Propositional Attitudes And Scientific Realism: Quine, Fine, and Rorty

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Introduction

Based on W.V.O. Quine's notion of propositional attitudes, I argue against scientific realism in this paper. Moreover, depending upon how it is construed, I also argue against scientific antirealism. To the extent that any claim or theory of antirealism is an ontological claim, including the denial of the reality of scientific entities and theories, it is a propositional attitude. I think that realism and most versions of antirealism are propositional attitudes. Following Quine, I hold that propositional attitudes have no place in science qua science. Consequently, realism and most antirealisms are not science.

My position is similar to Arthur Fine's notion of NOA ("the Natural Ontological Attitude") and to Richard Rorty's notion of pragmatic "truth." However, my Quinean position is also distinct from theirs in important respects, and so contrasting my position to theirs helps clarify what is at issue. Against Fine, I argue that NOA errs too much in the direction of realism; and, against Rorty, I argue that his position errs too much in the opposite direction – in its *anti-* realistic denial of ontology.

My procedure is as follows. First, I present Quine's analysis and argument regarding propositional attitudes. Then I present my Quinean argument against both realism and antirealism. Third, I contrast my position to Fine's defense of NOA and, fourth, to Rorty's version of antirealism. Finally, I present a brief concluding statement of my Quinean position.

Quine on Propositional Attitudes and Related Topics

In *Word and Object* (1960) (especially Chap. 2 and §§44-45), Quine[1] presents an extended examination of the theoretical and evi-

dential tasks facing the "radical translator." Radical translation refers to Quine's thought experiment of someone who walks into a totally alien community and must figure out, without any guides and using whatever scientific methods are possible, the meaning of the natives' utterances. Quine's famous thesis of the "indeterminacy of radical translation" is that it would be possible to produce several different translations, each equally well supported by the evidence. Quine argues that we can have "translation" at the lowest level – at the level of stimulus meanings and observation sentences (as we also can with low-level psychological intentions and propositional attitudes). Observation sentences have a privileged status, according to Quine, since they are objectively recognizable verbal behaviors matched with stimuli, thereby producing stimulus meanings. Yet, these are warranted only at the lowest level of language and behavior.

Quine has suggested that the principle of charity is absolutely essential at the level of observation sentences. The principle of charity is that the translator should choose the translation that maximizes agreement between the translator and the translatee. When presented with the same stimulation, all speakers of the language assent, dissent, or withhold judgment. This provides objective identifiability, according to Quine. Above this level, however, identification is dependent upon the internal structure of the language, which is less objective, and consequently indeterminacy results.

In applying this argument to psychology, for example, Quine holds that intentions are a type of propositional attitude: there is indeterminacy of mental states, or more accurately expressed, irreducibility of intentions. A science of intentions is impossible, except at the very lowest level, and Quine does not think that there would be any benefit from a science at this level. If we are to have a robust science of psychology, then it must be rigorously behaviorist. In metaphysics and science, no intentional language (no propositional attitudes) should be allowed.

Propositional attitudes are a menagerie of such things as believing, wishing, intending, indirectly quoting, and so on. When we have a propositional attitude, we usually assume that there is an object of that attitude. Quine's instructive example is indirect quotation: when giving an indirect quotation, we assume that the original statement that we are quoting has a "meaning: (or, to use other terms, it has an idea, sense, content, essence, point, or some such thing; or that the speaker/writer intended to express some such thing), and we assume that we are preserving (or, reflecting, capturing, grasping, conveying, etc.) that "meaning" in our indirect quotation. That "meaning" is a kind of object to us. Quine points out that whenever we have or take such a propositional attitude, as in indirect quoting, we have our own purpose or objectives for doing so (our own state of mind or intentions).

Quine argues that the imputation of propositional attitudes is not science. Strict science is the account or report of observations, stimulus events, behaviors (including verbal behaviors), and so on, and then higher-level explanations and theories about these. Analogous to quotation: science is comparable to directly quoting, and the imputation of propositional attitudes is analogous to indirectly quoting. In order for there to be a science of such propositional attitudes as indirectly quoting (which is not possible on Quine's view), we would have to be able to get at the propositional object in the same sense that we can get at the original statement from which we got the indirect quotation. The impossibility that Quine-the-behaviorist wants us to see is that there really is no object for us to get at, and so we can dispense with the *objects* of propositional attitudes.

When Quine is doing hard science or metaphysics/ontology, Quine is a radical behaviorist. His "double standard" (which is the title of §45 of *Word and Object*) refers to the "bifurcation in canonical notation":

> If we are limning the true and ultimate structure of reality, the canonical scheme for us is the austere scheme that knows

> no quotation but direct quotation and no propositional attitudes but only the physical constitution and behavior of organisms ... If we are venturing to formulate the fundamental laws of a branch of science, however tentatively, this austere idiom is again likely to be the one that suits. But if our use of canonical notation is meant only to dissolve verbal perplexities or facilitate logical deductions, we are often well advised to tolerate the idioms of propositional attitude. (§45, p. 221)

Unless there is some *object* or some community of agreement enabling us to determine which quotation is better or worse, then we're stuck in an impasse. Quine denies that there is an *object*, and so indeterminacy results – unless there is a community and network of agreement.

This does not mean that we can dispense with propositional attitudes, which Quine admits are "here to stay" (§45). Quine's aptly named double-standard is that we can't actually get along in our day-to-day living and communicating without propositional attitudes and the principle of charity.

An Argument Against Realism and Antirealism

Following Quine: to believe that some entity or theory is "real" is to have a propositional attitude toward that entity or theory; and, similarly, to believe that some entity or theory is not real is to have a propositional attitude toward it. Propositional attitudes are not part of science because science is the account of observations, stimulus events, behaviors, and so on, and then high-level explanations and theories about these. Therefore, realism is not science; and, to the extent that antirealism asserts *denials of existence*, so too for it. To assert the existence or nonexistence of the entities or theories of science is not part of science qua science, but rather is metaphysics or ontology or some other branch of philosophy (such as philosophy of language or philosophy of mind).

At this point, one might object that my argument too narrowly construes antirealism. Surely part of the issue is how one defines "antirealism," and I must be careful not to use a question-begging definition. Antirealism is not limited to the denial of the reality of the theories of science. Nor is it limited to the assertion of the nonexistence of the objects of science; that is, it is not merely scientific nominalism. Antirealism includes a broad spectrum of positions regarding scientific entities, observables, and theories. Ian Hacking (1988) and Nancy Cartwright (1983, 1991) would accept the reality of observables, but not of theories and theoretical entities, unless those entities are embedded within a causal structure or network. Jarrett Leplin considers Hacking's view to be a "version of realism" (p. 5), although Leplin would be more precise to include the addendum that Hacking is an antirealist regarding both theories and merely theoretical entities. Some antirealists, such as Paul Feyerabend (1989), Thomas Kuhn (1970), and Richard Rorty (1989a, 1989b), are openly skeptical of the "truth" and "reality" of all of science.

Other antirealists, such as Bas van Fraassen (1980, 1984), are opposed to realism qua science but reluctant to make any claims whatsoever regarding the "truth" or ontology of science. van Fraassen states:

> And now it should be possible to state the issue of scientific realism, which concerns our epistemic attitude toward theories rather than their internal structure ...
> ... there are two distinct epistemic attitudes that can be taken: we can *accept* a theory (accept it as empirically adequate) or *believe* the theory (believe it to be true). We can take it to be the aim of science to produce a literally true story about the world, or simply to produce accounts that are empirically adequate. This is the issue of scientific realism versus its (divided) opposition. The intrascientific distinction between the observable and the unobservable is an anthropocentric dis-

> tinction; but it is reasonable that the distinction should be drawn in terms of *us*, when it is a question of *our* attitudes toward theories. (1984, p. 258)

van Fraassen's position is similar to Quine's and my own. Science qua science is an empirical endeavor, and assertions of reality or "truth" (in the sense of correspondence or referential meaningfulness) are nonempirical philosophical claims that go beyond empirical warrant.

Following Quine, I propose that antirealism be understood as the scientific rejection of the realism-versus-nonrealism distinction *simplicitur*. In its most minimal sense, antirealism is the denial that the data, terms, formulations, and theories of science infer anything about ontology. In other words, antirealism is the position that science qua science is ontologically neutral. Science qua science endorses no kind of ontological attitude.

The distinction Quine makes between observation sentences (or stimulus meanings) and theories is, I think, an epistemic distinction, not an ontological one. The lower-level observation sentences are epistemically more certain because they are public, repeatedly experienced, and directly associated with particular words or terms in the community. This does not necessarily imply that the existence (or reality) of the entities is any more likely or any less likely. At this lower level, the truth of the utterance is less dependent upon the holistic network – the theory – and its internal logic. Hence, to hold that the entities named by stimulus-meanings are "real" is to adopt a propositional attitude. One might hold that such a belief in the reality of lower-level scientific entities is "natural" (as Fine does) or easier than belief in higher-level entities (as Hacking and Cartwright seem to do), but such a belief is nevertheless a propositional attitude and, hence, not strictly science.

I now turn to Fine and then Rorty. I argue that my Quinean analysis and argument is more consistent than their antirealisms. Both Fine

and Rorty are ontologically committed: Fine is too much of a realist, and Rorty too much of a nonrealist (or *anti*-realist).

Fine's NOA

In the first section of his well-known paper entitled "The Natural Ontological Attitude" (Chap. 7 in *The Shaky Game*), Fine argues that realism is "dead." He identifies two levels in the realist argument: the ground level (particular successes) and the methodological level (best explanations and convergence). Fine presents criticisms of the realist arguments, showing why they fail at both levels. Then, to continue the onslaught, he argues that instrumentalism has as strong a position in these regards. Moreover, even if these criticisms fail to refute realism, the major obstacle still remains: a far more stringent argument is needed to establish a meta-theory than can be offered for realism.

Fine next presents a brief history of relativity theory and quantum mechanics. Fine's point is to refute the realist claim that realism produces convergence and efficacious scientific progress. Fine presents evidence that the early Einstein, when Einstein produced the special and general theories of relativity, was a nonrealist indebted to Mach's positivism. However, the later Einstein (post-1920) believed that the theoretical entities of relativity were real. Like the early Einstein, the founders of quantum mechanics (QM) were theoretical nonrealists, and the debate between Einstein and the Bohr school over realism was important because, according to QM scientists, realism would have produced wasteful unproductive research aimed at showing the reality of the entities. As facts, Fine points out that realist-based projects have not been fruitful in the 20th century. Amazingly, if Einstein's realism is correct, the three-dimensional space-time-motion world as we know it is *not* real.

Clearly, Fine is not a realist since he emphatically declares that realism is dead. His "homely line," however, is that both "realists" and "nonrealists," scientists and plain people, accept the reality of

the things they see and experience. The homely line, or naive approach, is to believe what you see – at least until the point where you have reason not to.

Fine claims that the "core position" only slightly extends the homely line. Both realists and antirealists " ... accept the certified results of science as on par with more homely and familiarly supported claims" (p. 128). They both accept these as "true." Where they diverge is in regard to what is added to the core: (a) antirealists add a pragmatic epistemology and an empiricist ontology (usually phenomenalism); and (b) realists add a correspondence epistemology and a substantialist ontology. Fine also emphasizes that the realists are (emotive and insecure) "desk-thumpers" who negatively reject antirealist pragmatic phenomenalism (pp. 128-129).

The Natural Ontological Attitude (NOA) is the "core." Although he is not a realist, Fine also rejects the label "antirealist." He argues that NOA will permit a scientist to believe in the realism of theoretical entities (as long as the shaky game of science continues to warrant them), but nevertheless NOA permits Kuhnian-type wholesale changes of reference. Fine thinks Quinean-type incommensurability across reference frames is indeterminate, and he also accepts a Davidsonian theory of truth-semantics (meanings grounded in true reference).

Since we are in the world at this level (sometimes called the mesocosm, but not by Fine [see Delbrück, p. 9], whatever we say beyond the "core" will be a shaky game. How long we are justified in believing in what the game says will depend on the game and what it says and how we play it. Like the problem of induction, since we are inside and cannot get outside, the most we can do is play the game as best we can. Our attitude (which is "natural," for Fine) is an inescapable "yearning" for the comforting grip of the "phantom" of realism.

Fine modestly things his NOA theory is as revolutionary as discovering morality without God: just as God is neither legitimate nor

necessary to morality, realism is neither legitimate nor necessary to science. Whether this analogy with morality is appropriate is questionable. Both ethics and realism seem to have strong intuitive dimensions ("natural "attitudes"). However, I doubt that science will ever face the relativism that plagues ethics, despite extreme antirealists, like Rorty, who reduce both science and morality to intersubjectivity. Significantly, Rorty considers belief in God to be as bad as realism (see my discussion of Rorty below). Fine's self-congratulatory accolades are not warranted: the insight found in NOA (namely, that neither realism nor antirealism is necessary to science) was already in Quine's notion of propositional attitudes.

My main objection to Fine is that he doesn't go far enough; he is still too much of a realist. He explicitly claims to be neither a realist nor an antirealist (see "And Not Antirealism Either"). Nevertheless, Fine allows for a scientist, *while doing science* and while using a theory, to have a realistic attitude toward even theoretical entities. Unlike van Fraassen, Fine endorses a realistic attitude rather than van Fraassen's empirical-pragmatic attitude. Epistemically, what Fine means by the "shaky game" is similar to what van Fraassen means by "empirical adequacy," although van Fraassen objects to espousing any kind of ontological attitude, as I do, too. Fine holds that the (philosophically naive) scientist is entitled to believe that theoretical entities are "real" (which allegedly is the scientist's "natural ontological attitude"), even though the entities are not likely to survive the next Kuhnian paradigm shift; but, according to Fine, we philosophers know better. Fine does not give sufficient reasons for warranting the scientist's belief in anything beyond the core, but he lets the scientist have these beliefs anyway. To invoke his own analogy to morality: just as elite ethicists have learned to get along without God, it would seem that elite scientists can learn to get along without their "natural ontological attitude." Perhaps, since the game is shaky, one can and would play it less seriously – with ontological carelessness and abandon – if one were philosophically informed.

In terms of my Quinean analysis and argument, Fine's NOA is propositional (and hence nonscientific) since Fine holds that scientists are entitled to believe in the reality of the entities and theories and that this belief is "natural." His claim would be quite different if it were merely that, as a matter of fact, scientists *do* believe in the reality of the entities specified by their theories. As an empirical claim (namely, that scientists *do* in fact believe in scientific entities), this claim is likely not true, at least for well-informed scientists.[2] But to say that such beliefs are "natural" or "entitled" is to make an ontological and epistemic claim. In terms of epistemic warrantability, those beliefs are stronger when they refer to observables than when they refer to theories and theoretical entities. Hence, although Fine says that realism is dead, he nevertheless is somewhat of a realist in his ontological, propositional biases.

Rorty's Argument

In "Science as Solidarity" (1989b), Rorty's thesis is that all knowledge (or "truth") is in solidarity with science; that is, all academic disciplines – including science – proceed by the same methods (social pragmatism and unforced consensus). All types of truth are in solidarity because all are on the same footing (or, perhaps I should say, falling in the same abyss or swimming in the same ocean, since Rorty eschews foundationalist and correspondence epistemologies and ontologies).

Below I outline Rorty's argument for his thesis that all knowledge is in solidarity with science:

1. *The Kuhnian Premise:* There is no theory-independent way to reconstruct phrases like "really there."
2. *The First Quinean Premise:* There are no purely analytic utterances; all (meaningful) utterances have empirical content; the analytic-synthetic distinction is untenable. (See Quine, 1951.)

3. *The Second Quinean Premise:* Meaning is always within a "web of beliefs" that can be revised, usually around the edges but sometimes in the center. Outside these "webs," communication is impossible (this is "incommensurability" or "indeterminacy of translation," as explained earlier). According to Rorty, no one can get outside their web, that is, all conversation is necessarily "ethnocentric."
4. Despite the incommensurability problem, Rorty claims that common human experience makes dialogue possible between diverse communities because "an enormous number of beliefs" are shared by all humans.
5. The networks of beliefs are non-axiomatic. Hence, there is flexibility of meaning (interpretation) and revisability without entailing incoherence.
6. The goal is for a community of conversation that will be characterized by tolerance, freedom of belief, and pluralism. The community will produce "truth." (Unlike Karl Popper, Rorty does not propose that pluralism will produce better – more creative and fruitful – hypotheses for testing.)
7. Truth is justified belief. Truth is not justified *true* belief. Justified belief is the product of open exchange and conversation: truth is "intersubjective agreement"; it is *not* objective, *not* correspondence with reality, and *not* criteriological. Truth is pragmatic. Nor is it epistemological; nor is it metaphysical. Truth is what works, and it will be "true" only until something better comes along.
8. Rorty rejects the subject/object dichotomy and all related notions (for example, noumena/phenomena, fact/value, Locke's representations).
9. What's right about science is the institutional model for inquiry that it provides: open-mindedness, fallibilism, reviseability.

10. The traditional Western notion of God is also rejected: "pragmatists would like to drop the idea that human beings are responsible to a non-human power" (p. 14).
11. Rorty's proposal is allegedly based on ethics, and he explicitly disavows epistemology and metaphysics. Rorty applauds Nietzsche's claim that the traditional Western metaphysico-epistemological way is not working any more.

Rorty's position has been widely criticized.[3] It differs significantly from my own Quinean version of antirealism, and as far as I know Rorty has not been criticized from a Quinean point of view such as mine.

As summarized in (7) above, Rorty *denies* that beliefs are "true," objective, criteriological, and referential (that is, they are non-referential in the sense that they are devoid of correspondence). These denials by Rorty are an extreme *anti*-realism. I use the term "*anti*-realism" to express this denial of realism (which denial is a propositional attitude). Truth is sociologically and culture determined, according to Rorty. He explicitly rejects metaphysics, "metaphysico-epistemology," and epistemology as "justified *true* belief." Truth, for Rorty, is intersubjective agreement, and yet he holds, inconsistently it would seem, that the scientific method is best, as in (9) above. The difficulty I see is that (a) the products of the scientific method and (b) the products of intersubjective agreement may differ, and Rorty has no normative or epistemic way to resolve the conflict.

Rorty's insistence that all of knowledge is in solidarity is the claim that all of truth – including science – is established by the same methodology – intersubjectivity. Although the Quinean notions of charity and the double standard might permit some leniency (which I discuss below), Rorty goes too far. In Quinean jargon, Rorty tries to make science itself into a propositional attitude (or the reverse: namely, he tries to make propositional attitudes into science). This

move by Rorty is incommensurable: propositional attitudes are not science. Quine acknowledges that we cannot get along pragmatically in day-to-day living without propositional attitudes (this is the double standard), but lumping together all of knowledge, including propositional attitudes, does no good that I can see, even by Rorty's own broadly pragmatic standards, and could potentially cause harm via enfranchisements of superstition and folklore.

The attitude reflected in Rorty's argument is polemical, not scientific. Rorty's denial of realism and objectivity is just as much a propositional attitude as is the assertion of realism and objectivity. From a strictly scientific point of view, Rorty is out-of-bounds.

Conclusion

Science qua science is an empirical endeavor, and assertions of reality or truth (in the sense of correspondence or referential meaningfulness) are nonempirical philosophical claims that go beyond empirical, scientific warrant. Following Quine, I have argued that both realism and most antirealisms are propositional attitudes and that they are not part of science qua science. I have contrasted my position to Fine and Rorty, and have pointed out how Fine is too much of a realist and Rorty too much of an *anti*-realist. Only in its minimal, neutral sense, as I argued above, is antirealism acceptable.

Quine's principle of charity and the double standard would seem to permit some leniency toward realism. Despite his clear and hardline declarations of scientific empiricism, Quine recognized that all of us unavoidably have propositional attitudes. Moreover, under many circumstances, propositional attitudes are likely harmless and perhaps sometimes even beneficial. While doing science, it is likely harmless if the scientist believes that the entities are real, especially if the scientist is not tenacious in his or her belief. However, there are cases, such as Einstein's dogged commitments to realism and the unified field theory (see Fine 1986a), where such beliefs may have been harmful (this assumes Einstein's efforts were mistaken and futile, of

course). Consequently, I am unwilling to accept Fine's inference from NOA that scientists should decide their own ontological commitments (see Fine 1986b). Scientists will likely benefit from well-informed philosophical criticism. Yet, in agreement with Fine and supported by Quine, I would urge that outsiders to scientific praxis, especially philosophers and theologians, should not be permitted to impose ontology on scientists. But I would go beyond Fine and warn scientists that even their own in-house ontologies are suspect and that their ontologies need to be kept tentative. Ontologies in science are attitudes and not science qua science.

Notes

1. For an excellent analysis of where Quine fits relative to numerous other contemporary philosophers, see Dennett, 1987, pp. 339-350.

2. Most scientists realize that their models and entities may not be real. See J.F. Olgilvie, "There Are No Such Things as Orbitals!" *Journal of Chemical Education* 67, no. 4 (April 1990): 280-289.

3. For example, see Newton-Smith, pp. 23-42.

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