

CAN REALISM BE NATURALISED?

PUTNAM ON SENSE, COMMONSENSE, AND THE SENSES

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Abstract

Hilary Putnam has famously undergone some radical changes of mind with regard to the issue of scientific realism and its wider epistemological bearings. In this paper I defend the arguments put forward by early Putnam in his essays on the causal theory of reference as applied to natural-kind terms, despite his own later view that those arguments amounted to a form of 'metaphysical' realism which could not be sustained against various lines of sceptical attack. I discuss some of the reasons for Putnam's retreat, first to the theory of 'internal (or framework-relative) realism' proposed in his middle-period writings, and then to a commonsense-pragmatist stance which claims to resituate this whole discussion on ground that has not been trodden into ruts by the contending philosophical schools. In particular I examine his protracted engagement with various forms of anti-realist doctrine (Michael Dummett's most prominent among them), with Wittgenstein's thinking about language-games or meaning-as-use, and with a range of sceptical-relativist positions adopted in the wake of Quine's influential attack on the two last 'dogmas' of logical empiricism. My paper seeks to show that Putnam has been over-impressed by some of the arguments — from these and other sources — which he takes to constitute a knock-down case against the kind of externalist and causal-realist approach developed in his early essays. It concludes by re-stating that position in summary form and relating it to other, more recent defences of causal realism in epistemology and philosophy of science.

I

No philosopher has thought longer or harder about the realism issue than Hilary Putnam in his various books and essays over the past four decades. One could tell much of the story concerning Putnam's long trek from a strong causal-realist position to his current 'naturalised' (or 'commonsense') realist stance in terms of the various semantic shifts undergone by that term 'natural' and its various cognates (cf. Putnam 1975, 1994). In late Putnam it tends to shift back and forth between the naturalised-epistemological sense: 'natural = that which belongs to our straightforward perceptual and cognitive dealings with the world quite aside from otiose philosophic talk about "sense-data", "intuitions", "conceptual schemes", etc.', and the Wittgensteinian sense: 'that which belongs to our "natural", shared, communally warranted ways of talking about the world' (Putnam 1994, 1995; Wittgenstein 1958). The first kind of usage is one for which Putnam claims philosophical support from various quarters, among them J. L. Austin's famous attack on the phenomenalist sense-data doctrine in his book *Sense and Sensibilia* (Putnam 1994: 455; Austin 1962). However it also has a proximate source in Donald Davidson's well-known insouciant phrase about those 'objects and events' whose various 'antics' are enough to render our beliefs true or false by keeping us in direct, 'unmediated' touch with reality (Davidson 1984: 198).

That this idea is compatible with pretty much any position on the realism issue is evident enough from Richard Rorty's habit of invoking Davidson whenever he wants to make his point that one can be as 'realist' as one likes about the impact of sensory stimuli on our nerve-ends — e.g., the impact of photons on Galileo's eyeball — while none the less maintaining that reality is always under some description or other, in which case such an outlook of baseline 'realism' has no substantive philosophical or scientific import (Rorty 1991: 81). Thus it

is readily adaptable to that other (Wittgensteinian) usage of 'natural' where the term signifies 'having a role in our communal practices, language-games, or forms of life'. So when Putnam talks — *à propos* Wittgenstein — about our 'natural cognitive relations to the world' (1994: 516) the phrase seems to carry a suggestion of both senses and, moreover, to imply that they both serve the purpose of therapeutically coaxing us down from the heights of metaphysical-realist delusion. That is to say, what is 'natural' is here conceived as what properly belongs to our *naturalised* (shared or agreed-upon) ways of construing those cognitive relations, whether in everyday practical contexts or in the discourse of other, more expert communities of knowledge like those of molecular biology or particle physics. For in neither case — so the argument goes — can we intelligibly claim to occupy some practice-transcendent viewpoint beyond the range of descriptive possibilities afforded by our cognitive-linguistic dealing with the world.

There could scarcely be a sharper contrast with the position that Putnam developed in his early writings on the causal theory of reference (Putnam 1975a, 1975b, 1975c). Here the argument is carried very largely by a usage of the term 'natural' that articulates the three main premises of an objectivist and causal-realist approach. Thus it signifies (1) the existence of certain identifiable realia — paradigmatically natural kinds — whose properties, attributes, microstructural features, genetic constitutions, and so forth, are just what enable us to pick them out with increasing exactitude as samples of such-and-such a kind; (2) the status of truth-claims in the natural sciences as grounded in a process of cumulative knowledge-acquisition — of observation, experiment, theory-construction, hypothesis-testing, inference to the best (most powerful or unified) causal explanation, etc. — which alone makes it possible to account for scientific progress in 'natural', i.e., non-miraculist terms; and (3) the condign epistemological premise that our 'natural cognitive relations to the world' are such as must be thought

to enable and promote such knowledge since we should otherwise have lacked the powers and capacities to find out so much about it. Taken together they amount to a full-scale statement of the realist case which extends from ontology to epistemology and thence to a strong (but non-reductive) naturalist account of how knowledge accrues through a deepening grasp of those salient real-world features and properties that justify our various truth-claims.

Of course these premises are all subject to challenge from sceptics of various persuasion. Thus (1) will be rejected *tout court* by anyone who denies the existence of natural kinds, or who views such Aristotelian talk as merely a sign of the realist's clinging to bad old 'essentialist' habits of thought which should have gone out with Locke. (For a range of views see Dupré 1993; Quine 1969; Rorty 1991.) As regards (2), there is the standard riposte that any argument for realism from the 'evidence' of scientific progress is one that is viciously circular and which besides has to ignore the awkward fact that a good many once highly reputable scientific theories contained terms — such as 'phlogiston' or 'caloric' — which we now take as devoid of referential content (Laudan 1981). The most frequent objection to premise (3) is that it likewise begs the question by equating truth or progress in matters scientific with just those kinds of presumptive evidential warrant that happen to lie within the epistemic compass of creatures like us with our particular range of sensory inputs, cognitive powers, intellectual capacities, and so forth (van Fraassen 1980, 1989). These arguments have all weighed heavily in Putnam's rejection of causal realism and his efforts to devise an internalist (or framework-relativist) theory that would acknowledge their force while none the less precluding any Goodman-style resort to a wholesale constructivist outlook (Putnam 1981, 1983; Goodman 1978). In his view, they gain further support from the various conceptual dilemmas that arise with any version of 'naive' or 'metaphysical' realism, among them — not least

— the unresolved problems with any realist interpretation of quantum mechanics (Putnam 1983a, 1983b; see also Norris 2000a). Thus there is simply no way — as Putnam now thinks — to defend an ‘external’-realist position without falling into those well-laid traps that the sceptic can always spring when it comes to debating the existence of objective (i.e., non-framework-relative or verification-transcendent) truths. For at this point the sceptic will routinely remark that such truths are by very definition beyond our utmost powers of proof or ascertainment, which is also to say — in verificationist or Dummett-style anti-realist terms — that they cannot meet the most basic conditions of warranted assertability (Dummett 1978, 1991). In which case the realist is stuck with the problem of explaining how anyone could logically or consistently claim to know that which exceeds the limits of knowledge or whose very statement inevitably courts the charge of downright performative self-contradiction.

Such is at any rate the standard anti-realist riposte and the main reason why — as many philosophers have claimed — every possible argument for objective or external realism stands under the shadow of a sceptical rejoinder which challenges that argument at source (Stroud 1984; Williams 1996). What is so strange about Putnam’s later writings is that he takes this rejoinder in its various forms to have pretty much carried the day while still coming out very firmly *against* Dummett’s verificationist claim that the limits of our knowledge are also, necessarily, the limiting conditions for any truth-apt statements concerning ‘objective’ reality. Thus on the full-strength version of Dummett’s argument any ‘gaps in our knowledge’ (e.g., with regard to the historical past) must also be construed as ‘gaps in reality’ (Dummett 1978a, 1978b, 1978c). At times Putnam’s objection to this way of thinking comes across with unmistakable force. Thus for instance:

[a] quite different aspect of the extension of our conceptual abilities brought about by the possession of words for general-

ity is the possibility of formulating conjectures that transcend even 'ideal verifiability', such as 'There are no intelligent extraterrestrials'. The fact that this conjecture may not be verifiable even 'in principle' does not mean that it does not correspond to a reality; but one can say what reality corresponds to it, if it is true, only by using the words themselves. And this is not deflationism; on the contrary, deflationism, by identifying understanding with possession of verification abilities, makes it mysterious that we should find these words intelligible. Once again, the difficulty here lies in keeping what is right in verificationism (or in this case in deflationism) while throwing out what is wrong. (Putnam 1994: 504)

One could hardly wish for a clearer statement of the realist case against deflationist theories which find no room for substantive (non-circular or non-tautologous) conceptions of truth (Horwich 1990), or Dummett-type theories which reduce it to a matter of warranted assertability according to our best present proof-procedures or agreed-upon methods of verification. However, as I have said, there is plenty of evidence elsewhere that Putnam is prepared to go much further in a Dummettian (anti-realist) direction than might appear from the above passage. That is to say, he often seems more willing to concede 'what's right in verificationism' than to 'throw out what's wrong' for the kinds of reason that are here presented as a strong rebuttal of the anti-realist case. Thus one constantly has the sense that Putnam's residual realist inclinations are subject to a powerful countervailing influence from just the kinds of argument — summarised one paragraph above — that would count realism a lost cause in any but a scaled-down 'internalist' form which effectively lets the whole issue go by default.

This tension emerges very sharply in a passage where Putnam spells out his idea of just how far we should properly go with the verificationist argument. What is right about that argument, he suggests,

is that a great deal of scientific talk does depend for its full intelligibility on the provision of the kind of thick explanatory

detail that is impossible if one has no familiarity with the use of scientific instruments. For example, in Democritus's writings, as we know of them, the notion of an 'atom' was a metaphysical one, but one to which *we* can give a sense, even if Democritus himself could not. Thus, scientific instruments and scientific ways of talking are both ways of extending our perceptual and conceptual powers, and those ways are highly interdependent; indeed, they can fuse into a single complex practice. (Putnam 1994: 502)

What is so odd about this passage, I submit, is that it purports to specify what is right about verificationism — and hence, presumably, what lends some credence to Dummett's anti-realist line of thought — while none the less presenting a strong case for just the kind of realist and objectivist approach that Putnam espoused in his early writings but now seems more than half-way willing to abandon under pressure from the verificationists. His chosen example of ancient Greek atomism makes the point with exemplary force. After all, the most obvious lesson to draw is that this theory indeed started out as a matter of sheerly 'metaphysical' conjecture, but that later developments — from Dalton to Rutherford, Einstein, Bohr and beyond — have effected its promotion first to the status of a well-formed hypothesis with strong theoretical warrant, and then to its current position as a truth borne out by all the best (i.e., observational and causal-explanatory) evidence. At any rate this has been the case since Perrin's well-known series of experiments and since Einstein established that the phenomenon of Brownian motion could only be adequately explained in terms of the molecular-atomic hypothesis (Nye 1972; Perrin 1923).

Of course there have still been sceptics — from Ernst Mach to Bas van Fraassen — who maintain as a matter of principle that we should avoid excess ontological commitments and therefore not admit the 'reality' of anything that lies beyond the limits of empirical evidence or unaided human observation (Mach 1960; van Fraassen 1980; also Misak 1995). However

this self-denying ordinance seems totally at odds with both the history of scientific progress to date and the fact that so many once hypothetical or unobserved entities have since shown up with the advent of later, more advanced observational techniques. Nor is it plausible to argue, like van Fraassen, that these sorts of evidence shouldn't properly count in support of the realist case in so far as they involve technologically-assisted means of 'observation' that exceed the range of our natural (unaided) capacity. For this is to adopt a narrowly anthropocentric conception of 'reality', one that in effect equates what is 'real' with what is real-for-us according to the scope and limits of human sensory-perceptual powers.

II

As I have said, Putnam on occasion comes out very strongly against this whole line of argument, whether couched in Dummettian anti-realist or van Fraassen-style constructive empiricist terms. His reasons for denying it are spelled out at various points, for instance when he argues (*contra* Dummett) that 'small' as applied to subatomic particles should not be construed as undergoing some radical meaning-shift from 'small' as applied to tiny but macrophysically observable objects. Thus: '[i]f I could not understand talk about "things too small to see with the naked eye", the microscope would be at best a toy (like the kaleidoscope); what I saw when I looked through the eyepiece would mean nothing to me' (Putnam 1994: 502). And again, when he firmly rejects the idea that certain conjectural statements — like 'there are no intelligent extraterrestrials' — must be counted as lacking an objective truth-value in so far as we human enquirers lack any present or perhaps any future-possible means of decisive verification (*ibid*: 504). Yet Putnam's way of making these points has a constant Wittgensteinian tendency to slide into talk about 'talk' as the furthest we can get toward justifying any sort of realism with respect to

molecules, atoms, or 'things too small to see with the naked eye'. This slide is most apparent in the above-quoted passage where he suggests that we should think of 'scientific instruments' and 'scientific ways of talking' as two 'highly interdependent' ways of extending our cognitive powers, such that, indeed, 'they can fuse into a single complex practice' (ibid: 502). As regards scientific *instruments* the claim comes out pretty much in accord with Ian Hacking's defence of a realist outlook premised on the evidence of causal interaction between sub-atomic entities and the various sorts of apparatus — electron microscopes, particle colliders, etc. — in which those entities show up (Hacking 1983). However this agreement transpires to have sharp limits when it comes to Putnam's notion that scientific 'ways of talking' are equally a means of 'extending our perceptual and conceptual powers', since they can fuse with the kinds of extension brought about through various observational, theoretical, technological, or instrumentally-assisted advances. For along with this turn toward language-dependence as a condition of scientific knowledge goes a turn toward the 'strong' anti-realist argument which would have it — as in Dummett's Wittgensteinian version of the thesis — that truth *just is* whatever we can know or justifiably assert on adequate evidential grounds. And from here it is but a short step to the full-fledged Wittgensteinian conclusion that those grounds *just are* the sorts of justification arrived at when one's spade hits the bedrock of communal 'practice' and one is brought to accept that nothing more can be had or properly required (Wittgenstein 1958).

It seems to me that Putnam has things the right way around when he says that 'a great deal of scientific talk does depend for its full intelligibility on the provision of the kind of thick explanatory detail that is impossible if one has no familiarity with the use of scientific instruments' (1994: 502). That is to say, the dependence-relation here — as in Putnam's early causal-realist writings — is one that makes informed 'scientific talk' a

result of (rather than a precondition for) the kinds of knowledge that are warranted by getting things right with respect to a belief-independent domain of physical reality. Such knowledge must therefore be acquired through the process of engagement with a range of entities — on whatever macro- or micro-physical scale — whose existence, nature, and structural features *objectively decide* what shall count as an adequate causal-explanatory theory. No doubt there is another way of interpreting Putnam's statement which may be thought to jibe more readily with the pragmatist, internalist, or framework-relativist drift of his later writings. Thus the phrase 'thick explanatory detail' might be taken as a nod toward the kinds of ethnographic 'thick descriptivist' approach that renounce any notion of getting things objectively (trans-culturally) 'right' and proffer a context-sensitive account of what passes for 'reality' or 'truth' in various communities of belief (Geertz 1983). From this point of view — nowadays typified by science studies and the strong sociology of knowledge — scientific explanations are just one currently and locally privileged subset of a range of diverse culture-relative 'practices', all of which require that we judge them according to their own internal criteria and none of which can claim superior descriptive or causal-explanatory warrant (Barnes 1985; Bloor 1976; Fuller 1988). Putnam is very often at pains to reject any construal of his own position that would bring it out in agreement with this way of thinking. Hence also his insistence — as against the 'strong' deflationists — that the idea of objective (recognition-transcendent) truth is one that plays so crucial a role in our conception of science and every other branch of human enquiry that it is simply not open to serious doubt (Horwich 1990). All the same it is hard to see what room is left for that idea — except, maybe, on Rortian terms as a matter of useful (solidarity-enhancing) belief — when Putnam yields ground to the concept of truth as 'internal' or 'relative' to some given language-game, cultural life-form, or communally-sanctioned practice (Rorty 1991).

My point is that philosophy will always run into these problems — and always inevitably fail to resolve them — so long as it accepts the terms laid down by traditional ways of disputing the issue between realists and anti-realists. What makes Putnam's work exemplary in this regard is the fact that he has travelled such a long and tortuous path through the various alternatives on offer and been willing to shift tack in response to every obstacle encountered along the way. Thus, for instance, in the Dewey Lectures he recalls an earlier phase of his thinking — at the time of *Representation and Reality* (1988) — when he proposed to answer the verificationist (or Dummett-type anti-realist) argument by equating truth with that state of knowledge that would justify a subject's beliefs under 'sufficiently good epistemic circumstances', i.e., when all the evidence was in and subject to rational assessment. On this account 'the totality of actual human sense experiences does not ... determine the totality of truths, even in the long run' since after all there is no guarantee that such circumstances will ever obtain or that human knowers will ever be placed in so maximally advantageous a position (Putnam 1994: 462). In other words it was enough to get around the problem with any argument — like Dummett's — which assimilated truth to our present-best (or even best-humanly-possible) means of ascertainment or verification. Furthermore, '[t]o the objection that this is still an "idealist" position, I replied that it certainly is not, on the ground that while the degree of confirmation speakers actually assign to a sentence may be simply a function of their sensory experiences ... the notion of sufficiently good epistemic circumstances is a "world-involving" notion' (ibid: 462). That is to say, it is a notion which effectively breaks the epistemological circle — or which removes realism from the shadow of sceptical doubt — by insisting that the truth-value of our various statements, beliefs, theories, etc., is ultimately fixed by the way things stand in reality rather than the way they might appear to us even at the limit-point of human perceptual or cognitive powers.

Such is at any rate one interpretation of the phrase 'world-involving' as Putnam uses it here. It is a construal that harks back to his earlier (causal-realist) writings in so far as it entails (1) an objectivist or verification-transcendent concept of truth, and also (2) the claim that our beliefs may be thought of as reliably 'truth-tracking' just to the extent that they pick out certain real-world objects, properties, microstructural features, causal dispositions, etc. (Putnam 1975; also McCulloch 1995). Moreover, it allows for some crucial discriminations with regard to the various stages of progress in the quest for such objective truths, some of which may figure expressly in our current best theories while others may as yet — like the term 'atom' in pre-Daltonian physics — be incapable of adequate verification and others again (for all that we can know) lie beyond the furthest reach of human enquiry. In short, it is a theory which maintains the alethic priority of ontological over epistemological issues, or — to adopt William Alston's useful terms — the necessary distinction between 'truth-makers' (those real-world objects or properties that determine the truth-value of our various statements concerning them) and 'truth-bearers' (those statements themselves considered as subject to verification under ideal epistemic conditions) (Alston 1996). Thus it does full justice to the basic realist premise — the objectivity of truth as a 'world-involving' notion that in principle transcends even our best (presently-accredited) theories and beliefs — while none the less offering a viable account of how those theories and beliefs may be thought of as possessing various degrees of epistemic and causal-explanatory warrant. Which is also to say that 'world-involvement' in this sense is just what is required in order to answer the epistemological sceptic. This it does by maintaining a realist conception of truth that respects the objective (verification-transcendent) status of truth-values yet avoids the charge of irrelevance or sheer triviality by explaining how we can have reliable knowledge of the growth of scientific knowledge.

However there is another construal of the phrase — one more in line with the thinking of late Putnam — which effectively throws these advantages away by conceding all the main points at issue. On this view the notion of ‘world-involvement’ (or of our ‘natural cognitive relations to the world’) has to be interpreted always with reference to the various conceptual frameworks, paradigms, languages, descriptive schemes, etc., which decide what shall count as an instance of ‘natural’ (or commonsense-realist) belief. This points back to Putnam’s middle-period theory of so-called ‘internal’ realism, one that acknowledged the putative force of Wittgensteinian and kindred arguments for drawing the limits of intelligible discourse at the point where our ‘spade is turned’, i.e., where those descriptive-explanatory resources run out and we are compelled to repose on communal usage or the normative ‘rules’ that alone make sense of our various procedures and practices (Wittgenstein 1958, I, Section 217). But in that case, as I have said, it is hard to see how Putnam can maintain his position against the whole range of present-day arguments — Dummettian anti-realist, strong-deflationist, cultural-relativist, and so forth — which he regards as flouting our ‘natural’ conception of an objectively existent world whose various attributes and properties stand in the relation of truth-makers to our various truth-apt statements concerning them. For this would seem an instance of wanting to have it both ways, to resist the slide into any form of overt relativism or anti-realism while taking on board all the major theses — chief among them the internalist conception of reality and truth — whose acceptance inevitably opens the way to such arguments.

I would suggest that Putnam has been pushed in this direction by his over-readiness to concede various criticisms of the objectivist and causal-realist position developed in his own early writings. His reasons for feeling thus compelled to yield on so many of the main points at issue can be seen most clearly in a passage from the Dewey Lectures which I shall therefore

quote at some length. The 'metaphysical realist' is right, he suggests, in one respect at least: in maintaining that 'to undercut Dummett's antirealism requires challenging his account of understanding, not adopting it' (Putnam 1994: 501). However,

what makes the metaphysical realist's response *metaphysical* is its acceptance of the idea (which it shares with the Dummettian antirealist) that our ordinary realism — for example, about the past — presupposes a view of truth as a 'substantive property'. The metaphysical realist, in wanting a property that he can ascribe to all and only true sentences, wants a property that corresponds to the assertoric force of a sentence. But this is a very funny property. To avoid identifying this property of truth with that of assertability, the metaphysical realist needs to argue that there is something we are saying when we say of a particular claim that it is true over and above what we are saying when we simply assert the claim. He wants truth to be something that *goes beyond* the content of the claim and to be that in virtue of which the claim is true. This forces the metaphysical realist to postulate that there is some single thing we are saying (over and above what we are claiming) whenever we make a truth claim, no matter what sort of statement we are discussing, no matter what the circumstances under which the statement is said to be true, and no matter what the pragmatic point of calling it true is said to be. (Putnam 1994: 501)

But this is to endorse a view of 'metaphysical' realism which concedes every major point of Dummett's anti-realist case, as well as renouncing any claim to make good on his own (Putnam's) earlier position with regard to truth as a 'substantive property', one that pertains to certain statements in virtue of their getting things *objectively right* quite apart from their current degree of epistemic or justificatory warrant. As Putnam now sees it this must be a 'funny' sort of property since it involves the idea of some further (again 'metaphysical') content to our truth-claims which purportedly exists 'over and above' their straightforward assertoric content and which somehow strengthens or consolidates their standing as genuine candidates for assessment in realist terms. Yet in that case there

seems little to choose between Putnam's sceptical attitude and the full-fledged deflationist theory according to which truth-talk is merely redundant or, at best, just a source of added rhetorical emphasis and a useful means of open-ended generalisation, as with 'everything Rita said was true' or 'there is no truth in any government claims about an "ethical foreign policy"' (Horwich 1990; my examples). Thus Putnam is here placed in the awkward predicament of seeking to defend a stronger conception of truth than anything admitted by deflationists or Dummett-type anti-realists while effectively retreating from it under pressure from just those sorts of argument. What he shares with them is the notion that it cannot make sense to conceive some truth-related property of statements or some property of that to which such statements refer 'over and above' their manifest content as a matter of straightforward epistemic or evidential warrant. Yet of course this is just the point on which Putnam takes issue with those (like Dummett and Horwich) who would deny — albeit for different reasons — that truth plays any more 'substantive' role in our various statements, theories, or beliefs.

So there is a certain irony in Putnam's claim that the 'metaphysical' realist and the Dummettian anti-realist both go wrong — that is, lay themselves open to sceptical attack — by accepting the idea 'that our ordinary realism . . . presupposes a view of truth as a "substantive property"' (1994: 501). On this account the only difference between them is that the metaphysical realist endorses the idea and wants to spell out its implications in detail while the anti-realist (like the strong deflationist) regards it as a big mistake — just a form of naive 'commonsense' metaphysics — and wants to wean us off such habits of thought. However this will seem a highly questionable way of framing the issue if one approaches it from another standpoint, one that would reject the pejorative term 'metaphysical' as applied to any more 'substantive' conception of truth than those allowed under the anti-realist or strict deflationist regimes. For it

would then be possible to argue — with early Putnam — that what justifies the notion of truth-values ‘over and above’ our present best standards of assertoric warrant is precisely what accounts for the ‘truth-tracking’ property of certain referring expressions, and what thus renders certain of our statements ‘sensitive to future discovery’. That is to say, it is their virtue of being up for assessment in realist and causal-explanatory terms which may not be fully specifiable as yet, or that might ‘go beyond’ our present-best grasp of their verification conditions. More than that: there exists a whole range of statements — especially on the microphysical and astronomical scales — whose truth-value must be thought to obtain as a matter of objective, i.e., verification-transcendent fact yet which we might be incapable of ever coming to know in consequence of certain limits to our powers of observation or conceptual grasp.

Early Putnam was able to accommodate both sorts of case by providing an objectivist and causal-realist theory which maintained the ultimate priority of ontological over epistemological issues but which also explained the advancement of scientific knowledge as a matter of progressively more adequate depth-explanatory theories and hypotheses. Late Putnam — so I have argued — goes a long and complex way around in trying to defend an outlook of commonsense realism that would entail no such surplus ‘metaphysical’ commitments while yet holding out against the various forms of present-day deflationist or anti-realist doctrine. However this attempt miscarries for several reasons, among them the fact that it retreats so far onto ground that has already been well staked out by those opposing parties. This is, Putnam takes it pretty much for granted that a disquotational account of truth in the Tarskian mode is basically all that is required, and hence that the truth-predicate cancels out for practical purposes once it has performed its heuristic role in the construction of a T-sentence biconditional (“snow is white” is true if and only if snow is white’) for every candidate sentence in a given language (Tarski 1956). Thus the

'metaphysical realist' must surely be wrong — in the grip of a transcendental illusion — in thinking to establish some deep further property of truth, 'something we are saying when we say of a particular claim that it is true over and above what we are saying when we simply assert the claim' (Putnam 1994: 501). Yet there is widespread disagreement among commentators on Tarski — not to mention the distinct signs of uncertainty in Tarski's own writings — as to whether this purely formal definition of truth might require fleshing out in more substantive terms (perhaps through some form of correspondence-theory) in order to avoid the charge of trivial self-evidence or empty circularity. (See for instance Davidson 1990; Johnson 1992; Kirkham 1992; O'Connor 1975.) Putnam believes that this charge can be blocked by distinguishing Tarski's minimalist approach where truth still has a genuine if scaled-down role to play from deflationist theories where it simply drops out or becomes just an all-purpose term of descriptive convenience. But in fact that distinction is hard to sustain, as emerges very clearly from his own attempts to draw the line against those (like Horwich) who see no point in maintaining it (Horwich 1990).

III

I would suggest that Putnam has been led into these various quandaries by his willingness to grant the force of certain arguments which themselves involve a drastic narrowing of the relevant terms of debate. Take for instance that sentence in the above-cited passage where Putnam explains how the 'metaphysical' realist falls into error by supposing truth to be something that 'goes beyond' the straightforward assertoric 'content of the claim' and, moreover, to be 'that in virtue of which the claim is true' (1994: 501). Now of course there is a sense — a trivial sense — in which this argument necessarily holds good since the meaning (or assertoric content) of any such claim *just is* the set of truth-conditions that have to be satisfied in order

for that claim to pass the test of warranted assertability. But this is not to say that those truth-conditions can be adequately specified in the formal (Tarskian) mode, nor yet to deny that such claims may be 'world-involving' in so far as their truth-values are objectively dependent on certain features, properties, or attributes of the physical world that find no place in any such formalised account. Here again, late Putnam seems strangely resolved to apply a kind of stern self-denying ordinance, one that preemptively blocks any access to the range of philosophical resources developed in his own earlier work. Thus it could only be a species of 'metaphysical' illusion to argue the case for realism on objectivist grounds, or to defend a causal-explanatory approach according to which the truth-content of certain (e.g. scientific) claims can indeed 'go beyond' the current best standards of warranted assertability in so far as their terms are 'truth-tracking' or 'sensitive to future discovery'. By accepting the standard anti-realist way of setting up this debate Putnam has left himself with no option but to treat all truth-talk as 'metaphysical' (= vacuous) except when it respects the conditions laid down by a Tarskian disquotational approach. Yet it is precisely *against* that restrictive approach — along with its deflationist upshot — that Putnam seeks to reassert the viability of a 'commonsense' realism duly accountable to our 'natural cognitive relations with the world'. What drops out of the picture at this stage is any notion of that world as comprising certain objects, properties, causal dispositions, microstructural attributes, and so forth, which relate to our various statements or theories concerning them as truth-makers to truth-bearers. For otherwise there is no reason why Putnam should routinely attach the label 'metaphysical' to any kind of realist approach which takes it that the concept of truth is not exhausted by a formalised meta-linguistic treatment along the standard Tarskian lines.

According to Putnam it is the realist's obsession with that otiose metaphysical 'something beyond' that leads them to

think of truth as a mysterious property which cannot be expressed or interpreted in straightforwardly assertoric terms. Thus, to repeat, 'this forces [the realist] to postulate that there is some single thing we are saying (over and above what we are claiming) whenever we make a truth claim' (Putnam 1994: 501). However this is really just a straw-man version of the realist case, one that justifies Putnam's use of the term 'metaphysical' by constructing a typecast opponent who subscribes to beliefs that would scarcely be recognised — let alone endorsed — by anyone upholding that position. Thus the 'one single thing' might just about be construed as the property possessed by all veridical statements — perhaps on a version of the correspondence-theory — in virtue of which they can properly claim to speak the truth (or to get things right) in some particular regard. This reading is quite acceptable from a realist viewpoint and indeed captures one salient aspect of the case for objective (verification-transcendent) truth as opposed to the kinds of anti-realist argument that find no room for such a concept. However Putnam's way of presenting the issue contrives to suggest that the realist cannot have it on these terms without also buying into all sorts of highly dubious ulterior commitment, such as the existence of a 'single' Truth — a veritable truth-of-truths — which somehow stands as a last guarantee behind our various statements and claims. For it is then easy work to represent the opposing position as just another case of 'metaphysical' bewitchment, or just another cautionary instance of the power that such thinking continues to exert when we abandon the ground of 'commonsense' or 'natural' realism. All the more so if — as Putnam implies — that superordinate Truth is taken to exist in a realm of absolute ideal objectivity 'outside and above' all mere considerations of content, context, and investigative method. On this view anyone who defends an objective (ontological) conception of truth must *de facto* be committed to the notion of its holding good 'no matter what sort of statement we are discussing, no matter what the cir-

cumstances under which the statement is said to be true, and no matter what the pragmatic point of calling it true is said to be' (Putnam 1994: 501). In other words it is a truth that somehow (impossibly) floats free of any anchorage in the various particular contexts of real-world situated knowledge and enquiry.

At this point, however, the realist will want to come back and insist that the choice is not at all as Putnam presents it, i.e., between Truth conceived in such abstract 'metaphysical' terms and — on the other hand — a pragmatist approach that allows truth a place in our everyday and scientific habits of talk just so long as it claims no substantive warrant above and beyond that facilitating role. Thus she is likely to respond that a great deal depends on the 'sort of statement we are making' since the truth-value of our various statements — e.g., 'water has the molecular structure H_2O ' or 'the charge on every electron is negative' — is fixed both by the meaning standardly assigned to their constituent terms *and* by the real-world objects and properties to which those terms make reference (Armstrong 1978; Devitt 1986; Leplin [ed.] 1984; Rescher 1987; Tooley 1988). Then again, it clearly matters 'what the circumstances [are] under which the statement is said to be true', since these include — among other things — the whole range of physical and causal-explanatory factors that would figure in a full-scale attempt to spell out those operative truth-conditions. This leaves us with Putnam's final challenge to the typecast 'metaphysical' realist, namely that he postulates 'some single thing we are saying ... no matter what the pragmatic point of calling it true is said to be' (1994: 501). Here the most important point is to distinguish between two different senses of the word 'pragmatic', one of them perfectly realism-compatible ('pragmatic' = 'having to do with truth-conducive modes of real-world practical-cognitive engagement'), the other tending in an opposite direction ('pragmatic' = 'good or acceptable in the way of belief quite aside from any misplaced worries about objective truth or falsehood').

As I have said, late Putnam never ventures quite so far as to embrace this second, more extreme version of the pragmatist creed, whether in its overt Rortian form or as an unacknowledged consequence of other (e.g. deflationist) theories. He rejects it chiefly in the name of some basic commonsense principles, among them the sturdy realist conviction that there must be a great many truths that we don't yet know — and indeed might never get to know — but whose objective standing is wholly unaffected by such gaps in our knowledge. Hence his rejection of Dummett's anti-realist (or strong-verificationist) argument that such gaps must be construed also as 'gaps in reality', or regions where the lack of any definite evidence or adequate proof-procedure entails that any statement concerning them will be devoid of objective truth-value (Dummett 1978). Putnam comes out very firmly against what he sees as the massive affront to our commonsense grasp of reality and truth involved in this systematic inversion of the natural order of priority between ontological and epistemological issues. Yet elsewhere, as we have seen, he runs close to endorsing it through his claim that any viable statement of the realist case will need to take to heart those various lessons — from Wittgenstein chiefly — which alone point the way toward just such a 'commonsense' or 'natural' account. Hence the deep tension that runs through all of Putnam's post-1980 writing, and which emerges most clearly in the Dewey Lectures. It is the conflict — in short — between his strong sense that realism requires *something more* (that is, a more robust and principled defence) than the pragmatist resort to what's 'good in the way of belief' and his countervailing sense that this 'something more' cannot be specified in substantive terms without falling into all manner of naive or metaphysical delusion.

This problem is compounded by Putnam's attempt — following Cora Diamond — to make out the case for a realist interpretation of Wittgenstein, one that would 'leave everything as it is' with respect to our ordinary (non-philosophical) ways

of talking and thinking about reality (Diamond 1991). For here again it is always open for the Wittgensteinian to treat any strong, e.g., causal-realist or objectivist version of the case as indeed *nothing more* than a certain language-game whose validity comes of its playing a role in some communal (even if relatively specialised) range of usages and practices. Thus the advice comes down to something more like: 'by all means carry on talking just as you did before but don't suppose — on pain of metaphysical illusion — that your talk about "substantive" or "objective" truths has any warrant over and above that role'. In the Dewey lectures Putnam rejects this widely accredited construal of Wittgenstein, one that would have him deny 'that our knowledge claims are responsible to any reality external to communal approval or sanction' (1994: 470). All the same it is a reading that finds good warrant in numerous passages of Wittgenstein's later work and whose suasive force is manifest as much in its hold over orthodox commentators as in the problems encountered by those (like Putnam) who seek an alternative realist-compatible account. (For further argument to this effect see Blackburn 1990 and Wright 1992: 203-30.)

There is a similar problem about Putnam's equivocal stance with regard to Dummett-style anti-realism and the best way of arguing against it. Thus the metaphysical realist is right to challenge Dummett's view of the relation between truth and understanding, or his idea of warranted assertability as a concept that can adequately substitute for truth in most (if not all) domains of human enquiry. However (to repeat): 'what makes [his or her] response *metaphysical* is its acceptance of the idea (which it shares with the Dummettian antirealist) that our ordinary realism . . . presupposes a view of truth as a "substantive property"' (Putnam 1994: 501). The trouble with Putnam's usage of the term 'metaphysical' — here as elsewhere — is that it tends to serve in a kind of all-purpose pejorative role which readily extends from vacuous metaphysical talk about occult qualities, dormitive virtues, etc., to realist (causal-explanatory)

talk about the various powers, properties, or attributes which are just what give 'substantive' content to our statements or theories concerning them. Of course this usage and the problems associated with it have a long prehistory in the empiricist tradition from Hume to the Vienna Circle. Very often it has led to the same kind of indiscriminate attack on all kinds of (so-called) 'metaphysical' thinking, as for instance in the case of the logical empiricists — Carnap chief among them — who applied it not only to Heidegger and other such victims of the wholesale irrationalist 'bewitchment by language' but also to any form of putative causal explanation that went beyond the limits of logically regimented empirical observation (Carnap 1959, 1967; also Ayer [ed.] 1959). More recently this line of thought has been revived in a more sophisticated guise by 'constructive empiricists' such as Bas van Fraassen and also by anti-realist thinkers like Dummett who couch it in jointly verificationist and logico-semantic terms (van Fraassen 1980; Dummett 1978, 1991). What they have in common — again — is an anti-metaphysical bias which extends far beyond the justified antipathy to meaningless or pseudo-explanatory talk and which reduces the scope of legitimate enquiry to the range of empirically warranted observation-statements plus whatever logical resources are needed to work out their various entailment-relations. However this precludes any means of establishing a substantive (non-trivial) explanatory link between the assertoric content of our statements and the various real-world entities, structures, causal dispositions, etc., which render those statements objectively true or false (Salmon 1984, 1989; Grünbaum and Salmon [eds.] 1988).

It seems to me that late Putnam is over-impressed by the force of these arguments, despite his frequently expressed misgivings with regard to their ultimate tendency and his pragmatist espousal of commonsense (or 'natural') realism as a fallback line of defence. For there is — as I have suggested — simply no way that the realist could ever come up with an argument that

would satisfy the sceptic on terms which have been very largely dictated in advance by the sceptical agenda. That is to say, this whole chapter of post-Kantian philosophical debate has developed as a kind of programmed exchange where realism is always under the shadow of scepticism, or where any argumentative move that the realist makes will always lie open to the standard anti-realist rejoinder (Stroud 1984; Williams 1996). In its basic form this rejoinder goes: if truth is indeed objective or 'verification-transcendent' as the realist asserts, then by very definition it lies beyond reach of any knowledge we can claim concerning it, and must therefore be counted merely a form of empty 'metaphysical' illusion. In other words there is a direct line of descent from Kant's conception of a noumenal 'reality' transcending our utmost powers of phenomenal or cognitive grasp to Dummett's anti-realist argument according to which there is no making sense of objectivist talk about truth-values that likewise surpass our best means or methods of adequate verification (Kant 1964). All that has changed is the widespread loss of faith in any philosophy, like Kant's, that claims to bridge the gulf between transcendental idealism on the one hand and empirical realism on the other. However this debate will appear hopelessly stalled only if one accepts the priority of epistemological over ontological questions, that is, the typically post-Kantian idea that there can be no answer to the 'problem of knowledge' except by way of certain standard moves which then play straight into the sceptic's hands. For scepticism will always have the last word — whether from a Humean or Dummettian standpoint — so long as the argument continues to run along those same familiar tracks.

IV

Modern anti-realism can thus be seen as a logico-semantic extension and refinement of issues that emerged from some sug-

gestive though deeply problematic passages in Kant's *First Critique* (Allison 1983; Beiser 1987; Guyer 1987). Nor (as I have argued at length elsewhere) is there much hope of a solution from thinkers in the analytic line of descent — such as John MacDowell — who have lately suggested a return to Kant as the best means of overcoming those problems that have dogged philosophical thought in the wake of old-style logical empiricism (McDowell 1994; Norris 2000b). Putnam takes a more optimistic view since he considers McDowell to have gone a long way toward breaking the hold of that false dualist picture which led us to conceive the 'problem of knowledge' as a matter of somehow reestablishing the link between mind and world, subject and object, or thought and its various 'representational' contents. This picture held us captive, McDowell believes, only on account of the notion handed down by empiricists and rationalists alike, that is, the idea of knowledge as involving an 'interface' or point of juncture where sense-data somehow met up with concepts of understanding, or — in the rival rationalist account — where ideas of reason were somehow brought to bear on the 'raw data' of sensory experience. What Kant most valuably enables us to grasp is the primordial role of judgement as an active intermediary power which leaves no room for that chronic dilemma since it interprets experience as *always already* shaped and informed by the mind's synthesising capacity, and concepts as *always already* possessing empirical content in virtue of that same capacity. Thus, according to McDowell, Kant's great insight 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' (McDowell 1994: 9). And again: 'we should understand what Kant calls "intuition" — experiential intake — not as a bare getting of an extra-conceptual

Given, but as a kind of occurrence or state that already has conceptual content' (ibid: 9).

Thus there is simply no need to carry on rehearsing the time-honoured 'problem of knowledge' in so far as that problem is mistakenly thought of — despite Kant's lesson to the contrary — in terms of the mind/world dualism or of 'spontaneity' as belonging on the side of conceptual representation and 'receptivity' as a matter of inert or passive sensory inputs. Rather we should abandon that whole way of thinking and, along with it, the entire prehistory of dead-end philosophical debates that have pitched empiricists against rationalists and whose latest chapter is the failed enterprise of Carnap-style logical empiricism. 'In McDowell's view', as Putnam describes it, 'the key assumption responsible for the disaster is that there has to be an interface between our cognitive powers and the external world — or, to put the same point differently, the idea that our cognitive powers cannot extend all the way to the objects themselves' (Putnam 1994: 453). Thus the only way beyond this disastrous impasse is to take Kant's point about the jointly 'receptive' and 'spontaneous' character of judgement, that is to say, its role as the faculty which somehow bridges or transcends the otherwise strictly insuperable gulf between mind and world. For we shall then be more inclined to view the so-called 'problem of knowledge' as a pseudo-problem thrown up by this and other artificial (philosophically-induced) habits of thought.

However it is hard to see that Putnam's case — any more than McDowell's — is much helped by having recourse to a Kantian notion of 'judgement' which is often couched in notoriously difficult (not to say obscure and evasive) terms, and whose problematic character is fully borne out by its subsequent reception-history. Thus sensuous intuitions must be 'brought under' adequate concepts, a synthesising process that defines the scope and limits of human knowledge or experience in general, since for Kant famously 'thoughts without intuitions are empty', while 'intuitions without concepts are blind' (Kant

1964: A51/B75). And again: '[t]he understanding can intuit nothing, the senses can think nothing. Only through their union can knowledge arise' (ibid). Yet of course this raises a further problem in so far as intuitions and concepts belong to quite different (categorically distinct) orders of experience and thought whose 'synthesis' cannot be envisaged in terms of a straightforward one-to-one 'fit' or correspondence-relation. At this point Kant introduces the notion of 'schemata' as somehow playing the required intermediary role, or as allowing judgement to exercise its powers in accomplishing the passage from sensuous intuitions to concepts of understanding. But again there is the danger of an infinite regress since this fails to explain how 'schemata' could partake of both functions unless by invoking some further term (or pair of such terms) that would fill the conceptual gap. At any rate the Kantian theory of judgement is a great deal more problematic than might appear from McDowell's rather sanguine appeal to it as the wished-for means of escape from all our epistemological perplexities.

These problems become all the more apparent when Kant seeks to block this threatening regress with the notion of a power vested in 'imagination' which precedes and makes possible the synthesising activity of judgement. McDowell tends to play down this aspect of Kant's thought — understandably enough — but it is one that figures at a crucial point and which has since given rise to some penetrating commentary by thinkers less convinced that Kantian 'judgement' can indeed sustain the kind of problem-solving role here placed upon it. Thus 'synthesis', in Kant's words, is 'the mere operation of the imagination — a blind but indispensable function of the soul, without which we should have no cognition whatever, but of the working of which we are seldom even conscious' (Kant 1964: A78/B103). To the extent that judgement is itself dependent on the workings of this 'blind but indispensable' power it would seem necessarily to partake of the same mysterious character and hence to resist the utmost efforts of conceptual

definition or analysis. At very least Kant's description may be thought to sit awkwardly with McDowell's claim for Kantian 'judgement' as the missing term whose recovery promises to point a way forward from the doldrums of current philosophical debate.

Moreover — as I have said — this confidence must look distinctly misplaced if one reckons with the various revisionist construals of the First *Critique* which take these passages as bearing witness to the deeply problematical character of Kant's whole enterprise. These responses have ranged from Fichte's espousal of a full-fledged subjective idealist position to Schopenhauer's dark-hued metaphysical recasting of Kantian themes and Nietzsche's charge that had Kant possessed the courage of his own best insights he would surely have pressed all the way to a thoroughgoing sceptical 'transvaluation of values' in epistemology and ethics (Fichte 1980; Schopenhauer 1969; Nietzsche 1968). Then again — purporting to surpass or 'overcome' all these — there is Heidegger's depth-ontological approach that fastens on those same passages concerning the role of 'productive imagination', taken as the most revealing but also the most symptomatically occluded source of insight in Kant's critical project (Heidegger 1990). Thus, according to Heidegger, it is at just these points that an attentive reading may divine the dimension of 'authentic' temporal experience that finds no place in the dominant tradition of Western post-Hellenic philosophical thought. My point is not so much to defend these revisionist construals — Heidegger's least of all — but rather to suggest that the current 'back-to-Kant' trend among thinkers in the broadly analytic tradition is one that ignores a whole range of problems about Kant's theory of judgement, chief among them its appeal to the synthesising power of 'imagination'.

It seems to me that early Putnam was right when he claimed to cut through this entire thicket of epistemological problems by locating truth in the way things objectively stand with the

world quite apart from any question concerning our beliefs, knowledge, epistemic criteria, conditions of warranted assertability, or whatever. Thus — for instance — what determines the truth or falsehood of our current-best theories with regard to the atomic constitution of ‘gold’, or the molecular composition of ‘water’, or the attribute *proton-donor* as applied to ‘acid’ is whether or not those theories refer to existent natural kinds and whether or not our predicative statements pick out genuine properties of them (Putnam 1975a, 1975c). Such truths are verification-transcendent in so far as they hold good objectively and depend not all on the range or depth of our current scientific knowledge. At the same time this argument is saved from the standard anti-realist riposte — i.e., that it lacks any substantive epistemological content — by its conjunction with a causal theory of reference which accounts for the progress of scientific knowledge through our acquiring an ever more detailed knowledge of those depth-ontological or microphysical properties. At the opposite extreme this case would apply equally to statements concerning large-scale phenomena — such as the rotation of the galaxies — whose objective truth-value is wholly independent of our present-best means of observation, yet which might be borne out as a result of further (more sophisticated) methods and techniques. At any rate this seems a better explanation of our knowledge of the growth of knowledge than can possibly be had from an anti-realist viewpoint which denies the existence of objective (verification-transcendent) truths, or indeed from a more moderate ‘constructive empiricist’ approach according to which the only statements that possess veridical or referential warrant are those that lie within the epistemic compass of unaided human observation (van Fraassen 1980).

Early Putnam again had the best response to such arguments with his account of erstwhile unobservables — like ‘molecule’, ‘atom’, or ‘electron’ — as ‘truth-tracking’ or ‘sensitive to future discovery’ even at a time when their existence was a matter of

strictly metaphysical conjecture. Thus the realist will see no reason to doubt that this case has equal validity when applied to the kinds of more-or-less conjectural or speculative statement that are nowadays very often to be found in the discourse of subatomic particle physics. Nor will she be over-impressed by the sceptical meta-induction which argues to precisely opposite effect, i.e., that this confidence is wholly misplaced since the history of science offers many examples of theories that once apparently enjoyed a high measure of predictive-explanatory success but whose statements thereafter turned out to be false or devoid of referential content. 'Phlogiston', 'caloric', and the 'luminiferous ether' are three such standard cautionary instances which often figure in the argument against any version of the case for convergent realism or for scientific knowledge as 'truth-tracking' in the way that early Putnam describes (Laudan 1981). Yet the realist can readily turn this argument around by pointing out (1) that those terms have been dropped from later scientific discourse precisely because they were *not* 'truth-tracking' or 'sensitive to future discovery', and (2) that this strongly vindicates the claim for truth as verification-transcendent at any given stage in the history of scientific thought (Aronson 1989; Aronson, Harré and Way 1994; Rescher 1979; Smith 1981). Moreover (3), there is a crucial difference, one that the realist is best placed to explain, between terms like 'phlogiston' and the 'luminiferous ether' which are now taken as entirely obsolete — since they refer to nothing that has played any useful or constructive role in the later development of knowledge — and on the other hand terms such as 'caloric' which did play such a role, in this case leading to the theory of specific heat, even though (or indeed precisely because) the result of that subsequent advance was to deprive 'caloric' of its erstwhile status as a genuine referring expression. The anti-realist can make little sense of such distinctions since on his view — one that rejects any notion of progressive convergence on truth — we are never in a good (epistemically warranted)

position to sort out the kinds and degrees of truth-aptitude that characterise different theories and their various component terms.

Still less can the anti-realist explain — as early Putnam could through the causal theory of reference — how some such items (like ‘molecule’ and ‘atom’) have retained their role in a progressive and continuous history of scientific thought despite passing through a series of radical changes in our conception of their nature, constituent properties, microstructural attributes, and so forth. Thus one major problem with anti-realism is that it leads very quickly to a full-fledged Kuhnian paradigm-relativist position where the meaning (and hence the reference) of every term in some given scientific theory is thought to be dependent on the whole vast range of currently accepted beliefs, from basic ontological commitments to high-level theories or hypotheses (Kuhn 1970). In which case — as likewise with Quine’s thesis of ontological relativity — it is hard to explain how we can possibly talk of scientific ‘progress’ or account for our knowledge of the growth of knowledge by comparing different (‘incommensurable’) theories in point of their accuracy, predictive power, or depth of causal-explanatory grasp (Quine 1961 and 1969).

Here again the early-Putnam take on these issues has the signal advantage of locating such progress in the way that certain candidates for truth — like the atomic-molecular hypothesis — have adapted and evolved through successive stages of increasing conceptual refinement as well as through exposure to various problems, anomalies, internal tensions, discrepant results produced by crucial experiments, etc. Indeed another large problem with the Quinean-Kuhnian approach is that it quite explicitly leaves no room for the decisive role of such crucial experiments. Thus any problems encountered — e.g., through the conflict between observational data and standing theoretical commitments — can always be subject to a process of adjustment (or a kind of pragmatic trade-off) whereby

the discrepancy is effectively explained away by redistributing predicates and truth-values over the belief-system as a whole, or invoking alternative auxiliary hypotheses, or again (at the limit) pleading perceptual hallucination (Quine 1961). This follows from the Duhem-Quine thesis concerning the underdetermination of theory by evidence and the theory-laden (hence always corrigible) character of observation-statements (Duhem 1969; Harding [ed.] 1976). However — as I have said — it is a way of thinking that if followed through consistently would render nonsensical any talk of definite progress or advancement in our knowledge of the physical world.

On the causal-realist account, conversely, it is the hallmark of progressive (truth-apt) scientific theories that their statement takes the form of sentences containing object-terms and predicates which either succeed in picking out physically existent objects and properties or have the potential for doing just that through subsequent advances and refinements. Other philosophers — notably Hartry Field — have argued against the notion of radical meaning-variance between 'paradigms' by defining the various degrees of semantic overlap that enable (say) a term such as 'mass' to retain sufficient continuity of reference despite the conceptual shifts that it has undergone in the passage from Newtonian to Einsteinian physics (Field 1973). In short, these theories can be subject to cross-paradigm assessment by separating out the various operative senses of the term — absolute mass, rest-mass, inertial mass, relativistic mass — and showing how the process of theory-change involves both the advent of new (more powerful) concepts and the conservation of earlier concepts as still valid within certain well-defined limiting conditions. Thus Field goes a long way toward explaining why the Quine-Kuhn line of argument need not pose any ultimate threat to the realist position. However there are still certain problems with his approach, among them the fact that it tends to assume a descriptivist account of the relation or order of priority between sense and reference. To

this extent Field's theory lies open to just the kinds of sceptical counter-argument that early Putnam sought to head off by developing his alternative (causal) account of how reference is fixed and thereafter holds firm throughout and despite any subsequent shifts in the range of descriptive or identifying criteria (Putnam 1975a, 1975b, 1975c; also Kripke 1980, Schwartz [ed.] 1977).

Moreover, Putnam's theory has the great advantage of linking this claim in philosophical semantics — that fixity of reference subtends and facilitates the process of descriptive-definitional refinement — to a cognate thesis in epistemology and philosophy of science. On this view the advancement of scientific knowledge comes about through our gaining an ever more detailed depth-explanatory grasp of those properties of the physical world — whether on a micro- or macrostructural scale — which render our statements objectively true or false. The crucial point here is that Putnam's account is able to explain not only how past developments have led to our present (albeit provisional) state of knowledge but also how our theories and conjectures are 'sensitive to future discovery'. Thus they are always subject to further correction or refinement in so far as our present-best construal of their various object-terms and predicates will most likely at some stage give way to yet more precise, detailed, or adequate modes of specification.

In early Putnam this case is crucially dependent on the notion of 'wide' mental content, that is, the claim that what determines the truth or falsehood of our standing beliefs cannot be confined to the epistemic realm of private 'representations' but necessarily involves certain real-world (belief-independent) objects or properties (Putnam 1975c). Hence his use of thought-experiments — like the famous 'Twin-Earth' conjecture — whose purpose is to establish this case through a range of counterfactual instances which demonstrate the reference-fixing role of those same objects or properties. So, for example, we are to imagine a Twin-Earth substance called 'wa-

ter' which shares all the phenomenal attributes of Earthly water — it is colourless, odourless, liquid at certain temperatures and under certain atmospheric pressures, has just the same freezing-point, boiling-point, proneness to condense into clouds and to fall as rain, etc. — but which happens to have the molecular structure XYZ in stead of H_2O . Or again, take the case of aluminium and molybdenum, two metallic elements of similar surface appearance which Earthling physicists are able to distinguish in virtue of their different atomic structures, but whose names are switched around on Twin Earth so that their physicists reliably pick out samples of 'aluminium' where ours pick out samples of molybdenum, and vice versa. Putnam's point — quite simply — is that space travellers from Earth would be wrong if they used the term 'water' in referring to samples of XYZ, just as travellers from Twin Earth would be wrong if they landed on Earth and delightedly exclaimed: 'lots of water around here!'. So likewise with 'aluminium' and 'molybdenum', assuming that everyday domestic utensils on each planet were made out of the same stuff (aluminium) and other, more specialised items — such as high-precision roller bearings — made out of molybdenum. In each case the travellers would have been deceived by appearances and led to misdescribe the liquid or metal by applying a name from their own vocabulary that failed to get things right. This to say — on the 'wide' theory of mental content — that truth in such matters cannot be defined in purely epistemic or descriptivist terms but must rather take account of objective (mind- and language-independent) properties which ultimately fix the truth-conditions for statements of the relevant kind (McCulloch 1995). What is more, it requires that those conditions be fixed not by any present-best state of knowledge but by the way things stand in reality quite aside from the issue as to whether we ourselves or indeed any future community of enquirers might be epistemically equipped to understand them.

So when the realist describes such usages as 'truth-tracking' or 'sensitive to future discovery' she is not suggesting that the final criterion is that of convergence on some notional ideal of truth that would inevitably find acceptance among those who possessed all the relevant data, observational resources, or suitably enhanced powers of theoretical grasp. This argument is one that had its classic exposition in the writings of C. S. Peirce and that Putnam adopted during his 'middle' period in works like *Reason, Truth and History* (Peirce 1957, 1992; Putnam 1981). It is pragmatist in the sense of identifying truth with what is ultimately 'good in the way of belief' but not in the vulgarised (arguably Jamesian) sense of finding no use for any notion of truth that would not fit in with the interests and priorities of some presently existing *de facto* community of belief. Rather it appeals to what is 'fated' to be known by truth-seekers 'at the end of enquiry' who would by very definition be ideally placed to comprehend everything that fell within the range of humanly possible knowledge. At that time — as Putnam recalls in the Dewey Lectures — this seemed to him the best line of response to Dummett-style anti-realist arguments which pushed verificationism to the point of denying that any statement could possibly be a candidate for truth or falsehood unless we possessed some definitive proof-procedure or means of checking its accuracy. Thus 'I proposed to identify "being true" not with "being verified", as Dummett does, but with "being verified to a sufficient degree to warrant acceptance under sufficiently good epistemic conditions"' (Putnam 1994: 461).

However the trouble with this — from a realist standpoint — is that it still comes out in accord with the notion that truth is a matter of epistemic warrant or of what can be known (no matter how 'ideally') as opposed to what obtains quite apart from any present or future-best state of knowledge. Thus it marks the first stage of Putnam's retreat from his early objectivist stance and his turn toward an 'internal-realist' position where 'true' is identified — at least for all practical purposes

— with 'good in the way of epistemically-warranted belief'. With this move he effectively renounces any notion of truth as verification-transcendent, that is to say, as in principle lying beyond not only our present-best powers of verification but also any future state of knowledge brought about by extension or refinement of those powers. Putnam describes himself as having been 'bothered by the excessively "idealist" thrust of Dummett's position' (especially 'his flirtation with strong anti-realism with respect to the past'), and offers his own response at the time as a means of avoiding that worrisome upshot while conceding the force of anti-realist arguments on a more moderate construal. This he hoped to achieve

by identifying a speaker's grasp of the meaning of a statement not with an ability to tell whether the statement is true now, or to tell whether it is true under circumstances the speaker can actually bring about, as Dummett does, but with the speaker's possession of abilities that would enable a sufficiently rational speaker to decide whether the statement is true in sufficiently good epistemic circumstances. (Putnam 1994: 462)

But in that case, so the 'strong' anti-realist will argue, there is simply no use for any notion of truth as verification-transcendent or as somehow exerting an objective claim quite apart from the standards of epistemic warrant — or justified assertability — presumed to obtain under just those idealised conditions. This concession is all that he (the anti-realist) requires in order to push right through with the argument that any such talk of 'objectivity' or 'truth' is a kind of transcendental illusion or metaphysical 'bewitchment by language'. For there is then no way of blocking the sceptic's standard line of response, namely that truth-claims *cannot make sense* unless they are construed as dependent on one or another (existing or ideally attainable) method of verification.

Hence the failure of Putnam's attempt to draw a firm line between Dummett's position and his own. That is to say, it makes little difference — from an anti-realist viewpoint —

whether the criterion for warranted assertability is identified with a speaker's present grasp of the meaning (i.e., the verification-conditions) of some particular statement, or their ability to tell 'whether it is true under circumstances the speaker can actually bring about', or again — Putnam's preferred alternative — their idealised capacity 'to decide whether the statement is true in sufficiently good epistemic circumstances' (1994: 462). For in each case the argument starts out by yielding the main point at issue between realists and anti-realists, i.e., the existence (as the realist would have it) of objective truths that may lie beyond our utmost attainable powers of verification. What is so odd about Putnam's self-critical retrospect is that he sees this problem clearly enough but takes it as grounds for retreating yet further from his early (objectivist) position rather than supposing that it came about mainly in consequence of that same retreat. Thus:

[i]f, on the picture we have inherited from early modern philosophy, there is a problem about how, without postulating some form of magic, we can have referential access to external things, there is an equal problem as to how we can have referential or other access to 'sufficiently good epistemic conditions'. On my alternative picture (as opposed to Dummett's), the world was allowed to determine whether I actually am in a sufficiently good epistemic situation or whether I only seem to myself to be in one — thus retaining an important idea from common-sense realism — but the conception of an epistemic situation was, at bottom, just the traditional epistemological one. (Putnam 1994: 462)

However this is *not* the kind of 'world-involvement' that figured so importantly in Putnam's early (pre-1975) writings and which enabled him to take a much stronger line against any theory where truth was conceived as relative to (or dependent upon) our present-best or even our future-best-possible state of knowledge concerning it. On that earlier account — to repeat — what fixes the reference and decides the truth-value

of our various terms, predicates, statements, or theories is the way things stand in some portion of objective reality and not the mere fact of their happening to fall within the scope of some 'sufficiently good epistemic situation'. In other words, 'the psychological state of the speaker does *not* determine the extension (or the "meaning", speaking preanalytically) of the term' (Putnam 1975c: 226). Which is also to say, more pithily: 'cut the pie any way you like, "meanings" just ain't in the *head*' (ibid: 227).

V

This seems to me the most decisive contribution of Putnam's work to date, at least when judged by its explanatory worth in accounting for our knowledge of the growth of knowledge with regard to the physical sciences and other branches of enquiry. Of course there is a sense — a distinctly philosophical sense — in which scepticism will always have the last word since it raises questions of a global nature that are framed in order to exclude the possibility of an 'adequate' realist response. Thus the sceptic will typically counter any argument for realism with respect to some particular domain by protesting that it simply misses the point or takes for granted that whole range of common-sense assumptions — like belief in the existence of an objective, mind-independent, or 'external' reality — which his own argument calls into doubt (Williams 1996). The best-known case is of course that of G. E. Moore who sought to convince his lecture audience that scepticism posed no genuine threat by holding up his two hands, using each to point to the other, and declaring this action a straightforward proof that there existed at least two real-world objects whose reality could scarcely be questioned by any person with normal powers of perceptual and cognitive grasp (Moore 1993). This purported 'refutation' of scepticism (or radical idealism) is one that has struck most philosophers — including those of a strong realist bent — as al-

most comically wide of the mark. Yet Moore is not alone in this failure to address the philosophical point on terms and conditions that the sceptic has so carefully laid down in advance. Rather it is the case that every possible argument against scepticism will at some stage lie open to the familiar charge of evading the issue or merely presupposing what the sceptic is out to deny. For if one thing is clear from the long history of debate on this topic it is the fact that no *philosophical* answer could ever carry weight with the sceptic or offer that definitive 'proof of an external world' by which Moore hoped to win his audience over to a commonsense-realist outlook.

Thus the sceptic need only remark that if the world is indeed 'external' (or mind-independent) as the realist requires, then there is simply no way of knowing for sure that our perceptions, beliefs, or ontological commitments bear any relation to the way things stand 'in reality'. Or again, as Michael Williams puts it: 'if the world is an objective world, statements about how things appear must be logically unconnected with statements about how they are; this lack of connection is what familiar thought-experiments dramatically illustrate' (Williams 1996: 56). From which it follows — on the sceptic's account — that the realist is faced with a no-win choice between espousing a 'strong' externalist stance which places truth beyond the utmost reach of humanly attainable knowledge, or adopting the alternative (epistemic) conception where truth becomes subject to the scope and limits of human cognitive endeavour. Either way, so it seems, there is a strictly inescapable paradox in the realist position which can only be resolved by abandoning that position altogether or else coming up with some different construal which entails no such drastic dichotomy between mind and world, subject and object, or verifiable knowledge and verification-transcendent truth. It is this latter, more complicated line of response that Putnam has consistently chosen to pursue, despite the many shifts of argumentative tack in his thinking over the past three decades. As we have seen,

the complications are those that arise from his attempt to hold the balance between, on the one hand, a pragmatist outlook of 'commonsense' realism that does full justice to our normal (everyday or broadly scientific) modes of thought and, on the other, a qualified acceptance — again within commonsense limits — of the anti-realist case.

Hence the long series of visions and revisions that have marked Putnam's dealing with the problem of knowledge and given his work such a protean yet also such a dogged and impressively single-minded character. Nevertheless it seems to me that early Putnam got the emphasis right when he took the self-evidence of scientific progress in our knowledge of the physical world as a yardstick or test-case for our thinking about issues of meaning, reference, and truth. Of course this is no 'answer' to the problem of knowledge on terms that would strike the sceptic — or the convinced anti-realist — as carrying much philosophical force. But then, as I have said, all the answers that philosophers have so far come up with must be seen as either begging the question from a sceptical standpoint or as offering no more than a Wittgensteinian assurance that we can carry on talking in the same realist fashion just so long as we entertain no illusions like those to which the metaphysical realist is so distressingly prone. And what counts as 'metaphysical' on this conception is a belief in the explanatory power of those real-world properties, attributes, microstructural features, causal laws, and so forth, which alone can give substance to the realist's argument for the existence of objective (verification-transcendent) truths.

In *The Many Faces of Realism* (1987) Putnam urges that any appeal to 'the scientific method' is an empty appeal since 'there is no such thing as *the* scientific method', or nothing that legitimately answers to that description once abstracted from the various specific contexts of scientific thought. 'Case studies of particular theories in physics, biology, etc., have convinced me that no one paradigm can fit all of the various enquiries

that go under the name of "science" (Putnam 1987: 72). At this point he is discussing the idea of 'scientific method' that prevailed during the heyday of logical empiricism, namely the attempt of Carnap, Reichenbach and others to formulate a rigorous account of the inductive or deductive-nomological procedures that would serve to distinguish it from other, less exacting branches of enquiry (Carnap 1959, 1967; Reichenbach 1938). This programme had been very much a part of Putnam's formative background and one can trace a good deal of his subsequent thinking — from the early 1970s on — to his keen sense of the objections raised against it by critics like Quine and Goodman. What chiefly impressed him was the difficulty of explaining how inductive logic could ever be placed on such a formal or rigorous footing, given its appeal to analogies between past, present, and future events. Thus: '[w]hen Carnap and I worked together on inductive logic in 1953–54, the problem that he regarded as the most intractable in the whole area of inductive logic was the problem of "giving proper weight to analogy"' (Putnam 1987: 73). And he goes on to give Goodman credit for having shown that there is no formal method for distinguishing 'good' from 'bad' analogies, or for separating out those inductive 'projections' which are supposed to be reliably truth-preserving from those others (involving factitious or gerrymandered predicates) which open the way to all manner of wildly counter-intuitive results. In other words he takes Mill's cautionary point that 'there is no general method [as applied to inductive reasoning] that will not give bad results "if conjoined with universal idiocy"' (Putnam 1987: 73).

One may conjecture that Putnam's early account of meaning, reference, and truth was in part an attempt to overcome this problem by proposing an alternative (causal-realist) approach which firmly rejected the logical-empiricist veto on any such so-called 'metaphysical' theory. Other philosophers bred up in that tradition — Wesley Salmon among them — can be seen to have followed a similar path to the conclusion that

logical empiricism was a dead-end programme, one that conspicuously failed to resolve the longstanding Humean dilemma about inductive warrant or causal explanation. Hence Salmon's call for a decisive break with that whole way of thinking and an approach that would 'put the "cause" back into "because"' by grounding the truth of our various statements, hypotheses, theories, etc., in the various causally-operative powers that the physical sciences were best equipped to explain (Salmon 1984; Salmon [ed.] 1979). Hence also — as I have argued — the range of examples that Putnam comes up with in those essays of the early 1970s where he offers a causal-realist account of meaning, reference, and truth. However this is not the lesson that he draws from the failure of logical empiricism in that passage from *The Many Faces of Realism* that I cited one paragraph above. Rather, he takes the lack of any unitary 'scientific method' — such as that pursued by thinkers like Carnap and Reichenbach — as suggesting that we henceforth adopt a more constructivist view of 'truth' and 'reality', albeit one that stops well short of Nelson Goodman's decidedly *outré* variations on this theme. Thus the picture that holds us captive, he now thinks, is the idea of standards — for instance, standards of valid inductive inference — which somehow *preexist* our various practices, reasonings, scientific procedures, etc., and which objectively decide whether or not we are managing to get things right. Yet 'this is just the picture that Goodman attacked in his famous writing on induction, and that Quine attacks in his "naturalized epistemology"'. So we should do much better to renounce this delusory objectivist view-from-nowhere and accept the basic pragmatist point that the standards in question are those which we ourselves have evolved and refined in various contexts of applied investigative thought. Such is indeed Goodman's main argument in his 'deep little book on "worldmaking"', and such the conclusion that Putnam derives from Quine's (as he takes it) definitive attack on the two 'last dogmas' of old-style logical empiricism.

These reflections are a part of Putnam's generalised case in *The Many Faces of Realism* for a more flexible conception of 'method' that would allow us to break with the typecast distinction between the kinds of reasoning appropriate to the 'hard' (i.e., physical or natural) sciences and the kinds of empathetic understanding that supposedly characterise 'soft' disciplines like psychology, sociology, or literary criticism. On the one hand, as he had argued in *Meaning and the Moral Sciences* (1978), it is important to maintain a due sense of this distinction since otherwise there will be no place for *Verstehen*, that is to say, for the claims of interpretative insight or depth-hermeneutic understanding as opposed to the claims of inductive or deductive-nomological method. For '[i]f one tries, with Ernest Nagel, to simply *assimilate* the inferences we make in history to the inferences of the physicist, the effect is not to show that history is proper "science" after all, but to make it all look like *terrible science*' (Putnam 1987: 75). On the other hand — as Putnam now wants to stress — it is wrong to suppose that these are realms apart or that the 'hard' sciences can perfectly well get along without recourse to the kinds of non-formalisable but equally valid insight that play a central role in the humanities and social sciences. After all, is this not just the lesson that we have learned (or that we ought to have learned) from the impasse of logical empiricism? That is, if it proved impossible to formulate the canons of valid inductive inference without some appeal to analogy and hence to our intuitive grasp of the difference between 'right' and 'wrong' kinds of analogy, then in this case at least we shall have to make adjustments to our sense of what counts as scientific 'method'. Thus the big problem that Carnap came up against — that of 'giving proper weight to analogy' — is one with even larger implications for philosophy of science and its cherished self-image *vis-à-vis* the 'softer' disciplines. But this is no problem for the pragmatist since '[s]tandards and practices, pragmatists have always insisted, must be developed together and constantly re-

vised by a procedure of delicate mutual adjustment' (Putnam 1994: 79). In which case Goodman is right to this extent at least: that there is no single method — no favoured 'projection' or ontologically privileged world-version — that can claim such status simply by virtue of capturing the way things stand in reality.

So we can see, once again, just how far Putnam has travelled from his earlier causal-realist outlook according to which the truth-value of our various statements, theories, observations, etc., was a matter of their picking out objects and properties (e.g., microstructural attributes) which existed and exerted their causal powers quite aside from their role in some descriptive framework or projective scheme. Where others — like Salmon — continued to develop that causal-realist approach as the best way forward from the problems with logical empiricism Putnam chose rather to abandon it in face of the various counter-arguments put up by Goodman and other sceptics. What he hoped to retrieve, nevertheless, was a pragmatist or 'commonsense' realism which would adequately meet those sceptical rejoinders while making no concession to more extreme versions of the adversary case. There is a passage in *The Many Faces of Realism* where he argues for just such a sensible middle-ground position, one that avoids any wholesale relativist notion of truth as just 'a matter of what the folks in my culture believe', while also avoiding the metaphysical-realist idea of scientific beliefs as 'approximations to the Universe's Own Scientific Theory', or of moral beliefs as 'approximations to the Universe's Own Moral Truths'. Thus:

Ruth Anna Putnam has written that we 'make' facts and we 'make' values; but the fact that we make facts and values doesn't mean that they are arbitrary, or that they can't be better or worse. She compares the situation to the making of artifacts; we *literally* make artifacts, and we don't make them according to Nature's Own Blueprint, nor is there always one design which is forced upon all designers by Natural Law

(when we make knives, we don't follow The Universe's Own Design for a Knife), but it doesn't follow that the knives we make don't satisfy real needs, and knives may certainly be better or worse. (Putnam, Ruth A. 1985; cited Putnam, H. 1987: 78)

No doubt it is true — and a point worth making against the hardline 'metaphysical' realist, if any such still exist — that objects like knives cannot sensibly be thought of as approximations to an ideal of Knifehood laid down in advance of all practical uses and purposes. Still there is a strong suspicion, here as so often, that the pragmatist is scoring easy points off a typecast opponent by presenting what amounts to a travesty of their position and then proceeding to knock it down by appealing to our straightforward 'commonsense' grasp of the issues involved. After all the realist might well respond that we can give an adequate causal explanation of why some knives cut better than others in virtue of their sharpness, cutting-edge serrations, tensile strength, manual balance, ratio of blade-area to handle proportions, and so forth. More than that: the metallurgist can go into detail concerning the particular kinds of steel and their molecular constitution which make for an effective and long-wearing blade, or the particular kinds of material (natural or synthetic) that make for a good sturdy handle.

None of this involves any Platonist appeal to The Universe's Own Design for a Knife, or to Nature's Own Blueprint for the ideal Knife as distinct from the various different sorts of knife that 'satisfy real needs' in various real-world practical contexts. But it does cast doubt on the pragmatist tendency to draw the line at this point and suggest that any further causal-explanatory hypotheses must involve some appeal to occult qualities or some commitment to 'metaphysical' realism in one or another form. As usual Richard Rorty offers an instructive (cautionary) lesson by pushing right through with this line of argument. Thus: '[t]he notion of reality as having a "nature" to which it is our duty to correspond is simply one more variant of

the notion that the gods can be placated by chanting the right words' (Rorty 1991: 80). And again: '[t]he source of realist, antipragmatist philosophy of science is the attempt . . . to make "Nature" do duty for God — the attempt to make natural science a way of conforming to the will of a power not ourselves, rather than simply facilitating our commerce with the things around us' (ibid: 87). Of course Putnam is very far from endorsing such a strong-constructivist or relativist stance since he wants to make the case for a commonsense realism that would have no truck with this old debate between 'metaphysical' realists and their sceptical opponents. Still he leans pretty far in a Rortian direction with his talk of 'Nature's Own Blueprint' or 'The Universe's Own Design', as if these notions are always (surreptitiously) somewhere in the background when realists appeal to 'scientific method' as a means of extending and refining our knowledge of the physical world.

Nicholas Rescher has a nice example which may help to clarify this point with regard to the knife and its various properties as viewed from a causal-realist or a late-Putnam-style pragmatist standpoint (Rescher 1987: 61). Julius Caesar didn't know — had no means of knowing — that his sword was so effective because its blade contained a high proportion of tungsten carbide which allowed it to be honed to a high degree of sharpness and moreover to retain that property despite long and hard use. What gives us a decided advantage in this respect is the fact that we can now offer a more adequate causal explanation as the result of advances in our modern understanding of metallurgy, molecular chemistry, and subatomic physics. In other words we now possess what early Putnam — following Richard Boyd — calls a 'mature scientific theory', one in which terms 'typically refer' and in which laws are 'typically approximately true', that is say, true subject to correction as further such advances come about and those terms and theories undergo progressive refinement (Putnam 1975d: 290; Boyd 1984; also McMullin 1984). And again:

As language develops, the causal and noncausal links between bits of language and aspects of the world become more complex and more various. To look for any one uniform link between word or thought and object of word or thought is to look for the occult; but to see our evolving and expanding notion of reference as just a proliferating family is to miss the essence of the relation between language and reality. The essence of the relation is that language and thought do asymptotically correspond to reality, to some extent at least. A theory of reference is a theory of the correspondence in question. (Putnam 1975d: 290)

While this offers no solution to the 'problem of knowledge', philosophically conceived, and certainly no answer to the sceptic on his or her chosen ground it does provide the best explanation of how science makes progress with regard to particular regions of applied investigative thought.

Thus Putnam is right when he concludes — some twelve years on — that there is 'no such thing as *the* scientific method' and that 'case studies of particular theories in physics, biology, etc., have convinced me that no one paradigm can fit all the various enquiries that go under the name of "science"' (1987: 72). However, I would suggest, the lesson is not so much (after Wittgenstein) that our use of such terms belongs to a 'proliferating family' of language-games nor again (after Rorty) that talk of 'correspondence' is talk about some 'occult' or mysterious relation which amounts to just a form of primitive word-magic. Rather it is the lesson that our best source of guidance with respect to these philosophic issues is one that looks beyond them to just the kinds of detailed case-study that provide the only possible counter-argument to an outlook of global scepticism. This was early Putnam's most distinctive contribution to issues in philosophical semantics, epistemology, and philosophy of science. Whatever his subsequent doubts under pressure from a range of adversary quarters it is still — I would argue — a viable approach and one that offers a powerful challenge to prevalent forms of anti-realist and sceptical thought.

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