

# THE LEGACY OF LOGICAL EMPIRICISM

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## ABSTRACT

Logical empiricism is a philosophic movement rather than a set of doctrines, and it flourished in the 1920s and 30s in several centers in Europe and in the 40s and 50s in the United States. It had several different leaders whose views changed considerably over time. Moreover, these thinkers differed from one another, often sharply. Because logical empiricism is here construed as a movement rather than as doctrine, there is probably no important position that all logical empiricists shared—including, surprisingly enough, empiricism. And while most participants in the movement were empiricists of one form or another, they disagreed on what the best form of empiricism was and on the cognitive status of empiricism. What held the group together was a common concern for scientific methodology and the important role that science could play in reshaping society. Within that scientific methodology the logical empiricists wanted to find a natural and important role for logic and mathematics and to find an understanding of philosophy according to which it was part of the scientific enterprise.

Keywords: Empiricism, doctrines, Logical Empiricism.

## 1. INTRODUCTION

Empiricism is an important part of the scientific method because theories and hypotheses must be observed and tested to be considered accurate. Empiricists tend to be skeptical that anything can be known for certain, and therefore they tend not to believe in dogmas or absolute truths. This is in contrast to rationalists, who tend to believe that the universe has absolute laws that can be determined and that the human mind is naturally predisposed to understanding certain truths. Empiricism is a philosophical belief that states your knowledge of the world is based on your experiences, particularly your sensory experiences. According to empiricists, our learning is based on our observations and perception; knowledge is not possible without experience. Logical empiricism (LE) is a term that was coined by the Austrian Sociologist and Economist Otto Neurath (1880–1945) to name the philosophical work of the Vienna Circle and related work being pursued by the physicist and philosopher Hans Reichenbach (1891–1953) and his associates. Related terms include logical positivism, neopositivism, and scientific empiricism. The basic intention of LE was to formulate a scientific philosophy for understanding the relationship between science and society. In historic-philosophical terms the aim was to combine the empiricist legacy of philosopher-scientists such as Hermann von Helmholtz (1821–1894), Ernst Mach (1838–1916), Henri Poincaré (1854–1912), and Pierre Duhem (1861–1916), with the new logic developed by Gottlob Frege (1848–1925), David Hilbert (1862–1943), and Bertrand Russell (1872–1970). The intended synthesis was not simply a theoretical project. Logical empiricists considered themselves part of a progresses movement for a more rational and enlightened society. As stated in the so-called Manifesto of the Vienna Circle, LE aimed to foster a "scientific world-conception" ("wissenschaftliche Weltauffassung") that would help create a better world for all people. The characteristic method of LE was logical analysis, which used mathematical logic to clarify the logical structure and meaning of assertions. In this way LE aimed for a logical analysis of scientific and philosophical language that would distinguish clearly between meaningful and meaningless sentences; fight against metaphysics, which was considered as a hotbed of meaningless "pseudo-sentences"; and provide a "unified science" (*Einheitswissenschaft*) that would be formulated in a logically analyzed language cleansed of metaphysical elements.

## 2. CONCEPT OF EMPIRICISM

Empiricism is the doctrine that all knowledge of matters of fact derives from experience and that the mind is not furnished with a set of concepts in advance of experience. Empiricism is the school of thought that tells us everything we know comes from "Sense Experience." Basically, everything you know and believe comes from what you physically experience. If you know that concrete is hard, it's only because you fell on a concrete floor once and realized this. If you know that your father is kind, it's because he's done kind things in the past and your sense experience tells you that this is true. Basically, they applied this principle to life. You only know what you've experienced, anything you have not personally experienced is mere conjecture and not to be trusted. This movement was contrasted by Rationalism, who had their hero in Decartes. He believed that he could know things by logic. In Rationalism, if you meet 10 fathers who are kind you might be able to assume that most if not all fathers are kind. Empiricism would not make this assumption. You would have to meet every father to know from sense experience that they were, in fact, kind.

## 3. TYPES OF EMPIRICISM

There are three types of empiricism: classical empiricism, radical empiricism, and moderate empiricism.

**Classical empiricism** is based on the belief that there is no such thing as innate or in-born knowledge. John Locke is one of the most well-known empiricists; he claimed the mind is a *tabula rasa*, or blank slate, at birth. Locke asserts that our experience of the world provides us with knowledge.

**Radical empiricism** stems from the belief that our knowledge of the world is based solely on our senses; if something is not experienced through our senses, it does not exist according to radical empiricists. Radical empiricists reject religious beliefs because such beliefs cannot be investigated through the evidence of the senses.

**Moderate empiricism** finds out information about modern empiricism philosophical doctrine that all knowledge is derived from experience.

## 4. CONCEPT OF LOGICAL EMPIRICISM

The systematic pursuit of the problem of meaning by means of a logical analysis of language distinguishes Logical Empiricism from the earlier, more psychologically oriented types of Empiricism, Positivism, and Pragmatism. The imperative need for a logic of language was impressed upon scientists and logicians most poignantly in the last few decades. Just as the seminal ideas of some nineteenth-century philosophies originated in a scientific achievement (Darwin's theory of evolution) so twentieth century Logical Empiricism was conceived under the influence primarily of three significant developments in recent mathematics and empirical science. These are the studies in the foundations of mathematics (led by Russell, Hilbert, and Brouwer), the revision of basic concepts in physics (advanced especially by Einstein, Planck, Bohr, and Heisenberg) and the reform of psychology by the behaviorists (Pavlov, Watson, et al.). Though very different in context and subject-matter, these three developments focused attention on the necessity for an inquiry into the limits and structure of meaningful discourse. Russell, through his discovery of logical and mathematical paradoxes, could show that traditional logic had to be revised and that certain laws, like his rule of types, had to be incorporated in logic in order to avoid inconsistencies in the very foundations of mathematics. Einstein, in his analysis of the electrodynamics of moving bodies, was led to a most revolutionary critique of such basic concepts as simultaneity, length, duration, and mass. Thus he showed that the traditional phraseology of "absolute space" and "absolute time" was in certain important respects devoid of the factual meaning it was supposed to possess. Analogous revisions of basic concepts, touching also on the principle of causality, resulted from the elaboration of the theory of quanta. Finally, by developing objective procedures for the study of mental life, the behaviorists made us aware of the fact that all of the scientific content of psychology can be formulated in the physical language and that the assumption of a "something more," a surplus of factual meaning attached to mentalist terminology, is an illusion. (Earlier reductive naivetes were gradually eliminated here, as elsewhere.) Whatever the future of mathematics, physics, and psychology may decide about the theoretical content of these recent ideas, we have, in any case, been awakened once for all to the need for logical analysis, and we have been witnesses to the fruitfulness of its results. 3 1, e., the language whose undefined, primitive terms are spatiotemporal coordinates (referring to observable or measurable locations and dates) and thing-predicates (referring to observable properties of things)

## 5. IMPORTANCE OF LOGICAL EMPIRICISM

Logical Positivism (later also known as Logical Empiricism) is a theory in Epistemology and Logic that developed out of Positivism and the early Analytic Philosophy movement, and which campaigned for a systematic reduction of all human knowledge to logical and scientific foundations. Thus, a statement is meaningful only if it is either purely formal (essentially, mathematics and logic) or capable of empirical verification. This effectively resulted in an almost complete rejection by Logical Positivists of Metaphysics (and to a large extent Ethics) on the grounds that it is unverifiable. Its influence in 20th Century Epistemology and Philosophy of Science, however, has been profound. Most early Logical Positivists asserted that all knowledge is based on logical inference from simple "protocol sentences" "grounded in observable facts. They supported forms of Materialism, Naturalism and Empiricism, and, in particular, they strongly supported the verifiability criterion of meaning (Verificationism), the doctrine that a proposition is only cognitively meaningful if it can be definitively and conclusively determined to be either true or false. Logical Positivism was also committed to the idea of "Unified Science", or the development of a common language in which all scientific propositions can be expressed, usually by means of various "reductions" or "explications" of the terms of one science to the terms of another (putatively more fundamental) one.

The main tenets of the doctrine include:

- The opposition to all Metaphysics, especially ontology (the study of reality and the nature of being), not as necessarily wrong but as having no meaning.
- The rejection of synthetic a priori propositions (e.g. "All bachelors are happy"), which are, by their nature, unverifiable (as opposed to analytic statements, which are true simply by virtue of their meanings e.g. "All bachelors are unmarried").
- A criterion of meaning based on Ludwig Wittgenstein's early work, (essentially, that the meaning of a word is its use in the language, and that thoughts, and the language used to express those thoughts, are pictures or representations of how things are in the world).
- The idea that all knowledge should be modifiable in a single standard language of science, and the associated ongoing project of "rational reconstruction", in which ordinary-language concepts were gradually to be replaced by more precise equivalents in that standard language.

## 6. CRITICISMS OF LOGICAL EMPIRICISM

- There were many internal arguments within the Logical Empiricism movement, which in reality was only ever a loose collective of philosophers holding a wide range of beliefs on many matters, although with certain principles in common.
- Critics have argued that Logical Positivism's insistence on the strict adoption of the verifiability criterion of meaning (the requirement for a non-analytic, meaningful sentence to be either verifiable or falsifiable) is problematic, as the criterion itself is unverifiable, especially for negative existential claims and positive universal claims.
- Karl Popper (1902 - 1994) disagreed with the logical positivist position that metaphysical statements must be meaningless, and further argued that a metaphysical statement can change its unfalsifiable status over time - what may be "unfalsifiable" in one century may become "falsifiable" (and thus "scientific") in another.
- A. J. Ayer responded to the charge of unverifiability by claiming that, although almost any statement (except a tautology or logical truth) is unverifiable in the strong sense, there is a weak sense of verifiability in which a proposition is verifiable if it is possible for experience to render it probable. This defense, however, was controversial among Logical Positivists, some of whom stuck to strong verification, and insisted that general propositions were indeed nonsense.

- Hilary Putnam (1926 - ) has argued that making a distinction between "observational" and "theoretical" is meaningless. W. V. O. Quine has criticized the distinction between analytic and synthetic statements, and the reduction of meaningful statements to immediate experience. Thomas Kuhn (1922 - 1996) has argued that it is just not possible to provide truth conditions for science, independent of its historical paradigm.

## 7. CONCLUSION

Logical Empiricism stands in glaring contradiction to actual scientific proof, there is no doubt that logical empiricism is credited with posing a number of interesting problems that are common to philosophers as well as scientists. It is obvious that the representatives of Logical empiricism have contributed much to the development of logic and scientific method. It is true that this school of thought has joined the issue with science in rejecting the view that speculative doctrines and dogmatism are necessary in the quest for knowledge of reality. Empiricism as a school of thought for contradicting on a number of interesting problems that occupied the minds of philosophers as well as scientists. Logical Positivism can be credited with the development of logic of scientific cognition, and investigation of specific problems of logic of science. There is no doubt that this school of thought attempted to get rid of speculative doctrines and dogmatisms from philosophy to make philosophy as a genuine branch of knowledge. Thus logical empiricists approach, always suggests itself as an option to be considered by those who think seriously about the problems of philosophy. If it is so important, then logical empiricism is successful as a group, can occupy its own place among the significant philosophers and philosophical movements, which are of profound importance so far as their ideology is concerned.

## 8. REFERENCES

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