Chapter 31

Logical Positivism and the Scientific Conception of Philosophy

Key Words:

Vienna circle, verification principle, positivism, tautologies, factual propositions, language analysis, rejection of metaphysics, practical verifiability, verifiable in principle, strong verifiability, weak verifiability, unified science

This chapter discusses one of the very significant developments the 20th century European philosophy has witnessed; logical positivism, which is also known as neo empiricism. Again, like many other such initiatives in philosophy like existentialism, logical positivism is not a school of philosophy, with certain central doctrine, a definite conception of reality or a theory of knowledge. It is rather a movement that reflects the dominant scientific outlook of 20th century European civilization and its extension to all spheres of life. The logical positivists thus advocated a unique conception of knowledge which considered the scientific model as paradigm. They thus opposed metaphysics which aims at going beyond the sensible world and contemplating about transcendental realities. According to them metaphysics is a bad science. They were tremendously influenced by many philosophical approaches, notably, the positivism of Augustine Comte, the logical atomism of Bertrand Russell, and most significantly, by the peculiar conception of language and meaning developed by Ludwig Wittgenstein in his early work, the *Tractatus Logico Philosophicus.*

The fact that almost all major advancements in knowledge have been in the field of natural sciences have prompted the logical positivists to consider scientific conception of knowledge as paradigmatic. They found that the theories of speculative philosophy advocated by different thinkers were merely personal interpretations about reality. Most importantly, these theories were not empirically verifiable and hence it is impossible to establish their truth or falsity. The logical positivists affirm that these theories are not more than poetical or emotional reactions to the world and none of them represent knowledge like science. On the other hand, science

provides a totally different picture. It approaches reality and life from a different perspective. The story of humanity has never been the same after enlightenment, which had witnessed the emergence of modern science. Ever since renaissance and scientific revolution happened in modern Europe, the applied sciences have tremendously changed human life.

Following Wittgenstein who declared that philosophy is not a science, and there are no philosophical theories, the logical positivists too have affirmed that philosophy does not contribute to the increase of human knowledge. 20th century philosophy was characteristically different from the philosophical thinking of early centuries. Earlier, philosophy was the handmaid of theology and with the civilization turning more and more towards science, the 20th century philosophy has become a handmaid of science. In this context, the major task of philosophy consists in the logical clarification of language. The philosopher is concerned with the clarification of the meaning of words and is also keen to show what words denote in terms of immediate experience.

Logical positivism was a prominent philosophical initiative that took 20th century thinking in this direction. There are several factors—historical, cultural, intellectual—that contributed to the development of logical positivism. We shall now examine some of them.

The Emergence of Logical Positivism

After the World War I, a group of intellectuals comprising of mathematicians, scientists, and philosophers, began meeting in Vienna under the leadership of the German philosopher and physicist, Moritz Schlick. They primarily discussed the implications of recent developments in logic initiated by many thinkers like Frege, Russell and Wittgenstein. The advancements modern science made too had impressed them. They began contemplating about the possibility of a systematic reduction of human knowledge to logical and scientific foundations, as they believed, science alone is capable of providing universal and certain knowledge. Since they were guided by the methodological approaches adopted by the natural sciences, they emphasized materialism, empiricism, philosophical naturalism and the scientific method. The most notable members of the Vienna Circle were Moritz Schlick, Hans Reichenbach, Rudolf Carnap, Herbert Feigl,

Philipp Frank, Kurt Grelling, Hans Hahn, Carl Gustav Hempel, Victor Kraft, Otto Neurath and Friedrich Waismann.

Logical Positivism formally began in 1929 with the publication of a manifesto entitled *The Vienna Circle; Its Scientific Outlook*, jointly written by Carnap, Neurath and Hahn. This pamphlet gave a brief account of the philosophical position of the thinkers associated with the group and a review of the problems in the philosophy of mathematics and of the physical and social sciences that they were chiefly concerned to solve. One of the most important features of logical positivism was the advocacy of the principle of verification, which states that, in order to be meaningful a statement needs to be empirically verifiable, though ironically, this statement itself is not verifiable.

As mentioned above, the logical positivists were influenced by many factors that contributed in determining the social and cultural life of 20th century Europe. One of the primary influences was the empiricism of Hume, Comte, Mill, Avenarius and Mach. The modern developments in formal logic were another significant intellectual inspiration as the logical techniques developed by Frege, Peano and Russell were widely employed by the logical positivists in their analysis of language. Einstein's theory of relativity and quantum mechanics were other factors that influenced their thinking. But the single most important influence was Wittgenstein's *Tractatus,* to which they developed their own unique reading and interpretation.

The logical positivists adopted uncompromising positivism and proposed a blanket rejection of metaphysics. They had immense respect for scientific method and logical analysis, and they believed that in so far as philosophical problems are genuine at all they can be definitely solved by logical analysis. Being faithful to the empiricist tradition, it was natural for the logical positivists to be influenced by the radical empiricist philosophy of David Hume. Subsequently, they have rearticulated Hume's division of Relations of Ideas and Matters of Facts as tautologies and factual propositions. They maintain that all sensible propositions fall under these two categories. Therefore, according to the logical positivists sentences that are neither tautologies nor factual are not propositions. The theory of verifiability is proposed in this context, which came to be identified as the hallmark feature of the logical positivists.

Logical Positivism and the Question of Meaning

Like many others who consider language analysis constituting the core of philosophy, the logical positivists too have treated language analysis as vital. According to them, there are different types of meaningful statements. There are analytic a priori statements that are true or false by virtue of their meaning or logical form. When the truth and falsity of statements are ascertained by experience, they are known as synthetic a posteriori. Therefore, they contend that the meaning of a proposition is known if we know the method by means of which we verify it. In other words, we know the meaning if we know the conditions under which the statement is true or false. This is the celebrated verification principle. Logical positivists carry out their rejection of metaphysics by employing the verification principle as a criterion for meaningfulness. Metaphysical propositions, obviously are not verifiable, as they are not about what is the case in the world.

Subsequently, they argue that many metaphysical utterances are due to the commission of logical errors. They begin their analysis with an examination of statements that express the so-called metaphysical truths. They explore from what premises the metaphysicians deduce their propositions, as they too need to begin, as other men do, with the evidence of their senses. Accordingly, the logical positivists wonder what valid process of reasoning can possibly lead the metaphysicians to the conception of a transcendent reality. As A. J. Ayer says, the traditional disputes of philosophers are, for the most part, as unwarranted as they are unfruitful. He then asserts that the surest way to end them is to establish beyond question 'what should be the purpose and method of a philosophical inquiry?' [*Language Truth and Logic*, p.1]

Rejection of Metaphysics and Language Analysis

The logical positivists reject metaphysics in a characteristically different manner than many others who ventured doing so. For instance, Immanuel Kant had demonstrated that metaphysics as a science is impossible. He treated the impossibility of metaphysics as a matter of fact and he attempted to draw a limit to our thinking. On the other hand, Wittgenstein, who followed a method rooted in language analysis attempts to draw the line in language. He maintains that, in order to draw a limit to thinking, as Kant did, we should have to think both sides of this limit, which is absurd. Following Wittgenstein, the logical positivists too try to demonstrate the

impossibility of transcendent metaphysics, not as a matter of fact, but as a matter of logic. They intend to show how metaphysics is impossible by a criticism of the nature of the actual statements which comprise metaphysics. Applying the verification principle as a criterion for meaningfulness they assert that statements that transcend the limits of all possible sense experience have no literal significance. As the so-called metaphysical propositions transcend such limits, they are bound to be meaningless.

As mentioned above, the rule which determines the literal significance of language is the criterion for meaningfulness. But metaphysicians produce sentences, which fail to conform to the conditions under which alone a sentence can be literally significant. About the peculiar feature that makes the approach of the logical positivists different from others who oppose metaphysics, A.J. Ayer observes:

> The originality of the logical positivists lay in their making the impossibility of metaphysics depend not upon the nature of what could be known but upon the nature of what could be said. Their charge against the metaphysician was that he breaks the rules which any utterance must satisfy if it is to be literally significant. [*Logical Positivism,* p.11]

The logical positivists thus maintain that all propositions about God or absolute, transcendent entities, substance, destiny of man, meaning of human life, goodness etc. are metaphysical. These propositions look like other meaningful propositions that are about matters of fact. They pretend to be cognitive. But with a language analysis rooted in the principle of verifiability, the logical positivists affirm that they are actually literal nonsense and meaningless, though they may have emotive or poetic value.

Employing the method of the logical analysis of language in order to demonstrate the meaninglessness of metaphysical propositions, the logical positivists were influenced by Wittgenstein's *Tractatus.* Wittgenstein talks about those elementary propositions which a logical analysis of language may expose. These elementary propositions have direct correspondence with facts. They are direct reports of observation and hence are the touchstones by reference to which all other statements were empirically verified.

We may need to examine a little more the important features of the principle of verification in this context. As indicated above, this principle asserts that the meaning of a proposition is its method of verification. Therefore, verification is the criterion by which we test whether a sentence expresses a genuine proposition about a matter of fact. They argue that all meaningful statements can be ultimately analyzed to the elementary statements which stand for observable events. This is applicable to the most abstract scientific hypotheses as well.

According to A.J. Ayer, the principle of verification affirms that a sentence is factually significant to any given person, if, and only if, he knows how to verify the proposition which it purports to express - that is, if he knows what observations would lead him, under certain conditions, to accept the proposition as being true, or reject it as being false. Ayer discusses different types of verification such as practical verifiability, verifiable in principle, strong verifiability and weak verifiability. Practical verifiability is possible in the case of propositions which can be confirmed as either true or false on the basis of actual observations. On the other hand, those propositions for which we do not have a practical means of verification may still be meaningful if we can theoretically verify them.

The criterion of strong verification insists that a statement is meaningful if and only if, its truth could be conclusively established in experience. But such a strong criterion becomes difficult to hold as many statements we hold as true like all men are mortal, and bodies expand when heated, are not verifiable in the strong sense. Such general propositions of law are designed to cover an infinite number of cases. They are therefore, not conclusively verified. On the other hand, the criterion of weak verification states that a statement is meaningful if it is possible for experience to render it probable. The important question in this context is, "would any observations be relevant to the determination of its truth or falsehood?" In the weak sense a genuine factual proposition need not be equivalent to an experiential proposition, or any finite number of experiential propositions. It only says that if some experiential propositions can be deduced from it in conjunction with certain other premises without being deducible from those other premises alone, then it is meaningful.

The very idea of conceiving verifiability as a criterion for meaningfulness encounters several difficulties. The idea of verifiability is based on the notion of elementary statements which are

direct observation statements. But these elementary statements themselves are not infallible, as they may not refer to anything other than the private sensations of the speaker. They may not be anything more than mere records of the subject's immediate experiences. Again, an overemphasis on observation may pose the threat of solipsism as well. A transition from the subject's private experiences to the experiences of others and to the public world is always problematic. Ironically, as mentioned above, the principle of verification is not itself verifiable.

Logical Positivism and the Idea of Unified Science

The logical positivists have advocated an idea of unified science, which affirms that all genuine knowledge can be equated with scientific knowledge. They thought that they could materialize the unity of all sciences by developing a common language in which all scientific propositions can be expressed. All knowledge can be codified in a single standard language of science. This is done by carrying out several reductions or explications of the terms employed in the language to more fundamental expressions that stand for observations.

The logical positivists maintain that scientific theory represents an axiomatic system, which is not directly verifiable. It is an abstract formal system. Any empirical interpretation is possible only by means of those statements that establish a correlation between real objects and the abstract concepts. Scientific theory needs such rules of correspondence for empirical interpretation and verification. The language of scientific theory, according to the logical positivists, consists of three types of terms: logical, observational and theoretical. While logical terms form logical statements, the observational statements are formed out of logical terms and observational terms. Theoretical statements are formed out of theoretical terms and logical terms. The logical positivists thus hold that all sciences share a common language and all scientific terms could be restated as, or reduced to, a set of basic statements, or protocol sentences, describing immediate experience or perception. In other words, the logical positivists envisage a reduction of all scientific terms into terms of physics. They argue that the procedures for testing statements in the various sciences are basically the same.

Inspired by Wittgenstein, the logical positivists argue that the primary function of philosophy is not to propose basic principles of knowledge. Philosophy does not aim at constructing a deductive system of meaningful propositions by offering the consequences of basic principles of knowledge as a complete picture of reality. They affirm that philosophy clarifies the logical relations of empirical propositions.

Like most other philosophical movements, historical and cultural factors have played a crucial role in the emergence of logical positivism. The beginning of 20th century was an era of reason and scientific rationality. The impact of scientific developments in philosophy has inspired many thinkers to conceive a philosophy also as a scientific; a scientific philosophy. They have adopted the method of rigorous logical and linguistic analysis for this purpose and combined with it the spirit of empiricism and positivism.

Though the logical positivists have generated a lot of interest from different quarters, they failed to sustain and consolidate as a movement. Their theories derived a lot from the thoughts of Russell and Wittgenstein. Yet neither of them have associated themselves with the movement. Wittgenstein was even critical about their project and has complained that they have misunderstood his philosophy. They have attracted criticism from later philosophers of analytic philosophy like Hilary Putnam and W.V. Quine. Putnam has demonstrated that the distinction the logical positivists made between "observational" and "theoretical" statements is meaningless. W. V. Quine has criticized the distinction between analytic and synthetic statements, and the reduction of meaningful statements to immediate experience. Further Thomas Kuhn has demonstrated the impossibility of providing truth conditions for science, independent of its historical paradigm.

Quiz

1. According to the logical positivists, which of the following was not a reason for rejecting metaphysics?
   (a) Metaphysical theories are proved to be false (b) They are not empirically verifiable
   (c) They are not more than poetical or emotional reactions to the world (d) They are not more than mere personal interpretations about reality.
2. All the following have influenced the logical positivists, except?

(a) Empiricism (b) Modern developments in formal logic (c) Idealism
  (d) Developments in modern science.

3. According to the logical positivists, which type of statements are true or false by virtue of their meaning or logical form?
   (a) Analytic a priori (b) Syhtnetic a priori (c) Synthetic a posteriori (d) None of the above.

4. According to the logical positivists, on what does the impossibility of metaphysics depend upon?
   (a) On the nature of what could be known (b) On the nature of what could be imagined
     (c) On the nature of what could be contemplated (d) On the nature of what could be said.

5. According to the logical positivists metaphysical statements are not………. .
   (a) Proved to be false (b) Literal nonsense (c) Meaningless (d) Have only emotive value.

Answer Key

1. [a]
2. [c]
3. [a]
4. [d]
5. [a]

Assignments

1. Discuss the way in which logical positivists have rejected metaphysics, bringing out its peculiar features.
2. Describe the theory of meaning advocated by the logical positivists.

References

Books

1. Ayer, A. J, *The Problem of Knowledge*, London, MacMillan. 1956.
2. --------- (Ed.), *Logical Positivism,* New York, Free Press, 1959.
3. ---------*Language Truth and Logic,* London, Penguine Books, 1971.

4. Chapman, Siobhan and Routledge, Christopher (Ed.), *Key Ideas in Linguistics and the Philosophy of Language*, Edinburgh, Edinburgh University Press, 2009.

5. Copleston, Frederick, *A History of Philosophy* 1950ol 11: Logical Positivism and Existentialism, London and New York, Continuum, 2003.

6. Hahn, Lewis Edwin (Ed.) *The Philosophy of A. J. Ayer*, La Salle IL, Open Court, 1992.

7. Hempel, C.G, "Problems and Changes in the Empiricist Criterion of Meaning", *Revue International de Philosophie*, 11: 41–63.

8. Joad, C. E. M. A, *Critique of Logical Positivism* Chicago, University of Chicago Press, 1950. Logical Positivism and Existentialism. Contributors: Frederick Copleston

9. Klemke, E. D (Ed.), *Contemporary Analytic and Linguistic Philosophies*, Buffalo, NY, Prometheus 1983.

10. Weinberg, Julius Rudolph, *An Examination of Logical Positivism*, New York, Harcourt, Brace and Co, 1936.

11. Waismann, Friedrich, 1965, *Principles of Linguistic Philosophy*, R. Harré (ed.), London: Macmillan.

Web References

1. Creath, Richard, "Logical Empiricism", *The Stanford Encyclopedia of Philosophy* (Spring 2013 Edition), Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/spr2013/entries/logical-empiricism/>.

2. Uebel, Thomas, "Vienna Circle", *The Stanford Encyclopedia of Philosophy* (Summer 2012 Edition), Edward N. Zalta (ed.), URL = <http://plato.stanford.edu/archives/sum2012/entries/vienna-circle/>.

3. A page of information about Rudolf Carnap (1891 - 1970), German philosopher of language and science., available at: http://www.carnap.org/.

4. Institute Vienna Circle, available at: http://www.univie.ac.at/ivc/e_institut/index.htm