And Not Anti-Realism Either

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EPIGRAPHS

1. *Realism*: "Out yonder there was this huge world, which exists independently of us human beings. . . . The mental grasp of this extra-personal world hovered before me as the highest goal . . ."
Albert Einstein, "Autobiographical Notes"
2. *Anti-Realism*: "to get at something absolute without going out of your own skin!"
William James, letter to Tom Ward, October 9, 1868

1. INTRODUCTION

As my title suggests, this paper is another episode in a continuing story. In the last episode the body of realism was examined, the causes of its death identified, and then the project of constructing a suitable successor for these post-realist times was begun ([3]). I called that successor the "natural ontological attitude" or NOA, for short, and I shall return to it below. In today's episode, however, the subject of criticism becomes anti-realism, and this is a live and, therefore, a shiftier target. For the death of realism has revived interest in several anti-realist positions and, appropriately enough, recent philosophical work has explored modifications of these anti-realisms to see whether they can be refurbished in order to take over, from realism, as the philosophy-of-science "of choice." My first object here will be to show that just as realism will not do for this choice position, neither will anti-realism. That job accomplished, I shall then sing some more in praise of NOA.

To understand anti-realism we have first to backtrack a bit and re-examine realism. Given the diverse array of philosophical positions that have sought the "realist" label, it is probably not possible to give a sketch of realism that will encompass them all. Indeed, it may be hopeless to try, even, to capture the essential features of realism. Yet, that is indeed what I hope to do in identifying the core of realism with the following ideas. First, realism holds that

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there exists a definite world; that is, a world containing entities with relations and properties that are to a large extent independent of human acts and agents (or the possibilities therefore). Secondly, according to realism, it is possible to obtain a substantial amount of reliable and relatively observer-independent information concerning this world and its features, information not restricted, for example, to just observable features. I shall refer to these components of realism as (1) belief in a definite world-structure and (2) belief in the possibility of substantial epistemic access to that structure. This realism becomes ''scientific'' when we add to it a third component; namely, (3) the belief that science aims at (and, to some extent, achieves) all the epistemic access to the definite world structure that realism holds to be possible.

This sketch of realism highlights the ontological features that seem to me characteristic of it. But there is a semantical aspect as well. For in order to see science as working towards the achievement of the realist goal of substantial access to features of the definite world-structure, the theories and principles of science must be understood to be *about* that world-structure. Thus the *truth* of scientific assertions gets a specifically realist interpretation; namely, as a *correspondence* with features of the definite world structure.

I can put it very succinctly this way. The realist adopts a standard, model-theoretic, correspondence theory of truth; where the model is just the definite world structure posited by realism and where correspondence is understood as a relation that reaches right out to touch the world. (See [4] and [10].)

The ''anti-realisms'' that I want to examine and reject here all oppose the three tenets of realism understood as above (in spirit, if not always in words). They also reject the characteristically realist picture of truth as external-world correspondence. They divide among themselves over the question of whether or not that realist picture of truth ought to be replaced by some other picture. But they agree (again in spirit, if not in words) that although the realist has the aim of science wrong, in his third tenet above, it is important for us to understand what the correct aim of science is. This agreement is the mark of what I shall call ''scientific'' anti-realism. And the disagreement over offering truth pictures, then, divides the scientific anti-realists into those who are truth-mongers, and those who are not.

2. TRUTH-MONGERS

The history of philosophy has witnessed a rather considerable trade in truth; including wholesale accounts like correspondence and coherence theories, or consensus and pragmatic theories, or index-

ical and relativist theories. There have also been special reductions available including phenomenalisms and idealisms. Among scientific anti-realists the wholesalers, recently, have tried to promote some kind of consensus-cum-pragmatic picture. I will try to give this picture a canonical representation so that we can identify the features that these particular anti-realisms have in common. So represented, it portrays the truth of a statement P as amounting to the fact that a certain class of subjects would accept P under a certain set of circumstances. If we let the subjects be "perfectly rational" agents and the circumstances be "ideal" ones for the purposes of the knowledge trade (perhaps those marking the Piercean limit?), then we got the picture of truth as ideal rational acceptance, and this is the picture that Hilary Putnam paints for his "internal realism."[1] If the subjects are not perfectly rational and yet conscientious and well-intentioned about things, and we let the circumstances be those marking a serious dialogue of the kind that makes for consensus, where consensus is attainable, then we get the Wittgensteinean position that Richard Rorty calls "epistemological behaviorism."[2] Finally, if our subjects are immersed in the matrix of some paradigm and the circumstances are those encompassed by the values and rules of the paradigm, then we get the specifically paradigm-relative concept of truth (and of reference) that is characteristic of Thomas Kuhn's anti-realism ([8]). With these three applications in mind, I want to examine the merits—which is to say, to point out the demerits—of this sort of acceptance theory of truth.

Let us first be clear that these acceptance pictures of truth make for an anti-realist attitude towards science. That is a somewhat subtle issue, for the old Machian debates over the reality of molecules and atoms might suggest that realism turns on the putative truth (or not) of certain existence claims, especially claims about the existence of "unobservables." Since acceptance theories of truth, of the sort outlined above, might very well issue in the truth of such existence claims, one might be tempted to suggest, as well, that holders of acceptance theories could be realists. While there is no doubt a distinction to be drawn between those who do and those who do not believe in the existence, let us say, of magnetic monopoles; I think it would be a mistake to take that as distinguishing the realists from the others.[3] For it is not the *form* of a claim held true that marks off realism, it is rather the significance or content of the claim. The realist, say, wants to know whether there *really* are magnetic monopoles. He understands that in the way explained above, so that a positive answer here would signify a sort of reaching *out* from electro-dynamic discourse *to* the very stuff of the world. The fact

that scientific practice involves serious monopole talk, including what is described as manipulating monopoles and intervening in their behavior, does not even begin to address the issue of realism. For what realism is after is a very particular interpretation of that practice. This is exactly the interpretation that the picture of truth-as-acceptance turns us away from.

The special sort of correspondence that is built into the realist conception of truth orients us to face ''*out* on the world,'' striving in our science to grab hold of significant chunks of its definite structure. The idea of truth as acceptance, however, turns us right around again to look back at our own collective selves, and at the interpersonal features that constitute the practice of the truth-game. (Compare the two epigraphs.) This turn-about makes for a sort of Ptolemaic counter-revolution. We are invited to focus on the mundane roots of truth-talk, and its various mundane purposes and procedures. Concepts having to do with acceptance provide a rich setting for all these mundane happenings. If we then take truth just to *be* the right sort of acceptance we reap a bonus for, when we bring truth down to earth in this way, we obtain insurance against the inherent, metaphysical aspects of realism.

I can well understand how the sight of realism unveiled might bring on disturbing, metaphysical shudders. And it's understandable, I think, that we should seek the seeming-security provided by sheltering for awhile in a nest of inter-personal relations. But it would be a mistake to think that we will find truth there. For the anti-realism expressed in the idea of truth-as-acceptance is just as metaphysical and idle as the realism expressed by a correspondence theory.

I have not been able to locate a significant line of argument in the recent literature that moves to supply the warrant for an acceptance theory of truth. Rather, as I have noted, these anti-realists seem to have taken shelter in that corner mainly in reaction to realism. For when one sees that the realist conception of truth creates a gap that keeps the epistemic access one wants always just beyond reach, it may be tempting to try to refashion the idea of truth in epistemic terms in order, literally, to make the truth accessible. What allows the truth-mongers to think that this is feasible, so far as I can tell, is a common turning towards behaviorism. In one way or another, these anti-realists seem sympathetic to the behaviorist idea that the working practices of conceptual exchange exhaust the meaning of that exchange, giving it its significance and providing it with its content. Thus we come to the idea that if the working practices of the truth exchange are the practices of acceptance, then acceptance is what truth is all about, and nothing but acceptance.

I do not have any new critique to offer concerning the flaws in behaviorism. Just about everyone recognizes that various special applications of behaviorism are wrong; for example, operationalism, or Watson-Skinnerism. So too, just about everyone has a sense of the basic error; namely, that behaviorism makes out everything it touches to be less than it is, fixing limits where none exist. Such, indeed, is the way of these anti-realisms: they fix the concept of truth, pinning it down to acceptance. One certainly has no more warrant for imposing this constraint on the basic concept of truth, however, than the operationalist has for imposing his constraints on more derivative concepts (like length or mass).

In fact, I think the warrant for behaviorism with regard to truth is considerably more suspicious than anything the operationalist ever had in mind. For whatever might possibly warrant the behaviorist conception of truth-as-acceptance should at least make that a conception we can take in and understand. Even if, as some maintain, truth is merely a regulative ideal, it must still be an ideal we can understand, strive for, believe in, glimpse—and so forth. But if, as the behaviorism holds, judgments of truth are judgments of what certain people would accept under certain circumstances, what are the ground rules for arriving at those judgments, and working with them as required? Naively, it looks like what we are called upon to do is to extrapolate from what *is* the case with regard to actual acceptance behavior to what *would be* the case under the right conditions. But how are we ever to establish what *is* the case, in order to get this extrapolation going, when that determination itself calls for a prior, successful round of extrapolation? It appears that acceptance locks us into a repeating pattern that involves an endless regress. Moreover, if we attend to the counterfactuality built into the "would accept" in the truth-as-acceptance formula, then I think we encounter a similar difficulty. To understand this conception of truth we must get a sense of how things would be were they different in certain respects from what they are now. Whatever your line about counterfactuals, this understanding involves at least either the idea of truth in altered circumstances, or the idea of truth in these actual circumstances. But each alternative here folds in upon itself, requiring in turn further truths. I believe there is no grounding for this process unless we turn away from the acceptance picture at some point.

It seems to me that the acceptance idea never *can* get off the ground, and that we cannot actually understand the picture of truth that it purports to offer. If we think otherwise that is probably because we are inclined to read into the truth-mongers' project some truths (or ideas of truth) not having to do with acceptance at all—perhaps,

even, some truths via correspondence! Thus, with respect to warrant and intelligibility, the acceptance picture emerges as quite on par with the correspondence picture.[4]

There is, as I have noted, a very close connection between these two conceptions. It is a typical dialectic that binds the metaphysics of realism to the metaphysics of behaviorism. Realism reaches out for *more* than can be had. Behaviorism reacts by pulling back to the "secure" ground of human behavior. In terms of that it tries to impose a limit, short of what realism has been reaching for. The limit imposed by behaviorism, however, is simply *less* than what we require. So realism reacts by positing something more, and then reaches out for it again. What we can learn from this cycle is just what makes it run, and how to stop it.

Both the scientific realist and the scientific anti-realist of the acceptance sort share an attitude towards the concept of truth. They think it is appropriate to give a theory, or account, or perhaps just a "picture" of truth. As Hilary Putnam pleads,

> But if all notions of rightness, both epistemic and (metaphysically) realist are eliminated, then what are our statements but noise-makings? What are our thoughts but *mere* subvocalizations? . . . Let us recognize that one of our fundamental self-conceptualizations, in Rorty's phrase, is that we are *thinkers*, and that *as* thinkers we are committed to there being *some* kind of truth, some kind of correctness which is substantial and not merely "disquotational." ([14]: 20-21)

Of course we are all committed to there being some kind of truth. But need we take that to be something like a "natural" kind? This essentialist idea is what makes the cycle run, and we can stop it if we stop conceiving of truth as a substantial something, something for which theories, accounts, or even pictures are appropriate. To be sure, the anti-realist is quite correct in his diagnosis of the disease of realism, and in his therapeutic recommendation to pay attention to how human beings actually operate with the family of truth concepts. Where he goes wrong is in trying to fashion out of these practices a completed concept of truth as a substantial something, one that will then act as a limit for legitimate human aspirations. If we do not join him in this undertaking and if we are also careful not to replace this anti-realist limit on truth by something else that goes beyond practice, then we shall have managed to avoid both realism and these truth-mongering anti-realisms as well.

3. EMPIRICISM

But there are other anti-realisms to contend with. One well-known

brand is empiricism, and this had made some notable progress in the sophisticated version that Bas van Fraassen calls "constructive empiricism" ([18]). This account avoids the reductive and foundationalist tendency of earlier empiricisms that sought to ground all truths in a sense-data or phenomenalist base. It also avoids the modification of this idea that ensnared logical-empiricism: the conception of a theory as a deductively closed logical system on the vocabulary of which there is imposed an epistemologically significant distinction between observables and unobservables. Instead constructive empiricism takes a semantical view of a scientific theory; it views it as a family of models. And it lets science itself dictate what is or is not observable, where the 'able' part refers to us and our limitations according to science. As for truth, it does not engage in trade but plumps for a literal construal.[5] The important concept for this brand of empiricism is the idea of empirical adequacy. This idea applies to theories, conceived of as above. Such a theory is empirically adequate just in case it has some model in which all truths about observables are represented. If truths about observables are called "phenomena," then a theory is empirically adequate just in case it saves the phenomena, *all* the phenomena. The distinctively anti-realist thesis of constructive empiricism is two-fold: (1) that science aims only to provide theories that are empirically adequate and (2) that acceptance of a theory involves as belief only that it *is* empirically adequate. The intended contrast is with a realism that posits true theories as the goal of science and that takes acceptance of a theory to be belief in the truth of the theory. Since truth here is to be taken literally, the realist could well be committed to believing in the existence of unobservable entities literally, but never the constructive empiricist.

Indeed this brand of empiricism, along with its ancestors, involves a strong limitation on what it is legitimate for us to believe (in the sense of believe to be true). Where science is taken as the legitimating basis, we are allowed to believe that the scientific story about observables is true, and no more than that. It seems to me that there are two obvious testing points to probe with regard to any stance that seeks to impose limits on our epistemic attitudes. The first is to see whether the boundary can be marked off in a way that does not involve suspicious or obnoxious assumptions. The second is to see what the rationale is for putting the boundary just there, and to what extent that implacement is arbitrary. Let me take these in order.

A difficulty of the first sort begins to show up as soon as we ask why an attitude of belief is appropriate for the scientific judgment that something is observable. After all, that is supposed to

be just another bit of science, and so our empiricism says that it
is a candidate for affirmative belief (as opposed to agnostic reserve)
just in case it is itself a judgment entirely within the realm of observ-
ables (according to science). What does that mean? Well, one might
suppose that since the judgment that something is observable has
a simple subject/predicate form, then both the subject of the judg-
ment and the predicate must refer to what science holds to be observ-
able. So, for example, the judgment that carrots are mobile would
be a candidate for belief if, as we suppose, science classifies both
carrots and mobility as observables. What then of the judgment
that carrots are observable? In order for *it* to be a candidate for
belief, we must suppose that science classifies both carrots and observ-
ability as observables. But now I think we ought to come to a full
stop.

For if we accept the moves made so far, then we see that the
combination of first, limiting belief to the observable and, second,
letting science determine what counts as observable has a terribly
odd consequence. Namely, in order to believe in any scientific judg-
ment concerning what is observable, we must take as a presupposi-
tion that the ''property'' or ''characteristic'' (or whatever) of ''be-
ing observable'' is itself an observable, *according to science*. Thus when
we go down the list of entities supposedly using our science to deter-
mine which ones are observable, and which not, the property of
''being observable'' must be classified as well, and indeed it must
come out as observable. But this is surely something forced on us
a priori by this empiricist philosophical stance. If there actually were
such a property as ''being observable,'' and science did actually
classify it, who is to say how it must come out—or even whether
it must come out at all as observable or not. *Science* is supposed
to speak here, not philosophy. Thus if we accept the moves in the
argument, this empiricism is suspiciously near to an inconsistency:
it forces the hand of science exactly where it is supposed to follow it.

What then if we try to reject some move in the argument? What
shall we question? Surely the requirement that we respect grammar
and ask separately of subject and predicate whether it refers to an
observable is not a necessary one. After all, to speak somewhat
realistically, who can tell how a judgment confronts the world? Let
us then give up the grammatical requirement and think again how
to deal with the judgment that something is an observable; that
is, how to construe it as a judgment entirely within the realm of
observables. If I judge, scientifically, that carrots are observable,
then I suppose I would have to identify some properties or features
of carrots and show that these would induce the right sort of effects
in an interaction, one party to which is a human being, *qua* observ-

ing instrument. To back up the counterfactual, here, (what effects would be induced) certainly several laws would enter the argument, very likely connecting entities that may themselves not be observable. Now, according to the empiricism at issue, I do not have to believe this whole theoretical story, only its observational part. *That* I do have to believe if it is to warrant my belief in the observability of carrots. But since the question here was precisely how to identify the observational part of a simple judgment (that carrots are observable) I think I am stuck. I do not know what to believe in my scientific story that issues in the observability of carrots, unless I can pick out its observational parts. And I cannot identify a part of the story as observationl unless I can support that identification by means of beliefs based on observational parts of still other covering stories. I really think that we cannot break out of this cycle—or rather break in to get it going—without some external stipulations, or the like, as to what to believe to be observable. Thus an aprioristic resolution of the philosophical squabble over what to take as observable seems required by this empiricism, just as it was by the older ones.

There is, however, a deft maneuver that could get things going again. It is simply not to raise the question of observability where what is at stake is itself a judgment of observability. Thus we could exempt those special judgments from the test of observability, and allow ourselves to believe them in just the way that we would if they had actually passed the test. Indeed if we allow this exception for judgments of observability, then no difficulties seem to arise by way of beliefs being sanctioned that are not really warranted. But if we try to avoid obnoxious assumptions concerning what is observable by granting exemptions from the general empiricist rule in certain special cases, then why—we must ask—should that rule be necessary for the others? This brings us to the second testing point for a philosophy that seeks to impose limits on one's epistemic attitudes; namely, to examine the rationale for the limit—especially to see how arbitrary it is.

We can push this question hard if we recognize that there is a loosely graded vocabulary concerning observability. We do, after all, draw a distinction between what is *observable*, which is rather strict, and what is *detectable*, which is somewhat looser. To get a feel for the distinction, we might, for instance, picture the difference here as between what we would "observe," in the right circumstances, with our sense organs as they are, and what we would "detect" in those same circumstances were our eyes, for example, replaced by electron microscopes. In this grading system atoms, then, would count as detectable but not (strictly) observable. It seems to

me that distinctions of this sort are, in fact, at work in the vocabulary of observation, and van Fraassen certainly recognizes some such ([18]: 16-17). With this in mind, then, I think we can make the question of observability, as a warrant for belief, very acute by asking why restrict the realm of belief to what is observable, as opposed, say, to what is detectable?

I think the question is acute, because I cannot imagine any answer that would be compelling. Are we supposed to refrain from believing in atoms, and various truths about them, because we are concerned over the possibility that what the electron microscope reveals is merely an artifact of the machine? If this is our concern, then we can address it by applying the cautious and thorough procedures and analyses involved in the use and construction of that machine, as well as the crosschecks from other detecting devices, to evaluate the artifactuality (or not) of the atomic phenomena. If we can do this satisfactorily according to tough standards, are we then still not supposed to frame beliefs about atoms, and why not now? Surely the end product of such inquiries, when each one pursues a specific area of uncertainty or possible error, can only be a very compelling scientific documentation of the grounds for believing that we are, actually, detecting atoms.[6] Faced with such substantial reasons for believing that we are detecting atoms what, except purely *a priori* and arbitrary conventions, could possibly dictate the empiricist conclusion that, nevertheless, we are unwarranted actually to engage in *belief* about atoms? What holds for detectability holds as well for the other information-bearing modalities, ones that may be even more remotely connected with strict observability. The general lesson is that, in the context of science, adopting an attitude of belief has as warrant precisely that which science itself grants, nothing more but certainly nothing less.[7]

The stance of empricism, like that of the truth mongers, is (in part) a moral stance. They both regard metaphysics, and in particular the metaphysics of realism, as a sin. They both move in the direction of their anti-realism in order to avoid that sin. But the behaviorism to which the truth-mongers turn, as we have seen, locks them into a comic dance with realism, a *pas de deux* as wickedly metaphysical as ever there was. The empiricist, I think, carries a comparable taint. For when he sidesteps science and moves into his courtroom, there to pronounce his judgments of where to believe and where to withhold, he avoids metaphysics only by committing, instead, the sin of epistemology. We ought not to follow him in this practice. Indeed, I think courtesy requires, at this point, a discreet withdrawal.

4. NOA: THE NATURAL ONTOLOGICAL ATTITUDE

The "isms" of this paper each derive from a philosophical pro-
gram in the context of which they seek to place science. The idea
seems to be that when science is put in that context its significance,
rationality and purpose, as it were, just click into place. Conse-
quently, the defense of these "isms," when a defense is offered,
usually takes the form of arguing that the favorite one is better than
its rivals because it makes better sense of science than do its rivals.[8]

What are we to conclude from this business of placing science
in a context, supplying it with an aim, attempting to make better
sense of it, and so forth? Surely, it is that realism and anti-realism
alike view science as susceptible to being set in context, provided
with a goal, and being made sense of. And what manner of object,
after all, could show such susceptibilities other than something that
could not or did not do these very things for itself? What binds
realism and anti-realism together is this. They see science as a set
of practices in need of an interpretation, and they see themselves
as providing just the right interpretation.

But science is not needy in this way. Its history and current
practice constitute a rich and meaningful setting. In that setting
questions of goals or aims or purposes occur spontaneously and *locally*.
For what purpose is a particular instrument being used, or why
use a tungsten filament here rather than a copper one? What signifi-
cant goals would be accomplished by building accelerators capable
of generating energy levels in excess of 10^4 GeV? Why can we ig-
nore gravitational effects in the analysis Compton scattering? Etc.
These sorts of questions have a teleological cast and, most likely,
could be given appropriate answers in terms of ends, or goals, or
the like. But when we are asked what is the aim of science itself,
I think we find ourselves in a quandry, just as we do when asked
"What is the purpose of life?," or indeed the corresponding sort
of question for any sufficiently rich and varied practice or institu-
tion. As we grow up I think we learn that such questions really
do not require an answer, but rather they call for an empathetic
analysis to get at the cognitive (and temperamental) sources of the
question, and then a program of therapy to help change all that.

Let me try to collect up my thoughts by means of a metaphor
(or is it an allegory?). The realisms and anti-realisms seem to treat
science as a sort of grand performance, a play or opera, whose pro-
duction requires interpretation and direction. They argue among
themselves as to whose "reading" is best.[9] I have been trying to
suggest that if science is a performance, then it is one where the
audience and crew play as well. Directions for interpretation are

also part of the act. If there are questions and conjectures about
the meaning of this or that, or its purpose, then there is room for
those in the production too. The script, moreover, is never finished,
and no past dialogue can fix future action. Such a performance is
not susceptible to a reading or interpretation in any global sense,
and it picks out its own interpretations, locally, as it goes along.

To allow for such an open conception of science, the attitude
one adopts must be neither realist nor anti-realist. It is the attitude
I want to call your attention to under the name of NOA, the natural
ontological attitude. The quickest way to get a feel for NOA is to
understand it as undoing the idea of interpretation, and the cor-
relative idea of invariance (or essence).

The attitude that marks NOA is just this: try to take science
on its own terms, and try not to read things into science. If one
adopts this attitude, then the global interpretations, the ''isms'' of
scientific philosophies, appear as idle overlays to science: not
necessary, not warranted and, in the end, probably not even in-
telligible. It is fundamental to NOA that science has a history, rooted
indeed in everyday thinking. But there need not be any aspects in-
variant throughout that history, and hence, contrary to the isms,
no necessary uniformity in the overall development of science (in-
cluding projections for the future). NOA is, therefore, basically at
odds with the temperament that looks for definite boundaries demar-
cating science from pseudo-science, or that is inclined to award the
title ''scientific'' like a blue ribbon on a prize goat. Indeed the anti-
essentialist aspect of NOA is intended to be very comprehensive,
applying to all the concepts used in science, even the concept of truth.

Thus NOA is inclined to reject *all* interpretations, theories, con-
struals, pictures, etc. of truth, just as it rejects the special cor-
respondence theory of realism and the acceptance pictures of the
truth-mongering anti-realisms. For the concept of truth is the fun-
damental semantical concept. Its uses, history, logic and grammar
are sufficiently definite to be partially catalogued, at least for a time.
But it cannot be ''explained'' or given an ''account of'' without
circularity. Nor does it require anything of the sort. The concept
of truth is open-ended, growing with the growth of science. Par-
ticular questions (Is this true? What reason do we have to believe
in the truth of that? Can we find out whether it is true? Etc.) are
addressed in well-known ways. The significance of the answers to
those questions is rooted in the practices and logic of truth-judging
(which practices, incidentally, are by no means confined to accep-
tance, or the like), but that significance branches out beyond cur-
rent practice along with the growing concept of truth. For, present
knowledge not only redistributes truth-values among past judgments,

present knowledge also re-evaluates the whole character of past practice. There is no saying, in advance, how this will go. Thus there is no projectible sketch now of what truth signifies, nor of what areas of science (eg. "fundamental laws") truth is exempt from—nor ever will there be. Some questions, of course, are not settled by the current practices of truth judging. Perhaps some never will be settled.

NOA is fundamentally a heuristic attitude, one that is compatible with quite different assessments of particular scientific investigations; say, investigations concerning whether or not there are magnetic monopoles. At the time of this writing the scientific community is divided on this issue. There is a long history of experimental failure to detect monopoles, and one recent success—maybe. I believe that there are a number of new experiments under way, and considerable theoretical work that might narrow down the detectable properties of monopoles.[10] In this context various ways of putting together the elements that enter into a judgment about monopoles will issue in various attitudes towards them, ranging from complete agnosticism to strong belief. NOA is happy with any of these attitudes. All that NOA insists is that one's ontological attitude towards monopoles, and everthing else that might be collected in the scientific zoo (whether observable or not), be governed by the very same standards of evidence and inference that are employed by science itself. This attitude tolerates all the differences of opinion, and all the varieties of doubt and skepticism, that science tolerates. It does not, however, tolerate the prescriptions of empiricism, or of other doctrines that externally limit the commitments of science. Nor does it overlay the judgment say, that monopoles do exist, with the special readings of realism or of the truth-mongering anti-realisms. NOA tries to let science speak for itself, and it trusts in our native ability to get the messge without having to rely on metaphysical or epistemological hearing aids.

I promised to conclude these reflections by singing in praise of NOA. The refrain I had in mind is an adaptation of a sentiment that Einstein once expressed concerning Mozart. Einstein said that the music of Mozart (read "NOA") seems so natural that, by contrast, the music of other composers (read "realism" or "anti-realism") sounds artificial and contrived.

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[11]   H. Putnam, *Reason, Truth and History* (Cambridge: Cambridge University Press, 1981).
[12]   _____, "Quantum Mechanics and the Observer," *Erkenntnis* 16(1981): 193-220.
[13]   _____, "Why There Isn't a Ready-Made World," *Synthese* 51(1982): 141-167.
[14]   _____, "Why Reason Can't Be Naturalized," *Synthese* 52(1982): 3-23.
[15]   R. Rorty, *Philosophy and the Mirror of Nature* (Princeton: Princeton University Press, 1979).
[16]   D. Shapere, "The Concept of Observation in Science and Philosophy," *Philosophy of
        Science* 49(1982): 485-525.
[17]   W. P. Trower and B. Cabrera, "Magnetic Monopoles: Evidence since the Dirac Con-
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[18]   B. van Fraassen, *The Scientific Image* (Oxford: Clarendon Press, 1980).

NOTES

*This paper was written during the tenure of a Guggenheim Fellowship. I want to
thank the Foundation for their support. Thanks, too, to Micky Forbes for struggling with
me through the ideas, and their expression.

[1] Putnam [11] is an extended discussion, usefully supplemented by Putnam [13] and
[14]. Originally, rational acceptability was merely offered as a "picture" of truth. But later
it emerged as a "characterization," and as providing "the only sense in which we have
a vital and working notion of it." ([14]:5)

[2] Rorty [15]. In his symposium talk for the March, 1983 Pacific Division, APA meetings
(in Berkeley), Rorty announced a new position that he called "revisionary pragmatism."
This new stance pulls back from various of Rorty's earlier commitments, including some
of his ideas about truth. I have not been able to figure out, however, just what it rejects,
or what it retains.

[3] Cartwright [1] and Hacking [5] and [6] adopt this way of distinguishing a significant
form of realism. See my [3] and [4] for a critique. The only background that seems to me
to support the idea that the truth of certain existence claims makes for realism, is an account
of truth as external-world correspondence. I do not believe that Hacking adopts such a view.
I do not know about Cartwright. I might mention here that Putnam's tactic of calling his
position a kind of realism (an "internal" kind), while also seeing in it a "transcendental
idealism" ([12]: 6), seems founded on nothing more than the amusing idea that whatever
is not solipsism is, *ipso facto*, a realism. See ([13]: 162) and ([14]: 13).

[4] Other ways of displaying the gap between "truth" and the favored version of accep-
tance would be to ask whether the acceptance formula is true, or what "accept as true"
comes to under the formula, or what now would guarantee the idempotency of "is true."
Pursuing such lines of inquiry, along with the ones in the text, will show that the sense
and grammar of truth is not that of acceptance. But, of course, it does not follow that truth
is not acceptance (really!). Nor could such lines of inquiry really subvert the program of
replacing "truth" by acceptance, if one were determined to carry on with the program.
One can always dodge the arguments and, where that fails, bite the argumentative bullets.
In philosophy, as in other areas of rational discourse, inquiry must end in judgments. One
can try to inform and tutor good judgment, but it cannot be compelled—not even by good-
looking reasons.

[5] Although van Fraassen ([18]: Esp. 9-11) is quite explicit about taking truth literally,
he also seems tempted by the interpretative metaphor of realist-style correspondence. "A
statement is true exactly if the actual world accords with the statement." ([18]: 90) "I would
still identify the truth of a theory with the condition that there is an exact correspondence

between reality and one of its models.'' ([18]: 197) If van Fraassen is taken literally, in these passages, then for him truth *is*, literally, real-world correspondence. If this were correct, then van Fraassen's empiricism would appear to be a restricted version of realism, a version where the epistemic access is restricted to observables. This makes his ''anti-realism'' seem considerably less radical than one might have thought. I, at any rate, had thought his idea of literal truth included the notion that ''truth'' was not to be further interpreted. On this understanding I thought that if he were persuaded out of his attachment to observables, then his ideas would fit right in with NOA (see below). But now I think that may be wrong. If we were to make constructive empiricism lose its attachment to observables, we would (it seems) merely have regained realism, full blown.

[6]The themes just touched on, especially the insistence on the specificity of scientific doubt and on following the scientific rationale that informs the vocabulary of observation, are forcefully elaborated by Shapere [16]. Part B (''intervening'') of Hacking [6] is also required reading here.

[7]See Hellman ([7]: esp. 247-248) for some cosmological ''unobservables'' in which we might have good scientific grounds for belief. But do not forget more familiar sorts of objects either, like unconscious (or ''subliminal'') causal factors in our behavior or, even, the nightly activity we call ''dreaming''!

[8]''However, there is also a positive argument for constructive empiricism—it makes better sense of science, and of scientific activity, than realism does and does so without inflationary metaphysics.'' ([18]: 73) I think van Fraassen speaks here for all the anti-realists. While I cannot recommend this defense of anti-realism, I think van Fraassen's own critique of the explanationist defenses of realism is very incisive, especially if complemented with the attack of Laudan [9]. My [3] contains a meta-theorem showing why such explanationist (or coherentist) defenses of realism are bound to fail.

[9]This way of putting it suggests that the philosophies of realism and anti-realism are much closer to the hermeneutical tradition than (most of) their proponents would find comfortable. Similarly, I think the view of science that has emerged from these ''isms'' is just as contrived as is the shallow, mainline view of the hermeneuts (science as control and manipulation, involving only dehumanized and purely imaginery models of The World). In opposition to this, I do not suggest that science is hermeneutic-proof, but rather that in science, as elsewhere, hermeneutical understanding has to be gained *from the inside*. It should not be pre-fabricated to meet external, philosophical specifications. There is, then, no legitimate hermeneutical *account* of science, but only an hermeneutical activity that is a lively part of science itself.

[10]See [17] for a review.