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Responses to Logical Positivism: Quine, Kuhn, and American Pragmatism

For my part I do, qua lay physicist, believe in physical objects and not in Homer's gods; and I consider it a scientific error to believe otherwise. But in point of epistemological footing the physical objects and the gods differ only in degree and not in kind. Both sorts of entities enter our conception only as cultural posits. The myth of physical objects is epistemologically superior to most in that it has proved more efficacious than other myths as a device for working a manageable structure into the flux of experience. (Quine 1961b/1951, p. 44)

Introduction

The main theme of analytic philosophy since World War II and well into the 1960s and 1970s has been the dismantling of logical positivism and the philosophical ideas of Wittgenstein's *Tractatus*. The logical positivist program was attacked and overturned point by point by the positivists themselves and others who were sympathetic to positivism. Even Wittgenstein, when he returned to philosophy in the mid-1930s, devoted his philosophical attention to attacking, rejecting, and refining his earlier views. Today, those working within the analytic tradition are still considering the central issues that moved the positivists, but a more relaxed and expansive mood is welcomed among young philosophers. Some are even considering reviving parts of the logical positivists' program. This is understandable since the spirit of the logical positivists' motivation was never really abandoned or defeated. When pushed, the positivist program gave ground rapidly, but the methods, standards, and attitudes are still with us.

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In England, mainly at Oxford, the attack on logical positivism was carried on by philosophers still respectful of Russell and Moore, but the foremost influence was Ludwig Wittgenstein. John Austin, Gilbert Ryle, and others at Oxford were opposed to the use of formal logic to "solve" philosophical problems and moved in the direction of the ordinary language and common sense philosophy derived from Moore and from the later Wittgenstein, who had turned against the use of symbolic logic to dissolve philosophical problems. [*Background 3.1* – The distinction between the early and late Wittgenstein and why this is a necessary distinction to make]

In the United States, the most relentless critic of positivism was Willard Van Orman Quine of Harvard University. Quine studied in Vienna, met with the Vienna Circle, and was close friends with Carnap who, along with Ayer, staunchly attempted to defend and refine positivism even as it was crumbling around them. The legendary Carnap-Quine correspondence, dialogue, and debate went on for years. In his influence and stature in analytic philosophy, Quine ranks just barely behind the founders of analytic philosophy: Frege, Russell, Moore, and Wittgenstein. Although Quine called himself an empiricist, his philosophy was also rooted in the tradition of the American pragmatists John Dewey and William James, thus adding an American flavor to the mainline of analytic philosophy. While not opposed to the motivations of the Vienna Circle, Quine and his pragmatist followers were dissatisfied with the basic tenets of the *Tractatus* and the positivists.

In this chapter we will discuss problems with the positivist program and Quine's criticisms of it, and the contemporary pragmatism that grew out of his work. In the next chapter we will survey Oxford ordinary language philosophy. Both can be understood only against the background of the logical positivism of the Vienna Circle.

The problem with logical positivism was that it did not go far enough, that it was not true to its own empiricist ideals. It had too many remnants of the old ways of philosophy.[1] Logical positivism was still infected with rationalism and metaphysics – the stuff it was trying to get rid of.

[1] Even the term "positivism" suggests older nineteenth-century outmoded materialistic philosophy. For this reason many of the followers of the Vienna Circle preferred the label "logical empiricism." The terminology can be a bit confusing. Quine and Hempel refer to them as "modern empiricists."

The reliance on sense data theory, reductionism of one flavor or another, meanings, formal logic, and a rigidly applied principle of meaningfulness needed to be expunged or at least critically examined before the empiricism of the logical positivists could be self-respecting. Quine calls this project "tidying up empiricism." It needed it.

The Demise of the Verifiability Criterion of Meaningfulness

The most protracted and painful story in the dismantling of logical positivism is the history of the permutations of and revisions to and ultimate demise of the verifiability criterion of meaningfulness – the claim that an utterance is meaningful if and only if it is either a tautology (or a self-contradiction) or empirically verifiable (or falsifiable). (For the sake of brevity, we will suppress the parenthetical elements in future formulations.) This principle was close to the heart of logical positivism and is its most famous doctrine. Without the verifiability criterion of meaningfulness logical positivism loses much of its sting and its aura of clearing the air of unscientific mists. According to Carl Hempel, a leading philosopher of science and one of the staunchest allies of the Vienna Circle, "The fundamental principle of modern empiricism is the view that all non-analytic knowledge is based on experience" (Hempel 1950, p. 41). As Hempel points out, this fundamental principle does not entail the verifiability criterion of meaningfulness, but the verifiability criterion is the way the fundamental principle of empiricism is applied. The positivists' elimination of metaphysics, theology, ethics, and aesthetics is not based on psychology or the limits of human cognition, but on the semantics of language. This is part of the meaning of the "logical" in "logical positivism" and "logical empiricism." It is the elimination of metaphysics by the application of logic.

> In the domain of *metaphysics*, including all philosophy of value and normative theory, logical analysis yields the negative result *that the alleged statements in this domain are entirely meaningless*. Therewith a radical elimination of metaphysics is attained, which was not possible from the earlier antimetaphysical standpoints. (Carnap 1959a/1932, p. 61)

Despite Carnap's heady claims, the basic problem with the verifiability criterion of meaningfulness is that it cannot be formulated in a satisfactory way. It cannot be formulated in such a way that it eliminates metaphysics but retains the positivists' beloved natural science.

Hempel states the problem in his classic essay "Empiricist Criterion of Cognitive Significance: Problems and Changes" (Hempel 1965). (This is a revision of Hempel, 1950. "The empiricist criterion of cognitive significance" is another name for the verifiability criterion of meaningfulness.)

> I think that the general intent of the empiricist criterion of meaning is basically sound, and that notwithstanding much oversimplification in its use, its critical application has been, on the whole, enlightening and salutary. I feel less confident, however, about the possibility of restating the general idea in the form of precise and general criteria which establish sharp dividing lines (a) between statements of purely logical and statements of empirical significance, and (b) between those sentences which do have cognitive significance and those which do not. (Hempel 1950, p. 102)

Hempel was right to be dubious; satisfying (a) and (b) has never been accomplished despite prodigious labor.

The seeds of the destruction of the verifiability criterion of meaningfulness are already present in Wittgenstein's *Tractatus* but were ignored by the members of the Vienna Circle. Directly after his claim that the only correct method in philosophy would be to demonstrate the meaninglessness of metaphysical sentences (see Chapter 2, p. 57) Wittgenstein says the following:

> 6.54 My propositions serve as elucidations in the following way: anyone who understands me eventually recognizes them as nonsensical, when he has used them – as steps – to climb up beyond them. (He must, so to speak, throw away the ladder after he has climbed up it.) (Wittgenstein 1961b/1921, p. 151)

The next sentence is one of the most famous of twentieth-century philosophy. It is the final sentence of the *Tractatus*:

> 7. What we cannot speak about we must pass over in silence.[2]

Unfortunately, as with the other uncomfortable aspects of Wittgenstein's *Tractatus*, the members of the Vienna Circle ignored this admonition, as it turns out, unwisely.

The verifiability criterion of meaningfulness came to be viewed as either nonsense or a dubious slogan. According to the verifiability

[2] This is worth giving in the original German since it is poetic compared to the awkward English translation: *Wovon man nicht sprechen kann, darüber muss man schweigen.*

criterion of meaningfulness, cognitively meaningful sentences are either tautologies, i.e. analytic, or empirically verifiable. Any other sentence is cognitively meaningless. But this criterion can now be turned on the verifiability criterion of meaningfulness itself. If it is a tautology, then it is analytic and has no force. It just represents how someone has chosen to define some terms. As a statement of the standard meaning of "meaningful," it is surely incorrect. On the other hand, it is not an empirical proposition, at least not one that has any hope of being true. Thus the verifiability criterion of meaningfulness turns out to be an example of the very metaphysical nonsense that it was intended to eliminate.

In response, Ayer, Carnap, and Hempel had to agree that the verifiability criterion of meaningfulness was itself cognitively meaningless, and consequently suggested that it was a proposal, a recommendation. But why anyone who was inclined to metaphysical pondering or moral theorizing would accept this recommendation remained unanswered. Of course, they wouldn't and didn't. The self-referential problem was not enough to end the campaign of the verifiability criterion of meaningfulness, but there were other technical problems as well. One of the more engaging and entertaining philosophical sports well into the 1950s was finding technical flaws in any particular formulation of the verifiability criterion of meaningfulness. One defender of it would revise it to meet some technical objection, then another critic would find yet another technical flaw in the new formulation. We have, fortunately, no need to summarize the episode. There is voluminous literature on it – much of it is explored in the Hempel article. By the 1960s no one any longer embraced the verifiability criterion of meaningfulness, except a few hotheaded sophomore philosophy majors who hadn't yet gotten the news. I blush to admit that I was among them. I still haven't quite overcome the disappointment.

One of the more promising reactions to the demise of the verifiability criterion of meaningfulness was Karl Popper's attempt to replace it with a principle of falsification. Popper was a Viennese philosopher and social theorizer of the same vintage as the members of the Vienna Circle, but Popper was not associated with them. He considered himself to be the "official opposition." In philosophical temperament, however, Popper was close to the Vienna Circle and he was always in the stream, if not the mainstream, of analytic philosophy.

Besides his opposition to the verifiability criterion of meaningfulness another key issue that separated Popper from the logical positivists and so many other analytic philosophers was that he did not idolize Wittgenstein sufficiently. Popper idolized himself.

Like most of the members of the Vienna Circle, Popper was a refugee from Nazism. Although he had been brought up as a Christian and both his parents considered themselves Christians, his ancestry was Jewish. That was Jewish enough for the Nazis. Popper's story is similar in outline to many other leading German and Austrian philosophers and scientists. First he emigrated to New Zealand, then in 1946 moved to England where he became professor of philosophy at the London School of Economics. Life in England was good to Popper. He became Sir Karl Popper in 1965.

The idea behind Popper's principle of falsification is that instead of focusing on verifiability one should consider only those observations that would falsify a claim or theory.

> Thus there clearly was a need for a different criterion of demarcation; and I proposed (though years elapsed before I published this proposal) that the refutability or falsifiability of a theoretical system should be taken as the criterion of its demarcation. According to this view, which I still uphold, a system is to be considered as scientific only if it makes assertions which may clash with observations; and a system is, in fact, tested by attempts to produce such clashes, that is to say by attempts to refute it. Thus testability is the same as refutability, and can therefore likewise be taken as a criterion of demarcation. (Popper 1963, p. 256)

To be scientific a theory must be falsifiable in principle. We must know what tests would refute it. As an application of his principle Popper notoriously argued that Marxism is unfalsifiable. The Marxists, on the other hand, always vehemently insisted that their theories were scientific. The exchange was not friendly. Empiricists were calling Marxism unscientific, while the Marxists accused empiricism of being a reactionary bourgeois doctrine, especially if linked with phenomenalism. (See Chapter 2, p. 65.) The official philosophy of Marxism was dialectical materialism. Popper's attack on Marxism as metaphysical or, worse, religious was not popular among leftists. It turns out the Marxists were right and Popper was wrong. Marxism is falsifiable. Most of the central tenets of Marxism have been falsified by history. Later Popper continued his attacks on Communism, claiming that it was inconsistent with democracy and freedom. Instead he favored the "open society" based on liberal democracy. (See the discussion of Popper's political philosophy, Chapter 8, pp. 287–9.)

Alas, the falsifiability criterion runs into the same sorts of problems as the verifiability criterion. The main objection is that scientific theories and claims are not testable or falsifiable in the direct way that Popper seems to envision. Even Popper recognized that Darwin's theory of

natural selection fails his test. It is not susceptible to crucial experiments. According to Popper it is useful metaphysics. This in itself is enough to damn his criterion. The problems are more systematic, however. Quine argued that scientific theories and claims are enmeshed in an entire web of beliefs and theories in such a way that tests and trials only bear on the entire web, not on individual theories or claims. (This is discussed in detail below.) Popper's falsifiability criterion is still too narrow, formal, and rigid. If we applied his falsifiability criterion, too much would turn out to be unscientific, just like Darwin's theory and dialectical materialism.

Popper's falsifiability criterion is not, however, as rigid as the verifiability criterion. Popper never intended his criterion as a criterion of meaningfulness. According to Popper testability serves to demarcate or distinguish science from metaphysics, but metaphysics is not meaningless, it is merely unscientific. Popper is critical of verifiability and the positivist program.

> Put in a nut-shell, my thesis amounts to this. The repeated attempts made by Rudolf Carnap to show that the demarcation between science and metaphysics coincides with that between sense and nonsense have failed. The reason is that the positivistic concept of 'meaning' or 'sense' (or of verifiability, or of inductive confirmability, etc.) is inappropriate for achieving this demarcation – simply because metaphysics need not be meaningless even though it is not science. In all its variants demarcation by meaninglessness has tended to be at the same time too narrow and too wide: as against all intentions and all claims, it has tended to exclude scientific theories as meaningless, while failing to exclude even that part of metaphysics which is known as 'rational theology'. (Popper 1963, p. 253)

This is a fair statement of the failure of the verifiability criterion.

Quine's Rejection of the Analytic/Synthetic Distinction

The analytic/synthetic distinction is also central to the logical positivist program. It plays a role in the statement of the verifiability criterion of meaningfulness – "a putative proposition is meaningful if and only if it is a tautology or empirically verifiable."[3] The distinction also plays a role in the first, third, and fourth, parts of the logical positivists'

[3] For the purposes of this discussion "tautology" and "analytically true proposition" mean the same thing, and in most contexts they can be used interchangeably, although there is distinction that Quine notes. Also we use "analytic" to mean "analytically true" unless otherwise indicated.

program as set out in the previous chapter, and Quine claimed it was closely involved in the positivists' reductionism as well. These parts are the following:

> *The elimination of metaphysics, ethics, aesthetics, and theology by the verifiability criterion of meaningfulness.*
>
> *Logic and mathematics consist of nothing but tautologies. These are formal truths that have no referential content.*
>
> *All propositions that are necessary or a priori are tautologies. All propositions that are contingent or a posteriori are synthetic. Analytically true = tautologous = a priori = necessary. Synthetic = a posteriori = contingent. There are no synthetic a priori propositions.*

All these are definitive of logical positivism and logical empiricism in general.

Unlike the verifiability criterion of meaningfulness, the analytic/synthetic distinction is intuitive and useful and not nearly as invidious. In more-or-less its contemporary form the analytic/synthetic distinction was popularized by Kant and has been widely used by philosophers and logicians since his time. And unlike the verifiability criterion of meaningfulness, the analytic/synthetic distinction has been used enthusiastically by non-empiricists and empiricists alike. It has become, and remains, part of the fundamental equipment of philosophers regardless of affiliation.

Quine readily acknowledges the appeal of the distinction, but claims that empiricists in assuming it are thereby indulging in metaphysics.

> But, for all its a priori reasonableness, a boundary between analytic and synthetic statements simply has not been drawn. That there is such a distinction to be drawn at all is an unempirical dogma of empiricists, a metaphysical article of faith. (Quine 1961b/1951, p. 37)

As with the verifiability criterion, the logical positivists were being accused of being metaphysical by their own sympathizers. If Quine is right about this, modern empiricists must reformulate their entire program. Quine's challenge cannot be ignored.

Quine's criticisms of logical positivism are best known from his classical article "Two Dogmas of Empiricism"(Quine 1961b/1951). This is the most widely read, cited, and reprinted article in the history of analytic philosophy.[4] "Two Dogmas of Empiricism" is only one of a

[4] Its only possible equal would be Russell's "On Denoting." According to Google Scholar, Quine's article has 3660 citations online whereas Russell's has only 2430.

series of articles and writings by Quine that elaborated his criticisms of the "dogmas" of empiricism, but the publication of "Two Dogmas of Empiricism" was the turning point of the attack on the logical positivist program by those sympathetic to empiricism.

Quine, in the first paragraph, states his target clearly:

> Modern empiricism has been conditioned in large part by two dogmas. One is a belief in some fundamental cleavage between truths which are *analytic*, or grounded in meanings independently of matters of fact and truths which are *synthetic*, or grounded in fact. The other dogma is *reductionism*: the belief that each meaningful statement is equivalent to some logical construct upon terms which refer to immediate experience. Both dogmas, I shall argue, are ill founded. (Quine 1961b/1951, p. 20)

The second of the two so-called "dogmas" – reductionism – is the sixth part of the logical positivists' program. Far from being a dogma, it was disputed by members of the Vienna Circle at least in its phenomenalist form. True, some central figures of logical empiricism such as Ayer embraced phenomenalist reductionism as did Carnap early on, but they were not dogmatic about it. The first "dogma," however, as we have seen, is fundamental to the entire philosophy of logical positivism. It was never questioned by them.

From such a famous and admired source as Quine's article we would expect a demolition of the analytic/synthetic distinction based on an argument that is greeted by gasps of "Ah ha! Amazing! Insightful!" Ironically no such arguments are to be found in Quine's "Two Dogmas" (as it is usually called). Philosophers are still debating what his arguments are – not just the premises and reasoning, but even the conclusions. Did Quine claim that there are no analytic propositions or did he claim that the notion of analytic proposition makes no sense?

The general idea of Quine's arguments is understandable even if the details are disputed. Through various technical considerations, Quine argues that the notion of analyticity cannot be made clear or else the clarification is circular. In order to explain the notion of analyticity, philosophers need to appeal to other notions such as synonymy which are either hopelessly unclear or depend on the notion of analyticity.

A favorite example of an analytic proposition, which is now becoming somewhat dated, is "All bachelors are unmarried." How is the analyticity to be explained? It rests on the definition of the word "bachelor" plus standard logic. By definition the term "bachelor" is synonymous with "unmarried man." But what does it mean that they are synonymous? That they mean the same thing. In other words, just

that "All bachelors are unmarried men" is analytic. Here we have a vicious circle.

> Analyticity at first seemed most naturally definable by appeal to a realm of meanings. On refinement, the appeal to meanings gave way to an appeal to synonymy or definition. But definition turned out to be a will-o'-the-wisp, and synonymy turned out to be best understood only by dint of a prior appeal to analyticity itself. So we are back at the problem of analyticity. (Quine 1961b/1951, p. 32)

According to Quine, there is no way to break out of this circle.

Quine's attack on the analytic/synthetic distinction is really an attack on the notion of meaning used by the positivists and inherited uncritically from traditional philosophy and common sense. Quine in "Two Dogmas" and in other famous writings attacks the view that associated with a term, purely semantically (linguistically or conventionally), there is a concept or idea that is the meaning of the term. According to this common sense view linguistic meaning is to be sharply distinguished from non-linguistic empirical facts. Despite Quine's qualms the distinction seems intuitive enough. Consider the definition of "cigarette":

> *cigarette*: a slender roll of cut tobacco enclosed in paper and meant to be smoked; *also*: a similar roll of another substance (as marijuana). (Merriam-Webster Dictionary)

Presumably this gives the meaning of the word "cigarette." This would, also presumably, generate analytic propositions. For example, "Cigarettes are meant to be smoked." On the other hand, an empirical fact about cigarettes is, for example, that smoking cigarettes causes lung cancer. This fact does not follow from the definition of "cigarette." It required empirical research to establish it. No one would empirically research whether cigarettes were for smoking. That is true by definition. This is precisely the distinction that Quine is contesting – and not just contesting but reviling.

> My present suggestion is that it is nonsense, and the root of much nonsense, to speak of a linguistic component and a factual component in the truth of any individual statement. (Quine 1961b/1951, p. 42)

Convincing us of this is going to be an difficult job for Quine. The distinction is commonsensical, supported by lots of examples, and the claim that it is the source of much nonsense seems exaggerated at best.

Nevertheless, Quine's claim is not entirely unconvincing upon deeper reflection. We can get something of an idea of the problems with analyticity if we consider that parts of the "definition" seem to be empirical – e.g., a similar roll of another substance (as marijuana). Is the extension of "cigarette" to include marijuana a misuse, an extension, or part of the original meaning of the term "cigarette"? And isn't even the claim that cigarettes are enclosed in paper just a general empirical claim? Is it really analytic? Can't there be cigarettes made with other substances than paper? In fact, aren't there such? Cigarettes wrapped in thin leaves? Or are there? Isn't this an empirical question? And what exactly is the definition of "paper" anyway? We begin to see the difficulty of distinguishing pure elements of the linguistic meaning of "cigarette" from empirical facts or generalizations about cigarettes. The notion that the term "cigarette" has a pure linguistic meaning begins to dissolve.

While philosophers often still do use the terms "analytic" and "synthetic" and many accept a distinction between truths by definition and empirical ones, we do not do so with a clear conscience. In any case, no one now believes that the analytic/synthetic distinction or the notion of linguistic meaning can do all the work that the positivists tried to get them to do.

Quinean Empiricism without the Dogmas

Holism

Quine is no anti-empiricist. Quine would prefer to be seen as a less dogmatic and more practical empiricist than the logical positivists. In a late passage Quine sounds like Russell. Quine uses the term "relative empiricism."

> [M]axim of *relative empiricism:* Don't venture farther from sensory evidence than you need to. We abandoned radical empiricism when we abandoned the old hope of translating corporeal talk into sensory talk; but the relative variety still recommends itself. (Quine 1974, p. 138)

What does this Quinean empiricism look like in detail? In order to get an idea we must consider Quine's criticism of the second "dogma" – the "dogma" of reductionism. Getting rid of this dogma distinguishes relative empiricism from unsupportable radical empiricism.

According to Quine the two dogmas are interchangeable and based on the same error.

> The dogma of reductionism ... is intimately connected with the other dogma – that there is a cleavage between the analytic and the synthetic. ... [T]he one dogma clearly supports the other in this way: as long as it is taken to be significant in general to speak of the confirmation and infirmation of a statement, it seems significant to speak also of a limiting kind of statement which is vacuously confirmed, *ipso facto*, come what may; and such a statement is analytic.
>
> The two dogmas are at root identical. (Quine 1961b/1951, p.41)

The mischief according to Quine is caused by the view that the unit of significance is the statement.

Philosophy has seen a steady broadening of the base of meaning. Classical empiricists, such as Locke and Hume, viewed the individual term as the unit of significance. Each term was associated with a sensory concept or idea which was its meaning. For example, "gold" named the complex concept "yellow malleable incorruptible metal." Frege and, following him, Russell and Wittgenstein argued that a term only has meaning in the context of a statement – the statement is the unit of meaning. According to Quine we must go still further.

> Russell's concept of definition in use [e.g., his analysis of definite descriptions] was, as remarked, an advance over the impossible term-by-term empiricism of Locke and Hume. The statement, rather than the term, came with Russell to be recognized as the unit accountable to an empiricist critique. But what I am now urging is that even in taking the statement as unit we have drawn our grid too finely. The unit of empirical significance is the whole of science. (Quine 1961b/1951, p. 42)

The modern empiricists of the Vienna Circle and their allies got into dogmatic trouble because they drew the "grid too finely." Quine's objection is that a statement cannot be verified or falsified individually or even have a meaning taken individually. His view that "The unit of empirical significance is the whole of science" is called "holism." Holism is the basis of Quine's philosophy. It is the source of his criticism of logical positivism and his more constructive views, which we will describe shortly.

Quine is a self-proclaimed empiricist, so experience according to him plays a crucial role in the adjustment of belief and the attainment of knowledge. This role is not the statement by statement verification (or even Popperian falsification) that the positivists envisioned. Experience does not directly determine the truth or falsity of individual statements, according to Quine. According to Quine the positivists and other modern empiricists failed to recognize the holistic character of knowledge.

> The totality of our so-called knowledge or beliefs, from the most casual matters of geography and history to the profoundest laws of atomic physics or even of pure mathematics and logic, is a man-made fabric which impinges on experience only along the edges. Or, to change the figure, total science is like a field of force whose boundary conditions are experience. A conflict with experience at the periphery occasions readjustments in the interior of the field. Truth values have to be redistributed over some of our statements. Re-evaluation of some statements entails re-evaluation of others, because of their logical interconnections – the logical laws being in turn simply certain further statements of the system, certain further elements of the field. (Quine 1961b/1951, p. 42)

The web of belief, the single web of all of knowledge or science, is the root metaphor of Quinean holism.

The Quine–Duhem Thesis

The web of belief, of course, is a somewhat disordered conglomeration, not a geometrically constructed spider's orb. Furthermore, different people, or segments of the culture, may have somewhat different webs. There are many and diffuse complicating factors. The ways in which the web, or webs, get adjusted, fitted together, and reconciled with experience, and the ways in which internal conflicts when they arise are resolved are not mechanical or formal processes. Which statements and which parts of the fabric of knowledge are adjusted to meet exigencies is not determined by experience or anything else. There is a lot of play in the system.

According to holism, experience meets the web only at its edges. Adjustments to the system to accommodate recalcitrant experiences are not determined in any direct way. We have many options about how to adjust the system when observations do not turn out the way we expected.

> But the total field is so undetermined by its boundary conditions, experience, that there is much latitude of choice as to what statements to re-evaluate in the light of any single contrary experience. No particular experiences are linked with any particular statements in the interior of the field, except indirectly through considerations of equilibrium affecting the field as a whole. (Quine 1961b/1951, pp. 42–3)

Even the laws of logic and mathematics are not immune to revision. Nor are statements about immediate experiences directly falsifiable by apparently contradictory observations. Everything is always up

for grabs, or rather more formally, subject to revision. Nothing is sacrosanct: not analytic, not a priori, not purely observational.

> [I]t is misleading to speak of the empirical content of an individual statement – especially if it be a statement at all remote from the experiential periphery of the field. Furthermore it becomes folly to seek a boundary between synthetic statements, which hold contingently on experience, and analytic statements which hold come what may. Any statement can be held true come what may, if we make drastic enough adjustments elsewhere in the system. Even a statement very close to the periphery can be held true in the face of recalcitrant experience by pleading hallucination or by amending certain statements of the kind called logical laws. Conversely, by the same token, no statement is immune to revision. Revision even of the logical law of the excluded middle has been proposed as a means of simplifying quantum mechanics. (Quine 1961b/1951, p. 43)

This view of theory or knowledge revision is based on the "Quine–Duhem Thesis."[5] The Quine–Duhem thesis is the claim that any theory can accommodate any observations. Despite what Popper claimed, a scientific theory cannot be directly refuted by supposed falsifying evidence. Such falsifying evidence can always be accommodated by making changes elsewhere than in the theory. For example, accommodations can be made in the supporting assumptions, logic, or intellectual environment. Furthermore, any observations can be accommodated or explained by an infinite number of different and inconsistent theories. Thus scientific theories are radically underdetermined by observational evidence. Verification and falsification of theories always rests on numerous subsidiary assumptions and hypotheses about how things work. Rather than changing the theory, these assumptions or hypotheses can be readjusted to accommodate the observations. Since the observations themselves are also theory laden – they rely on equipment or the functioning of sense organs, or cooperation among groups of people – they can be discounted or reinterpreted. Thus the Quine–Duhem Thesis and holism support and explain each other.

The Indeterminacy of Radical Translation

Quine used the Quine–Duhem Thesis for a further assault on meanings. In his most famous book, *Word and Object* (Quine 1960), Quine treats

[5] Pierre Duhem was a French physicist and philosopher of science who was active in the late nineteenth and very early twentieth centuries, and is known today among analytic philosophers primarily because of his eponymous thesis.

translation as a form of theory construction. He has us think about what he calls "radical translation." An anthropologist or linguist is attempting translation from an entirely unknown and unrelated language. The translator must rely entirely on observing the behavior of informants and listening to the verbal sounds they make. As he works on his translation the linguist is creating a theory of native word meaning. The linguist notes that an informant says "Gavagai" as a rabbit scampers by, and writes down "'gavagai' means 'rabbit.'" But wait a minute! Not so fast:

> For consider 'gavagai'. Who knows but what the objects to which this term applies are not rabbits after all, but mere stages, or brief temporal segments of rabbits? In either event the stimulus situations that prompt assent to 'Gavagai' would be the same as for 'Rabbit'. Or perhaps objects to which 'gavagai' applies are all and sundry undetached parts of rabbits; ... When from the sameness of stimulus meanings of 'Gavagai' and 'Rabbit' the linguist leaps to the conclusion that a gavagai is a whole enduring rabbit, he is just taking for granted that the native is enough like us to have a brief general term for rabbits and no brief general term for rabbit stages or parts. (Quine 1960, pp. 51–2)

Quine wants to suggest that there is no fact of the matter about what "gavagai" means.

This point applies to translation in general:

> [M]anuals for translating one language into another can be set up in divergent ways, all compatible with the totality of speech dispositions, yet incompatible with one another. In countless places they will diverge in giving, as their respective translations of a sentence of one language, sentences of the other language which stand to each other in no plausible sort of equivalence, however loose. (Quine 1960, p. 27)

This under-determination of translation is a manifestation of the more general under-determination of theory by data.

> To the same degree that the radical translations of sentences is under-determined by the totality of dispositions to verbal behavior, our own theories and beliefs in general are under-determined by the totality of possible sensory evidence time without end. (Quine 1960, p. 78)

The Structure of Scientific Revolutions

Quine's claims seem to be purely theoretical in the sense that we would all know how to verify or falsify the claim that there are brick houses on our street and no one would disagree, and most likely no one would disagree about the translation of a native word.[6] True enough, and Quine would not deny this. But in the natural sciences things have not proceeded so straightforwardly. The renowned historian and philosopher of science Thomas Kuhn documented that in scientific theory revision and replacement, events proceed in much the way suggested by the Quine–Duhem Thesis and Quinean holism.

Kuhn's vocabulary from his justly famous and influential book *The Structure of Scientific Revolutions* (Kuhn 1970/1962) has been incorporated into the fabric of contemporary philosophy of science and culture in general. Today the terms "paradigm" and "paradigm shift" are widely used (and misused) in every area, including the popular media, in more-or-less the sense introduced by Kuhn.

Kuhn denies that the process of theory replacement in science (and the growth of knowledge generally) is a process where old faulty theories are verified or falsified by crucial experiments and replaced by truer ones. His view is that old paradigms, which involve entire worldviews based on scientific theories, are replaced by new paradigms. These paradigm shifts have often been intellectually violent revolutions. The overthrow of a paradigm is not determined just by the experimental data. It is a multifaceted cultural phenomenon involving religion, ways of life, technological advances, fashions of thinking, and every other facet of scientific life. The process does certainly involve experimental results, observations, and the data they generate. These cannot be ignored. However, contrary to the views of the positivists and Popper, they play a subsidiary role and depend on the surrounding cultural milieu in a holistic way.

The view of science that emerges from Kuhn's historical work is close to Quine's and supports his criticisms of the logical positivists.

> To the historian, at least, it makes little sense to suggest that verification is establishing the agreement of fact with theory. All historically significant theories have agreed with the facts, but only more or less. There is no more precise answer to the question whether or how well an individual theory fits the facts. (Kuhn 1970/1962, p. 146)

Typically the adherents of the old scientific paradigm are not defeated by the results of experiments or observations. They are defeated by the grim reaper. Older scientists are replaced in positions of scientific power by younger colleagues with fewer intellectual commitments. The younger scientists find it easier to embrace the new paradigm. "How then are scientists brought to make this transition [from one

[6] Except for vagueness and ambiguity, which are nothing special and no news.

paradigm to another]? Part of the answer is that they are very often not" (Kuhn 1970/1962, p.150). Kuhn cites with approval Max Planck:

> A new scientific truth does not triumph by convincing its opponents and making them see the light, but rather because its opponents eventually die, and a new generation grows up that is familiar with it. (Kuhn 1970/1962, p. 151)

Competing scientific paradigms are incommensurable. This means that members of the disparate paradigms can only partially communicate with each other. Neither can defeat the other with decisive verifications or falsifications.

> The proponents of competing paradigms are always at least slightly at cross-purposes. Neither side will grant all the non-empirical assumptions that the other needs in order to make its case. ... Though each may hope to convert the other to his way of seeing his science and its problems, neither may hope to prove his case. The competition between paradigms is not the sort of battle that can be resolved by proofs. (Kuhn 1970/1962, p. 148)

The term "matter" may mean one thing to an Aristotelian physicist and something different to a Newtonian, and something else again to an Einsteinian. This is like the Quinean problem of radical translation. There is no fixed eternal meaning of the term "matter." A scientific term gets its meaning by being embedded in a theory and ultimately in the whole of science of the time. Members of different scientific schools are talking past each other when they discuss and disagree about, e.g., matter. "[T]he proponents of different paradigms practice their trades in different worlds" (Kuhn 1970/1962, p. 150). This partly explains why one physicist's crucial falsifying experiment is another's merely annoying anomaly.

> What had previously been meant by space was necessarily flat, homogeneous, isotropic, and unaffected by the presence of matter. If it had not been, Newtonian physics would not have worked. To make the transition to Einstein's universe, the whole conceptual web whose strands are space, time, matter, force, and so on, had to be shifted and laid down again on nature whole. ... Copernicus' innovation was not simply to move the earth. Rather, it was a whole new way of regarding the problems of physics and astronomy ... (Kuhn 1970/1962, p. 149)

Because of Kuhn's work, philosophers have come to accept that the *Tractarian* and verificationist views of the Vienna Circle and their followers are an unrealistic idealization. The logical positivists' notion of science was a fantasy that ignored the messy, holistic, and "unscientific" nature of scientific "progress." Even the term "scientific" does not have a strict meaning. How are we to settle the question of whether Marxism is scientific? The discussion is full of value judgments, presuppositions, and cultural prejudices. It is not a question with a clear, verifiable, and objective answer.

Kuhn's book *The Structure of Scientific Revolutions* was published as Volume II, No. 2 of the *International Encyclopedia of Unified Science*.[7] This was a series of publications started by positivists. Many positivists and former members were on the editorial board. This irony reveals the extent to which they themselves were engaged in and sympathetic to overturning their own philosophical paradigm. Is this a counterinstance to Kuhn's views about theory change? Not really. Kuhn's historical analysis was meant to apply to natural science. Despite the hopes of Russell and the logical positivists, philosophy is not a science.

Pragmatism

If scientific theories are radically under-determined by data, how are they validated? How do scientists decide which theory to adopt? As we have seen, part of the answer is cultural predilections, but this cannot be the whole answer. It leaves unexplained the success of science.

Both Quine and Kuhn argue that pragmatic considerations guide the direction of science and explain its success. According to Quine natural science is a tool for making predictions. It is not a *Tractarian* picture of reality, which must be judged by how accurately it depicts the natural world. "As an empiricist I continue to think of the conceptual scheme of science as a tool, ultimately, for predicting future experience in the light of past experience" (Quine 1961b/1951, p. 44). Since science is a tool, it is judged in the way we judge any tool. How useful is it? How well does it work? Does it do the job for which it was designed? Changes in the web of science are evaluated by whether they improve the tool. Do they make it easier to use? Do they increase the system's predictive capacity? This is pragmatism. We shape the tool for the job it is intended for and for those who will be using it, and judge it by how well it works.

Data are the raw materials, but what we do with them is a matter of choosing the most convenient and useful organization. According

[7] Recall part five of the logical positivist program: All of science consists of a single unified system with a single set of natural laws and facts. There are no separate methods or systems in the psychological or social sciences – or at least there ought not to be.

to Quine, particular sensory experiences impinge on the whole of science, including common sense,[8] geography, history, etc. only at the periphery. Experiences that are anomalous can be accommodated in an endless and under-determined number of different ways. How do we choose what to change? We should and must consider what have come to be called "extra-empirical" or "pragmatic" virtues. The most important virtues are simplicity, conservatism, modesty, elegance, and fruitfulness. Two or more different hypotheses may accommodate a particular set of data, but we should choose the one that is the simplest, that disturbs the rest of the web the least, that makes the fewest ancillary assumptions, and so on. None of this is rigidly or mechanically determined by the logic of verification. The decision that we make in a particular case "turns upon our vaguely pragmatic inclination to adjust one strand of the fabric of science rather than another in accommodating some particular recalcitrant experience. Conservatism figures in such choices, and so does the quest for simplicity" (Quine 1961b/1951, p. 46).

Kuhn emphasizes the divergence from the mechanical or strictly logical procedures imagined by the logical positivists.

> Debates over theory-choice cannot be cast in a form that fully resembles logical or mathematical proof. ... Nothing about that relatively familiar thesis implies either that there are no good reasons for being persuaded or that those reasons are ultimately decisive for the group. Nor does it even imply that the reasons for choice are different from those usually listed by philosophers of science: accuracy, simplicity, fruitfulness, and the like. What it would suggest, however, is that such reasons function as values and that they can thus be differently applied, individually and collectively ... (Kuhn 1970/1962, p. 199)

Pragmatic considerations, despite the somewhat businesslike sound of the term, are not opposed to ideals of rationality. For Quine pragmatic considerations are what rationality is:

> Each man is given a scientific heritage plus a continuing barrage of sensory stimulation; and the considerations which guide him in warping his scientific heritage to fit his continuing sensory promptings are, where rational, pragmatic. (Quine 1961b/1951, p. 46)

Quinean (and Kuhnian) pragmatism is in the great tradition of American pragmatism. [*Background* 3.2 – Peirce, James, and Dewey]. The term "pragmatism" was coined by C. S. Peirce but the most prominent and famous pragmatist was the leading American philosopher

[8] "Science is a continuation of common sense." (Quine 1961b/1951, p. 45).

William James. William James was born in New York in 1842 and died in 1910. Besides doing influential work in philosophy, James was a prominent psychologist and wrote important works on religion. William James is not to be confused with his brother, the novelist Henry James.

James, like Quine, considered himself an empiricist first and foremost. James asserts that pragmatism is a form of empiricism, but empiricism shorn of its more difficult burdens and dogmas.

> Pragmatism represents a perfectly familiar attitude in philosophy, the empiricist attitude, but it represents it, as it seems to me, both in a more radical and less objectionable form than it has ever yet assumed. A pragmatist turns his back resolutely and once and for all upon a lot of inveterate habits dear to professional philosophers. He turns away from abstraction and insufficiency, from verbal solutions, from bad *a priori* reasons, from fixed principles, closed systems, and pretended absolutes and origins. (James 1955/1907, p. 45)

James is writing (1907) well before the Vienna Circle came together, but the issues do not seem to have changed much by the time of Quine's confrontation with logical positivism. They just became more technical and articulated. In tune with the style of his times, James' writing is more flowery and less specific than Quine's, but Quine's empiricism is in the tradition of James and American pragmatism. Quine was after a more radical and less objectionable form of empiricism than logical positivism.

Empiricism, of course, has its origins in Europe, but the pragmatist version is a singularly and uniquely American movement in philosophy. Quine is the first and foremost American philosopher of the twentieth century. He was born in Ohio in 1908. He graduated from Oberlin College and then, like William James, spent almost his entire professional life at Harvard University. Alfred North Whitehead was Quine's PhD thesis advisor at Harvard, which partly explains Quine's lifelong interest in and brilliance at mathematics and mathematical logic. Quine, from his position as professor of philosophy at Harvard from 1956 to 1978, had the chance to associate with and influence many leading American philosophers. Many (but not all) of them adopted and extended his holism and pragmatism. Interestingly, Thomas Kuhn also was born in Ohio and was at Harvard at the same time as Quine was getting his PhD and starting his career. Clearly they influenced each other. Kuhn later took positions at the University of California, Princeton University, and MIT but the two always remained closely connected.

Unlike his most famous predecessors, Russell and Wittgenstein, Quine continued to publish and remain in the forefront of philosophy throughout his long life. Quine published seven books and numerous articles *after* he retired in 1978. For sheer energy and volume Quine can hardly be equaled among the top philosophers of the twentieth century. I have not even mentioned, nor will I be able to discuss here, Quine's vast contributions to formal logic, set theory, and the foundations of mathematics.

Despite his contributions to many areas of philosophy of science, logic, and philosophy of mathematics, Quine's revivification of American pragmatism is his most enduring contribution to philosophy. American pragmatism had fallen into neglect and disfavor primarily because of the tremendous force of European logical positivism. This battle between positivism and pragmatism was renewed and continued in the United States in the exchange between Quine and Carnap, who was teaching at The University of Chicago and then UCLA. [*Background* 3.3 – "Warfare" in philosophy] Today logical positivism is dead and Quinean pragmatism is alive and kicking. Does that mean that Quine is closer to the truth than Carnap and the logical positivists? Pragmatists would hesitate to objectify truth in the way suggested by the phrasing of this question. There is no first or fundamental philosophy that discovers truth or rather TRUTH underlying or separate from science.

One result of Quine's attacks on the dogmas of empiricism is a reconceptualization of philosophy. Quine sees philosophy as continuous with natural science. "One effect of abandoning them [the two dogmas of empiricism] is ... a blurring of the supposed boundary between speculative metaphysics and natural science. Another is a shift toward pragmatism" (Quine 1961b/1951, p. 20). The quest for knowledge is embodied in science, and the quest is pursued pragmatically. Philosophy and philosophizing are part of the enterprise and we philosophers make what contributions we can. Aligning philosophy with science seems to give philosophers a definite down-to-earth job to do, but at the same time it diminishes the pretentions of philosophy. Quine and the American pragmatists, like the logical positivists, viewed traditional philosophy as a forlorn project of trying to solve obsolete problems. Quine was not much interested in the history of philosophy. He was given to saying "There are those who study the history of philosophy, and then there are those who do philosophy." He also famously said "philosophy of science is philosophy enough" (Quine 1966a/1953, p. 149).

Metaphysics and Science

Quine was more lenient toward metaphysics than the positivists were, but nothing in Quine would give solace to any traditional metaphysician. Quine and his followers did not have that fervid "We must eliminate any whiff of metaphysics without mercy" attitude of the Vienna Circle. Quine soothes: "[T]he question what ontology actually to adopt still stands open, and the obvious counsel is tolerance and an experimental spirit" (Quine 1961a/1948, p. 19). Much that the positivists would have rejected as meaningless turns out to be part of the web of science and thus is not to be rejected on the basis of dubious theories of meaning. Quine, we saw, refers approvingly to the blurring of the distinction between speculative metaphysics and natural science. Still, Quine has enough of the positivist spirit that he cannot bring himself to allow metaphysics under that name; he countenances "ontology." Nowhere in his writings does he explicitly recommend metaphysics as such, nor would he allow any metaphysics that is independent of the work of scientists.

Quine inherited his focus on ontology from Carnap. Carnap in a famous article titled "Empiricism, Semantics, and Ontology" (Carnap 1956b/1950), distinguishes between two kinds of questions – internal questions and external questions. According to Carnap ontological issues are external questions, which means that they concern only semantics – which kind of terms to use. The answers to external questions are not true or false. The "answers" to external questions are decisions not discoveries. External questions are misleadingly formulated as factual questions.

> Are there properties, classes, numbers, propositions? In order to understand more clearly the nature of these and related problems, it is above all necessary to recognize a fundamental distinction between two kinds of questions concerning the existence or reality of entities. If someone wishes to speak in his language about a new kind of entities, he has to introduce a system of new ways of speaking, subject to new rules; we shall call this procedure the construction of a linguistic *framework* for the new entities in question. And now we must distinguish two kinds of questions of existence: first, questions of the existence of certain entities of the new kind *within the framework;* we call them *internal questions;* and second, questions concerning the existence or reality *of the system of entities as a whole,* called *external questions.* Internal questions and possible answers to them are formulated with the help of the new forms of expressions. The answers may be found either by purely logical methods or by empirical

> methods, depending upon whether the framework is a logical or a factual one. An external question is of a problematic character which is in need of closer examination. (Carnap 1956b/1950, p. 206)

According to Carnap, a question such as "Are there numbers?" could be meant as an internal question in which case the answer is obvious once we have adopted a language form that allows talk of numbers. Asked as an external question about the entire system of mathematics it makes no sense. It is a pseudo-question. This is Carnap's approach to traditional ontological questions such as whether there are physical objects, whether there are propositions, properties, (the gods of Homer?) and so on.

> Internal questions are here, in general, empirical questions to be answered by empirical investigations. On the other hand, the external questions of the reality of physical space and physical time are pseudo-questions. A question like 'Are there (really) space-time points?' is ambiguous. It may be meant as an internal question; then the affirmative answer is, of course, analytic and trivial. Or it may be meant in the external sense: 'Shall we introduce such and such forms into our language?'; in this case it is not a theoretical but a practical question, a matter of decision rather than assertion, and hence the proposed formulation would be misleading. (Carnap 1956b/1950, p. 213)

Carnap held that the dispute between the phenomenalists and physicalists (see Chapter 2, p. 67) was a dispute about external questions. He suggested that this is a pragmatic issue, and that one could adopt phenomenalism for some purposes and physicalism for others.

One might assume that Quine would approve of Carnap's approach, since the decision about which linguistic framework to adopt is pragmatic according to Carnap. Although Quine had the highest regard for Carnap, "[N]o one has influenced my philosophical thought more than Carnap" (Quine 1966b/1951, p. 126), he does not agree with Carnap. Quine rejected Carnap's distinction between factual statements and pseudo-statements based on linguistic conventions. Nor would Quine allow a distinction between internal and external questions. He would certainly not agree that answers to some internal questions are analytic, as Carnap holds. Despite elements of pragmatism, Carnap is still working on improving, explaining, and clarifying the basic positions of the logical positivists.

> A brief historical remark may here be inserted. The non-cognitive character of the questions which we have called here external questions was recognized and emphasized already by the Vienna Circle ... (Carnap 1956b/1950, p. 215)

Carnap does not confront doubts about the analytic/synthetic distinction, the rigid notion of meaning, or the Quinean claim that ontological questions are just as much empirical as any other questions in science.

Quine cannot use Carnap's terminology, because he rejects the distinction. The following is from "On Carnap's Views on Ontology" (one of several in which Quine attacked Carnap's ideas).

> I have set down my misgivings regarding the distinction between analytic and synthetic in a recent paper "Two dogmas of empiricism," and will not retrace those steps here. Let me merely stress the consequence: if there is no proper distinction between analytic and synthetic, then no basis at all remains for the contrast which Carnap urges between ontological statements [external questions] and empirical statements of existence [internal questions]. Ontological questions then end up on a par with questions of natural science. (Quine 1966b/1951, p. 134)

Recall that for Carnap internal questions such as "Are there (really) space-time points?" can get answers that are analytic, whereas external questions are psuedo-questions. If we reject the analytic/synthetic distinction, Carnap's distinction vanishes. Both what Carnap would have fancied as external questions and what he fancied as internal questions end up "on a par." They are empirical questions of natural science, according to Quine.

Epistemology Naturalized

Quine's approach to epistemology is similar to his handling of metaphysics. Epistemology, or what is left of it, like metaphysics, and what is left of it, is part of natural science. Quine proposes that epistemology be included in empirical psychology. The title of an article, only slightly less famous and influential than "Two Dogmas," puts it succinctly: "Epistemology Naturalized" (Quine 1969).

Quine's view that epistemology is part of natural science has been even more influential than his views on metaphysics. The claim that questions about how human beings form beliefs and get knowledge are questions of psychology is plausible and independent of more contentious issues involving the analytic/synthetic distinction. Quine is rescuing epistemology from the atrophied clutches of traditional philosophy and from those who would eliminate it along with metaphysics.

> Carnap and the other logical positivists of the Vienna Circle had already pressed the term "metaphysics" into pejorative use, as connoting meaninglessness; and the term 'epistemology' was next. Wittgenstein and his

followers, mainly at Oxford, found a residual philosophical vocation in therapy: in curing philosophers of the delusion that there were epistemological problems. [See Chapter 4]

But I think that at this point it may be more useful to say rather that epistemology still goes on, though in a new setting and a clarified status. Epistemology, or something like it, simply falls into place as a chapter of psychology and hence of natural science. It studies a natural phenomenon, viz., a physical human subject. (Quine 1969, p. 82)

Here again Quine is in the tradition of American pragmatism. Dewey anticipated Quine's naturalized epistemology. Dewey also suggests Quine's view of science as prospective rather than mirroring. (Dewey does not use Quine's words, instead he talks of "reflection," and connects it to human evolution.)

> Reflection is an indirect response to the environment, and the element of indirection can itself become great and very complicated. But it has its origin in biological adaptive behavior and the ultimate function of its cognitive aspect is a prospective control of the conditions of the environment. The function of intelligence is therefore not that of copying the objects of the environment, but rather of taking account of the way in which more effective and more profitable relations with these objects may be established in the future. (Dewey 1973/1922, p. 54)

Many would question whether psychology is all there is to epistemology, but Quine is expansive and tolerant. His main concern is to challenge the traditional view that epistemology (and metaphysics) is a foundational enterprise prior to and independent of empirical science. There would still be room for the kinds of things that the old epistemologists did.

> Such a study could still include, even, something like the old [epistemological] rational reconstruction, to whatever degree such reconstruction is practicable; for imaginative constructions can afford hints of actual psychological processes, in much the way that mechanical simulations can. But a conspicuous difference between old epistemology and the epistemological enterprise in this new psychological setting is that we can now make free use of empirical psychology. (Quine 1969, p. 83)

And natural science can also make free use of philosophical epistemology. In an engaging image Quine imagines epistemology and natural science mutually containing each other.

> The old epistemology aspired to contain, in a sense, natural science; it would construct it somehow from sense data. Epistemology in its new setting, conversely, is contained in natural science, as a chapter of psychology. But the old containment remains valid too, in its way.... There is thus reciprocal containment, though containment in different senses: epistemology in natural science and natural science in epistemology. (Quine 1969, p. 83)

The idea is that epistemology represents science studying the scientific process itself. This is a circle but not a vicious one. According to a metaphor often repeated by Quine, science is like a ship that the sailors have to rebuild and repair while sailing in it.[9]

American Pragmatists after Quine: Nelson Goodman, Richard Rorty, and Hilary Putnam

Many leading American philosophers have been closely associated with Quine, and been influenced in one way or another by his holism and pragmatism. The most prominent among them are Nelson Goodman, Richard Rorty, and Hilary Putnam. Only Rorty and Putnam (and only later in his career) would be happy styling themselves pragmatists, but each is beholden to the American pragmatist tradition. They share a rejection of traditional philosophical questions and are suspicious of the notion of absolute truth embodied by science mirroring reality. They revel in dismantling the pretensions of the logical positivists.

Each of the prominent neo-pragmatists, as they are often called, was born in the United States and educated there. Nelson Goodman, born in Needham, Massachusetts, got his BA and PhD from Harvard and was on and off a professor of philosophy there, intersecting with Quine. He was older than Quine but took years off to run an art gallery and enjoy an artistic career. Rorty, born in New York City, is the least closely associated with Quine, and never spent time at Harvard, but he often cites Quine as a major influence on his ideas.[10] Hilary Putnam, born in Chicago, was a close associate of Quine's and has been professor of philosophy at Harvard for many years. He is now, in 2011, the only one of this group still living. Happily, he is professor emeritus at Harvard and the grand old man of American philosophy and justly revered.

Quine and Goodman both served in military intelligence in the US Armed Forces during World War II. As we will see, many of their

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generational colleagues in Britain served in various branches of the British forces, but most in intelligence. Some of them had fascinating military careers. Putnam and Rorty were too young to serve in the war.

World War II did not have the same sort of discernible effect on epistemology and metaphysics as did World War I. One effect, however, of the Nazis and World War II was the emigration of many German and Austrian philosophers to English speaking countries. We must not underestimate the influence of the logical positivists. Each of the American neo-pragmatists was philosophically formed in the atmosphere of the early Wittgenstein and the Vienna Circle. Quine, Putnam, and Rorty studied with Carnap. Quine traveled to Vienna and followed Carnap to Prague. Putnam studied with Carnap and Reichenbach at UCLA. Goodman was influenced by Carnap, especially in his early work. The arrival in this country of Carnap, Hempel, and others was a tremendous boon for American philosophy.

Unlike the members of the Vienna Circle, the American pragmatists were not part of a movement that met together or published manifestoes or had anything like a party line. Each of them is fiercely independent and individualistic in thought, writing, and style. Part of the idea of pragmatism is an irreverent attitude to traditional philosophy and its traditional preoccupations, and resistance to anything resembling a manifesto or program. The American neo-pragmatists knew each other, were influenced by Quine, especially his holism and pragmatism, and were reacting against traditional philosophy and Carnap, despite revering him. Beyond that they had little in common.

The most prominent theme shared by the neo-pragmatists is a rejection of the correspondence theory of truth. [*Background 3.4* – Correspondence, coherence, and pragmatic theories of truth] "For the pragmatist, true sentences are not true because they correspond to reality, and so there is no need to worry about what sort of reality, if any, a given sentence corresponds to – no need to worry about what 'makes' it true" (Rorty 1982, p. xvi). Contrary to the *Tractatus*, we do not need to look for the one sort of thing that makes a sentence true – a fact or objective state of affairs for it to correspond to. The "truth-makers" are as diverse and multifarious as our purposes and projects.

Rorty

Rorty, the quintessential and self-described pragmatist, has been prominent beyond philosophy departments. He has had a large following among other humanists, especially those in literature departments. Consistent with his pragmatism, Rorty is dubious about philosophy as an

academic field. Given a chance, he would have shut down philosophy departments and have philosophers do more useful things. At any rate he said things to this effect. This helps to explain the tendency among his analytic colleagues to dismiss his work as cultural pandering.

Rorty's "cultural pandering" consists in his trying to engage and include Continental philosophers in dialogue. Rorty more than anyone else has worked to bridge the gap between analytic philosophy – especially the pragmatist wing of it – and Continental philosophy.

There is something to this rapprochement. Just as the pragmatists have been trying to overcome the "paradigm" of traditional philosophy and reset the questions and dialogue in a new key, so too the major Continental philosophers have been bent on expunging remnants of the tradition of Western metaphysics that begins with Plato. And as I mentioned earlier, both the analytic and Continental traditions include philosophers who exhibit a modernist tendency.

Rorty did not deny that major differences between the analytic and Continental camps persist, especially their differing attitudes to science. According to Rorty, the analytic philosophers tend to revere science and mathematics and are inspired by them. As we have seen, analytic philosophers have gained many of their issues from work in philosophy of science and the foundations of mathematics. The Continental philosophers, on the other hand, distrust and dislike science as much as they do traditional Platonist metaphysics. Heidegger and Sartre detested modern science and technology. Following Nietzsche, they see science as a continuation of Platonist metaphysics. They argue that modern technology is destructive of individuality and freedom.

Unfortunately for Rorty's attempt at rapprochement, this difference in attitude to science goes deeper than he realizes. It is not just a matter of style and inclination. American pragmatism is nothing and not true to its roots if it does not embrace natural science as the most reliable and fruitful way to truth and knowledge. William James and John Dewey were both engaged in science and technology and accorded them the highest respect. Natural science is what pragmatism is about and where it comes from. The differing attitudes to science represents a wide gulf between the Continental philosophers and analytic pragmatists, and analytic philosophers in general.

Ironically, Continental philosophers seem to share a view of science that is reminiscent of the logical positivists. Or rather I should say they both indulge in an extreme view of science – in the one case adulation, in the other fear and scorn. Kuhn and Quine tried to overcome the idea that science is a rigidly organized description of independent reality that gets closer and closer to absolute truth. Thus they would disparage

as naïve and uninformed the Continental view of science as recast Platonist metaphysics. The Continentals are attacking an institution that never existed. James, Dewey, and Quine viewed science as a cultural phenomenon that is to be judged by a diffuse set of values and interests, not by how well it mirrors "reality."

Rorty also worked to depose the metaphor of the mind and knowledge as mirrors. In his major work *Philosophy and the Mirror of Nature* (Rorty 1979) he criticizes the dominant and traditional Western view of the mind and thus scientific knowledge as containing pictorial representations of external, independent physical reality. The attempt to mirror reality by thought and language is forlorn because it is an incoherent endeavor. It is a relic of the enlightenment inherited from Plato and Aristotle. We see this mirroring also in Wittgenstein's picture theory. To some extent the logical positivists with their focus on verifiability inherited the notion from Wittgenstein, but when pressed would have likely rejected the metaphor as metaphysical. Putnam, Goodman, and Rorty labored to dismantle the traditional view of science as an attempt, by rigid and formal methods, to get an ever more accurate picture or mirror of a fixed lawlike world. They rejected a view of science according to which it proceeded to get ever nearer to ultimate truth, to achieve an ever more accurate picture. Dewey in his 1922 article on pragmatism says: "A phrase of James' very well summarizes its [pragmatism's] import: 'the popular notion that 'Science' is forced on the mind *ab extra*, and that our interests have nothing to do with its constructions, is utterly absurd'" (Dewey 1973/1922, pp. 53–4). A well-defined line can be traced from Dewey and James, through Quine and Kuhn, to Putnam, Goodman, and Rorty.

One aspect that would, however, distinguish the later American pragmatists and make them more congenial with the Continentals is that, contrary to Quine, the early Wittgenstein, and the Vienna Circle, they did not see science as containing all of knowledge. The pragmatists, given their view of science as value-laden, are more tolerant of non-scientific endeavors than were early Wittgenstein and the logical positivists. Rorty, Goodman, and Putnam insisted that disciplines outside of science are also ways of knowing. Art, music, literature, morality, and perhaps even religion, contribute to the web of knowledge.

> A view of knowledge that acknowledges that the sphere of knowledge is wider than the sphere of 'science' seems to me to be a cultural necessity if we are to arrive at a sane and human view of ourselves *or* of science. (Putnam 1978, p. 5)

Once one frees oneself from the toils of the correspondence theory of truth and the metaphysical notion of reality that accompanies it, one abandons the idea that knowledge is a mirror of external reality. This opens us to viewing literature and art as offering, among other things of course, cognitive content with pragmatic value.

Still, science is the Queen. The pragmatic attitude toward science is based on respect and admiration for science. As Putnam puts it, the anti-traditional view of science is the only sane and human one. The neo-pragmatists aimed to dismantle the rigid theories of the logical positivists, and thus to save science from its friends – friends who wanted to impose an unrealistic formal structure on it.

Goodman

Nelson Goodman's contribution to unraveling the traditional view of science was his modestly named "new riddle of induction." Goodman announced this in the early 1950s and it quickly made him famous. Much more than a mere riddle, it caused major upheavals in the philosophy of science. The scientific method which proceeds by empirical induction is one of the key elements of the traditional view of science, but the logic of induction has always been beset by problems. As opposed to deductive logic, the logic of confirmation – inductive logic – had never been successfully formalized. Several annoying puzzles or paradoxes ("riddles") of induction have surfaced, each requiring ever more elaborate and technical solutions. Both Carnap and Hempel had tried to develop purely mechanical or syntactic methods of inductive confirmation to deal with these riddles. [*Background 3.5* – Induction versus deduction and the traditional problems of induction] In tune with the positivists' faith in formal logic, they thought that the problems of inductive logic could be solved by fiddling with the symbolic logic.

Goodman swept away all such attempts. He was able to devise understandable but unnatural predicates that defeated any purely mechanical system of inductive logic.

> So long as what seems to be needed is merely a way of excluding a few odd and unwanted cases that are inadvertently admitted by our definition of [inductive] confirmation, the problem may not seem very hard or very pressing. We fully expect that minor defects will be found in our definition and that the necessary refinements will have to be worked out patiently one after another. But some further examples will show that our present difficulty is of a much graver kind. (Goodman 1965/1955, p. 73)

Goodman's best known cooked up predicate is "grue." An item is grue if and only if it is green and examined before t (any specific time in the future, say 2 p.m. EDT, March 30, 2030) or is unexamined before t and is blue. The time now being well before our arbitrarily chosen t, we rattle around places where emeralds are found and examine a bunch of them. Naturally each of them is green. This supports the induction that all emeralds are green. (It confirms the claim that all emeralds are green, but of course does not absolutely prove it. That is why it is inductive, not deductive.)

But wait, our observations of emeralds also support the induction that all emeralds are grue. They confirm the claim that all emeralds are grue. Each observed emerald is green and examined before t, so it is grue. Clearly this is a problem, because if our supported induction confirms that all emeralds are grue, then when t rolls around we should expect every newly examined emerald to be blue. This merits a bit of an explanation: If we examine an emerald just after t and we expect it to be grue (on the basis of our grue-induction), then since we know it was not examined before t, we must expect it to be blue. It is either examined before t and green or it is blue.

The rub is that of course it is not blue and we do not expect it to be. Nobody would. The induction with "grue" is crazy. Unfortunately, nothing in the most complex syntactic formalizations explains why induction does not work for "grue" but does for "green." Goodman concludes on the basis of such cooked up predicates that "we are left once again with the intolerable result that anything confirms anything. This difficulty cannot be set aside as an annoying detail to be taken care of in due course" (Goodman 1965/1955, p. 75).

The response to the "grue" riddle which surely occurs to the reader is that induction does not work with such cooked up artificial predicates as "grue" and was never meant to. Induction was only meant to work with natural predicates like "green." This is quite correct. It is a main point of Goodman's argument. No normal person would ever use a grue-like predicate, but that is a natural fact about us, not a result of logic or metaphysics. "Grue" and "green" are logically equal. From the point of view of formal systems "grue" is just as good a predicate as "green." Formal systems recognize no difference between "natural" and "cooked up" predicates. Goodman shows how, surprisingly, all of our inductions with "green" can be done with "grue," although they would be much more complex. "Green" has no logical superiority to "grue."

Goodman's example may seem highly contrived and technical, and by itself perhaps it would not have had much of an effect. The point is

that combined with Quine's attack on the analytic/synthetic distinction, and the attacks on the verifiability criterion of meaningfulness, it helped to show the bankruptcy of the mechanical, rigid, formal approach of the logical positivists and their allies. A more pragmatic and eclectic approach to philosophical problems came to seem inevitable, and even beneficial and salutary.

Goodman calls predicates and hypotheses that are inductive-friendly "projectible," and ones like "grue" that are not good for induction "nonprojectible." The problem is to define or describe a way to distinguish the projectible from the nonprojectible predicates. This cannot be done in any syntactic, mechanical way. Again, pragmatic conditions must come into play.

> Categories that are inductively right tend to coincide with categories that are right for science in general; but variations in purpose may result in variations in relevant kinds. (Goodman 1978, p. 128)

Note especially the final phrase. The kinds that we recognize in nature are partly, perhaps even largely, a result of our purposes.

Putnam

Hilary Putnam, in a prodigious series of publications from 1954 to the present day, has expressed opinions and given arguments on almost every topic in philosophy. He has also changed his positions on those topics many times. Putnam has been one of his own most relentless critics. In later chapters we will describe his important role in the revival of metaphysics and his seminal contributions to the philosophy of mind. In the 1980s he became dissatisfied with his ideas in that sphere. He then advanced a version of pragmatism that he called "internal realism." (He said that he wished he had called it "pragmatic realism.")

Putnam distinguishes between two philosophical perspectives – the externalist and the internalist. (This distinction is only distantly related to Carnap's distinction between external and internal questions.)[11] Putnam's internalist perspective is influenced by Quine and the pragmatists.

[11] Putnam's terminology has not caught on and is doubly confusing, because not only is it derived obliquely from Carnap, but "externalism" came to be widely used to name a completely different theory that is also partly based on Putnam's arguments. (See Chapter 7, pp. 259–60.) A better-known and less confusing terminology for the distinction he is offering is that between metaphysical realists and anti- or non-realists. Alas, "realism" also has many and varied uses in philosophy and in ordinary language.

First his description of the externalist perspective:

> One of these perspectives is the perspective of metaphysical realism. On this perspective, the world consists of some fixed totality of mind-independent objects. There is exactly one true and complete description of 'the way the world is'. Truth involves some sort of correspondence relation between words or thought-signs and external things and sets of things. I shall call this perspective the *externalist* perspective, because its favorite point of view is a God's Eye point of view. (Putnam 1981, p. 49)

There is no reason to believe that we will ever arrive at the one true and complete description (unless we are God), but it is there nevertheless, according to externalism. It is what science aims at.

The internalist (or anti-realist) perspective rejects this belief in a mind-independent truth.

> The perspective I shall defend has no unambiguous name. ... I shall refer to it as the *internalist* perspective, because it is characteristic of this view to hold that *what objects does the world consist of?* is a question that it only makes sense to ask *within* a theory or description. Many 'internalist' philosophers, though not all, hold further that there is more than one 'true' theory or description of the world. 'Truth', in an internalist view, is some sort of (idealized) rational acceptability – some sort of ideal coherence of our beliefs with each other and with our experiences *as those experiences are themselves represented in our belief system* – and not correspondence with mind-independent or discourse-independent 'states of affairs'. There is no God's Eye point of view that we can know or usefully imagine; there are only the various points of view of actual persons reflecting various interests and purposes that their descriptions and theories subserve. (Putnam 1981, pp. 49–50)

The final clauses of this quote could serve as a definition of pragmatism – "there are only the various points of view of actual persons reflecting various interests and purposes that their descriptions and theories subserve." Putnam calls his view "internal *realism*" because he wants to emphasize his rejection of any form of relativism or subjectivism. Even though most philosophers would balk at calling his internalist perspective "realist," Putnam insists that there are enough empirical constraints on our theories to make the term "realism" appropriate. Frankly, this is a bit of philosophical cake-eating and at the same time wanting to have it on the part of Putnam.

Putnam's view is influenced by Quine's holism and epistemological naturalism.

> Internalism is not a facile relativism that says, 'Anything goes'. Denying that it makes sense to ask whether our concepts 'match' something totally uncontaminated by conceptualization is one thing; but to hold that every conceptual system is therefore just as good as every other would be something else. If anyone really believed that, and if they were foolish enough to pick a conceptual system that told them they could fly and to act upon it by jumping out of a window, they would, if they were lucky enough to survive, see the weakness of the latter view at once. Internalism does not deny that there are experiential *inputs* to knowledge; knowledge is not a story with no constraints except *internal* coherence; but it does deny that there are any inputs *which are not themselves to some extent shaped by our concepts*, by the vocabulary we use to report and describe them, or any inputs *which admit of only one description, independent of all conceptual choices*. Even our description of our own sensations, so dear as a starting point for knowledge to generations of epistemologists, is heavily affected (as are the sensations themselves, for that matter) by a host of conceptual choices. The very inputs upon which our knowledge is based are conceptually contaminated; but contaminated inputs are better than none. If contaminated inputs are all we have, still all we have has proved to be quite a bit.
>
> What makes a statement, or a whole system of statements – a theory or conceptual scheme – rationally acceptable is, in large part, its coherence and fit; coherence of 'theoretical' or less experiential beliefs with one another and with more experiential beliefs, and also coherence of experiential beliefs with theoretical beliefs. Our conceptions of coherence and acceptability are, on the view I shall develop, deeply interwoven with our psychology. They depend upon our biology and our culture; they are by no means 'value free'. But they *are* our conceptions, and they are conceptions of something real. They define a kind of objectivity, *objectivity for us*, even if it is not the metaphysical objectivity of the God's Eye view. Objectivity and rationality humanly speaking are what we have; they are better than nothing. (Putnam 1981, pp. 54–5)

Quine's influence on Putnam's philosophy of science is evident also from the following passage. It is a good description of Quine's holistic views of science.

> What I have been saying is that the procedures by which we decide on the acceptability of a scientific theory have to do with whether or not the scientific theory as a whole exhibits certain 'virtues'. I am assuming that the procedure of building up scientific theory cannot be correctly analyzed as a procedure of verifying scientific theories *sentence by sentence*. I am assuming that verification in science is a holistic matter, that it is whole theoretical systems that meet the test of experience 'as a corporate body', and that the judgment of how well a whole system of sentences meets the test

> of experience is ultimately somewhat of an intuitive matter which could not be formalized short of formalizing total human psychology.(Putnam 1981, p. 133)

We see from the above passages, quoted at length, that Putnam's internal realism is something of a synthesis of Carnap and Quine. From Quine he's taken holism, from Carnap the notion that ontology is relative or internal to a theory or system. ("*What objects does the world consist of?* is a question that it only makes sense to ask *within* a theory or description." (Quoted above).)

Putnam is given to fanciful but engaging metaphors and slogans. One of his favorites of his internal realist phase is that "the mind and the world jointly make up the mind and the world" (Putnam 1981, p. xi). Putnam's defense of internalism consists, however, of much more than slogans and programmatic pronouncements. Like Quine and Goodman, he offers technical and sophisticated arguments, often based on advances in symbolic logic, to support his views. And like Quine's and Goodman's, Putnam's technical arguments are mostly negative. He dismantles what he takes to be the rigid and mechanical views of earlier empiricists, especially the logical positivists and their followers – a rigid notion of meaning, of sentence by sentence verification, and reductionism, and a rigid distinction between science and other forms of intellectual life.

Putnam diverges from Quine in his treatment of values. Quine shared with the positivists a dismissive attitude to values. He had a rather crude behaviorist theory of morality. Putnam, on the other hand, takes values seriously. He argued that the fact/value distinction, which was almost as dear to the positivists as the analytic/synthetic distinction, is unsupportable. Our descriptions, theories, and judgments are saturated with values. Such ordinary words as "cruel" and "kind" are descriptive and applicable empirically, but they are also evaluative. To speak of someone as cruel or an act as cruel is to make a moral judgment. Vast numbers of our words are value-laden. Even such factual sounding terms as "rational," "logical, " "irrational," are evaluative.

> When we think of facts and values as independent we typically think of 'facts' as stated in some physicalistic or bureaucratic jargon, and the 'values' as being stated in the most abstract value terms, e.g. 'good', 'bad'. The independence of value from fact is harder to maintain when the facts themselves are of the order of 'inconsiderate', 'thinks only about himself', 'would do anything for money'. (Putnam 1981, p. 139)

I believe that Putnam would consider his rescuing values from positivist exclusion to be his most important contribution to philosophy. This marks a fundamental break with previous empiricist philosophy.

The Third Dogma of Empiricism

Rorty includes Donald Davidson among the neo-pragmatists, he says, because Davidson is a major contributor to the "holistic 'pragmatizing' strain in analytic philosophy . . ."[12] (Rorty 1982, p. xix). Davidson is another American philosopher who was trained at Harvard and is closely associated with Quine, but he is more likely to be seen as an opponent of pragmatism than a supporter. (There is much more on Davidson, especially his contributions to philosophy of language and philosophy of mind, in Chapter 5 including biographical information.) Davidson, unlike Putnam and Rorty, explicitly rejects the label "pragmatist" (and likewise the labels "anti-realist," "empiricist," "transcendental idealist" and so on).

Davidson claims to have exposed a third dogma of empiricism. He accuses Quine himself, as well as Kuhn, of subscribing unwittingly to this one. In a 1974 presidential address to the American Philosophical Association titled "The Third Dogma of Empiricism,"[13] Davidson aims his critique at Quine. The third dogma of empiricism according to Davidson is the idea that we have conceptual schemes for organizing the data of experience.

> I want to urge that this second dualism [the first is analytic/synthetic] of scheme and content, of organizing system and something waiting to be organized, cannot be made intelligible and defensible. It is itself a dogma of empiricism.(Davidson 1985e/1974, p. 189)

Quine and others certainly speak in terms of conceptual schemes. A key Quine statement cited by Davidson for criticism is from "Two Dogmas": "As an empiricist I continue to think of the conceptual scheme of science as a tool, ultimately, for predicting future experience in the

[12] I think Davidson would agree with the "holistic" label but he is too focused on the classical notion of truth to be comfortable with the "pragmatizing" label. Much of Davidson's work has been a systematic approach to language, thought, and action based on the contributions of Alfred Tarski to formal logic, in particular his explication of the notion of truth in formal systems. Indeed, Davidson has built his approach to philosophy on Tarski's work on truth.

[13] Later reprinted (Davidson 1985e/1974) with the title "On the Very Idea of a Conceptual Scheme."

light of past experience" (Quine 1961/1951, p. 44). The long quote from Putnam starting "Internalism..." contains several references to our conceptual system or scheme, our conceptual choices and so on. Particularly problematic according to Davidson is the notion that science is a conceptual scheme for organizing and predicting experiences.

Davidson is bothered by the conceptual relativism that he believes emerges from the "dogma" of scheme and content. Conceptual relativism is based on the idea that there are data or sense impressions, or some sort of basic facts. These are the contents that are organized differently by different schemes. One of the problems with conceptual relativism is that it seems to imply that different conceptual schemes cannot be translated into each other's terms. The adherents of differing conceptual schemes cannot really understand each other. Davidson cites Kuhn as a particularly egregious example of a conceptual relativist, because he claimed that differing scientific paradigms are incommensurable.

Davidson likens the problem of conceptual relativism to one in which another language is flatly untranslatable into our own. But, Davidson asserts, a "language" that is untranslatable into our language is not something that we could perceive as a language at all. We could hear the sounds, or see the marks, but we could not recognize them as linguistic. Likewise, a conceptual scheme too different from ours could not be recognized by us as a conceptual scheme. In order for a scheme to be recognized by us as a scheme it must have enough of an overlap with ours to be understandable to us, in which case it is not really a different conceptual scheme. Perhaps we disagree with others who supposedly have a different conceptual scheme, but in order to disagree with someone about something, Davidson argues, we must agree with them about almost everything else.

Doesn't this just show that we humans have our one and only conceptual scheme, not that the notion of conceptual scheme is incoherent? Davidson anticipates this thought and rejects it. "It would be equally wrong to announce the glorious news that all mankind – all speakers of language, at least – share a common scheme and ontology. For if we cannot intelligibly say that schemes are different, neither can we intelligibly say that they are one" (Davidson 1985e/1974, p. 198).

The exposure of this third dogma spells doom for empiricism, according to Davidson (and I suppose he would gleefully add it dooms pragmatism as well). The dogma of scheme and content "is itself a dogma of empiricism, the third dogma. The third, and perhaps the last, for if we give it up it is not clear that there is anything distinctive left to call empiricism" (Davidson 1985e/1974, p. 189).

Davidson coyly hedges his claims with "perhaps" and "it is not clear" and so on, but Quine in his response to Davidson takes his point seriously. In an article titled "On the Very Idea of a Third Dogma" Quine gives a pragmatist response to Davidson. The pragmatist is dubious about the notion of truth especially if a lot of weight is put on it as Davidson does. Quine grants much that Davidson says but deflects it from harming his pragmatic or relative empiricism. Quine's counter-Davidson claim is that "the proper role of experience or surface irritation is as a basis not for truth but for warranted belief" (Quine 1981a, p. 39).

> If empiricism is construed as a theory of truth, then what Davidson imputes to it as a third dogma is rightly imputed and rightly renounced. Empiricism as a theory of truth thereupon goes by the board, and good riddance. As a theory of evidence, however, empiricism remains with us, minus indeed the two old dogmas. (Quine 1981a, p. 39)

Quine's point is that experience is still recognized as the only reliable source of knowledge, or as Quine puts it "warranted belief." Quine's idea is, I think, that we should drop talking about a pragmatist or empiricist theory of truth and instead focus on what we are justified in believing, and rationally acting upon. The best and maybe only evidence for our beliefs that we ultimately have is the common experience of humanity especially as interpreted by natural science. This much is still distinctive of empiricism. It is not as exciting, radical, or revolutionary as the views of the classical British empiricists or the logical positivists. But empiricism rid of its outmoded epistemological and metaphysical presuppositions is sounder. As Quine says, empiricism "has indeed wanted some tidying up, and has had it" (Quine 1981a, p. 39). This process of "tidying up" was a main theme of analytic philosophy after the Vienna Circle. The main elements have been pragmatism, holism, and naturalized epistemology. It was a labor of love.

Background 3.1 – The distinction between the early and late Wittgenstein and why this is a necessary distinction to make

This is a summary of material that is in the text at various places. The early Wittgenstein (from about 1911 to about 1922) is represented by the *Tractatus*. This is a highly formal system based on the conception of isomorphism among our ideas, our language, and the world. Language can represent or picture facts in the world because there is a common structure shared between language and

the world. Likewise language can express our ideas because there is a commonality of structure between language and our thoughts; and our thoughts can represent the world because there is also a commonality of structure. The structure is logic, and in particular modern symbolic of the Frege–Russell variety, somewhat streamlined and simplified. This is a version of logical atomism.

After publishing the *Tractatus* Wittgenstein left philosophy because he thought that he had solved/eliminated all philosophical problems. He could not stay away, however, and was soon convinced by friends in Cambridge that his *Tractatus* theory was too crude. Wittgenstein devoted the remainder of his life (from about 1930 to his death in 1951) to criticizing his *Tractatus* theory. His approach and style entirely changed. He wrote now mostly in short paragraphs in aphoristic form. He used no symbolic logic and was suspicious of formalism. His theory of language was entirely different. Instead of a picture of reality or a fact, the meaning of a statement was its use in practical life. Like tools, the point of the elements of language was to do jobs, only one of which might be on some occasions to picture, but usually not. Rather, language is used to elicit a response in listeners, to coordinate our activities, and so on. The later Wittgenstein published nothing, but wrote voluminously in notebooks, lectured, and met with small groups of students, many of whom went on to be leading philosophers. Some of Wittgenstein's notebooks were informally copied and circulated privately. Soon after his death the classic work of the later Wittgenstein – *The Philosophical Investigations* – was published.

Thus there is an important contrast between Wittgenstein's early life, style, and ideas and his later approach to philosophy.

Background 3.2 – Peirce, James, and Dewey

Charles Sanders Peirce (1839–1914), William James (1842–1910), and John Dewey (1859–1952) are the most famous American philosophers until Quine.

Peirce was foremost a mathematician, logician, and scientist. He made many disparate contributions to philosophy that were

characterized more by brilliance and insight than by system. He contributed two main ideas that have lasted in philosophy: Fallibilism and pragmatism. Fallibilism is the view that any of our beliefs might be false. It is a call for epistemological modesty without thereby falling into despair and skepticism. Although Peirce coined the term "pragmatism" he was not a pragmatist.

William James, the brother of Henry James, was famous for writing classic works on psychology, religion, and philosophy. He is the outstanding American pragmatist. Both Peirce and James were closely associated with Harvard University. James was a member of the Harvard faculty from 1873 until his death.

Dewey wrote and published major works in many areas of philosophy. He also was active as a journalist and educational reformer. He was a leading public intellectual. In the latter half of the twentieth century Dewey's reputation was in eclipse. Both James and Peirce were considered more interesting and important as philosophers. Dewey called his philosophy "instrumentalism" rather than "pragmatism" but he is considered to be, along with James, one of the leading American pragmatists.

Background 3.3 – "Warfare" in philosophy

The battle or warfare analogy is inapt perhaps, because philosophical interchange is supposed to be friendly. Philosophers are committed to seeking the truth together, not to winning an argument. The "loser" of a philosophical argument is no loser if he gets a closer or clearer vision of the truth. The dialectical nature of philosophy requires that intellectual opponents are both seeking enlightenment. Disagreement always rages in philosophy – it is the nature of the Socratic enterprise always to dispute and question – so, on the other hand, it is not inapt to speak in a limited sense of winners and losers. The battle or warfare analogy is apt because the philosophical opponents must struggle against each other and attempt to defeat their opponent intellectually. The idea is that thereby they will gain truth or enlightenment. Philosophers seeking the truth cannot adopt an accommodating and accepting attitude to the other or we will never get anywhere. Just as jurists

believe that the way to justice is by the struggle between defense attorney and prosecutor, philosophers believe that the way to truth is via dialectical struggle and combat. Although this is the traditional and dominant view of philosophy, not all philosophers accept it. Some feminist philosophers reject the battle metaphor of philosophy in the sense that they view philosophical progress as possible on the basis of non-combative cooperation. Also Russell and the logical positivists tried to reformulate philosophy as a cooperative scientific enterprise with objective results. To the extent that philosophy is restricted to logic and formal analysis of language, this is appropriate.

Background 3.4 – Correspondence, coherence, and pragmatic theories of truth

The correspondence theory of truth is like a *Tractarian* view of representation. A proposition is judged true if it accurately represents or "pictures" independent reality, it is false otherwise.

The coherence theory of truth is the view that truth is a matter of fittingness to a system. A proposition is true if it coheres or fits in with the rest of the propositions in the system to which it belongs. If it conflicts with other accepted propositions it is false.

The pragmatic theory of truth is the view that a proposition is true if it is useful, if it works in practice. A failed proposition is useless. We call this falsity.

All sorts of modifications and combinations of these three theories have been proposed by philosophers. Nothing satisfactory has been established. Each of the theories has serious problems. The nature of truth is still an area of intense philosophical disagreement.

Background 3.5 – Induction versus deduction and the traditional problems of induction

Deductive Logic: This is the standard sort of formal logic that is taught in symbolic logic courses. Deductive inferences are defined

as inferences in which the truth of the premises necessitates the truth of the conclusion. For example: All men are mortals. Socrates is a man. Therefore Socrates is a mortal. Another example: If P, then Q. Not Q. Therefore not P.

Inductive Logic: This is the study of inferences where the premises do not necessitate the conclusion but make it likely. Inductive logic has not been successfully formalized. It merges into probability theory and statistics. There are several well-known paradoxes of induction. We support a generalization such as "All A are B" by examining As. If every examined A is a B, then this supports the generalization. It does not prove it, because the next A may not be a B.

Here's an older "riddle of induction" due to Hempel, called the paradox of confirmation or the raven paradox: According to deductive logic "All A are B" is logically equivalent to "All non-B are non-A," so support for one should equivalently be support for the other. Consider the claim that all crows (or ravens) are black things. As we examine more crows and find that they are black, this increases our confidence in this claim. Note, however, that it is equivalent to "All non-black things are non-crows." So each non-black thing that is not a crow supports the claim that all crows are black. So we can just as well support the claim that all crows are black by examining snowy egrets (they are non-black things) and determining that they are non-crows. We don't even need to look at any crows to support the claim that all crows are black. This of course is ridiculous, but no clear solution to the paradox is available at present.

Further Reading

The Philosophy of W. V. Quine (Library of Living Philosophers, Volume XVIII) edited by Paul Schilpp and Lewis E. Hahn (Open Court 1982) has many excellent articles by leading philosophers and replies by Quine.

The Web of Belief (Random House 1978) by Quine and J. S. Ullian was written as an intro textbook, but has a lot of Quine's philosophy in it.

Among the many useful books on Quine are *Quine: Language, Experience and Reality* by Christopher Hookway (Stanford University Press 1988) and *The Philosophy of W. V. Quine: An Expository Essay* by Roger Gibson (University Press of Florida 1982). Gibson has written or edited several other worthwhile books on Quine.