that, since everything is under some description or other as soon as it enters our ken, therefore we should have no truck with talk about 'unmediated causal forces'. This oddity is all the more striking in view of Davidson's causal account of knowledge and belief attribution, an account whose chief virtueas he sees itis to cut out the idea of conceptual schemes or anything else that is thought of as 'mediating' between word and world, or beliefs and objects-of-belief. Indeed, Davidson will later go so far as to suggest that there is 'no such thing as a language', at least if by 'language' is meant the sort of thing that philosophers often have in mind when they raise problems about meaning,

representation, or the problem of translating or interpreting across different cultural-linguistic contexts. [48] The causal account is supposed to put an end to such worries by simply pointing out that all language users are denizens of the same physical world, disposed to respond to certain stimuli in certain (mostly appropriate) ways, and hence not prone to be 'massively in error' concerning that world or concerning each other's world-related meanings and beliefs. However, there is an obvious difficulty here if we also recall Davidson's point that everything is under some description or interpretation as soon as we encounter it, 'causal forces' included. For it is this that gives Rorty his handle for arguingwith due warrant from Davidsonthat 'facts are hybrid entities', and hence that 'the causes of the assertibility of sentences include both physical stimuli and our antecedent choice of response to such stimuli'.[49] But it is still hard to see how any such 'choice' could possibly enter the picture, given that the physicalist theory requires a direct ('unmediated') causal link between objects or events in the ambient world and the various, more or less predictable reactions displayed by sentient creatures with the right sort of hard-wired stimulus-response repertoire.

This is why Rorty can claim to be a 'realist' in the only sense that matters, namely, in acknowledging 'the pressure of light waves on Galileo's eyeball' or of 'the stone on Dr. Johnson's boot'. But it is also why he can turn that acknowledgement around and make it the merest of token concessions (in order to head off the charge of out-and-out idealism) while nonetheless maintaining a strong antirealist line with regard to everything bar the existence of a noumenal 'reality' which is under no particular description, and which therefore scarcely affects the issue either way. Here again Rorty's strategy is one that exploits the ambivalence of sense-data language. This language can be bent, according to context, in either of two directions, both of which are

needed if the strategy is to look at all plausible, but each of which undermines the other if its implications are examined more closely. Thus in order for epistemology to be 'naturalised'or treated (on Quine's prescription) as fully continuous with the methods of the physical sciencesone must construe such talk in a strong causal-determinist sense which leaves no room for variant 'responses' to the same physical 'stimulus'. In which case a *datum* is indeed just thatlike the die irresistibly hitting the blank, in Rorty's apt metaphorand it can make no sense to think of human knowers as having any leeway for interpretive (or indeed rational) choice in the matter. On this account causality is preserved, along with a certain (albeit highly reductionist) form of epistemic realism. But more often, especially in Kuhn's case, what is assumed to be 'given' at the sense-data level is a mixture of incoming physical stimuli and dispositions to interpret those stimuli according to various perceptual frames, ontological commitments, preexistent theoretical beliefs, and so forth.

So it is that Kuhnfollowing Quinecan manage to hold this exception-

ally tricky balance, on the one hand (when challenged) professing an outlook of sturdy commonsense realism, while on the other espousing a doctrine of full-fledged epistemic relativism. [50] For that doctrine *must* be construed in such holistic terms if we are to take Kuhn and Quine at their word when they push right through with the relativist argument to the point where it extends all the way from the logical 'core' to the empirical 'periphery' of beliefs held true at any given time. But in that case clearly something has to go: *either* the causal theory of belief acquisition *or* the relativist idea that any 'stimuli' or 'data' encountered in the process of acquiring beliefs are always subject to prior 'choice' as regards their veridical content or their impact on the range of currently accredited truth-claims, theories, observational protocols, and so forth. Insofar as philosophers try to have it both ways they can only be tradingconsciously or noton the kind of ambiguity that typically attaches to sense-data language. For otherwise there is just no way that the physicalist theory can be joined to the opposite extreme of a relativist doctrine that must reach right down to the level of casual 'stimuli' and 'data' if it is going to support such extravagant claims for the ground-up revisability of all our most basic items of belief. But the case falls apart under closer scrutiny since those claims require that the stimuli themselves are always already under some description or open to various (context-dependent or belief-related) construals. Thus the Quine-Kuhn argument for ontological relativity completely undermines the Quine-Kuhn argument for treating our beliefs as reliably produced (and hence as reliably knowledge-conducive) so long as they result from the right kind of causal interaction with the world.

Nor is there much help to be had from Davidson's hopeful way of avoiding relativism, that is, by rejecting the scheme/content dichotomy and hence regaining 'unmediated' touch with those objects

and events whose impact on our nerve ends (and the rest of our cognitive apparatus) is sufficient to render our beliefs true or false. For this idea very easily convertsas we have seenfrom a robust-sounding theory of causal realism to a variant on the old empiricist theme according to which sense-data are the sole means of access to 'external' reality. And so the way is reopened for relativists (or Rorty-type pragmatists) to claim that it makes no difference what we happen to think concerning the realist *versus* antirealist issue. All we need do is take Davidson's lead and give up not only conceptual-scheme talk but that whole 'epistemological' way of thinking that has plagued philosophy from Descartes down. From this point of view, 'it is no truer that "atoms are what they are because we use 'atom' as we do" than that "we use 'atom' as we do because atoms are as they are". *Both* of these claims, the antirepresentationalist says, are entirely empty. Both are pseudo-explanations'.[51] In other words, we can opt right out of the realist/antirealist debate simply by refusing to play that particular verbal game. Thus it is no more the case that reality depends on the language we use to describe it than that our language depends for its meaning or truth-content

on the fact of its somehow 'corresponding' with a pristine, as yet undescribed reality. The pragmatist will wisely avoid both options since the one leads to a linguistified version of old-style Berkeleian idealism while the other ends up in the circular predicament of all such correspondence theories. That is to say, it leaves us with the problem of finding something factual but nonlinguistic to which our statements may be said to correspond, or again, of explaining what could possibly count as an 'adequate' or 'accurate' match between words and world. Much betterRorty thinksthat we should give up this hopeless endeavour and adopt the sensible pragmatist position that nothing depends on our getting things right in the representationalist sense.

However, this position has problems of its own, as becomes evident in the following passage where Rorty elaborates on the non-issue (as he sees it) between realism and antirealism

> The reason why physicists have come to use the word 'atom' as we do is that there really are atoms out there which have caused themselves to be represented more or less accuratelycaused us to have words which refer to them and to engage in the social practice called microstructural physical explanation. The reason why such explanation meets with more success than, say, astrological explanation, is just that there are no planetary influences out there, whereas there really *are* atoms out there. 52

The first thing one notes about this passage is Rorty's curious relapse into just the kind of 'representationalist' thinking that he had earliera couple of sentences backadvised us to abjure altogether. Thus the causal theory of belief acquisition (as concerns the existence of real-world entities like atoms) is here linked up with a further requirement that the objects in question be 'represented more or less accurately'. For otherwiseso the argument seems to implyour beliefs might pass the physicalist test of being triggered by this or that sensory input, and

yet turn out to be largely or wholly mistaken with regard to what kinds of object we suppose to have triggered that response. Hence Rorty's distinction between atomic physics and astrology, since the fact of observing some particular planetary conjunction is presumably enough to elicit a response (a physically induced or causally explicable response) in one who is disposed to credit such things, though we wouldn't want say that this was enough to establish astrology as a reputable science. In the case of atoms and subatomic particles, conversely, their existence has been borne out by a whole range of causal stimulifrom observations of Brownian motion or tracks in a cloud chamber to the latest high-resolution electron microscopesand also by their playing a central (indeed, an indispensable) role in our current best theories of subatomic physics, molecular biology, and so forth.[53] So one can have no quarrel with Rorty's ontological-realist claim that there 'really *are* atoms out there' and that this is what distinguishes talk about atoms from talk about planetary influences.

However, it is questionable whether Rorty is entitled to assert that claim, given his beliefso vigorously canvassed elsewherethat there is just no point to the endless dispute between realists and antirealists, since everything (atoms presumably included) is already under some description or other, and we are thus never in a position to check the truth of our various observation-statements, scientific theories, ontological commitments, etc. This belief shows through in the above-cited passage when Rorty moves acrosswithin a single sentencefrom the idea of atoms as having 'caused us to have words which refer to them' to the idea of atoms as causing us 'to engage in the social practice called microstructural physical explanation'. Out of context the sentence might be taken to endorse a strong causal-realist argument of the type promoted on the one hand by logicians and philosophers of language such as Kripke, Donnellan, and the early Putnam, [54] and on the other by philosophers of science including David Armstrong, Richard Boyd, and Wesley Salmon.[55] That is to say, it would treat a term like 'atom' as picking out just that kind of entity which was first referred to (albeit in purely speculative fashion) by the ancient atomists, and thenmuch latermade an object of increasingly precise theoretical and observational knowledge by scientists from Dalton to Rutherford and Bohr.[56] On this account, moreover, it is the case not only that atoms cause us 'to have words which refer to them' but also that their existence explains and justifies 'the social practice called microstructural physical explanation'. However, when the passage from Rorty is put back into context, it turns out not to bear anything like such a causal-realist construal. For he makes it very clear that this whole line of thoughtwhether in philosophy of language (Kripke) or philosophy of science (Boyd)is in his view just a throwback to old 'metaphysical' ideas such as those of natural kinds, truth-as-correspondence, or scientific knowledge as that which enables us to 'cut nature at the joints'.

Thus it is very much '*the social practice called* microstructural physical explanation' that Rorty wishes to emphasise, rather than any realist notion that such a 'practice' is properly or uniquely suited to pick out the particular (i.e., microstructural) features, properties, or attributes which make it the right sort of science for that sort of job. Rather, as he urges in 'Texts and Lumps', there is absolutely no reason why we shouldn't mix disciplines to our hearts' content and look (say) to literary theory for new descriptions in subatomic physics, or to subatomic physics for a new range of metaphors to enliven the discourse of cultural anthropology, or to the language of molecular biology as just what is needed to revolutionise thinking in othersupposedly unrelatedfields of study. For those fields are marked out not so much by their appropriate objects or methods of enquiry but rather by the currently prevailing division of intellectual labour. Moreover, since conservatism tends to rule in such matters, the best hope of moving things along is to switch descriptions or metaphors as often as possible and reject any putative object-language that makes

some claim to descriptive accuracy or causal-explanatory truth. Nothing could more clearly illustrate the fact that one can be a 'realist' about objects and beliefs in the sense recommended by Rorty while nonetheless denying that objects are in any way characterisedor beliefs in any way constrainedby real-world properties (such as the microstructural attributes of atoms) that make some descriptions scientifically valid and others scientifically false.

One further passage from Rorty on the same topic may help to bring out both the strains in his argument and the extent to which that argument exploits ambiguities or regions of fuzzy definition in the texts of those (chiefly Quine and Davidson) whom he cites in this connection. 'The antirepresentationalist', he writes,

> is quite willing to grant that our language, like our bodies, has been shaped by the environment we live in. Indeed, he or she insists on this pointthe point that our minds or our language could not (as the representationalist sceptic fears) be 'out of touch with reality' any more than our bodies could. What he or she denies is that it is explanatorily useful to pick and choose among the contents of our minds or our language and say that this or that item 'corresponds to' or 'represents' the environment in a way that some other item does not. On an antirepresentationalist view, it is one thing to say that a prehensile thumb, or an ability to use the word 'atom' as physicists do, is useful for coping with the environment. It is another thing to attempt to *explain* this utility by reference to representationalist notions, such as the notion that the reality referred to by 'quark' was 'determinate' before the word 'quark' came along (whereas that referred to by, for example, 'foundation grant' only jelled once the relevant social practices emerged). 57

I have suggested already why the kind of causal realism (more precisely: the kind of stimulus-response physicalism) laid out in the first two sentences here is in fact no defence against relativist arguments, nor indeed against the 'representationalist sceptic', hung up

on some version of the correspondence theory. For it is perfectly possibleas Rorty showsto accept the Quine-Davidson case for a naturalised epistemology, that is, one based on a physicalist account of belief acquisition, while holding that any beliefs thus acquired can always be construed in various ways according to the various language-games or 'social practices' that happen to prevail within this or that culture, interest group, or research community. This is why Rorty can move straight across from what sounds like a thoroughly realist position *vis-à-vis* atoms and suchlike to a position that entails ontological parity as between 'quarks' and 'foundation grants', both (so he argues) coming into existence only as and when 'the relevant social practices emerged'.

At this point the typecast representationalist will surely deliver a typecast response, namely, that 'the reality referred to by "quark" was "determinate" before the word "quark" came along', whereas there could not have been foundation grants before foundations existed with the means and authority to award them. However, this argument is hopelessly circular, Rorty thinks,

since it depends on our possessing a 'determinate' knowledge both of objects in the world (their kinds, properties, causal powers, etc.) and of the various criteria that decide what shall count as a 'determinate' (adequate or accurate) description of them. No such problems arise, of course, for anyone who takes the antirepresentationalist view and who thus makes a clean pragmatist break with that whole tradition of epistemological thought which has come down from Descartes and Kant to their present-day analytic progeny. Quite simply, '[t]hey see no way to explain what "determinate" means in such a context except by chanting one of a number of equally baffling words'. [58] In this respect they are following Quine's lead (from 'Two Dogmas of Empiricism') but pushing that argument one stage further so as to reduce every version of the representationalist casehis own residual version includedto the level of stuttering tautology. Thus:

> Just as Quine suggests that we throw out the whole cluster of concepts (e.g., 'synonymous', 'conceptual') which are invoked to make us think we understand what 'analytic' means, so antirepresentationalists suggest that we throw out the whole cluster of concepts (e.g., 'fact of the matter', 'bivalence') which are used to make us think we understand what 'the determinacy of reality' means.[59]

And, according to Rorty, we can get this desirable result at absolutely no cost to any realist convictions that we might otherwise hold as a matter of working (scientific or everyday) belief. On the pragmatist view such convictions are *completely unaffected* by any position one takes with regard to the realism *versus* antirealism issue. That is say, the world will continue to exist (contain the same objects, exert the same causal powers) no matter what description we bring it under or what theories we develop to explain it. Meanwhile we shall carry on applying those descriptions and developing those theories even thoughas Rorty would have itthere is no possible way of comparing or

assessing them in point of 'correspondence' or 'truth'.

This is not to say that the objects and the powers exist in a realm entirely unrelated to the descriptions and theories. On the contrary: the former determine the latter insofar as our 'minds and our language' (like our bodies) are always responding to physical stimuli and hence fall under the same range of causal-explanatory descriptions. But, again, there is no means of getting from this basic level of stimulus-response physiology to a plausible account of just why some descriptions might constitute a real improvement over others in respect of their precision, accuracy, explanatory power, empirical warrant, or whatever. Representationalists are hopelessly stuck at this stage since (Rorty urges) they offer no way of deciding

> whether a certain linguistic item is usefully deployed because it stands in these relations, or whether its utility is due to some factors which have nothing to do with themas the utility of a fulcrum or a thumb has nothing to do with its

> 'representing' or 'corresponding' to the weights lifted, or to the objects manipulated, with its aid. 60

So we can cut out all that otiose talk about 'representation' or 'correspondence' and still hang onto the basic (Quine-Davidson) idea that what makes our sentences true or false is the incoming barrage of sensory stimuli plus whatever is needed in the way of ad hoc pragmatic adjustment to the wider context of beliefs-held-true at this or that time. Objects may exert causal powers, and events be caused by other (preceding) events, and beliefs in their turn have causal explanations that render them determinately true or false. But, as Rorty sees it, there is no legitimate passageno transitive relationbetween this kind of purely physicalist causal account and the kind that looks for reasons (as well as causes) to explain how we progress from the stage of naive sense-certainty to the stage of more adequate scientific knowledge. Such an argument can work only if there is something in the nature of physical objects (whether fulcrums, atoms, or quarks) that accounts for their actually behaving in this or that way, and which justifies the claim that science makes progress by offering more adequate descriptions or causal-explanatory theories. But it is just this belief that Rorty rules out as a relic of old, 'metaphysical' habits of thought. Thus, according to the antirepresentationalist, to say '"we use 'atom' as we do, and atomic physics works, because atoms are as they are" is no more enlightening than to say "opium puts people to sleep because of its dormitive power"'.[61]

At this point, I think, we are entitled to call Rorty's bluff and conclude that his version of causal 'realism' as applied to beliefs and objects-of-belief is in fact the merest of figleaf devices adopted in order to disguise what amounts to a full-fledged antirealist and cultural-relativist position. The difference between the claim about atoms and

the claim about opium's 'dormitive power' is precisely the difference between science and pseudoscience. That is to say, we can write a history of atomic physics which would trace the various stages of advance that led from the purely speculative theories of the ancient atomists, via Dalton's calculations of atomic weight as a means of distinguishing the chemical elements, to the various (increasingly refined and detailed) models of atomic structure proposed by physicists like Rutherford and Bohr.

Of course it may be argued that the sheer variety of candidate descriptionsall purportedly referring to the same kind of objectis itself good reason to adopt an antirealist or at any rate an instrumentalist approach, one that withholds ontological commitment as regards the ultimate 'reality' of atoms. Ernst Mach famously maintained this position against the dominant consensus of his time, and it has lately received a qualified restatement (under the title 'constructive empiricism') in the writings of Bas van Fraassen.[62] The claim, in brief, is that we should count as 'real' only those entities that can actually be observed, while remaining agnostic with respect to those others

whose existence is required by our best current theories but which cannot as yet be confirmed or disconfirmed by the best observational means to hand. This sounds like sensible advice, especially when it comes to problem areassuch as quantum mechanicswhere ontological issues are at present so far from being resolved that agnosticism might seem the best, most rational attitude to hold.

Now one might construe Rorty's comments about atoms and quarks as meant in the same way, that is, as counselling a moderate (van Fraassen-style) reluctance to quantify over indeterminate object-domains. However, this construal is ruled out by the fact that he draws no distinction in principle among quarks, atoms, and middle-sized objects (such as fulcrums) whose existence and effects can be plainly observed, and which would therefore possess an indisputable claim to reality by van Fraassen's constructive-empiricist criteria. Certainly there is no place for such distinctions if one assumes, like Rorty, that *everything* is under some description or other as soon as we take cognizance of it, and hence that any line we care to draw between 'real' and 'theoretical' entities will always be a product of this or that language-game or socialised scientific practice. At which point the realist will respond that atoms can indeed be distinguished from quarks since (1) we possess an immense range of observational as well as theoretical evidence for the existence of atoms, whereas (2) the term 'quark' is at present used to pick out an entity presumed to exist in virtue of its role within the best (most 'complete') available theory of subatomic particle physics. In other words we have rational warrant for assigning a high degree of probability to the existence of quarks while alsowith equally good reasonmaintaining a margin of doubt as regards their precise ontological status. Thus the current situation with respect to quarks and other, yet more elusive particles is very like the situation with respect to atoms at a time when their

existence was strongly borne out on theoretical grounds and also indirectly observable by various means but was still subject to doubt if one adopted a rigorously Machian (empiricist) approach. Moreover, as I have said, there are arguments from quantum mechanicssuch as those involving the measurement problem and the issue of wave *versus* particle interpretationswhich cannot be ignored at these more advanced (microstructural) levels of subatomic research, and which thus strengthen the case for an outlook of principled agnosticism. [63]

All the same, there is no reasonantirealist prejudice asideto suppose that these problems of interpretation in the quantum domain necessarily extend all the way up through atoms and molecules to objects and events in the macrophysical world. Indeed, it was precisely Schrödinger's aim, with his famous thought-experiment concerning the cat in the box, to show that the classical (Copenhagen) theory of quantum mechanics *must* be in some sense 'incomplete' since it failed to establish a cut-off point at which quantum phenomena (such as wave/particle duality and the observer-induced 'collapse of

the wave-packet') *did not and could not* carry over into the realm of macrophysical reality. [64] However, that aim has been lost on many commentators who continue to extrapolate, more or less wildly, from the one to the other domain. There is a parallel here with Rorty's belief that any difference in point of 'ontological' standing among (say) quarks, atoms, and fulcrums is really just a difference in the role they play as descriptive items in the various vocabularies that scientists adopt from one period to the next. On this view, atoms and molecules are no more 'real' for the fact of Perrin's having conducted some ingenious and (as might be thought) conclusive experiments to establish their existence, or for Avogadro's having established a law to determine the precise number of molecules in a mole of any given substance.[65] Nor is the case for electrons in any way strengthened by citing the negative change that exists on every such particle, by tracing their passage in cathode-ray tubes, or by pointing to the manifold effects they produceand the numerous technologies reliant upon themby way of realist counterargument. For at this point Rorty will again respond that all the above-mentioned items (from charges to electrons to cathode-ray tubes and the whole modern range of electronically based technologies) are themselves inescapably 'under a description'just the kind of description that the realist requires in order to make his pointand can thus provide nothing more than another piece of purely circular self-justifying talk.

What is more, it may be said, the realist has once again failed to reckon with the problems introduced by quantum mechanics since 'electrons' exhibit all the curious sorts of behaviour (such as nonlocality and wave/particle dualism) which make it impossible to grant them admission to the range of well-defined objects possessing a determinate space-time location.[66] But if this is the case with quarks and electrons then it is also the case with atoms and molecules and

thence on upso Rorty maintainsto every variety of physical object that figures in our various (scientific and everyday) descriptions of the world. For the idea that we can somehow draw lines on this scale at ontologically salient pointsas between (say) subatomic, atomic, and molecular orders of 'reality' or micro- and macrophysical orders of eventis just another version of the old 'representationalist' idea of truth-as-correspondence, or of scientific language as that which somehow (impossibly) 'cuts nature at the joints'. On the contrary, Rorty argues: although beliefs are susceptible of causal explanation in the physicalist (Quine-Davidson) mode there is no way of getting from that basic level to the stage where *particular contents* of beliefobject-terms descriptions, theories, hypotheses, causal explanations, or statements of physical lawcould be thought of as confirmed or disconfirmed by objects and events in the physical domain. For this would require something more to the process of arriving at rationally or scientifically warranted beliefs. That process cannot be simply a matter of having one's sensory responses triggered by this or that incoming physical stimulus which

then leads onthrough a kind of diffuse chain reactionto certain conflictminimising changes or adjustments elsewhere in the fabric of preexisting beliefs. Or rather, if it *is* just that, then such 'thinking' belongs by very definition to the least advanced, most conservative, since wholly uncritical and habitbound phases of scientific thought.

Rorty can see no force to this objection since on his account all that is required to make a break with such routine interludes in the 'cultural conversation' is a switch of language-games, metaphors, or Kuhnian paradigms, one that comes about for no better reason (but what better reason could there be?) than boredom with the old style of talk. But this will only strike his realist opponent as yet further evidenceif such were requiredof Rorty's impossibly reductive theory of belief causation, his failure to offer any adequate account of scientific paradigm change, and hence his adoption of the strong-descriptivist idea that there is nothing 'in the nature' of physical reality or our various descriptions of it that could count decisively for or against any candidate item of belief. That is to say, it will appear an unfortunate result of his adopting so drastically restrictive a view of our 'knowledge of the physical world' that only by swinging all the way across to a wholesale 'hermeneutic' or linguistic-constructivist view can Rorty allow any scope for change in the history of scientific thought.

Kripke and Putnam

Two main arguments are neededI suggestin order to reject this passive (inertly empiricist) model of belief acquisition and explain how science makes progress through the active reevaluation and critique of received ideas. One is what Rorty dismisses out of hand as merely a throwback to outmoded 'representationalist' ways of thinking. This is the requirement that genuine knowledge must indeed have respect to

the way things stand in reality, along with their distinctive properties, attributes, causal powers, microstructural features, and so forth. Thus it is simply not enougheither as concerns our use of terms like 'atom' and 'electron' or as concerns our various theories regarding themthat the terms and associated theories should be traceable back through a sequence of causally connected events, from their first moment of physically stimulated utterance to their afterlife of varying scope and usage, likewise explained as a matter of response to changing conditions of perceptual acquaintance. Such an approach does indeed have certain advantages, in philosophy of science as in Kripke's causal theory of naming and necessity. [67] It provides an alternative to the descriptivist approach which, as we have seen, can easily lean over into more extreme forms of relativist doctrine. But this still leaves room for Rorty's idea that the causal theory, while working to ensure that our beliefs are reliably 'in touch with the world', all the same imposes no limit on the range of descriptions that we might plaus-

ibly come up with in the ongoing process of pragmatic adjustment among stimuli, beliefs, theories, interpretations, socialised 'forms of life', and so forth. For if the causes in question are construed in a narrowly epistemic or physicalist sensethat is to say, in a sense that preemptively excludes any further (more specific) correspondence-relation between objects and contents of beliefthen the way is clearly open to all manner of alternative construals.

What the realist additionally needs to maintain is the requirement that true (or knowledge-conducive) beliefs should involve not only the right kind of causal history but also a process of reasoning on the evidence which takes them beyond the level of 'unmediated' stimulus-response. One main problem with the Kripkean account when transposed into a philosophy-of-science context is that it lends itself readily to interpretation in reductive physicalist terms. This would be the claim that utterances of a word such as 'atom' have their reference fixedand their sense stabilisedsimply by virtue of referring back to some inaugural act of designative naming which then passes down through the subsequent 'chain' of causally linked transmission. [68] In which case the causal-realist component of Kripke's theory need not (some would say cannot) be construed as in any way congruent with that other variety of causal realism which holds our beliefs to be warranted just insofar as they pick out the right sorts of objects and correctly explain their properties, structures, attributes, dispositions, etc. No doubt there is a strong elective affinity between these two lines of argument, as can be seen from many of the standard examples offered by Kripke and the early (realist) Putnam.[69] Thus the reference of 'gold' is fixed by its having been first applied to just that metal which answered to certain descriptions (yellow, ductile, soluble in *aqua regia*) and which is now more precisely identifiedand distinguished from a look-alike substance such as iron pyrites or

'fool's gold'by the fact of its possessing the atomic number 79. However, according to this theory, it is the initial act of 'baptism' which ensures continuity of reference throughout and despite all those subsequent changes in the state of scientific knowledge that have brought about corresponding shifts in the range of descriptive or identifying criteria. Only thusby holding the reference firmcan we explain why people (alchemists, physicists, metallurgists, economists) have actually been talking about the same sort of stuff, whatever the varying descriptions applied from one historical or cultural context to the next. For on this view there is real informative content to statements (such as 'gold is the metallic element with atomic number 79' or 'water is the substance with molecular structure H^2O') which would otherwise be mere tautologies or products of circular definition.

So the Kripkean approach lines up with scientific realism to this extent at least: it shows how different theories, descriptions, or depth-explanatory accounts can be taken as marking stages of advance in our knowledge of certain real-world entities whose existence and attributes are *not* just a function

of their role within this or that Wittgensteinian language-game, Kuhnian paradigm, Quinean 'ontological scheme', or whatever. Rather, there is a basic continuity of reference which enables our usage of terms such as 'gold' and 'water' to connect with previous usages, no matter how great the distance between them as regards what should count as an adequate (scientifically informed) grasp of the relevant descriptive criteria. So it is that we can talk of progress with respect to well-defined areas of knowledgesay, in the fields of physics or chemistrywithout thereby courting the charge that what looks *to us* like scientific 'progress' is in fact just a product of our own current range of favoured descriptions and theories.

This also provides a strong counterargument to the more extreme forms of descriptivist (or 'textualist') doctrine advanced by thinkers like Rorty. In 'Texts and Lumps' he pushes this doctrine all the way to the point where 'revolutionary' science is equated with the freedom to redescribe lumps in whatever way we choose, regardless of received disciplinary constraints on the range of acceptable (scientifically warranted) descriptions. In the case of *gold* this freedom could extend to 'the role of gold in the international economy, in sixteenth-century alchemy, in Alberich's fantasy life, my fantasy life, and so forth, as opposed to its role in chemistry'. [70] He is notI should addjust making the nowadays fairly uncontroversial point that the physical sciences have no monopoly on what counts as valid or meaningful discourse, and therefore that 'gold' may signify various things to various people in various contexts of utterance. Rather, Rorty is claiming that scientific disciplines such as physics or chemistry should themselves be viewed as cultural constructs, that is to say, as 'discourses' typified by a certain range of descriptive conventions, among them the sorts of routine convention which issue in statements like 'water is H^2O' or 'gold is the metallic element with atomic number 79'. Thus the various

sciences are no more 'natural kinds' than the various sorts of object that they typically pick out as belonging to their own proper domain or their own range of accredited special expertise. If scientists or philosophers of science persist in thinking like that, then it is merely a sign that they are still hung up on old-fashioned notions of truth, reason, natural kinds, or knowledge as a matter of somehow (impossibly) 'cutting nature at the joints'. So the best way to move things alongor to usher in some new, more exciting phase of Kuhnian 'revolutionary' scienceis by raising questions about '[t]he place of the lump, or of that *sort* of lump, in somebody's view of something other than the science to which the lump has been assigned'.[71]

Now one might want to askwith Kripkean warranthow Rorty can talk about 'that *sort* of lump' (as opposed, presumably, to other sorts) if he wants to have done with the 'essentialist' idea that objects fall into certain categories or kinds which lend themselves to certain descriptive-explanatory treatments for certain well-defined (scientific or other) purposes. Indeed,

Kripke offers a number of powerful logico-semantic argumentsincluding those summarized abovewhich bring out the incoherence of descriptivist theories when detached from any viable account of how terms maintain stability of reference across historically changing contexts of utterance, meaning, or belief. Moreover, these arguments clearly have a bearing on the issue of natural kinds, entailing as they do a necessary link between the question, 'How does language relate to the world?' and the question, 'Which items have a proper place in our object-language on account of their actually possessing such features as we take to constitute their distinctive objecthood or difference from other items?' For the paradigm cases of 'naming and necessity' (as Kripke presents them) are cases like 'gold' and 'water' where reference is fixed in the first place by an act of straightforward ostensive designation, and thereafter made more precise through acquired knowledge of just those uniquely identifying featuressuch as atomic number or molecular structurewhich enable us to pick out the items in question with greater scientific accuracy.

Nevertheless, there are differences of view among the commentators as to whether Kripke's theory actually entails any strong ('essentialist') doctrine of natural kinds. [72] Certainly that is how Rorty sees it, with the result that Kripke is lumped among the old-school, joint-carving, 'metaphysical' realists who have not yet managed to unlearn such antiquated habits of talk.[73] Then againas I have arguedKripke's approach might better be seen as indicating just what is wrong not only with Rorty's out-and-out version of the descriptivist case but also with those other, more moderate versions which likewise sever or weaken the tie between matters of *de re* causal explanation and matters of *de dicto* (descriptive or definitional) warrant. Still there is a sense in which the wrangling commentators have picked up a real

ambiguity in Kripke's treatment of these issues. That is to say, it is possibleon the strength of certain passages from his textto argue that the causal theory of naming and necessity is 'causal' only in the weak sense that it invokes a narrowly physicalist account of the way that certain names get attached to certain objects and then passed down through the chain of transmission so as to guarantee fixity of reference. In this case there would be less difference than might appear between Kripke's approach and those varieties of empiricist thinking (Quine's and Davidson's included) which restrict the scope of causal explanation to the business of describing how various responsesverbal and otherare directly 'triggered' by various kinds of ambient sensory stimuli.

Undoubtedly there are elements of Kripke's theory which go some way toward laying the ground (or setting out the logico-semantic conditions) for a more developed causal-realist approach as applied to issues in epistemology and philosophy of science. This case was developed by Hilary Putnam in a number of well-known essays that took their examples mainly from the natural sciences, and which argued for a stronger relation between the order of

logical (*a posteriori* necessary) truth attaching to certain statementssuch as 'water = H^2O'and the order of real-world causal necessity likewise entailed by such claims. [74] However, as is equally well known, Putnam later abandoned that position and retreated to a doctrine of so-called internal realism which differs only in minor respects from the framework-relativism of thinkers like Quine and Kuhn.[75] One reason for thisclearly visible in his latest writingsis that Putnam is now sufficiently impressed by the force of antirealist arguments to take it as read that there is nothing 'in reality' (like the atomic structure of gold or the molecular structure of water) that could possibly justify the causal argument in its stronger form. Thus any causal link between beliefs and objects-of-belief can be construed only in physicalist terms, that is, as a matter of reference fixing for names (such as 'gold' and 'water') which first take hold through an act of inaugural 'baptism' and whose continuing role in our current best theories is explained by their passage down through the line of speaker-to-speaker transmisssion. What finds no place in this weaker construal is the claimprominent in early Putnamthat references may be fixed with increasing precision as we acquire more knowledge of the objects concerned regarding (say) their microstructural features or causal dispositions. For that claim now strikes him as just another version of the old 'metaphysical' realist idea that knowledge can indeed 'cut nature at the joints' by truly representing the way things stand in reality.

'Internal realism' is Putnam's candidate for a theory that purportedly holds the line against relativism while accepting that we cannot get outside our current framework of knowledge-constitutive beliefs in order to compare or contrast those beliefs with an objective (mind- or language-independent) world.[76] But this raises the obvious question, 'Internal to what?', and thereby invites the only possible answer:

'Internal to whichever conceptual or ontological scheme happens to define our current ideas of truth, knowledge, and objecthood'. It thus falls back into just the kind of thinking that Davidson stigmatised as the third dogma of empiricism, that is, the residual Quinean idea that a distinction might somehow be drawn between contents of belief and the organising framework or structure of assumptions under which those beliefs were subsumed. I have argued that Davidson's line of counterargument is vulnerable to exactly the same criticism that he brings against Quine. To repeat, it invokes a purely physicalist theory of belief acquisition which cannot account for the difference between, on the one hand, false or inadequately reasoned beliefs acquired as a result of passive response to physical stimuli and, on the other hand, beliefs arrived at through critical reflection on their causal provenance *and* on their justificatory grounds as a matter of rational (theoretically-informed) inference from the best available evidence. In short, this approach leaves no room for the *activity of thought* which always intervenes as a decisive factor in the advancement of knowledge from stage to stage in the history of the physical sciences.

Two Versions of Causal Realism

So it is that Putnam could accomplish the passage from a causal-realist position to a stance of 'internal realism'antirealist in all but namewithout explicitly rejecting or renouncing the main tenets of his earlier theory. For that theory was always open to what I have here called the 'strong' and 'weak' interpretations, the one having to do with matters of *de re* (objective or realworld) causal necessity, the other with issues of purely *de dicto* (descriptive or definitional) warrant. Even the strong version was considerably weakenedfrom a philosophy-of-science viewpointby the fact that it adopted a wholly externalist approach in attempting to explain how references were fixed and hence how we should properly construe such claims as 'water = H^2O' or 'gold is the metallic element with atomic number 79'. That is, it assumed that the causal nexus between naming, necessity, and natural kinds was best understood from something like the standpoint adopted by Quine's 'radical interpreter', though one with considerably greater powers of context-transcendent understanding. Thus the question was not so much 'How can we account for our knowledge of the growth of knowledge?' but rather 'How can we explain the fact that the usage of terms like "water" and "gold" has remained fairly stable despite and across the various advances in knowledge concerning their properties, attributes, causal dispositions, etc.?'

To be sure, early Putnam had some useful points to make with regard to what he termed the 'linguistic division of labour', or the fact that nonexpert speakers could succeed perfectly well in referring to 'gold' and 'water' even though they possessed no knowledge of atomic numbers or molecular structures. [77] So long as there were *some* people around (i.e., physicists and chemists) whose job it was to know such things, then this was enough to ensure communality of reference

and also to assure others (i.e., the nonexpert majority) that their usage met all the basic conditions for picking out genuine samples of the kind. Thus, according to Putnam, this theory had one great advantage over its descriptivist rival: it allowed for a causal chain of transmission between experts and nonexperts, and hence made it possible for nonexperts to refer to all manner of everyday items (such as *gold* and *water*) which otherwise they could not have talked about properly for want of an adequate definition. To this extent, the causal account in its Kripke-early-Putnam form is one that genuinely helps to explain how advances in knowledge come about and how they are diffused through the wider community through the fixing of reference for certain terms and the refinement of deeper (more specialised) theories by those expert in the various disciplines concerned. However, it signally fails to explain just *why* those advances should count as such by any criterion other than the fact that they happen to constitute the current best wisdom among specialists in this or that field. That is to say, the theory stops short at the point of defining knowledge as whatever comes down from an

act of inaugural 'baptism' ('this is water!'), through various later scientific refinements ('water = H^2O'), to the wider currency of present-day usage among speakers more or less in touch with the latest scientific wisdom. Thus it can always be construed as a matter of purely *de dicto* necessitythat such terms pick out the same substance or referent across all Kripkean possible worldswithout any further specification with regard to what counts (scientifically speaking) as a genuine sample of the kind.

Putnam goes some way in this latter direction when he uses the famous 'Twin Earth' analogy to make his point that an extraterrestrial scientific community which applied the term 'water' to a different substancesay, one with the molecular constitution XYZwould for that very reason *not* be referring to water as we earthlings know it. [78] This argument certainly works well enough against any version of the standard descriptivist theory which entails that Twin Earth water (as distinct from 'water' in the Twin Earth language) must indeed have a different molecular structure. However, it is a realist theory only to the extent that it offers a linguistic (more exactly, a modalized logico-semantic) basis for explaining how our usage of certain terms'proper names', in the extended Kripkean sensefalls square with our common-sense-intuitive ideas about language, truth, and reality. What it fails to provide is any further, epistemologically more adequate account of the process of knowledge acquisition whereby such terms become capable of ever more precise or discriminating usage in virtue of the properties that distinguish (say) water from its notional Twin Earth counterpart, or gold from iron pyrites.

Of course it may be said with some justice that this is no part of Kripke's or Putnam's intention, concerned as they are with issues in modal logic and philosophy of language rather than epistemology or philosophy of science. However, the question then arises as to

whether their way of presenting the argumentas between rival descriptivist and causal theories of meaningmight not be premised on a narrow construal of just what constitutes an adequate approach to *any* of these closely interrelated issues. In this chapter I have viewed the linguistic turn (or the turn from *de re* to *de dicto* conceptions of necessity and truth) as one that has characterised many, otherwise diverse or conflicting movements of thought within recent analytic philosophy. Moreover, I have suggested that it marks the retreat from alternative conceptions of epistemological enquiry that were firmly ruled out by the advocates of logical empiricismas well as by mildly dissident followers such as Quine and Davidsonbut which might yet point a constructive way forward from the various ensuing problems and dilemmas. This is why Davidson can offer no viable alternative to Quinean framework-relativism, despite his perceiving very acutely how Quine's argument itself falls prey to just the kind of scheme/content dichotomy that he (Quine) rejects as a legacy of old-style logical empiricism. In both cases the upshot of adopting a narrowly physicalist (sense-data-based) epistemology is to undermine those normative standards and val-

ues of critical-reflective enquiry that have marked the emergence of scientific knowledge from a background of taken-for-granted commonsense wisdom. In both cases, likewise, this theory goes along with a doctrine of full-fledged meaning-holism which denies that any statement can possess a determinate sense or truth-value apart from its role within the overall structure of presently existing beliefs. And from hereas I have arguedit is but a short step to Rorty's idea that one can be as 'realist' as one likes about stimuli, sense-data, the impact of photons on Galileo's retina, and so on, and yet maintain that this exerts absolutely no constraint upon the range of descriptions or scientific theories 'compatible with the evidence'.

It seems to me that what is needed is an opening-up of this somewhat parochial and self-absorbed debate to sources outside the mainstream analytic tradition. They include not only causal-explanatory approaches to epistemology and philosophy of science but also a range of highly developed arguments for critical realism in various fields of the natural and social sciences. [79] Among these latter must be counted the large body of work inspired by Husserlian phenomenology andperhaps most relevant for present purposesthe distinctive strain of critical or 'applied' rationalism developed by thinkers such as Gaston Bachelard and Georges Canguilhem.[80] I have argued this case in a number of recent books which offer a wider perspective on issues confronting analytic philosophy of language and science in the wake of logical empiricism.[81] What I have sought to do here, in diagnostic mode, is trace some prominent influenceschiefly that of Quinewhose effect has been to divert attention from these promising alternative lines of enquiry. At any rate there seems little prospect of significant advance while the strictures of a logical-empiricist approach continue to set the main terms for debate despite reiterated claims to have shucked off its various residual dogmas.

3
Structure and Genesis in Scientific Theory: Husserl, Bachelard, Derrida

Just recently some analytic philosophersMichael Dummett among themhave started to question the received idea (handed down by the logical positivists) that there exists an unbridgeable gulf between Anglo-American philosophy after Frege and 'continental' thinking in the line of descent from Husserl. [1] That idea gained currency very largely on account of the belief that Husserl and his followers had remained in thrall to a subject-centred ('psychologistic') theory of meaning, logic, and truth and had thus failed to register the signal advance represented by Frege's and Russell's work on the logical foundations of mathematics. Dummett remains more than halfway convinced that Husserl's was indeed a false turn, even though he concedesas against Ryle and other early detractorsthat the project of transcendental phenomenology cannot be viewed as merely a species of naive 'psychologism'.[2] What is taken as read in Dummett's Fregean account is (1) the objectivity of logical thought, (2) the close relation between logical issues and issues of meaning and truth, (3) the priority of logico-semantic considerations over arguments in epistemology or theory of knowledge, and (4)following directly from thisthe demise of 'foundationalist' epistemologies in whatever shape or form.[3]

Other thinkers have arrived at a similar conclusion via different routes of thought. These include a whole range of externalist (or reliabilist) approaches that forswear the traditional epistemic appeal to a privileged first-person viewpoint, and which look instead to the kinds of criteriaor the sorts of confirmatory warrantthat can just as well be applied by an observer suitably placed to monitor the process of

knowledge acquisition.[4] Then again, there is Karl Popper's idea of 'epistemology without the knowing subject', an approach adopted mainly on account of the problems with any theory of knowledge (whether rationalist or empiricist) that banks on the notion of first-person privileged epistemic access.[5] Moreover, there is that whole chapter of developments in post-Fregean symbolic logic and philosophy of mathematics which has led many thinkers (Quine among them) to abandon any notion of discovering *a priori* grounds for the analysis of truth- or validity-conditions.[6]

What it amounts to, in effect, is a reversal of Kant's 'Copernican revolution' in philosophy, one that locates those truth-conditions outside the knowing subject or beyond the realm of judgements supposedly self-evident to reason through forms of jointly intuitive-conceptual grasp.

This seems to me an appropriate context for understanding what Jacques Derrida is about in his deconstructive reading of various texts in the Western mainstream 'logocentric' tradition. [7] Moreover, as I shall argue, Derrida's early work on Husserl is directed toward precisely those problems with the phenomenological appeal to self-present, punctual, conscious awareness that concern analytically minded commentators like Dummett.[8] Thus when Derrida examines the conflicting claims of phenomenology and structuralism he takes the latter to extend far beyond that relatively localised movement of thought which had its origins in Saussure's project of structural linguistics, and which at this timethe early 1960swas being vigorously canvassed in other fields such as anthropology, historiography, the social sciences, and literary criticism.[9] Certainly this structuralist movement of thought was one very striking manifestation of the desire for methodological rigourthe drive toward system and methodwhich had characterised the human sciences during various stages of their history from Aristotle down. But there was also a sense in which structuralism continued the central, indeed the defining project of Western philosophy since its ancient Greek inception, that is, the quest for adequate concepts or categories whereby to order the inchoate flux of experience, intuitions, or meanings.

It is in this sense, Derrida writes, that a certain structuralism may be seen as 'philosophy's most spontaneous gesture', one that emerges whenever it is a questionas with thinkers from Descartes to Kant and Husserlof attaining such knowledge through a process of rigorous

(transcendental) argument from the conditions of possibility for human thought and experience in general.[10] Yet this project always encounters its limit in that which eludes or exceeds the grasp of any theory aimed toward a 'structural' accounta wholly adequate conceptualisationof whatever is given at the level of intuitive or prereflective understanding. In other words, there will always come a point at which this approach proves inadequate to explain how it is that thought can reach beyond those existent structures of knowledge or signification, thereby creating new expressive possibilities oror as it might beentire new fields of scientific thought. Phenomenology appears better equipped to cope with this problem since it takes account of precisely that crucial noncoincidence between structure and meaning, form and content, conceptual understanding and lived experience, or again (in linguistic-semiotic terms) between merely 'indicative' and genuinely 'expressive' signs. Yet in so doingas Derrida showsit cannot escape the philosophical imperative which requires a more rigorous conceptualisation of the latter term in each of these counterposed pairs.[11] Such was indeed Husserl's chief aim:

to provide a transcendental (as opposed to a merely formal) grounding or justification for all those interlinked modalities of human thought, knowledge, experience, and judgement that would otherwise fall apart into the separate realms of objectified (positivist) science on the one hand and subjective 'life-world' on the other. [12] Only thus, he believed, could philosophy regain its lost vocation of providing a reflective and critical account of the various episodes in its own prehistory that had brought this situation about.

In order for Husserl's project to succeed it would have to pursue an immensely difficult course, one that led (in Derrida's phrase) between 'the Scylla and Charybdis of logicizing structuralism and psychologistic geneticism'.[13] That is to say, it must respect both the necessary rigours of a transcendental critique and the requirement that thinking not give way before a drive toward system and methoda 'structuralist' ideal of conceptual closurethat would ignore or suppress whatever lay beyond its methodological reach. For on this latter account there is no possible means of understanding how the mind can have access to those various thoughts, meanings, intentions, discoveries, or acts of reflective self-knowledge that have made up the history of the natural and the human sciences to date. Yet it is also the caseand here Husserl is fully in agreement with Fregethat no such understanding could ever be achieved if it rested on a purely psychological appeal to ideas in the mind of this or that originating thinker or subsequent enquirer.[14] For it is only in virtue of their objectivity (their 'absolute ideal objectivity', as Husserl is quite willing to construe it) that the truth-claims of the sciencespreeminently those of arithmetic and geometrycan be handed down through a tradition of thought which provides for their constant 'reactivation' and also for the process of continuing refinement, elaboration, and critique. However, this must also be a 'living' tradition in the sense that it

cannot exist in isolation (in 'absolute ideal objective' isolation) from those various essentially *repeatable* acts of discoveryof conscious or reflective graspwhich constitute the history of the discipline and which subsequently make all the difference between rotelike mechanical learning and genuine conceptual grasp. Thus objectivism should not go so far as to treat those discoveries as somehow pertaining to a realm of Platonic truths that existand have always existedquite apart from the process of their coming-to-light through advances in human knowledge. For, according to Husserl, there is a sense in which even 'primordial intuitions' such as those of Euclidean geometry must have both a genesis and a history. That is to say, they cannot be understood except on the presumption that they once occurred to some investigative mind (that of the 'original' geometer) in the first act of discovery and were then taken up into a sequence of further such acts whereby that knowledge was maintained and progressively developed.

Hence, no doubt, the charge of 'psychologism' that has often been levelled against Husserl by analytic philosophers who have taken their lead from

Frege's review of his *Philosophie der Arithmetik*. [15] As I have said, it is a charge that Dummett repeats in qualified form, since he allowsmore so than earlier critics such as Rylethat Husserl devoted considerable effort to maintaining a version of the Fregean distinction between subjective 'ideas' (the province of empirical psychology) and objective 'concepts' (those that possess transcendental validity-conditions).[16] However, Dummett is in the end unconvinced that Husserl was able to uphold this distinction with sufficient clarity or rigour. Thus his argument amounts to a careful restatement of the standard 'analytic' case against philosophy in the recent 'continental' (post-Husserlian) line of descent. On this view it is the chief fault of such thinking, even where it claims 'transcendental' warrant, that there is always an appeal to *ideas in the mind* of this or that individual thinker, ideas that are somehow (impossibly) required to provide a guarantee of objectivity and truth. Much betterso the argument runshad these thinkers taken the alternative route that avoids all the in-built problems and dilemmas of epistemology from Descartes to Husserl by adopting a logico-semantic approach on the Fregean model.

Now Derrida is far from suggesting that Husserl was able to resolve those problems. On the contrary, he shows how intractable were the various tensions and conflicts of priority in Husserl's project, among them (as I have said) those that emerge between the strictly incompatible claims of genesis and structure, content and form, diachrony and synchrony, or 'expressive' and 'indicative' signs. More generally, it is the conflict between phenomenology and structuralism, understood not so much as particular (culture-specific) movements of thought but rather as two opposed projects that have always exerted a hold upon philosophy, oftenas is evident with Husserlin highly unstable conjunction. I must now quote at length from Derrida's essay

'Genesis and Structure' since I want to bring out both its close engagement with these problems in Husserlian thought and the precise relationship that exists between Derrida's critique and the kinds of argument typically brought against Husserl by commentators in the 'other' (analytic) tradition. 'In Husserl's mind at least', Derrida writes,

> there was never a 'structure-genesis' problem but only a privilege of one or the other of these two operative concepts. . . . In this phenomenology, where, at first glance, and if one takes inspiration from traditional schemas, motifs of conflict or of tension appear numerous (it is a philosophy of essences always considered in their objectivity, their intangibility, their apriority; but, by the same token, it is a philosophy of experience, of becoming, of the temporal flux of what is lived, which is the ultimate reference. . . .), one finds no clashes, and the mastery of the phenomenologist at work would have assured Husserl of a perfect serenity in the usage of these two always complementary operative concepts. Phenomenology, in the clarity of its intention, would be offended, then, by our preliminary question.17

This 'question' is precisely that which arises when exegetes of HusserlDerrida and Dummett among themtake it as by no means self-evident that those two dimensions of Husserlian thought can be perfectly harmonised or reconciled. Hence what Derrida more compactly describes as 'the principled, essential, and structural impossibility of closing a structural phenomenology'. [18] Hence also Dummett's conclusion that Husserl was never able to achieve his twofold (and contradictory) aim of providing a transcendental justification for what remained, on his account, essentially subjective (or ideational) modes of knowledge and experience.

Up to this point, therefore, Derrida's and Dummett's readings of Husserl have a good deal in common and should perhaps be seen as a further indication of the current convergence of interests between philosophers in the two traditions. At any rate there is no reasoncustomary prejudice apartfor continuing to place them firmly on opposite sides of the typecast 'analytic' *versus* 'continental' line. Nevertheless it would be wrong to sink the difference altogether and suggestin a vaguely ecumenical spiritthat these thinkers are saying much the same thing, give or take a few localised peculiarities of technical idiom. For we should then be adopting Richard Rorty's advice to the effect that nothing hangs on these seemingly specialised intraphilosophical disputes, save perhaps the preferred self-image of various intellectuals who opt to cultivate this or that language-game, style, discourse, 'kind of writing', or whatever.[19] In which case it could scarcely be worth pursuing any fine distinctions or detailed points of disagreement between Derrida's and Dummett's readings of Husserl. These could only come down to a difference in the languagethe preferred 'final vocabulary'that each thinker chose to deploy in the business of interpreting Husserl's text. That is to say, there would be nothing further at stakeno appeal to properly

'philosophical' criteria of truth, logic, rational consistency, evidential grounds, and so forththat could possibly settle the issue between them or provide some means of assessing their rival accounts. Thus, for Rorty, such disputes are entirely pointless insofar as they involve incommensurable language-games which must always be talking at cross-purposes, without any prospect of achieving consensus over a range of agreed-upon terms, concepts, or judgmental criteria.

This idea is of course familiar enough from various present-day contexts of debate, among them post-Kuhnian philosophy of science, post-Quinean talk of ontological relativity and the 'theory-laden' character of observation-statements (along with the reciprocal 'underdetermination' of theory by evidence), and a whole variety of kindred arguments from supporters of a cultural-relativist approach to 'science studies' and the strong programme in sociology of knowledge.[20] All these are taken pretty much for granted in Rorty's version of the argument. What gives that version its distinctive twist is the idea that

Derrida has brought this lesson home by showing that philosophy is indeed just another kind of writing, one that can exploit all manner of literary tricksmetaphor, fiction, irony, parody, the full range of linguistic or rhetorical devicesin order to wean us off the old-fashioned belief in its constructive, rigorous, truth-seeking virtues. [21] Thus, despite his occasional pretence of even-handedness, Rorty clearly sides with Derrida as the writer who has gone furthest toward 'deconstructing' (that is to say, toward debunking or rendering absurd) such quaintly philosophical notions. And indeed, the whole drift of Rorty's thinkingfrom *Philosophy and the Mirror of Nature* to his latest publicationshas been a passage of increasingly ironic detachment from 'analytical' philosophy in its various forms, and a turn toward literature (fiction especially) as the 'kind of writing' most likely to promote an attitude of healthy scepticism in this regard.[22]

I shall now offer another lengthy citation from Derrida's 'Genesis and Structure' by way of suggesting (1) what is wrong with Rorty's account of Derrida, and (2)on related groundsjust where Derrida's reading of Husserl engages *analytically* with issues raised by Dummett and other Anglophone commentators. This passage is all the more relevant insofar as it concerns questions in the philosophy of mathematics which also go to the heart of Dummett's Frege-inspired understanding of issues in logic, philosophical semantics, and the theory of knowledge 'Husserl's originality', Derrida writes,

> is to be recognized in that (*a*) he distinguishes number from concept, that is, from a *constructum*, a psychological artefact; (*b*) he underlines that mathematical or logical synthesis is irreducible to the *order*in both senses of the wordof psychological temporality; (*c*) he bases his entire psychological analysis on the *already given* possibility of an objective *etwas überhaupt*, which Frege will criticize under the denomination *bloodless specter* (*blutloses Gespenst*) but which designates the intentional dimension of objectivity, the transcendental relation to the object that no

psychological genesis can institute but can only presuppose in its own possibility. Consequently, the respect for arithmetical *meaning,* for its *ideality* and its *normativity,* forbids Husserl any psychological deduction of the number at the very moment when both his stated method and the tendencies of the period should have pushed him toward one. It remains that the intentionality presupposed by the movement of genesis is still conceived by Husserl as a *trait,* as a *psychological structure of consciousness,* like the character and the state of something factual. Now, the meaning of the number can do very well without the intentionality of a factual consciousness. This meaning, that is, this ideal objectivity and normativity is precisely independence from any factual consciousness; and Husserl quickly will be obliged to acknowledge the legitimacy of Frege's criticisms; the essence of the number derives from psychology to the same extent as does the existence of the North Sea. Moreover, neither unity nor zero can be engendered on the basis of a multiplicity of positive acts, facts, or psychic events. What is true for arithmetical unity, is also true for the unity of every object in general.23

I want to make four main points about this passage in ascending order of specificity. First, it is a piece of *analytic* commentaryand typical of Derrida's writings on Husserlnot merely in the honorific sense that it examines certain concepts or conforms to certain minimal requirements of textual close-reading. The passage also merits that description insofar as it raises crucial questions concerning the logical form of Husserl's arguments, the issue of priority between 'structure' and 'genesis', and the extent to which any transcendental argument (one that starts out from the conditions of possibility for thought and knowledge in general) can explain or accommodate whatever belongs to the dimension of lived or intentional experience. Second, it offers a *critique* of Husserlian phenomenology that is no less rigorous than Dummett'sand indeed a good deal more sofor approaching these issues (so to speak) 'from inside', that is to say, from a standpoint achieved by working through the various problems that arise in the course of Husserl's project. Third, it treats those problems *not* as having resulted from a mere wrong turn toward 'psychologism', 'subjectivism', and so forth, but rather as strictly unavoidable problems*aporias* in the precise usage of that termthat will always confront any rigorous enquiry into the genesis, history, and validating logic of concepts in the exact sciences.

Whence (fourth) the most important difference between Derrida's and Dummett's readings: that where Dummett in the end takes Frege's side on the issue of 'structure' *versus* 'genesis', Derrida refuses to see this question as definitively closed either way. For it is, he argues, a chief virtue of Husserl's thinking that it keeps these problems steadily in view, unlike the analytic (or 'structuralist') approach that claims access to a supposed realm of 'absolute ideal objectivity', or the alternative (psychogenetic) approach that thinks to ground knowledge in acts of individual consciousness and thus encounters all the well-known

problems pointed out by, among others, Frege and Wittgensrein. Thus: how could analysis ever gain access to those ideal objective truths if not by way of intuitions or concepts that must at some point have occurred to a conscious mind in the act of reflective grasp? But, on the other hand, how could such knowledge be achieved and passed on were it not for the distinction that Frege draws between subjective 'ideas' and objectively valid 'concepts'? Analytic philosophy is characterised for the most part by its stress on this latter line of argument as against any kind of 'mentalist' or 'subjectivist' approach, including (as some would have it) Husserl's project of transcendental phenomenology. However, it is far from evident *either* that Husserl should properly be charged on this count *or* that philosophy in the analytic mode can indeed push through with its programme of expunging all reference to acts of consciousness. For in that case it could offer no justificationexcept in tautological or purely circular termsfor those various presumptive laws of thought (such as noncontradiction and excluded middle) which are taken to define the very nature and scope of logical enquiry. Such

justification must finally be sought, so Husserl argues, in those structures of thought that are progressively revealed through a process of transcendental critique, or a rigorous 'bracketing' of all that pertains to the realm of merely psychological or subjective ideas. [24]

What is therefore at issue between the two lines of descent from Frege and Husserl is the question whether certain disciplinespreeminently mathematics and logicshould be thought of as requiring this further appeal to constitutive acts of consciousness. From the analytic standpoint any such appeal is ruled out on the grounds (1) that it involves a retreat to naive 'psychologism', and (2) that it has been rendered otiose by the advent of a logicosemantic approach which can henceforth provide all the necessary criteria of truth, objectivity, and method. From the Husserlian standpoint, conversely, that argument falls in with just those kinds of unreflective positivist thinking which had taken hold in many quarters of the natural and the human sciences alike. Hence the various symptoms of 'crisis' that Husserl diagnosed in his writings of the 1930s, a crisis engendered by the widening gulf between, on the one hand, a purely instrumental or objectivist conception of reason and, on the other, an extreme reactive retreat into forms of irrationalist, vitalist, or cultural-relativist thought.[25] The only way through and beyond this crisisso Husserl arguedwas the path marked out by the project of transcendental phenomenology, that is to say, by a process of rigorous critical reflection on the genesis and structure of all experience and knowledge, from the most basic (prepredicative) level to the most advanced forms of conceptual understanding. 'From the start', Derrida writes,

> Husserl refuses, and will always refuse, to accept the intelligibility and normativity of this universal structure as manna fallen from a 'heavenly place' (*topos ouranios*), or as an eternal truth created by an infinite reason. To seek out the subjective origin of arithmetical objects and values, here, is

> to turn back toward perception, toward perceptual ensembles, and toward the pluralities and totalities found in a premathematical organization. By virtue of its style this return to perception and to acts of colligation or numeration yields to the then frequent temptation vaguely named 'psychologism'. But Husserl indicates his reservations on more than one score and he never reaches the point of construing an *actual* genetic constitution as an epistemological validation.26

This last point is crucial for grasping what is wrong with the received 'analytic' view which holds Husserl to have fallen into just that error, and which ignoresor discountsall those passages of closely worked argument where he elaborates the threefold distinction between psychological, eidetic, and transcendental modes of judgement. Indeed, it was on these grounds precisely that Husserl claimed to have transformed and radicalized the tradition of epistemological critique descending from Descartes to Kant and beyond. Just as Kant took issue with Descartes for confusing those properly distinct orders

of thought, knowledge and experience, so Husserl in his turn criticised Kant for not having followed that argument through with sufficient clarity and rigour.

My point here is that Derrida stands in a similar relation to Husserl, a critical relation that leads him to diagnose the various problems and aporias in Husserl's thought, such as the unresolved tension between 'genesis' and 'structure', while also affirming the value of that project as a strictly indispensable resource for any further such critical-investigative treatment. Hence, as Derrida describes it,

> the deepening of a work which leaves intact what has been uncovered, a work of excavation in which the baring of both the genetic foundation and the original productivity not only neither shakes nor ruins the superficial structures already unearthed, but also brings eidetic forms once again to light, that is the 'structural a priori'this is Husserl's expressionof genesis itself. 27

Of course it may be saidmost likely from an 'analytic' standpointthat these are mere metaphors (drawn from the fields of archaeology, architecture, geology, etc.) and can thus scarcely serve to advance our understanding of issues in logic, epistemology, or philosophy of language. Moreover, as Derrida remarks, Husserl's entire discourse is permeated by these and kindred metaphors, among themnotablythe terms 'genesis' and 'structure', neither of which can be construed in anything like its (presumptive) 'literal' sense. All the same, such figures of thought are indispensable to Husserl's project since there exist no alternative words or expressions (no plain-prose literal equivalents) that could serve to articulate the points at issue.[28] For that matter, it can be shown that analytic philosophy is likewise dependent on a range of figural resourcessuch as the distinction between 'literal' and 'metaphoric' sense, or the very term 'analysis' (= 'untying a knot')which are strictly examples of the figure *catachresis*,

that is to say, metaphors that cannot be cashed out into any straightforward nonmetaphorical paraphrase. But to make this pointas Derrida doesis *not* to deny that advances in knowledge can indeed come about through the analysis of various kinds of metaphor in various distinct contexts or regions of enquiry. For there is no valid argument from the fact that thinking is often conducted in or through metaphors to the conclusion that any results thus produced are *for that very reason* necessarily devoid of genuine cognitive, scientific, or knowledge-conducive import. This could only be the case if metaphor served as the merest of ornamental adjuncts to language in its 'proper' (literal) usage, or as a makeshift substitute for other, more adequate modes of representation.

Such a view has indeed been maintained at different times by philosophers of various persuasion, whether rationalists (like Plato and Descartes) anxious to purge their thinking of reliance on seductive figures of thought, or empiricistsfrom Locke to the Vienna Circlewho saw no legitimate place for

metaphor in a language confined to observation-statements and logical constructions out of them. However, it is a view that can scarcely stand up against those detailed arguments from history and philosophy of science which point to the formative role of metaphor in the process of conceptual paradigm change or the elaboration of new scientific theories. [29] On this point Derrida is clearly in agreement with philosophersamong them Max Black and Mary Hessewho have made a strong case for the indispensability of metaphor as a vital creative-exploratory resource in the natural sciences and elsewhere.[30] However, that case would be severely weakened if it came to no more than the Rorty-style 'textualist' idea that, since scientists, philosophers, and others always have resort to metaphorical forms of expression, therefore we should simply give up on the attempt to distinguish or theorise the different types of metaphor, and henceforth try to create as many new language-games as possible. For this is just the flip sidethe opposite extremeof the idea that metaphor is merely a distracting ornament or an obstacle in the way of clear and precise analytical thought.

Now it seems to me that there is a close connection between, on the one hand, this issue of metaphor in the discourse of science and philosophy and, on the other, those arguments against Husserlian phenomenology deployed by philosophers in the Anglo-American analytic camp. It can best be brought out by reference to Gaston Bachelard's conception of scientific paradigm change and of the role in that process which has often been played by metaphors, analogies, and modes of 'naive' (anthropomorphic or image-based) thinking.[31] For it is Bachelard's point, taken up by Derrida, that science can no more dispense with such heuristic aids and devices than it can dispense with the labour of analysisof ongoing 'rectification and critique'whereby they are progressively developed and refined to the

stage of more adequate conceptual grasp.[32] And this argument finds a parallel in Bachelard's approach to what might be called (in Husserlian terms) the issue of 'genesis and structure' as applied to matters of scientific truth, knowledge, and theory construction. For it is a distinctive feature of that approach that it rejects any direct Cartesian appeal to the thinking subject as a source of indubitable truths or 'clear and distinct ideas', while also denying that philosophy of science can break altogether with the epistemological paradigm, that is to say, the necessary reference to acts of consciousness insofar as such acts are presupposed in the very idea of scientific discovery or knowledge acquisition.

This is what Bachelard means by his phrase 'applied rationalism' (*le rationalisme appliqué*), a process of rigorously critical reflection on the sources of scientific knowledge which allows for the role of concepts, intuitions, thought-processes, and so on, but which treats them as always susceptible to changesometimes to radical transformationunder newly emergent conditions of scientific practice.[33] In part this is a matter of philosophy's need to

catch up with developments (such as non-Euclidean geometry, relativity theory, and quantum mechanics) that present large obstacles to any theory based on Cartesianor indeed Kantiannotions of a self-assured access to truth through the mind's innate powers of intuitive-conceptual grasp. [34] But it can also be seen as rejecting the ideathe typically 'analytic' ideathat philosophy of science should always be conducted in the mode of 'rational reconstruction', that is, by applying covering-law theories or hypothetico-deductive principles that are answerable only to our present best standards of rational enquiry, and which need not at any point go by way of whatever is supposed to have occurred in the mind of this or that enquirer. For this latter approach will appear naively 'subjectivist' or 'psychologistic' only if one takes it for grantedas do many analytically inclined critics of Husserlthat there is no real difference (abstruse terminology aside) between the orders of empirical, eidetic, and transcendental subjectivity.

Thus Bachelard's argument, more simply put, is that knowledge could never have progressed beyond the stage of naive sense-certainty were it not for this capacity of critical thought to revise and modify its own preconceptions in response to new challenges or obstacles. These latter may arise in the form of anomalous experimental findings or theories that are based on the best current evidence but which then turn out to entail problematical or strongly counterintuitive consequences. Or again, they may result from the kind of 'internal' blockage that occurs when thought is too rigidly bound by certain fixed habits of belief. Such would be, for instance, the concepts supposedly self-evident to reason that Descartes took as his epistemological anchor point, or primordial intuitions (such as those of the classical Newtonian space-time framework) which Kant considered to be given *a priori* as the very condition of possibility for

human knowledge and experience. Thus, according to Bachelard, '[t]he danger of immediate metaphors in the formation of the scientific spirit is that they are not always passing images; they push toward an autonomous kind of thought; they tend to completion and fulfilment in the domain of the image'.[35]

This is not to deny that metaphors and images can play a rolesometimes a decisive rolein the progress toward more adequate scientific concepts. Bachelard's work itself provides many striking examples of the way that such advances in knowledge come about through the process of ongoing rectification and critique.[36] However, that process cannot be understood except in the context of a jointly historical and epistemological enquiry into the various episodes which constitute its development to date. This in turn requires that it take due account of the various 'obstacles' that thought confronted as well as the various means through which it overcame them, whether by replacing intuitive metaphors with more adequate concepts, refining certain useful or productive metaphors to a higher degree of conceptual precision, orin

some casesadopting heuristic metaphors that go beyond the limits of existing (inadequate) descriptive or explanatory concepts. Which is also to say that philosophy of science must always at some point concern itself with issues of epistemology or with the genesis of scientific theories through acts of consciousness that mark a definite stage of advance in the production of scientific knowledge. And this despite Bachelard's insistence that ultimately the truth of theories is in no way dependent on their intuitive appeal, their (supposed) *a priori* warrant, or other such epistemoiogical criteria. For it is precisely his point that some of the most signal advances in fields such as geometry, mathematics, and subatomic physics have been achieved *despite and against* what appeared self-evident to previous enquirers. Indeed, those beliefs may remain self-evident at a commonsense-intuitive level and yet have become scientifically obsolete through just the kind of critical-evaluative process that Bachelard describes.

Bachelard therefore concurs with philosophers like Black and Hessenot to mention Aristotlein rejecting the 'ornamentalist' notion of metaphor and stressing its role as a vital resource in the acquisition of scientific knowledge. However, he also insists (unlike Rorty and the current 'strong' textualists) that scientific metaphors are always open to criticism since they can work just as often to retard that process as to bring about new discoveries. Thus it is wrongexplanatorily vacuousto treat them as just so many optional 'language-games' or Rortian 'final vocabularies', invented mainly out of boredom with old ways of talking and therefore best dropped as soon as they become literalized in the discourse of 'normal', workaday science. [37] For this is to abandon every last distinction between concept and metaphor, knowledge and belief, progressive and degenerating research programmes, or scientific truthas defined by our current best theories and methods of enquiryand what once passed for scientific truth

according to some then-prevalent way of thinking. It is an outlook that falls in readily with the so-called strong programme in sociology of knowledge and with other movements of thoughtsuch as its offshoot discipline of 'science studies'which likewise operate on a strict principle of parity as between various belief systems past and present, scientific and nonscientific, or 'true' and 'false' according to our own (culture-specific) lights.[38] Again, Rorty's writings have the propaedeutic virtue of pushing this case as far as it will go and drawing implications that are tactfully downplayed by other, more cautious exponents. What drops out completely on his account is any idea that there might exist different criteria or validity-conditions for assessing (say) theories in the natural sciences and interpretive approaches in literary criticism or cultural anthropology. For in the one case as in the otherso this argument runsthe only distinctions that are really worth drawing are those between 'normal' and 'abnormal' language-games, or conventional and unconventional modes of

discourse, or the sorts of description that standardly apply during periods of routine activity and those that are typically thrown up during periods of revolutionary turmoil. [39]

Of course it will appear from the 'normal' viewpoint that there exists a far more basic distinction, one having to do with the natural and the human or social sciences, their respective object-domains, and the kinds of knowledgeor better understandingthat can properly be sought in each case. Thus the natural sciences are aimed toward providing an ever more detailed, comprehensive, and predictively accurate knowledge as applied to objects and events in the physical domain, whereas the humanistic disciplines mostly adopt a hermeneutic or interpretive approach. However, according to Rorty, this distinction is one that holds good only for the purposes of present-day 'normal' thinking and research, that is to say, for people (whether scientists, philosophers, literary critics, or whatever) who see no problem in placidly accepting the current disciplinary status quo. For othersthe strong textualists, Rorty among themit will seem just an irksome and boring constraint, a refusal to explore the full range of opportunities for 'redescribing' (say) the notional objects of particle physics through metaphors borrowed from literary theory, or enlivening the discourse of cultural criticism with analogies from molecular biology, or shaking analytic philosophy out of its dogmatic slumbers by exposing it to challenges from way outside its supposed expert domain.

Thus there is no reason in principlecertainly no reason 'in the nature of things'why the physical and the human sciences should stick to their normal (academically accredited) styles of talk and avoid mixing language-games or picking up metaphors from any other discourse that happens to take their fancy. For this is just the way that 'revolutionary' changes come about, whether through Kuhnian paradigm shifts in the discourse of scientific knowledge, through

transformations in the currency of philosophic talk such as that which Rorty hopes to speed along by the switch from 'analytic' to 'hermeneutic' ways of thinking, or through strong-revisionist readings of texts in the literary canon. It is also, he urges, why we need to stop fretting about all those old 'epistemological' problems, problems that can now be seenwith the benefit of hermeneutic hindsightto have involved nothing more than a handful of metaphors mistakenly treated as concepts, metaphors such as that of the mind as a 'mirror of nature' or of knowledge as a matter of attaining ever more accurate representations of 'external' reality. Indeed, the very notion of epistemology as 'first philosophy'as something which philosophers need to sort out before moving on to other (e.g., ethical or aesthetic) concernsis just a part of that normalizing discourse that has exerted such a hold on thinkers from Kant to the present-day analytic mainstream. Once that notion is overcome, so Rorty believes, then philosophy can take its rightful place as just another 'kind of writing' with no delusions of epistemo-

logical grandeur but with a lot more to say on matters of shared human and cultural concern. And the best way to shed those delusions is to wean philosophers off their fixation with scienceespecially physicsas a privileged discourse or exemplary model for the conduct of disciplined, truth-seeking thought. Rather, we should view it as one set of language-games amongst all the others currently on offer, and liablelike themto lapse into routine habits of talk if it is not periodically shaken up by importing 'revolutionary' idioms or metaphors from whatever source texts come most readily to hand. For there is nothing intrinsic to the various objects of scientific knowledgeatoms, molecules, DNA proteins, viruses, chemical affinities, weather patterns, geological formations, astrophysical events, or whateverthat marks them out as properly and uniquely suited to certain kinds of disciplined scientific enquiry. All the more reason that we should now give up on this deluded quest for 'objective' knowledge and truth, along with the kinds of self-authorising 'expert' discourse that have served mainly to block communication between and across the various disciplines. And if that means occasionally picking up tips about nuclear physics from literary theorists or about art criticism from molecular biologists, then so much the better, Rorty thinks, since we shall otherwise be forever stuck in the rut of this or that 'normal' discourse and resist any new or 'revolutionary' challenge to habituated modes of thought.

It is not hard to see how such ideas have taken hold among thoseRorty and othersdisenchanted with the rigours of old-style analytic philosophy. For one thing they could point to Quine's hugely influential essay 'Two Dogmas of Empiricism', with its attack on the logical-empiricist distinction between analytic and synthetic statements (or 'truths of reason' and 'matters of fact'), and its doctrine of thoroughgoing meaning-holism as applied to the physical sciences

and every other branch of human enquiry. [40] Thus, for Quine, the entirety of knowledge at any given time can best be envisaged as a 'fabric' or 'web' of beliefs with certain items (the so-called logical laws of thought) occupying a region close to the centre and hence often considered immune from revision, while others (e.g., empirical observation-sentences) are located at or near the periphery and can thus be revised or replaced under pressure from conflicting evidence. However, it is Quine's contention that we can hang on to any item of belief 'come what may' if we are willing to make adjustments elsewhere in the web or to redistribute predicates over the fabric with a view to avoiding internal contradictions. Most often this will mean reinterpreting some discrepant or anomalous observation-sentence so as to preserve a 'central' belief such as one's commitment to the logical laws of noncontradiction or excluded middle. But it is not unthinkableand may indeed prove necessary in certain fields such as quantum mechanicsto reverse this process and abandon or modify certain logical 'laws' in order to save empirical appearances or retain a theory's predictive power in respect of those

same appearances. In such cases it can only be a matter of achieving the maximum possible coherence in our overall system of beliefs, and accepting science (or the best current theory in the physical sciences) as our most reliable means of deciding where changes have to be made.

From all of which it followsaccording to Quinethat we must relativise ontology (or questions of the sort: which things exist? what are their properties, distinctive attributes, spatiotemporal locations? etc.) to the particular framework or conceptual scheme in which those candidate items appear. Nor is this argument restricted to specialised issuessuch as those of quantum nonlocality or the wave/particle dualismwhere advanced work in the physical sciences may be thought to entail some drastic change either to our commonsense physical ontology or to the accepted logical 'laws of thought'. For on Quine's account it applies just as much to the sorts of disagreement that might crop up between those who (like himself) place considerable trust in the findings of physical science and adherents to various other world-views, mythologies, or systems of religious belief. Hence his well-known remark in 'Two Dogmas of Empiricism' that, in point of epistemological footing, there is nothing to choose between such diverse items as centaurs, Homer's gods, numbers, mathematical classes, and brick houses on Elm Street. The question whether or not these items 'exist' is simply the question as to whether or not they figure in some given 'ontological scheme', or some method of distributing truth-values over the whole range of statements which make up that particular scheme.

Of course Quine himself has some fairly strong preferences in this regard. Thus, speaking 'qua lay physicist', he is happy enough to admit a predilection for brick houses over centaurs and Homer's gods. But speaking qua philosopherand one firmly disabused of those two 'last

dogmas' along with all their attendant metaphysical baggagehe can see no way to justify that preference except as a matter of 'pragmatic inclination'. Certainly it is not an issue that can be settled by adducing epistemological criteria or by claiming warrant for certain beliefs through critical scrutiny of our variousmore or less reliableprocesses of knowledge acquisition. For Quine is adamant that these issues must be dealt with from a strictly logical point of view, and that there is no room for any such appeal to 'subjectivist' (intuitive or *a priori*) notions of meaning, truth, and validity.

This is why he insists on the impossibility of quantifying into intensional contexts, that is to say, of specifying truth-conditions for any statement that contains some expression of speaker-related meaning or belief which cannot be cashed out in directly referential or extensionalist terms. [41] Thus there is, according to Quine, no logically adequate means of establishing the truth-functional equivalence of two statements such as (my example) 'Rita believes that W. V. Quine is a Professor of Philosophy at Harvard' and 'Rita believes that the author of "Two Dogmas of Empiricism" is a Professor of Philosophy

at Harvard'. For it might just be that Rita is in the grip of some confusion, either through knowing all sorts of things about Quine bar the crucial fact of his having written an essay entitled 'Two Dogmas of Empiricism', or through her belief (say) that the essay was written by another Harvard philosopher called Hilary Putnam. So she might assent to one and not the other statement despite their both asserting the same fact about the same individual and hence possessing the same truth-value. Where the problem arises is with the introduction of phrases such as 'Rita believes', phrases which are referentially opaque since they allow of no direct substitution *salva veritate* of two such otherwise synonymous terms as 'Quine' and 'the author of "'Two Dogmas of Empiricism"'. From which Quine concludes that all the gains in conceptual precision brought about by the advent of first-order quantified predicate logic will be lost if philosophers yield to the fallacythe age-old epistemological fallacyof equating truth with the mind-state of justified belief or with knowledge arrived at through reliable processes of concept formation.

Let me now bring together the various lines of argument developed so far in this essay. My chief point in relation to Quine is that his antiepistemological approach results from his rejecting any grounds for knowledgeor criteria of truthother than those canonically expressed in the form of modern post-Fregean symbolic logic. He arrives at this position mainly on account of the problem about quantifying into 'opaque' (intentional or belief-related) contexts, a problem that Frege himself addressedthough without drawing such sceptical conclusionsin the second part of his essay 'On Sense and Reference'. [42] Moreover, Quine's argument goes far beyond the standard 'analytical' objection to subjectivist or psychologistic talk of mind-states, intentions, beliefs, utterer's meaning, and so forth. For he is just as much opposed to the notion of 'meaning' in its other

(intensional-with-an-*s*) sense, that is to say, the idea that these issues can be treated in a properly objective or rigorous fashion by adopting a logico-semantic approach that distinguishes the various orders or structures of meaningful statement. After all, it is Quine's chief purpose in 'Two Dogmas' to knock away the entire system of concepts on which this project had been thought to rest, among them the analytic/synthetic distinction and its logical-empiricist counterpart, namely, that between logically self-evident truths of reason and empirically warranted observation-sentences. This he does by maintaining (1) that all attempts to define what counts as an 'analytic' statement will involve a purely circular appeal to other notions, such as that of 'synonymy', for which again we possess no adequate (noncircular) definition, and (2) that we are likewise at a loss to define what counts as a straightforward empirical observation-statement since such statements are always in some degree 'theory-laden' and those theories themselves 'under-determined' by the best evidence to hand. Thus the upshot of Quine's reasoningin accord with his overall sceptical approachis to block not only

the dubious appeal to subjectivist notions of meaning and truth but also any attempt to avoid that appeal by providing more adequate definitional criteria for the various sorts of statement that figure in the natural sciences and elsewhere.

Other commentatorsnotably Hartry Fieldhave raised what I take to be some strong counterarguments to Quine's doctrines of ontological relativity and radical meaning-variance. [43] On their view, briefly summarized, it is possible for certain terms to retain a sufficient continuity of reference across different theories, observation-languages, paradigms, scientific world-views, and so on, just so long as we possess adequate criteria for deciding which of their various possible meanings are operative in any given context. Thus, for instance, the term 'mass' has been applied in very different ways down through the history of its various usages, from Newton to Einstein and beyond. But we need not concludewith Quine and Kuhnthat those usages are strictly incommensurable since the meaning of 'mass' is a function of its role within the total fabric of beliefs-held-true at this or that time, or its shifting currency from one paradigm to the next. Rather, there are several distinct senses of the term'absolute mass', 'rest mass', 'inertial mass', 'relative mass'which have separated out at different stages in the history of scientific thought, and which now form a complex semantic field with various degrees of partial overlap between them. What thus provides a basis for interparadigm translation or comparison is the fact that we can now, from a post-Einsteinian viewpoint, assign a suitably restricted sense to each particular occurrence of the term as it figures in the discourse of earlier (i.e., Newtonian) physics. That theory is conserved as a limiting caseor as still possessing a regional validitywithin the more comprehensive framework of General Relativity.

This helps to pinpoint one major problem with the Quine-Kuhn case

for radical meaning-variance: that it fails to offer any adequate explanation of our knowledge of the growth of knowledge. More specifically, it can make no sense of the way that scientific progress comes about through a constant process of mutual interrogative exchange between theory and experiment, concept and intuition, or hypothetical conjecture and results obtained in the course of empirical research. On Quine's account this process is best viewed as a matter of pragmatically adjusting various items in the total fabric of belief so as to minimise local tensions and maintain some measure of overall coherence. But in that case it is hard to see why scientists should ever have revised their thinking in response to some perceived anomaly, let alone entertained the kinds of drastic shift from one to another 'paradigm' that have signalled major revolutions in scientific thought. For they would always pragmatically opt to 'adjust' whichever item entailed least disturbance to current habits of belief, whether by redistributing predicates here and there in the system, by finessing some otherwise 'recalcitrant' piece of empirical evidence, or else

at the limitby revising the logical 'laws of thought' so as to prevent conflicts at some other point. What finds no place in this view of scientific paradigm change is the constant dialectical tension between theory and experiment which typifies science even during its periods of Kuhnian 'normal' activity, and which sometimesduring periods of prerevolutionary 'crisis'generares problems that cannot be resolved by any process of flexible negotiated trade-off such as that described by Quine or Kuhn. Such a view will appear in some degree plausible only if one accepts the twin Quinean theses of onto-logical relativity and meaning-holism, the latter reinforcing the former insofar as it entails the idea of radical meaning-variance between different (incommensurable) paradigms. Howeveras Field and others point outthere is no need to draw these highly problematic conclusions if indeed it can be shown that terms retain some stability of sense and reference, even in cases (like 'mass') where they have undergone successive redefinitions from one period to the next. For it is just this partial fixity of meaningacross and despite paradigm shiftsthat explains how genuine conflicts can arise between two rival theories, or between a given theory and the observation-data which might have been expected to confirm it. 44

So there isI submitno good reason to accept the case for such wholesale revisionist claims with regard to logic, epistemology, and philosophy of science. This case is open to criticism on various grounds, among them the objections to radical meaning-variance raised by commentators like Field, and also the factas I argue in chapters 4 and 5that quantum mechanics provides nothing like the measure of support for those claims that Quine and others have supposed. However, there is still the question as to whether 'analytic' (or logico-semantic) approaches of the kind here discussed are themselves fully adequate to meet the challenge mounted by

proponents of ontological relativism. For these approaches share a deep-laid suspicion of epistemology in any of the forms that have characterised the 'other' (i.e., post-Kantian or broadly continental) tradition of thought. That is to say, they reject all versions of the appeal to so-called subjectivist or psychologistic criteria, even though the main thrust of that traditionfrom Kant to Husserl and beyondhas been precisely to establish its critical distance from any such dubious grounds of appeal.

No doubt it is the case that there occurred a parting of the ways after Kant's First *Critique,* with one line of thought focused chiefly on issues from the 'Transcendental Analytic', while the other (Hegel-to-Heidegger) line can be seen as a working out of certain problems bequeathed by the 'Transcendental Aesthetic'. But this is to ignore some very large differences of view within (as well as between) the two supposedly antagonist camps. Thus Husserl must surely be counted an 'analytic' philosopher except on the narrowest definition of that term, that is to say, the sense in which it equates with a purely logico-

semantic approach and hence excludes any critical reflection on the grounds or conditions of possibility for human thought, knowledge, and experience. (We have seen already how this prejudice marks the various Anglophone responses to Husserl even among relatively well-informed commentators like Ryle and Dummett.) Conversely, there are signs of a growing *rapprochement* between, on the one hand, those 'postanalytic' schools of thought inspired in large part by Quine's ideas about ontological relativity and meaning-holism, andon the otherhermeneutically oriented theories which take their lead from thinkers like Heidegger and Gadamer. [45] What finds no place within either campwhether old-style analytic or new-style hermeneutic, pragmatic, 'strong-textualist', or whateveris the kind of epistemo-critical approach carried on by Husserl and also represented by that modern French tradition in philosophy and history of science descending from Bachelard. To the analytic way of thinking this approach is irredeemably subjectivist, whatever its claims to operate at a level quite distinct from the realm of empirical psychology or Cartesian appeals to the thinking subject as a source of *a priori* self-evident truth. Meanwhile, to those in the hermeneutic camp, it appears just a backsliding movement of thought which clings to old ('foundationalist') concepts and categories, and which has not yet shed the illusory idea of knowledge or truth as somehow consisting in accurate representations of a mind-independent world.

At this point we can turn to Derrida's argument in 'White Mythology' concerning the relation between metaphor and concept, or again (more specifically), the role of metaphor in that process of ongoing 'rectification and critique' which marks the emergence of scientific concepts from a matrix of pre- or protoscientific thought. Undoubtedly there is a sense in which Derrida (like Bachelard) could acknowledge the validity of Rorty's attack on such residual Cartesian

metaphors as those of the mind as a 'mirror of nature' or of truth as an accurate matching-up between veridical propositions and factual states of affairs. After all, as we have seen, it is one of Bachelard's chief arguments that scientific progress most often comes about through the critique of naive, imagistic, or anthopocentric metaphors, figures of thought that have so far blocked the passage toward more adequate knowledge. Such was the precondition for those advances in geometry, mathematics, and the physical sciences which required a break with the evidence of naive sense-certainty, or with received (commonsense-intuitive) conceptions of space, time, and number.

To this extent Bachelard would be wholly in accord with Rorty's deconstruction of the Cartesian mind-as-mirror metaphor, that is to say, his argument that this image has held us captive for much too long and should now be replaced by some other (less constrictive or artificial) way of thinking. However, he would notany more than Derridago along with Rorty's further advice that we should also give up on the entire post-Cartesian project

of epistemological enquiry, whether in the 'continental' line of descent from Kant to Husserl or as transposed into the 'analytic' idiom of thinkers such as Frege, Russell, and their latter-day progeny. Rather, for Bachelard, it is a question of continuing to think these issues through with a maximum attentiveness to various blind spots of naive or intuitive self-evidence, but always with the object of progressively removing those obstacles through a process of ongoing rectification and critique. Least of all would he endorse Rorty's textualist (or 'strong-descriptivist') idea that this is just another, merely optional style of talk which is now long past its sell-by date and should therefore be abandoned in the quest for new and more adventurous language-games. For it is crucial to Bachelard's entire projecthis philosophy of science as well as his phenomenological studies in the 'psychoanalysis' of poetic imagery [46]that there are indeed valid distinctions to be drawn between metaphors conducive to the advancement of scientific knowledge and metaphors which, belonging to the realm of prescientific 'reverie', can only constitute a hindrance or an 'obstacle' to any such progress.

Philosophy therefore has its place marked out as a discourse that mediates between these spheres, that acknowledges the formative role of certain metaphors in the process of scientific theory construction, but which nonetheless resists any Rorty-style argument for treating all language-games (science and philosophy included) as metaphorical in character and hence as on a par with respect to issues of knowledge and truth. The point is best made in a lengthy footnote to 'White Mythology' where Derrida remarks on this aspect of Bachelard's thought. Thus:

> the metaphoric obstacle is not only an epistemological obstacle due to the persistence, in the field of science, of nonscientific schema deriving from the popular imagination or from the philosophical imaginary. The

> metaphoric obstacle is sometimes a philosophical one, when scientific schema are imported into a philosophical domain without rhyme or reason. . . . A certain naive scientism on the part of the philosopher can transform scientific discourse into a vast reservoir of metaphors or 'models' for the hurried theoretician. 'Science offers itself to the philosopher as a particularly rich collection of well constructed and well tied together knowledge. In other words, the philosopher simply demands *examples* of science'. These examples 'are always mentioned, never developed. Occasionally, the scientific examples are commented upon according to principles which are not scientific ones; they lead to metaphors, analogies, generalizations'.47

Of course Derrida is here not writing directly *in propria persona* but offering a close paraphrase of Bachelard's argument, along with some apt citations to amplify the point. Thus he should not be taken as straightforwardly endorsing the claim that metaphors can be sorted into various well-defined types, or that philosophy is equipped to distinguish clearly between scientific metaphorsthose with the potential to produce genuine advances in knowledgeand others belonging to the realm of intuitive or poerico-creative 'rev-

erie'. After all, there are many passages in this essay which argue to precisely contrary effect, namely, that the philosophic discourse on metaphor is itself shot through with figures of thoughtsuch as the very term 'metaphor', along with its antonyms 'concept' and 'literal' (meaning)which that discourse can never fully comprehend or control.

Thus, as Derrida writes, 'there is no properly philosophical category to qualify a certain number of tropes that have conditioned the so-called "fundamental", "structuring", "original" philosophical oppositions: they are so many "metaphors" that would constitute the rubrics of such a tropology, the words "turn" or "trope" or "metaphor" being no exception to this rule'. [48] But to make this pointas Derrida makes it through a close reading of what philosophers have written about metaphor, from Aristotle and Cicero to Descartes, Kant, Hegel, Nietzsche, and Bachelardis *not* just to say, in Rortian fashion, that we might as well give up on the hopeless attempt to explicate the workings of different sorts of metaphor in relation to particular object-domains or specific disciplines of thought. For it is still undeniably the case that some (and not other) metaphors have proven their scientific worth through a process of 'rectification and critique' which sets them apart from the general run of 'naive', 'imagistic', or 'anthropocentric' tropes. Moreover, any theory that seeks to explain this fact will need to follow the example of thinkers like Aristotle and Bachelard, those who have acknowledged the centrality of metaphor to every branch of human creative thought, but who have also endeavoured to distinguish clearly between its various structures and modes of application. Hence Bachelard's caution against the kinds of indiscriminate borrowingwhether by science from 'commonsense' intuition, by one branch of scientific knowledge from another, or by philosophy from the natural scienceswhose likeliest result is to block any further conceptual advance.

It is worth pursuing this argument in more detail since it helps to explain what is chiefly at issue between philosophies of science in the two traditions. When Bachelard defends the relative autonomy of philosophic discourseits need to maintain a certain critical distance from scientific (or quasi-scientific) images and metaphorshe is no doubt thinking of those positivist trends which have periodically captured the high ground of French intellectual culture. But his comments also have a pointed relevance to issues in recent 'analytic' debate, in particular those surrounding the claimmost vigorously championed by Quinethat philosophy of science is (or should be) 'all the philosophy we need'. Epistemology gets house-room only on condition that it emulate the natural sciences (physics especially) and thus become a branch of behavioral psychology, based on the various assenting or dissenting dispositions that speakers manifest when confronted with this or that item of empirical evidence.[49] It can thereby avoid having recourse to such problematic notions as 'meaning', 'belief', or 'propositional content', all of which involveQuine arguesa lapse into bad old mentalist ways of thought. Insofar as the

physical sciences are taken as 'limn[ing] the true and ultimate structure of reality', epistemology must follow suit by espousing a strictly extensionalist semantics along with a likewise pared-down ontology, one that allows no intensional (meaning-based) or intentional (belief-based) predicates. Thus, in Quine's famous phrase, 'to be is to be the value of a variable', with truth-values ranging over just those items that are picked out by the quantified first-order predicate calculus. Any theory that exceeds those limitsas for instance by including intensional terms or claiming to quantify into modal contextsis therefore not a candidate for serious attention on Quine's austerely physicalist terms.

This objection would apply with yet greater force to those projects (such as Husserl's and Bachelard's) that adopt a jointly structural and genetic approach to issues in epistemology or philosophy of science. That is to say, they take some account of the *processes of thought* by which knowledge advances beyond the stage of naive sense-certainty, by which intuitions are subject to ongoing rectification and critique, or againas in Bachelard's caseby which certain metaphors are tried and tested to the point of more adequate conceptual definition. From a Quinean viewpoint it can be no defence of these projects that they claim to be grounded in the very nature and capacities of human cognitive grasp, as opposed to adopting a merely 'subjective' or 'psychologistic' approach. For of course this argument lacks all force if one takes it, following Quine, that there is just no wayleast of all a 'transcendental' wayof upholding the distinction between *a priori* truths-of-reason and matters-of-fact whose warrant is empirical or always subject to revision under pressure from conflicting evidence.[50] On this account Husserl would be labouring under the same metaphysical delusion as Kant, or indeed the same mistake as those logical empiricists (Carnap chief among them) who thought to

establish a clear boundary between first-order observation statements and higher-level theories or covering-law principles. Nor could Bachelard escape this charge even thoughas we have seenhe rejects any notion of direct intuitive or *a priori* access to truth and considers advances in scientific knowledge as coming about most often through a break with precisely such self-confirming habits of thought. For in his case also there is a constant appeal to that process of self-aware critical reflection through which thinkers have managed to attain the requisite distance or measure of detachment from their own preexisting 'commonsense' intuitions and concepts. That is to say, Bachelard seeks to reconstruct the various stages through which thinking has passed in its progressive attempts to overcome the adherence to 'naive', 'imagistic', or 'anthropocentric' metaphors. He is thus clearly in breach of Quine's rule, according to which we should avoid any reference to intentional (belief-based) contexts and adopt a parsimonious ontology that admits only the best-supported 'posits' of the physical sciences plus whatever is needed in the way of pragmatically adjusted logical linkages between them.

However, one may doubt whether Quine's physicalist programme can possibly be carried through in the manner he envisages without in the process depriving scienceand philosophy of scienceof any normative standards or critical dimension whereby to explain our knowledge of the growth of knowledge. That dimension is effectively squeezed out between, on the one hand, his narrowly physicalist ('naturalised') account of how beliefs are arrived at and, on the other, his relativist thesis that any new items thus acquired can always be suitably revised or adjusted so as to bring them more into line with our various other standing belief-dispositions. What is thereby left entirely unexplained is that process of reasoning through and beyond certain obstacles to thought which has characterised every phase of scientific advance and which provides the main focus of Bachelard's historico-philosophical studies. All that is left of that process, on Quine's account, is a physicalist theory of belief formationbased on a crudely reductive version of stimulus-response psychologyand a framework-relativised theory of meaning and reference which leaves no room for any treatment of science as a rational, constructive, problem-solving endeavour.

So there are good reasons why philosophers of science in the broadly analytic (or 'postanalytic') tradition should take an interest in developments outside that tradition, more specifically, the two lines of thought descending from Husserl and Bachelard. At present there are signs that this process is indeed under way, as witness Michael Dummett's reevaluative work on Frege and Husserl. [51] One could also point to a number of recent books (by Hubert Dreyfus, Stephen Mulhall, Mark Okrent, Joseph Rouse, and others) which suggest that one way forward from the dead-end legacy of logical empiricism is the way that also leads back to a renewed engagement with Heidegger and the project of depth-hermeneutical enquiry.[52] However, this

approach runs the risk of appearing to endorse something very like Rorty's 'strong-textualist' or interpretivist line, that is to say, his idea that interpretation goes all the way down, and hence that the only difference between texts and lumps is a difference in the sorts of language we use in describing such things. Thus it tends to pick up on just those aspects of Heidegger's thinkingas likewise of Wittgenstein's later philosophywhich lead to a view of science as merely one 'language-game' or cultural 'form of life' among others, with no special claim in matters of epistemological warrant. To this extent it simply reinforces the idea among 'old-guard' analytic thinkers that Carnap was right in his dismissal of Heideggerand of 'continental' thinkers generallyas victims of a hopeless bewitchment by language that removed them from the sphere of rational debate about issues in logic, epistemology, and philosophy of science.[53]

In Heidegger's caseI would saythis is not so much a fixed prejudice as a reasonable estimate of the way that his thinking both devalues the

achievements of the physical sciences and confuses those issues through a blanket diagnosis of 'Western metaphysics' and its latter-day extension into the sphere of technoscientific domination over nature and humankind alike. [54] But the same cannot be said of Husserl's more nuanced, historically detailed, and scientifically informed account of the way that a certain (narrowly positivist) conception of scientific reason has become increasingly detached from the sphere of reflective self-critical thought. Nor can it be said of later projectslike that of Jürgen Habermas and the second-generation Frankfurt theoristswhich continue this enterprise of thinking through the problems and dilemmas of enlightened modernity, rather than following Heidegger's path toward a realm of primordial truth-as-revelation or 'authentic' being-in-the-world.[55] Least of all can the charge be levelled against Bachelard, concerned as he was to specify precisely the relation between pre(or proto)scientific and scientific modes of thought, or again, between science and the various ideologies of science that often usurped that title.

This sets his work decidedly apart from other, less discriminate versions of the argument which holdlike the 'strong' sociologists of knowledgethat *all* science is a product of ideological interests, and therefore that one should not prejudge the issue as between the rival merits of (say) Priestley's and Lavoisier's theories of combustion, or Boyle's and Hobbes's conflicting views concerning the existence or nonexistence of vacuum phenomena.[56] It also brings Bachelard out in sharp disagreement with that whole line of thought about metaphor in the texts of philosophy and science which leads to the postmodern-textualist idea of truth as a purely linguistic or rhetorical construct. That idea has itself taken hold, I suggest, very largely as a result of various problems bequeathed by logical empiricism, among them the ease with which a narrowly physicalist theory of belief acquisition

flips over (as with Quine) into a doctrine of wholesale meaning-variance or radical framework-relativism. It is here that 'continental' philosophy of science has some useful lessons to impart. That is, it offers an alternative approach that avoids the sharp 'analytical' dichotomy between context of discovery and context of justification, or the processes of thought involved in scientific theory change and the various procedures (inductive, hypothetico-deductive, etc.) brought to bear in the evaluation of such episodes with benefit of rational hindsight. But it doesn't go so far as to collapse that distinction altogetherin company with the textualists or strong sociologistsand argue that truth in such matters *just is* what various parties have supposed according to their own best current notions of scientific truth and method. Rather, it seeks to reconstruct the history of science through a critical assessment of the stages of thought that have marked the advancement of scientific knowledge in its questioning of 'naive', image-based, intuitive, or other such (erstwhile) self-evident truths.

I should also want to claim that Derrida's early work belongs very much in

that line of descent, engaging as it does with Husserlian phenomenology, on the one hand, and with Bachelard's epistemo-critical philosophy of science on the other. Moreover, it points one possible way forward from the dead end of logical empiricism, despite the resistances and deep-laid prejudices that have so far marked its reception history among the heirs to that particular enterprise. At any rate the prospects now appear to be improving for this long-overdue resumption of constructive dialogue between the two intellectual traditions.

4
Supplementarity and Deviant Logics: Derrida *Contra* Quine

In this chapter I shall challenge the common beliefcommon at least among Anglo-American philosophersthat Jacques Derrida's writings lack any semblance of reasoned argument or cogent logical thought. My approach will be, first, by way of his engagement with what Habermas calls the 'philosophic discourse of modernity', that is, the mainland-European tradition of thought descending from Kant to its present-day advocates and defenders, among them Habermas himself.[1] After that I shall offer more detailed comments on the logic of deconstruction with reference to Derrida's notorious (but not, I think, widely read or well understood) exchange with John Searle on the topic of speech-act theory. Lastly, I shall bring these two lines of argument together by questioning the standard doxographic account according to which there occurred a great rift after Kant, with the typecast 'continentals' from Hegel to Derrida following their own strange devices, and 'analytic' philosophy (since Frege and Russell) working patiently to clear up various sources of logical or conceptual confusion. HoweverI maintainthis picture is selective to the point of downright distortion, ignoring as it does both the problems created for philosophy of language and logic by analytical thinkers such as Quine and also the different (but no less rigorous) approach to these issues developed in the work of philosophers like Husserl and Derrida.

Just recently there have been signs of a nascent revisionist or heterodox account, as witness, for instance, Michael Dummett's comparative studies of Frege and Husserl.[2] However, these bridge-building efforts remain somewhat tentative and continue to manifest a

marked bias toward the analytic (or Fregean) standpoint whenever it is an issue of aim or priority between the two traditions of thought. Meanwhile, there is general agreement among all but a dissident handful of Anglo-American commentators that any interest in Husserl's logical researches cannot or should not extend to the workincluding the large body of work on Husserlproduced by such a maverick figure as Derrida. For in Derrida's case, so the *doxa* holds, there is simply no concern with the elementary protocols of logic, reason, or truth. That is to sayto

adopt a phrase from J. L. AustinDerrida is out to 'play old Harry' with these basic concepts and values and shows not the least inclination to abide by the rules of genuine, constructive philosophical debate. [3]

So the cut-off point for any resumption of dialogue across the two traditions very definitely falls somewhere between Husserl and Derrida, with a preference for drawing it soon after Husserl so as to include Heidegger in the company of those who fail to come up to the required standard. I shall hold no brief for Heidegger here since I consider his influence on Derrida's thinking to be far less crucial and pervasive than is often made out by hostile critics or by sympathetic readers of an *echt*-Heideggerian (depth-hermeneutical) persuasion.[4] Indeed, I would endorse much of what Carnap has to say in his well-known 1931 essay denouncing Heidegger's *ersatz* jargon of authenticity as a dangerous spell too easily cast by certain kinds of seductive 'metaphysical' bewitchment by language.[5] Moreover, as I have argued elsewhere, there is a closer affinity than might be supposedon the orthodox 'two camps' viewbetween Carnap's call for 'the elimination of metaphysics through logical analysis of language' and Derrida's deconstructive readings of Heidegger as a thinker perilously prone to the idea of truth as revealed through the quest for an order of authentic, primordial Being.[6] At least it should be recognised that Derrida's critique of logocentrismor what he calls the Western 'metaphysics of presence'is at many points aimed toward just those assumptions (among them also the residual psychologism of Husserlian phenomenology) which have drawn criticism from various analytic philosophers.[7]

In what follows, therefore, my main purpose is to extricate Derrida from a range of false or misleading ideas concerning (1) his relationship to other 'continental' philosophers from Kant to Husserl, (2) his presumed indifference to the standards of reasoned

philosophical debate, and (3), more specifically, his approach to issues in philosophy of logic and language. I should begin by remarking that deconstruction is *not*as many would have itjust a variant form of the 'postmodernist' turn that has lately become a fashionable talking point among literary critics, cultural theorists, sociologists, and some philosophers. On this view truth and reason are obsolete values belonging to a 'discourse'that of the European Enlightenmentwhose hegemony is waning with the passage to a new, more dispersed and fragmented (though also, strangely, more 'globalized') order of postmodern cultural relations.[8] One can best look to Derrida's writings on Kant for his response to such wholesale relativist arguments and his qualified yet often spirited defence of the philosophic discourse of modernity.[9] On the one hand, he seeks to maintain a certain distance between deconstruction and what might be called 'a simple progressive demystification in the style of the Enlightenment'.[10] Like Paul de Man on Husserlin an essay of comparable subtlety and self-reflexive scrupleDerrida guards against the standing temptation to criticise others

for forms of prejudice (in Husserl's case the tendency to equate the 'crisis' of the European sciences with a crisis of humanity at large) which may also be at work in one's own discourse. [11] That is to say, deconstruction should be true to Kant's principle of questioning *all* those presumptive beliefsamong them the claims of enlightened critical reasonthat can easily become just another pretext for assertions of revealed or self-authorising truth. On the other hand, 'one can thinkI dothat this demystification must be carried as far as possible, and the task is not modest' (AT, 59). And again, yet more strikingly: '[w]e cannot and we must notthis is a law and a destinyforego the *Aufklärung*, in other words, what imposes itself as the enigmatic desire for vigilance, for the lucid vigil, for elucidation, for critique, and truth' (51).

Of course the word 'enigmatic' here carries tonings of a certain mysterya residue of doubtas concerns the source of such critical questioning and the motives behind what may easily pass as 'a simple progressive demystification' in the name of Enlightenment thought. Perhaps, Derrida writes, this Kantian imperative to question everything from the standpoint of critical reason conceals within itself 'some apocalyptic desire, this time as desire for clarity and revelation' (AT, 51). Perhaps there is more in common than might first appear between Enlightenment and those modes of 'visionary' discourse that draw upon a similar range of metaphors from the lexicon of insight, inward revelation, the mystical *scientia intuitiva*, or truths vouchsafed to the spirit in a state of receptive grace. However, there can be no doubt as to Derrida's eagerness to dissociate deconstruction from other, more wholesale dismissive appraisals of modernity and all its works. Thus, '[w]ho is more faithful to reason's call, who hears it with a keener ear . . . the one who offers questions in return and tries to think through the possibility of that summons, or the one who does

not want to hear any question about the principle of reason?'[12] It is perhaps not too fanciful to discern, behind this passage, Derrida's implicit rebuke to thoselike Jürgen Habermaswho have seen nothing more to his work than a rerun of Nietzschean or Heideggerian counter-Enlightenment themes.[13]

Not is this merely a belated attempt to rescue deconstruction from the charges of irrationalism, nihilism, game-playing sophistry, and so forth, brought against it on the evidence of his own previous writings. For there are two early texts in particular'Cogito and the History of Madness' (on Foucault) and 'Violence and Metaphysics' (on Levinas)which amply refute such claims. In the one case it is a matter of showing that Foucault cannot possibly take the side of madness as against a sovereign and oppressive reason without necessarily having recourse at every point to arguments, reasons, diagnostic criteria, and modes of critical-evaluative thought which *inescapably* belong to that same 'discourse' whose standards he purports to abjure.[14] Thus Foucault here claims to have written '[a] history not of psychiatry but of madness itself, in its most vibrant state, before being captured by knowledge'

(CHM, 43). Yet this is impossible, Derrida contends, and for reasons that are evident in every last detail of Foucault's impressively argued and documented study. 'By its essence, the sentence is normal . . . It carries normality and sense within it, and does so whatever the state, whatever the health or madness of him who propounds it, or whom it passes through, on whom, in whom it is articulated' (545). Nor can this be viewedDerrida continuesas 'a weakness or a search for security proper to a given historical language'. Rather, it is inherent 'in the essence and very project of all language in general; and even in the language of those who are apparently the maddest; and even and above all in the language of those who, by the praise of madness, measure their own strength against the greatest possible proximity to madness' (55). Thus Derrida's pointlargely missed by Foucault in his nettled response [15]is that 'reason' cannot be equated *tout court* with the powers of coercive instrumental rationality which Foucault reveals to such powerful effect in *Madness and Civilization*. For this ignores the extent to which any argument aimed against those same social, political, or psychiatric powers will need to avail itself of certain resourcesmethods of enquiry and procedures of evaluative judgementwhich themselves require an exercise of reason in its other (critical-emancipatory) mode. Moreover, it is the case, as Derrida remarks in the passages cited above, that merely to speak, write, or communicate with the aim of being understood is *ipso facto* to adopt the forms and modalities of rational-discursive thought.

In 'Violence and Metaphysics' there is a kindred argumentalbeit less sharp in toneagainst Levinas's ethics of radical alterity, that is to say, his demand that our relation to the absolute 'other' must precede or transcend all the concepts and categories of a philosophic discourse that has always been premised on the appeal to first-person epistemological grounds of self-assured knowledge and truth.[16]

Derrida's response again goes via a lengthy and rigorously argued reading of Husserl. Here he defends the latter against Levinas's charge that transcendental phenomenology is merely the latest, most resourceful chapter in that post-Hellenic history of thought wherein epistemology has figured as the source of all knowledge, including knowledge of other persons and their ethical claims upon us. Quite the contrary, Derrida maintains: Husserl (in his Fifth *Cartesian Meditation*) keeps open the possibility of ethics precisely insofar as it involves the idea of an alter ego, one whose alterity can only be conceived in relation to (or by analogy with) one's own sphere of experience.[17] For there is notand cannot bean ethical relation that treats the other person as an *absolute* other whose every last thought, perception, need, or desire would thus become utterly alien and quite beyond the realm of shared human concern. Indeed, they would be reduced to mere data in our field of phenomenal cognition, along with the range of inanimate objects that solicit no such ethical regard.

That these are issues of a more than narrowly philosophic interest should

be evident enough from the recent history of ethnic strife in those regions of the worldfrom Bosnia to Palestine and Northern Irelandwhere perceptions of the other as radically other (and hence as possessing no title to humane treatment) have led to some of the worst atrocities of modern times. [18] They also have a bearing on current debates about depth-ecology and the question whether certain kinds of concern for the natural (organic or inorganic) world may consort with a sharply diminished sense of our special responsibility to human beings as bearers of distinctive rights, obligations, and interests.[19] In this context one could cite some of Derrida's writings on Heideggerbeginning with his early essay 'The Ends of Man'as evidence that he has never been willing to endorse the more extreme forms of antihumanist doctrine that have taken hold among French Heideggerians, Foucault included.[20] However, what I chiefly wish to emphasise here is the complete lack of warrant for that view of deconstruction which considers it merely a spin-off product of the wider 'postmodernist' revolt against values of shared humanity, reason, and truth.

To a large extent this perception has resulted from its fortunes in the U.S. academy. The story has been told many times over so I shall not go into the details here.[21] Sufficient to say that deconstruction was taken up with more zest than understanding by literary theorists who had become bored with the 'old' American New Criticism and for whom it offered a chance to explore some exotic new styles of thought. With a few exceptionsPaul de Man among themthese critics displayed little interest in its philosophic sources or contexts, and even less in pursuing the kinds of specialised enquiry that had occupied Derrida in his work on Husserl and other such demanding texts. Besides, there was always Richard Rorty's welcome assurance that nobody need take Derrida too seriously when he lapsed into that

embarassing strain of old-style philosophical talk.[22] Much better to skip all the strenuous stuff and stick with those playful or 'literary' texts where philosophy appears as indeed just another 'kind of writing', one whose loss of any privileged truth-telling status is more than made up for (so Rorty thinks) by its gain in inventiveness and sheer stylistic brio. In this mood, happily, 'bad nephew Derrida' can be seen running rings around 'honest old Uncle Kant'. So it is that deconstruction can help wean us off the belief that philosophy isor ever could bethe kind of constructive, problem-solving, or intellectually rigorous enterprise that continues to exert its delusive hold upon thinkers in the analytic tradition.

It will be clear by now that I think this judgement holds the picture very firmly the wrong side up. There is much of great brilliance in Derrida's later writings and much that might engage the interest of philosophersanalytic philosophers evenif only they allowed that 'serious' thinking may sometimes be conducted in genres other than those of the standardly furbished academic article or monograph. The examples of Plato, Kierkegaard, and

Wittgenstein should be enough to challenge the idea that philosophy requires a direct (first-person yet impersonal) address to the topic in hand, and hence that it cannot respectably consort with the various oblique styles and narrative devices to be found in Derrida's later, more 'literary' texts. It is this feature of his writing that so exasperates philosophers like Searle, committed as they are to the analytic viewderiving from Carnap-style logical empiricismthat it is wrong to mix up the discourse of speech-act theory with the various sorts of performative utterance which that theory takes as its object-domain.[23] Thus Searle could see nothing but sheer incompetence and game-playing sophistry when Derrida responded to Searle's critique of his essay on Austin by producing yet another text which seized every chance to display the ambivalencethe sheer range of possible speech-act meanings, contexts, and implicaturesto which Searle's pronouncements were open.[24] His purpose was *not* just to mock Searle's earnest-minded approach but rather, more pointedly, to bring home the problems confronted by a programmatic speech-act theory that would claim to occupy a purely constative (metalinguistic) standpoint *vis-à-vis* its various samples of first-order natural language utterance.

Indeed, Derrida's reading will appear much closer to Austincloser, that is, than Searle's systematizing approachif one recalls Austin's famous readiness to drop certain categorical distinctions (such as that between 'constative' and 'performative' speech acts) in response to the various problems thrown up by his own often quirky but nonetheless revealing case studies.[25] Thus there is nothing perverse about Derrida's habitual attentiveness to the 'margins' of philosophy, that is, his conviction that there is much to be learned from examining just those speech-act instances that Austin (in his more Searlean moments) describes as 'deviant', 'abnormal', 'parasitic', 'etiolated', or 'infelicitous' in various

ways. For it is just Derrida's pointa point also made by Gilbert Rylethat philosophy is often most usefully employed in testing the scope and limits of our normal concepts, conventions, or 'logical grammars' in order to see how they fare under the strain imposed by an abnormal context.[26] Such is the curious double gesture by which Austin both admits these possibilities and strives to contain them within a general theory of proper *versus* improper speech acts. His procedure, Derrida writes, is 'rather remarkable and typical of that philosophical tradition with which he would like to have so few ties'.[27] It consists in his recognising

> that the possibility of the negative (in this case, of infelicities) is in fact a structural possibility, that failure is an essential risk of the operation under consideration; then, in a move which is almost *immediately simultaneous*, in the name of a kind of ideal regulation, it excludes that risk as accidental, exterior, one which teaches us nothing about the linguistic phenomenon being considered.[28]

However, this is not to say that commentaries on Austin can claim equal fidelity to his text whether they take the Searlean 'high priori' regulative road

or the Derridean approach via Austin's examples and the problems these create for any would-be systematic speech-act theory. For the former is compelled to ignore too much of what is actually going on in Austin's text, that is to say, what is revealed to a reading more aware of the ways in which language may prove resistant to the tidy classifications that are forced upon it by an overly prescriptive methodology.

My point in all this is that Derrida's writings on Austin and others are no less rigorousindeed no less properly 'analytic'for raising these out-of-the-ordinary questions about meaning, intention, context, regulative concepts, and so forth. Least of all do they give warrant for Rorty's claim that he (Derrida) is simply unconcerned with such old-fashioned philosophic virtues as offering arguments, respecting distinctions, or seeking to articulate the conditions of possibility for language and logic in general. On the contrary, Derrida writes,

> [e]very concept that lays claim to any rigor whatsoever implies the alternative of 'all or nothing'. Even if in 'reality' or in 'experience' everyone believes they know that there is never 'all or nothing', a concept determines itself only according to 'all or nothing'. Even the concept of 'difference of degree', the concept of relativity, is, qua concept, determined according to the logic of all or nothing, of yes or no: differences of degree *or* nondifference of degree. It is impossible or illegitimate to form a *philosophical concept* outside this logic of all or nothing. 29

This was in response to Searle's claim that Derrida could have discovered (or invented) such problems with speech-act theory only through his insistence on rigid categorical distinctions between 'constative' and 'performative', 'normal' and 'deviant', 'standard' and 'nonstandard', etc., and his refusal to accept that language might functionfor all practical, everyday, communicative purposeswhile seldom (or never) meeting the demands of such 'ideal purity'. Thus for

Derrida, according to Searle, 'unless a distinction can be made rigorous and precise it isn't really a distinction at all'.[30]

It might be thought that Derrida protests too much in the above-cited passage and that his aim is merely to turn the tables on Searle by making himself out to be a more rigorous thinker by the best analytic standards. Indeed, the passage would appear to place him firmly on the side of those logiciansQuine most prominent among themwho think that we are well enough served by the quantified first-order predicate calculus along with a strictly extensionalist semantics and bivalent ('all-or-nothing') truth and falsehood values.[31] (I refer here to Quine's textbook writings on logic and philosophy of logic, and not to his other, more speculative essayssuch as 'Two Dogmas of Empiricism'where he maintains that even the most basic logical 'laws of thought' might conceivably be subject to revision under pressure from conflicting empirical evidence).[32] For Quine this follows as a matter of course from the impossibility of quantifying into modal, intensional, or

otherwise 'opaque' contexts. Thus, clearly, any logical programme will fail to meet the above criteria if it is taken to admit such epistemic factors as beliefs, attitudes, or states of knowledge, or again, such vagaries of extensional scope as result from the deployment of alternative (e.g., modal or many-valued) logics. 'If we are limning the true and ultimate structure of reality', Quine writes, 'the canonical scheme for us is the austere scheme that knows no quotation but direct quotation and no propositional attitudes'. [33]

I should not wish to claim (absurdly) that Derrida operates with anything like this degree of self-imposed logical austerity. After all, one conspicuous feature of his texts is their constant interweaving of expository prose with paraphrase, allusion, oblique cross-reference, and various forms of (marked or unmarked) direct and indirect quotation, as for instancemost egregiouslyin his response to Searle.[34] However, there is a point that is often ignored when hostile commentators accuse Derrida of merely playing games with texts, or when admirers such as Rorty praise him for just that reason. It is a point best made with reference to those early textssuch as 'White Mythology', 'Plato's Pharmacy', his reading of Husserl in *Speech and Phenomena,* and the near book-length treatment of Rousseau in *Of Grammatology*where Derrida is most closely engaged with issues of truth, meaning, and interpretation.[35] For his arguments there would lack all force were it not for his applying the precepts of classical logic (bivalence, noncontradiction, excluded middle) to a point of strictly inescapable aporia where the text can be shown to resist or contravene those same logical precepts.

Such is the case with regard to that curious 'logic of supplementarity' which Derrida finds everywhere at work in the texts of Rousseau. Thus Rousseau quite explicitly '*declares* what he *wishes to say*', that is, that 'articulation and writing are a post-originary malady of

language', a supplementary resource that *should* arrive late on the scene and therefore pose no threatno essential threatto the ideal self-presence of natural speech.[36] However, Rousseau also 'says or *describes* that which he *does not wish to say:* articulation and therefore the space of writing operates at the origin of language' (*OG*, 229). Likewise with music: melody *should* be conceived as prior to harmony both in terms of historical development and as regards its intrinsically superior qualities of naturalness, spontaneity, closeness to the origins of authentic speech-song, and so forth. 'To the degree that the language improved', Rousseau declares, 'melody, being governed by new rules, imperceptibly lost its former energy, and the calculus of intervals was substituted for nicety of inflection' (cited in *OG*, 199). However, Rousseau is more than once constrained to say just the opposite of this, namely, that *there is not and cannot be*and historically never wasa melody so pure as to admit no taint of 'supplementary' harmonic structure. Thus, on the one hand, the mannered contrapuntal style of composers like Rameau should properly be seen as a 'gothic and barbarous' development, a path which 'we should never have followed if we had been

more sensible of the true beauties of art, and of music truly natural' (345 n). Yet it is also the case, according to Rousseau, that melody 'has its principle in harmony, since it is harmonic analysis which gives the degrees of the scale, the chords of the mode, and the laws of the modulation, the only elements of singing' (212). With music as with language there is no escaping the perverse supplementary logic that somehow requires a supposedly derivative, secondary, or even a parasitic feature to function as the basisthe very condition of possibilityfor that which ought to come first and be wholly self-sufficient. For if song is 'essentially', in Rousseau's words, 'a kind of modification of the human voice' then there can be no appeal to anything like that idealized originary condition of music when melody and language were perfectly united in the moment of pure, self-present, natural expression. And if 'the interval is part of the definition of song', that is, if harmonic (intervallic) structures are prerequisite to any conception of melodic form, then it follows that harmony must somehow be thought of as a kind of 'originary accessory and essential accident', one that confounds not only Rousseau's express argument but also the dictates of a classical logic grounded in the principles of noncontradiction and excluded middle.

Then again, Rousseau declares, one *should* be able to explain the origins of civil society in terms of an original close-knit organic community which only later became subject to all the bad effects of social inequality, class structure, property laws, delegated authority, specialised skills (such as writing), and so on. 'Self-presence, transparent proximity in the face-to-face of countenance and the immediate range of the voice, this determination of social authenticity is therefore classic. Rousseauistic but already the inheritor of Platonism' (*OG,* 138). Yet it is a thesis that Rousseau cannot maintain without running up against the sheer *impossibility* of describing a state

of social existence that would not *already* have undergone the passage to those kinds of differential structure (gender roles, kinship classifications, division of labour, tribal or totemic markers) which contravene his own idealized prescription. Just as 'language is born out of the process of its own degeneration', so society is born out of just those 'civilised' (for Rousseau, those decadent and corrupting) factors which *should* belong to a late stage in its development yet which *cannot but* be conceived as existing from the earliest period of social life. So also with the Rousseauist opposition between 'nature' and 'culture', the one bearing all his positive values of innocence, spontaneity, passion, organic community, etc., while the other connotes all the bad ('supplementary') effects of civilised artifice and social decadence. Yet clearly there can be no idea or definition of 'nature'even the kinds of primitivist definition favoured by Rousseau and his Romantic disciplesthat does not partake of certain cultural values, in this case strongly reactive values having their origin in Rousseau's revolt against the civilised conventions of his age. More than that: such a logic of supplementarity will turn out to affect any theory of language, culture, or

civil society based (like Rousseau's) on the prescriptive appeal to a state of nature conceived as prior to the advent of social and cultural institutions. Quite simply, this would *not yet have been* a societyin even the most minimal or primitive sense of that termjust as language would *not yet have been* language in the absence of just those constitutive features (articulation, syntax, lexical distinctions, tense structure, and so forth) which for Rousseau mark the beginning of its decline into 'civilised' decadence and artifice. By the same token, there is no mode of speech or human social existence that could ever have been so perfectly 'natural' as somehow to dispense with the elementary structures of language and society in general.

What Rousseau undoubtedly wishes to thinkand states with all the force at his commandis that a line can be held (or an absolute and principled distinction maintained) between nature and culture, speech and writing, melody and harmony, that which is natural or 'proper' to humankind and that which comes as a corrupting influence from outside. Thus the supplement would alwaysby very definitionbe a late arrival and something decidedly extraneous or adventitious, that is, a *mere* supplement whose presence is by no means required (and whose absence may indeed be desirable) in order that nature should take its proper course. However, there is a different sense of the word whereby 'supplement' is defined as that which completesor makes wholewhat would otherwise be lacking in some crucial respect. Rousseau's usage is such as to insist (insofar as he is able) that the various supplements of culture, writing, harmony, and so on, be confined to that first meaning of the term and thus preserve a due respect for the 'natural' order of priority in each case. Yet he is often compelled *by the logic of his own argument* to admit just the kinds of telling counterevidencethe conditions of *im*possibility for holding that linewhich would bring out the limits of authorial intention as a last

interpretive court of appeal. In Derrida's words, 'this [i.e., the first or 'natural' reading] conforms to the logic of identity and to the principle of classical ontology (the outside is outside, being is, etc.) but not to the logic of supplementarity, which would have it that the outside be inside . . . that what adds itself to something takes the place of a default in the thing, that the default, as the outside of the inside, should be already inside the inside, etc.' (*OG*, 215). This is *not*I should repeatto ignore Rousseau's intentions or to treat them as merely a handy springboard for the high gyrations of a deconstructive reading. Rather, it is to see how 'Rousseau's discourse lets itself be constrained by a complexity which always has the form of a supplement of or from the origin. His declared intention is not annulled by this but rather *inscribed* within a system which it no longer dominates' (243).

It is here that philosophical deconstruction (as exemplified in Derrida's work) differs most markedly from Rorty's neopragmatism and also from the broader poststructuralist turn against notions of right reading or authorial

intent. Whereas these latter stress mainly the idea of semantic multiplicity or a newly won freedom from old hermeneutic constraints, Derrida is concerned far more with the logical grammar of various texts, albeit (as I have said) at a level of complexity which sets his work apart from most such enquiries in the mainstream analytic tradition. Thus the question with regard to Rousseau, as he carefully phrases it, is that of 'an originary supplement, if this absurd expression may be risked, totally unacceptable as it is within classical logic' (*OG*, 313). This question is 'absurd' in the sense that it offends against exactly those cardinal precepts (of bivalence, noncontradiction, and excluded middle) which Derridain his response to Searledeclares simply *indispensable* to the conduct of reasoned enquiry and debate.[37] Nevertheless, to the extent that such 'absurdities' can and do arise, they must always be the upshot of a close analytic reading of texts conducted according to the 'classical' logic which refuses any quick or easy resort to alternative (e.g., many-valued or 'fuzzy') conceptions.

What is chiefly of interest in Rousseau is '[the] difference between implication, nominal presence, and thematic exposition' (*OG*, 213), that is to say, the logical conflicts that develop in consequence of Rousseau's *and Derrida's* attempt to think through the various antinomies of nature/culture, speech/writing, melody/harmony, origin/supplement, and so forth. Were it simply a matter of 'thematic exposition'of treating these topics in accordance with Rousseau's professed or implied intentthen Derrida's reading would amount to no more than a literary interpretation, or a commentary (albeit a remarkably acute and detailed commentary) in the history-of-ideas mode. For those themes would be taken as straightforwardly present in the text and likewise as present both to the author's originating consciousness and to the consciousness of any reader sufficiently in touch with Rousseau's meanings or intentions. This was indeed the

working faith of those interpretersJean Starobinski among themwho adopted a phenomenological approach premised on the notion of an ideal convergence (or a wished-for meeting of minds) between author and reader.[38] As I have said, Derrida is in no way denying that there can and should be a place for such appeals to authorial intention, thematic content, or whatever Rousseau presumably *meant* by this or that passage in his writing. However, there is a point at which deconstruction passes over from textual commentary to logico-semantic analysis, that is, from treating (say) Rousseau's usage of the word 'supplement' as a recurrent theme in his work to treating it as an instance of that 'logic of supplementarity' which poses such problems for any 'classical' conception of the truth-values governing his discourse. Thus the *theme* is taken up into a larger context of binary terms and oppositions which themselves become subject to a constant series of displacements, substitutions, and 'supplementary' swerves from origin. Suchto repeatis the difference that Derrida seeks to bring out be-

tween 'implication, nominal presence, and thematic exposition'. It is also the difference between literary criticism and philosophy of language (or philosophical semantics) insofar as the latter has to do with aspects of meaning, logic, and speech-act modality which exceed the limits of a straightforward thematic or intentionalist reading.

One could make the same point about Derrida's deconstructive readings of Plato, Kant, Husserl, and others. In each case these readings hinge on the 'presence' of a cardinal term*pharmakon* in Plato's *Phaedrus*, the *parergon* [or 'frame] in Kant's Third *Critique*, 'différance' [or differing-deferral] as it functions in Husserl's philosophies of language and time-consciousnesswhich might be treated simply as a 'theme' were it not for the range of conflicting implications in which that term is caught up and through which its meaning is rendered strictly undecidable from one context to the next. Thus *pharmakon* signifies both 'poison' and 'cure' and gathers to itself all the strains of ambivalent (indeed contradictory) valuation that characterise writing as a problematic topos in Plato's theory of truth, knowledge, and representation. [39] The *parergon* likewise comes to figure for Kant as a framing concepta boundary markerwhich should properly serve to enforce certain crucial distinctions, as between intrinsic and extrinsic values, aesthetic and other modes of experience, form and function, 'free' and 'adherent' beauty, reflective and determinate judgements, contemplative disinterest and whatever involves some admixture of purpose or desire.[40] The analogy here is with the 'frame' of a painting which is likewise supposed to constitute a clearly marked boundary between the space of genuine aesthetic contemplation and everything which stands outside that space. Yet in Kant's text also there is a supplementary logicin this case a 'logic of parergonality'which exerts an unsettling or complicating force on these various cardinal distinctions.[41] Thus our experience of a picture

is and must be to some extent affected by the bulk, shape, colour, or texture of the frame that surrounds it, as also by the setting or backdrop against which the picture and frame are both viewed.

Similar problems can be shown to arise with all those other Kantian distinctions listed above. Some have a slightly absurd aspect, as for instance when Kant attempts to decide whether the draperies 'on' statues or flying buttresses in architecture should properly be viewed as intrinsic (formally integrated) features of the work or as mere *parerga* possessing no genuine claim to aesthetic value. But with others there is a real question as to whether any line can be drawnas Kant would have itbetween the kinds of criteria appropriate to matters of aesthetic valuation or taste and the kinds of conceptual distinction that belong to the philosophic discourse on art. For the latter tend toward determinate judgements whose condition of validity is that they should bring intuitions under adequate concepts. With the former, conversely, it is (or it should be) always the case that our faculties enjoy a certain

'freeplay' aimed toward a state of harmonious balance, and hence that any valuation be arrived at through intersubjective agreement and not by way of determinate concepts whose effect would be to close off any further such debate. So there *should* be a clear, categorical distinction between our experience of artworks on the one hand and, on the other, those sorts of understanding we may hope to achieve by perusing a text such as Kant's Third *Critique* or other works of aesthetic philosophy. Yet just as with the frame around a painting, so here, it is hard to maintain this distinction if one considers the extent to which aesthetic judgement is affected by the various concepts we bring to it, concepts (like those of aesthetic disinterest, organic form, intrinsic *versus* extrinsic features, etc.) whose source may very often be traced back to our reading of certain philosophical or critical texts.

My point, once again, is that we mistake the character of deconstructionand of Derrida's project in particularif we take it to be solely or chiefly concerned with exploiting the potential for 'creative' interpretation or with opening up hitherto unglimpsed possibilities of textual 'freeplay'. This latter term is one that figures quite frequently in his early writing but which has often been subject to just such misconstrual by literary critics and Rortian 'strong revisionists'. [42] What 'freeplay' signifies for Derrida is *not* the kind of open-ended interpretive licence which on principle takes no account of those various constraints (authorial intention, historical context, logico-semantic structures, modes of speech-act implicature, etc.) in whose absenceas he puts itreading could develop 'in any direction at all'.[43] Rather, the metaphor is drawn both from Kantas noted aboveand from the context of precision engineering where it signifies the exact degree of tolerance or 'play' required for maximum efficiency (or least energy loss) in a bearing or other such mechanical device. That is to say, it has to do with the precisely calculated 'looseness' of fit that will not

cause friction, whether by excessive tightness leading to mechanical seizure or by allowing vibration to occur with the same untoward result. This offers, I think, a genuine analogy and not just a vaguely suggestive metaphor for what occurs (or transpires) in a deconstructive reading. Thus the 'freeplay' in question has to do with termssuch as 'supplement', 'parergon' and 'différance'whose ambivalent status is not so much a matter of semantic 'richness' or overdetermination but rather of their undecidability within certain specifiable limits, or certain (logically conflicting) orders of conceptual-semantic priority.

This brings us backby a somewhat circuitous routeto what I said earlier about deconstruction in the context of recent (nonclassical, many-valued, or 'deviant') systems of logic. My point was that Derrida cannot be held to have abandoned the principles of classical logic or, as critics like Searle make out, quite simply not have grasped them at the most elementary level.[44] Indeed,

Derrida has no difficulty in showing that Searle is himself caught up in a number of plainly contradictory statements with regard to the necessity of maintaining (or, elsewhere, of relaxing) those classical precepts. Thus:

> From the moment that Searle entrusts himself to an oppositional logic, to the 'distinction' of concepts by 'contrast' or 'opposition' (a legitimate demand that I share with him, even if I do not at all elicit the same consequences from it), I have difficulty seeing how he is nevertheless able to write [that] phrase . . . in which he credits me with the 'assumption', 'oddly enough derived from logical positivism', 'that unless a distinction can be made rigorous and precise, it is not really a distinction at all'. 45

This is not (I repeat) just another example of Derrida having fun at Searle's earnest-minded expense, despite the antic disposition that marks many passages of 'Limited Inc'. Rather, it is his way of making the pointafter Austinthat philosophy cannot rest content with fuzzy or imprecise notions even though it often (and especially in the context of speech-act theory) comes up against the limits of its proper striving for conceptual 'rigour' and 'precision'. For it was Austin, we recall, who remarked how his treatment of performatives might be used to 'play old Harry' with such fetishized notions as the truth/falsehood dichotomy, and who also found himself*avant la lettre*deconstructing his own original distinction between 'constative' and 'performative' utterances. Yet he, like Derrida, arrives at this point only after (and by virtue of) his effort to achieve as much logical precision as can possibly be brought to the analysis of speech-act modalities.

Thus Derrida again:

> Not only do I find this logic strong, and, in conceptual language and analysis, *an absolute must* (*il la faut*), it must (this 'it must' translates the faithfulness of my love for philosophy) be sustained against all empirical confusion, to the point where the same demand of rigour requires the

structure of that logic to be transformed or complicated.46

What he means (I take it) by 'empirical confusion' is the idea that speech-act theory should abandon the quest for conceptual rigour as a result of its coming up with examplessuch as those provided by Austinwhich appear to cast doubt on the very possibility of achieving a full and systematic account. Of course Searle would answer that it is just such anomalous or marginal cases ('misfires', deviant samples, speech acts quoted or taken out of context, uttered on the stage, in novels, in jest, as textbook illustrations of the kind, and so forth) that Derrida perversely seizes on in Austin's work by way of deconstructing the entire project. However, it is precisely Derrida's point that we shall not read Austin at anything like his own level of analytic and self-reflexive awareness if we ignore the extent to which these issues are strikingly enacted or rehearsed in the very language of Austin's text. This is what gives

real interest to the quarrel between Derrida and Searle despite all the signs of exasperated bafflement on Searle's side and of game-playing mischievous intent on Derrida's. For the issue works out as a choice between two approaches that involve very different ideas of what would count as an adequate speech-act theory. To Searle it is self-evident that this theory must entail the elaboration of concepts and categories in a languagea properly constative languagethat should manifest none of the problems encountered with Austin's more anomalous, 'deviant', or borderline cases. For Derrida, conversely, it is Austin's great virtue that he strives to produce such a generalised speech-act theory while yetthrough his extreme alertness to language in its performative aspectwriting a text that constantly exhibits those same puzzles and anomalies.

Hence the irony (by no means lost on Derrida) of Searle's charge that his demand for absolute 'rigour and precision' in matters of conceptual analysis is one that 'oddly enough, derives from logical positivism'. For of course it was among the chief tenets of that movementlater reaffirmed by the advocates of logical empiricismthat philosophy of science required a sharp distinction between, on the one hand, observation-statements possessing empirical warrant and, on the other, higher-level theories (or covering-law statements) to which there applied quite different (e.g., deductive-nomological) standards of rational accountability. [47] There is no room here for a detailed account of how this programme collapsed under the strain of internal contradictionslike the self-refuting character of the Verification Principleand through its failure to explain how scientific knowledge could ever be advanced on the basis of any such rigidly dichotomised approach.[48] However, it is widely agreed that Quine's essay 'Two Dogmas of Empiricism' played a major role in drawing attention to these and related problems. I shall therefore conclude by suggesting

how Derrida's work relates to what is often acceptedafter Quineas the need to abandon that entire way of thinking with regard to truth, logic, and the claims of 'empirical' *vis-à-vis* 'conceptual' modes of enquiry.

'Two Dogmas' has been much discussed in the secondary literature so I shall not provide a detailed commentary.[49] Sufficient to say that it lays out a case for rejecting (1) the analytic/synthetic dichotomy, which Quine regards as embroiled in a hopeless series of tail-chasing circular definitions; (2) the logical-empiricist proposal (as in Carnap) for imposing a rigorous distinction of levels between first-order 'material' and second-order 'formal' (or metalinguistic) levels of analysis;[50] (3) the idea that there exist certain logical 'laws of thought'such as bivalence or excluded middlewhich cannot be abandoned without giving up any claim to consistency or truth; and (4) the belief that those ground rules of logic could never be subject to change under pressure from empirical counterevidence or new discoveries in physical science. On the contrary, Quine asserts: there is no logical 'law' so basic to our think-

ing that it *must* stand proof against any such counterevidence. Thus, for instance, quantum mechanics, on one interpretation, may require that we suspend excluded middle and acknowledge the impossibility of assigning determinate truth-values to statements of particle position and momentum, or wave-based and particle-based ontologies.

Moreover, this special case can be generalised to every aspect and dimension of human knowledge, not only in the microphysical domain (where such paradoxes seem endemic) but also as applied to the everyday realm of macro-physical objects and events. For here alsoin Quine's famous metaphorwe should think of knowledge as a 'man-made fabric' whose periphery comprises those facts-of-observation that we think of as directly (or empirically) confirmed, and whose centre contains those logical 'laws' that are so well entrenched as to seem unaffected by whatever transpires at the periphery. But this distinction has to go, Quine argues, if we take his point about the impossibility of drawing a sharp categorical line between analytic and synthetic statements or orders of judgement. For it then becomes clear (1) that centre and periphery are connected in all sorts of ways, (2) that observations are always to some extent 'theory-laden' and theories always 'underdetermined' by the best evidence to hand, (3) that observations must be tested by their fit with *the entire current body* of accepted beliefs and not on the basis of a one-by-one check against this or that piece of empirical evidence, and (4) that we can always 'redistribute' predicates or truth-values across the fabric so as to conserve some cherished theory despite its apparent conflict with the evidence, or so as to maintain some particular observation which goes clean against the prevailing theoretical consensus. Which is also to say (5) that our thinking cannot preemptively exclude any of that vast range of objectsfrom Homer's gods and centaurs to numbers, mathematical sets or classes, and brick houses on Elm Streetwhich

have offered themselves as candidate items from time to time. Any preference in the mattersuch as Quine's clearly stated preference for the current theories of physical sciencecan only be a matter of pragmatic adjustment in the interests of economy and of minimising conflict at other places in the fabric.

Such is at any rate his argument in 'Two Dogmas', an essay that has exerted enormous influence within and beyond the more specialised spheres of analytic (or 'postanalytic') philosophy. However, that influence has often gone along with a failure to note just how extreme are Quine's conclusions and also how awkwardly they sit with certain other aspects of his thinking. The most obvious problem is how to reconcile Quine's ontological-relativist stance with his commitment to the 'posits' of the natural sciences (physics especially) as our best available source of knowledge, or one that we should be ill advised to reject on pain of admitting all manner of unwanted alternative posits, such as centaurs and Homer's gods. Moreover, there is a closely related problem with Quine's case that the 'laws' of logic might have to be revised if they came

into conflict with certain well-attested items of scientific knowledge. For if one puts both these arguments together, then it is hard to see why anyonescientist or logicianshould ever have adequate reason or motive to change their beliefs. That is to say, they could always follow Quine's advice, consult their 'pragmatic inclinations' in the matter, and redistribute truth-values on a principle of least resistance or least disruption to accepted habits of thought. In which caseon Quine's thoroughly holistic accountno conflict could arise between observation-statements or empirical discovery-procedures, on the one hand, and logical criteria (of consistency, entailment, deductive warrant, etc.) on the other. Any such problem would simply be made to disappear either by adjusting one's logic to fit the factsas, for instance, by adopting some variety of modal, many-valued, 'fuzzy', or quantum logicor else by reinterpreting the facts in line with a more conservative (classical or bivalent) logical scheme.

If this rules out the prospect of meaningful conflict between theories, then it also creates real problems for the notion of agreement arrived at through convergence on a range of shared beliefs or understandings. Such is the well-known problem of translating across Kuhnian 'paradigms' or Quinean 'ontological schemes'. [51] For it is just Quine's pointbased directly on his arguments for ontological relativity and radical meaning-variancethat there could be any number of alternative construals (scientific theories or interpretive renditions) which fitted the evidence perfectly well so long as the right adjustments were made elsewhere in the overall fabric of belief. And if adjustments of this kind can apply even to the most 'basic' laws of logic then clearly there is no guarantee that other speakersor other modes of scientific reasoninghave enough in common with us or with ours to make communication possible. After all, as Donald Davidson argues against Quine, it is precisely in the logico-syntactic aspects of

language (the devices for conjunction, disjunction, negation, entailment, cross-reference, anaphora, and the like) that we can best hope to find the resources for a theory of transparadigm or interlingual translation.[52] Where Quine goes wrongin company with cultural relativists of various persuasionis in starting out from the evident fact that different languages have different *semantic* structures (e.g., different ways of dividing up the colour spectrum, picking out natural kinds, etc.) and then jumping straight to a doctrine of wholesale ontologico-linguistic relativity.

However, this ignores the all-important point that any languageand any semantic structuremust embody certain logical distinctions and entailment-relations in order to communicate at all. Thus Russell and Whitehead were able to show that conjunction and disjunction plus negation were sufficient in themselves to generate a truth-functional logic for the predicate calculus.[53] Moreover, this argument has a larger bearing on the debate between realists and antirealists with regard to the question whether logical

truths can possibly have ontological implications. For if one thing is clear about the colour-spectrum case it is the fact that a blue object cannot be yellow, or a yellow object red, or a particoloured object green all over, or any such impossible conjunction of colour attributes. Of course a poststructuralist might well maintain that 'blue', 'yellow', 'red', 'green', 'particoloured' (etc.) are conventional signifiers which bear only an 'arbitrary' (nonnatural) relation to any colour that they happen to pick out as components of this or that language. [54] Similar arguments have been advanced with dubious warrant from late Wittgenstein and from a range of other philosophical and ethnolinguistic sources.[55] What they all amount to is a form of trivial semantic relativism which takes the anti-Cratylist point (i.e., that there exists no *natural* or God-given link between word and concept or signifier and signified) and erects that point into a full-scale denial that wordssuch as colour termscould ever acquire a determinate reference to real-world objects or properties. For it will otherwise be clear to any but the deepest-dyed sceptic that our usage of these terms is governed by certain entailment-relationsprincipally those of inclusion, exclusion, and negationwhose meaning is not a matter of semantic convention but one of logical necessity.

This goes a long way toward explaining the otherwise curious disparity between Quine's ultrarevisionist approach in 'Two Dogmas' (that is, his case that even the most 'basic' laws of logic such as excluded middle may need to be suspended under pressure of conflicting evidence) and the much more conservativeindeed classicaloutlook adopted in his textbook treatments of the topic.[56] On this latter view we could never be rationally justified in supposing that someone (say, a 'native informant') whose utterances appeared to make no sense must therefore be applying a different logic, one that perhaps admitted contradictory statements or which had no place for

disjunction, negation, bivalence, and so on. Rather, we should save logical appearances by redistributing the problem elsewhere across the 'fabric' of imputed beliefs. That is, we should suppose *either* that we had got them wrong in some other (less drastic) wayperhaps by misinterpreting contextual cues or the meaning of certain lexical items*or* that they were working on a different conceptual scheme, one which maybe affected the quantifiers and the range of referring expressions in their language but *not* the logical constants or truth-functions. Quine puts the case most succinctly as follows in his essay 'Carnap and Logical Truth':

> Oversimplifying, no doubt, let us suppose it claimed that . . . natives accept as true certain sentences of the form '*p* and not *p*'. Ornot to oversimplify too muchthat they accept as true a certain heathen sentence of the form '*q*' ka bu *q*', the English translation of which has the form '*p* and not *p*'. But now just how good a

> translation is this, and what may the lexicographer's method have been? If any evidence can count against a lexicographer's adoption of 'and' and 'not' as translations of 'ka' and 'bu', certainly the natives' acceptance of '*q* ka bu *q*' counts overwhelmingly. 57

From which Quine concludes that 'prelogicality is a myth invented by bad translators'. That is to say, it is a thesis embraced by those who jump too quickly to the radical-revisionist idea that meaning-variance across languages, cultures, or conceptual schemes may extend all the way to the truth-functions which *alone make it possible* for language users to communicate despite such (otherwise insuperable) differences of meaning or background belief.

In fact, as Susan Haack shrewdly points out, Quine is a canny enough pragmatist to admit this very point in 'Two Dogmas of Empiricism', namely, that one had better be 'conservative' about logic since 'the ramifying adjustments entailed by a change of logic are liable to be excessively widespread'.[58] On the other hand, he is there at least open to the idea that *certain* sorts of counterevidencefor example, from the 'paradoxes' of quantum mechanics under a classical (bivalent) construalmay perhaps turn out to require such drastic revision. However, this possibility is firmly ruled out by his argument in 'Carnap and Logical Truth'. On that view, quite simply, we cannot understand otherswhether 'native informants', denizens of a different language community, or proponents of some (to us) alien scientific theoryexcept by reference to certain logical constraints assumed to hold good across and despite such differences of conceptual scheme. For in the absence of just those constraintsbivalence, noncontradiction, excluded middlewe would have no grip on anything they said and no reason to assign any determinate meanings or beliefs. That is, we should always be redistributing predicates and truth-values so as *either* to show up their thinking as 'prelogical' *or* to bring them

out in broad agreement with our own, presumptively more adequate and rational, ways of thinking. In which case the project of 'radical translation' would utterly collapse, as indeed would the argument for our commonplace ability to negotiate other, less extreme varieties of interlingual, cross-cultural, or transparadigm understanding.

So it is not just his pragmatism (or 'conservatism') that induces Quine to back away from the idea that logic might always be radically revisable. Rather, it is something more in the nature of a Davidson-type transcendental argument from the conditions of possibility for linguistic understanding.[59] These latter must be taken as applying not so much to the semantics of this or that natural languagewhere relativist arguments can always get a holdbut to the various higher-level (e.g., suprasentential) operators and connectives which necessarily pertain to any language beyond the most primitive stage of logico-syntactic advance. Susan Haack again makes this point very clearly

when she explains why it should be the case that, for Quine, 'whereas the quantifiers are vulnerable to radical indeterminacy, the truth-functions are not'. The distinction is comprehensible, she writes,

> if one remembers that the truth-functions *link whole sentences,* whereas the quantifiers occur *within whole sentences*. More precisely, the truth functional operators are sentence-forming operators on sentences, while the quantifiers are sentenceforming operators on open, i.e., incomplete, sentences. Therefore, the quantifiers, but not the truth-functions, are vulnerable to that form of radical indeterminacy which strikes below the sentence level. 60

For Davidson, it is worth noting, this distinction falls out rather differently since he counts the quantifiers in among the logical resources which a language must possess in order to qualify as 'a language' in anything like the full-fledged (descriptively adequate) sense of that term. Thus, in Davidson's words, 'what forms the skeleton of what we call a language is the pattern of inference and structure created by the logical constants: the sentential connectives, quantifiers, and devices for cross-reference'.[61] This discrepancy is perhaps best explained by Quine's ontological-relativist persuasion that quantifiers (and, presumably, devices for cross-reference) must exhibit some degree of variance in the object-domains which they serve to pick out across different conceptual schemes.

However, there is something of a problem, again, in reconciling this with Quine's arguments against quantifying into modal or intensional contexts on account of their referential opacity, that is, their failure to allow for substitution *salva veritate* between names or referring expressions that denote the same object but under different senses, descriptions, modalities, or speakerrelated meanings and beliefs. (Thus, for instance, the statement 'Rita believes that Quine is an ontological relativist' need not be equivalent in truth-value to 'Rita

believes that the author of "Two Dogmas of Empiricism" is an ontological relativist' should she happen not to know that Quine is in fact the author of 'Two Dogmas of Empiricism'). For there could be little point in Quine's maintaining his austere regime if indeed it were the caseas per 'Two Dogmas'that revisability extends all the way to the most 'entrenched' logical axioms. That is to say, any argument along these lines will also cut away the grounds for his case that we cannot quantify into modal or intensional contexts since this must lead to referential opacity and hence to a failure of the basic (logically prerequisite) principle of term-for-term substitution *salva veritate*. After all, it is hard to see how that principle can be maintained if quantification is relativised to this or that chosen ontological scheme, and if truth-values are therefore taken to range over different object-domains according to the scheme currently or locally in place.

'No statement', we recall, 'is immune to revision'. And again: '[r]evision even of the logical law of the excluded middle has been proposed as a means

of simplifying quantum mechanics; and what difference is there in principle between such a shift and the shift whereby Kepler superseded Ptolemy, or Einstein Newton, or Darwin Aristotle?' [62] No difference, perhaps, on the 'Two Dogmas' view that changes in the empirical boundary-conditions (or in the kinds of observation-statement borne out by the best evidence to hand) should be treated as merely one extreme on a scale that extends continuously down to the so-called logical laws of thought, themselves 'in principle' subject to revision just so long as such revision brings the benefit of greater simplicity elsewhere (e.g., in the physical sciences). Yet, as we have seen, this argument rapidly goes by the board when Quine reflects on the question as to whether we could ever be justifiedrationally warrantedin imputing some alternative ('deviant') logic to a speaker whose utterances appear nonsensical or wildly at odds with our own standards of rational belief formation.[63] His answer here is 'no', quite simply, on the grounds that we would then be altogether at a loss to understand them or compare their beliefs with our own in point of differing conceptual schemes, ontologies, scientific world-views, ideas of natural-kind resemblance, or whatever. It is only by preserving certain areas of nonrevisability in logicthat is, by maintaining some grasp of the analytic/synthetic distinction or that between truths-of-reason and matters-of-factthat we could ever get a hold on those *specific* differences which pose a real problem for the business of interlingual translation, or which often make it hard (yet not altogether impossible) to understand world-views at variance with our own. Otherwise we should be completely at a loss for any means of assigning truth-values and thus figuring out just where and why some communicative breakdown had occurred.

So it is hard to make sense of Quine's suggestion that there is no difference 'in principle' between revising the very ground rules of

logic in response to certain quandaries of quantum physics and those previous shifts in scientific thinking 'whereby Kepler superseded Ptolemy, or Einstein Newton, or Darwin Aristotle'. For in the case of these thinkersEinstein especiallythere was no question of revising (much less abandoning) the basic axioms of logical thought, axioms that played an indispensable role in their challenge to existing scientific beliefs. Rather, they continued to apply such standardsof rigour, consistency, rational warrant, inference to the best explanation, detection of anomalies (logical flaws or conflicts between theory and observation) in the precursor scienceby way of advancing a new hypothesis which overturned those beliefs precisely on account of its greater conceptual or explanatory power. This is most evident in Einstein's famous series of debates with Niels Bohr concerning the conceptual foundations of quantum mechanics.[64] Chiefly at issue was the question whether certain anomalous findings (nonlocality, wave/particle dualism, the observer-induced 'collapse of the wave-packet', etc.) might necessitate either some radical revision to the ground rules of bivalent logic or a break with the scientific-realist belief in

the existence of an objective, mind-independent physical world. In both respects Einstein came out very firmly against Bohr's belief that there was something irreducibly strange or paradoxical about quantum phenomena which placed them beyond reach of explanation in 'classical' terms, even though we had no choice but to use such terms when attempting to describe or explain them. [65] On the contrary, Einstein maintained: if the orthodox (Copenhagen) interpretation of quantum mechanics was such as to require a suspension of determinate truth-values realistically construed, then that interpretation could only be wrong or at any rate 'incomplete'.[66]

However, there is also the more general point: that scientific theories (and truth-claims of whatever kind) cannot be construed under *any* interpretation unless we suppose them to embody certain standards of rational accountability, namely, that they are subject to assessment on grounds that allow for comparison across and between differentbut not 'incommensurable'schemes or paradigms. At minimum those grounds must be taken to include the possibility (*contra* Quine's position in 'Two Dogmas') of distinguishing the logical structure of theories from their empirical content and, again, of preserving some fixity of reference from one such theory to another. For we shall otherwise encounter all the dead-end problems of radical meaning-variance, problems that Quine is elsewhere disposed to accept as a knock-down argument against the ultimate revisability of logic.

My purpose here has been to establish a wider context for those nonstandard or deviant logics (of the *pharmakon*, 'supplementarity', 'parergonality', *différance*, 'iterability', and so forth) that Derrida finds at work in a range of philosophical texts from Plato to Rousseau, Kant, Husserl, and Austin. I have argued that these readings are all of them them conducted with a scrupulous attentiveness to textual detail and also with a rigorous and principled regard for the requirements of

classical (bivalent) logic. Hence Derrida's tableturning move in his response to Searle, that is, his refusal to take the quickest route out of all these deconstructive perplexities and just acceptin a sensibly pragmatic mannerthat certain distinctions (such as constative/performative, literal/nonliteral, normal/deviant, serious/nonserious, etc.) may work well enough for all practical, everyday purposes without meeting the strictest demands of logico-conceptual precision. 'When a concept is to be treated as a concept', Derrida writes,

> one has to accept the logic of all or nothing . . . at any rate, in a theoretical or philosophical discussion of concepts or of things conceptualizable. Whenever one feels obliged to stop doing this (as happens to me when I speak of *différance*, of mark, of supplement, of iterability and of all they entail), it is better to make explicit in the most conceptual, rigorous, formalizing, and pedagogical manner possible the reasons one has for doing so, for thus changing the rules and the context of discourse.67

Such would be the 'other discourse' that Derrida here envisages, a discourse so far from rejecting the principles of classical (two-valued) logic that it could have no purchase, no leverage or deconstructive force, except by applying those principles to the limit and only thenat the point of inescapable aporiacalling them into question. 'To this oppositional logic', he continues,

> which is necessarily, legitimately a logic of 'all or nothing' and without which the distinction and the limits of a concept would have no chance, I oppose nothing, least of all a logic of *approximation* [*à peu près*], a simple empiricism of difference in degree; rather I add a supplementary complication that calls for other concepts . . . or rather another discourse, another 'logic' that accounts for the impossibility of concluding such a 'general theory'. 68

Derrida's case is that Searle's determination to expound a 'general theory' of speech acts goes along with his readiness to settle for a blurred or at any rate a less-than-precise articulation of the concepts that Austin and Searle both require if that theory is to make good its programmatic claims. When difficulties ariseas they do in the course of Austin's original expositionthen the exegete is faced with a choice between two possible lines of response. One solution (Searle's) is to save the 'general theory' by relaxing the requirements of conceptual clarity and precision and by treating any problematic cases as marginal, deviant, nonserious, and so forth. The other (Derrida's) is to follow Austin in his quest for more adequate, rigorous, and precise distinctions which are nonetheless perpetually at risk through his discovering ever more elusive or hard-to-classify instances of speech-act usage.

Let me emphasise again that this is *not* just Derrida's maverick way with Austin's text but a feature of that text which must strike any reader who comes to it, perhaps, in search of a 'general theory' but

who is also responsive to its subtleties of detailed analysis. The same appliesas I have argued aboveto Derrida's deconstructive readings of Plato, Rousseau, Kant, and Husserl. In each case he draws attention to the presence of a deviant (nonclassical) or 'supplementary' logic which blocks the ascription of determinate truth-values to various statements in or about the text. However, this claim is arrived at always in consequence of a closely reasoned analytic argument which at no point *renounces or abandons* those 'classical' values even though their application gives rise to aporias which cannot be resolved on the terms laid down by a bivalent (either/or) logic. It is in just this respectthrough its not having recourse to some ill-defined 'alternative' logic which creates all the above-mentioned problemsthat Derrida's best analytical work should be of interest to philosophers confronting these issues in the wake of logical empiricism. In chapter 5 I shall seek to strengthen this case through a comparison with other kinds of deviant or nonstandard logic, among them some revisionist proposals adopted in response to conceptual problems in quantum mechanics.

5
Excluded Middles:
Quantum Theory and the Logic of Deconstruction

Philosophers of science have responded in various ways to the conceptual and interpretive problems thrown up by quantum mechanics. These problems emerged a century ago from Planck's researches into black-body radiation and have scarcely been resolvedrather, if anything, deepened and complicatedby the intensive debate that has surrounded them since that time. [1] For some theorists, the resultant dilemmas (of observer 'interference', wave/particle dualism, quantum superposition, nonlocal causality, superluminal [faster-than-light] propagation, etc.) are such as to entail drastic revisions to our very idea of the physical world as somehow existing quite apart from our current best theories or investigative methods.[2] For others, again, quantum mechanics just *is* the best theory currently available, whatever the problems that it happens to create for our normal habits of logical thought or consistent reasoning on the evidence. Thus logic itself may have to be revisedright down to putative 'laws of thought' such as bivalence and excluded middleif these turn out to conflict with the results of quantum-mechanical theory or experiment.[3]

This is the view taken by Hilary Putnam in his writings on quantum logic and also by others, yon Neumann among them, for whom the working rule in any such trade-off is to keep the physics as simple as possible even if the result is to complicate logic by introducing values other than those of determinate (bivalent) truth or falsehood.[4] Very often it consorts with the argument that if quantum mechanics is rightat any rate on the standard Copenhagen interpretationthen we had

best give up any hope of retaining a 'classical' Einsteinian ontology, that is to say, a Lorentz-invariant account of space-time coordinates where the speed of light is the limiting value for assignments of position, velocity, and causal propagation.[5] Hence Einstein's famous series of debates with Niels Bohr when he devised a whole range of increasingly elaborate thought-experiments designed to prove that the quantum-mechanical description of reality had to be in some way 'incomplete', or not to have reckoned with some crucial factor that would bring it into line with classical logic and a causal-realist ontology. For on Einstein's

view there was simply no room in science for a theorysuch as Bohr'sthat involved *either* the suspension of classical truth/falsehood values *or* the idea of some 'spooky action-at-a-distance' which contravened both commonsense realism and the requirements of Special Relativity. [6]

However, it is Bohr who is generally thought to have carried the day in these debates. In any caseso it is arguedwe are left with a choice between three possible 'solutions'. These are (1) the hypothesis that quantum mechanics is 'incomplete' or open to an alternative ('hidden-variables') interpretation,[7] (2) the adoption of an alternative (many-valued or nonbivalent) quantum logic that effectively conjures such problems away,[8] or (3) the conclusion that realism may have to be abandoned in favour of some radically different ontology or world-view which counts this a price worth paying in order to conserve the predictive power of the standard quantum formalisms.[9] On option (3) there is a further choice of interpretive views according to the theorist's preferred choice between the various models (or possible-world scenarios) currently on offer. Thus the model may be one that embraces nonlocal simultaneous particle interaction, or which gives up space-time covariance (relative to the speed of light) as required by Einstein's special theory. Or, again, it may be one that somehow envisionsstrangest of allthe splittingoff of multiple coexistent but noninteracting 'worlds' whenever the wavepacket collapses or whenever an act of measurement is performed upon any such quantum system whose properties must be thought of as strictly indeterminate until that moment.[10] For, according to its partisans, this interpretation is the most economicalthat is, involves least conflict with the standard quantum theorydespite its baroque proliferation of alternative worlds and its well-nigh unthinkable implications when applied to our everyday (as well as normal scientific) conceptions of reality. Wesley

Salmon puts the case most succinctlyspeaking from a causal-realist standpointwhen he remarks that anyone who is not worried by these quantum-mechanical paradoxes 'has rocks in their head'.[11]

Take, for instance, the ideaadvanced in all seriousness by the physicist John Wheelerthat observer-induced retroactive causal influence (perhaps over vast distances of space and time) is a 'real' possibility strongly borne out by the results of Bell-type delayed-choice experiments where this seems the only understanding consistent with the quantum formalisms.[12] I shall go on to offer a brief account of those experiments and Wheeler's singular hypothesis with regard to astrophysical phenomena. Sufficient for the moment to say that the Bell resultsfirst obtained through a series of ingenious thought-experiments and then confirmed in laboratory testsseem to leave no choice beyond either rejecting quantum mechanics on the standard (Copenhagen) construal or abandoning any idea of local realism which treats the speed of light as an absolute limit upon causal propagation in space and time.[13] Thus if a measurement is carried out (say, by the insertion of a spin-polarizer) on

one of a singlet-state pair of separated particles with zero combined angular momentum at some arbitrary distance from source, then it follows from the quantum formalisms (1) that the other will always exhibit a precise simultaneous anticorrelation, and (2) that this must somehow affect the *entire previous history* of both particles right back to their initial moment of separation and their various possible paths or manifestations after that point. The very act of observation (or measurement) can bring about momentary 'collapses' of the wave-packet whose causal influence propagates backward in time and across any spacelike distanceout to the remotest galaxiesthat comes within the range of radio-telescopy. In which case, so Wheeler argues, it is perfectly possible that certain remote astrophysical 'events' are brought about by ourchoice of which measurement to make or which among various possible paths to interpret as that by which the incoming photons must have travelled en route to our observational equipment. Thus there is simply no option (so the Bell-derived argument goes) but to admit nonlocality and retroactive causation in order to square these experimental findings with the theory of quantum mechanics. Any other solutionsuch as the hidden-variables hypothesis [14]can be shown to generate yet more problems with the realist view and also to entail unacceptable results with regard to the supposed 'incompleteness' of a theory so strongly borne out by all the evidence to date.

I should say something more about the Wheeler conjecture since it helps to make my point about the long-term impasseor the protracted Kuhian 'revolutionary' crisisthat has befallen advanced theoretical physics over the past nine decades. In brief, Wheeler's case goes as follows.[15] There were once two astronomical objects (A and B quasars) which were thought to be separate entities since they were always observed at a six-second angle of separation. However, it then

became clear (through red-shift analysis) that these were *not* in fact discrete objects but the same object perceived twice over, owing to the influence on one photon path of a 'gravitational lens'a massive nearby galaxywhose effect was to delay the arrival of incoming data. Wheeler sees this as a large-scale repeat of the Bell type delayed-choice experiment. Thus the galaxy produces the same effect as was produced by the insertion (or momentary switching) of a spin-polarizer, and the act of observation is likewise construed as effectively deciding what shall already have occurredthat is, before the time of measurementin the quantum-astrophysical system. Moreover, extending the analogy, a semitransparent mirror might be introduced so as to 'force the next photon that arrives from the quasar to have followed both the possible trajectories or to have followed only one of them, respectively'. But then one has somehow to reckon with the fact that 'light from the quasar passed near the gravitational lens billions of years ago'. In which case it seems impossible to escape the conclusion that 'we are able to influence the past even on time scales comparable to the age of the universe'.[16]

These ideas about retroactive causation find a close parallel in the thought of antirealist philosophers such as Michael Dummett. For them, as for Wheeler, there is no ruling out the possibility that 'past' events may be influenced by 'later' (i.e., present or future) states of knowledge. On Dummett's account this follows from the case against 'verification-transcendent' truths, that is, against the typical realist notion that what decides the truth-value of our various statements or beliefs is whether or not they match up with a realm of objective, mind-independent reality. [17] On the contrary, he argues: this claim is strictly unintelligible since the only such values that have any purchaseany meaningful role in our practices of knowledge acquisitionare those for which there exists some effective decision-procedure or adequate means of verification. Thus 'warranted assertibility', rather than truth, is the sole criterion of any statement that presents itself as a candidate for rational acceptance in this or that context of enquiry. Dummett's thinking is influenced less by developments in quantum theory than by various other well-known sources, among them intuitionist philosophy of mathematics, Frege on the sense-reference distinction, and Wittgenstein on 'language-games' or cultural 'forms of life'.[18] However, there are passages which suggest that the paradoxes of quantum mechanicsespecially the issues of nonlocality and retroactive causationhave played some role in his adopting an antirealist approach to issues of knowledge, meaning, and truth.

This comparison gains force from some of Wheeler's more mind-bending pronouncements on the delayed-choice experiment and its implications for astrophysics. 'It is wrong', he suggests,

> to think of the past as 'already existing' in all detail. . . . What we have the right to say of past space-time, and past events, is decided by choicesof what measurements to carry outmade in the near past and now. The

> phenomena called into being by these decisions reach backward in time in their consequences . . . , back even to the earliest days of the universe. Registering equipment operating in the here and now has an undeniable part in bringing about that which appears to have happened. Useful as it is under everyday circumstances to say that the world exists 'out there' independent of us, that view can no longer be upheld. There is a strange sense in which this is a 'participatory universe'.19

This passage seems to me symptomatic of the confusions that prevail in some quarters of quantum-theoretical debate and in the sorts of speculative argument mounted upon them by philosophers of an antirealist persuasion. Most indicative here is the marked slippage that occurs between Wheeler's strong claim (that past *events* are 'brought about' or 'called into being' by present acts of observation) and his much weaker claim that measurements in the here-and-now may always influence 'that which *appears to have happened* from the observer's viewpoint. This sinking of the crucial difference between ontology and epistemology is of course a main plank in the antirealist's argu-

ment since it lends credence to the notion of 'truth' as nothing more than 'warranted assertibility'. It is the same confusion that Popper points outin his book *Quantum Theory and the Schism in Physics*when he attacks the tendency of theorists like Bohr and Heisenberg to treat statistical probabilities or uncertainty-relations as somehow pertaining to the very nature of quantum 'reality', rather than reflecting the operative limits of our current best knowledge, theories, systems of measurement, and so on. Such would be the manifest error, he suggests, of assuming 'that "my" probability of living in the South of England is, like "my" age, one of "my" propertiesperhaps one of my physical properties'. [20]

Hence the 'great quantum muddle', as Popper describes it: that which consists 'in taking a distribution function, i.e., a statistical measure function characterizing some *sample space* (or perhaps some "population" of events), and treating it as *a physical property of the elements of the population*'.[21] Hence also the willingness of some quantum theorists to jump to extreme antirealist, instrumentalist, or subjectivist conclusions on the basis of various conceptual problems with the orthodox account. After all, quantum mechanics 'was not . . . an abstract physical formalism but a theory of something very concrete: a theory of atoms, a theory of their structure as possessing a positively charged nucleus and a shell structure of negative electrons that explained, in principle, very concrete properties of the chemical elements'.[22] Popper's main target in all this is the retreat from objectivity and reason brought aboutas he sees itby loose talk of the wave/particle dualism, superposition, complementarity, the observer-induced 'collapse of the wave-packet', and so forth. However, his criticisms would apply even more to the wild extrapolations from Bell's theorem that count reality a world well lost in pursuit of such intriguing speculative ventures as those described above.

The interested reader will find a more expert technical discussion of these issueswith particular reference to nonlocality and retrocausationin Lucas and Hodgson's excellent book *Spacetime and Electromagnetism*.[23] My point is that problems of interpretation with regard to quantum physics are often taken to justify the case for antirealism in epistemology and/or for revisionist approaches to philosophy of logic. Thus it is thought that Bell's theoremalong with the experimental evidencerequires that we should either adopt some alternative (deviant or many-valued) logic or give up any version of realism remotely compatible with our strongest intuitions regarding time, space, and causality. Moreover, as we have seen, this revisionist ordinance also applies to the different values and space-time coordinates that Einstein derived from the Lorentz-invariant equations of Special Relativity.[24] For some commentators (e.g., the Quine of 'Two Dogmas of Empiricism' and early Putnam) there might always be a case for changing our logic if this could be shown to simplify the physics or to make best sense of the quantum predictive and observational results.[25] For othersamong them the textbook logician

Quinewe should always be better off adjusting our interpretive hypotheses, rather than proposing changes to the very ground rules of logical thought whose effect (he argues) would be to close off any prospect of improved understanding or rational debate. [26] Then again, there are thosenotably Einstein and Bohmwho have held out for an alternative to the 'orthodox' (Copenhagen) interpretation, that is to say, a hidden-variables theory that conserved the predictive and explanatory successes of quantum mechanics while maintaining its incompleteness in respect of some crucial deep further fact.[27] On the other hand, it does seem to follow from Bell's theoremas summarized abovethat any such escape route will itself be fraught with yet more intractable problems for the realist view, among them nonlocality (what Einstein referred to as 'spooky action-at-a-distance') and perhaps some form of retroactive causal influence.

Certainly nobody who reads very far into the current literature on this topic can fail to be convinced of the problems posed by quantum mechanics for any classical realist epistemology that also embraces a classical logic of bivalent (distributed) truth and falsehood. Still it is worth noting that the orthodox version has long been subject to challenge in various quarters, mainly on account of its conflict with Special Relativity and its giving rise to extravagant conjectures such as those of Wheeler cited above. In this situation the realist would probably do best to adopt an attitude of principled agnosticism, or perhaps one of qualifiedprobability-weightedassent to the claims of quantum theory on the version that comes least into conflict with his or her standing ontological commitments. Nor need this be viewed as just another opt-out solution along pragmatist, instrumentalist, or van Fraassen-style 'constructive empiricist' lines.[28] For it is perfectly in order for the realist to maintain (without compromise to her basic principles) that some branches of scientific knowledgequantum

physics among themare at present so beset by conceptual and interpretive problems as to warrant only provisional acceptance on the best evidence to hand. Moreover, such doubts should be thought of as pertaining to the limits of our current best knowledge rather than as somehow inhering in the very nature of quantum 'reality'.

What the realist needs to preserve, in short, is a firm sense of the distinction between ontological and epistemological issues, a distinction that is very often lost to view in the current debate on these topics. One can see how it becomes blurredand eases the way for some wild extrapolationsin Wheeler's argument that 'a choice made in the here and now has irretrievable consequences for what one has the right to say about what has *already* happened in the very earliest days of the universe, long before there was any life on earth'.[29] For there is, to repeat, a great difference (all the difference in the world, so to speak) between the claim that present observation affects what one 'has the right to say' about past events, and the claim that those events are *actually*

affected or brought about by present-day (light-years removed or subsequent) acts of observation. By sliding across from the one to the other as if they were equivalent claimsthat is, by collapsing ontology into epistemologyWheeler effectively begs the whole question as to whether quantum mechanics has any such mind-boggling astrophysical implications. In fact, his argument is perhaps best treated by analogy with Schrödinger's cat, that is, as a *reductio* whose absurd outcome is the strongest of grounds for suspecting some fault (some suppressed premise or logical flaw) in the reasoning that leads up to it. [30]

In Schrödinger's case this was by all accounts the original purpose: to show that the orthodox (Copenhagen) interpretation *must* be somehow incomplete since it left the cat in a strictly inconceivable superposed (dead-and-alive) state until the box was opened and the wave-packet thereby 'collapsed' through an act of observation. Thus it is an irony that so many commentators have chosen to draw just this paradoxical conclusionthereby endorsing the Copenhagen viewrather than follow Schrödinger (and Einstein) in their belief that such quantum dilemmas have to do with the limits of our present understanding rather than with something irreducibly 'strange' or 'irrational' in the quantum nature of things. With Wheeler the case is rather different since he plainly intends his claim to be taken as a genuine (non-*reductio*-type) argument for the real possibility of observer-induced retroactive causation across vast space-time distances. All the same we may be justified in treating it otherwiseas a self-refuting speculationif it entails paradoxical consequences (among them all the well-known aporias of cause-effect reversal and time-travel) which offer strong *prima facie* grounds for rejecting Wheeler's line of argument. At the very least we should suspect that something has gone awry when a whole raft of our most basic (commonsense-intuitive but also

scientifically grounded) beliefs about space, time, and causality are overthrown on the strength of a large extrapolation from what is, after all, the contested domain of quantum-theoretical conjecture.

All the same it does seem clearin the wake of Bell's theorem and subsequent experimental findingsthat there is a problem about reconciling local realism (i.e., the presumed impossibility that causal influences should propagate over arbitrary distances faster than the speed of light) with any interpretation of quantum mechanics that also retains a classical logic of excluded middle and distributed truth-values. This problem was first stated by Einstein, Podolsky, and Rosen in their famous 1927 paper.[31] Once again it took the form of a *reductio* argument designed to prove the incompleteness of quantum theory and hence the existence of some deeper reality (some 'hidden-variables' dimension) as yet unknown to physics but nonetheless required in order to avoid all the paradoxes of quantum nonlocality, superluminal transmission, retroactive causation, and so forth. However, this argument ironically turned out to produce all manner of additional problems for the

realist position, among them those pointed out by Bohr in his various responses to Einstein, and then Bell's theorem with its sharpened statement of the conditions that any such proof would have to meet if it was not to run counter to the current best findings of quantum-physical measurement. [32]

Thus, in B. d'Espagnat's words,

> [w]hat they *could* prove [i.e., those researchers seeking to defend the Copenhagen view] is that in order not to conflict with the verifiable predictions of quantum theory, a hidden-parameters theory has to obey a number of restrictive conditions which have the effect of greatly diminishing the 'conceptual attractiveness' of the idea. In special cases it may be shown by going along these lines that the only hidden parameters that can exist are nonlocal so that nonseparability follows.33

In which case the realist will be hard put to choose between the various (equally unpalatable) options which then remain open. Any such choice will involve renouncing at least one component of a realist world-view premised on the objective (observer-independent) status of physical systems, on Einstein locality as a limiting framework for ascriptions of causal influence, and on the pertinence of a distributed (bivalent) logic for deciding between alternative descriptions of the system whose measurementsor whose real coordinatesare subject to experimental scrutiny. Then again it is assumedin Eberhard's summary rendition of the orthodox viewthat 'the real world is described in terms of particles, which are singularities at some points in space, and fields, which are scalars, vectors, or other tensorial quantities with a definite value at each point in space-time'.[34] However, it would seem that there are large (perhaps insuperable) problems for each of the above postulates if they are taken in conjunction with quantum mechanics as our current best means of describing and predicting events at the microphysical level.

As Eberhard puts it:

> Bell's theorem shows a contradiction between a conventional picture of reality, Einstein's locality, and quantum theory. It is possible to solve the paradox by sacrificing any one of the three ideas. These ideas are related to one's philosophical view of the world. Therefore the final choice of a solution may be affected by that view.35

Thus one might take the option of conserving a fairly 'conventional' picture of reality by admitting superluminal effects but only on condition that these propagate forward in time within a set of rest-frame coordinates which ensure that reality is 'the same for all observers' and subject to none of the time-travel paradoxes or possibilities of backward causation that afflict other accounts. However, 'we know that observations in accordance with the predictions of relativistic quantum theory do not permit identifying a fundamental rest-frame'. And besides, as Eberhard remarks, the idea of superluminal velocities (or instantaneous interaction over arbitrary distances) is one that throws such a paradox into the classical picture as to 'make the description of reality as features distributed over space lose much of its interest'.36

In short, there seems no way to reconcile the predictive strength of quantum theory *either* with our everyday realist (commonsense-intuitive) worldview *or* with the requirements of Einstein's Special Relativity as a theory borne out by *everything but* those highly problematical results. 'For most of us', Eberhard readily concedes, 'reality is a deep-rooted concept and not everyone is willing to revise it'. [37] So the question is: how far can it be rational to revise (or abandon) those 'deep-rooted' realist commitments in response to a quantum-theoretical challenge whose precise nature has remained so stubbornly resistant to understanding? Such was Einstein's question when he famously refusedin his series of debates with Bohrto accept that any adequate ('complete') physical theory could leave so much to chance, probability, or merely statistical aggregate-measures. Such is also the position of David Bohm and others in the realist camp who have continued to maintaindespite the more powerful challenge of Bell-type argumentsthat there *can and must* be some alternative construal of quantum mechanics that would entail less violence to our basic conception of what constitutes an adequate physical theory.[38] 'Realism' in this sense, as d'Espagnat construes it, is quite simply the view that 'there should exist "something out there" that depends neither on our knowledge, nor on what we decide to measure, although it influences the results of our measurements'.[39] This is a strictly ontological thesis, that is, one concerning the intransitive, mind-independent, or nonobservationally-induced character of certain physical realia. It is compatible with a wide range of epistemological positions, from 'naive' realism to various instrumentalist views and even (in some cases) a high degree of scepticism with regard to the prospects for improved understanding of quantum-mechanical phenomena.

Thus '[s]ome realists have come to consider that such a "basic" reality

is not knowable. Others believe it *is*at least in partsuch a knowledge being obtainable either directly through observation, or indirectly by means of theoretical investigations ultimately based on experiment'.[40] What unites these otherwise disparate views is the ontological-realist assumption that our beliefs are ultimately rendered true or false by the way things stand in reality, rather than 'reality' being somehow dependent on those beliefs since they constitute our only possible means of assigning truth- or falsehood-values to any statement in the physical sciences or elsewhere. On this point the realist in debates about quantum physics is at one with those earlier realistsor anti-instrumentalistswho maintained the existence of then unobservable entities (such as molecules, atoms, or electrons) on account of their playing a crucial role in some otherwise well-attested scientific theory. Of course the complaint may arise, as d'Espagnat puts it, 'that objective states (or hidden parameters) are at the same time unobservable and "useless", and therefore that Ockham's Razor should be applied to such notions'.[41] However, this ignores the fact that some 'unobservables'such as those listed abovehave later shown up with

the advent of better, more powerful or refined observational techniques. Also it fails to reckon with the argument from inference to the best explanation, that is, the case for an attitude of qualified (defeasible) realism with regard to those hypothetical objects that figure in our current best theories of the physical world. [42]

D'Espagnat sees no reason in principle why this argument should not be extended to the realist's case for hidden parameters in the quantum-theoretical context. To the above sorts of objection it may well be answered, he suggests,

> first that the 'usefulness' of a conception may easily vary with time and second that, again, we are here discussing an idea (the principle of separability) that makes sense only within the realm of realism, a philosophy in which there is no logical reason to infer the non-existence of such-and-such not-directly-observable entities from the contingent circumstance that these entities are useless to us. After all, there is, in these respects, quite a strong similarity between the idea of objective states as it is used here and the idea Boltzmann had that molecules should exist. The fact that Boltzmann's idea finally 'worked' after all, although it was at first subjected to the very objection here discussed, shows in quite a convincing way that the objection in question is in fact a mere prejudice.43

I should mention that this argument is one stage only in a far more complex and qualified case for treating the hidden-variables theory as capable of presentation in a form that might yet meet the challenge of Bell's Theorem and related problems. Nevertheless, it is an important passage for several reasons, among them the link that it establishes between the issue of realism with regard to quantum mechanics and the issue as to whetheror just how farthe very 'ground rules' of logic might have to be revised in order to accommodate quantum mechanics and its exceptionally strong record of predictive success. We have seen already how this latter debate has found its way into other areas of philosophical enquiry, giving rise to revisionist proposalslike those

of Quine and Putnamwhich hold that such 'rules' are always in principle open to challenge if they come into conflict with the findings of physical science. For Dummett likewise it is axiomatica main plank in his antirealist argumentthat any theory which admits truth-value gaps (i.e., which contains undecidable statements or for which as yet we possess no means of definite verification) must therefore be regarded as simply not a candidate for ascription of distributed truth/falsehood values. In short, there is no room on Dummett's account for that cardinal distinction (as the realist would have it) between ontological and epistemological issues, or questions of the order: What might be the case in reality quite apart from our present, limited state of knowledge? and questions of the order: What are we justified in believing given the best evidence currently to hand? For Dummett this distinction is wholly unintelligible since it entails claiming knowledge of that which, by

very definition, exceeds any knowledge we could possibly possess or any available proof-procedure. [44]

Thus the case for antirealism with regard to quantum mechanics can be generalised to cover the entire range of the natural and human sciences. In mathematics it involves the intuitionist claim that if we lack any adequate means of checking some otherwise powerful and well-defined theory (e.g., Goldbach's famous conjecture that all even numbers greater than four are the sum of two primes), then the theory is neither true nor false despite our deep-grained realist tendency to suppose that it *must* have some determinate truth-value whatever the limits of our present knowledge, conceptual grasp, computational powers, and so on.[45] In historical discourse likewise there are vast areas of ignorance about which we may be tempted to say that 'this or that event either did or did not occur', irrespective of whether we currently know (or have any means of finding out) the particular facts in question. But such claims can make no sense on Dummett's antirealist or verificationist theory. For this entails that 'there are gaps in reality . . . meaningful statements, which we can understand and whose truth or falsity we can therefore conceive of establishing but for which, nevertheless, the question whether they are true or false has no answer; they concern a region of reality which is simply indeterminate'.[46] And again, somewhat more carefully phrased

> Of any statement about the past, we can never rule it out that we might subsequently come upon something which justified asserting or denying it, and there we are not entitled to say of any specific such statement that it is neither true nor false but we are not entitled either to say in advance that it has to be either one or the other, since this would be to invoke notions of truth and falsity independent of our recognition of truth and falsity.[47]

Thus, on Dummett's account, there is just no way that we can step outside our own epistemological criteriaor our current best methods of

verificationin order to say that in certain cases there *must* be a definite truth of the matter regardless of whether we are now (or ever could be) in a position to establish that truth.

To some extent Dummett is here hedging his bets, as when he allows that we can never exclude the possibility of some future advance in knowledge that would (so to speak) bring about a collapse of the truth-value gap and thus render the issue decidable by the most appropriate means. However, this concession counts for rather little in comparison with Dummett's talk about 'gaps in reality' or 'a region of reality which is simply indeterminate'. For such talk can only be interpreted as claiming that 'reality' *just is*or just waswhatever we take it to be according to our best scientific, historical, or other investigative lights. From which it follows that any truth-value gaps in our knowledge are also necessarily 'gaps in reality' since on Dummett's argument

there is no appeal open to a realism that would maintain the distinction between ontology and epistemology and could thus leave room for the existence of objective, belief-independent, or verification-transcendent truths. That idea is a nonstarter, he thinks, since it involves the strictly nonsensical claim that we could have good reason to believe ourselves wrong (or at least to conceive the possibility of falsehood) as regards our own, no matter how cherished or firmly held beliefs. Thus the principle of bivalence necessarily fails for any statement whose truth-conditions are at present undecidable *even if* there is some prospect that they might yet be decided through advances in our methods of investigation or refinements of scientific knowledge. It fails for the reason that no such advance could possibly count *for us*in our present state of knowledgeas adequate to justify a change in our thinking or the adoption of alternative criteria.

For the Dummett-type antirealist, therefore, 'whenever a statement is true, it must be possible . . . in principle, for us to know that it is true, that is, for beings with our particular restricted observational and intellectual facilities and spatio-temporal viewpoint'. [48] In which case the realist can only be mistakenin the grip of a logical fallacyif he or she maintains the existence of truths unknown (or maybe unknowable) to us on account of our limited information sources, perceptual restrictions, failures of conceptual grasp, and so forth. Thus Dummett's case for antirealism goes along with his case for the revisability of logicmore specifically, the need for indeterminate or nondistributed truth-valueswhenever there is an instance of undecidability with regard to some contested or presently unverified statement. Quantum physics would appear a prime candidate in this regard since so many of its strongest claims'strongest', that is, by Dummett's criterion of 'warranted assertibility', or in virtue of their sheer predictive powerare nonetheless such as to create large problems

with the attempt to assign truth-values on a realist or bivalent logical basis. Hence all the well-known paradoxes of wave/particle dualism, quantum nonlocality, superluminal propagation, retroactive causal influence, and so forth.

Nevertheless, there are two points that should be made before these problems are enlisted in support of Dummett's antirealist position. One is that the whole debate about rival interpretations of quantum mechanics has developed from a feeling of dissatisfaction with the theory as it stands, or at any rate a hope that there might be some way of resolving the paradoxes. Of course this motive is much stronger in the realists or proponents of a hidden-variables theory, that is, those thinkersfrom Einstein to Bohmwho have sought an alternative to the orthodox (Copenhagen) model. But it is also an issue for those othersfollowing Bohrwho accept the 'completeness' of quantum mechanics on account of its singular predictive power and who regard the orthodox interpretation as most likely the closest we will get to any adequate theory. For in their case likewiseas can be seen from Bohr's 'darkly

metaphysical' reflections on the themethere is a very real problem about the need to treat quantum phenomena in a language (that of classical physics) which brings to bear a wholly different range of descriptive and explanatory concepts. Hence Bohr's well-known idea of 'complementarity', that is, the simultaneous adoption of two or more incompatible but nonexclusive viewpoints, frameworks, or description-languages in order to get around this otherwise intractable paradox. [49] At any rate, there are problems enough with interpreting Bohr's thoughts on the matter, problems that emerge in his wrestling with the issue of quantum 'reality' and the conflict (as it seems) between quantum mechanics on the Copenhagen view and any reasoning based on a 'classical' logic of enquiry.

This leads to the second main argument against extrapolating too readily from quantum theory to antirealism and/or to the adoption of some nonstandard, deviant, or many-valued logic. For as we have seenand as d'Espagnat makes particularly clearwhat is at stake in much of this debate is an attempt to resolve the paradoxes *either* in favour of Bohmian (nonlocal) realism, *or* in such a way as to preserve logic from radical revision, *or* with a view to finding some alternative construal that would achieve both these ends while managing to explain (or at least to accommodate) orthodox QM and its manifold predictive successes.[50] Thus there seems little merit in the kind of *a priori* sceptical argument that would simply assume these problems to be unresolvable or take quantum physics as a prime exhibit in the case for wholesale antirealism. I am alluding here chiefly to cultural theorists such as Jean-François Lyotardwho cites it along with chaos theory, fractals, Gödel's undecidability theorem, and other signs of our current 'postmodern condition'[51]but also to a certain understanding of deconstruction, one that has received its most elaborate treatment in two recent books by Arkady Plotnitsky.[52] On this account quantum

mechanics and deconstruction (more specifically, the texts of Bohr and Derrida) must be seen as marking a decisive break with all 'classical' (realist) ontologies, and hence as pointing the way forward to a postmetaphysical epoch beyond the hitherto 'restricted economy' of truth, meaning, logic, and representation.

Plotnitsky argues his case with an attitude of prosecuting zeal toward anyone so naive as to thinkat the dawn of this new epochthat realism might still be a live option for the natural or human sciences. Only by adopting a Derridean 'general economy' of textuality, *différance*, supplementarity, etc., allied to Bohr's kindred ideas about the complementary relation between different (incommensurate) descriptive frameworks, can we hope to develop a theory adequate to this crisis of knowledge and representation afflicting all the disciplines of present-day advanced thought. Plotnitsky takes an especially strong line against defenders of a realist approach to quantum mechanics, or thoseEinstein and Bohm chief among themwho have sought to resolve the quantum paradoxes on terms consistent with causal realism and/or a 'clas-

sical' logic of enquiry. With regard to Derrida, likewise, he will accept nothing less than a reading that takes deconstruction to entail the idea of a generalised 'textuality' beyond all the various restrictive conceptsof meaning, reference, logical consistency, decidable truth/falsehood values, and so forthwhich have up to now governed the conduct of traditional ('logocentric') thought.

Not that Plotnitsky is lacking for evidence in support of his case, that is to say, passages from Derrida's textsin particular his early essay on Hegel and Bataille, 'From Restricted to General Economy'that would tend to endorse this reading. [53] On the other hand, they are usually the sorts of generalised programmatic statement that derive their force and justification from his having elsewhere provided a great deal more in the way of detailed, specifically text-based, and *logically compelling* analysis.[54] For were this not the case then there would be strong grounds for suspicionas with many such sweeping pronouncements in the postmodern-textualist veinthat they had been arrived at through a predisposed sceptical bias or in pursuit of some merely notional 'alternative' logic. What counts decisively against that suspicion is the fact that Derrida for the most part argues his way with a strict regard for standards of logical rigour, consistency, and truth. More than that: he insists that any case for questioning the scope or validity of those standards can be justified only as the end result of a reading which presses *as far as possible* with the attempt to construe some particular text in accordance with classical (bivalent) criteria of truth and falsehood.

This claim is borne outas I have argued at length elsewhereby a close examination of Derrida's texts on Rousseau, Kant, Husserl, and Austin.[55] In each case he discovers a counterlogic at work, that is to say, an anomalous or deviant logicof 'supplementarity', 'parergonality', '*différance*', and 'iterability'that runs athwart the express or manifest

logic of argument.[56] But in each case also he is at pains to emphasise the point: that these limits to the applicability of classical concepts cannot be established except by way of a textual exegesis which applies them *right up to the limit* and which nowhere has recourse to the vague idea of a logic 'beyond' all the standard requirements of bivalence, noncontradiction, or excluded middle. Such a move would no doubt simplify matters by relaxing the constraints upon what henceforth counted as a coherenta 'logically' acceptableargument, thus at a stroke making room for all manner of paradox, aporia, conflicting truth-claims, and so forth. However, it would also, by the same token, deprive his readings of their critical purchase and leave them open to a pragmatist construal after the fashion of Richard Rorty.[57] That is to say, they could then be viewed as nothing more than an ingenious variation on the kind of all-purpose rhetorical strategy which demotes logicalong with the values of consistency, rigour, and truthto the status of merely one regional science within the encompassing 'general economy' of language or textuality.

Such is indeed Plomitsky's understanding of Derrida, one that supposedly

brings him out in agreement with Bohr on the need for quantum physicists to adopt a generalised Principle of Complementarity. Thus apparent conflicts of interpretation (as between particle and wave theories, or measurements of location and momentum) can be treated rather as alternative, incompatible, but stillin a larger viewsomehow 'complementary' differences of method and approach. As we have seen, this proposal most often goes along with the case for a nonstandard (many-valued) quantum logic of the kind developed by philosophers such as Reichenbach, yon Neumann, and Putnam. [58] It also consorts with an antirealist construal of quantum phenomena, one that embraces some form of the argument from ontological relativityor the 'theory-laden' character of observation-statementsas its justification for suspending the assignment of bivalent truth-values to measurements and predictions in the quantum-physical domain.[59] For Plotnitsky, this is where Derrida and Bohr have between them achieved the great leap forward from a classical ('restricted') economy of truth, logic, language, and representation to a 'general economy' at last opened up to the play of irreducibly multiple perspectives. Both are in this sense 'antiepistemologists': that they reject any appeal to some reality beyond the text or beyond the quantum formalisms that might ultimately impose a choice between rival logics, interpretations, or conceptual frames of reference. Thus, according to Plotnitsky, we shall misread Derridamistake the epochal significance of his workif we fail to understand how complete is the break that deconstruction entails with all classical (bivalent) conceptions of logic and classical (realist or truth-based) conceptions of scientific knowledge and enquiry. What his texts give us to thinkthough somehow with exemplary precisionis the need to pass beyond such restrictive notions to the infinitized domain of a 'general economy' without origin, end, or limit.

As I say, there are passages in Derrida which lend some credence to Plotnitsky's claim. These mostly have to do with the notion of 'unlimited semiosis', that is, the idea (derived from C. S. Peirce) that the chain of significations can never come to an end since every sign has reference to some other sign, some merely provisional resting point in the otherwise endless deferral of meaning from one signifier to the next.[60] In short, there is no 'transcendental signified' that could ultimately halt that process in a moment of pure, absolute, self-present grasp.[61] However, it is well to be clear as to what Derrida is 'deconstructing' in passages like this. They have to do with a certain, primarily Hegelian, idea of consciousness as moving ever onward and up toward a state of Absolute Knowledge wherein everythingall of past history, philosophy, art, culture, and sciencewould at last be revealed in the fullness of time, with the result that (from this commanding perspective) 'the rational is the real, and the real the rational'. Such is at any rate the immediate context of those statements in the essay 'From Restricted to General Economy' which Plotnitsky takes as his principal source.[62] It is also, more specifically, the mode of

thought which Derrida sets out to challenge through a reading alert to those symptomatic moments in Hegel's text where discrepancies arise between overt and latent sense, or between what the text *explicitly states* concerning matters of consciousness, knowledge, and truth and what Hegel is nonetheless *constrained to imply* by the counterlogic at work within his own argument. Thus, in Derrida's words, '[s]ince no logic governs, henceforth, the meaning of interpretation, because logic is an interpretation, Hegel's own interpretation can be reinterpretedagainst him'. [63] And again, '[t]his displacement is paradigmatic: within a form of writing, an intraphilosophical concept, the speculative concept *par excellence* [Hegel's dialectical *Aufhebung*] is forced to designate a movement which properly constitutes the excess of every possible philosopheme'.[64]

It is in this particular contextDerrida reading Hegel by way of Bataille's strong-revisionist or anti-Hegelian readingthat he (Derrida) goes furthest toward the idea of deconstruction as a radical break with received ideas of logical consistency, rigour, and truth. However, by the same token, we should not be over-ready to follow Plotnitsky when he extrapolates from those few statements to a generalised theory of deconstruction as marking the closure of a classical ('restricted') economy and the advent of a new epochof *différance*, textuality, unlimited semiosisbeyond that old 'metaphysical' order. For this is to ignore the two main points (1) that Hegel is a very special case of a speculative dialectics overreaching itself in the quest for self-presence and Absolute Knowledge; and (2) that Derrida's own more generalised statementssuch as those cited abovewould themselves be altogether lacking in critical force were it not for the *cogent and logically articulated process of argument* by which he leads up to them, here and elsewhere.

Such is also the case, I would argue, when Derrida instances Gödel's

Theorem as further prooffrom the domains of logic and pure mathematicsthat undecidability must always supervene beyond a certain point of formal complexity in any signifying system. Thus, in Derrida's words:

> An undecidable proposition (Gödel demonstrated such a possibility in 1931) is a proposition which, given a system of axioms governing a multiplicity, is neither an analytical nor a deductive consequence of those axioms, nor in contradiction with them, neither true nor false with respect to those axioms. *Tertium datur,* without synthesis.65

The last sentence here can perhaps best be read as yet another token of resistance, on Derrida's part, to any 'synthesising' gesture (or movement of Hegelian *Aufhebung*) that claims to reconcile conflicting logics in a moment of achieved dialectical transcendence. Thus 'tertium datur' in the sense that deconstructionlike Gödel's theoremmay require *at the limit* some alternative 'logic', some means of accommodating nonbivalent or classically undecidable statements. However, this is not to say, in either case, that the

undecidability in question can then be extended to *all and any* statements or *all and any* proof-procedures, including (presumably) those which have led up to just this aporetic conclusion. For in that event there could be no reason to accept either Derrida's or Gödel's arguments, dependent as they areand necessarily so, like any adequate demonstrative proofon a strictly bivalent logic of truth and falsehood.

This is the crucial point that Plotnitsky misses when he goes on to develop his case for a 'general economy' (of 'writing', '*différance*', 'dissemination', 'complementarity', etc.) that would reach out into every domain of the natural and human sciences. Such was undoubtedly Bohr's view of the matter, one that envisaged no possible 'solution' to the paradoxes of quantum mechanicsat least no solution within the terms of any realist epistemology or classical logicand which, moreover, sought to extend this idea far beyond the quantum-physical domain. [66] Thus, in Plolnitsky's words,

> this incompleteness would characterize all other theories available; and they could, therefore, be no more complete than quantum mechanics, indeed they are less so. Bohr therefore saw these conditions of indeterminacy, incompleteness, and complementarity as ineluctable constraints imposed upon physics by the structure of matter, in so far as the latter term of idealization can be used under the same constraints.67

However, this begs the whole questioncentral to debates about quantum mechanics from Einstein *versus* Bohr to David Bohm, Karl Popper, and other critics of the orthodox Copenhagen lineas to whether these difficulties are indeed imposed upon us by the 'structure of matter' (i.e., by the very nature of quantum 'reality'), or whether they result from our present limitations of conceptual-explanatory grasp. Plotnitsky is very firmly on Bohr's side in all this and tends to treat the dissentersEinstein and Bohm among themas so many old-style 'metaphysicians' still in the grip of quaint realist or idealist

prejudices ('Einstein's understanding of conceptual synthesis and, thus, of the completeness of a given theory was classical or metaphysical and, in the end, Hegelian').[68] For it was on just this issue of *completeness* that the various parties divided, with some (like Bohr and Heisenberg) maintaining that quantum mechanics was as 'complete' as could well be required of any theory, given its extraordinary record of predictive-observational success, whereas others (like Einstein and Bohm) held that the orthodox model *must* be incomplete so long as there existed no adequate interpretation of those same results in realist or causal-explanatory terms.

Again Plotnitsky leaves no doubt as to where he stands on this issue. Undecidability and complementarity just *are* the conditions of all human knowledge, which also meanson his antirealist understandingthat they characterise 'reality' so far as we can possibly claim to know or comprehend it. Hence his view of Einstein and Bohmalong with other opponents of the

Copenhagen lineas patiently but deludedly labouring their realist ('metaphysical') conceptions despite the obsolescence of any such theory in the wake of Bohr's conceptual revolution. Hence also his idea that Derrida's thought is the equivalent, in philosophic terms, of that same epochal passage beyond all restricted economies of language, logic, truth, and representation. However, it is simply not the case (or, as Derrida might say, not *simply* the case) that any counterinstance to those 'classical' valueswhether in quantum mechanics or the deconstructive reading of a textmust entail revising our entire conception of what constitutes a valid proof-procedure or an adequate demonstrative argument. On the contrary: such instances can have no force (no claim to challenge our normative concepts) except insofar as they are treated in accordance with the strictest protocols of logical or evidential reasoning.

This is precisely what Derrida asserts against Searle when the latter suggests that he (Derrida) can purport to find Austinian speech-act theory so deeply problematic only by dint of applying inappropriateoverly 'rigorous' or bivalentcriteria of truth and falsehood. [69] To which Derrida responds by claiming (1) that such standards cannot be dispensed with if one wishes to discuss and criticise any speech-act *philosophy* worthy the name, and (2) that the difficulties in questionproblems concerning context, intention, speech-act 'iterabiliry', and so forthcannot be made to disappear simply by declaring them off-bounds for all commonsense-practical purposes. Hence Derrida's statement (again *contra* Searle) that this bivalent logic can and must be sustained 'against all empirical confusion, to the point where the same demand of rigour requires the structure of that logic to be transformed or complicated'.[70] Hence likewise his description of the 'strange alogical logic' of iterability, 'an ideal concept to be sure, but also the concept that marks the essential and

ideal limit of all pure idealization, the ideal concept of the limit of all idealization, and not the concept of nonideality (since it is also the concept of the possibility of ideality)'.[71] These complications can of course have no place in Searle's treatment of speech-act theory, premised as it is on 'empirical' (i.e., pragmatic or approximative) notions of truth, felicity, performative warrant, contextual understanding, and the like. But in that caseso Derrida arguesthe theory is devoid of philosophical content and amounts to no more than a strategy for evading conceptual problems in its own undertaking. If it is not to invite this charge, then 'it must be shown why, for what reasons (which are structural, and not empirical or accidental) such idealization finds its limits'.[72]

I have suggested that a similar situation exists with regard to quantum mechanics and the problems it creates for any realist interpretation that would also abide by the axioms of standard ('classical' or bivalent) logic. Here also there are various possible escape routes, all of which involve some kind of negotiated trade-off or some attempt to save the phenomena by abandoning

one or more components of the received scientific world-view. These include the proposal of an alternative (deviant or multivalued) quantum logic; the 'many-worlds' interpretation, according to which one can avoid such revisions to the ground rules of logical thought by positing the existence of multiple 'realities' brought about by discrete simultaneous outcomes of the observer-induced collapse of the wave-packet; [73] the 'many-minds' theory that pursues this argument in a different (idealist) direction; and of course the orthodox Copenhagen approach which advocates the Complementarity Principle as a means of simply not forcing the issue among different (incommensurable) theories, ontologies, or systems of measurement. What they all have in commonas compared with Bohm's 'hidden-variables' theoryis a willingness to accept the most drastic revisions to our basic concepts of logic and/or physical reality rather than suppose that the problem might lie with our present state of knowledge concerning quantum phenomena. Yet this goes against a still more basic precept of scientific thought: namely, that it is rational to grant, withhold, or suspend belief in proportion to the amount of evidence-or the degree of probabilistic warrantpossessed by this or that candidate item. Thus we cannot be justified in granting credence to some highly speculative quantum hypotheses that emerged in response to the 'orthodox' Copenhagen theory, itself seen as problematic in various respects, and which require that we abandon other (more firmly attested) principles and beliefs. At least those hypothesesand perhaps a good part of quantum physics as presently understoodshould be subject to the kind of rational doubt (or lower probability-weighting) that results from a comparative appraisal of their claims *vis-à-vis* the rest of our scientific knowledge.

Karl Popper puts the case against alternative logics in a typically forceful passage denouncing the retreat from more exigent standards

of reasoning. 'In the empirical sciences', he writes,

> we should . . . use the full or classical two-valued logic. If we do not use it but retreat into the use of some weaker logicsay, the intuitionist logic, or some three-valued logic (as Reichenbach suggested in connection with quantum theory)then, I assert, we are not critical enough, it is a sign that something is rotten in the state of Denmark (which in this case is the quantum theory in its Copenhagen interpretation).74

This goes along with Popper's passionate attack on those various antirealist or instrumentalist doctrines which have often been usedfrom the Catholic Church *versus* Galileo, via Bishop Berkeley, down to Duhem and Feyerabendas a means of subjecting scientific truth-claims to the dictates of religious or ideological commitment.75 More specifically: if logic is deemed 'revisable' in the face of recalcitrant data, then nothing could count as a decisive reason for rejecting *any* hypothesisno matter how wildly implausibleon grounds of inconsistency, evidential weakness, lack of inductive or deductive

warrant, and so forth. That is to say, such arguments would possess no force if it were always possible (as maintained by the proponents of quantum logic, as likewise by Quine in 'Two Dogmas of Empiricism') to devise some alternative logic that avoided any looming conflicts or discrepancies.

As I have remarked already, Quine himself takes a contrary view in those passages from his textbook treatment of philosophy of logic where he argues that it could *never* be rational for an interpreter to abandon the basic logical principles in response to such perceived anomalies. [76] Moreover, one can find even Feyerabend (in his early work on the conceptual foundations of quantum physics) asserting something very like Popper's view of the matter. Thus 'this sly procedure [i.e., the device of introducing many-valued logics] is only one (the most "modern" one) of the many devices which have been invented for the purpose of saving an incorrect theory in the face of refuting evidence and . . . consistently applied, it must lead to the arrest of scientific progress and to stagnation'.[77] It is hard to see how this might square with Feyerabend's later and better-known views about the benefits that science and society could enjoy by scrapping all notions of scientific truth, method, progress, 'refuting evidence', or whatever.[78] At any ratein his case as in Quine'sthere are grounds for thinking him right to adopt this antirevisionist stance, and for rejecting that other line of argument as simply incompatible with the nature of genuine (progressive and open-minded) scientific enquiry. Derrida again puts the case with regard to the logic ofdeconstruction and its bearing on the concepts and categories of speech-act theory. That logic, he writes,

> can be 'other' to the point of overturning a good many habits and comforts. It can lead us to complicatedistinctlythe logic of binary oppositions and a *certain use* of the value of distinction attached to it. The latter has indeed

> certain limits and a history, which I have precisely tried to question. But that leads neither to 'illogic' not to 'indistinction' nor to 'indeterminacy'. This other logic does not authorize, in theoretical discussion *as such*, any kind of approximative statement. It never renounces . . . clear and rigorous distinction.79

As concerns quantum mechanics this suggests that any over-willing recourse to 'alternative', deviant, or many-valued logics will indeed have the effect, in Feyerabend's phrase, of 'arresting progress' toward a more adequate interpretation that seeks to resolve various conceptual dilemmas with the orthodox model.

The same applies to those other hypotheses which count reality a world well lost for the sake of preserving the quantum formalisms, or which (after Bohr) take 'complementarity' as a pretext for simply not addressing the most basic ontological issues. My point is that these problems cannot be resolvedonly pushed out of sight or temporarily shelvedby any theory of quantum mechanics that adopts a purely instrumentalist approach and thus, in effect, renounces the quest for a better, more complete understanding of quantum

phenomena. More 'complete', that is to say, in the sense of that term applied by thinkers such as Einstein and Bohm to argue the necessary *in*completeness of theories (such as the orthodox model) which treat those phenomena as simply givenalong with the quantum formalismsand as somehow intrinsically resistant to any form of adequate causal explanation. For it is at this point that the way is left open to all manner of far-fetched hypotheses, from Schrödinger's cat to Everett's 'many-worlds' interpretation, and thence to the strictly absurd idea that astrophysical events at some milions of light-years' distance can be brought about by retroactive causation through our deciding to make one or another radio-telescope measurement. 80

It does seem to me that philosophers can be of some use to physicists here by pointing out the sorts of conceptual error involved in such abusive extrapolations from the micro- to the macrophysical domain. But also, more than that, they can point out the fallacy of confusing the limits of our current best knowledge concerning quantum phenomena with the need to interpret those phenomena as actually requiringin and of themselvessome radical adjustment to our basic conceptions of logic, truth, and reality. For if this were the case, then we should have to concede (like Bohr) that *for all we can possibly know* quantum mechanics is forever beyond reach of description or explanation on scientifically intelligible terms. But how should we then account for the striking fact that this most advanced branch of theoretical physics has continued to provoke such extreme disquiet among so many thinkers, from its earliest stages (in the pioneering work of Planck and Einstein) to the current range of candidate theories? After all, these problems could scarcely have arisen unless there existed a constant tensiona long-term phase of Kuhnian 'revolutionary' crisiswhich provided the impetus for various attempts to reconcile (e.g.) quantum nonlocality with the tenets of Special

Relativity, or proven violations of Bell's Inequality with some interpretation that would bring them out in accordance with classical (bivalent) logic and nonlocal realism. Of course such dilemmas can always be wished away by adopting an antirealist viewpoint or a wholesale version of the Complementarity Principle. However, these purported 'solutions' have just the kind of weakness that Derrida points out in Searle's attempt to circumvent the problems of speech-act theory by relaxing the logical validity-conditions that decide, for instance, what shall count as a genuine ('felicitous') sample of the kind.[81] That is to say, they adopt a line of least resistance which leaves those problems firmly in place as soon as one applies more rigorous standards of argument.

This is why issues of *interpretation* continue to exercise not only philosophers of science but also those working physicists who feel that orthodox quantum mechanics must be 'incomplete' if it fails to provide an explanatory account of the various observational data, despite its undeniably remarkable success as a predictive and statistical theory. For this would require that its formalisms be assigned some determinate truth-value or, more precisely, some

range of determinate values over which they could then be quantified so as to support both a realist ontology and a procedure for definite ascriptions of truth and falsehood. [82] But of course it is just the absence of any such agreed interpretation that has characterised the history of quantum physics from 1900 to the present. Indeed, the prospect of achieving it has seemed ever more remote despite the unquestioned success of quantum mechanics as a predictive theory and the advent of increasingly refined and elaborate methods of experimental testing. Hence the belief among manytaking their lead from Bohrthat there is something *in the very nature* of quantum phenomena that eludes our utmost powers of conceptual understanding and which can only be approached through partial ('complementary') descriptions, that is, only relative to this or that context of observation, experimental setup, or system of measurement.

For Bohr this approach had the signal virtue of cutting out pointless 'metaphysical' disputes, such as the (in his view) vain attemptby Einstein, Bohm, and othersto locate some deep further fact or set of 'hidden' parameters that would shift debate from epistemology into ontology, and thereby generate yet more confusion. Much better, he argued in Kantian vein, to accept the phenomena (along with the formalisms) for the sake of their wellproven predictive yield and raise no question concerning whatever might be thought to underlie or explain them.[83] However, this argument has struck many commentatorsPopper includedas just the kind of stopgap instrumentalist 'solution' that evades the real problems confronted by science during periods of radical change in its basic conceptions of physical reality. Worse than that, it gave rise to a series of further, yet more intractable problemslike the violations of Bell's Inequalitieswhich followed of necessity from the orthodox

(Copenhagen) interpretation, but which seemed to involve an unpalatable choice between, on the one hand, consistency with the quantum formalisms and, on the other, consistency with Special Relativity and Einstein's local realism.[84] There remained the third possibility, attractive to some, of saving one or more (perhaps all) of those items by holding logic itself to be revisable so far as required in order to reconcile these otherwise conflicting demands. However, this is yet another 'solution' which can only be had at the cost of vacuity as a working precept in the physical sciences or elsewhere. That is to say, if the basic principles of logic (such as bivalence and excluded middle) can always be 'revised' in response to whatever anomalies might turn up, then quite simply there is nothing that could ever give reasonscientific or philosophical reasonto think that some alternative (more logically acceptable) theory might make better sense of the empirical data.

In this respect there is a parallel between Quine's point with regard to communication in a natural-language context and the point raised with regard to quantum physics by opponents of the Copenhagen interpretation such as Einstein and Bohm.[85] In each caseso the argument runswe understand

best or interpret most rationally by application of well-tried inferential procedures such as bivalence and excluded middle. (Noncontradiction is generally regarded as a *sine qua non* for reasons that were given by Aristotle and are still accepted by most logicians, even those who would otherwise go a long way with the case for deviant or many-valued logics.) [86] Of course these procedures may encounter resistance, as indeed they have during the past century of intensive and as yet inconclusive debate on the interpretation of quantum mechanics. But this gives no reason to supposelike Bohrthat such difficulties point to some humanly impenetrable mystery at the quantum-physical heart of things, any more than (say) the protracted crisis of Ptolemaic astronomy pointed to the absolute unknowability of celestial mechanics or the laws governing planetary motion. For it is a case borne out by much recent work in the history and philosophy of science that advances in knowledge have mostly come about by pursuing a *realist and rational* explanation of discrepant phenomena, rather than adopting an instrumentalist (or Bohr-type 'complementary') approach whereby any conflicts between observation and theory can be kept from creating unnecessary trouble.[87] Such has been the history of atomic and subatomic research from Dalton down, a history characterised by stages of conceptual-explanatory advance that could only have occurred through an unwillingness to rest content with empirically adequate descriptions or formalisms that happened to fit the available data.[88] For it is just that commitment to a realist ontology and a bivalent logic of truth and falsehood that has spurred the quest for more adequate knowledge of the microphysical domain.

On the orthodox (Copenhagen) view this situation has undergone a radical change with the advent of quantum physics as our most advanced theory of what transpires at the subatomic level. For there

isso it is arguedsimply no way of squaring the quantum formalisms with an adequate (realist and logically consistent) interpretation that would also accommodate such anomalous findings as those derived by Bell from his original thought-experiment and then borne out by Aspect's famous series of laboratory tests P. H. Eberhard offers a useful summary of the situation thus arrived at. 'Bell's Theorem', he writes,

> shows a contradiction between a conventional picture of reality, Einstein's locality, and quantum theory. It is possible to solve the paradox by sacrificing any one of the three ideas. These ideas are related to one's philosophical view of the world. Therefore the final choice of a solution may be affected by that view.89

To which should be added the fourth (in many ways most radical) option of 'sacrificing' logic, or at any rateafter Reichenbach and Putnamcounting it on balance preferable to modify our logic to just the extent required in order to conserve both the quantum predictive-observational data and a viable (if not straightforwardly realist) interpretation of them.90

However, it is worth pondering Eberhard's point: that any choice between these alternatives will eventually depend on something in the nature of a 'philosophical view of the world', that is to say, a view that must always involve some commitment above and beyond what is entailed by the findings of quantum-physical research. For some commentatorsPlotnitsky among themthis choice takes the form of a strong *a priori* antirealist and antiepistemological conviction. [91] Thus he argues by appeal to some highly contentious 'proofs' of the orthodox theory that Einstein was beyond doubt wrong in all this, that Bohr unquestionably triumphed in their series of debates, that scientific realism and classical (bivalent) logic are simply not options any longer, and therefore that complementarity (along with its various correlative terms: uncertainty, undecidability, quantum nonlocality, Derridean *différance*, supplementarity, the 'general economy' of writing, etc.) must henceforth be reckoned with as strictly nonnegotiable factors in any project that would not fall back into some form of naive 'metaphysical' or 'logocentric' thought.

Whenceone supposesthe singular degree of animosity that often marks (and mars) his writing when Plotnitsky addresses the ideas of David Bohm and other proponents of the heterodox hidden-variables theory. For if their account were rightif it turned out capable of resolving some crucial problems, among them the fact (acknowledged by Bohm) that this theory still appears to entail the possibility of faster-than-light interaction between particles at an arbitrary distance of spacelike separationthen of course there could be no good reason for upholding the orthodox Copenhagen line.[92] Moreover, such a stance as Plotnitsky adopts could only appear dogmatic in the extreme, given the extent to which it comes into conflict with all the most basic and time-tested principles of scientific thought. Among these latter must be counted (1) the existence of an objective, mind-independent

physical world whose nature, structures, properties, and causal dispositions, are what science seeks to comprehend, and (2) the principle of inference to the best (most empirically adequate and logically consistent) explanation as a *sine qua non* of reputable scientific method, especially at times like the present when so many erstwhile certitudes are subject to challenge. At any rate there seems little prospect of advance from a theory that declares such principles hopelessly *dépassé* for no better reason than their happening to conflict with its own preferred antirealist line.

6
McDowell on Kant:
Redrawing the Bounds of Sense

John McDowell's *Mind and World* is a curious book in several ways, not least its lopsided structure (six chapters plus an 'Afterword' in four sections running to almost as many pages again) and its disarmingly mixed-mode style of address which swings across from formal exposition to a relaxed, almost chatty tone. [1] No doubt this results partly from its origin in a series of lecturesat Oxford in 1991and partly from McDowell's decision not to write them up in standard academic form. Hence the large amount of nearverbatim repetition and the presence of all that ancillary material tacked on at the end rather than worked into the main structure of argument. Still, the book is offered as a serious, first-hand piece of philosophical enquiry and not just a survey of current debates with the promise of more substantive work to come. Or rather: that promise seems everywhere implicit but subject to a countervailing sense that perhaps this way of handling the issues may be the best available, or the only approach that doesn't run up against problems which cannot bear too much close scrutiny.

It seems to me that these problems go to the heart of McDowell's enterprise and also reveal some symptomatic tensions in his and other recent attempts to reconcile the two traditions in philosophy that supposedly diverged after Kant. On the standard accountstandard at least among Anglo-American philosophersthis split came about when 'continental' thinkers (roughly speaking, those in the Hegel-to-Heidegger succession) took a series of false turns which led them into various philosophic dead ends. Of course the verdict varies from case to case according to the thinker in question and the particular

diagnostic standpoint from which their work is viewed. Still, there is a broad consensus that things went wrong when the first generation of post-Kantian idealists (Fichte, Schelling, Hegel) became tied up with a whole set of hopelessly abstract 'metaphysical' questions that arose from their misreading of certain passages in Kant, or their overconcern with just those parts of Kant's philosophy that offered least hold for constructive engagement. Thusagain roughly speakingone can trace two lines of descent, the first leading from issues broached in the 'Transcendental Analytic' of the First *Cri-*

tique to their more precise formulation in recent (post-Fregean) philosophy of language and logic, and the other starting out from some famously obscure passages in the 'Transcendental Aesthetic' and thereafter producing deepening confusion with its upshot in Heidegger's notorious style of obscurantist pseudo-profundity. Or again, there is the view that Kant got it rightset philosophy on the proper trackwhen he argued in the section 'Paralogisms of Pure Reason' that certain kinds of speculative question lay beyond reach of adequate (conceptual) understanding and could only create bewilderment if one sought to comprehend them in any such terms. [2]

On the simplest 'us-and-them' version of this story analytic philosophers have taken due heed of Kant's various warnings while continental thinkers have either ignored them or shown a habit of perversely following Kant at just those points where he ignores them himself. Henceso it is thoughttheir distressing tendency to fall into strictly nonsensical styles of talk about 'Absolute Knowledge' (Hegel), the dialectics of nature (Schelling), the world-constituting Ego (Fichte), or authentic Beingas distinct from mere beingsas the source of a primordial truth that comes to light through Heideggerian depth-ontological enquiry into the history of Western metaphysics. Husserl is sometimes granted a limited exemption from the general charge since his work displays certain clear affinities with the kinds of logicolinguistic approach that have characterised much Anglo-American philosophy in the wake of Frege and Russell.[3] All the same, the suspicion soon grewas with Gilbert Ryle's well-known change of mind on this subjectthat 'transcendental phenomenology' in the Husserlian mode was really just a form of unregenerate psychologism dressed up in false colours or lacking genuine logical rigour.[4] Here again, one source of such errorsso the diagnosis runsis a typically 'continental' fixation on those obscure passages in Kant's

'Transcendental Aesthetic' which concern judgement as a mediating power between concepts and intuitions, a power that is somehow bound up with the exercise of Imagination, itself an 'art buried in the depths of the soul' which nonetheless provides the very condition of possibility for all knowledge and experience.[5] As regards this latter little can be said except that it involves active 'spontaneity' as a counterpart to the 'receptivity' which enables our uptake of sensory data or phenomenal intuitions.

From Fichte to Heidegger those passages have offered a pretext for interpretations of Kant whichon this viewgo wildly astray by devaluing whatever is of genuine (analytically recoverable) worth in his philosophy and playing up whatever lends itself to treatment in the 'continental' mode. More than that they have encouraged a reading of Kant which inverts the proper (self-evident) order of priority among logic, epistemology, ethics, and aesthetics. That is to say, these interpreters have typically fastened on the kinds of exegetical problem encountered in the 'Transcendental Aesthetic' and have then quite literally read Kant backward, starting out with the *Critique of Judgement*

(where they are addressed at much greater length, albeit with no commensurate gain in clarity) and then working back through the *Critique of Practical Reason* to insist that those problems are not so much resolved as posed inescapably for any reading responsive to the deeper implications of Kant's thought. Chief among them is the role of that mysterious 'art of judgement' which enables us to bring phenomenal intuitions under adequate concepts, and alsowith respect to Kantian ethicsthe equally mysterious process by which high-level maxims (deriving from the Categorical Imperative) are somehow applied to particular cases of context-specific or situated moral judgement. Thus the main result of this back-to-front approachepitomised in Heidegger's *Kant and the Problem of Metaphysics*is to highlight passages from the Third *Critique* (especially those sections concerning the teleological doctrine of nature) which have proved an embarrassment for most 'analytic' commentators and to view them rather as crucial texts for a depth-hermeneutic reading. [6] Worse still, it demotes logic and epistemology to the status of merely second-order or derivative concerns whose preeminence within the Western post-Hellenic philosophical tradition has deflected thinking from its authentic concern with questions of primordial Being and truth.

This may seem a strange manner of introduction to McDowell's *Mind and World*, a book which contains no mention of Heidegger though it does have a number of passages on Hegel, some respectful references to Hans-Georg Gadamer, and a great deal to say about Kant. However, I hope that the above preamble will appear more relevant as this discussion goes on. What is so remarkable is the way that McDowell retraces the steps of post-Kantian 'continental' philosophyas if unaware of that entire prehistoryand indeed confronts many of the same issues that analytic philosophers have been so keen to avoid,

while presenting his case in a 'back-to-Kant' guise which makes light of those issues even though they crowd in upon his argument at every turn. I don't wish to stage this reading as some kind of quasi-Freudian psychodrama, a 'return of the continental repressed' that would have McDowell talking placidly (as he does) about Quine, Sellars, Davidson, Evans, Peacocke, and other analytic *confrères* by way of a fragile defence mechanism against all those threatening intrusions from an alien philosophical quarter. What I want to suggestless dramaticallyis that McDowell cannot accomplish this return to Kant without in the process reopening questions (especially questions from the 'Transcendental Aesthetic') that were left unresolved in the First *Critique*. Moreover, they are posed with particular force since McDowell rests the main weight of his argument on a number of Kantian claims that have proved extremely problematic for his commentators and have lent themselves to readings of precisely the kind which typify that 'other' tradition. McDowell makes it plain that he wishes his book to be read as a further stage in the project of scaled-down 'descriptivist' Kantian metaphysics undertaken by precursors such as Strawson.[7] That is to say, he will attempt to redeem what is

useful or what makes good sense from an analytic standpoint and will treat the rest (including much of Kant's 'transcendental' apparatus) as playing no essential role in this project and hence as strictly surplus to requirements. However, it is far from clear that McDowell can have what he wants from Kantan answer to certain pressing dilemmas in current analytic debatewithout taking over at least some part of that supposedly detachable machinery and thereby placing his own project in a somewhat different (more questionable) light.

These problems emerge most sharply in connection with a central line of argument in McDowell's book, one that he rehearses many times over with minor variations of emphasis and phrasing. This is the suggestion that Kant points a way beyond the various kinds of scheme/content dualism which have struck most philosophersat least since Quine's 'Two Dogmas of Empiricism'as a bad liability, but which persist (so McDowell argues) in a range of less obvious yet equally trouble-making forms. [8] As regards Quine he is pretty much agreed with Donald Davidson that there is a third residual 'dogma' which features in Quine's essay, namely, his idea that 'truth in general depends on both language and extralinguistic fact' (130).[9] For this throws away the whole force of Quine's argument against Dogma One (the Kantian distinction between analytic and synthetic statements, or Humean 'truths of reason' and 'matters of fact') and Dogma Two (the related logical-empiricist idea that statements can be checked off against the world on a one-to-one correspondence principle). In short, 'Quine's positive picture, his "empiricism without the dogmas", retains a counterpart to the duality that figures in spelling out the idea of analyticity, [since] truthwhich we must now think of as primarily possessed by a whole world-viewdepends partly on "language" and partly on "experience"'(131).

Thus far McDowell's approving rendition of Davidson's well-known

critique of Quine in his essay 'On the Very Idea of a Conceptual Scheme'. However, Davidson himself falls prey to yet another variant of the same dogma. This results from his drawing a sharp distinction between the realm of causal world-mind transactions where stimuli are taken to impact directly upon our sensory receptors or nervous system, and the realm of reasons and beliefs where causal explanations of that sort are completely off the point. What transpires at this levelso Davidson arguesis a process of holistic adjustment (very much as Quine describes it) aimed toward optimising truthcontent or rational acceptability. But in order for such a process to occur (i.e., for those beliefs to be properly arrived at through the exercise of reason) we must take it that causality extends just so far as the bare (uninterpreted) physical stimuli or sensory inputs. For it would otherwise infringe upon the freedom of thought to sift among the evidence, distinguish what is firm from what is revisable in the way of belief, and hence come up with some optimal

set of truth-preserving hypotheses. That is to say if we push any further with the causal account of belief formation then it will yield a thoroughly determinist theory which removes knowledge altogether from the 'space of reasons' or from the realm of justificatory arguments that involve an appeal beyond the (supposed) self-evidence of sensory stimuli. [10]

However, as McDowell rightly says, this 'solution' to the problem is far from satisfactory since it fixes an unbridgeable gulf between the raw data of perceptual experienceas they would seem on Davidson's accountand the various rational or sense-making capacities to which those data are somehow (inexplicably) subject. In other words it reverts to that pre-Kantian stage in the history of thought when rationalists like Leibniz and empiricists such as Hume came at the issue from opposite sides and provoked Kant to issue his famous dictum: 'thoughts without content are empty; intuitions without concepts are blind'. McDowell cites this passage on several occasions and takes it as indicative of everything that is wrong with philosophy in the line of descent which runs from logical empiricism, via Quine and Davidson, to Rorty's yet more extreme (neopragmatist) version of the argument for disjoining the realm of causal 'impacts' from the realm of beliefs and justificatory reasons.[11] What they all have in commonas McDowell sees itis a failure to explain how we could ever make sense of those raw sensory data if indeed they are taken to exist quite apart from the 'space' of rational warrant or criticalevaluative thought.

Thus Quine puts his case for meaning-holism in terms of an advance beyond the old picture (where statements are tested one by one for correspondence with discrete items of empirical fact) to a theory which treats every such statement as facing the entire 'tribunal of experience' along with all the other statements or beliefs which

constitute our scientific world-view at any given time.[12] However, this Kantian 'tribunal' metaphor is simply misapplied, so McDowell maintains, if it is used in default of any adequate theory whereby to explain how particular statements can indeed be accountable to experience and also subject to critical assessment in point of rationality and truth. Thus 'when Quine speaks of facing the tribunal of experience, that sounds as if it expresses the idea of rational answerability, but the rhetoric is hollow . . . once we understand experience so that it really can be a tribunal, we commit ourselves to conceiving it in such a way that rational answerability to it *can* be apportioned between statements' (160). For we shall then be able to grasp how certain statements are confirmed or falsified by the evidence precisely insofar as that evidence *already belongs* to the 'space of reasons', rather than somehow standing over against it in a realm of pregiven, inert, or sheerly 'empirical' data.

Take for instanceMcDowell's examplethe case of 'an experience with a content partly capturable by "Here's a black swan"' (160). According to Quine we shall have to assume that any evidential force possessed by that

experience must be a matter of its fitting or failing to fit with the entire existing structure of beliefs-held-true at any given time. So there could alwaysjust conceivablybe room for adjustment at some point within the 'manmade' fabric of beliefs (perhaps at a point close to the empirical periphery, as by pleading hallucination or perceptual disorder) which allowed us to carry on asserting the universal statement: 'All swans are white'. Thus what looks very much like a knock-down disconfirmatory 'experience' should rather be seen as disposing us very strongly to abandon the universal claim but not as absolutely requiring that we abandon it on pain of manifest irrationality. According to McDowell, on the contrary, '[s]uch an experience poses a rational problem for the statement, or belief, that there are no black swans; there is a germaneness relation between them that is not restricted, as in Quine's picture, to the likelihood that the belief will be abandoned' (160). In short, there is no need to accept Quine's holistic theory of evidence if we reject his concomitant idea of experiential data as standing outside the 'space of reasons', or as somehow existing quite apart from the activity of thought whereby those data acquire an intelligible bearing on our judgements of truth and falsehood.

Davidson goes a long way toward exposing what is wrong with this third dogma of empiricism. But in the end his argument collapses back into something very like the same position, namely, the idea that 'nothing can count as a reason for holding a belief except another belief', so that causal (physicalist or stimulus-response) accounts of belief formation must be thought of as belonging to a separate realm. Thus for Davidson, famously, 'belief is in its nature veridical', since we cannot get outside the space of reasons (what counts for us as veridical belief) in order to test our beliefs for correspondence with a mind-independent reality. [13] All that we can do in response to such

demands is adopt a different (externalist) perspective and explain how those beliefs were arrived at through a process of unmediated causal interaction with features of the physical environment. But of course, *ex hypothesi,* this must be taken to exclude any normative appeal to standards of justificatory warrant or valid reasoning on the evidence. From here it is but a short step to Davidson's distinctly Quinean conclusion that the best test for truth as concerns any given item of belief is maximal coherence with the widest range of other beliefs-held-true. For if rational appraisal cannot begin farther backif it plays no part in the very process of empirical knowledge acquisitionthen indeed we are stuck once again with the old (pre-Kantian) dilemma. That is to say, we have to think of 'experience' in terms of an 'extra-conceptual impact on sensibility', a causal nexus between world and mind which somehow produces our various belief-states through a process of passive sensory uptake that is completely disconnected from any kind of rational-evaluative thinking or judgement. From which it followsthe other side of this bad disjunctionthat 'rationality' can only be a matter of ensuring that our be-

liefs hang together so far as possible quite aside from any notional constraints exerted by experience, sensory stimuli, perceptual inputs, and so on. For on Davidson's accountshaped as it is by what might be called the fourth dogma of empiricismthere is just no way of bridging this gap between a causal theory that blocks the appeal to normative criteria and a coherence theory that renders our beliefs effectively devoid of epistemic or cognitive warrant.

When Kant reviewed the state of philosophy in his own day he declared it nothing short of a scandal that empiricists and rationalists had forced themselves into a similar dead-end dilemma and as yet seemed totally incapable of resolving the issue. McDowell has similar feelings about Anglo-American philosophy in the wake of logical empiricism, notwithstanding the various confident claimsby thinkers such as Quine and Davidsonto have left those problems behind. Thus, in Davidson's case, 'we should be suspicious of his bland confidence that empirical content can be intelligibly in our picture even though we carefully stipulate that the world's impacts on our senses have nothing to do with justification' (15). This suspicion is heightened if one then considers how the double-aspect (causal/coherentist) approach is taken up by Rortyalbeit through a questionable reading of Davidson's textsand used to implement a yet more drastic dichotomy between causal 'impacts' and whatever we make of them according to this or that language-game, 'final vocabulary', interpretive schema, cultural life form, or whatever. Thus for Rorty there is a sense (an uninteresting sense) in which we may say that '[w]hen Galileo saw the moons of Jupiter through his telescope . . . the impact on his retina was "hard" . . . even though its consequences were, to be sure, different for different communities'. [14] Rorty is quite happy to concede this pointto acknowledge 'the pressure of light waves on Galileo's eyeball'since on his Davidson-derived account the strong

descripivist yields no hostages to the realist by accepting the 'hardness' of brute sensory stimuli. Indeed, it is a useful line to adopt when confronted with the usual sort of realist counterargument which appeals to the massive self-evidence of certain facts about our cognitive capacities *vis-à-vis* the physical world. However, it is a point of no consequence, he thinks, when we get beyond the level of bare sense-data or causal 'impacts' to the stage where this debate becomes relevant, that is, where those data are subject to various belief-related construals or interpretations. For one can then be as 'realist' as one likes about the physical stimuli and cognate goings-on at our nerve endsor even (maybe) in our cerebral cortexand yet put the case that there exist as many ways of interpreting 'the evidence' as there exist multiple divergent views of just what that evidence is evidence for. Thus, concerning the impact on Galileo's eyeball, '[t]he astronomers of Padua took it as merely one more anomaly which had somehow to be worked into a more or less Aristotelian cosmology, whereas Galileo's admirers took it as shattering the crystalline spheres once and for all'.[15]

For Rorty, this argument amounts to no more than a straightforward consequence of Davidson's point that reality is always 'under a description' insofar as we can have any knowledge or experience of it.[16] Experience must itself be subject to perceptual-cognitive processing of some sort if it is actually to *count* as 'experience', as distinct from just a bare causal input devoid of any meaningful content or intelligible structure. What Rorty makes of this Davidsonian (though also residually Kantian) line of argument is something that has worried Davidson on and off, though at times he appears ready to accept it with minor qualifications.[17] To Kant it would have seemed wholly unacceptable since it opens the way to a form of strong-descriptivist or culturallinguistic-constructivist thinking which goes clean against Kant's insistence that objective knowledge is a world well lost just so long as we possess intersubjective (transcendentally justified) norms of valid understanding. For Rorty, this is yet another 'metaphysical' delusion which we can well do without since it prevents us from seeing that what counts as 'valid' in the space of reasons is valid only by the lights of some particular interpretive community with its own knowledge-constitutive interests, values, and beliefs.

That he pushes this case to the limits (and beyond) of rational intelligibility is a case that I have argued at length elsewhere.[18] It should perhaps be seen as something of a virtue in Rorty's writings since it helps to show what is problematic about other, less extreme versions of the doctrine, such as those propounded by Quine and Davidson. Thus McDowell confesses himself 'not in a position to dissent outright from Rorty's reading of Davidson', although he draws a very different (indeed, flatly opposite) conclusion as regards the chief lesson that philosophers should learn from this whole recent chapter of debate. On his account, 'Davidson's vulnerability to the

dualism [i.e., that between causal theories of belief acquisition and holistic/coherence-based theories of rational belief adjustment] is a defect, it is out of line with his better thinking on interpretation, and it ensures failure in the aim of exorcising traditional philosophical anxieties' (153). Rorty, by contrast, 'centres his reading of Davidson on the dualism, and he applauds it as what it exactly is not, a way to escape from the obsessions of traditional philosophy' (153). For this dualism leaves Davidson's approach stranded in just the kind of bad, anxietyprovoking predicament that prompted his criticism of Quine and which Rorty is able to exploit for his own purposes without any such anxiety but also (it seems) without much sense of the problems that quite justifiably give rise to it. In short, what is neededaccording to McDowellis a new way of conceiving the relationship between 'receptivity' and 'spontaneity', or between what is in some sense 'given' to understanding through the manifold of sensuous or phenomenal intuitions and what is contributed to it by our powers of rational or justificatory thought.

To put the case in these terms is of course to misrepresent McDowell's central point since they invoke yet another version of the same old rationalist/

empiricist, scheme/content, or active/passive dichotomy. What remains to be seen is whether McDowell's proposed Kantian solution to these problems is able to deliver the required outcome without reproducing that dichotomy over again, or without repeating certain episodes in Kant's 'continental' reception historyearly and latewhich McDowell would surely view as too heavy a cost to be borne.

In his reading of the First *Critique* McDowell focuses on just those claims that have seemed most crucial to well-disposed commentators and most problematical to others. These latter include not only Anglophone philosophers of a marked empiricist bent (such as J. L. Mackie and, ironically, Norman Kemp Smith, who produced the standard translation) [19] but also thinkers in the 'continental' linefrom Fichte to Heideggerwho have proposed various strong-revisionist or heterodox readings of Kant in response to the same interpretive problems.[20] Chief among them, as I have said, is that of explaining how Kant brings off (or why he fails to bring off) his argument for the linkage between sensuous intuitions and concepts of understanding, or receptive 'experience' and the various conceptual forms or modalities which render such experience humanly intelligible. This is also the linchpin of McDowell's case for looking to Kant in hope of deliverance from the dilemmas of logical empiricism and the failed attempts to resolve them by philosophers like Quine and Davidson. It involves Kant's claimendorsed by McDowellthat we can make no sense of experience and knowledge except on the assumption that they are bound up together in every exercise or act of rational judgement.

McDowell prefers to use the terms 'receptivity' and 'spontaneity' since these pose the issue in a nonstandard (at any rate locally unfamiliar) idiom which makes a point of their Kantian provenance while alsojust as pointedlyavoiding talk of sense-data, stimuli, conceptual schemes, or other such stock items of dualist parlance. 'The original Kantian

thought', he writes,

> was that empirical knowledge results from a co-operation between receptivity and spontaneity. (Here 'spontaneity' can be simply a label for the involvement of conceptual capacities.) We can dismount from the seesaw if we can achieve a firm grip on this thought: receptivity does not make an even notionally separable contribution to the co-operation. (9)

What McDowell means by the 'seesaw' is that chronic back-and-forth swing between passive and active, content and scheme, inert sensory 'data' and organising concepts that typifies logical empiricism and which still persists in the work of those thinkersQuine and Davidson among themwho have tried and failed to dismount. The only way out of this fix, he thinks, is to break altogether with the dualist paradigm and recognise that experience is always informed by judgement, or that 'receptivity' and 'spontaneity' are as-

pects of one and the selfsame process by which we gain knowledge of the world. Thus Quine and Davidson both go wrong through adopting a causal theory of belief acquisition which conceives of bare 'sensory inputs' on the one hand and, on the other, an evaluative 'space of reasons' where coherencerather than epistemic warrantis the ultimate court of appeal. But this has the unfortunate result of creating such a radical split between 'intuitions' and 'concepts' that no amount of terminological tinkering can put them back together. Rather, MacDowell suggests, 'we should understand what Kant calls "intuition"experiential intakenot as a bare getting of an extra-conceptual Given, but as a kind of occurrence or state that already has conceptual content' (9).

Once this is understood, then the problem disappears, or can at any rate be seen as merely the product of one particular (philosophically mistaken) way of presenting the issue. Here again it is a matter of following through on Kant's cardinal dictum that 'thoughts without content are empty' while 'intuitions without concepts are blind'. In recent Anglophone philosophyas McDowell reads itthis dilemma has most often worked out as a coherence-based theory of 'rational' justification where beliefs float free of any causal or epistemic grounding, and a theory of causally determined beliefcontent where reasons and judgements have no role to play. What we need to understand is that each of these tendencies results from a reactive fear that the other will destroy the whole enterprise of epistemology if allowed to run its full course. Thus philosophers who place the main emphasis on 'spontaneity'on the mind's contribution to experience through acts of reflective judgement or rational-evaluative thoughttend to come out very strongly against any notion of causal constraints. Conversely, philosophers of a different (more physicalist or externalist) persuasion very often tend to assume that any qualified

version of the causal account which allows for the exercise of judgement at an early stage in this process must thereby cut knowledge adrift from its anchoring to features of a truly objective, mind-independent world. In McDowell's words:

> It can be difficult to accept that the Myth of the Given is a myth . . . It can seem that we are retaining a role for spontaneity but refusing to acknowledge any role for receptivity, and that is intolerable. If our activity in empirical thought and judgement is to be recognizable as bearing on reality at all, there must be external constraint. There must be a role for receptivity as well as spontaneity, for sensibility as well as understanding. Realizing this, we come under pressure to recoil back into appealing to the Given, only to see over again that it cannot help. There is a danger of falling into an interminable oscillation. (89)

This applies equally to those, like Davidson, who try to keep both perspectives in play by offering a causal (reductively physicalist) account of the mindworld relation so far as concerns the immediate 'data' of sensory-perceptual

experience, while decreeing that no such constraints apply when it comes to the context of justification where causal factors are wholly irrelevant since beliefs relate only to other beliefs. What this gives us is truly the worst of both worlds: a basic theory of knowledge acquisition devoid of normative criteria, and a normative-justificatory theory devoid of experiential input.

So we need to get off the seesaw, McDowell thinks, but to do so without tipping it in either direction or merely holding a precarious balance by piling up the weight at each end without any prospect of sustainable equilibrium. Indeed, one purpose of his book 'is to bring out how difficult it is to see that we can have both desiderata: both rational constraint from the world and spontaneity all the way out' (8, n. 7). McDowell's phrasing here is carefully chosen and shows how far he is willing to goalbeit without acknowledgementalong the route marked out by various post-Kantian 'continental' schools of thought. To speak of 'rational constraint from the world' is crucially ambiguous as between (1) the moderate (epistemological-realist) claim that the world exerts constraints upon the process of rational belief formation, and (2) the alternative (distinctly Hegelian) idea that in some sense 'the real is the rational', that is, that spontaneity indeed goes 'all the way out' beyond our perceptual engagement with the world to *the world itself* as somehow inherently adapted to our powers of rational thought and judgement. Of course this may seem an absurdly large exegetical weight to place on one, maybe unrepresentative item of local phraseology. However, there are numerous passages elsewhere in McDowell's book that exhibit the same ambiguity. Thus: 'I am trying to describe a way of maintaining that in experience the world exerts a rational influence on our thinking' (34). And again: '[w]e need to conceive this expansive spontaneity as subject to control from outside our thinking, on pain of representing the operations of

spontaneity as a frictionless spinning in a void' (34). But in that case, it might well be asked, how can this 'control' be in any way exerted on the mind's 'spontaneous' operations unless through some order of pregiven fitnot to say preordained harmonybetween rational-evaluative judgements on the one hand and, on the other, a world which somehow lends itself to just such forms of judgement? For if spontaneity can be thought of as 'expansive' to the extent that McDowell requires (i.e., as stretching out from mind to world in a way that overcomes all those vexing antinomies), then the world must also be conceived as answering (via the mind's 'receptivity') to whatever we can know or whatever experiential judgements we can form concerning it. In short, there is as much of Hegel as of Kant in McDowell's 'continental' turn, not least his resolute attack (following Sellars) [21] on the 'Myth of the Given', his insistence on the always-already mediated character of perceptual experience, and againmost strikinglyhis various suggestions that in some sense 'the real is the rational'.

Some commentatorsRorty among themhave taken McDowell pretty

much on trust about the centrality of Kantian arguments to his enterprise and have hence failed to notice that his reading of Kant is decidedly Hegelian in character. [22] This enables Rorty to play him off against a thinker like Robert Brandom who is far more explicit about his own debt to Hegel and who thus strikes Rorty as moving much further in the right direction, that is, away from the hopeless enterprise of Kantian 'metaphysics' and toward a sensible pragmatist acceptance that 'reality' and 'truth' are simply what count as such according to our own interpretive lights.[23] Indeed, McDowell pays a handsome tribute to Brandom, acknowledging the latter's 'eye-opening seminar' on Hegel, ideas from which 'show up explicitly at a couple of places in these lectures', though '[their] effect is pervasive; so much so that one way I would like to conceive this work is as a prolegomenon to a reading of the *Phenomenology*' (ix). Now I think that Rorty is rightin one senseto take this acknowledgement at less than face value and to play up the Kantian as against the Hegelian aspects of McDowell's argument. For there are, as we have seen, crucial points in that argument (chiefly his refurbishing of the spontaneity/receptivity paradigm) which derive quite explicitly from Kant and would find nothing like the same degree of support from Hegel's historicised recasting of Kantian themes. On the other hand Rorty is wrong, it seems to me, in his notion that McDowell's project miscarriesor shows itself irrelevant to current needsby giving us more Kant then Hegel and thus producing just another rerun of problems that have continued to plague philosophy in the recent 'analytic' tradition.

McDoweli himself appears to be pulled both ways in the above-cited passage of acknowledgement where his vague talk of 'pervasive influence' and the idea of his book as a 'prolegomenon' to some future reading of Hegel must be set against the fact of that influence showing through only 'at a couple of places'. What this indicates, I think, is that

McDowell needs Kanta nonHegelianised version of Kantin order for his argument to possess any genuine force against those various forms of scheme/content dualism which he finds endemic in present-day thinking. Hegel won't do, at least for this purpose, because Hegel's way of overcoming such dualisms (like Rorty's after him) is to treat them as merely contingent on some particular transient phase in the history of thought.[24] However, as McDowell remarks about Rorty, 'cultivating a nonobsessive tone of voice isn't enough to show that philosophical obsessions are out of place' (154). For it is evident from much of what McDowell has to say about these issues concerning mind, world, and the problem of knowledge that he doesn't believe they can simply be dissolved by any such emollient strategy as Rorty proposes or indeed any purely therapeutic treatment in the late-Wittgensteinian mode. They are real issues in the sense that they arise with a certain ineluctable force not only for Kant and thinkers in the post-Kantian 'continental' tradition but also for thoseMcDoweli in-

cludedwho write from a standpoint deeply informed by 'analytic' interests and priorities, even while seeking some alternative ground from which to address them.

The chief problem lies in that link between sensuous intuitions and concepts of understanding which Kant claims to demonstrate on *a priori* grounds, or by way of a transcendental deduction from the conditions of possibility for experience and knowledge in general. Such arguments have mostly cut little ice with analytic philosophers, at least those on the empiricist wing who regard them as so much otiose metaphysical machinery. For otherslike Strawsonthey have appeared capable of a scaled-down, naturalised, or purely 'descriptive' treatment that lops off the various transcendental excrescences while preserving enough of the basic Kantian structure to make sense of our being-in-the-world as spatially located and temporally existent persons with certain well-defined cognitive capacities. [25] Still, there is a marked tendency among Anglo-American philosophersespecially those influenced by logical empiricismto take up the argument where Kant left it in the 'Transcendental Analytic' of the First *Critique*, rather than attending closely to those obscure yet suggestive passages in the 'Transcendental Aesthetic' which have captured the interest of continental thinkers from Fichte to Heidegger. Nor is this preference at all surprising given the problems that typically arise for exegetes of an analytic mind when they attempt to construe Kant's theory of imagination as the mediating power that somehow (via the schematisms) achieves the seemingly impossible task of reconciling two such disparate realms as those of intuition and concept.

If McDowell is an exception to the general rule, then this reflects the very different aim and scope of his project in returning to Kant. As he sees it, '[t]he idea of a faculty of spontaneity is the idea of something that empowers us to take charge of our lives' (43). And again, more

specifically:

> Kant points the way to a position in which we can satisfyingly apply that idea to empirical thinking: we can hold that empirical inquiry is a region of our lives in which we exercise a responsible freedom, and not let that thought threaten to dislodge our grip on the requirement that empirical thinking be under constraint from the world itself. (43)

In other words McDowell wants something more from the Kantian notion of 'spontaneity' than a means of bridging that problematic gulf between intuitions and concepts. What he thinks it can provideagain following Kantis a theory of mind that would reconcile the claims of empiricism and rationalism, experience and judgement, understanding and reason, or even (as the above passage appears to suggest) determinism and free will. For it is precisely McDowell's reiterated point that these claims will seem to be in conflict *only if* we take the kind of reductionist view that drives a wedge between empirical

'data' and the 'space of reasons', or which finds no room for the 'exercise of responsible freedom' with respect to the kinds of empirical enquiry that are 'under constraint from the world itself'. Then again, it may seem that these conflicts can be resolved only by adopting a stipulative double-aspect theory which maintainslike Davidson and Rortythat causal accounts of belief acquisition and rational accounts of belief adjustment are necessarily 'under different descriptions', and hence that such issues simply cannot (or should not) arise. McDowell thinks that Kant offers the best way out of this unfortunate choice between reductionist dilemmas and evasive pseudosolutions. He does so by conceiving knowledge as a product of the interplay between receptivity and spontaneity, each of which partakes sufficiently of the other to avoid any such ultimate stalemate.

More than that, Kant's theory points us toward a conception of 'responsible' enquiry in both senses of the term: responsive to the kinds of empirical constraint exerted by a world that is not of our own conceptual or linguistic making, but accountable also to the exercise of reason as a faculty free to judge and evaluate the evidence by normative standards that cannot be reduced to bare products of the causal interaction between world and mind. After all, 'if those [causal] impingements are conceived as outside the scope of spontaneity, outside the domain of responsible freedom, then the best they can yield is that we cannot be blamed for believing whatever they lead us to believe, not that we are justified in believing it' (13). And this applies also in the ethical sphere where the same sorts of problem typically arise through a failure to see how experience and judgementor factual and evaluative modes of enquirymight exist in a mutually responsive rather than a sharply dichotomous relationship. Here again the way forward (as McDowell sees it) is to recognise the extent to which spontaneity both contributes to and is shaped by our

various receptive capacities. For we shall then be unimpressed by Humean arguments requiring a disjunction between fact and value, or indeed by any Kantian claim that ethical responsibility involves the kind of freedom that can only be exercised in the absence of all 'external' constraints. Rather, we shall see no obstacle to adopting an outlook of ethical realism according to which there exist certain 'rational requirements' that are 'there in any case, whether or not we are responsive to them', but which allow us to become more responsive (and responsible) as 'our eyes are opened to the very existence of this tract of the space of reasons' (82). Thereafter, McDowell continues, 'our appreciation of its detailed layout is indefinitely subject to refinement, in reflective scrutiny of our ethical thinking' (82). Thus there is no sharp divide between epistemology and ethics, any more than between fact and value, receptivity and spontaneity, or the realm of (so-called) sensory inputs and the space of justificatory reasons. In each case the thought of that divide comes about through a falsely reductionist picture which finds no room for reflective

judgement in the realm of empirical knowledge and no room for empirical constraints upon knowledge in the realm of reflective judgement.

So far I have been summarising McDowell's argument with just a few undeveloped hints as to where it might run into problems. What I propose to do now is draw out some of those problems with reference both to Kant (or his own very partial and selective reading of Kant) and also to McDowell's handling of issues that have figured more prominently in recent 'continental' debate.

With respect to Kant the main difficulty is that McDowell takes a broadly naturalistic line, rejecting a large part of Kant's 'transcendental' doctrine while nonetheless making use of that doctrineor a scaled-down version of itas and when required. Thus he writes: '[w]e need to recapture the Aristotelian idea that a normal mature human being is a rational animal, but without losing the Kantian idea that rationality operates freely in its own sphere' (85). For the trouble with Aristotelian ethics is that it goes too far in a naturalist direction, deriving moral virtues from 'what comes naturally' either to human creatures with their various needs, desires, instinctual capacities, and so on, or to social beings whose 'nature' it is to pursue certain aims and interests in keeping with the communal mores of their own time and place. Such thinking finds no room for any genuine (Kantian) conflict between custom and moral will, and can hence be seen as a placid endorsement of those various repugnant institutional practicessuch as slavery and massive sexual inequalitywhich existed in fourth-century B.C. Athens. Thus, according to McDowell, 'Aristotle scarcely even considers that doubts might arise about the specific ethical outlook he takes for granted' (80). However, there is no good reason to suppose that 'this shows confidence that he could validate the demands of that ethical outlook

by appealing to nature' (80). What accounts for this harsh verdictMcDowell thinksis that we have inherited a view of 'nature' which cuts it off completely from the 'space of reasons' (or the realm of evaluative-justificatory thought) as a result of developments in modern science and its associated physicalist world-view which required just such a sharp demarcation of bounds. So it is that present-day readers interpret Aristotelian ethics as a kind of 'bald naturalism', an 'attempt to construct the requirements of ethics out of independent facts about human nature' (79). Only from our own 'disenchanted' perspective on natureone that removes it altogether from the normative spheremust this strike us as a blatant example of the naturalistic fallacy. Otherwise we should see that Aristotle's appeal to nature 'shows his immunity to our metaphysical anxieties; he is simply not vulnerable to the sort of worries such a conception would address'. If it also shows 'something less interesting', namely, a certain 'tendency to smugness', then that is something 'for which we can easily correct' (801).

The correction is supplied by Kant and consists in taking Kant's point about the capacity of practical reason to stand outside the realm of 'merely' natural instinct or communal mores and to apply more exacting standards of ethical accountability. This is, I think, what McDowell meansin the passage cited abovewhen he suggests that we combine the Aristotelian idea 'that a normal mature human being is a rational animal' with the Kantian idea 'that rationality operates freely in its own sphere' (85). However, McDowell cannot accept this improved picture at the cost of embracing Kant's doctrine of freedom as exercised by a purely 'supersensible' faculty of reason, one that somehow exerts its powers altogether outside and beyond the realm of empirical knowledge and experience. To do so would be to fall straight back into the dualist way of thinking espoused by Davidson and Rorty, and moreover to endorse a version of it that raises the supposed separation of realms into a high point of transcendental doctrine. Such is the 'threat of supernaturalism' that looms 'if we interpret the claim that the space of reasons is *sui generis* as a refusal to naturalize the requirements of reason' (78). However, it is hard to see how McDowell can represent Kantian thinking as an advance over Aristotle's theorya 'correction' to its somewhat parochial standards of rational and ethical judgementif the only reading of Kant that exerts any claim on our present-day interest is a naturalised reading which leaves no room for precisely those elements in Kant's epistemology and ethics which set them apart from Aristotle. According to McDowell, this is yet another of those false dichotomies which result from our having inherited a certain mind-setwhat he calls 'the intelligible grip on our thinking of a modern naturalism'wherein 'nature' is conceived as a realm of implacably determinist causal explanations and 'reason' as a space of autonomous judgement which stands quite apart from such empirical constraints. Indeed, the whole point of McDowell's argument is to make the case for Kant as a

philosopher who managed to think his way beyond this unfortunate turn in subsequent (post-Kantian) theories of mind, knowledge, and representation. However, there is a problem for McDowellone that he never gets clearly into focusinsofar as Kant's claim to have achieved this result depends very heavily on just those kinds of transcendental reasoning which he (McDowell) hopes to dispense with in pursuit of a moderately 'naturalist' interpretation. That is to say, if there is anything in Kant's theory that offers a hopeful way forward, then it cannot be had on the scaled-down (de-transcendentalised) terms of reference that McDowell proposes by way of an answer to current philosophical problems.

McDowell thinks that Kant 'comes within a whisker' of actually resolving those problems. He does so by providing an alternative to the chronic oscillation that sets in when philosophy ignores the reciprocal exchange of 'receptivity' and 'spontaneity' within every act of judgement. Indeed, '[i]f it were

not for the transcendental framework, we could credit Kant with a clear formulation of that insight' (43). But this insight is obscuredso McDowell believesby Kant's recidivist talk of a 'supersensible' (or noumenal) reality thought of as existing beyond the realm of phenomenal experience and knowledge. In this perspective, as McDowell describes it, receptivity comes to assume a quite different and altogether more mysterious role, one that involves 'a susceptibility to the impact of a supersensible reality, a reality that is supposed to be independent of our conceptual activity in a stronger sense than any that fits the ordinary empirical world' (41). In which case of course it fails to explain how the faculties of experience, knowledge, and judgement could ever be conjoined through the kind of interactive or mutually sustaining relationship that McDowell's argument requires. For 'receptivity' would then have to be construed in experience-transcendent terms, that is to say, as a power of thought whose boundary is defined with reference to a 'supersensible' realma noumenal reality beyond the furthest reach of human cognitive graspand not with reference to the 'ordinary world' of empirically attainable knowledge. In such a frame, McDowell writes, Kant's 'liberating thought cannot take proper shape' since the result is to create yet another separation of realms which decrees that understanding can have no access to the conditions of possibility for its own exercise. Hence the Kantian idea of 'man'in Foucault's famous descriptionas a strange 'empiricaltranscendental doublet', a bifurcated creature whose attempts at self-knowledge seem always predestined to oscillate between a naturalised description devoid of normative content (since outside the 'space of reasons') and a normative theory cut loose from any anchorage in the realm of knowledge and experience. [26]

The main problem for McDowell is that he cannot entirely jettison

this aspect of Kant's thinking if he wants to make good his crucial claim about the joint operation of 'spontaneity' and 'receptivity' in the act of judgement. The following passage brings out the conceptual strain imposed on his argument by this effort to naturalise (or de-transcendentalise) Kantian philosophy while retaining what is needed in order to resist the encroachments of a thoroughly naturalistic world-view that would leave no room for rational-evaluative thought. 'Once the supersensible is in the picture', McDowell writes,

> its radical independence of our thinking tends to present itself as no more than the independence any genuine reality must have. The empirical world's claim to independence comes to seem fraudulent by comparison. We are asked to suppose that the fundamental structure of the empirical world is somehow a product of subjectivity, in interaction with supersensible reality, which, as soon as it is in the picture, strikes us as the seat of true objectivity. But how can the empirical world be genuinely independent of us, if we are partly responsible for its fundamental structure? It does not help to be told that it is only transcendentally speaking that the fundamental structure of the empirical world is of our making. (42)

This strikes me as a good brief statement of the well-known problems with Kant's claim to have somehow reconciled his twin doctrines of 'transcendental idealism' and 'empirical realism'. That is, it brings out the logical conflict that necessarily arises between them, given his argument that the conditions of possibility for knowledge and experience in general must be thought of as deriving from a realm of 'supersensible' reality quite beyond reach of any knowledge we could have concerning those same conditions.

McDowell's diagnosis is strongly borne out by the evidence of later attempts to adopt Kant's theoryor some version of itwhile maintaining an avowedly realist approach despite relativist or constructivist appearances. Thus all we need do, on this account, is acknowledge the basic (Kantian) point that 'reality' *insofar as we can possibly know it* is always relative to some given paradigm, language-game, conceptual scheme, ontological framework, or whatever. Among recent arguments of the kind, one might instance Hilary Putnam's theory of 'internal realism', offered very much as a pragmatist update on familiar Kantian themes. [27] For the only alternative, he thinks, is to endorse some form of 'metaphysical' realism which would have it that ascriptions of truth or knowledge must involve the appeal to an objective, external, mind-independent reality. Such arguments are held to collapse at the sceptic's lightest touch since there seemsafter alla flat contradiction between the idea of reality as mind-independent (or, in the terms of more recent debate, 'verification-transcendent') and the claim that we can somehow *know* this to be the case.[28] Thus realism is a self-refuting doctrine whose very formulationso the sceptic arguesis enough to make the point beyond reasonable doubt. At any rate this has been a constant refrain among antirealists of various stripe, along with 'internal' (quasi)-realists like Putnam and framework-relativists such as Quine.

Of course that argument will fail to convince any realist who upholds the priority of ontological over epistemological issues, or who thinks it a perfectly reasonable (indeed, rationally inescapable) claim that the world exists and possesses certain features, properties, attributes, causal powers, etc., quite apart fromand independently ofour current best beliefs concerning it.[29] From this point of view the antirealist is merely trading on a regular confusion between (1) the ontological version of the claim as set forth in the previous sentence, and (2) the claim that we can actually *know* just what it is that renders those beliefs false, partial, or destined for eventual replacement. No doubt this latter version of the argument is self-refuting in just the way that the antirealist thinks. That is, it involves the kind of flagrant performative contradiction involved in saying: 'I know or believe *X* but also know that *X* is (or may be) false for the following reasons'. Moreover, it runs into all the usual (antirealist) objections deployed against theories which seem to entail a knowledgea *specific* knowledgeof truths or objective states of affairs which the realist nonetheless holds to transcend our present best beliefs or

powers of understanding. [30] But this is not at all what the realist wants or at any rate should want to claim. Rather, he or she is making the case that there are (indeed, must be) a great many candidate itemshistorical facts, scientific laws, the truth (or falsehood) of certain mathematical theorems or logical conjectureswhich are 'verification-transcendent' in the strictly ontological (nonepistemic) sense. That is to say, their validity is a matter of objective, belief-independent truth and is therefore in no way affected or rendered indeterminate by our happening not to possess the requisite means of proof or verification. To claim this muchso the realist will argueis no more than to endorse a duly modest estimate of our own present state of knowledge and accept that it must always stand to be corrected by possible future advances and discoveries.[31] From the antirealist viewpoint, conversely, this 'argument from error' works out as a lesson in the nonavailability of any grounds, reasons, or evidential criteria that could possibly count against our current beliefs or secure the appeal to a realm of objective, verification-transcendent truths. For the fact that we are always in the position of relying on just such evidential criteria means that it simply *cannot make sense* to posit a realm of truth-values above and beyond what we currently (truly) believe to be the case.

Antirealism of this sort has been applied pretty much across the board by some philosophersMichael Dummett among themwho derive it from a logico-linguistic thesis having to do with the lack of warranted assertibility conditions for statements in the 'disputed class' (i.e., the class for which we possess no decisive means of verification or adequate proof-procedure).[32] Such statements are nonbivalent (neither true nor false) insofar as we are simply not placed to decide the issue on any evidence currently to hand orin the case of mathematical or logical theoremsany method of checking them out for

every possible consequence. However, as the realist will quickly remark, this argument itself has the awkward consequence that enquirerswhether mathematicians working on some as yet unproven theorem or historians attempting to establish some as yet unsubstantiated claimmust be thought of (absurdly) as not knowing what it is they are attempting to prove or what would count as an adequate piece of corroborative evidence. To escape this conundrum one has to suppose, and not merely as a matter of contingent psychological need, that statements of the 'disputed class' can (indeed, must) have truth-conditions that transcend one's presently limited knowledge or powers of conceptual grasp. In which case realism with respect to objective, belief-independent truth-values turns out to be an in-built presupposition for every field of enquiry where there exist well-defined criteria of method, evidence, validity, or proof.

I have taken this brief excursus via Dummett and the problems with antirealism in order to emphasise their provenance in Kant's theory of knowledge

and also their bearing on the kinds of difficulty that McDowell gets into by adopting a Kantian epistemological approach. For it is a curious feature of McDowell's book that it lays most stress on just those aspects of Kant's thinkingin particular his dual account of 'receptivity' and 'spontaneity'which have opened the way (despite and against his avowed purpose) to various forms of framework-internalist, ontological-relativist, or downright antirealist argument.

Of course McDowell is entirely faithful to Kant's *intentions* when he puts the case that this dualism exists only in appearance, that is, as a result of Kant's having to use two distinct terms in order to describe what goes on in the jointly passive and active process of experiential judgement. Indeed, this is why McDowell advises a careful rereading of those passages in the First *Critique* which point a way beyond the various kinds of residual scheme/content dichotomy that are still present in Quine, Davidson, and others despite their claims (ironically enough) to have broken altogether with such old-fashioned 'Kantian' ways of thought. What is required, quite simply, is a 'domestication' or a further Strawsonian scaling-down of Kant's transcendental framework so as to bring it more within the compass of a naturalised epistemology which nonetheless takes adequate account of the active role of judgement in knowledge and experience. If this means interpreting Kant somewhat against the grainrejecting his idea of the 'supersensible' and replacing it with ordinary (everyday-empirical) knowledgethen, McDowell thinks, it is a small price to pay for so signal an advance. Still, one may doubt whether this advance can be had without either pushing the case so far in a revisionist direction that it has no use for the Kantian support structure, or else retaining so much of that structure that it replicates all the above-mentioned problems, among themnotablythe problem of reconciling Kant's 'transcendental idealism' with his 'empirical realism'. In which case

MacDowell's cornerstone appeal to the jointly operative faculties of receptivity and spontaneity would seem little more than a roundabout version of the same dualist approach that he finds still present in the work of philosophers such as Quine and Davidson.

The trouble is partly, as I have said, that the passages which Kant devotes to this topic are themselves extremely opaque and tend to put up increasing resistance under the kind of pressure that McDowell exerts in his attempt to naturalise Kantian epistemology. Hence the various divergent interpretations, some of whichfollowing Heideggertreat those passages as texts for commentary in the depth-hermeneutical mode, while others regard them as exhibiting confusions that vitiate Kant's entire project, and others againlike McDowellset out to provide justificatory arguments on a selective (rational-reconstructive) basis. But this strategy has some chance of success only if Kant can be shown to have been wrong in at least one crucial respect, namely, his idea that any viable defence of empirical realism needs to invoke transcendental arguments from the conditions of possibility for knowledge

and experience, arguments involving the appeal to a realm of 'supersensible' (noumenal) reality which cannot itself be subject to those same conditions. McDowell is perfectly aware of this problem but thinks that it poses no ultimate obstacle to his project of reclaiming Kantian metaphysics for the purpose in hand. Thus,

> Kant also has a transcendental story, and in the transcendental perspective there does seem to be an isolable contribution from receptivity. In the transcendental perspective, receptivity figures as a susceptibility to the impact of a supersensible reality, a reality that is supposed to be independent of our conceptual activity in a stronger sense than any that fits the ordinary empirical world. (41)

Howeveraccording to McDowellwe can safely ignore this whole 'supersensible' dimension of Kantian metaphysics if we just make allowance for the sorts of worry that Kant took over from the previous history of rationalist *versus* empiricist debate. We can then propose a revisionist reading of Kant which avoids that whole pointless controversy, along with its present-day rerival in the various dilemmas passed on from logical empiricism to thinkers such as Quine and Davidson. 'If we restrict ourselves to the standpoint of experience itself', he writes,

> what we find in Kant is precisely the picture I have been recommending: a picture in which reality is not located outside a boundary that encloses the conceptual sphere. . . . The fact that experience involves receptivity ensures the required constraint from outside thinking and judging. But since the deliverances of receptivity already draw on capacities that belong to spontaneity, we can coherently suppose that the constraint is rational; that is how the picture avoids the pitfall of the Given. (41)

So there is perfectly good Kantian warrant for the kind of position that McDowell wishes to adopt just so long as we acknowledge the redundant (nonload-bearing) character of all that talk about

'conditions of possibility', 'supersensible' reality, and so forth. We can then see that Kant was well along the path to a theory that reintegrated mind and world by, on the one hand, dispensing with the Myth of the Givenan inertly empiricist conception of knowledgewhile on the other avoiding the rationalist mistake of allowing reason to float free in a realm of empirically unanchored concepts.

What is so odd about McDowell's book is the impression it gives of venturing into regions of thought which Kant opened up (albeit with certain unfortunate distractions en route) but which were then left largely unexplored until now. One gets the same feeling from other recent essays in the analytic/continental cross-over mode, such as Dummett's acknowledgement that Husserl might after all have some useful things to say about philosophy of language and logic, despite the fixed belief among most thinkers in the Anglo-American tradition since Ryle that phenomenology could amount to no more

than a species of disguised psychologism. [33] In short, there is a growing sense that this strict veto on any talk of mind, consciousness, intentionality, and the like may have gone too far and resulted in just the kinds of problem that McDowell addresses in his book. Among them, notably, is that of providing an intelligible theory of the mind/world relationship which avoids the twin perilsas McDowell sees themof a blank empiricism totally devoid of rational-evaluative content and a purebred rationalism that takes no account of the empirical constraints upon our exercise of judgement with respect to knowledge and experience. It is here that Husserlian phenomenology has a strong claim to provide a more adequate approach than anything offered on the terms laid down by analytic philosophy in the Fregean line of descent.[34] For that tradition is marked chiefly by its steadfast insistence that 'concepts' must be taken to exist in a realm of absolute ideal objectivity quite distinct from the actual thought-processes which transpire in the consciousness of individual thinkers, even if these latter are aimed toward just such concepts and cannot be distinguished in point of 'intentional' content.

To confuse these realms, so Frege argued, was to fall into mere 'psychologism' and hence yield up any claim to be concerned with issues of objective (mind-independent) logical truth and falsehood, rather than with matters pertaining to the sphere of subjective (non-truth-evaluable) processes, events, or representations.[35] Worse still, it encouraged a tendency to suppose that the *genesis* of thoughtswhether in the individual mind or through some longterm historical sequence of developments and discoveriescould have a bearing on the strictly objective question of their truth or falsehood. This is the problem that Husserl engages in his essay on 'The Origin of Geometry' and in other writings which seek to explain how these two approaches might be reconciled.[36] That is, Husserl asks how certain kinds of knowledge

(mathematics especially) strike us as possessing precisely that character of *a priori,* absolute, or necessary truth while yet having been arrived at by various historically situated thinkersfrom the ancient geometers and mathematicians downwho discovered them through a cumulative process of thought marked out by definite stages of advance. Now it may be the caseas Derrida has strongly arguedthat this attempt by Husserl to reconcile the claims of 'genesis' and 'structure' (or history and 'absolute ideal objectivity') is one that by its very nature cannot be carried through to any kind of satisfactory conclusion.[37] Even so, it is an attempt which *can and must* be undertaken since otherwise philosophy will have nothing to say concerning the relation between mind, knowledge, and those historical-genetic ('worldly') conditions of emergence whose exclusion from its purview results in a form of purely abstract apriorism. On the other hand, this is *not* to sayas Husserl and Derrida both emphasisethat geometrical or mathematical discoveries can be treated as merely contingent episodes in a particular (culture-specific) history of thought, or as products of those various individual minds (from Euclid

to Riemann or Lobachewski) which were just so placed, or psychologically disposed, to enounce them at this or that time. Rather, we must think of them as *genuine* discoveriespossessing an objective truth-valueand as 'mindindependent' at least insofar as their truth transcends any such temporal or localised context of occurrence. Neverthelessand this is Husserl's main pointour grasp of that truth can be achieved only through certain *essentially repeatable* processes of thought which enable us to 'reactivate' the original discovery, and hence to comprehend the proof-procedure or the form of axiomatic-deductive reasoning by which it was first established.

Thus there is no necessary conflict between a Fregean insistence on the objectivity of 'thoughts'as distinct from mere subjective 'ideas'and a Husserlian approach that also takes account of their genesis in certain constitutive acts of mind. This approach, so far from undermining their objective status, alone makes it possible to think of them as valid for any intelligence (like that of Husserl's 'original geometer') capable of grasping their truth, and hence as necessarily holding good across distances of time, place, cultural context, and so forth. My general point is that the history of post-Kantian 'continental' thought has a great deal to offermore than McDowell seems to realiseby way of improvement upon Kant's theory of mind, knowledge, and experience. For one thing it has gone much further toward explaining how developments in certain fieldsfor instance, non-Euclidean geometry and post-Newtonian conceptions of space and timemay involve a break with what Kant treated as forms of synthetic *a priori* knowledge, and hence as immune from any possible revision in the light of conflicting evidence. Indeed, as J. Alberto Coffa has argued, the most striking aspect of these developmentsalong with others in philosophy of logic and related disciplinesis the extent to which they have reconfigured the 'space of reason' or the

boundaries previously thought to exist between apodictically self-evident truths and empirically determined or *a posteriori* modes of understanding. [38] This would seem to pose a problem for Husserl, committed as he is to the objectivity of geometrical and mathematical knowledge, despite its dependence on the power of thought to 'reactivate' knowledge through successive acts of conceptual-intuitive grasp. However, his claim is not that these acts must be repeated each time *with an identical content* but rather that they form a historical series whose intelligibility derives from the conditions for understanding precisely how such advances come about in geometry, mathematics, or the physical sciences.

Elsewherein thinkers like Bachelard and Canguilhemone finds a more detailed historico-philosophical account of the process by which particular sciences undergo an 'epistemological break' that marks their transition from an immature phase (characterised by the dependence on image, metaphor, and anthropomorphic habits of mind) to a stage of more adequate

theorisation or achieved conceptual grasp. [39] This is also, very often, a break with certain deep-laid aprioristic assumptions that constitute an obstacle to progress by curtailing the freedom of scientific thought to explore other possible (counterintuitive) geometries, transfinite number domains, space-time conceptions, and so forth. Howeveras Bachelard also insistssuch advances can be understood only on the basis of a constant dialectic or process of mutual interrogative exchange between the various orders of intuitive, conceptual, and rational-constructive thought. That is to say, he rejects the Cartesian (or indeed Kantian) appeal to *a priori* grounds of knowledge conceived as holding good for all time or across all possible transformations in the scope of scientific enquiry. Nevertheless it is the case, according to Bachelard, that scientific progress cannot come aboutor possess any kind of rational intelligibilityunless we assume that it manifests an exercise of criticalevaluative thought which finds no place in those approaches typically adopted by philosophers of science in the line of descent from logical empiricism. For the result of such thinking is to impose a veto on any attempt to understand how it wasby what process of reflective self-critical advancethat scientific knowledge managed to transcend the various obstacles placed in its path by the adherence to naive, imagistic, or anthropomorphic conceptions.

Thus the problem with Kant is not so much that he brings thought-processes into the picture (the standard 'analytic' line of argument against Kant and Husserl alike), but rather that he treats them as unchangeably vested in certain *a priori* capacities of mind immune from revision, come what may in the development of logic, mathematics, or the physical sciences. However, it is a fact which seems to have escaped notice among many analytic philosophers that a good deal of later 'continental' thoughtnot least that of Husserl and

Bachelardhas been aimed toward remedying just this defect in the Kantian aprioristic approach to epistemological issues.

In short, there is something decidedly odd about McDowell's call for a return to Kant and his focus on just those aspects of Kant's philosophy which appear most vulnerable in light of the above criticisms. Thus it is hard to see what can possibly be gained by an appeal to Kantian 'receptivity' and 'spontaneity' if these are treatedfollowing McDowellas faculties or powers of mind that necessarily stand to each other in a relationship of perfect mutual adjustment. 'This image of openness to reality', he writes,

> is at our disposal because of how we place the reality that makes its impression on a subject in experience. Although reality is independent of our thinking, it is not to be pictured as outside an outer boundary that encloses the conceptual sphere. *That things are thus and so* is the conceptual content of an experience, but if the subject of the experience is not misled, that very same thing, *that things are thus and so,* is also a perceptible fact, an aspect of the perceptible world. (26)

Such is at any rate McDowell's proposal for avoiding those various conceptual dichotomies that have left their mark on the thinking of philosophers such as Quine and Davidson. What they have in commonhe arguesis a commitment (however covert or qualified) to the empiricist 'Myth of the Given', and hence a failure to conceive how experience and judgement work together in producing our knowledge of the world. This is why they always fall back at some point (despite protestations to the contrary) on a version of the scheme/content dualism or the idea of concepts as somehow 'applied' to the raw stuff of sensuous intuitions.

Still, one may doubt whether Kant offers much help in this respect given the notorious exegetical problems encountered with those passages of the First *Critique* where his argument has recourse to Imagination-that 'art buried in the depths of the soul'in order to explain how intuitions are 'brought under' concepts. Nor are these problems in any way resolved by Kant's suggestion that the crucial mediating role is played by the various 'schematisms' which Imagination supplies for just that purpose, that is, for ensuring that concepts match up with intuitions, or that experience is rendered intelligible through the joint operation of spontaneity and receptivity. For this is, quite literally, a stopgap solution which engenders an infinite regress since no amount of further filling-in with intermediary functions could accomplish the strictly impossible task of reconciling two such disparate realms as those of 'intuition' and 'concept' as Kant himself defines them. All the same, McDowell's book has the real virtue of raising these issues in a context of debatethat of post-1950 Anglophone philosophy of mind, logic, and languagewhere they have all too often been swept aside in the interests of a narrowly conceived disciplinary rigour. One result is the lack of any adequate theory of judgement that could explain how 'absolute ideal objectivity' (in

Husserl's resonant phrase) could possibly lie within the compass of philosophical enquiry or of human understanding generally. McDowell is very much aware of this problem, as attested by numerous passages of *Mind and World*. Yet by taking no account of developments in the later (post-Kantian) continental traditionapart from those few rather brief and honorific references to Hegelhe has effectively deprived himself of just the resources that might have led beyond both these problems with Kant and the lingering influence of old-style logical empiricism. In chapter 7 I shall look at some further problematical consequences of McDowell's highly selective engagement with that 'other' history of thought.

7
The Limits of Naturalism: Further Thoughts on Mcdowell's *Mind and World*

As we have seen, John McDowell puts the case for a broadly 'naturalised' reading of Kant that plays down the transcendental aspects of Kantian epistemology and ethics while nonetheless retaining their normative and rationale-valuative force. [1] This would meet the antimetaphysical strictures of recent analytic philosophy, in particular its deep suspicion of any argument that claims to derive the 'conditions of possibility' for knowledge and experience from *a priori* grounds or principles supposedly self-evident to reason. At the same timeso McDowell believesit would offer a promising way forward from some of those problems which continue to surface in the work of philosophers such as Quine, Davidson, and Rorty. Chief among them is the eminently Kantian problem of how intuitions are 'brought under' concepts, or how we could ever get knowledge of the world through a synthesis of passively received experiential data and the mind's active or shaping power by which those data are rendered humanly intelligible. What I propose to do herein keeping with the general theme of this bookis take up some lines of argument from my previous chapter and suggest where McDowell's approach falls short of an adequate answer through its limited purview of developments in that other (post-Kantian continental) tradition.

From Quine to Davidson and Rorty, Anglophone philosophers have typically rejected any version of the Kantian dualism between scheme and content, analytic and synthetic judgements, or 'truths of reason' and 'matters of fact'. They have done so most often in the name of a radical empiricism which treats such distinctions as merely the

product of an old (presumptively discredited) attachment to 'metaphysical' ideas about meaning, knowledge, and truth. Hence Quine's argument for doing away with the two central 'dogmas' of Carnap-style logical empiricism, namely, (1) the analytic/synthetic dualism, and (2) the closely related belief that statements can be checked off one by one for their truth as concerns real-world (observable) states of affairs or their consistency with the supposed logical ground rules or *a priori* 'laws of thought'.[2] Rather, we should think in holistic terms of the totality of knowl-

edge at any given time as a man-made 'fabric' extending all the way from empirical observations at the 'periphery' to putative logical truths-of-reason at the centre, but with all such itemslogic includedultimately open to revision should this be required, as for instance by some startling new development in the physical sciences.

However, as Davidson then pointed out, this left Quine in the grip of yet another such dogma, namely, a relativised version of the scheme/content dualism whereby the truth-value of statements was thought of as dependent on their role within this or that currently favoured ontological framework, belief system, conceptual scheme, or whatever. [3] Rorty went a good way further along this road by enlisting Davidson as an ally in the drive to rid philosophy of all such residual Kantian elements by combining a purely causal or physicalist theory of cognitive input'the pressure of light waves on Galileo's eyeball, or of the stone on Dr. Johnson's boot'with a thoroughly holistic theory of belief wherein such inputs exerted no constraint on the range and variety of possible interpretations brought to bear by diverse cultural communities.[4] Yet of course (as McDowell rightly remarks) this amounts to just another, more drastic version of the same old Kantian dualism. Thus Kant's great problem in the First *Critique*that of explaining how sensuous intuitions are 'brought under' adequate conceptsis now pushed to a point where the causal and rational components of knowledge acquisition are conceived as existing in realms quite apart, such that any attempt to unite them must amount to a species of downright category-mistake.[5]

McDowell finds this argument wholly unsatisfactory, 'both in itself and as a reading of Davidson' (148). It requires that the two perspectives in questionbeliefs as 'causal interactions with the environment' and beliefs interpreted 'from the point of view of the earnest seeker after truth'should be prevented from getting into

conflict by treating them as different (incommensurable) language-games or ways of interpreting the mind-world relation. That is to say, any putative causal 'input' must be thought of as impinging on our sensory apparatus at such a basic level that it exerts absolutely no constraint upon the higher-level process of belief formation or the kinds of adjustment we make in order to achieve maximal coherence with the rest of our standing beliefs and ontological commitments. For Rorty, indeed, 'there seems no obvious reason why the progress of the language-game we are playing should have anything in particular to do with the way the rest of the world is' (151). But in that caseas McDowell justifiably concludesRorty is about as far as can be from the straightforward, commonsense-pragmatist outlook that he claims to uphold against the bother-headed worries of philosophers locked in the endless sterile debate between realism and antirealism. For the default attitude of most people commonsensically immune to those worries is one that takes it pretty much for granted that the truth or falsehood of our

various beliefs is determined by the way things stand in reality, rather than reality somehow corresponding to the way things appear from our particular linguistic or cultural perspective. Thus the trouble with Rorty's drastically dualist conception is that it 'severs what we want to think of as responsiveness to the norms of inquiry from any connection with [the] unproblematic notion of getting things right' (150).

The same may be said about Quine's and Davidson's positions, at least insofar as they leave themselves open to a plausible reading on Rortian terms. In both cases there is a claim to get over the problems of old-style logical empiricism by adopting a truly (more radically) empiricist approach which renounces the delusive Kantian distinction between analytic and synthetic judgements, or Humean 'truths of reason' and 'matters of fact'. Hence Quine's well-known espousal of a naturalised (or physicalist) epistemology which rejects all recourse to intensional, modal, or other such 'opaque' concepts that cannot be cashed out directly in terms of a purely extensionalist scheme with no ontological commitments beyond those required for application of the first-order quantified predicate calculus. [6] Hence also Davidson's equally well-known statement that '[i]n giving up the dualism of scheme and world, we do not give up the world, but reestablish unmediated touch with the familiar objects whose antics make our sentences and opinions true or false'.[7] For this is not so much to overcome that dualism as to leave it all the more firmly entrenched by adopting a causal ('unmediated') theory of direct knowledge-by-acquaintance, thus preemptively excluding such knowledge from the justificatory 'space of reasons' or the realm of critical-evaluative thought. Thusaccording to McDowell'Davidson resolves the tension he finds in Quine in the wrong direction, and the result is precisely to leave us with the philosophical problems he wants to eliminate' (138).

Chief among these is the problem of explaining how a causal account of belief acquisition along Quinean physicalist lines can possibly make the required distinction between rationally justified items of belief and those arrived at merely through exposure to a range of 'unmediated' sensory promptings.[8] It is for want of this distinctionso McDowell maintainsthat Quine and Davidson both lean over into a coherentist or holistic theory of rational warrant where beliefs are justified solely in virtue of their hanging together with the entire going range of beliefs-held-true at any given time. Where Davidson differs from Quine is only in his more explicitly drawing the consequence, that 'we cannot make sense of thought's bearing on the world in terms of an interaction between spontaneity and receptivity', since 'if we go on using [these] Kantian terms, we have to say that the operations of spontaneity are rationally unconstrained from outside themselves' (139).

This brings us to the heart of McDowell's argument for returning to Kant in quest of an answer to these problems in the wake of old-style logical empir-

icism. It is an argument that turns crucially on those notions of 'spontaneity' and 'receptivity', terms that figure in the First *Critique* at the point where Kant seeks to explain how sensuous intuitions may be 'brought under' concepts (or experience be rendered rationally intelligible) without engendering a vicious regress. That regress threatens on account of the gapthe difference of categoric statusbetween 'intuitions' and 'concepts'. After all, it appears that something more is required (some additional mediating term) in order to achieve the otherwise impossible passage from a realm of as-yet preconceptual experience to a realm of knowledge where judgement is exercised though the bringing to bear of conceptual understanding on the deliverances of sensibility. Kant talks here about the 'schematizing' power of the productive imagination, a faculty that is supposed to accomplish this passage by somehow linking intuitions and concepts through a power vested in the human mind, but one whose operations he fails to specify with any degree of clarity. Thus in one famously obscure sentence he refers to this power of imagination as 'an art buried in the depths of the soul', a phrase that has since given rise to much speculation among commentatorsHeidegger especiallywho seek to press beyond the limits of Kant's critical philosophy to its concealed hermeneutic or depth-ontological dimension. [9] It was also the starting point of various developments in the German Idealist tradition after Kant which took such passages as justification for claiming (like Fichte) that objective reality was a construct or 'posit' of the world-constituting Ego, or again (like Schelling), that our representations were aspects of an all-encompassing dialectics of nature wherein all the stages and forms of human knowledge could find their appointed place.[10] And of course these two schools of thought'Subjective' and 'Objective' Idealismwere then taken up and purportedly transcended (*Aufgehoben*) in Hegel's attempt to assimilate everything (history, philosophy, art, politics) to a grand dialectical

schema leading to the advent of Absolute Knowledge as a perspective atop all the limited or partial viewpoints achieved to date.

As we shall see, McDowell has his uses for Hegel, though a version of Hegellike his version of Kantsuitably revised and rendered fit for consumption by Anglophone philosophers with no taste for such giddy metaphysical excesses. Still, he accepts that there is a very real problem about Kant's idea of knowledge as consisting in the union of sensuous intuitions with adequate or corresponding concepts. Indeed, it is the same kind of scheme/content dualism that has continued to haunt analytic philosophy in the post-Quinean line of descent. This is why McDowell suggests that we should switch attention to those other passages in Kant where the emphasis is more on 'spontaneity' and 'receptivity' as terms of address which may help to prevent that dualism from getting a hold in the first place. The following passage is typical enough and brings out his main points of disagreement with Quine, Davidson, and Rorty.

> The conceptual capacities that are passively drawn into play in experience belong to a network of capacities for active thought, a network that rationally governs comprehension-seeking responses to the impacts of the world on sensibility. And part of the idea that the understanding is a faculty of spontaneitythat conceptual capacities are capacities whose exercise is the domain of responsible freedomis that the network, as an individual thinker finds it governing her thinking, is not sacrosanct. Active empirical thinking takes place under a standing obligation to reflect about the credentials of the putatively rational linkages that govern it. There must be a standing willingness to refashion concepts and conceptions if that is what reflection recommends. No doubt there is no serious prospect that we might need to reshape the concepts at the outermost edges of the system, the most immediately observational concepts, in response to pressures from inside the system. But that no-doubt unreal prospect brings out the point that matters for my present purpose. This is that although experience itself is not a good fit for the idea of spontaneity, even the most immediately observational concepts are partly constituted by their role in something that is indeed appropriately conceived in terms of spontaneity. (1213)

In this passageand many others like itMcDowell claims to avoid a whole raft of Kantian and post-Quinean dilemmas by way of a topographic metaphor which redraws the 'boundary' between experience and concepts so as to emphasise their areas of mutual overlap. Thus experience is 'open to reality' precisely insofar as it receives impressions from a 'world independent of our thinking', yet a world which all the same 'is not to be pictured as outside an outer boundary that encloses the conceptual sphere' (26). That is to say, the precondition for attaining knowledge of an objective (mind-independent) world is that experience should always already be informed by concepts or modes of evaluative judgement that belong just as much *to that world itself* as to the mind that seeks to comprehend it. Thus 'the idea of conceptually structured operations of

receptivity puts us in a position to speak of experience as openness to the layout of reality. Experience enables the layout of reality itself to exert a rational influence on what a subject thinks' (26).

There is a certain ambiguity about the placement of the word 'rational' in this sentence, depending on whether one takes it to mean 'what a subject [rationally] thinks to be the case in reality' oras the grammar more strongly suggests'how the subject is duly influenced in her thinking by the rational structure of reality'. This latter (distinctly Hegelian) reading is one that seems most natural for a good many passages in McDowell's book and which indeed follows from his basic premise that epistemology goes off the railsfalls into various endemic dualist fallacieswhen it allows the least possibility of distinguishing passive from active capacities of mind, or 'receptivity' from 'spontaneity'. Yet Kant himself is quite unable to explain how this dualism might be transcended, except through that vague appeal to the schematizing power of Imagination as an 'art buried in the depths of the soul'. Henceas I have saidthe subsequent history of radically divergent interpretations, from

Fichte's idea of a world-constituting Ego which 'posits' reality as a projection of its own demiurgic powers, to the kinds of neo-Kantian (and logical-empiricist) construal which leave no room for the exercise of thought in its active or reflective capacity.

It seems to me that McDowell is right in suggesting that analytic philosophy has artificially narrowed its sights and created all sorts of needless, self-inflicted dilemmas by ignoring developments in the 'other' (continental) tradition of thought. But it also seems to me that he has hitched his argument to some of the weakest passages in Kant and ignored just those later developments which engage most closely and critically with the various problems bequeathed by Kantian epistemology. 'If we can rethink our conception of nature', he writes, 'so as to make room for spontaneity, even though we deny that spontaneity is capturable by the resources of bald naturalism, we shall by the same token be rethinking our conception of what it takes for a position to deserve to be called "naturalism"' (77). In other words, we can have the best of a modern (naturalised) epistemology while avoiding the reductively physicalist account whichas in Quine and Davidsoncreates yet another drastic dualism between the realm of causally acquired and explainable beliefs and the justificatory 'space of reasons'. But in saying that we need to 'rethink our conception of nature' so as to 'make room for spontaneity' McDowell runs perilously close to endorsing the kinds of putative 'advance' upon Kant that were essayed by subjective and objective idealists like Fichte and Schelling. So it is hardly surprisinggiven this rerun of episodes from the history of post-Kantian thoughtthat McDowell should make his cautious gestures toward Hegel as offering an escape route from all these Kant-induced puzzles and perplexities.

Still, one may doubt that Hegel provides much of a solution once the issues have been set up in this way. McDowell brings him in as

support for the idea that Kant's theory of knowledge can be naturalised, relieved of its surplus transcendental baggage, and thus restored to the community of human meanings, interests, and concerns. In short, this is a distinctly Wittgensteinian version of Hegel which locates the conditions for knowledge and experience in shared language-games or cultural forms of life, and which seeks thereby to talk philosophy down from its various false dilemmas. All the same, McDowell is prepared to push pretty far with the Hegelian doctrine of Absolute Idealism since he thinksimprobably enoughthat it brings 'reality' back into the picture and, moreover, manages to dispense with the 'transcendental framework' which vitiates Kantian epistemology. Thus, 'in spite of his [Kant's] staunch denials, the effect of his philosophy is to slight the independence of the reality to which our senses give us access' (44). This resultsMcDowell thinksfrom Kant's failure to follow through consistently on his

own most important insight, namely, the 'unboundedness' of the conceptual sphere or its active role at every stage in that process whereby reality is taken up into experience and experience in turn becomes the basis for reliable knowledge of the world. So Kant's successors from Fichte to Hegel were justified in their claim that he had 'betrayed' the project of Absolute Idealism by conceding the existence of an ultimate (noumenal) reality outside and beyond that sphere. Only if the latter is taken to encompass every aspect of thought, knowledge, and experience can philosophy be saved from the sceptical outcomethe divorce between mind and worldthat results from any form of scheme/content dualism.

On this point McDowell agrees with Kant's Absolute Idealist critics: that 'we must discard the supersensible in order to achieve a consistent idealism', one which effectively 'frees Kant's insight so that it can protect a commonsense respect for the independence of the ordinary world' (44). That is, we can (and should) reject Kant's distinction between phenomenal experience and noumenal reality since this is where a whole company of latter-day thinkerswhether antirealists or framework-relativistsare able to insert their sceptical wedge and argue for the sheer impossibility of crossing that divide. But we can do so only on condition of accepting that the realm of concepts is indeed 'unbounded' in the sense (quite simply) that there is 'nothing outside it', that is, no element of 'reality' that is not taken up into knowledge and experience via the conceptual sphere. With this recognition, McDowell writes, 'we have arrived at a point from which we could start to domesticate the rhetoric of that philosophy' (44). In other words, we can continue the naturalising process that Hegel applied to Kant and temper the language of Absolute Idealism by referring it back to the everyday conditions of situated human being-in-the-world. This would be a 'naturalism of second nature', one that

acknowledgedin Hegel's spirit but also like Aristotle before himthat reality is always known in and through the various communal projects and enquiries that make up an ongoing tradition or cultural form of life. Thus '[e]ven a thought that transforms a tradition must be rooted in the tradition that it transforms. . . . The speech that expresses it must be able to be intelligibly addressed to people squarely placed within the tradition as it stands' (187).

These reflections derive mainly from McDowell's reading of Hans-Georg Gadamer and other writers in the German 'hermeneutic' line of descent from Schleiermacher and Dilthey. [11] What they provideso he believesis a means of rethinking epistemological issues in the wider space of a philosophy freed to consider the various interests, values, and concerns that constitute the 'horizon of intelligibility' (Gadamer's phrase) for all knowledge and experience. Equally useful in this regard is the notion of *Bildung*'spiritual development' or 'self-cultivation'applied both to individuals and to the cultures or the communal traditions in which they participate. For it is, McDowell

thinks, a signal advantage of such largely Hegel-inspired approaches that they help to wean us off the narrow (Cartesian) conception of knowledge as involving the transactions of a solitary mind with so-called 'external' reality.

Here again McDowell has recourse to Wittgenstein and in particular to the latter's idea that 'commanding, questioning, recounting, chatting, are as much a part of our natural history as walking, eating, drinking, playing'. By 'our natural history', McDowell suggests,

> he [Wittgenstein] must mean the natural history of creatures whose nature is largely second nature. Human life, our natural way of being, is already shaped by meaning. We need not connect this natural history to nature as the realm of law any more tightly than by simply affirming our right to the notion of second nature. (95)

This is where we arrive, according to McDowell, at the end of that passage from Kant, via Hegel, to a naturalised version of Absolute Idealism that can take Wittgenstein's point on board as a last farewell to all the chronic dualisms that have worked such mischief in epistemology and philosophy of mind. Among recent varieties perhaps the most damaging was the phenomenalist notion of sense-data as somehow presented to the mind in a raw state and hence in need of being worked up into structures of intelligible thought. [12] This approach 'aims to overcome anxiety about a gap between experience and the world by constructing the world out of experience, still conceived in just the way that gives rise to the anxiety' (94). Thus McDowell agrees with Quine in roundly rejecting any such attemptas by Carnap and the logical empiricists！to put together what philosophy had torn asunder by adopting a ground-up constructivist method wherein sense-data are taken as the basis for a full-scale account of knowledge and experience.[13] However, as we have seen, he considers Quine (and Davidson likewise) to have stopped well short of any

adequate alternative theory for repairing the damage thus inflicted. Rather, they should have followed the route that leads through and beyond Kant's philosophy to Hegel's *Aufhebung* of the Kantian dichotomies, and thencein a further naturalising moveto the idea of 'second nature' as pretty much expressing what the Absolute Idealists had to say minus their unfortunate metaphysical excesses.

There are several problems with McDowell's argument that make this a difficult (if not impossible) position to sustain. One is the fact that Kant's epistemology is a complex system of interrelated claims about experience, knowledge, and their transcendentally justified conditions of possibility which cannot be prised apart and applied in a selective fashion as McDowell seeks to do. This is not to denyas I have argued abovethat those claims are themselves deeply problematic and open to challenge on various grounds. Chief among them are his framing of the noumenon/phenomenon distinction and his insistence that noumenal 'reality' cannot by very definition fall

under the concepts and categories of understanding, despite Kant's perforce having to apply such categories (e.g., that of causation) when he attempts to explain how the noumenal somehow relates to phenomenal experience. [14] So McDowell is far from alone in concluding that Kant's philosophy is in need of a pretty thorough overhaul and that the noumenal (or 'supersensible') could well drop out to the benefit of his other, more valuable insights. But unfortunately these are just the insightsin McDowell's readingthat depend most heavily on the whole co-implicated structure of Kantian argument. Thus, for instance, it is hard to make sense of Kant's (or McDowell's) claim for the conjoint operation of 'spontaneity' and 'receptivity' unless with reference to Kant's conception of the mind as predisposed to accomplish such acts of synthesis through its openness to 'supersensible' ideas concerning noumenal reality. These include the teleological ideataken up at greater length in the Third *Critique*of mind and nature as exhibiting a kind of harmonious purposive adjustment which transcends the furthest bounds of conceptual knowledge, yet in the absence of which such knowledge would be wholly unattainable.[15] McDowell is understandably reluctant to be drawn in this direction and indeed goes out of his way at several points to make that reluctance plain. But then the question arises as to just what is left of Kant's claimsand McDowell's case in defence of themif those claims are recast in a naturalised (de-transcendentalised) idiom that effectively denies their validity.

Now it may well be (as many critics have thought) that these passages in Kant are obscure to the point of defying rational commentary. Certainly they go far beyond anything that would count as an adequate epistemological argumentor one with any claim to serious attentionfor most Anglophone philosophers currently working on issues of mind and knowledge. Hence their strong appeal to exegetes

like Heidegger whose main purpose in reviewing the tradition of 'Western metaphysics' is to point out just such regions of obscurity and exploit their potential for revisionist commentary in the depth-hermeneutic mode.[16] McDowell gives such thinking a wide berth despite his attraction to Gadamer's more moderate or conservative brand of hermeneutical enquiry. After all, it would run clean against the main purpose of his book to suggest that these problems with Kant might be overcomeor simply set asideby taking an altogether different view of what philosophy ought to be about. At least he has to maintain the position that 'receptivity' and 'spontaneity' are useful terms with which to approach certain genuine (indeed urgent) philosophical issues, whatever the difficulty of holding them apart from other, more dubious aspects of the Kantian enterprise. Thus McDowell cannot go along with any 'strong'-revisionist reading, like Heidegger's, which treats those issues as merely symptomatic of a deep-laid aberration in the history of Western thought, nor again with any briskly dismissive attitudesuch as Rorty'swhich regards them as pointless and tedious wor-

ries that we should have got over by now. [17] In fact, this is just what Rorty suggests in his essay on McDowell where the latter is cast as one of those fretful analytic types who have failed to follow through on the 'linguistic turn' and are still hung up on the same old pseudoproblems that have vexed philosophy from Descartes down.[18] From this point of view McDowell is headed in the right direction when he offers that brief passage of tribute to Robert Brandom's 'revelatory' reading of Hegel as just what is required to break the spell of Kantian transcendental illusion and bring us out safely on the far side of all that vexatious philosophical talk (ix).[19] If he had only taken the lesson to heartso Rorty believesthen McDowell might have saved himself a deal of misplaced anxiety and also a large amount of desperately wiredrawn Kantian exegesis.[20]

As I say, McDowell is in no good position to accept this kind of therapeutic advice since he does think that there is a 'problem of knowledge' that merits serious attention and can best be approached via Kant with some help along the way from Hegel, Wittgenstein, Gadamer, Brandom, and others. But there is still a deep tensionas Rorty shrewdly perceivesbetween McDowell's express Kantian commitments and his need all the same for these further points of reference in order to propose a reading of Kant that avoids (or at any rate tries to avoid) the above-mentioned dilemmas. This conceptual strain shows up most clearly when McDowell invokes Gadamer's Hegelian appeal to 'tradition' as a means of restoring knowledge to the context of a life-world wherein those dilemmas supposedly cannot arise. 'Understanding', he writes, 'is placing what is understood within a horizon constituted by a tradition, and . . . the first thing to say about language is that it serves as a repository of tradition' (184). And again: 'a natural language, the sort of language into which human beings are first initiated, serves as . . . a store of historically accumulated wisdom

about what is a reason for what' (126). To grasp this point is also to see that any problems encountered with Kant's theory of mind and knowledge are problems only when viewed in artificial (philosophically induced) isolation from any such background context. No doubt it is the caseespecially for Kantthat this tradition 'is subject to reflective modification by each generation that inherits it', and indeed that 'a standing obligation to engage in critical reflection is itself a part of the inheritance' (126). Nevertheless (and here McDowell follows Gadamer), such criticism has to start out from *within* the traditionthat is to say, from a standpoint sufficiently informed by prevailing values and beliefsin order to count as rationally justified for members of any given community.

Of course this argument has provoked much debate, often on the grounds of its implicit conservatism when applied to ethical, social, or political issues.[21] That is to say, such thinking will tend to privilege the claims of tradition or communal assent over the freedom to challenge those claims through

an exercise of rational-evaluative judgement that requires the capacity to stand back from them and thereby achieve a genuinely critical perspective. This is the objection that Habermas raises against Gadamer in making his case for a theory of 'communicative action' which envisages precisely such a transformation of tradition-bound beliefs and values through the capacity and freedom to criticise existing communal norms. [22] It is also the chief area of dispute between followers of Wittgensteinsuch as Peter Winchwho adopt a communitarian approach based on the appeal to cultural 'forms of life' and opponents who argue that this approach leads to cultural relativism and hence (in some cases) to a placid endorsement of sundry irrational or morally repugnant customs and practices.[23] There is no room here for a detailed review of the various arguments and counterarguments brought up by parties to this long-running debate. My point is that McDowell finds himself very awkwardly placed since he sets out to defend both a Kantian commitment to the exercise of rational freedom (or autonomy) in matters of moral-intellectual conscience, andsomehow consistently with thisan appeal to thinkers such as Hegel, Wittgenstein, and Gadamer on the tradition-based or communally sanctioned character of all thought and judgement.

Now it may well be argued that there is no necessary conflict here insofar as we can take the latter point (i.e., the sheer impossibility of breaking *altogether* with communal norms of reason) while nonetheless preserving a significant margin of freedom for the expression of dissident or heterodox views. Indeed, it is hard to deny that this joint process must be in play when critics reject some more or less salient item of locally accepted belief and yet manage to elicit understandingand maybe assentfrom members of their own cultural community. However, the issue is more pressing for McDowell since he stakes so much on Kant's claims for the exercise of intellectual-

moral freedom as a defining feature of human personhood, while nonetheless rejecting any version of Kant's appeal to the 'supersensible' realm. This leaves him with the difficult task of explaining how such freedom can possibly be derived fromor rendered compatible withthe process of knowledge acquisition whereby sensuous or phenomenal intuitions are 'brought under' adequate concepts. For, as Kant sees it, there is just no way that these two faculties (cognitive understanding and practical reason) can be thus run together without either depriving knowledge of all determinate content or, on the other hand, embracing a determinist outlook which denies any space for the exercise of freely willed, autonomous agency and choice.

Kant's 'solution'his requirement that we *simply must* treat them as realms utterly aparthas seemed to many critics a desperate measure and one that leaves the problem very firmly in place. McDowell thinks that it is not, after all, so damaging and can best be got over by adopting a naturalised (broadly Hegelian) approach. That is, we can preserve the most important aspects of Kantian epistemology and ethics if we build in just a few revisionist conces-

sions which prevent that otherwise disastrous rift from opening up in the first place. This requires (1) that we abandon all talk of a noumenal (unknowable) reality-beyond-appearances along with a realm of purely 'supersensible' ideas, and (2) that we emphasise Kant's appeal to the joint operations of 'spontaneity' and 'receptivity', rather than his notion of raw 'intuitions' which are somehow (impossibly) supposed to match up with 'concepts' of understanding. This latter notion, according to McDowell, is one that has caused endless trouble not only for Kant and his more orthodox exegetes but also for Quine, Davidson, and other latter-day crypto-dualists. Its source is always some version of the 'Myth of the Given' or the mistaken idearegrettably present in some passages of Kantthat knowledge must involve the bringing-into-relation of sensory 'content' and conceptual 'scheme' through some further (mysterious) operation of mind. [24] Once abandon that ideaso McDowell thinksand we will be free to pursue Kant's other, more promising line of thought.

However, there are still deep problems with this Kantian conception and with McDowell's ambitious claims on its behalf. Indeed, McDowell states the problems more than once with great clarity and force, even though he goes on each time to suggest that they are not after all so serious if viewed in that alternative light. Thus:

> [the] trouble shows up again here, in connection with impingements on spontaneity by the so-called conceptual deliverances of sensibility. If those impingements are conceived as outside the scope of spontaneity, outside the domain of responsible freedom, then the best they can yield is that we cannot be blamed for believing whatever they lead us to believe, not that we are justified in believing it. (13)

McDowell holds this to be a pseudodilemma which we force upon ourselvesand on our reading of Kantif we fail to take his oft-repeated point about the jointly operative roles of 'receptivity' and 'spontaneity'

in every act of cognitive or rational-evaluative judgement. For we shall then be hard put to discover any space for the exercise of 'responsible freedom', given that those sensory-perceptual 'impingements' are taken as already subject to 'conceptual' processing of some kind and must thus be assumed to occupy the whole space of cognitive judgement insofar as such judgement is assumed to consist exclusively in the bringing of phenomenal intuitions under adequate concepts. Thus the only way out of this all-too-familiar impasse is to follow Kant (or McDowell's Kant) in redefining 'spontaneity' as that which encompasses *both* the mind's power to receive and conceptualise the 'deliverances of sensibility' *and* its freedom to reflect 'responsibly' on those same deliverances. Otherwise we are back, so to speak, at square one with a further series of yet more troublesome dichotomies between intuition and concept, experience and knowledge, or judgement conceived as passive 'receptivity' and judgement conceived as the exercise of our capacity for 'spontaneous' thought and reflection.

McDowell's way of handling this problem most often takes the form of conceding its existenceeven its intractable naturewhile declaring nevertheless that there *must* be some solution (and one to be had from Kant) if we can just make suitable adjustments to our sense of what that solution should entail. Hence his suggestionto repeatthat 'although experience itself is not a good fit for the idea of spontaneity, even the most immediately observational concepts are partly constituted by their role in something that is indeed appropriately conceived in terms of spontaneity' (13). But it is hardly nitpicking to comment that 'experience' has to be thought ofafter Kantas already subject to some form of conceptual processing, orin Davidsonian parlanceas 'under some description' or other. So if 'experience itself' is not a 'good fit' (whatever precisely this means) for the 'idea of spontaneity', then it is hard to see why that idea should apply to 'even the most immediately observational concepts'. All that is happening hereto put it bluntlyis that McDowell is indulging in a bit of stipulative redefinition which requires us to accept it as only 'appropriate' that those concepts should be brought within the sphere of spontaneity and thus freed up for the exercise of responsible (rational-evaluative) judgement. But this involves such a tortuous process of argumentand such a strained reading of Kantthat one has to ask why McDowell has chosen this particular route through difficult and at times treacherous terrain. For there is always the alternative (as Rorty is on hand to remind him) of skipping the whole sad business with Kant and marching straight onwith Brandom's assistanceto Hegel and a happy issue out of all his philosophical perplexities. [25]

Now we have seen why this is *not* in fact an option for McDowell, given his commitment to a theory of knowledge that conserves more of the Kantian conceptionand a stronger emphasis on its critical aspectthan anything to be had from a Hegel 'naturalised' in the

wholesale Rortian fashion.[26] But we have also seen how McDowell has recourse to other, more apparently attractive options for talking Kant's philosophy down from the heights of transcendental illusion and restoring it to the life-world or the various contexts of human knowledge and experience. Among his sourcesas I have saidare readings of Hegel (such as those of Brandom and Gadamer) which stress that dimension in different ways while stopping well short of Rorty's radical-revisionist approach, and also the Wittgenstein-derived idea of communal usage as the furthest one can get by way of ultimate grounds or justifications. What he hopes to find is a viable account of 'second nature' that would allow due space for the exercise of critical or rational-evaluative thought (thus avoiding any kind of complacent traditionalism), yet at the same time incorporate the lessons learned from these and other broadly communitarian thinkers. Thus the question becomes, 'how can spontaneity permeate our lives, even to the extent of structuring those aspects of them that reflect our naturalnessthose aspects of our lives that we share with ordinary animals?' (65).

According to McDowell the chief reason for many philosophers' unease with this idea is the grip on their minds of a different variety of naturalism, one with its origins in early modern science and its upshot in the various dualismsovert or covertadopted under pressure from the scientific worldview. On this account a 'naturalised' epistemology would explain knowledge entirely as a matter of belief-states arrived at through the action of various physical stimuli or causal inputs assumed to act directly on our sensory receptors and thereby trigger the appropriate response. In other words, it would leave absolutely no room for those justificatory processesbelonging to the 'space of reasons' as opposed to the causal-explanatory realmwhich make all the difference between human and nonhuman (animal) forms of cognitive endeavour. Thus '[t]he thought is that the freedom of spontaneity ought to be a kind of exemption from nature, something that permits us to elevate ourselves above it, rather than our own special way of living an animal life' (65). However, this thought has the unfortunate consequenceas McDowell sees itof reintroducing all those bad old dualisms that have cast such a long shadow over philosophy from Descartes, via Kant, to Quine and Davidson. It is then a short step to Rorty's yet more drastic proposal, namely, that of a total divorce between the realm of causal stimuli (where photons and such-like impact on our sensory receptors with various physically determinate effects) and the realm of belief or interpretation (where those impacts are held to exert no constraint upon the range of admissible theories or descriptions). [27]

Such is the result of that progressive 'disenchantment' of natureMcDowell's termbrought about by the methods of the physical sciences from Galileo down. So it is not hard to see why other philosophers should adopt an opposite (strongly reactive) position and reject any kind of naturalised epistemology that purports to explain

knowledge by reference to a causal theory of belief acquisition lacking all normative values or justificatory criteria.[28] However, this position has its own liabilities, among them a tendency to flip straight over into something very like Rorty's all-out dualist view of the matter. That is to say: since causal explanations run out at such an early stagesomewhere between our sensory receptors and basic cognitive processing activitiestherefore we should view them as pretty much irrelevant to whatever goes on at more advanced stages of interpretation, belief adjustment, or theory construction. Davidson's view is less extreme on the face of it, holdingin McDowell's wordsthat 'experience is causally relevant to a subject's beliefs and judgements, but has no bearing on their status as justified or warranted' (14). However, it is then hard to see how those 'beliefs and judgements' could possess any genuine truth-evaluable content, restricted as they are (on Davidson's account) to a ground-floor level of stimulus-response where they cannot be thought of as 'justified' or 'warranted' in higher-level (epistemological) terms.[29] Davidson may try to get around this problem by

defining 'belief' differently in various contexts of argument so that it straddles the lineor can be made to perform double serviceas between the causal-explanatory and the rational-evaluative realms. However, as McDowell rightly suggests, we should perhaps be suspicious of his 'bland confidence that empirical content can be intelligibly in our picture even though we carefully stipulate that the world's impacts on our senses have nothing to do with justification' (15).

This is why McDowell thinks that there is a great deal at stake on the idea of 'second nature' as a means of healing the rift between causes and reasons, sensory inputs and rational outputs, orto adopt his preferred terminologyKantian 'receptivity' and 'spontaneity'. This would be a naturalised epistemology, to be sure, but one that nevertheless managed to avoid the reductionist perils of treating knowledge as *purely and simply* the upshot of our causal interactions with the world or our direct responses to physical stimuli. It would be 'naturalised' in the sense of acceptinglike Aristotlethat we are physical creatures impinged upon by various circumambient sensory promptings but able to take those promptings up into our own life histories and the wider realm of shared human interests and concerns. Following Gadamer it would point the way down from those rarefied heights of transcendental reflection where Kant on occasion leaves us stranded and recall us to the life-worldor horizon of mutual understandingwherein all our cognitive and ethical enquiries have their beginning and their end. [30] It would also take Wittgenstein's point about 'language-games' and communal 'forms of life' while nonetheless conserving a spaceunlike Wittgenstein's more 'complacent' exegetesfor the exercise of critical-reflective reason as itself one crucial and defining component of our own, distinctively human life-world.[31] Above all, it would explain what sets us apart from other (nonhuman) animal species without in the process going so

far as to sever all links between 'us' and 'them' by adopting a Cartesian dualist view on which 'they' come out as mere automata devoid of sentient being, and 'we' as creatures unthinkably split between a realm of pure rational consciousness and a realm of brute physical existence. For this is just a product of the sharply dichotomised (since thoroughly 'disenchanted') naturalistic world-view which inspired Descartes in his solitary project and which has left its mark on so many subsequent chapters of epistemological enquiry.

'We can avoid the dilemma', McDowell writes, and do so by conserving our proper self-image as rational enquirers both responsive to causal inputs from the physical world and responsible for the exercise of evaluative judgement with respect to those same deliverances. Thus

> [w]e do not need to say that we have what mere animals have, non-conceptual content, and we have something else as well, since we can conceptualize that content and they cannot. Instead we can say that we have what mere animals have,

> perceptual sensitivity to features of our environment, but we have it in a special form. Our perceptual sensitivity to our environment is taken up into the ambit of the faculty of spontaneity, which is what distinguishes us from them. (64)

There are several other passages in the book that make this point with slightly different phrasing, though always to the effect that we humans are *both like and unlike* nonhuman animals in certain crucial (philosophically salient) respects. For instance: '[i]t is the spontaneity of the understanding, the power of conceptual thinking, that brings both the world and the self into view. Creatures without conceptual capacities lack self-consciousness andthis is part of the same packageexperience of objective reality' (114). However, there are several problems here, quite apart from the standard 'animal-rights' objection on grounds of speciesism, anthropocentrism, the arrogant claim to 'know' for sure what animals can or cannot possess in the way of concepts, self-awareness, 'experience of objective reality', and so forth. One is the fact that McDowell's idea of 'spontaneity' is itself just another, more roundabout means of smuggling back that same old dualism which fixes a gulf between human and animal modes of being, and hence (by implication) between the mental and physical aspects of human existence. After all, it is only by imposing a stipulative (Kantian) idea of *what shall count* as 'experience' or 'objective reality' that McDowell can hold this distinction in place and define what is humanas opposed to merely animalthrough recourse to the notion of 'spontaneity'. But this is just to saydespite his denial in the above-quoted passagethat we *do* have 'something else as well', that is, something in addition to the 'non-conceptual content' which we possess in common with the animals and which (presumably) consists in their and our shared capacity for reacting appropriately to various sorts of ambient physical stimuli. Perhaps we are saved from other, more outright and challengeable ways of stating the difference, as for

instance by the claim that 'we can conceptualize that content and they cannot'. Perhaps it allows us to make more room for the commonality of human and nonhuman-animal experience by speaking of a shared 'perceptual sensitivity to features of our environment', despite the crucial rider that 'we have it in a special form'. But here again this looks very much like a case of McDowell having his cake and eating it, or exploiting whatever is to be had by the appeal to a (quasi-) naturalised epistemology while retaining the idea of 'second nature"spontaneity' in a somewhat less Kantian guiseas a hedge against the kind of hardline naturalistic approach that would threaten his project at source.

It may seem odd that McDowell should have so much to say with regard to the difference between humans and 'mere' animals in the context of an argument otherwise chiefly concerned with epistemological issues. But the relevance of these passages will perhaps become clearer if one considers how

closely they connect with his whole attempt to discover a third-way alternative path beyond all the vexing dualities of post-Kantian philosophy of mind and knowledge.

Thus McDowell doesn't want to be misunderstood as 'debunking animal mentality', as adopting 'a reductive conception of biological imperatives', or as in any sense seeking to deny 'that they ["mere animals"] can be, in their ways, clever, resourceful, inquisitive, friendly, and so forth' (182). Rather, '[t]he point is just that dumb animals do not have Kantian freedom', the latter taken as uniquely characteristic of human animals in virtue of their possessing just that attribute (i.e., 'spontaneity') which pertains to them alone as 'second nature', and which thus raises them above such merely 'biological imperatives'. So there is a sense in which McDowell's epistemological case stands or falls with his case for the partial (strictly limited) measure of continuity between nonhuman-animal and human modes of cognitive dealing with the world. What he needs to establish by means of these parallel arguments is that the human (conscious and reflective) way of being-in-the-world is sufficiently in touch withbut also sufficiently distinct fromthe kind of physically responsive being-in-the-world that is held to typify animal existence. Thus 'no one without a philosophical axe to grind can watch, say, a dog or a cat at play and seriously consider bringing its activities under the head of something like automatism'. All the samemore crucially for McDowell's case'we can deny Kantian spontaneity [to such animals] while leaving plenty of room for the self-movingness that is plain to the unprejudiced eye in such a scene' (182). And it is just this kind of commonality-with-difference that McDowell requires in order to explain by analogy how the human capacity for knowledge both *depends upon* and *radically transforms* the animal capacity for 'merely' respondingin however sensitive or resourceful a mannerto a

range of circumambient causal stimuli.

However, his argument also requires an appeal to that idea of human cognitive capacities as a kind of 'second nature' which provides the necessary bridging concept between these two domains. And it is here that McDowell makes his brief venture into regions of post-Kantian 'continental' thoughtespecially the tradition of philosophical hermeneutics represented by Gadamerin quest of an approach that might give substance to this claim while retaining what is crucial (for his own purposes) in Kant's theory of mind and knowledge. Thus McDowell's chief debt to Gadamer has to do with the latter's 'remarkable description of the difference between a merely animal mode of life, in an environment, and a human mode of life, in the world' (115). That is to say, it concerns the way in which certain (basically naturalistic) modes of description can assume a quite different salience when translated from the one context to the other, or from talk about features of a physical 'environment'such as applies most aptly in the case of mere animal existenceto talk about a 'world' of distinctively human reasons, interests, meanings, val-

ues, priorities, and so forth. 'The point of this', McDowell writes, 'is that it shows in some detail how we can acknowledge what is common between human beings and brutes, while preserving the difference that the Kantian thesis forces on us' (115). But his phrasing here is enough to suggestas I have argued abovethat there is an unresolved tension of some sort between McDowell's avowedly Kantian commitments and his wish to avoid their more awkward implications by adopting a hermeneutic approach. After all, what can it be that 'the Kantian thesis' so powerfully 'forces on us' if not the drastic bifurcation of realms between animal and human, causal and rational, or physically explainable and normatively justified modes of knowledge and behaviour? Or again, why introduce this appeal to Gadamer unlessas so often in recent debatefor the sake of talking philosophy down from its high-flown critical pretensions in the face of opposed (e.g., Wittgensteinian) claims for the priority of communal 'tradition' or cultural 'forms of life'?

McDowell's answer is seemingly quite straightforward: that it ties in with the idea of 'second nature' as encompassing both our existence as 'natural beings' andcompatibly with thatour difference from the animals in matters of knowledge or rational belief formation. 'Of course', he cautions, 'it had better not be that our being in charge of our lives marks a transcendence of biology; that looks like a version of the rampant platonist fantasy' (115). But we can still have a kind of 'naturalised platonism'McDowell's curious phrasewhich effectively gives us the best of both worlds by holding the crucial distinction in place while acknowledging the claims of our partial commonality with nonhuman modes of sentient being. Where 'rampant platonism' envisages a realm of abstract Ideas or rational structures 'independent of anything merely human, so that the capacity of our minds to resonate to it looks occult or magical', naturalised platonism holds on

the contrary that 'the demands of reason are essentially such that a human upbringing can open a human's eyes to them' (92). In short, it is a philosophy of *Bildung*of self-cultivation through the norms and values of an acquired cultural traditionas developed by those otherwise diverse thinkers (among them Aristotle, Hegel, Wittgenstein, and Gadamer) whom McDowell here calls to witness. Such is that 'naturalism of second nature' which he thinks of as a viable escape route from many of the problems that currently beset analytic philosophy in the wake of Quine and Davidson.

However, this is a very long way from Kant, or from any interpretation that could claim fidelity to the main precepts of his epistemology and ethics. For of course it is Kant's single most important claim that philosophy should be free to judge, criticise, and reach an independent verdict on all issues concerning knowledge and truth, or all matters properly pertaining to the exercise of reason in its 'public' (intellectually accountable) role. [32] Thus there is no item of received wisdomwhether scientific, philosophical, moral, or religiousthat warrants endorsement merely on the grounds of its traditional

status or its playing some role in the system of inherited communal beliefs. Rather, everything should be open to question from the standpoint of critical philosophy, even if the philosopher has sometimes to concede (in exchange for this rightful prerogative) that such freedom of expression may be subject to limits in the case of publications intended for a wider readership. [33] Still, this concession on Kant's part can best be seen as a sop to the censorstheologians and state officialsand as carrying more than a hint of self-protective irony. At any rate, the main thrust of his argument in the three *Critiques* is to vindicate the freedom of intellectual conscience, of rationalreflective enquiry, andabove allof autonomous judgement in the ethical and sociopolitical realms. Indeed, it was largely in response to these claims that there developed a strong countermovement (beginning with Herder and continued through the line of hermeneutic theorists from Schleiermacher and Dilthey to Gadamer) which emphasised the role of tradition or cultural context as a formative element in all such spheres of judgement.[34]

Needless to say, the issue is more complexand the positions adopted more varied and nuancedthan I have managed to convey here. For one thing there is the question (central to Gadamer's debate with Habermas) as to whether the hermeneutic enterprise should be viewed as inherently conservative or tradition-bound.[35] Otherwise put, it is the issue of how thinking can attain a critical standpoint *vis-à-vis* tradition if the act of criticism is itself bound up with the so-called hermeneutic circle, or the need to interpret existing beliefs (so to speak) 'from the inside' before such criticism can make any sense to members of the cultural community concerned. Certainly Gadarner goes out of his way to reject any claim that this argument entails an attitude of passive or unquestioning adherence to customary ways of thought. Also, there are writers on Wittgenstein, sensitive to just this

charge, who roundly reject the idea that talk of 'language-games' or communal 'forms of life' goes along with a failure (or an ideologically motivated refusal) to criticise received beliefs.[36] Besides whichto complicate matters yet furtherone must take account of those recent defenders of Kant (Onora O'Neill among them) who deny that there exists any sharp conflict between the Kantian and at least some versions of the communitarian approach to issues of ethics and epistemology.[37] So I should not wish to claim that McDowell's appeal to a broadly hermeneutic traditionreaching back as it does via Gadamer and Wittgenstein to Hegel and thence to Aristotlenecessarily clashes with his Kantian stress on the exercise of reason as involving the capacity to stand back from traditional beliefs and subject them to critical scrutiny. Nevertheless, there is a genuine tension at just this point in his argument and one which shows up most plainly when he adduces the concept of *Bildung* (of self-cultivation as a 'naturalism of second nature') in order to domesticate Kant's more 'transcendental' or metaphysically extravagant claims.

The trouble is that 'second nature' has a meaning which stubbornly clings

to the phrase despite such efforts to redeem it for a better purpose. That is, it tends always to put us in mind of those standing beliefs, dispositions, customs, practices, and so forth, which are 'naturalised' just to the extent that they form the taken-for-granted background of our everyday life. McDowell does his best to rehabilitate the notion by denying that any such conflict need arise between the sorts of thinking that typically occur in that context (where we are not self-conciously aware of them) and the kinds of thought-process that engage our attention when reflectingin a more critical modeon the validity of our various claims to knowledge or the justification of our various social, ethical, or communal practices. In this respect he agrees with Gadamer that it is only through a false abstraction from the life-world of situated human understanding that philosophers can force such an artificial choice between tradition-based (hermeneutic) modes of enquiry and critical-evaluative projects of the kind espoused by thinkers like Kant and Habermas. Here again it is 'second nature' that sets us apart from the nonhuman animals, those for whom it is scarcely intelligible to suppose that they might be 'born at home in the space of reasons'. For in the case of human beings we can readily conceive that they are 'born mere animals' but are then 'transformed into thinkers and intentional agents in the course of coming to maturity' (125). Moreover, what enables this transformation to occur is the process of *Bildung* wherein language takes pride of place, since by acquiring language a human being also acquires the resources and capacity for rational thought which signal their emancipation 'from a merely animal mode of living into being a full-fledged subject, open to the world' (125).

However, it is still hard to see why such progress should go any further than initiating the 'subject' into a life-world of pregiven values, beliefs, or traditional (acculturated) habits of thought. Indeed,

McDowell effectively concedes as much when he writesmore in Wittgensteinian than Kantian veinthat through being introduced into a language the human creature is also introduced 'into something that already embodies putatively rational linkages between concepts, putatively constitutive of the layout of the space of reasons, before she comes on the scene' (125). The sheer awkwardness of phrasing hereas so often in McDowell's booksuggests that his argument is under strain from conflicting ideas about just what constitutes the 'space of reasons' (the realm of critical-evaluative thought) as opposed to whatever is handed down by tradition, by commonsense wisdom, shared social custom, and the like. At any rate that space would seem to be drastically narrowed by his very un-Kantian concession that the 'rational linkages between concepts' are already in placeestablished by communal warrant'before she [i.e., the subject-initiated-into-language] comes on the scene'. Nor is the strain taken off by his assertion that those linkages are 'putatively constitutive of the layout of the space of reasons'. For any Kantian resonance of the term

'constitutive' is promptly cancelledor rendered otioseby the notion that they might all the same be merely 'putative' or (what appears to be implied) count as 'rational' only from the standpoint of one brought up within the relevant tradition or communal form of life.

The paragraph goes on in much the same way without resolving the issue, or ratherI would suggestby refusing to face it and continuing to mix broadly Wittgensteinian with vaguely Kantian directives. Thus:

> Human beings mature into being at home in the space of reasons or, what comes to the same thing, living their lives in the world; we can make sense of that by noting that the language into which a human being is first initiated stands over against her as a prior embodiment of mindedness, of the possibility of an orientation to the world. (125)

This passage seems to me symptomatic of the failure, on McDowell's part, to provide any argument that would make good his central claim to have redeemed Kant for the purposes of a naturalised (post-Quine-and-Davidson) approach while nonetheless retaining a Kantian sense of its properly rational or critical-evaluative bearings. Rather, what emerges is yet another displaced variant of the dualism between causal explanation and the 'space of reasons', a dualism starkly present in Kantdespite McDowell's claims to the contraryand still very evident (as he himself argues) in thinkers like Quine and Davidson. Where McDowell's argument differs is in shifting the locus of causality from 'nature' to 'second nature', or from an overtly determinist concept of causal explanation to a theory which seeks to avoid that consequence by appealing to the freedom notionally vested in our coming-to-maturity as denizens of a life-world or inheritors of a communal tradition.

Not that we can hope for any straightforward return to Aristotle's 'innocent' conception of human beings as creatures whose 'rationality

is integrally part of their animal nature', and whose relationship to the natural order need not be 'fraught with philosophical anxiety' (109). Such thinking came easily to Aristotle since he lived long before the advent of a modern, scientifically informed world-view in which the 'realm of law' would be reconceived as existing quite apart from the 'realm of meaning' or the sphere of distinctive (humanly intelligible) purposes, needs, and desires. Indeed, '[i]t would be crazy'McDowell flatly declares'to regret the idea that natural science reveals a special kind of intelligibility, to be distinguished from the kind that is proper to meaning' (109). All the same we may reasonably hope to turn back the tide of post-Galilean disenchantment by allowing that, even if 'the spontaneity of the understanding cannot be captured in terms that are apt for describing nature on that conception', still 'it can permeate actualizations of our animal nature', thus pointing a way beyond those same philosophical difficulties 'while fully appreciating what makes them gripping' (109). Such

would be a 'postlapsarian or knowing counterpart of Aristotle's innocence', an outlook that accepts this historically unavoidable separation of realms but which yet holds out against the kinds of disabling dualism that have left such a mark on recent philosophical thought. In other wordsas McDowell puts itwe can fully accept 'the great step forward that human understanding took when our ancestors formed the idea of a domain of intelligibility, the realm of natural law, that is empty of meaning', while nonetheless 'refus[ing] to equate that domain with nature, let alone with what is real' (109).

I must confess to finding this passage opaque to the point of making no sense on any construal of its terms and logical structure. After all, what precisely can it mean to speak of a realm of 'natural law'that whereby the physical sciences have attained their present high statuswhile refusing to grant that it equates with 'nature' or indeed with what is 'real' from some ultimate (unspecified, maybe noumenal) perspective? Then again: how should we interpret McDowell's claim that '[s]ince we are setting our faces against bald naturalism, we have to expand nature beyond what is countenanced in a naturalism of the realm of law' (109)? Presumably this is the 'second nature'the realm of 'postlapsarian' innocence regainedwhich allows us somehow to reintegrate our modern world-view (after such knowledge, what forgiveness?) with our need for a conception of human enquiry responsive to values that find no place within the 'disenchanted' realm of law-governed natural necessity. But McDowell's suggested way of answering that need is that we redefine 'nature' in such terms as to conjure up memories of Schelling and the kind of quasi-pantheistic *Naturphilosophie* that followed so closely after Kant. [38] Thus '[i]f we can rethink our conception of nature so as to make room for spontaneity . . . we shall by the same token be rethinking our conception of what it takes for a position to deserve to be called

"naturalism"' (77). There is just sufficient roomagain through the presence of a saving grammatical ambiguityto interpret McDowell as saying that the 'spontaneity' in question is that which belongs to 'second nature', that is, to human beings and their active capacity for gaining knowledge of the natural world. But there is also the suggestionhere and elsewherethat this 'spontaneity' is somehow *intrinsic to nature itself* as revealed through a deeper (interactive) process of reciprocal exchange between mind and world. I have remarked already on the echoes of Fichte and his world-positing Ego that sometimes emerge to rather startling effect from McDowell's meditations on this theme. What the above-cited passage brings outto likewise startling effectis the way that his argument sometimes leans over into a strain of crypto-Schellingian nature-philosophy where the mind/world dualism is simply collapsed (so to speak) in the opposite direction. In other words, there is more than a suspicion that McDowell is engaged in a largely unwitting repetition of episodes from the history of German Idealist philosophy during the period directly after Kant. And this suspicion is reinforced by his idea

that Hegelor a suitably 'naturalised' Hegelcan be brought in by way of damping down the chronic oscillation between 'subjective' and 'objective' idealisms which marked that tempestuous chapter of thought.

Now there isthough McDowell seems strangely unaware of ita whole rich tradition of more recent continental philosophy that engages these issues at far greater depth and with a much greater degree of historically informed understanding. I am thinking here chiefly of Husserl's phenomenological meditations on scientific knowledge and its relation to the life-world of human interests and concerns. This is the topic of his great book *The Crisis of the European Sciences and Transcendental Phenomenology,* a workunmentioned by McDowellwhich should be a standard reference point for anyone attempting such a project. [39] Thus Husserl offers some acute and far-reaching observations concerning the rise of modern post-Galilean physical science, the progressive mathematisation of nature, the encroachment of a narrowly positivist outlook in other (e.g., historical, sociological, and philosophic) domains of thought, and the reactive turn toward irrationalist doctrines among thinkers in the Nietzschean line of descent. Moreover, he pursues these philosophico-historical investigations always in the hope of reintegrating science with the life-world of shared ('traditionalised') knowledge and experience, even while concedingas against any form of likewise reactive cultural relativismthat scientific knowledge has its own distinct standards of objectivity, rigour, and truth. This connects in turn with Husserl's wider project of transcendental phenomenology, that is to say, his lifelong concern to redeem the discourse of Kantian philosophy in such a way as to retain its epistemocritical dimension yet at the same time preserve its ethical (normative-evaluative) content, and alsowhat Kant signally failed to doavoid the drastic

separation of realms between knowledge and human interests.[40] The above sentence could just as well stand as a description of what McDowell himself sets out to achieve in *Mind and World*. But he does soit seems to meunder the self-imposed handicap of starting out from a reading of Kant (or certain passages in Kant) that is locked into various long-familiar problems and which takes no stock of later 'continental' developments which are highly germane to his purpose.

This takes us back to my earlier point: namely, that McDowell wants to think beyond the false dilemmas (as he sees them) of logical empiricism but fails in this endearourlike Quine and Davidson before himprecisely on account of a residual attachment to the logical-empiricist paradigm. Indeed, this objection, or something very like it, is one that McDowell also brings against Gareth Evans, his early colleague and mentor whose work is acknowledged handsomely at various points in the book but whose thinking he now finds regrettably subject to a dualist conception of mind and world.[41] Thus Evans never quite presses through with the Kant-derived insight that experi-

ence is always already within the conceptual 'space of reasons', and therefore (in McDowell's words) that 'we must not suppose that receptivity makes an even notionally separable contribution to its co-operation with spontaneity' (51). On the contrary, according to Evans, perception has its role in an 'informational system' whose content is strictly 'non-conceptual' and is hence available only in the form of data for higher-level processing, or as 'input to a thinking, concept-applying, and reasoning system' (cited, 49). [42]

Of course this goes against McDowell's entire line of argument concerning the constitutive role of Kantian 'spontaneity' in even our most basic acts of perceptual or experiential grasp. 'In Evans's account of experience', he writes,

> receptivity figures in the guise of the perceptual element of the informational system, and his idea is that it produces its content-bearing states independently of any operations of spontaneity. It is true that the content-bearing states that result count as experience, in the somewhat Kantian restricted sense that Evans employs, only by virtue of the fact that they are available to spontaneity. But spontaneity does not enter into determining their content. So the independent operations of the informational system figure in Evans's account as a separable contribution made by receptivity to its co-operation with spontaneity. (51)

Now in a sense this criticism is well taken and pinpoints the chief problem not only with Evans's account but with every version of the scheme/content dualism, whatever the various refinements of detail or the number of mediating levels envisaged between raw sensory 'inputs' and full-fledged conceptual knowledge. It is especially a problem, no doubt, for those thinkers in the wake of logical empiricism (Quine, Davidson, and Evans among them) who have inherited this sharply dualist way of thinking and expended much effort in trying to think their way beyond it. But it is also a problem

for Kant andeven morefor McDowell's version of Kant as a philosopher who managed to signpost that route despite certain prevalent misreadings. Thus what McDowell calls the 'somewhat restricted' construal of Kant (more specifically, Kant's idea of 'experience') to be found in Evans's work is in fact just the construal invited by those passages in the First *Critique* where Kant defines knowledge (or understanding) as the capacity to bring sensuous intuitions under adequate concepts. In this respect Evans is true enough to Kant, as likewise when he attempts to fill the problematic gap between those disparate orders of 'experience' by multiplying intermediate stages, themselves just as problematic since required to perform the same (impossible) task of reconciliation. McDowell thinks to halt this vicious regress at source by switching attention from Kant's dualist talk of intuitions and concepts to his far more promising idea of the reciprocal interplay between 'receptivity' and 'spontaneity'. But here alsoas I have argued abovethe proposed synthesis either falls apart into just another, somewhat more roundabout version of the same dualism or veers toward regions of speculative thought (such as those first

explored by Fichte and Schelling) which are scarcely what McDowell has in mind.

Of course this leaves a third alternative, namely, the idea that these issues might be resolved by some combination of Aristotle with Wittgenstein and Gadamer, or a broadly communitarian approach which incorporates elements of practical wisdom with an appeal to 'language-games' or 'forms of life' as the furthest one can get in the way of justificatory or evaluative grounds. Howeveras I have saidthis idea breaks down when it comes to explaining how any such approach could possibly account for the challenge to established (traditional) ways of thought posed by radically new scientific theories or even by challenges to our customary modes of ethical or sociopolitical thought. McDowell implicitly admits the problem when he refersno doubt via Quine's 'Two Dogmas'to Neurath's famous metaphor of the ship which has to be refurbished plank by plank while afloat rather than given a thorough overhaul in dry dock. [43] For Quine this metaphor indicates the need to think of science in holistic terms as a total 'fabric' or 'web' of beliefs where no single item stands or falls on a putative 'crucial experiment' but where pragmatic adjustments can always be made at some point between the logical 'centre' and the observational 'periphery' so as to conserve this or that cherished item. Thus one might, for instance, plead hallucination in order to discount a recalcitrant empirical result or evenat the limitopt for revising the logical 'laws of thought' so as to accommodate anomalous data such as wave-particle dualism or quantum superposition. Or again, as allowed for by the Duhem-Quine thesis, one might always adduce the presence of various implicit 'auxiliary hypotheses' which could be taken to have played some covert role in the formulation of the theory.[44] The trouble with this is that it fails to explain how theory change could ever come about given the inherently conservative biasthe pragmatic

inclination to resist radical changewhich Quine identifies as the chief psychological factor in deciding which beliefs to hang onto and which to adjust under pressure from 'recalcitrant' results.[45]

McDowell brings in this metaphor from Neurath/Quine at just the point where he is discussing certain problems with Aristotelian ethics. Thus: 'ethical thinking is under a standing obligation to reflect about and criticize the standards by which, at any time, it takes itself to be governed' (81). So much for the familiar Kantian (deontological) objection to any theory of ethics, such as Aristotle's, which rests too comfortably on received ideas of civic or communal virtue. All the same, though Aristotle 'may be less than duly sensitive to [this] obligation in the case of ethics', still it is 'implicit in the very idea of a shaping of the intellect, and that is what "practical wisdom" is' (81). And again:

> it is a key point that for such reflective criticism, the appropriate image is Neurath's, in which a sailor overhauls his ship while it is afloat. This does not mean

> that such reflection cannot be radical. One can find oneself called on to jettison parts of one's inherited ways of thinking, and, though this is harder to place in Neurath's image, weaknesses that reflection discloses in inherited ways of thinking can dictate the formation of new concepts and conceptions. But the essential thing is that one can reflect only from the midst of the way of thinking one is reflecting about. (81)

It may seem perverse to pile such a weight of significance onto McDowell's (or, for that matter, Quine's and Neurath's) choice of illustrative metaphor. Still it does have a definite load-bearing role in his and their theories which helps to explain why McDowell goes to such literalistic lengths to spell out its relevance here. However, the metaphor tends to kick back by refusing to perform as required. Thus McDowell has to concedealbeit in parenthesisthat his 'radical' reading is one that is 'harder to place in Neurath's image', since the whole point of the ship metaphor (as understood by Quine also) is to suggest a more gradualist or piecemeal conception of scientific theory change.

The same can be said more generally of that whole hermeneutic/communitarian approach that McDowell sees as a promising escape route from the various residual problems with Kant, but which in fact merely shelves them in favour of a theory (summed up in his phrase 'second nature') with deeply conservative implications. [46] This comes out in a passage where McDowell remarks (again) on the need for 'reflective thinking', for 'standards of self-scrutiny', as a result of which certain traditional values or beliefs may come to strike us as 'hav[ing] hitherto unnoticed defects, such as parochialism or reliance on bad prejudice' (81). He then appends a footnote commenting that '"bad prejudice" is not a pleonasm', since (according to Gadamer) 'prejudice, so far from being necessarily a bad thing, is a condition for understanding' (81 n). Now of course there is a sense of the word 'prejudice'roughly speaking, 'the background of

implicit normative assumptions presupposed by every act of thought or judgement'according to which this claim is necessarily (almost trivially) true. On the other hand, it is often pushed much harder by philosophers (e.g., some Wittgensteinians and hermeneutic theorists like Gadamer) who adduce it in support of a traditionalist case for setting sharp limits to the scope and remit of critical-evaluative thought.[47]

McDowell is well aware of this and indeed takes issue at one point with what he sees as a mistaken reading of Wittgenstein, that which interprets the 'space of reasons' in a purely 'commumtarian or "social-pragmatist" style'. After all, he protests,

> [i]f there is nothing to the normative structure within which meaning comes into view except, say, acceptances and rejections of bits of behaviour by the community at large, then how things arehow things can be said to be with a correctness that must partly consist in being faithful to the meanings one would exploit if one said

> they are thus and socannot be independent of the community's ratifying the judgement that they are thus and so. (93)

I agree with McDowell that the consequence of such thinking is 'intolerable' since it opens the way to an outlook of full-fledged cultural relativism with regard to ethics, the physical sciences, historical enquiry, and everything else. On the other hand, I cannot agree that this is to get Wittgenstein wrong since it ignores 'his own conception of what is to be done in philosophy, his "quietism", his rejection of any constructive or doctrinal ambitions' (93). As McDowell sees it, the result of such 'quietism' must be to leave our everyday (nonphilosophical) beliefs and values firmly in place, among them what he calls our 'commonsense conception of the objectivity of the world, the reality that our command of meaning enables us to think and talk about' (93). I have suggested already that realism of this kindbelief in the reality of an objective and (largely) mind-independent worldis the default attitude of most people and even of most philosophers in their time off from epistemological problems. What is not so clear is why McDowell should think that Wittgenstein's 'quietism'his desire that philosophy should 'leave everything as it is'comes out on the side of that commonsense-realist view. Quite the opposite, in fact: more often it conduces to a cultural-relativist outlook in which the truth-value of various beliefs is thought to be determined *not* by the way things stand in reality but rather by their role in some given 'language-game' or communal 'form of life'. Indeed, Wittgenstein is the chief philosophical source for a good many current varieties of antirealism, from the so-called strong programme in sociology of knowledge to the more technical version to be found in the writings of Michael Dummett. [48]

Later on McDowell has some pertinent thoughts about the claim by some exegetesBernard Williams and Jonathan Lear among themthat

Wittgenstein's philosophy retains a certain element of 'vestigial transcendentalism', that is to say, a residually Kantian appeal to the conditions of possibility for knowledge and experience.[49] In their view, this should be enough to placate any worries concerning its supposed relativist implications while not giving way to the kind of 'full-blown transcendental idealism' that would offer reassurance but at too great a cost, namely, 'by affirming . . . that we cannot be fundamentally wrong about the world we think about, since it is constituted by us' (159). Thus it would simply be a matter, in Wittgenstein's phrase, of 'how we go on' in some given situationtalking, reasoning, acting, behaving, evaluating evidence, and so forthquite apart from any ultimate (transcendentally warranted) 'conditions' for knowledge and experience in general. However, McDowell is not happy with this scaled-down compromise solution since it still carries an excess weight of superfluous philosophical baggage. After all, what betrays Kant into a form of 'idealist' thinking is precisely that 'the constituting of this harmony between world and mind is supposed to be

a transcendental operation of mind: not, of course, the empirical mind, which is in constituted harmony with the world, but an off-stage transcendental mind' (159). Where the Wittgensteinian account so radically differsaccording to McDowellis in finding no room for such pointless appeals to an *a priori* order of intelligibility behind or beyond the straightforward self-evidence of everyday commonsense realism. Thus 'we should be struck by the thought that there is nothing in Wittgenstein's picture to do the constituting of the harmony', in which casehappily'the appearance of a piece of transcendental philosophy is hard to maintain' (159).

This seems to me a massive evasion of the central problem and a sign that McDowell is no further on toward resolving the epistemological and ethical issues than those orthodox Wittgensteinians who placidly endorse the 'form-of-life' argument as a welcome release from all our philosophic perplexities. In the end he cannot have it both ways, playing off the claims of Kantian critical-evaluative thought against those of Wittgensteinian 'quietism' while hoping to steer a middle course between them which involves no damaging compromise on either side. His book is importantor so it seems to memore for these symptomatic blind spots than for anything it offers by way of philosophical (or indeed 'postphilosophical') solutions. Thus it shows very clearly how philosophy is condemned to run into the same dilemmas over and again if it loses touch with some significant chapter of its own formative history. In McDowell's caseas in so much recent Anglophone debateit is a complicated chapter with branching plots that divide after Kant and then go their own way with just occasional glimpses across or efforts to mend the rift. The main factors here are (1) the sharp distinction standardly drawn between 'genuine' (analytic) philosophy and 'mere' second-order historical enquiry into its sources, development, or alternative paths not taken;

(2) the related analytic mistrust of 'continental' epistemology as a species of thinly disguised psychologism; and (3) the belief that any lessons to be learned from Kant have to do with those matters that find a place within the current analytic prospectus and most definitely *not* with those aspects of his thought that have preoccupied philosophers in the line of descent from Fichte, Schelling, and Hegel to Husserl, Heidegger, and (God forbid!) Derrida. In other words, it is the upshot of that same old split between, on the one hand, a school of thought that takes its lead from the chiefly logico-semantic issues raised in Kant's 'Transcendental Analytic' and, on the other, a school whose preferred starting point is the 'Transcendental Aesthetic', along with all its deeply problematic claims regarding the modalities of experience, imagination, knowledge, and judgement.

As I have said, there are signs that this prejudicial mind-set is beginning to lose its grip, as for instance in Dummett's (albeit rather grudging) attempt to rehabilitate Husserl, and likewise in McDowell's return to Kantor a suit-

ably naturalised version of Kantas pointing a way forward from the post-Quine-and-Davidson impasse. [50] But in both cases, McDowell especially, this renewed sense of openness to 'continental' thought goes along with a persistent narrowing of focus that still excludes pretty much everything outside the chosen few texts (or the select few passages) for redemptive treatment. Thus Dummett sticks closely to the points of convergence/divergence between Frege and Husserl, while McDowell considers only those 'problems from Kant' (and those partial or hinted-at solutions) which lend themselves to adequate restatement in the idiom of present-day analytic thought. What neither seems able to envisage is the idea that certain deep-laid dilemmasnotably those handed down by logical empiricismmight have received an altogether more adequate and resourceful treatment by certain philosophers in the 'other' (post-Kantian continental) tradition.

This emerges most plainly in those passages of McDowell's book where he admonishes Kant for an overly formal (or 'transcendental') approach to such issues while failing to acknowledge how subsequent thinkersHusserl chief among themnot only criticised Kant on the same grounds but carried their criticism to a more advanced stage of constructive philosophical engagement.[51] Hence the impression he often gives of venturing like Robinson Crusoe into unknown territory where, as it turns out, somebody has gone before and left unmistakable footprints. One such passage has to do with Kant's idea of the 'transcendental unity of apperception', that is to say, his notion of 'the merely formal persistence of the I, in the "I think" that can "accompany all my representations"' (103). McDowell's pointin line with his naturalising approachis that this mysterious *je ne sais quoi* 'had better be only an abstraction from the ordinary substantial persistence of the living subject of experience' and had therefore

better *not* be 'something free-standing', something 'which we might hope to build on in reconstructing the persistence of the ordinary self' (103). Now of course this is precisely Kant's own point when he objects to Descartes's fallacious argument from the 'merely formal' condition of possibility for thought and self-consciousness in general to a substantive conclusion regarding the *cogito* and its necessary (rationally self-evident) mode of existence.[52] Or rather: McDowell agrees with Kant that it had better be 'only an abstraction' but differs in counting that abstraction just a piece of otiose 'transcendental' machinery, an item which can and should be dropped in favour of the 'ordinary self' and its 'substantial persistence [as] the living subject of experience'. However, there is nothing in McDowell's book to suggest that later philosophersnotably Husserltook up this issue where Kant left off and pursued his critique of Cartesian 'rational psychology' to very different philosophical ends.[53] That is, Husserl went further than anyonecertainly much further than McDowellin seeking to explain how our various modalities of experience, knowledge, and judgement could be *both* apodictically grounded in constitutive acts of consciousness *and*

at the same time inseparably tied to our existence as physically embodied creatures in whom there could exist no Cartesian divorce between 'mind' and 'world'. It is a measure of the tunnel-vision syndrome afflicting so much recent analytic philosophy that Husserl's entire life's work on just this topic should rate not a mention from McDowell while he devotes many pages of strained exegesis to passages in Kant that often scarcely serve his argumentative purpose.

I shall cite just one further examplea striking instance of the kindin order to illustrate this curious feature of McDowell's book. 'Why', he asks in relation to Kant, 'can there not be a free-standing idea of formal subjective continuity?'

> The answer is this: the idea of a subjectively continuous series of states or occurrences in which conceptual capacities are implicated in sensibilityor, more generally, the idea of a subjectively continuous series of exercises of conceptual capacities of any kind, that is, the idea of a subjectively continuous series of 'representations', as Kant would sayis just the idea of a singled out tract of a life. The idea of a subjectively continuous series of 'representations' could no more stand alone, independent of the idea of a living thing in whose life these events occur, than could the idea of a series of digestive events without its appropriate kind of continuity. But in the absence of a serious notion of second nature, this exploitation of the concept of life, which is a quintessentially natural phenomenon, to make sense of a unity within the domain of spontaneity, which by Kant's lights has to be non-natural, is not within Kant's grasp. (1034)

From one point of viewthe 'naturalised' perspective that McDowell acquires from Aristotle, Hegel, Wittgenstein, and Gadamerthis passage represents an acute piece of critical commentary and a pinpoint diagnosis of Kant's failure to make good on his transcendental claims. From a different, more 'continental' (and especially Husserlian) standpoint it looks like a typical instance of what goes wrong when philosophers renounce some unattainable

goalsuch as Kant's on McDowell's understanding of itonly to flip straight over to the opposite extreme, that of a naturalism wholly divorced from the realm of rational or critical-evaluative thought. The point comes out with almost comical force when McDowell compares the indissoluble nexus between concepts (or Kantian 'representations') and the 'living thing' in whose experience they figure with that between 'digestive events' and the organs or bodily processes through which they occur. This digestive metaphor seems to have been sparked by McDowell's reference to the 'tract of a life' as the only context within which thought and experience can make sense or be 'singled out' as possessing the kind of intelligible continuity which Kant misguidedly sought to establish through his transcendental mode of argument. Certainly it makes more vivid his claim that 'life' is 'a quintessentially natural phenomenon', a claim whose literalness may seem compromised by McDowell's adjacent talk of 'second nature' but which is brought back to

earth with a bump by the image of concepts as making their progress through the digestive tract of experience.

My point is not so much to belabour this inept choice of metaphor but rather to emphasise the persistence in McDowell's work of a mind/body dualism which he tries very hard to get over but which at times breaks surface in a strikingly overt or desublimated form. This goes along with his failure to reconcile the various perplexing antinomies (e.g., that of normative or rational-justificatory *versus* naturalised or causal-explanatory theories of knowledge) that McDowell considers to have skewed the discourse of philosophy from Kant to Davidson and Quine. What he wants to do is put the 'body' back into our conceptual experience of the world so that any such dualismwhether between mind and body or 'concept' and 'intuition'can be seen as just a product of that lingering Cartesian prejudice which prevented Kant from following through on his own best insights. Thus, according to McDowell,

> [i]f we begin with a free-standing notion of an experiential route through objective reality, a temporally extended point of view that might be bodiless so far as the connection between subjectivity and objectivity goes, there seems to be no prospect of building up from there to the notion of a substantial presence in the world. (102)

But there is no more prospect of 'building up' toward this integrated theory of knowledge and thought as aspects of our rationally justified mode of human being-in-the-world if mind and body continue to be treated in so sharply dichotomous a fashion. Once again McDowell might have learned some useful lessons from Husserl, as well as from later work in the phenomenological tradition, including Merleau-Ponty's extensive writings on the way that modes of bodily-perceptual experience enter into even our most 'abstract' forms of representation or reasoning. [54] Kant has no guidance to offer heredespite

McDowell's claims to the contrarysince his thinking is riven by all those persistent dualisms which have proved so vexatious in recent analytic debate. Nor does it help (again *pace* McDowell) to shift attention from Kant's problematical talk of 'intuitions' and 'concepts' to his apparently more promising idea of the intimate relation between 'spontaneity' and 'receptivity' as powers of mind that necessarily conjoin in every act of thought and judgement. For, as we have seen, this generates all the same problems, whether pushed to the extremes of metaphysical speculation (as by Kant's Subjective and Objective Idealist successors) or supplied with a naturalising gloss which seeks to hold those tendencies within analytically respectable bounds.

Of course that tension is very much a part of Kant's original project, concerned as he was to prevent illicit boundary crossings between the realm of understanding (where the rule is that intuitions must be brought under adequate concepts) and the realm of reason (where no such rule can apply since

here it is a matter of regulative ideas which guide the quest for knowledge while themselves transcending the limits of conceptual grasp). Thus Kant spends much of his time in the First *Critique* pointing out the sorts of confusion that inevitably result when philosophers overstep those limits, as for instance by seeking to attain determinate knowledge of matterssuch as noumenal reality, the self, free will, and other 'supersensible' ideaswhose very nature it is to elude or frustrate the most strenuous efforts of empirical-conceptual understanding. [55] Yet it is also Kant's claim, paradoxically, that these confusions are indeed inevitable and cannot be remedied simply by applying better rules for the conduct of disciplined thought. For it is just his pointin the 'Paralogisms of Pure Reason'that we should have no incentive to explore the scope and limits of human knowledge were it not for this innate tendency to raise questions that tempt understanding into regions beyond its power to survey or comprehend. McDowell wants to keep well clear of those regions since they offer just the kind of seductive metaphysical or 'transcendental' temptation which, in his view, led Kant sadly astray and should therefore be avoided by anyone hoping to redeem Kant's project for present-day constructive purposes. Howeveras I have arguedMcDowell's own attempt at a revisionist or naturalised reading is one that reveals all the stresses and strains that Kant so exhaustively diagnosed in those cautionary sections of the First *Critique* devoted to the various antinomies of pure reason. Or rather, it shows how such antinomies arise when philosophy fails to heed the lesson of its constant proneness to forms of paralogistic reasoning.

In McDowell's case they emerge most sharply when he strives to reconcile a naturalistic approach with a theory of knowledge that retains the Kantian commitment to modes of normative, justificatory, and critical-evaluative thought which stand outside the space of

natural (causal-explanatory) description. This is why McDowell is so insistent that '[t]he lack of freedom that is characteristic of merely animal life is not enslavement to the practical as opposed to the theoretical, but enslavement to immediate biological imperatives' (117). For he can then take this claim as justification for the idea that there is another kind of naturalnessthe realm of distinctively human 'second nature'wherein the antinomy can find its solution without any need to follow Kant into dubious regions of thought. Thus McDowell writes, again with reference to Gadamer:

> [e]mancipation into the 'free, distanced orientation' brings intentional bodily action onto the scene no less than theoretical activity. The picture of full-fledged subjectivity that is in play here is not a picture of that dubiously intelligible kind of thing, an observer and thinker that does not act in the world it observes and thinks about. (117)

He then goes on to cite early Marxfrom the 1844 *Paris Manuscripts*on alienated labour and the counterposed need for an active, humanly fulfilling

relationship to nature which transcends the 'merely animal' mode of existence imposed by capitalist forces and relations of production. [56] Here again there is a curious sense that McDowell is rediscovering long-forgotten features of some remote intellectual landscape which have actually been exploredin much greater depth and detailby thinkers belonging to that 'other' (post-Kantian continental) tradition. The passage is worth quoting at length:

> Marx complains memorably of a dehumanization of humanity in wage slavery. The part of human life that should be most expressive of humanity, namely, productive activity, is reduced to the condition of merely animal life, the meeting of merely biological needs. And although it is freedom that gives its distinctively human character to human life, wage slavery restricts freedom to the merely animal aspects of what are thus only incidentally human lives. . . . Marx sums up his vision of what a properly human life would be in a striking image: without alienation, 'the whole of nature' is 'the inorganic body of man'. We can point up the convergence with Gadamer by glossing the image like this: the world is where a human being lives, where she is at home. (118)

It is unsurprising that Gadamer 'does not note the parallel', givenwhat McDowell himself fails to notethe strongly traditionalist cast of his hermeneutic project and its lack of room for any critical-emancipatory dimension such as that kept open by Marx and other 'left' theorists (Habermas among them) in the broadly Marxian line of descent.[57] Nor is the distance between them appreciably closed by McDowell's rather anodyne gloss on Marx as saying merely that 'the world is where a human being lives, where she is at home'. For this comes down to the homely Wittgensteinian doctrine that philosophy should leave things as they are, that what makes sense can do so only by the standards (or 'criteria') of some given communal life form, and hence that we errbegin to talk nonsense by those same communal standardswhen we presume to raise issues or to broach critical

concerns 'external' to the life form in question.[58]

In short, there is no place for Marx's talk of 'dehumanization', 'wage slavery', or a 'properly human life' in a discourse which finds human beings 'at home' with received (traditional or currently prevailing) ways of thought. Here again McDowell seems torn between the claims of a critical outlook with its source in Kant's famous dictum *Sapere aude* ('Have the courage to think for yourself!') and a communitarian doctrine of 'second nature' whose lessonwhether derived from Aristotle, Wittgenstein, or Gadameris to adopt an attitude of wise acquiescence in existing values and beliefs. What that doctrine serves to accomplish is the passage from a realm of 'merely animal' (directly biological) needs and imperatives to a realm where their function is in effect taken over by naturalised language-games or forms of life which can always be relied on to conserve what is vital to the continuance of communal tradition. This is not to sayMcDowell cautions'that a merely

animal life is a constant struggle, whereas a distinctively human life is peculiarly easy' (118). After all, '[i]n Marx as in Gadamer, the point is not that a human life is easy but that it is distinctively free. And that is the same as the fact that it is lived in the world, as opposed to coping with an environment' (118). But this point is itself perhaps made too easilywith too little sense of the problems entailed by any workable definition of terms such as 'freedom', 'world', and 'environment'when glossed in a fashion that takes for granted the naturalhess of talking in just this way about distinctively 'human' attributes and values. One may agree with McDowell that Kant went off in some unfortunate directions when he sought to provide a transcendental grounding for those same attributes and values. However, one may doubt that any naturalising strategy such as McDowell proposes can resolve the dilemmas thrown up by Kant's project while also keeping faithas he wishes to dowith its rational-evaluative or critical-emancipatory promise.

I have argued that this project miscarries for various reasons. Some of them are essentially problems with Kant that resurface in McDowell's argument, while others are problems that Kant himself addressed yet which continue to exert a vexing grip on the discourse of recent analytic philosophy, especially when thinkers such as Quine and Davidson claim to have naturalised them out of existence. Most of all it is McDowell's very patchy dealing with continental philosophy *after* Kantin particular, his failure to engage even briefly with Husserlwhich accounts for his proneness to fall back into modes of thought that have a long prehistory (and have received more intensive critical treatment) in that 'other' tradition. Nevertheless, *Mind and World* is clearly an important book insofar as it signals the growing awareness among at least some Anglophone philosophers that there is much to be gained by abandoning this Manichaean view and exploring various paths

closed off since the heyday of logical empiricism. In chapter 8 I shall turn to another such promising line of enquirythat pursued in Thomas Nagel's most recent workwhich likewise comes at these issues from a standpoint somewhat askew to the analytic mainstream.

8
Not *Quite* the Last Word: Nagel, Wittgenstein, and the Limits of Scepticism

As so often with Thomas Nagel there is more to a title than might be supposed at first glance. *The Last Word* sounds very much like a downright conversation stopperwhich in some ways it does try to bebut the phrase also bears an ironic inflection whose nuances emerge as the argument goes along. [1] In *The View from Nowhere* (1986) Nagel talked down the idea of any such God's-eye viewpoint since, first, it is strictly beyond our reach and, second, the inevitable failure to attain it is likely to drive us into some kind of sceptical, idealist, or cultural-relativist retreat.[2] All we have is an inside (though nonetheless objective) view of the various reasonings, reckonings, evaluative judgements, and so forth, by which we make sense of ourselves and the world. So scepticism is just *beside the point* for anyone who wisely accepts this condition and ceases to strive for some illusory standpoint above or beyond it. We cannot, so to speak, get outside those practices with the aim of finding some external backupsome alternative support systemthat would save us from relying on reasons or principles 'internal' to the various activities involved. However, the sceptic is equally deluded in thinking this to be a knock-down argument against the existence of objective (belief-independent or verification-transcendent) truths. For such truths possess the kind of first-order, undeniable validity that comes of their playing a necessary part in *all* forms of rational argument, the sceptic's arguments included.

Of course the sceptic may respond by opting out altogether, by affecting to find it perfectly credible that 'laws of logic' such as *modus*

tollens might not hold for some people, that '2 + 2 = 5' on some alternative construal of arithmetic, orin more general termsthat 'true' must be defined for all practical purposes as '"true" relative to this or that language-game, belief-system, cultural life-form', or whatever. But in that case they will fall into manifest self-contradiction when they advance this claim with the usual rider that it must hold good for any instance or argument that their opponents may care to think up. For there is just no way that the sceptic can adduce such generalised grounds of (non)belief without in the process appealing to criteria

of logic, evidence, or rational warrantwhich must possess wider (indeed universal) validity if their argument is to have any force.

So Nagel's is arguably an 'outside' view insofar as it rejects those various kinds of internalist (language- or framework-relativist) approach which he sees as leading to a sceptical impasse, or as open to rebuttal on straightforward grounds of logical self-contradiction. At the same timeas he is careful to insistit is a view from inside the first-order normative practises whose constraints cannot be called into question, least of all from a subjectivist or cultural-relativist standpoint, without engendering just such forms of self-disabling paradox. Whether Nagel can indeed have it both ways is the chief issue raised by that earlier book and also (I shall argue) a source of certain deep-laid tensions that resurface in a striking way when he returns to these topics in *The Last Word*. The title is again worth pondering since it manifests the same odd mixture of calculated ambiguity and perhaps unintended or at any rate self-implicating irony. Of course Nagel doesn't *really* want to have 'the last word', as by putting an end to all further debate on the various subjects (chiefly philosophy of logic, mathematics, epistemology, and ethics) that are dealt with in the course of his book. What he does wish to dothough without, one might think, much hope of ultimate successis discourage certain kinds of sceptical or cultural-relativist talk which have lately gained ground as a result of the widespread turn against 'foundationalist' arguments of whatever sort. Nagel sees this as a large-scale failure of intellectual nerve on the part of philosophers who should know better, not to mention their weaker (more fashion-prone) brethren in departments of literature or cultural studies. So the 'last word'as Nagel intends itis one that would diagnose the sundry confusions, non sequiturs, illogicalities, self-induced dilemmas, and so forth, thrown up by the claim to doubt certain truths which are

proof against doubt in virtue of their sheer self-evidence to reason or through their playing a strictly indispensable role in any argument the sceptic may produce.

Getting straight on these issues is therefore not so much a downright conversation stopper as a means of removing the blocks to rational conversation between parties who can thereby hope for agreement on at least some basic principles in the absence of which they would be talking forever at cross-purposes. Nagel's chief point throughout is that 'first-order' criteria such as those of logical consistency, rational warrant, willingness to abide by the rules of empirical evidence, and so on, can never be legitimately trumped or relativised by arguments having to do with individual psychology, subjective belief, cultural-linguistic context, or other such merely 'second-order' considerations. 'The result may sometimes be a stand-off', he concedes, 'but it is not question-begging to regard the first-order credibility of a familiar proposition as a reason to reject a relativist or subjectivist interpretation of it' (87). And again: '[t]here is no pure meta-level on which this argument can be carried out; the second-order theories cannot avoid competition with the content of

what they are trying to reduce or debunk' (96). On this construal the 'view from nowhere' is one that takes a great variety of present-day forms and which cuts across some otherwise large differences of philosophic stance. These range from the naturalised epistemology of thinkers such as Quine, who recommend a purely physicalist account of knowledge acquisition devoid of normarive values, [3] to the framework-internal realism of Hilary Putnam (where what counts as 'internal' to some given frame can only be described from a notional viewpoint somewhere outside the frame),[4] and thence to the far-out 'strong-descriptivist' position of a philosopher like Richard Rorty who argues that interpretation goes 'all the way down' and that truth-talk is endlessly open to revision as the cultural conversation moves on and throws up new 'final vocabularies' or 'metaphors we can live by'.[5] What they all have in commonso Nagel arguesis a failure to grasp the unconditional necessity of employing certain normative standards (such as truth, logic, empirical evidence) even in the process of challenging those standards on the grounds that they must be taken to reflect an existing state of framework-relative or communally sanctioned belief. If there is still some ultimate framework implied hereallowing us to 'frame' the issue in just such nonrelativist termsthen it must be 'a framework of methods and forms of thought that reappear whenever we call any specific propositions into question' (69). That is to say, it is one which necessarily 'will be part of even the most general thoughts about our intellectual and linguistic practices considered as psychological or social phenomena' (69).

Now at this point the relativist will come straight back and call Nagel's rationalist bluff by asking what can justify such a confident appeal to ultimate standards of truth, knowledge, or rationality aside from their happening to occupy a privileged place in his (Nagel's) particular idea of a framework-to-end-all-frameworks. Certainly this

would be Rorty's response although Putnam might couch the objection in somewhat more qualified termsanxious as he is to avoid the imputation of downright cultural relativism"[6]while others (e.g., proponents of a naturalised epistemology) would most likely cast doubt on its strong normative claim despite agreeing that enquiry must be subject to certain kinds of methodical constraint.[7] However, Nagel thinks that *any* such counterargument will always come up against the sheer impossibility of maintaining its position while avoiding the appeal to those strictly universal (hence non-framework-relative) criteria. In short, '[t]here is nothing to appeal to, finally, when one is offering an idea for people's assent, except that they should think about it, and thinking always leads, in the end, to reasoning which at its outermost limits attempts to be universally valid and to discover nonrelative truth' (99). To which the relativist will no doubt respond (1) that, on Nagel's own submission, 'truth' is a matter of gaining assent from other people on the basis (presumably) of certain shared values and beliefs, and (2) that this creates large problems for his claim that such truth is 'universally

valid' and 'nonrelative', even at those 'outermost limits' where the thinker strives to transcend subjective states of mind or particular contexts of culture-relative belief. For of course that attempt can still be viewed as taking place within a certain horizon of communal interests and purposes which themselves decide what shall *count* as a 'true', a 'valid', or indeed a 'nonrelative' (since locally binding) item of knowledge.

Nor will the epistemological naturalist be any more convinced by Nagel's asserting on *a priori* grounds that his or her argument can be pressed to reveal its covert reliance on rational-normative criteria. Thus, according to Nagel, '[a]n external understanding of reason as merely another natural phenomenona biological product, for exampleis impossible', since '[r]eason is whatever we find we must *use* to understand anything, including itself', from which it follows that '[i]f we try to understand [reason] merely as a natural (biological or psychological) phenomenon, the result will be an account incompatible with our use of it and with the understanding of it we have in using it' (143). This may look like a nifty piece of argument to discredit any version of the claim that our practises of reasoning, logical deduction, inference to the best explanation, etc., can themselves be accounted for on naturalistic grounds. To an opponent, however, it will seem a sure sign that the argument is viciously circular since it trades on a question-begging appeal to just those 'universal' criteriaof truth, reason, logical validitywhich the naturalist theory can better explain in terms of their various causal conditions or adaptive-evolutionary role. Nagel counters by asking (once again) what grounds one could possibly have for accepting such a view given that it standsor purports to standaltogether outside the space of normative or justificatory reasons. Thus 'I cannot *trust* a natural process unless I can see why it is reliable, any more than I can trust a

mechanical algorithm unless I can see why it is reliable' (143). For in order to make such judgements we must exercise a power of rational-discriminative thought which cannot be considered merely a product of our having evolved certain cognitive capacities matched to the localised conditions of existence in our own environmental niche.

No doubt there is a problem, Nagel concedes, as to how it has come about that creatures like ourselves can engage in such context-transcendent processes of thought despite 'the radical biological contingency of the human species' or the fact that our being here at all 'is the result of a long sequence of physical accidents' (143). Perhaps the answer lies in some version of the so-called weak anthropic principle, according to which organic life (and hence human intelligence) could not have emerged except under certain narrowly specified physical conditions. [8] In that case we should find it less remarkableindeed, only to be expectedthat the world as we know it is so well matched to our various perceptual and cognitive faculties. (This is, be it noted, a very different proposition from the 'strong' anthropic principle which invokes the teleological idea that the universe and all its laws of nature or physical

constants evolved precisely *to the end* of producing intelligent self-conscious creatures such as ourselves with the power to survey and comprehend them.) Nevertheless, Nagel rejects the idea that any such reductively physicalist 'explanation' could ever stand in for the primary appeal to reasons or principles of valid argument which alone provide the warrant or justifying grounds for accepting some form of naturalised epistemology. After all, as he remarks, 'the recognition of logical arguments as independently valid is a *precondition* of the acceptability of an evolutionary story about the source of that recognition' (136). From which it follows that 'the evolutionary hypothesis is acceptable only if reason does not need its support' and can therefore be held to show only 'why the existence of reason need not be biologically mysterious' (136).

These points are well made and certainly worth pondering by anyone convincedafter Quine, Nozick, and other advocates of the naturalistic viewthat the game is up for more traditional conceptions of knowledge and truth. [9] What Nagel's argument comes down to, simply put, is that 'the normarive cannot be transcended by the descriptive', since no amount of evidence from our evolved ways of coping as situated beings in the physical world can possibly replace the appeal to first-order judgements of logical and epistemic warrant. Thus

> [a]ll such external forms of understanding are themselves examples of thought, and in the end, any understanding we may achieve of the contingency, subjectivity, and arbitrariness of our desires, impressions, and intuitions (whether or not it is accompanied by acceptance) has to depend on thoughts that are not so qualifiedthoughts whose validity is impersonal and whose claim to our assent rests on their content alone. (142)

Moreover, this extends to the domain of ethics where Nagel is likewise squarely opposed to any naturalising account which purports

to 'explain' our various evaluative principles, judgements, and commitments in terms of their fitness as adaptive strategies developed over time by physical creatures with our particular needs, capacities, and interest in securing various kinds of evolutionary advantage. The argument here cannot (he acknowledges) go through in quite so direct a fashion since ethical debate gives room for more reasoned and principled differences of view than is commonly the case with respect to basic epistemological premises. All the same, Nagel takes an objectivist line which also comes out strongly against any idea that our moral or political beliefs can be 'relativised' to some cultural context, communal life form, or background of motivating interests.

Thus it is simply nonsensical to claim that our belief (say) in the principle of equal opportunities, or our commitment to reducing the unequal distribution of wealth and social advantage, is nothing more than a product of our cultural upbringing or the values into which we have been 'socialised' as members of a like-minded community. 'True or false', Nagel writes, 'those

beliefs are essentially objective in intent', and if we should conclude that they are falseperhaps through being convinced by some form of cultural-determinist argumentthen 'that too would be a nonrelative judgment' (104). Nonrelative, that is, in the strict (logical) sense that we could not consistently and rationally maintain such a view except on condition of asserting its validity quite aside from any cultural, material, or other such factors which might have predisposed us to hold it. In Nagel's words,

> [p]resentation of an array of historically and culturally conditioned attitudes, including my own, does not disarm first-order moral judgment but simply gives it something more to work onincluding information about influences on the formation of my convictions that may lead me to change them. But the relevance of such information is itself a matter for moral reasoningabout what are and are not good grounds for moral belief. (104)

Here again Nagel's case is well put and pinpoints what is wrong with a good many recent arguments in the sociobiological, reductively physicalist, and cultural-relativist modes. Where these arguments convergedespite their diversity of bottom-line explanatory groundsis in taking a routinely dismissive line with regard to any talk of justificatory 'reasons' or 'principles' which purport to transcend the particular contexts of physically or culturally determined belief. But by so doing they fall straight into the age-old relativist trap of claiming to demonstrate, as a matter of truth, that 'truth' is just a matter of localised custom, communal usage, or evolutionary self-interest, or againas a matter of reasoned argumentthat 'reason' is always and everywhere a matter of what counts as such according to culturally prevalent norms of rational discourse.

Of course there is nothing very original about Nagel's argument here, going back as it does to Socrates' set-piece rehearsal of the antirelativist case in his dialogue with Protagoras, and deploying just

the kinds of stock counterargument from 'performative contradiction' to be found in philosophers such as Jürgen Habermas and Karl-Otto Apel. [10] Where it does take on a distinctive force is in Nagel's willingness to push much harder on the analogy between various modes of reasoning (in mathematics, logic, epistemology, ethics, and other areas) and his regarding them all as objectively accountableas subject to judgements of truth and falsehoodin the sense outlined above. Thus, in Nagel's words, 'someone who abandons or qualifies his basic methods of moral reasoning on historical or anthropological grounds alone is nearly as irrational as someone who abandons a mathematical belief on other than mathematical grounds' (105). Of course the word 'nearly' might appear to give room for interpreting Nagel as adopting nothing so extreme as a full-blown objectivism with respect to ethical and sociopolitical values. Nevertheless, his

fierce opposition to relativism in any shape or form leaves Nagel strongly committed to just such a view. Nor can he consistently avoid this commitment given the extent to which his argument turns on the absolute priority of reasonwhether in logic, epistemology, or ethicsover any construal of our talk regarding those matters as a product of cultural assumptions, socialised beliefs, adaptive-evolutionary interests, or whatever. Quite simply, the appeal to 'first-order' rationality and truth will always enter as a justifying ground for any argument that claims good warrant for its case, even when the argument in question is one that seeks to relativiseor which rejects out of handthe very idea of context-transcendent rationality and truth.

On this view certain kinds of thought have a force of self-evidence or a rationally compelling power which makes it especially unthinkable, in their case, that we should call them into doubt by reference to other (more fallible) modes of knowledge. Thus, for instance, '[w]hen we juxtapose simple logical or mathematical thoughts with any other thoughts whatever, they remain subject only to their own standards and cannot be made the object of an external, purely psychological evaluation' (58). Some people might experience problems in grasping a basic principle of logic such as that of *modus tollens*, or in following certain arithmetical rules which decide what counts as a correct method of proceeding. However, we should not for that reason suppose that the rule or method in question is one whose validity extends just so far as the company of those who accept and apply it as a matter of shared psychological habit. Nor should we thinkunless perhaps prompted by overexposure to sceptical arguments in the late-Wittgensteinian veinthat in the end such rule-following activities cannot be justified save by appeal to communally sanctioned practices, language-games, or cultural 'forms of life'. [11] Rather, we must take it that anyone who differs on the pointwho fails to see the

logical necessity of *modus tollens* or who asserts that '2 + 3 = 4'has simply not grasped the objective truth of the matter. Moreover, we may even on occasion find ourselves psychologically unable to grasp such truths while also quite awarein an 'abstract' waythat this present incapacity reflects on our private (aberrant or disordered) mind-state and has no bearing on their objective warrant as truths self-evident to reason. Nor can we pull off the yet more curious trick of counting them valid but only 'for us' or only as a matter of our own beliefs, acculturated values, assenting dispositions, and so forth. Thus '[w]e cannot even momentarily "bracket" the ground-level thought that contraposition [i.e., *modus tollens*] is valid and substitute for it the purely psychological observation that we find the falsity of that proposition inconceivable' (59). Such would seem to be the notion of present-day relativistsor neopragmatists like Richard Rortywho avail themselves freely of various conceptual resources and forms of philosophical argument while denying that these can claim anything more than a suasive power among members of their

own cultural community. Thus Nagel remarks that they logically can't have it both ways, since the relativist viewpoint is a delusory 'view from nowhere' whose every formulation betrays its involvement in a self-contradictory paradox.

This in turn goes along with his rejecting any form of transcendental (or 'condition-of-possibility') argument that would lean too far in a Kantian direction and therebyNagel thinksleave room for the sceptic to push straight through to a relativist conclusion or perhaps to some Putnam-type compromise theory of 'internal' (framework-relative) realism. That is to say, if one takes it (with Kant) that any knowledge we can gain is ineluctably subject to our modes of perceptual and cognitive grasp, then one is forced to accept (again like Kant) that such knowledge pertains only to the realm of phenomenal appearances and can never give access to the noumenal reality that lies beyond or behind those appearances. Nor is there much comfort to be had from Kant's transcendental-idealist case that this provides a refutation of sceptism since the knowledge thus obtained is necessarily valid in virtue of conforming to the various *a priori* conditions that enable us to 'bring intuitions under concepts', or which impose an intelligible structure on the manifold of sensory perception. For, whatever his assurances in that regard, it has since become clear that such an argument can easily open the way to all manner of antirealist and relativist doctrines.

This is why Nagel rejects Kant's idea that noumenal reality (the *Ding-an-sich*) lies altogether beyond our epistemic ken, so that only by restricting knowledge to the confines of phenomenal experience can we hope to outface the combined threats of Cartesian, Berkeleian, and Humean sceptical doubt. After all, he remarks, there is surely 'something fishy' about a theory which insists 'that we have the bare idea of our placement in a mind-independent world, while denying the

logical possibility of anything more' (94). This seems to Nagel just another version of the error that subjugates first-order grounds for thinking what we are logically or rationally bound to think to second-order arguments derived from some other (in this case more specialised philosophical) viewpoint which is thenmisguidedlytaken to call those first-order reasons into question. Yet what can be the justification for supposing that any such form of hypercultivated philosophic doubt could possibly impugn the kinds of rational self-evidence that occupy a central place in all our everyday modes of knowledge and experience? To endorse Kant's doctrine is therefore *preposterous* in the precise (etymological) sense of that term, namely, a curious reversal of priorities which somehow leads us to attach more importance to arguments whose status is either strictly derivativesince it draws upon first-order modes of rational justificationor always undermined by the sheer impossibility of consistently maintaining any such position.

Thus there is nothing (doctrinal adherence apart) that obliges us to take

Kant's doctrine on board and respect his decree that the limits of attainable knowledge are those laid down by a strict regard for the distinction between 'phenomenal' appearance and 'noumenal' reality. That is to say, 'if we stubbornly persist in trying to think how things really are, then the Kantian view becomes just another hypothesis, unprotected from rational assessment and rejection' (94). Or again: once admit the 'bare idea' (as Kant prescriptively treats it) of a noumenal reality beyond phenomenal appearances, and it is then hard to see why we should not go further and attempt to close this unfortunate gap by achieving a more adequate knowledge of whatever currently eludes our best powers of everyday-commonsense or scientific grasp. The following passage puts this point with great clarity, so it is worth citing at length.

> We cannot be dislodged from thinking about how things are, without qualification. Kant's admission of the bare idea of the noumenal world is actually an acknowledgement of this fact, we cannot make sense of transcendental idealism without it. But that bare concept is not enough to placate the demand for a conception of the world. To accept transcendental idealism we should have to cease to regard our ordinary forms of thought as being about the world at all, and I think we cannot do that. We cannot be prevented from considering transcendental idealism as a minimalist theory of reality, which therefore forces us to consider whether it is true or not. (94)

In short, there is no second-order philosophical thesislike that proposed by Kantwhich could properly force us to revise or suspend those first-order rational or evidential grounds that form (so to speak) the bedrock conditions of our knowing anything at all. Rather, we should treat any such claim as acceptable only insofar as it survives the test of competition on equal terms with its first-order rival candidates. And by that criterionso Nagel arguestranscendental idealism fails the test since it offers nothing but a 'bare concept' (or a

'minimalist theory of reality') which cannot displace our standing belief that at any rate some of our ordinary knowledge is 'about the world' in a more direct and substantive way than Kant's doctrine allows. Thus once we admit the plain necessity of thinking that there *must* be a world beyond the realm of phenomenal appearances then there seems no reasoncertainly none with *a priori* or transcendental warrantfor stopping short at that point and refusing to fill out the picture in more adequate detail.

So one can see well enough why Nagel should reject any version of the Kantian doctrine, along with its various latter-day derivative forms of internal or framework realism. What is not so clear is how he proposes to square this commitment to direct realismor something very like itwith the broadly Cartesian thrust of his arguments elsewhere, namely, his claim that the ultimate answer to the sceptic is one that goes by way of doubting everything that is conceivably subject to doubt and thus ends up with certain basic truths

which are guaranteed proof against further such sceptical inquisition. Nagel's book starts out with a frank acknowledgement that its project may sound 'Cartesian or even Platonic' and that this is moreover 'no accident', given the widespread present-day resurgence of sceptical-relativist ideas, whether among analytically trained philosophers or 'in the weaker regions of our culture', such as (presumably) literary studies, cultural theory, and the 'strong' programme in sociology of knowledge. Hence the needas he sees itto rebut such forms of hyperbolical doubt by appealing to something very like Plato's doctrine of innate knowledge or Descartes's *via negativa* method for establishing certain indubitable grounds of truth.

Of course there is a sense in which G. E. Moore was begging the sceptic's question when he held up his hands, used each to point to the other, and thereby claimed to have established the existence of an 'external world' whose furniture included at least two material (mind-independent) objects. After all, as Nagel remarks, 'if there are no material objects, then he doesn't have two hands, and he has done nothing to dispute the sceptic's argument either for the possibility that there are no material objects or for the impossibility of any evidence against its truth' (85). So defenders of realism will need to look elsewhere than to a straightforward commonsense-empiricist riposte if they are to have any hope of defeating the sceptic on his or her favoured epistemological ground. Their best option, so Nagel thinks, is a rationalist line of counterargument which pins its flag to the Cartesian mast and which makes no unnecessary (Kantian) bones about the 'conditions of possibility' for knowledge and experience in general, or for 'bringing intuitions under concepts' in such a way as to respect those same imperative conditions. Where Kant and his successors go wrong is in yielding this much ground to the sceptic, that is to say, just enough for the latter to assert the impossibility of

ever breaking the closed circle of argument whereby phenomenal appearances *cannot but* comply with the dictates of conceptual understanding, while those dictates *cannot but* find themselves everywhere confirmed by the modes of phenomenal appearance.

This is why, according to Nagel, we should bypass the whole Kantian machinery and instead make appeal to the force of rational self-evidence possessed by certain first-order 'objective thoughts'. In that case the doubter (i.e., the sceptic, the relativist, or the subjectivist) will be obliged to take up a second-order standpoint, since we are dealing not (as the issue is usually framed) with 'a proposal of mere possibilities' but rather with 'a positive interpretation of our thoughts' (85). For it will then be a matter of rational choice between two directly competing views, the one claiming superior warrant in virtue of its first-order (nonderivative) status, while the other necessarily carries less force since it cannot be advanced or construed except as a 'positive interpretation' of the first which must therefore be open to question or challenge on various additional grounds 'To gain acceptance', Nagel writes,

> any such interpretation must survive in competition with other claims, and that includes the thoughts being interpreted, so long as they have not been displaced. If the subjectivist does not succeed in persuading us to suspend thinking the objective content of those thoughts, he has failedjust as the sceptic has failed if he does not cause us to doubt that we have hands. [Thus] resistance to subjectivism can come from the content of objective thoughts themselves without necessarily begging the question. It is not question-begging, provided we rely on the thoughts themselves, rather than on the second-order claim that they must be interpreted objectively. (85)

In short, we should look to Descartes rather than Kant if we hope to turn back the rampant tide of subjectivist or cultural-relativist fashion that is currently swamping 'the lower reaches of the humanities and social sciences', not to mention certain more respectable quarters of Anglophone philosophic debate. We can do so, moreover, despite the wide range of present-day antifoundationalist objections which are often thought to have destroyed the case for any such downright Cartesian appeal to 'first-order' concepts, principles, or truth-claims. For if Nagel's argument goes through as claimed then there can be no question of its giving way under sceptical pressure or losing its privileged warrant on account of the various second-order arguments (naturalistic, subjectivist, relativist, etc.) that are standardly ranged against it.

Still, there are problems with Nagel's approach which emerge most clearly when he strives to reconcile this context-transcendent conception of reason and truth with a theory of knowledge that takes on board certain antifoundationalist (especially Wittgensteinian) arguments against any such conception. Not that Nagel is by any means a disciple or unqualified admirer of Wittgenstein, least of all with respect to the latter's claim that 'language-games' or communal 'forms of life' are the furthest one can get toward providing

justificatory grounds for our various practises of logical reasoning, mathematical procedure, scientific enquiry, and so forth. [12] Indeed, the chief purpose of his book is to bring out the self-defeating character of all such arguments and the fact that they will always at some point yield to the authority of first-order (strictly nonnegotiable) reasons or truth-claims. Nevertheless, there is a strong Wittgensteinian pull which manifests itself in various ways and whose effect is very often to weaken the force of Nagel's more confident assertions. For despite the many differences of view concerning Wittgenstein's late philosophy it is clear enough that much of his argument is directed against any version of the Cartesian appeal to rational self-evidence or privileged (first-person) epistemic access.

Such, after all, is the intended force of those oft-cited passages where Wittgenstein insists that our sundry activities of reasoning, reckoning, explaining, judging, interpreting, and so forth, simply cannot make sense outside the context of a shared language-game or life form. Exegetes may disagree on the

question as to whetheror exactly how farthis commits him to an anti-realist position or to some kind of cultural-relativist approach. Thus it is often claimedthough on rather shaky grounds, given the degree of textual confusion surrounding the *Nachlass* and its editorial history to datethat various remarks in the volume *On Certainty* are such as to discountenance the (apparently) relativist drift of other, better-known passages in the *Philosophical Investigations*. [13] Still, the main difference between them, so far as one can see, is that Wittgenstein sometimes varied his metaphors to suggest a greater or lesser degree of entrenchment for certain communal practises. Thus, for instance, the procedures of logical reasoning would possess the kind of deep-laid regulative force most aptly compared to a river bed, while other sorts of language-game displayed a strong but on occasion variable current, and others again more closely resembled the ever-shifting pattern of surface flows and eddies.[14] Yet of course this in no way answers the standard objections to cultural relativism, since in effect it says only that certain practises are less culture-relative than others, though all must be seenfrom some ultimate (unspecified) viewpointas relating to features of the communal life form within which they have their being.

Now it is clear that if Nagel wants to recruit Wittgenstein for his side of the argument then he will need to make the case for a different reading which somehow avoids this relativist upshot. Chapter 3 of his book ('Language') is devoted very largely to presenting just such a case, so it is worth considering how this might squareimprobably enoughwith Nagel's Cartesian commitments. The chapter starts out in forthright diagnostic style by deploring the widespread 'devaluation of reason' that has occurred through a 'misconception of the importance of language for philosophy' (37). More precisely, it is the slide from an arguable thesisthat 'the deepest level of analysis of our knowledge,

thought, and understanding must be through the analysis of language'to something altogether more dubious, namely, 'a kind of psychologism about what is most fundamental, which in turn often leads to relativism'(37). This sounds very much like a disapproving gloss on the Wittgenstein-influenced drift away from analytic philosophy in its earlier, more rigorous mode to the notion of 'language-games' and communal 'life forms' as effectively spelling the demise of any such old-style logicist approach. That impression is confirmed when Nagel goes on to declare that '[t]his is a kind of decadence of analytic philosophy, a falling away from its origins in Frege's insistence on the fundamental importance of logic, conceived as the examination of mind-independent concepts and the development of a purer understanding and clearer expression of them' (37). In other words, there is a close connectionas he sees itbetween Frege's objectivist approach to issues in philosophy of logic and the Cartesian quest for 'clear and distinct ideas', taken as possessing the kind of rational self-evidence that stands proof against sceptical attack. So it is not surprising that Nagel should regard Wittgenstein's

later philosophyat least under one widely accepted interpretationas a 'falling away' from those superior standards of reason, objectivity, and truth.

What *is* surprising, given his approach to these matters, is Nagel's nonetheless determined attempt to enlist Wittgensteinian support for his case despite all the problems that are sure to arise in seeking some alternative interpretation consistent with his own rationalist and antirelativist principles. One can best take the measure of those problems by noting just how many of Wittgenstein's central doctrines have to be firmly rejected before Nagel can even make a start with his proposed revisionist account. Thus he argues*contra* Wittgensteinthat 'the particular contingent language that one happens to speak is essentially a tool of thought', functioning 'like physical diagrams in geometry, or numerals in arithmetic' (38). Such aids to thinking may be indispensable in certain contexts but can in no sense be conceived as the very 'material' of thought, or as playing a formative role in our various first-order reasoning processes, conceptual operations, or modes of logical inference. 'Anyone can verify this from his own experience', as Nagel briskly asserts, 'but it is particularly evident in philosophy, where thought is often nonlinguistic and expression comes much later' (38). Nothing could be further from Wittgenstein's insistence on the sheer diversity of language-games in which our thoughts find expression, the various (strictly incommensurable) standards that apply from case to case, and hence the folly of seeking any one (e.g., logical) set of criteria by which to adjudicate between them. Maybe this is true of certain highly localised and culture-specific habits of thought whose meaning or content is given by their role in this or that communal practice. As regards such casesNagel concedesone can readily agree with Wittgenstein and count them dependent on variable modes of linguistic expression. But it is surely

not true 'of the most general forms of reasoning', those that 'do not depend on any particular language', and with respect to which 'any language adequate for rational thought must find a way of expressing them' (38).

For Wittgenstein, famously, there always comes a point in the quest for justifying grounds, reasons, or principles when one's 'spade is turned' and one has no choice but to leave off digging. [15] From this he draws the lessontaken to heart by a great many faithful exegetesthat the sticking point in question is that represented by our various existing communal practices and cultural-linguistic life forms. For Nagel, conversely, it is the point that arrives when the argument strikes bedrock in the form of just those rational and justificatory grounds which cannot be thus relativised away in the quest for Wittgensteinian peace at the end of philosophical enquiry. All that is needed in order to reach this stage is the straightforward distinction'straightforward' at least from Nagel's rationalist standpointbetween the 'content of thought' and the 'meanings of words', or the first-order level of concepts and reasons and the second-order level of linguistic expression. Thus 'the fact that contin-

gencies of use make "and" the English word for conjunction implies absolutely nothing about the status of the truth that p and q implies p' (40). And again: '[t]o the extent that linguistic practices display principles of reasoning or show us, for example, something about the nature of arithmetical propositions, it is not because logic is grammar but because grammar obeys logic' (39). Of course this flies directly in the face of that widespread (Wittgenstein-derived) usage of the term 'grammar' which is taken to subsume logical considerations under the appeal to a generalised sense of *what counts* as a meaningful ('grammatical') form of expression within some particular language-game or form of life. But, again, such arguments can only strike Nagel as involving a preposterous inversion of priorities, one that makes first-order concepts and thoughts dependent on a range of strictly second-order expressive means and resources. After all, '[n]o "language" in which modus ponens was not a valid inference or identity was not transitive could be used to express thought at all' (39). And moreover, one might add, no statement of the linguistico-cultural-relativist case that failed to comply with such basic logical standards could possibly claim any kind of rational or argumentative warrant.

These are not just elementary points that need making for the benefit of those (poststructuralists, cultural theorists, 'strong' sociologists, etc.) whom Nagel presumably counts among his dwellers in the 'lower reaches' of academic life. They also have a bearing on various higher-level debates, among them the issue as to whetheror under what circumstancesthere might be a case for suspending or revising the 'ground-rules' of logical inference. That this possibility cannot be ruled out *a priori*that it might (for instance) be a 'rational' response to certain problems in quantum mechanicsis of course a main plank of Quine's argument in 'Two Dogmas of Empiricism', though elsewhere

he takes a more conservative line pretty much in keeping with Nagel's remarks about the nonnegotiable status of at least certain logical truths. [16] However, there are othersincluding Hilary Putnam and some prominent quantum theoristswho have likewise maintained the revisability of certain logical 'laws' (e.g., bivalence or excluded middle) if this helps to 'keep the physics simple' or enables us to accommodate seeming paradoxes such as those of wave/particle duality or quantum superposition.[17] Now I think that Nagel is right in his general case that the willingness to give up first-order concepts and principles, especially those of logic, is a mark of intellectual confusion. Moreover it is the kind of argument that cannot be carried through without running into various symptomatic dead-ends and unwitting self-contradictions. This applies just as much to Wittgenstein-influenced varieties of cultural relativism as to arguments for the in-principle revisability of logic which rest on the supposed observational evidence of certain quantum phenomena. But there is still the question as to just why Nagel should expend

such efforts on trying to talk Wittgenstein around to something like his own point of view. And I suggest that this in turn has to do with certain problems in making his argument work when it comes to explaining how those 'first-order thoughts' (or self-evident principles of reason) can be made to square with the advancement of knowledge in fields such as mathematics, geometry, or theoretical physics. For if one thing has characterised the progress of those disciplines during the past century and more it has been the turning-away from Cartesian ideas of rational or intuitive self-evidence and the steadily increasing development of theories, methods, proof-procedures, validity-conditions, and so forth, which cannot be referred to any such ultimate grounding principle.

This history of thought is sufficiently well known to require no extensive summary here. It includesamong other salient episodesthe emergence of non-Euclidean geometries, the break with *a priori* (Kantian) conceptions of space and time, the introduction of new (e.g., transfinite) conceptions of set-theoretical reasoning in mathematics, and of course the advent of quantum theory with its still deeply puzzling (though empirically well-attested) features such as nonlocality and wave/particle dualism. [18] Of course Nagel is well aware of all this, as can be seen from a number of brief passages and footnotes where he flags certain topics as in need of further treatment but beyond the scope of his present argument. Nevertheless, one may suspect that they pose a larger problem for that argument than Nagel is altogether willing to admit. Most crucially, they make it hard to maintain his strongly Cartesian commitments while also appealing to mathematics and the physical sciences as paradigm examples of objective or rational thought which should be enough to stop the cultural relativist dead in his or her tracks. For in some cases at leastas with the above-mentioned examplesthese two lines of argument may

turn out to pull in opposite directions. No doubt Nagel avoids certain such risks, as for instance by rejecting Kant's presumption that Euclidean geometry and Newtonian celestial mechanics represented two paradigms of scientific knowledge that must hold good in virtue of conforming to the necessary (*a priori*) conditions of intuitive-conceptual grasp.[19] But it is still hard to see just what he hopes to gain by going back beyond Kant to the Cartesian conception of 'clear and distinct ideas' as an alternative source of epistemic guidance and security. For this leaves Nagel with the same problem of explaining how scientific knowledge has achieved progress precisely by breaking with certain 'self-evident' principles of reason and truth. Indeed, the dilemma can already be seen in Descartes if one compares the *Meditations*the standard source text for most subsequent epistemological debatewith the kinds of deductive reasoning to be found in his other (more scientific or purely methodological) writings.[20] What emerges from this comparison is the tension between any claim to an order of self-evident *a priori* truth and the

standing possibility that such claims may be subject to revision if they come into conflict with the findings of physical science or with other (e.g. mathematical) developments that challenge their erstwhile privileged status.

It seems to me that this goes some way toward explaining why Nagel is so anxious to accommodate his argument to some interpretation of Wittgenstein's radically anti-Cartesian approach. As I have said, he is committed to rejecting any full-fledged version of the case that language is the very condition of possibility for thought, or that what counts within this or that context as an adequate piece of justificatory reasoning must always be referred to localised conventions of communal-linguistic usage. Thus '[w]e cannot account for reason by means of a naturalistic description of the practices of a language, because the respects in which language is a vehicle for reasoning do not admit of naturalistic or psychological or sociological analysis' (38). Clearly Nagel has to affirm this positionand come out against any construal of Wittgenstein in the 'naturalistic' modeif he hopes to make good on his central claim for the absolute priority of objective (first-order) thoughts and reasons. As he puts it in a typical passage: '[l]ooking for the ultimate explanation of logical necessity in the practices, however deeply rooted and automatic, of a linguistic community is an important example of the attempt to explain the more fundamental in terms of the less fundamental' (39). On the other hand, Nagel is willing to concede that Wittgenstein's argument does make sense at a certain level of description or insofar as it allows for that cardinal distinction between language and thought. Thus 'I don't mean to deny that language is a system of conventions, or that correctness in the use of language requires conformity to the usage of the linguistic community' (39). Rather, what Nagel seeks to refute is the lesson that is often drawn by Wittgenstein's exegetes and (as of course these latter

would have it) by Wittgenstein himself; namely, that 'the validity of the thoughts that language enables us to express, or even to have, depends on those conventions and usages' (40).

He therefore needs an interpretation of Wittgenstein that reconciles this basic fact about languageits reliance on shared or communal signifying practiseswith the claim that there nonetheless exist certain standards of objective truth and falsehood which apply to some kinds of reasoning (e.g., those of logic or mathematics) and which hold necessarily for anyone who has grasped the operative concepts in that particular domain. The *locus classicus* here is of course the 'rule-following' argument which Wittgenstein offers by way of indication that the criteria of correctness for any such practise cannot be a matter of consulting one's own intuitions, concepts, mental procedures, or whatever, and checking that one has followed the appropriate rule in any given case. [21] For this would seem to involve an infinite (and vicious) regress whereby every such rule requires a further rule for its own correct application, and so on. From which pointor so it is commonly supposed

Wittgenstein goes on to conclude that those standards of correctness can only be a matter of communal warrant, albeit (in certain cases) warrant that goes so deep in our culture that they strike us as 'objectively' or *a priori* valid, and hence as in no way subject to the vagaries of 'mere' communal assent. Here again the commentators tend to divide along familiar lines, some urging strongly that we push right through with the cultural-relativist argument (thus extending it to logic, mathematics, and the physical sciences), while others balk at this extreme conclusion and seek out passages where Wittgenstein can be read as endorsing some form of qualified realism with respect to these domains. [22]

Among the latter is Cora Diamond, whom Nagel cites as coming closest to a reading that persuasively rescues Wittgenstein from the clutches of his orthodox interpreters.[23] One can see why Nagel likes her approach since in many respects it endorses his own understanding of the way that philosophers fall into erroror find themselves driven to embrace sceptical or relativist doctrinesthrough their striving to attain a 'view from nowhere', a standpoint that would somehow (impossibly) allow them to adjudicate these issues from outside or above. In Diamond's words, it is as if we were 'looking down onto the relations between ourselves and some reality, some kind of fact or real possibility'.[24] And when problems ariseas, for instance, with explaining what kind of 'correspondence' could conceivably exist between our thoughts and the facts that they are supposed to representthen the way is open to all manner of unfortunate bewitchment by language. Thus (Diamond again): '[o]ur own linguistic constructions, cut free from constraints of their ordinary functioning, take us in; the characteristic form of the illusion is precisely of philosophy as an area of enquiry, in the sense in which we are familiar with it'.[25] So the best (indeed the only) cure for this

affliction is to heed Wittgenstein's oft-repeated lesson and give up the idea of ever achieving that delusory God's-eye view.

Now to anyone who finds Wittgenstein less than persuasive in these mattersor who persists in thinking of philosophy as 'an area of enquiry' where there are genuine problems that need to be constructively addressedthis therapeutic advice will sound very much like a straightforward evasion of the issue. Nagel himself appears torn between agreement with Diamond's way of putting it and a sense that she has made out a stronger case than anything warranted by the relevant passages in her source text. If such is indeed Wittgenstein's intention, Nagel writes, then 'his method of looking at the details of linguistic practice doesn't seem to me to have the desired effect. . . . [I] am left with the feeling that there must be much more to itsome recognition that these practices reach far beyond themselves' (51). This is the nub of his argument *contra* the relativists and also the point at which his attempt to read Wittgenstein charitably or against the grain comes under maximum pressure from the weight of textual counterevidence. Nor is there much help to be had

from Diamond's ever-so-slight adjustment of emphasis so as to bring Wittgenstein out in support of a notionally 'realist' approach. After all, her diagnosis of the source of philosophical illusion is one that follows Wittgenstein right down to those typically 'therapeutic' turns of phrase whose intended effect is to dissuade us from pursuing such misconceived projects of enquiry. But it is precisely the realist's (and Nagel's) point in response that enquiry can indeed go furtheror deepersince objective thoughts are in no way contingent upon this or that communally sanctioned linguistic practice. Thus Wittgenstein's (and Diamond's) recommendation that we restrict ourselves to simply observing or describing those practices 'as a way to cure the transcendent philosophical impulse' will scarcely be sufficient to talk them down from those supposed delusory heights. Least of allone would thinkcould it carry conviction for a thinker like Nagel whose entire argument is premised on the claim that such 'practices' as mathematics and logical reasoning can 'reach far beyond themselves' into realms of objective thought where the appeal to custom or communal usage is utterly beside the point.

All the same, there is something oddeven self-contradictoryabout Nagel's way of arguing his case. The oddity comes out when he suggests, as if in opposition to Wittgenstein, that 'the infinite reach of mathematical language can be understood only from inside it, by engaging in that form of life', since 'we cannot understand even the form of life by describing its practices from outside' (52). Of course this fits in with Nagel's ruling idea that such a view from outside is both impossible to achieve and, for that very reason, a major source of reactive sceptical and relativist thinking. But in that case one has to ask where the difference lies between his own and Wittgenstein's viewpoint, given that he (Nagel) talks here of mathematical understanding as possible only for those who 'engag[e] in that form of

life', and whose grasp of the operative rules and concepts must thereforeit seemshave to do with their belonging to some such community as that made up of duly qualified (rule-conversant) present-day mathematicians. And it is then hard to see how their reasoning could satisfy Nagel's objectivist requirement that such practises should transcend or 'reach far beyond' anything envisaged on the standard Wittgensteinian custom-based account. This problem surfaces at various points in his book, most often in a slightly out-of-focus way that avoids any head-on conflict between the objectivist and communitarian views. Thus, for instance: 'how is detailed attention to our forms of life supposed to enable us to escape from the conviction that there is something to be explained here (even if we cannot explain it) about how our forms of life enable us to talk about all those things that are not part of our form of life?' (52). No doubt there is a deep philosophical issue here and one that has exercised many recent thinkers, from those (such as Michael Dummett) [26] who reject the very notion of objective or 'verification-transcendent' truths to thoselike Nagelwho

uphold a realist position with regard to the necessary existence of just such truths. But it is not the kind of issue that can be resolvedor brushed asidesimply by invoking Wittgenstein's therapeutic counsel or suggesting that philosophers adopt the wiser course and give up discussing such matters.

It seems to me that, if therapy is needed, then it might more usefully take the form of coaxing philosophers away from the idea that any case they want to present (even, as with Nagel, a strong realist case) must always include the obligatory reference to Wittgenstein or show itself willing to acknowledge the force of certain well-known Wittgensteinian objections. What is particularly striking about Nagel's book is the fact that his argument is drawn so far off-courseand led into so many otherwise avoidable problemsby this strange compulsion to meet the challenge on ground of Wittgenstein's own choosing, ground that has very often been trodden into ruts by the company of like-minded exegetes. For, on the face of it, Nagel has plenty of arguments which go clean against the current Wittgensteinian orthodoxy and which don't require any such self-disabling concessions to a viewpoint that is sharply opposed to his own on all the relevant grounds of dispute. Most crucial here is Nagel's objectivist claim that, '[i]f there is such a thing as reason, it is a local activity of finite creatures that somehow enables them to make contact with universal truths, often of infinite range' (70). Of course this runs up against the standard (Wittgensteinian or Dummett-type antirealist) objection, namely, that it can make no sense to postulate truths beyond our epistemic or conceptual reach, or to assert the existence of objective truth-values in the case of statements for which as yet we possess no adequate proof-procedure. [27] Thus, as Nagel remarks, '[t]here is always a temptation to think that this is impossible, and that an interpretation of reason must be found that reduces it to something

more local and finite' (70). However, that temptation can always be resisted by reflecting on casessuch as those of logic or mathematicswhere our first-order reasoning manifests a power to reach beyond any limits imposed by our current best methods of proof or computability. Thus '[part of the idea of [such] reasoning is that the truths we could ever come to know in this way are only a small sample of the infinity of such truths' (70). From which it follows that any Wittgensteinian (naturalistic or purely descriptivist) account of our reasoning capacities is one that mistakes its own limitations for the limits of thought and reason in general.

Nagel's chief example here is the set-theoretical concept of infinity as applied to the sequence of natural numbers where '[t]he local, finite practice of counting contains within itself the implication that the series is not completable by us . . . [and] has, so to speak, a built-in immunity to attempts at reduction' (71). At this point an antirealist like Dummett could respond that, in such cases, we do have an adequate proof-procedure even if*ex hypothesi*we cannot run that procedure for every step in an infinite series.

Simply put, the proof asserts that there is no largest number *n* since we can always apply the operation '*n* + 1' and thus refute any such claim. Nagel offers a formal statement which makes the point more precisely. Thus:

> we know that (x)(y)($z)(x + y = z), but this is a judgement of reason about an infinite domain that at the same time our procedures of reasoning cannot fill out in detailthough it is a further fact of reason that if iterated often enough, those procedures could reach any true proposition of the form 'a + b = c'. . . . Even where there is no decision procedure, or we don't have one, we may nevertheless be constrained to think that there is a right answer, and methods of trying to get it which are not guaranteed to succeed. (70)

However, Dummett would argue that the verificationist argument holds in cases like that of Goldbach's Conjecture that every even number greater than 2 is the sum of two primes. This conjecture has been tested to the limits of currently available computing power and has turned out true thus far, as well as possessing a strong (indeed well-nigh irresistible) power of intuitive self-evidence. Howeveraccording to Dummettit necessarily lacks any determinate (bivalent) truth- or falsehood-value so long as we are unable to state the conditions of 'warranted assertibility' under which it would count as a well-proven statement of arithmetical fact. In other words, there is no truth of the matter aside from our present-best powers of ascertainment or the methods, procedures, computing resources, and so forth, which are currently at our disposal. To suppose otherwise is to fall into the kind of objectivist (or Platonist) error which imagines the truth-value of such statements to exist in a realm of purely rational self-evidence which somehow transcends the furthest capacities of existing arithmetical knowledge.

Nagel's pointin briefis that this argument fails because we have no

choice but to ignore it when actually engaged in first-order processes of arithmetical reasoning. That is to say, we can bring ourselves to doubt that strictly unproven statements (such as Goldbach's Conjecture) have any determinate truth-value beyond our present computational powers, but only as a second-order sceptical thesis which cannot even be stated except in the mode of a derivative philosophical argument. Moreover, such arguments will always come up against the necessity of employing first-order (intramathematical) reasons and concepts since these provide their only possible means of support. Nagel makes this point with particular force in connection with Gödel's Incompleteness Theorem, a proof which he calls 'the best antireductionist argument of all time', and which other thinkersamong them Roger Penrose and Gödel himselfhave taken as strongly endorsing a Platonist (i.e., realist) conception of mathematical truth. [28] As Nagel states it:

> [m]athematical truth cannot be reduced to provability in an axiom system, because, first, the fact that a sentence is or is not provable in a given axiom system is

> itself a mathematical truth (so the reducing discourse itself presupposes a prior idea of mathematical truth), and second, in such a system, it is possible to construct sentences which assert the mathematical proposition that they are not provable in it. (74)

What Gödel's Theorem demonstrates to striking effect is the capacity of reason to establish truths that by very definition outrun any possible finite procedure for checking their validity in every instance. Thus it cannot be the case*contra* Dummettthat the truth-value of our statements in this domain is tied to their verification-conditions so that, lacking a determinate proof-procedure, we are simply not entitled to count them either true or false. Rather, as Pen rose has argued, it is precisely at the limits of computability (or at the point where those finite procedures run out) that we find ourselves compelled to acknowledge the existence of truthssuch as that of Gödel's Theoremwhose objective status is entirely independent of current-best or maybe best-possible methods for checking them out.

This seems to me both a powerful argument and one that provides a decisive refutation of Dummett-style antirealism. Also it is central to Nagel's case against the naturalistic trend in recent philosophy, a trend which he seesjustifiably enoughas opening the way to all manner of reductive and sceptical-relativist conclusions. Yet that case is somewhat weakened, as I have said, by his quasi-Wittgensteinian way of making the point that our first-order thoughts, concepts, and reasons are 'internal' to the various practises concerned and therefore cannot be called into doubt by adopting a second-order standpointan externalist 'view from nowhere'which lacks such intrinsic self-validating warrant. For this is just the kind of argument that is often picked up from Wittgenstein by cultural relativists who hold that all language-games or life forms have their own set of strictly internal criteria, and hence that we can never be justified when we presume to

take issue with other people's beliefs, whether on scientific, historical, ethical, religious, or other grounds. [29] By so doing, quite simply, we place ourselves outside the belief-community concerned and can thus make no claim to understand them or to grasp the reasons why they speak, think, or behave as they do. At the limitwhen applied by some writers in the fields of comparative anthropology and sociology of religionthis amounts to a full-scale relativist argument for the parity of all (communally sanctioned) beliefs and the error of thinking that any such belief might be false, misguided, irrational, or morally wrong as judged from our own (presumptively more rational or enlightened) viewpoint. Of course the main purpose of Nagel's book is to oppose that whole way of thinking and show how it falls prey to various kinds of logical inconsistency or self-refuting paradox. But there is still a real problem when he claims to derive this lesson from the fact that first-order principles of rea-

son are 'internal' toand hence constitutive ofthe various practices that standardly count as paradigms of rational argument. For in that case the relativist can always reply 'Just so!' and follow up by observing that what counts *for us* as a first-order reason or justification may not have anything like that force for members of another belief-community or those whose criteria of 'rational' thought differ from our own in some crucial respect.

The following passage is one of many where Nagel's way of putting the case is susceptible of two very different construals, one of them in line with his express argumentative purpose, while the other tends to subvert that purpose by implying an internalist (culture-relative) perspective on issues of reason and truth. Again it has to do with the set-theoretical concept of infinity and the fact that this concept is no less objective for exceeding the bounds of any completable operationany 'finite activity of counting'that we could ever perform. In Nagel's words:

> [t]he reason this is a model for the irreducibility of reason in general is that it illustrates the way in which the application of certain concepts from inside overpowers the attempt to grasp that application from outside and to describe it as a finite and local practice. It may look small and 'natural' from outside, but once one gets inside it, it opens out to burst the boundaries of that external naturalistic view. It is like stepping into what looks like a small windowless hut and finding oneself suddenly in the middle of a vast landscape stretching endlessly out to the horizon. (712)

This is a remarkable passage in various ways, not least for its eloquent (almost lyrical) sense of the vistas thus opened up and its equally strong (almost contemptuous) sense of the restrictions placed upon human reason by a naturalistic or 'externalist' conception of its operative powers and limits. However, one then has to ask how this contrast fares when taken together with Nagel's idea that those infinite

vistas can only be viewed from a standpoint 'internal' to the particular practice of reasoning (logical, mathematical, scientific, ethical, or whatever) from which its 'objective' criteria somehow derive 'From inside', Nagel writes, 'the incompleteness of any finite sequence of natural numbers is an evident logical consequence of the concept of number. That internal view has to be in some way made part of any adequate external view' (73). But the word 'internal' is here (as elsewhere) bearing a considerable strain which shows the extent to which Nagel's argument is tugged in opposite directions. On the one hand, its sense might be paraphrased 'intrinsic to this domain of thought and hence absolutely and objectively prior to any "external" grounds of counterargument that the sceptic or the naturalising relativist might care to bring up'. Such is clearly its intended force in the above-cited passage and in most contexts where Nagel uses the term. Yet what is one then to make of those other, more Wittgensteinian passages where he seems to

admit at least the possibility that such reasons might be 'internal' in the sense of 'internal to this or that particular practice which always decides in advance what shall count as a valid argument, proof-procedure, logical inference, arithmetical operation, etc.'? For it is not at all clear how Nagel can keep the second of these senses at bay, given his rejection of any 'externalist' view that would claim to achieve some degree of critical detachment from our first-order (as the relativist would have it, our most thoroughly naturalised) rules and practices.

All the same Nagel thinks that there is a real difference herea difference that makes all the differenceand, moreover, that it cannot be elided by any straightforward appeal to the way we standardly (unselfconsciously) carry on our various communal practices. Indeed, he can't quite bring himself to believe that this reading does justice to Wittgenstein's intentions, despite the large amount of textual evidence to just that effect. Thus Nagel cites a well-known passage from the *Philosophical Investigations*, section 217, where Wittgenstein asks himself (or his imaginary interlocutor) 'How am I able to obey a rule?' and goes on to remark 'if this is not a question about causes, then it is about the justification for following the rule in the way that I do'. Yet then of course the further question arises as to what happens when the justifications run out or when 'I have reached bedrock and my spade is turned'. At this stage, Wittgenstein concludes, 'I am inclined to say "This is simply what I do"'. And again (section 219): 'When I obey a rule, I do not choose. I follow the rule *blindly*'. Nagel has a footnote here which cites a typically emollient remark by Stanley Cavell to the effect that, after all, these are things which Wittgenstein feels himself sometimes 'inclined to say', rather than things that he is actually asserting or propositions advanced with a view to gaining the reader's intellectual assent. [30] Of course it is often hard to make such

judgements with any degree of assurance, given the extent to which Wittgenstein relies on a mode of dialogical discourse (whether marked or unmarked) in order to lead us through and beyond the various 'bewitchments by language' that prevent us from achieving that state of peace which is (or which should be) philosophy's chief concern. However, Cavell's suggestion will appear less persuasive if one considers the many other places in his late writing where Wittgenstein does very plainly assertwith regard to our various communal practices of arithmetic, logical inference, or evidential reasoningthat 'this is simply what we do' or 'this language-game is played'.

Nagel's commentary is instructive here partly for the light it sheds on his own problems with Wittgenstein and partly for reflecting a wider pattern of ambivalent response among philosophers convinced that there must be *something more*some deeper or subtler implicationbehind what otherwise sounds like a formula for well-drilled but mindless conformity to the rules laid down by communal practice. Thus Nagel:

> the slogans 'This is simply what I do' and 'I follow the rule blindly' suggest a faulty picture, which I think cannot be in accord with Wittgenstein's intentions. They suggest that the final and correct interpretation of what I am doing when I add, for example, is that I am simply producing responses which are natural to me, which I cannot help giving in the circumstances (including the circumstances of my having been taught in a certain way). But to think this would be to get outside of my arithmetical thoughts in a way that would be inconsistent with them. My final judgement must be simply the arithmetical one, not the thought 'This is simply what I do'. (489)

What is so striking about this passagethough also to be found (differently expressed) in Cavell's, Kripke's, and a good many other responsesis the way that it combines strong disagreement on reasoned and principled grounds with a somewhat baffled refusal to believe that Wittgenstein could possibly have *meant* to say anything so downright naive or wrongheaded. Thus Nagel declares it undoubtedly a 'faulty picture' but one which he thinks, for that very reason, 'cannot be in accord with Wittgenstein's intentions'. On the other hand, his (Nagel's) commitment to an internalist or practice-specific view of first-order reasons and principles obliges him to phrase his objection to Wittgenstein in terms that come perilously close to endorsing the gist of Wittgenstein's argument. The only difference between themso it seemsis one that turns on the nuance of phrasing that separates a 'final judgement' which is 'simply the arithmetical one' from a thought that 'This [i.e., the arithmetical judgement] is simply what I do'. According to Nagel the former is an instance of first-order reasoning and hence impervious to second-order (sceptical or naturalistic) doubt, while the latter is ruled out as a genuine option by its simply not possessing the kind of rational self-evidence that pertains to such first-order truths. Thus '[t]he rule-following practices of our linguistic community can be understood only through the substantive content of our thoughtsfor

example, the arithmetical ones. Otherwise they are impotent rituals. We cannot make sense of them by viewing them as items of natural history' (53).

It seems to me that the last two sentences here represent what Nagel really wants to say while the first risks serious misunderstanding by apparently making that 'substantive content' in some way dependent onrather than a condition of possibility forthe 'practices of our linguistic community'. That this is in fact a misreading of Nagel's argument comes out clearly enough if one attends more carefully to the logic and the grammar of the sentence. But then, if one looks back just a few lines, one finds him saying that the 'infinite reach' of mathematical language 'can be understood only from inside it, by engaging in that form of life' (52). From which it would seem to followin accordance with a 'straight' Wittgensteinian viewthat the furthest we can get toward rational justification is the appeal to some communal standard of what counts *for us* as sufficient reason or adequate justificatory grounds. Nagel

typically goes on to remark that 'we cannot understand even the form of life by describing its practices from outside', and hence that 'the order of explanation is the reverse of that in the common (mis)interpretation of Wittgenstein' (523). But in fact this is not so much a misinterpretation as a straightforward construal of the relevant passages in Wittgenstein, passages that cannot be given a realist (or a nonrelativist) gloss except by a very determined effort to read them against the grain. What motivates Nagel to attempt such a reading is his conviction that Wittgenstein *must*despite these appearances to the contraryintend a strictly objectivist account of the criteria that apply when one is reasoning 'inside' some particular practice. Yet there is no way around the awkward fact that, for Wittgenstein, communal norms just *are* the bottom-line source of justification in all such matters, even if the bottom is a long way down and hence as 'objective' as makes no difference in practical terms for members of the community concerned.

I think that Nagel is right to reject this idea and to argue that we can, in fact, think and talk about a great many things that are not part of our customary 'form of life', or which at any rate cannot be understood by the appeal to some in-place (communally sanctioned) way of proceeding. Where he goes wrong, it seems to me, is in pressing too far along the Wittgensteinian path that leads from a justified dismissal of subjectivist or private-realm talk about mental 'pictures' or 'contents' to a more extreme position which equates the objectivity of certain thoughts with their detachment from precisely those processes of reasoning that enable us to grasp or comprehend such thoughts in the first place. On this construal the internalist view is one that debars all reference to 'private' goings-on in the thinker's mind in order to identify the criteria for proper usage, valid inference, correct arithmetical reckoning, and so forth, with first-order standards of

objectivity that are strictly 'internal' to the practice concerned. It thus stands in marked contrast to that other sense of the word 'internal' that would involve examining the various rational, reflective, and critical procedures by which we achieve a distance from our naturalised ('commonsense') habits of thought and are sometimes able to accomplish the passage to a more objective understanding. In a sense this is just what Nagel sets out to describe with his talk of the 'infinite vistas' that open up when we prescind from a merely first-person or subjectivist viewpoint. But his whole way of framing the issueheavily influenced by Wittgensteinis such as to imply (against his own intent) that those vistas must be thought of as somehow 'internal' to a given language-game or cultural life form. At this point the issue of justification becomes just a matter of 'carrying on' in accordance with rules that can claim no further epistemic or rational warrant. And it is then a short step to those quasi-behaviorist formulations of the rule-following argument which Nagel thinks grossly inadequate but which nonetheless exert a considerable hold on his own treatment of the issue.

At times, I should add, Nagel is well aware of this liability and indeed makes it central to his case against 'reductionist' or naturalistic readings of Wittgenstein. Thus:

> to say that nothing that happens when I hear the instruction 'Add two' determines the correct way to carry it out for any arbitrary integer depends on restricting one's conception of 'what happens' to what can be described in abstraction from its intentional content, and then asking for a retrieval of the intentional content from this denuded materialwhich is of course impossible. (42)

One could scarcely wish for a better brief statement of the fallacy involved in rejecting all forms of intentionalist description since they are thought to entail an illicit recourse to 'private', 'subjective', 'mentalist', or 'psychologistic' criteria. On the standard (i.e., Wittgensteinian) account this inevitably leads to a vicious regress since it fails to grasp the simple point that our various mathematical techniques, methods, or procedures can make sense only when referred to the norms of a shared cultural practice. As I say, Nagel makes a strong point of arguing*vide* the above-cited passagethat this is a false dilemma and one that can all too readily encourage the view of such practices as involving nothing more than a repertoire of mechanical, rotelike operations devoid of any conscious or purposive 'accompaniment'. No doubt it is a mistake, he writes, 'to pose the question by stepping back from the thought "Add two" itself, looking at the words or accompanying mental images apart from their content, and then asking what their content consists in' (42). But it is equally a mistakeone made by many Wittgensteiniansto suppose that the absurdity of this picture is such as to rule out any idea that our sayings, reasonings, rule-followings, etc., must have some content beyond what is manifest in this or that socialised or publicly observable practice. Thus, according to Nagel, 'the faulty

assumption . . . is that to think or speak is simply to do something, in the right circumstances and against the right background, which can be described without specifying its intentional content' (43). For this amounts to the surely absurd claim that *thinking and reasoning*let alone meaningful speechcan somehow go on in the absence of anything that would serve to distinguish genuine activities of the kind from mindless rehearsals of a fixed rule-following procedure or the parrotlike ability to imitate sounds without any grasp of what they mean.

These points are well taken and show Nagel to be not (or not entirely) in the grip of that fallacious Wittgensteinian dilemma that sees no possible room for manoeuvre between the myth of a 'private realm' and the appeal to language-games or forms of life as the sole alternative option. Yet elsewhere in his book the issue is posed in terms that come perilously close to accepting just such a sharply dichotomous view of the philosophic choices on offer. What I think leads Nagel to rescind from his own best insights in this way is a residual sense that any concession to 'Cartesian' ideas of privileged first-

person epistemic access will always run into the standard range of Wittgensteinian counterarguments. That is say, he still takes something like the orthodox 'analytic' viewhanded down by philosophers like Frege, Russell, and Quinethat talk of 'consciousness' and its various correlates (ideas, meanings, intentional states, propositional attitudes, and so forth) can only end up by embracing some form of subjectivism or psychologism. And this despite Nagel's numerous statements to the effect that we cannot make sense of what it means to think, reason, or even 'follow a rule' except with reference to the *intentional* aspects of all such activities or practices. Thus it seems almost perversea kind of self-denying ordinancethat Nagel should have taken no account of Husserl and his lifelong endeavour to explicate the forms of 'transcendental' (as distinct from empirical or psychological) intentionality that constitute the very conditions of possibility for our various modes of experience, knowledge, and judgement. [31] For it is here that one finds the most developed and sophisticated arguments for a conception of objectivity in thoughtin logic, mathematics, and other disciplinesthat yet finds room for those constitutive *processes of thinking* (both in the minds of pivotal thinkers like the Euclidean 'original geometer' and over their history of subsequent 'reactivations') without which there could be no genuine understanding of the truths thus brought to light.[32]

The 'analytic' mistrust of such arguments goes back to Frege's well-known rejection of Husserlian transcendental logic as just a species of disguised psychologism, and alsonearer hometo Gilbert Ryle's comments in similar sceptical vein, despite his earlier interest in Husserl's project.[33] All the same, there are now signs that this prejudice is losing its grip, as for instance in the case of Michael Dummett (who has started to explore the complex relationship between Fregean and Husserlian philosophy of logic) and otherslike

John McDowellwho have come around to a far less dismissive view of post-Kantian 'continental' philosophy.[34] My point is that Nagel deprives himself of some potentially valuable resources by sticking so closely to the mainstream 'analytic' agenda (whence his many pages of distracting address to those obligatory problems from Wittgenstein), and thereby excluding any consideration of thinkerssuch as Husserlwhose work offers more promising lines of enquiry. Why else would Nagel spend so longand with so minimal a yieldin discussing Saul Kripke's 'revisionist' account of Wittgenstein on private languages and the rule-following argument, an account which really just restates the same pseudoproblem in slightly more perspicuous (but still Wittgensteinian) terms?[35] Thus Kripke's 'sceptical solution' to the sceptic's challengehis case that we simply must repose on communal warrant since '[t]here can be no fact about what I mean by "plus" or any other word at any time'is certain to strike Nagel as a mere evasion of the central issue. Perhaps, he writes, this argument establishes 'only the negative result that no analysis of the intentional in terms of the nonintentional can succeedin-

deed, that no analysis of thought should be attempted' (43). However, this is surely a counsel of despair, and one to which Nagel seems to be driven by his setting up the issue in Wittgensteinian terms despite and against his own clear conviction that those terms are thoroughly inadequate.

Thus Nagel's objectivism is a 'view from inside' our various practices of reasoning and judgement which in principle rejects any 'externalist' approach that would question such first-order (self-validating) grounds. However, this argument gets mixed up with the Wittgenstein-derived thesis that such an 'inside' view can have nothing to do with thoughts in the mind of this or that thinker, or with anything like the Cartesian appeal to 'clear and distinct ideas'. Rather, it is the viewpoint that we always inhabit from within some inherited cultural tradition or some way of 'going on' that is duly endorsed by our own community of like-minded speakers and thinkers. Yet of course Nagel cannot accept Wittgenstein's (or indeed Kripke's) 'solution' since it leaves no room for objectivity in thought save with reference to certain customary rules and procedures, which is no 'objectivity' at all. Thus he sees no hope of escaping this circle except through the repeated insistence that objective or 'first-order' thoughts *just are* those thoughts that by their very nature defeat the best efforts of sceptical doubt or of derivative (i.e., second-order) arguments in the relativist or naturalistic mode. But in that case, again, it hard to see how Nagel can answer the obvious objection that he has merely laid downas a matter of rational self-evidencewhat happens to count as truly ('objectively') the case for certain thinkers within a certain community at some given point in time. And this problem is all the more vexing for Nagel since he comes out so strongly against any form of the Kantian transcendental-idealist argument that knowledge and experience are subject toor constituted bythe *a priori* forms and

modalities of human understanding. After all, as he pointedly remarks, 'the detailed system of chemical laws summarised in the periodic table of the elements is not plausibly regarded as a result of the demands made on human experience by the conditions of the possibility of its having as objects things existing in time, either successively or simultaneously' (96). But then the question arises, what is to guarantee that the objective truths which Nagel speaks of will prove any more resistant to challenge than those (e.g., of Euclidean geometry or Newtonian celestial mechanics) which Kant took as paradigm instances of scientific reasoning? And this applies in principle even to later developments in philosophy of logic, whatever one's particular stance on the issue of classical *versus* nonclassical (many-valued or deviant) logics.

Henceit seems to methe strange mixture of confident assertion and slight misgiving which typifies some of the most eloquent passages in Nagel's book. Thus, '[h]ow is it possible', he asks, 'that creatures like ourselves, supplied with the contingent capacities of a biological species whose very existence appears to be radically accidental, should have access to universally valid methods of objective thought?' (4). This clearly has the force of a rhetorical

question insofar as it assumes that we *can and do* achieve such knowledge, despite the kinds of sceptical doubt that overcome us when we think to adopt an externalist or naturalistic 'view from nowhere'. Yet it is equally clear that nothing in Nagel's argument could offer an adequate reply to the sceptic who elects to press on with the naturalist case and deny that we can ever have grounds for making that confident rationalist claim. Only through sustained engagement with these issues from a jointly analytic and phenomenological standpointan engagement of the kind undertaken by Husserl in his writings on the genesis and structure of scientific knowledgecould one hope to provide such an answer. [36] Thus the final irony of Nagel's provocative title is that his book is not so much the 'last word' on these issues, as he can hardly have wished or hoped, but perhaps the last word that can be spoken from a viewpoint within the dominant perspective of late-twentieth-century analytic philosophy.

Notes

Introduction

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1
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23. Derrida, 'Genesis and Structure', 1578.

24. See n. 12, above.

25. See especially Husserl, *The Crisis of European Sciences*.

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41. Quine, *From a Logical Point of View;* also *Philosophy of Logic* (Englewood Cliffs, N.J.: Prentice-Hall, 1970) and *The Roots of Reference* (La Salle, Ill.: Open Court, 1974).

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44. Searle, 'Reiterating the Differences'.

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15. See n. 12, above.

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33. B. d'Espagnat, 'Nonseparability and the Tentative Description of Reality', in Schommers (ed.), *Quantum Theory and Pictures of Reality,* 89168 (102).

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42. See for instance Gilbert Harman, 'Inference to the Best Explanation', *Philosophical Review*, 74 (1965): 8895, and Peter Lipton, *Inference to the Best Explanation* (London: Routledge, 1993).

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62. Derrida, 'From Restricted to General Economy'.

63. Ibid., 260.

64. Ibid., 275.

65. Jacques Derrida, *Dissemination*, trans. Barbara Johnson (London: Athlone Press, 1981), 219.

66. See n. 49, above.

67. Plomitsky, *In the Shadow of Hegel*, 40.

68. Ibid.

69. See Derrida, 'Signature Event Context', 'Limited Inc a b c', and 'Afterword: toward an ethic of discussion', in *Limited Inc*, 124, 29110, 11160; also John R. Searle, 'Reiterating the Differences: a reply to Derrida', *Glyph*, (1977): 198208.

70. Derrida, 'Afterword: toward an ethic of conversation', 123.

71. Ibid., 118. Let me here cite another, more extended passage where Derrida states his objections to Searle in terms that bear directly on this issue of alternative ('deviant' or many-valued) logics. 'Inasmuch as it does not integrate the *possibility* of borderline cases, the *essential* possibility of those cases called "marginal", of accidents, anomalies, contaminations, parasitism, inasmuch as it does not account for how, *in* the ideal concept of a structure said to be "normal", "standard" etc. (for example, that of the promise), such a divergence is *possible*, it may be said that the formation of a general theory or of an ideal concept remains insufficient, weak, or empirical. In such a case, the idealization practised itself remains defective; it has not taken into account certain essential predicates. It fails to render an account of that whose ideal concept it is seeking to construct' (ibid., 11819).

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77. Paul K. Feyerabend, 'Reichenbach's Interpretation of Quantum Mechanics', *Philosophical Studies*, 20 (1958): 50.

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89. Eberhard, 'The EPR Paradox', 85.

90. See nn. 3 and 4, above.

91. Plomitsky, *In the Shadow of Hegel*.

92. See nn. 5 and 7, above.

6
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14. Rorty, 'Texts and Lumps', in *Objectivity, Relativism, and Truth,* 81.

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42. Evans, *The Varieties of Reference*, 158.

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8
Not *Quite* the Last Word

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