

The Effects of Socio-Political Factors in Europe on Logical Positivism and Reductionism

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ABSTRACT

Logical Positivism and the proposal of reductionism as a criterion for scientific methodology and demarcation criterion, both which appeared around a century ago, no longer boast of followership. At the mention of this Movement and the ideal that they initiated, the prongs of Karl Popper and William Van Orman Quine are usually erected as causal factors. Even when the objections of these minds are taken as cardinal, this study makes a further push by highlighting that other factors outside these are even more colossal. An idea may lack intellectual balance but this does not make it necessarily worthless. It may require modification and redress in the face of criticisms. This opportunity was not afforded to Logical Positivism and reductionism owing to the commencement of the WW II which led to the dispersal of its members. It is for this reason that this inquiry attests to the fact among other competing factors leading to the vitiation of the reductionism and Logical Positivism, the scourge of WW II is a foremost cause for disintegration but not necessarily the criticisms

Keywords: Europe, Logical Positivism, Reductionism, Scientific Methodology, Social Factors.

INTRODUCTION

Exactly a century ago, there persisted a group of similar minds. These minds were bound together by a common vision and method in the quest for knowledge production and reproduction [1,2]. They sought a method that will allow science to be distinguished from non-science. By profession, they are philosophers of science, scientists, mathematicians and linguists. They are popular called the Vienna Circle/Club or logical positivism. Though the use of these designations for them is not restricted to either, it is the case that "logical positivism is a group of scholars who were also members of the Vienna Club or Circle"[3,4,5]. Almost a hundred years after this group first assembled for intellectual exchanges or engagements, no one hears of the group an active philosophic tradition but as a phase in the evolution of language, metaphysics and science in the early 20th century. What factors are responsible for

the cessation of this group? What kind of philosophy did the group profess? How adequate are the motivations of this group? How come the legacy of this group ceased before it could amass as much followership? What roles did the critical charges leveled against the group play in the demise of the group? Were criticisms the only factors that led to the demise of the group? These are the questions that we contend with in this study [6,7]. The next part discusses the emergence of logical positivism and the method of reductionism, peculiar to them. Afterward, the objections leveled against them will be displayed before chronicling the crucial role played the war in the dispersal of the group. This dispersal among many other factors that led to the demise of the group is the most critical yet de-emphasized, this essay contends [8].

Logical Positivism, Reductionism and the Scourge of Critics

It was in Austria in the early 1920s that logical positivism was birthed. Granted the ideas of these scholars were already

suggestive in the writings of scholars like David Hume, August Comte, to name a few, this does not wish away the

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originality and improvisation employed by the group to question knowledge and meaning. It is the contention of these minds that led to reflections on philosophy of science. This is true since "Philosophy of science emerged as a distinctive part of philosophy in the twentieth century [9]. It set its own agenda, the systematic study of the metaphysical and epistemological foundations of science, and acquired its own professional structure, departments and journals. Its defining moment was the meeting (and the clash) of two courses of events: the breakdown of the Kantian philosophical tradition and the crisis in the sciences and mathematics at the beginning of the century. The emergence of the new Frege-Russell logic, the arithmetization of geometry and the collapse of classical mechanics called into question the neat Kantian scheme of synthetic a priori principles [10]. It is however important to relay that this group took seriously the Humean bias to metaphysics which is articulated thus: "When we run over libraries, persuaded of these principles, what havoc must we make? If we take in our hand any volume; of divinity or school metaphysics, for instance; let us ask, Does it contain any abstract reasoning containing quantity or number? No. Does it contain any experimental reasoning concerning matter of fact and existence? No. Commit it then to the flames: for it can contain nothing but sophistry and illusion" [11]. It is from this and similar efforts to eradicate metaphysical statements as non-scientific that the members of the group converged. Logical positivism is an amalgam of linguists, philosophers and scientists.

Their central thesis concerns the repudiation of metaphysics as an intellectual enterprise. The ring leaders are Moritz Schlick, Rudolf Carnap, Alfred Jules Ayer, Hans Reichenbach, Otto Neurath, Friedrich Waismann, Herbert Fiegl etc. Their agenda, as hinted hitherto, centers on demarcating science from non-science [12]. In consonance with the agenda of eliminating metaphysics [13] explains that the metaphysician "...seeks vain illusion." However what kinds of statement or idea pass metaphysics for these erudite minds? Rudolf Carnap makes this clear thus: "The sort of propositions I wish to denote as metaphysical may most easily be made clear by some examples: the Essence and Principle of the world is "Water," said Thales, "Fire", said Heraclitus, "the Infinite", said Anaximander; "Number", said Pythagoras" [14]. Elsewhere, Carnap makes bold to relay the thrust of the movement. According to [6] "Our claim is that the statements of metaphysics are entirely meaningless, that they do not assert anything,... how could it be explained that so many men in all ages and nations among them eminent minds, spend so much energy, on metaphysics if the latter consisted of nothing but mere words, nonsensically juxtaposed?" The motivation then is to set out with the articulation of the method that will be used to distinguish something that is cognitively meaningful from the one that is not. Obviously, metaphysical statements have been ruled out of such of the former class. The method is verificationism proposed by [7]. According to [8]:

The great weapon in this attack was the Verification Principle. This, in its original form, ruled that the meaning of a proposition was the mode of its verification. Such a view of meaning enabled one to rule out of court as meaningless all statements which could neither be verified nor falsified by experience. Faced with a dispute about the nature of the Absolute, or the purpose of the Universe, or Kantian things-in-themselves, the Positivist could expose the emptiness of the quarrel by saying to the warring metaphysicians: 'What possible experience could settle the issue between you?' [9].

Verificationism is however the outer shell of reductionism. In the words of [6], reductionism the view that every statement can be translated into a statement or collection of statements about sensory experiences. [7] considers the positivist view that each statement can be associated with a class of possible experiences that would confirm it and another class that would disconfirm it, to be a weakened form of reductionism. This in essence is the thread of connection between reductionism and verificationism, both one of the cardinal principles of the Philosophers of Science in the Logical Positivist Club. Reductionism places emphasis on the

A statement is factually significant iff 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. If, on the other hand, the putative proposition is of such a character that the assumption of its truth, or falsehood, is consistent with any assumption whatsoever concerning the nature of his future experience, then, as far as he is concerned, it is, if not a tautology, a mere pseudo-proposition.

From the above proposition which sounds more like an axiom, Ayer avers that: "A distinction must be made between "practical verifiability" and "verifiability in principle". Many propositions have been made which could have been *conceivably* proven, but for some reason or another the right conditions were not in place, making the arrangement of all possible variables impossible. However, this does not disprove the significance of the proposition because it is theoretically conceivable. This is in direct opposition to those propositions made which have no probability one way or the other, or would remain equally unprovable under *all conditions*. Therefore, we cannot count on a series of observations to conclusively support or confute our position, lest we be barred from the ability to make any kinds of purposeful statements at all" [7]. This is the crest of the methodology of reductionism which is captured by verificationism that logical positivism employed to dismantle metaphysics as cognitively meaningless.

conformity of scientific claims or any propositions at all on observation by the senses. Implied here is the thinking that the senses are adequate for the acquisition of knowledge. The same is true for [8] who mentions that "mental phenomena can be reduced, in some sense, to the vocabulary of the material or physical." Another idea, which was central to logical positivism and remains of central importance today, is that philosophical questions are largely questions of language, and that theories of meaning are therefore of central importance [5]. It is in this regard that Ayer [6] validates that:

This also corroborates their motivation for the distinction between science and non-science. It is however crucial to understand that reductionism has come under serious rebuttals. In the section that follows, we shall provide a glimpse of the bitter criticisms leveled against reductionism by Karl Popper, William Van Orman Quine. These minds proposed formidable counter instances to mitigate reductionism even when we recognise the contributions of Thomas Kuhn, Alvin Plantinga and some others. We shall however reveal that much as these objections are apt, WW II played an important role as well. Beginning with Karl Popper's problems with reductionism, we find that for Popper logical positivism had coalesced two different problems: that of meaning and that of demarcation, only to propose verificationism as a single solution to both [9]. Popper recognizes that there are meaningful theories that are not scientific, and that, a criterion of meaningfulness does not coincide with a

criterion of demarcation [10]. Falsificationism, as an alternative term, addresses this quagmire. It is an approach to statements, hypotheses or theories with the inherent possibility to prove it to be false. Put otherwise, a statement is falsifiable if it is possible to conceive an argument which proves the statement in question to be false. Popper's falsificationist thesis is a demarcation criterion that emerged as an alternative after showing the deficiencies of the verificationist thesis wielded by members of the Vienna Circle [5]. In this sense, falsify is synonymous with nullify, meaning not to commit fraud but show to be false [7]. The more a theory is falsified, the more scientific it is. Popper regards theories that are not falsifiable, that is, "not refutable by any conceivable event," as non-scientific [8]. Much as Popper finds reductionism problematic, he did not leave it without proposing a telling alternative. It is however the case that Popper's falsificationist thesis has also come under serious attack. But this is beyond the scope of the present study. We now turn to the critique of reductionism emanating from W.V.O. Quine. Quine, an extreme empiricist, criticizes two "dogmas" that have commonly been accepted by other empiricists, especially positivists. The first "dogma" is the idea that there is a distinction between analytic and synthetic statements [9]. He considers several ways of trying to define the notion of an "analytic" statement and argues that none of them works, because each requires the use of some other undefined and obscure term (e.g., "meaning," "synonymous," and "definition"). The second "dogma" is what Quine calls "reductionism," the view that every statement can be translated into a statement or collection of statements about sensory experiences (idealists hold this view). He considers the positivist view that each statement can be associated with a class of possible experiences that would confirm it and another class that would disconfirm it, to be a weakened form of reductionism. For Quine, reductionism, the view that every

meaningful statement is translatable into a statement about the immediate experiences that confirm it would allow one to define analytic statements as those which are confirmed come what experience may [6]. However, Quine argues, it is at odds with the holistic nature of scientific belief-formation, the fact that our beliefs form a "web" in which each belief is linked to all others, and ultimately to experience. This means that it is impossible to specify confirming evidence for individual statements. It also means that any belief can be abandoned for the sake of preserving other parts of the web, and hence that there are no a priori statements immune to empirical revision. Reductionism and verificationism proved to be an Achilles' heel of logical positivism not just in the philosophy of language, but also in the philosophy of science [6]. Their failure undermined logical empiricism, but other versions soon came to the fore. So [6] proposed a radical revision of epistemology, in which (a) there is no such thing as an analytic statement, and (b) an individual statement cannot be confirmed or disconfirmed. Instead, he thought, one can only confirm or disconfirm a *system* of statements. To get some idea of what this means, consider only one miniature example. Is it possible to confirm or disconfirm Newton's theory of gravity, considered by itself? It is usually thought that the answer is yes: you can try dropping a rock and observing its motion. If it did not fall, that would disconfirm the theory of gravity. But Quine would say that in fact, the theory of gravity by itself does not predict anything about the object's motion and so is not tested by that sort of observation. For the theory of gravity only says that all massive bodies exert a force on each other proportional to their masses and inversely proportional to the distance between them. These two objections are usually the basis of reflection when the discourse on the thematic fallouts of reductionism is being considered. In the next section however, this study will make a very brief

pronouncement on the role of the Second World War and how it did not allow the

members of this group to explicitly assert the fallouts of their contention.

Socio-Political Factors and the Pillory of Logical Positivism and Reductionism

The objections raised against reductionism by Popper and Quine no doubt, amount to being one of the consented basis for the fallout of reductionism. It is however more telling that upon a critical reflection over the role of the Second World War, reductionism as a method in philosophy of science soon waned. Since philosophic discussions are enmeshed in the creative struggle between the protestant or

proposer on the one hand, and the contestant or oppose on the other hand, this study thinks that this opportunity was not present concerning the exchange between logical positivism and its critic. Whereas the accentuation has been that the criticisms leveled against logical positivism accounts for the demise of the group little hint has been regarding the role of World War II. it is in this regard that [6] confirms that

The havoc brought about by the Nazis liquidated most philosophical thinking on the Continent and many philosophers of science took refuge in the US. There, their thought came under the pressure of American pragmatism.

WWII which persisted between 1939 and 1945 is one of the contributing factors to the demise of reductionism which has been downplayed over the years. The intellectual culture of Europe was put to a halt. Even the notable critic of logical positivism - Popper was forced to flee to New Zealand where he wrote the two volumes of his popular *Open Societies and its Enemies*. Rudolf Carnap for instance emigrated to Chicago, Hans Reichenbach fled to Los Angeles. Herbert Feigl moved to Iowa. It is interesting to note that while this war played a very serious role in the demise of reductionism, emphasis has usually been placed on the bitter criticisms against logical positivism. Were these criticisms potent enough to sack logical positivism? This answer is doubtful. Doubtful, because there is a slight reminiscent of the group that continues even beyond its acclaimed demise in the middle of the 20th century. For instance, in an interview in 1979, A.J.Ayer, a leading philosopher who had been an advocate of logical positivism in the 1930s, was asked what he now saw as its main defects. He replied: "I suppose

the most important...was that nearly all of it was false." Yet this did not prevent him from admitting, shortly afterwards that he still believed in "the same general approach" [8]. In a number of ways "the same general approach" is still widespread today, and indeed was so long before the advent of logical positivism. Empiricism, in one sense or another, is a major thread running through Western philosophy since the seventeenth century, including logical positivism and much of the philosophy of today. The same is true of 'reductionism', and especially the assumption that mental phenomena can be reduced, in some sense, to the vocabulary of the material or physical [10]. Another idea, which was central to logical positivism and remains of central importance today, is that philosophical questions are largely questions of language, and that theories of meaning are therefore of central importance [6]. It is within the latter that the notion of conceptual decolonization which is persistent in contemporary philosophizing in Africa is realised.

CONCLUSION

The idea that logical positivism no longer functions wholly is based on the fact that over a hundred years after the active engagement of the group, it has no follower who adorn the name. It is

however telling that the group continues to subsist even as it has openly lost followers. It is suggestive in the way that arguments are used today. The emphasis on language and the notion of

correspondence of truth are some of the key thematic concerns of the group that surface during philosophic analysis. It is a result of this that this essay puts that logical positivism is not completely dead. Much as its method and philosophy has

been shown to be inadequate, they have not shied from being used or resorted to implicitly even in the present century especially by African theorisations on conceptual decolonisation.

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