A History of Philosophy
76 Logical Positivism
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Scientism, of people like Kant and Mill, wanting to universalize the use of the scientific method, the hypothetical deductive method, that kind of universal extension of the scientific mode of explanation, was picked up again by Bertrand Russell, developed with considerably more technicality with his logical atomism, which you will have noticed seemed to presuppose an atomistic metaphysic as well. We'll see that comes into play in the discussion today. And then picked up again with Wittgenstein in his Tractatus along very similar lines.

Now, logical positivism continues that 19th-century positivist emphasis. In the 19th century, that was the term coined by Kant for his third positive stage, where we're dealing with objective empirical data of a scientific sort and seeking to formulate empirical generalizations with explanatory power. So, continuing that positivist emphasis on objective empirical data, continuing the positivist unity of science theme, but the logical added, the logical adjective, logical positivism, to stress the influence of Russell's emphasis on the logical use, the logical form of the language.

So 20th-century logical positivism has its roots then in people like Kant, Mill, and Mark. There was a, that's better, there was a Vienna circle of logical positivists, which developed in the 1910s and the 1920s, which shaped the continental development of this movement. The English development was sort of a spin-off from the Vienna circle, but then was popularized by A. J. Ayer in his Language, Truth and Logic.

Within the Vienna Circle, you have people like Moritz Schlick and Rudolf Carnap. Those names you'll find referred to in the literature and the main significance of the Vienna circle, in which, incidentally, Wittgenstein participated after he had dropped out of Oxford and gone back to Austria. But the significance of the Vienna Circle is in their initial development of the movement from a rather naive kind of empiricism into one that recognized that if we distinguish between sense, data, and material objects, we tend towards a phenomenalist epistemology.

And one which recognized that we cannot always have direct empirical verification of an apparently empirical statement, sometimes it has to be indirect and through the logical implications of that statement in conjunction with other assertions. But the Vienna Circle laid the foundation. Now, both in the Vienna circle and in A. J. Ayer, the basis, the crucial basis, the thing which gave it its distinctive impact, and the demise of which led to the demise of logical positivism.

The distinction was its verifiability theory of meaning. Now, let me stress that it's not a theory of how you ascertain truth; it's not a theory of truth, even though the word

verifiability is used. It has to do with the meaning of language; it's a theory about language.

And you can get what the theory is, rather simply, if you look at this diagram, where language has basically two uses, cognitive and non-cognitive. There are all sorts of non-cognitive utterances, emotional exclamations, questions, cries, and expressive statements. And on the other hand, the cognitive statements, yes, the cognitive make statements, statements of two sorts, synthetic and analytic, which sounds like a reversion to David Hume.

Synthetic statements being factual, matters of fact, which one would expect to be amenable to empirical verifiability. And analytic statements, in which the predicate is logically contained within the subject, have simply formal meaning, in the sense that they're simply talking about the logical use of the subject and the predicate. Of the latter sort, you have definitions, you have tautologies, and depending on the logical positivist, you likely have mathematical statements.

But basically, any statement which has the logical form of the laws of thought, A equals A, A is not non-A, so a definition is included, a tautology is included. And if it is maintained that mathematical statements are analytic rather than empirical, as Mill had thought, then they're included as well. Now, the verifiability theory is a theory about the meaning of factual statements.

That's where it focuses. And the theory is stated, for instance, by Stumpf, when he says that the meaning of a factual statement is the method of its verification. The meaning is the method of its verification.

Now that's perhaps not very illuminating, except that it does emphasize the importance of empirical procedures, empirical verification procedures. More specifically, the meaning of an empirical statement is in its reference, in its sense, its reference to empirical data, whether those are actually available or possible empirical data. So the method of verification is important because you must know how to refer to data in order to be able to say what sort of data a statement would refer to.

And so the method of verification is essential to ascertaining the meaningfulness of a factual statement. Now the distinctions beyond that begin to appear. So that if you read the preface to this second edition, mine's more dog-eared than yours is, but if you read the preface to this second edition, you'll find that Ayer distinguishes between direct and indirect verification.

So that the statement, I see a house, is directly verifiable. And because it's directly verifiable, it has factual meaning. It doesn't matter whether it's true or false.

Its meaning is such that you could, if you wish to, but that's left for scientists; you could ascertain the truth or the falsehood, if you know the method of verification. The philosopher's concern is simply to ascertain whether it is a factually meaningful statement. And for that, all you need to know is that there is a method of possible verification.

On the other hand, indirect verification requires other premises that would entail directly verifiable statements that are not deducible from a given statement alone. Take, for instance, a statement like, this key is made of iron. This key is made of iron.

Now that I am seeing a key that would be directly verifiable. But that this key is made of iron would, for verification purposes, require methods of ascertaining what the metal is. And so, in conjunction with such further premises, certain possible observations might be deducible, which could verify indirectly that this key is made of iron.

So, direct or indirect verification. And Carnap made a lot of, laid a lot of emphasis on the importance of indirect verification in the sciences. That's one distinction.

In his first chapter, Ayer also distinguishes between, in practice. Now it's verifiable in practice that I see a room full of faces in front of me. But it's only verifiable in principle that mushrooms grow on the other side of the moon.

Or that Cleopatra wore a red gown on her 21st birthday. That is to say, if we were able to go to the other side of the moon, we would know what observation procedures to use. And if we could go back in a time machine to Cleopatra's time, and check up on her on her 21st birthday, then we would be able to verify that she wore a red gown on her 21st birthday.

That statement is then verifiable in principle. So you see, the verifiability principle makes it possible to admit historical statements, statements about the future, statements about what is technologically impossible, in practice not possible, but in principle possible. What it disallows is the kind of statement that is not at all available to empirical verification.

Namely, metaphysical statements of a reality in itself that is distinct from all appearances. And I say a reality in itself, because when you read Ayer's first chapter on the elimination of metaphysics, you begin to see that the kind of metaphysics he's eliminating is the F.H. Bradley kind, where Bradley, the Hegelian, distinguished between reality and its varying degrees of appearance. The reality in itself is not empirically accessible.

Talking about it is not empirically verifiable. That metaphysical assertion would be eliminated. But the various appearances are, of course, empirically accessible.

And so there's no problem in talking about appearances. But the metaphysics that is eliminated is the one that makes a distinction between the thing in itself and the thing from it. The underlying reality and the world of appearances.

Now, there is a third distinction, which he makes in the first chapter, page 37. A distinction between strong and weak verification. Strong and weak verification.

Strong verification would be conclusive. It would provide you with certainty. The sort of thing which the foundationalist would want.

Weak verification would be satisfied with probability. Now, Ayer is perfectly happy to define a verifiability principle, which admits indirect verification, verification in principle rather than necessarily in practice, and weak rather than strong verification. Keep that in mind.

It's pretty important. Now, let me make some comments about the kinds of responses that this verifiability principle met with. Because within a couple of decades, it had to be reformulated under criticism.

Indeed, some of these distinctions, which Ayer introduces, were distinctions introduced in response to criticism. Criticism of too narrow an empirical criterion. And eventually, it was the criticism of this verifiability principle that led to the demise of logical positivism.

Now, one of the first criticisms was that empirical generalizations are not verifiable even in principle. Empirical generalizations are not verifiable even in principle. That is to say, with a generalization, there are always more possible cases that are inaccessible.

So that any statement about all members of an extensive class would, by the verifiability principle, be without factual meaning. And the response to that was to claim that, alright, what we need is a falsifiability principle. That is to say, an empirical generalization is always falsifiable in principle.

If you could find one negative instance, you falsified the generalization. All Cretans are liars. Now, find a native Cretan who's not.

And you falsified the general statement. What this then means is that you simply want a proposition, a purportedly factual statement, to be amenable to either verification practices or falsification practices. Verifiability or falsifiability, some such, for it to have empirical reference.

You might say, why not insist simply on falsifiability? Well, you see, the thing is that while an empirical generalization is not verifiable, it is falsifiable; a singular assertion about a particular case is verifiable, but it's not always falsifiable. You see, there exists a so-and-so who. It's not always falsifiable.

How do you know that there does not exist someone of that description who's hiding every time you go looking? And so you need both the verifiability and the falsifiability. The second line of criticism was to do with the status of the verifiability criterion itself. The positivist tells us that all statements are either synthetic or analytic, factual or formal.

Which is the statement of the verifiability principle? Is the verifiability principle a factual statement? That is indeed the meaning of meaning. Or is it a formal statement? Analytic? Well, it becomes very evident that the verifiability theory is not an empirical statement that is amenable to verification or falsification by empirical procedures. I had a professor in graduate school in the 50s who, to make the point, said people have meant something else by meaning all the way through history.

That is to say, if this were an empirical description of factual meaning, that the only factual meaning is with reference to empirical objects, to empirical data, then it would be impossible for people to find things meaningful which refer to other kinds of entities. As, of course, they do. Plato found it very meaningful to talk of real forms.

Theologians find it very meaningful to talk of God. And neither of these is empirically accessible for verification purposes. So it is plainly either a factually false statement or it is not a factual statement.

Now, Ayer got the point. And he backs up from claiming that it is a factual statement about the meaning of factual statements. And contends, instead, that it is a methodological stipulation.

In other words, it's a rule that the positivist adopts for methodological purposes. Well, if that's the case, and you don't want to adopt it, you don't have to. And, consequently, the verifiability principle loses its hold on philosophical discourse.

You see? If you want to be an empiricist, if you want to be a positivist, then this is a good principle to work by. But if you don't want to be a positivist, then, obviously, there's no necessity incumbent on you to adopt it. And the whole tempest began to subside.

You see? It's hardly a definition. It's much more of an arbitrary principle. Just because it is supposedly common to the empirical sciences does not mean that it's applicable to all factual statements.

But that led to a third line of criticism. You see, the verifiability principle was developed on the assumption that it was the operative principle in the empirical sciences. But we began to get developments in philosophy of science which made it plain that the sciences are not purely empirical.

And so this is not even the principle that's applicable to the empirical sciences. Now you can anticipate what those developments were. They were the developments that began to recognize subjectivity in natural science.

Developments that began to feel the influence of Kant's a priori grids. The Copernican revolution in the natural sciences. Developments that began to reject the oversimplicity of the hypothetical deductive method.

And let me mention three or four of these. One was the work of a man named Norwood Hanson. A book of his called Patterns of Discovery.

Hanson taught at Yale, History and Philosophy of Science. And his historical research led him to the conclusion that all observations are theory-laden. And you don't have to have a very sophisticated appreciation of scientific method in order to see that.

The scientist doesn't just stand around gawking at all possible data. The scientist comes with a working hypothesis. So that his relevant data, their relevance is defined by the working hypothesis.

Which, in turn, is suggested by a theory. In other words, there are antecedent conceptual factors that determine what data you take into account. Theory-laden observations.

The second example is one you're probably more familiar with. Thomas Kuhn. His work on the structure of scientific revolutions.

Published in the 1950s. In which he, on the basis of his history of science studies, began to recognize that theory is a part of a much larger conceptual paradigm. And that scientific revolutions occur when there are paradigm shifts.

Changes from a Ptolemaic cosmology to a Copernican cosmology. There's a paradigm shift. Now his point is that you may get periods of progressive increase of scientific knowledge, cumulatively, within paradigms.

And granted the paradigms, there may therefore seem to be the empirical verifiability of certain theories that work. Though they're suggested by the paradigm. But then, when you get a paradigm shift, a different framework of explanation is involved.

And the paradigm shift does not occur because of the weight of empirical evidence. It occurs because within the scientific community, there develops, often for non-empirical reasons, dissatisfaction with the existing paradigm. It may lack explanatory power.

It may lack coherence. It may prove to be needlessly complicated, and we opt for a more simplistic one. And so forth.

And so the hold of a pure objective empiricism on science is rejected by Thomas Kuhn. The third example is Michael Polanyi. A Polish philosopher of science who was teaching in Britain.

And Michael Polanyi developed his work in two major books. One called The Tacit Dimension. And the other, Personal Knowledge.

Now, in both cases, the titles are sort of revealing. The Tacit Dimension makes plain that there are a variety of tacit aspects of human knowledge that are not explicated by empirical research. In everyday perception, we have peripheral vision.

Which you don't particularly think of. Until somebody says something about it that brings it to your mind. So that as I look over here, I become aware peripherally that David is still over here.

Now there's always that sort of peripheral awareness. Not only visually but mentally. Part of the larger context of the gestalt which we observe.

So that the focused objective empirical study is only telling you part of the story. And in his work on personal knowledge, he's talking about the personal dimension in knowledge. That affects motivation, choice of a research topic, selectivity, etc.

Sometime if you want to sort of test for yourself the view that science is always purely objective and depersonal, ask a scientist why he is involved in science. I did that once with a chemist friend. And why chemistry? And why the kind of research interest you have in chemistry? And all the while, you get either aesthetic judgements or other value judgements in response to the question.

That is to say, there is constantly the personal dimension involved. That is why progress in science is unpredictable. Because we never know what the personal dimension may be, or, for that matter, the socio-economic dimension that drives certain scientific research.

So keep in mind Polanyi. And then, more recently, we have Feyerabend, who adopts a conventionalist interpretation of science. That is to say, scientific theories are simply conventional ways that scientists have of talking about things.

A conventionalism that is entirely relativistic. Science does not tell us about reality. This is anti-realism in science.

Now, with those developments which began in the 40s and went on into the 60s, what you begin to get then is the rejection of the view that all scientific explanation is purely objective, empirical explanation in terms of general covering laws, empirical generalizations. That scientific knowledge is always empirically verified, or at least verifiable in principle. That just doesn't seem to be the case.

And so the whole thesis of scientism begins to collapse. This is post-modernism in philosophy of science. Now, there's a fourth objection which you will read about in Stumpf.

When he introduces you, you may have read it already, I hope you have, to W. V. O. Quine, the Harvard philosopher, whose famous essay on the two dogmas of empiricism was a landmark in the demise of logical positivism. The two dogmas of empiricism. One of the dogmas is reductionism.

Reductionism. The attempt to reduce all knowledge to empirical generalization. The verifiability principle is reductionist in that sense.

It's trying to reduce all factual statements to empirically verifiable statements. Reductionism. And he rejects that because of his view that observations are theory-laden, and not purely objective and theory-neutral.

The second dogma of empiricism is what he calls the analytic-synthetic dichotomy. And plainly, the verifiability principle hinges on the view that some statements are synthetic, other statements are analytic, and ne'er the twain do meet. These are separate categories.

A dichotomy. Two different kinds, logically, of propositions. And what Quine does is to argue that that dichotomy breaks down.

That it's a matter of degree, depending on the context. So that, for instance, if you take, and this is not his example, if you take the statement, God is good, that statement may appear to be, on the surface, a factual statement, which the positivists would like to have empirically accessible. Because it's not, Ayer would rule it out.

It's not really a factual statement. But, within the context of Judeo-Christian discourse, is it intended to be an empirical statement of a factual sort? Isn't it rather an analytic statement, from a theological standpoint? The very meaning of the term

God, not only in the Judeo-Christian tradition, but in the Platonic tradition, is that God is the good. So to say God is good, in that context, is an analytic statement.

Now, which is it? Well, it can function both ways, in different contexts. If you're dealing with a pure empiricist who thinks the word God comes devoid of any such meaning, it may look like a neutral, factual statement. But if the word God has any meaning at all, in any major religion, it's in terms of God as the good.

And so, what Quine does is to recognize this sort of thing, in a whole variety of cases, and reject the dichotomy. Rather, he sees human knowledge not as a collection of isolable propositions, which we interconnect within a deductive system, Bertrand Russell style. Not that.

Knowledge is not to be modeled on a deductive system. Knowledge is, rather, more of a web of belief. Now, the difference is, of course, that a deductive system moves with pretty well military precision, from one proposition to another proposition, to another proposition, all the way down.

Logical deduction. Whereas a web of belief would be a web of mutually supportive propositions, woven in various ways that are not strictly formulatable in deductive systems. It's a web of hypotheses, interrelated, which we construct.

That is to say that the body of knowledge, which we have, is characterized by coherence. Coherence in the sense that it is unified, it hangs together. Coherence in the sense that it is self-consistent and internally self-supporting.

But it is a fallibilist view, inasmuch as, because of the paradigmatic nature of thought, we may be working with a somewhat mistaken paradigm. So that the overall pattern of interrelationships may be somewhat different from what we think. And in addition to the fallibilism and the coherence, which provide some justification, he offers a pragmatic justification for the web of belief.

It works to think this way. And there, I think that his basis for the pragmatic justification comes from the sciences. That is to say, a pattern of scientific hypotheses is adopted and viewed as probably correct because it is fertile, fruitful in enabling you to propose further hypotheses, to set up research programs, and to do research.

It opens the way to further things. So there is pragmatic value to such a thing. Well, if you reject the analytic-synthetic dichotomy, it becomes pretty apparent that the whole positivist scheme is beginning to crumble.

Now, the final criticism that I want to note came from Wittgenstein himself. Wittgenstein, who in his earlier work, The Tractatus, had essentially been a Russell-

type logical atomist, and apparently been a verifiability type of person. Wittgenstein, and in 1945, published his second major work, The Philosophical Investigations.

And so when we talk of the later Wittgenstein, this is the work that we're referring to. The Philosophical Investigations. He criticizes the positivism of his previous work in various ways.

One is that the picture theory of meaning, as he called it, that is to say, the verifiability theory, is devoid of any clear meaning. It sounds like the verifiability theory isn't meaningful. It's the same criticism.

He recognizes it. He, however, adds to it the complaint that the insistence on an ideal logical language, you remember we distinguish between ideal language philosophy and ordinary language philosophy, the insistence on an ideal logical language of the sort that Russell had wanted, where you have atomic propositions referring to atomic facts, is too artificial. Too artificial.

It is artificial because language just doesn't fit into that sort of narrow reductionist mold. You see, echoing the same criticism as Quine. Language doesn't fit into that narrower mold.

In contrast, when you look at ordinary language usage, the way in which language is used by ordinary people, even by scientists when they're not talking scientifically, in scientific jargon, we find that it is much more varied. Much more varied than simply either cognitive or non-cognitive. If cognitive, either factual or formal.

Much more varied than that. And ordinary language usage, after all, has developed over the centuries of trial and error and sifting; it's tried and proven its worth over the centuries. So what he does is to talk; instead of there being a multiplicity of language games, ways of using language.

Just as I illustrated now Quine's point with the phrase, with the clause, God is good, which could apparently be taken as either a synthetic statement or an analytic statement. So you might recognize that the statement, God is good, is indeed used in a certain pastoral context. That is to say, by a pastor trying to comfort a grieving widow, you see.

The statement used in that context is serving a function other than simply saying something factual, objective, and scientific. Or, on the other hand, offering a definition or a tautology. The language is intended to perform a function of a, I was going to say, a social sort, a pastoral sort.

You'll see. A diversity of language games. Because there is a diversity of forms of life.

That is to say, games that we play in our living. What do we do in life? And the kind of analysis we want then is a functional analysis rather than a logical analysis. An analysis not of the logic of language imposing our narrow positivist grids, but an analysis of the actual functions that language serves in ordinary discourse.

You might say it's as if Wittgenstein has been converted from a mathematician and scientist to a lover of the humanities. As if he's been reading some literature while he's been away. You'll see.

The diversity of language games. And it is this broadening of the horizon to other ways of using language than simply empirical or analytic, which finally seems to have broken the camel's back there in English philosophy. So that by the mid-50s, I think it's fair to say, ordinary language philosophy was the dominant thing in British universities.

Theological positivism had been 15 years before. Now what had happened in between? Well, these philosophical reactions. But in addition, World War II.

And I don't think it's without point that Western civilization couldn't go through the trauma of World War II without discovering how thin, in terms of meaning, the positivist analysis of language really is. You'll see. And consequently, the broadening expectations.

Now, one of the further influences in that shift will come out as you read A. J. Ayer. I have here a couple of pages from his autobiography in which he indicates this further influence. Now let me read a couple of paragraphs from this.

Incidentally, I was fascinated to read his autobiography a few years ago because it turned out that he had been, during World War II, in British counterintelligence. First of all, in German-occupied France and later involved in breaking the German codes at an early computer-style analytic base in Bermuda. The thing that fascinated me about that was that I was in Bermuda at the same time as a radio technician with the Air Force.

And we were sent over from Kinley Field one day to Hamilton Harbour to an island in Hamilton Harbour to service some equipment. And we were told that we could make our headquarters at a hotel that the military had taken over on the shore and have our meals there, which we did. And curiously, there were a lot of civilians there who we figured were simply civilians who had been taken by the military to work on this secret project where we were servicing equipment.

For all I know, A.J. Eyre was one of those because it was at that very time he was there. So was I. So I was fascinated to read his autobiography because we passed like

ships in the night or like boats on Hamilton Harbour. He says this about how the book was written.

I started at once to write the book and completed it in 18 months, working on it almost continuously except for intervals of teaching. I just can't imagine that. I've written all my other books in longhand, but this one I typed clumsily with two fingers.

That gives me courage. But in the end, producing a serviceable script. Except that the first chapter was adapted from an article in the journal Mind.

I made no preliminary draft but wrote slowly to avoid the need for corrections. I was satisfied, and took heart from these people; I was satisfied if a day's work yielded me one page of 300 words. Okay.

And I figure that if in an eight-hour day I can produce ten pages, I'm doing well. He took the one page, 300 words. Had I been able to achieve this every day, I should have finished the book in a little more than half a year instead of a year and a half.

Since it was only 60,000 words long, some of you were asking yourselves about its length as I came in. So many words for so small a price. Had I been able to achieve this every day, but I was frequently held up, not so much by not knowing what I wanted to say, though sometimes this happened, but by not being able to decide how effectively to say it.

I was writing with passion but also taking great pains to make my meaning clear. Well, this labor was not wasted. What are its demerits? The book did not suffer from obscurity.

It could rather be accused of sacrificing depth to clarity. Except in a few details, the thoughts which it expressed were not original. Now, they were a blend of the positivism of the Vienna Circle, which I also ascribed to Wittgenstein.

Plus the reductive empiricism, which I had taken from Hume and Russell. Okay, no surprises there. Plus, get this, the analytic approach of G.E. Moore and his disciples.

Now, what do you remember of G.E. Moore? Why, he was a realist, not a phenomenalist. Well, that doesn't influence Ayer. He remains a phenomenalist.

But he was interested in conceptual analysis rather than strictly logical analysis. Yes, and you'll be hard pushed to find in Ayer's book the kind of logical atomism which we found in Russell and Wittgenstein. It's a loser kind of analysis.

But add to that that Moore, while a conceptual analyst, is still an empiricist who's constantly making distinctions between analytic and synthetic statements as if those two are exhaustive categories. Remember his argument in his refutation of idealism about the statement, to be is to be perceived. So the influence of Moore is at least humanizing the language and the approach.

And those with a dash added of pragmatism from C.I. Lewis. C.I. Lewis, an American pragmatist of the 30s, 40s. Pragmatism.

Yeah, for pragmatic purposes, all you need is a phenomenalist to count. You'll find him saying that sort of thing. Well, he goes on, I began with a summary trial and execution of metaphysics, using the verification principle as an axiom.

Arguing then that if philosophy was to make any independent contribution to knowledge, it could consist only in the practice of analysis. Philosophy, its one function is analysis. Analysis of the meaning of language in order to clear up puzzles and confusions in traditional philosophy, particularly in metaphysics.

So, in his own words, that's the direction that he took. Well, any questions or comments? Next time, we'll do some commentary on AI. Well, you lasted, and my voice lasted.

Okay, I guess we'll call it a day.