

POPPER'S FALSIFIABILITY AND MISES'S A-PRIORISM:
IS DOGMATISM EVERYWHERE?

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Keywords: epistemology, a priori, falsifiability, essentialism, positivism.

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1. INTRODUCTION

In the history of humanity, some centuries have been more important than others in fostering the development of scientific theories. Discussions and controversies surrounding any given intellectual or philosophical zeitgeist, however, is a timeless phenomenon. That which seems unequivocally true in one epoch is sometimes found to be false in another. This balance shakes theories across history, and is fascinating to scientists. Theories can be accepted, rejected, then be given new legitimacy with the inception of a theory that, in and of itself, invalidates the previous one. This unremitting discourse has inspired certain philosophers – the epistemologists – to seek to explicate the scientific method. In the face of the relative stability of the hard sciences, this pendulum movement has, even in spite of itself, laid a precise attack on the social sciences.

To some authors, the scientific approach appears to be plural; there exists not *one* scientific explanation, but *many* scientific explanations (Jaspers, 1962). Other authors are opposed to this embryonic intellectual current, aborting it with scientific monism, the idea that regardless of the particular science, there is only one scientific method (Stroud, 2000). That which seems free from obscurity today has been, and will remain, the object of much discussion. These discussions are not disturbing; even they are an option if a dominant theory proves itself to be false and/or to have dogmatic tendencies. These remnants of older theories only serve to support the original concept that universal laws are ultimately judged by

history¹.

Parallel to the establishment of monism is the question of what exactly the scientific approach should be. Even if there may be a consensus that one and only one scientific approach exists, it must still be characterized. The controversy between G. Schmoller and the historic German school on the one hand (Schirmacher, 2003), and C. Menger and the Austrian school on the other (Menger, 1933), illustrates the difficulty of defining the criteria that allow the scientific approach to be characterized (Popper, 1957). The first is the fruit of an inductive construction, meaning that the reasoning by which one draws a general conclusion from a collection of observations, relative to particular cases, is scientific (Carnap, 1952), whereas the second makes the apology of deductivism as the scientific criterion (Menger, 1934).

In this battle against inductivism – which he may not have won (Grattan-Guinness, 2004) –, K. Popper (1968) on the one hand and a-priorist mentors L. Von Mises (1949) and M. Rothbard (1982) on the other, have developed two different approaches towards the characterization of the scientific method. The Popperian outlook complements the deductive conception by developing an evolutionary, selective, approach to theories (Popper, 1965). According to this view, universal theories do not apply to particular cases. A-priorists have developed a reflection, based upon Aristotelian essentialism, in which concepts are apodictically true (Boghossian and Peacocke, 2000). The general theory

¹ “history” is to be understood in the analytical sense with some objectivity, not to be confused with the historicist approach that we will now seek to explain.

proposed by Mises rests upon propositions deduced not only from experience, but constructed rationally through *a priori* – the chronological antecedents which precede every experience (Von Mises, 1960).

In order to understand the differences in the analysis of what is scientific and what is not, we propose to study, with a great deal of modesty, the questions that form the philosophical foundations of these two approaches. In this fight for scientific truth, we will study the schism between those who defend deductivism by explaining that, in spite of their differences, (2. A disparity between philosophical foundations; 3. A critique of the philosophic basis of falsifiability), they have several points in common, (4. A scientific approach “a priori” similar).

2. DISPARITY OF PHILOSOPHICAL FOUNDATIONS

Karl Popper was a renowned opponent of logical positivism. Logical positivism was the philosophical position of the Vienna Circle in its early years and one of its mentors was Carnap (1928). The most distinguishing claim of logical positivism asserts that statements are meaningful only insofar as they are ‘verifiable’, and that statements can be verified only in two (exclusive) ways: empirical statements, including scientific theories, which are verified by experiment and evidence; and analytic truth, statements which are true or false by definition, and so are also meaningful. From this point of view, theory must be juxtaposed with reality in order to determine whether it is, in fact, acceptable. To lay claim to such an approach is to believe that a true theory explains that which is

observed through experience. Although predominant, this sort of empiricism is not universal.

Contrary to the logical positivists, Popper develops a “negative” criterion: in order for a theory to be acceptable, it must be ‘falsifiable’ – that is, it must be capable of being invalidated through observation (Popper, 1965). According to this concept of falsification, no amount of empirical evidence restricted to claims about particulars can ever verify or justify a theory (induction), but a single piece of appropriate contradictory evidence can refute a theory. Thus, all attempts at justification or confirmation of scientific theories are misguided. The only option is to falsify them.

Well before the work of Auguste Comte, positivism was based upon an empirical approach that necessitated a dependence upon induction (Mill, 1961). Aside from observation, it was necessary to form a law of sufficient generality to be valid in the largest possible number of situations. Carnap subsequently added the idea that once a theory was constructed through observation, it must then, be verifiable (Carnap, 1928). Popper (1949) responded to this *modus operandi* that, because of its simplicity, risked distancing the scientific philosophers from “real problems,” and showed how historicism, which further develops the inductivist method, inspired both Marxism and fascism (Popper, 1957).

In order to explain the dogmatism and other fundamental problems of historicism, he attacked both the method itself and its implicit philosophical foundations. Since historicism includes, “[every] doctrine that attempts to

encapsulate the movements of history in an inexorable and predictable succession of stages ultimately leading to the end of human history”² (Baudouin 1991, p.59), it served as a source from which the totalitarian political philosophies of Marxism and fascism drank heartily. In bringing the inductive quality of historicism to light, Popper’s critique was redirected towards the scientific method. Referring to David Hume himself, he explains that the inductive method lacks any sort of logical foundation (Popper, 1968). Indeed, from a finite series of specific observations, it is impossible to extrapolate a universal principle capable of being extended to observations that have yet to occur: regardless of how many white swans we have seen, we cannot justifiably conclude that all swans are white. In addition to the induction that generalizes specific observations, he criticizes the positivist’s approach with respect to the verifying of those laws, which are induced from particular cases with other observations. Finally, in terms of philosophical foundations, Popper considers himself to be a realist (Popper, 1972). That is, he considers the outside world and its laws a given reality. However, he rejects the inverse notion that science consists of grasping a certain material essence (Popper and Bartley, 1982). He holds essentialism responsible for the lag of the social sciences with respect to the physical sciences, which are governed by a methodological nominalism. Consequently, he believes in the existence of a “Reality and Truth” incapable of being captured by Man (Popper, 1972; Popper and Bartley, 1982). In this sense, he separates himself considerably

² "toute doctrine qui tend à enfermer le mouvement de l'histoire dans une succession inexorable et prévisible d'étapes conduisant vers une sorte de terme de l'histoire humaine", p. 59.

on the one hand from the Aristotelian approach, and on the other hand – it was his objective – from the “false prophets” Hegel, Marx and above all Plato who could only lead up to the “closed society” (Popper, 1949). According to Plato (Jaspers, 1962), the existing world is immutable, originating from “Ideas” that form a moving and volatile universe consisting of “Things” that are nothing but reproductions, more or less, faithful to their original “Ideas.” To each “Thing” present in the tangible world, there corresponds a “Form” that represents perfection and quasi-immutability accessible only through the indirect route of pure intellect.

According to Popper, this is the foundation of Platonist historicism.³ In this view, the distinction of “Forms” and “Things” is not only at the origin of the essentialist conception regarding the interpretation of the world, but also induces superfluity – the determinist’s theory of social becoming that is rendered apparent from prophetic historicism. There is room, therefore, for an inexorable law of historicist development (Popper and Bartley, 1982).

For this reason, by refusing to adhere to any essentialist philosophical current, Popper tried to avoid assuming a dogmatic position. In 1934, K. Menger (1934) developed the belief that definitions are dogmas. We can expand upon his thought, diluting it only minimally, by adding that the same holds true for theories, which have a fundamentally dogmatic basis. Popper responded that it is certainly true vis-à-vis the definition of the ‘concept of science’, but he did not

³ Cf. the concept of institution in Hayek F. A. v. (1960), *The constitution of liberty*, Chicago: University of Chicago Press.

agree with the characterization with respect to theories (Popper, 1976). In his view, a proposition is scientific if it fulfills the criterion of falsifiability; this is the one approach that circumvents the philosophic essentialism against which it is opposed. The falsifiability criterion distinguishes the Misesian approach from that of Popper.

The entire characterization of the scientific approach according to Mises is based upon Kantian argumentation. Kant argues that “synthetic truths” exist in the world, and can be known “a priori” – that is, without explicit material confirmation (Greenberg, 2001). According to Kant, several propositions, like the axioms of Euclidean geometry (Hanna, 2001), do not emerge from conscious experience of the world, as no specific observation would ever lead us to think that such propositions were false (Von Mises, 1949). With a willingness to fight against historicism and its inductive method, Mises proposes a general theory of human action known as “praxeology.” Beyond his Kantian idealism which proposes that Man applies the real mental categories that he has created to the real world, Mises leans heavily on Aristotelian essentialism – the notion that knowledge reflects the structure of the world, which is, in and of itself, intelligible (French and Wettstein, 1998). Even if Mises’s objective is to focus primarily on the conditions of human action, and not on their realities, he explains that the goal of science is to understand what is real. It is neither mental gymnastics nor a logical pastime. This is why praxeology limits itself to the study of action in the given conditions and presuppositions of reality (Von Mises, 1949).

From the philosophical divergence between Popper and Mises, there emerges, in one case, the denial of Man's capacity to attain the essence of things, and in the second, the assertion that reality can be understood only through reason. The latter conclusion is used to fight historicism and its inductivist foundation.

3. THE PHILOSOPHICAL BASIS OF FALSIFIABILITY AND THE OBJECT OF POPPERIAN REALISM

This difference between philosophical foundations stems from what Popper sought to show as the dogmatic nature of totalitarianism (Popper, 1949), in the sense that it had the pretension of knowing "reality." Popper's problem is markedly similar to the one later developed by Hayek in *Rules and Order* (Hayek, 1973). Popper's theory, and in particular, his line of demarcation between what is scientific theory and what is not, portends an evolutionary process directed towards a certain stability. Popper demonstrated great interest in Darwin's theory of evolution. In *The Logic of Scientific Discovery* (Popper, 1968), he presented his theory of increasing knowledge through trial and the subsequent elimination of error; that is, by Darwinian rather than Lamarckian selection. Hayek employed this same selective approach for the process of determining the rules of Law in the "Grand or Open Society", in Hayek's and Popper's respective terminology. Hayek asserted that this evolutionary progression led to conventions of superior form, of the universal and lasting rules he called "institutions." Popper arrived at the same conclusion, *à savoir* that the process of conjecture and refutation would

lead to one or more theories more universal and lasting than others. Subsequently, this “evolved” theory would prove to be very close to reality.

Popper considered himself a realist, but rejected the conception according to which science consists of comprehending a certain material essence. Essences, he believed, could never be known, for they are a reality that is independent of the spirit. Yet, at the end of *The Logic of Scientific Discovery*, he affirmed the “quest of truth” as “still the most important motive of scientific discovery.” Additionally, he posits that the process of conjecture and refutation drives science to develop more and more inclusive theories that are, consequently, more and more universal and lasting.

One can conclude therefore that a theory increasingly explicative of reality would be close to its very *essence* and, thus, would be very close to the truth. For this reason, Popper cannot deny that he is a realist. Before his meeting with Tarski in 1934, Popper rejected this analysis, affirming that even the most seemingly accurate theories are, in reality, little more than precarious, perishable hypotheses. This affirmation supports the conclusion that the author of *The Logic of Scientific Discovery* wanted to regulate the methodology surrounding the problem of truth through simple artifices on purpose. This vicious circle is, without contest, the first critique of the reflections of Popper.

Popper’s doctrine relies both on falsificationism and realism, which he defines as not being essentialism. However, Popper’s falsificationism may not be compatible with realism. Falsificationism finds its origin both in the search for a

criterion of demarcation between science and pseudo-science and in the handling of the problem of induction. In *Conjectures and Refutations*, Popper recounts that it was his desire to find an acceptable means of distinguishing scientific from pseudo-scientific theories that first led him to the concept of falsifiability. According to the criterion of demarcation, what makes a theory scientific is that it may be tested, falsified, refuted (Popper, 1965, pp. 33-37). In order for a theory to be considered falsifiable or empirical it must divide “the class of all possible basic statements unambiguously into... two non-empty subclasses. (...) It may be added that a theory makes assertions only about its potential falsifiers. (It asserts their falsity). About the ‘permitted’ basic statements it says nothing. In particular, it does not say that they are true” (Popper, 1968, p. 86). This statement bears on the relationship between falsificationism and truth, but the latter being defined as in essentialism. There are thus two definitions of truth: the first definition from essentialism, and the second definition from Popper’s realism. This is how Popper tries to stay a realist while avoiding being an essentialist.

From this point of view, the meeting with Tarski (Tarski and Helmer-Hirschberg, 1941) gave a new impulse to Popperian thought. In effect, Popper borrows from Tarski the still-complex idea of “truth-correspondence,” according to which a proposition can be held as truth “from then on, and only” if it corresponds to certain facts (Tarski, Givant and McKenzie, 1986). Tarskian semantics allow Popper to restore the problem of truth in its own right without disqualifying the fallibility principle; Popper seeks not to proclaim the general

quality of truth (Sleigh, 1972), but merely to establish the conditions by which a verbalized proposition can correspond to a fact, or a collection of facts (Baudouin 1991). Popper translates the “truth-correspondence” concept into “corroboration”, which is not synonymous of “verification.” Popper asserts that the falsification of a theory is not accepted unless such a low-level empirical describing “a reproducible effect which refutes the theory” is corroborated (Popper, 1968, pp. 86-87). Corroboration is a measure of how well a given theory has withstood rigorous tests. Corroboration is something like an instrumental component of falsificationism (Early, 1999, p.9).

Now, in order to relate the concept of corroboration to that of Popper’s definition of truth (realism), Popper first has to connect corroboration with the concept of “verisimilitude.” The introduction of this concept allows Popper to relate the concept of corroboration with that of truth, and thus potentially to provide a realist analysis of falsificationism. Popper defines verisimilitude as “the idea of a degree of better (or worse) correspondence to truth or of greater (or less) likeness or similarity to truth” (Popper, 1965, p. 233) and as “the notion of a better approach or approximation to the truth, or of a nearness to truth” (Popper, 1972, p. 47). Popper wants to sort theories according to their degrees of verisimilitude, even if neither of them is very close to the truth. He is concerned only with relative verisimilitude, not absolute verisimilitude: as Popper explains, we are not concerned with “the maximum degree of verisimilitude” for the “comparative use of the idea is the point” (Popper, 1965, p. 234).

However, Popper asserts: “The degree of corroboration of a theory has always a temporal index: it is the degree to which the theory appears well tested at the time t . this cannot be a measure of its verisimilitude, but it can be taken as an indication of how its verisimilitude appears at the time t , compared to another theory” (Popper, 1972, p. 103). In other words, while corroboration is temporal, verisimilitude is timeless. As Popper explains, “Our idea of approximation to truth, or of verisimilitude, has the same objective character and the same ideal or regulative character as the idea of objective or absolute *truth*. It is *not an epistemological or an epistemic idea* – no more than truth or content” (Popper, 1965, p. 234). Thus verisimilitude is, like truth, a metaphysical concept. This result, of course, should come as no surprise, since it is simply the identical association between corroboration and verisimilitude as defined in *conjectures and Refutations*. The problem is that if verisimilitude is just another metaphysical concept like truth, then how is its introduction supposed to bridge the gap between Popper’s falsificationism and his realism (Early, 1999, p. 13)? If the apparent verisimilitude afforded by corroboration were taken seriously by Popper, then this would enable him to connect the epistemological concept of corroboration to the metaphysical notion of truth and, thus, to connect falsificationism to realism in a convincing way. But, of course, Popper dismisses apparent verisimilitude because of its historicist overtones. This critique of Popper’s use of the concept of verisimilitude is not the only one that could be made. One can also find in the literature, authors who suggest that Popper’s use of those concepts gets him

realism at the expense of falsificationism (O'Hear, 1980). O'Hear's argument centers on Popper's discussion in *Objective Knowledge* of the improbability of accidental correspondence between a logically very improbable and relatively comprehensive scientific theory and reality. O'Hear points out Popper's assertion that an "accidentally very improbable agreement between a theory and a fact can be interpreted as an indicator that the theory has a (comparatively) high verisimilitude" (O'Hear, 1980, p. 66; Popper, 1972, p. 103). To O'Hear, Popper's realism is essentialism. According to Popper, there are three possible positions on the role of essences in scientific explanation: 1) there can be ultimate explanations which requires essences, 2) the instrumentalist view that there are no such things as scientific explanations or essences, and 3) Popper's own position, which he calls 'modified essentialism' (Popper, 1972, pp. 194-95). In maintaining modified essentialism, Popper denies the possibility of ultimate explanations, which are based on essences, and which, thus, require no further explanation (Popper, 1965, p. 105; 1972, p. 195). But the rejection of ultimate essences by Popper is a concession to instrumentalism (O'Hear, 1980, p. 92).

This new argumentation would seem satisfactory to the positivist empiricist. Desiring to remain logic driven until the end, and attempting to avoid the vicious circle of truth in which the criterion of refutability lingers, it certainly comes close to a positivist thesis (the approach of the former is to induce the laws to leave particular observations and to test these laws on other observations in order to verify them). It is precisely this historicist approach against which Popper stands.

Using it, secondarily, in the face of the preponderant criteria of refutability, he draws closer to positivism, while shying away from the mentors of a-priorism (Von Mises, 1949), for whom fighting against the simplicity of historicist theses was the main objective. However, despite being categorically opposed, the Popperians and the Misesians have, on occasion, come together in their quest to find the scientific method.

4. AN “A PRIORI” SIMILAR SCIENTIFIC APPROACH

The criterion of refutability represents an empirical line of demarcation between scientific and non-scientific theory. This criterion is synonymous with that employed by Hayek in his *magnum opus*, *Rules and Order*. A more inclusive and more explicative theory (or “rule” according to Hayek) is preferable to any other theory. The evolutionary process of selection of theories is comparable to the process of the compatibility of individual choice, otherwise known as the Invisible Hand. In essence, general economic theory integrates a principle similar to Darwinist selection in the decision-making process. The process of every individual’s selection of goods and services will aggregately lead to the predominance of certain products. This vision, borrowed from the Bernard de Mandeville’s *Grumbling Hive* (1705), and more commonly, known as the “Invisible Hand” by Adam Smith (Smith, Campbell and Skinner, 1976), was applied to the analysis of Hayek’s rules of Law (Birner, Garrouste and Aimar, 2002). In the same way that prices spontaneously adjust in the market relative to

supply and demand, rules emerge spontaneously from the interaction of individuals without any individual being conscious of his participation in such legislation. In this sense Hayek did not develop a new economic theory; he applied the basic principle of economic theory to the “market” of rules. To some extent, this represents a practical case of general economic theory in the same way that the practical case of the “money market” exists. In contrast, Popper tried to apply the same practical principle to the selection of theories (Boland, 2003). A theory is scientific if it is more explicative than another (Popper, 1968). Theoretical selection is a Darwinian process in which new, more inclusive theories replace former theories. Selection passes by the line of demarcation, but this criterion is empirical.

In the search for uniformity between the natural sciences and the social sciences (encouraged by his friend Hayek), Popper applied an empirical criterion to judge the scientific quality of a theory. This criterion is certainly functional in practical cases, but attempting to apply it to a higher level of analysis requires acknowledging several precautions. In effect, this evolutionary approach can be used as a second argument favoring the notion that Popper was not able to succeed in distinguishing himself from the inductivist-positivists (Friedman, 1999). Because he acts according with the positive approach (Boghossian and Peacocke, 2000), which is to apply an empirical criterion – verifiability – to judge the scientific foundations of a theory, Popper is a non-inductivist positivist.

As different they may appear, the Popperians (Boland, 2003; BonJour, 2002)

and the a-priorists (Von Mises, 1949) share the same objective: the search for the scientific method with the goal of showing that historicism uses a non-scientific approach. To this end, the a-priorists battle against the argument of inductivism, while Popper rejects inductivism and the dogmatism of its philosophical foundations. Nevertheless, a certain unity is found in the fact that the two models agree that the scientific method must be deductive.

In *The Logic of Scientific Discovery*, Popper examines the problem of induction. He rejects Hume's idea that it is possible to conclude with law, even from a high number of specific cases. The inductive conclusion is not logically constraining. The deductive method is valued on the other hand by the *modus tollens*: if t implies p , and if p is false, then t is also false. The a-priorists believe praxeology to be intrinsically deductive, based upon a methodological a-priorism, consisting of semantic demonstration of the "certitude" of the action axiom. For Mises, this axiom is "apodictically" true (Von Mises, 1949). That is to say, that there exists intelligible evidence, a priori, (i.e. independent of all human experience) to verify its truth. There is no need to test it, for its existence is a certainty. In general, it is not because one verifies it experimentally that it exists. Rather, it exists because to deny its existence is to act.

The deductivism of a-priorists is thus based on an apodictically true proposition (Casullo, 2003). Refusing to believe that intelligence can allow Man to approach material essence (Von Mises, 1949), Popper advances an objective understanding of theory that flies in the face of individual subjectivity. Popper

clearly explains that induction cannot be scientific (Popper, 1976): induction is a position according to which the only true statements are either those relating to observed facts, or those obtained, via induction, through observed facts. For this, the seeker must be deprived of any preconceived ideas, and must be free from extraneous guidance. He explains his “hypothetico-deductive” approach, which, in differing from that of the Aristotelians, presumes that the point of departure is not from facts, but rather from a hypothesis, a mentally constructed theory having only a conjectural nature. Theory, according to Popper is not apodictically true, for truth is not perceivable by human intelligence (Popper, 1976). Rather, from a single theory, one deduces one or more propositions, which relate to observable reality. One then proceeds to the test proposition(s) by applying the criteria of falsification.

The nature of this original theory must, nonetheless, be questioned, as it is either a mental construction founded, or unfounded by observation. If it is unfounded by observation (e.g. clouds cause inflation) it is not apodictically true, and will be immediately rejected by the a-priorists, and subsequent to testing, will be rejected by the Popperians. If, however, it is founded on observation, (e.g. All swans are white), it will be immediately rejected by the a-priorists, while being preserved by the Popperians until such time as it is replaced by a more inclusive hypothesis. Consequently, in the case where it is a mental construction independent of observation, either it is apodictically true or it is false. Any other possibility would mean that there are truths that do not flow from other truths

already found through reason. In this case, how could the human being express himself rationally, (he cannot do so any other way⁴), given that such truth is not derived from other true propositions? The only possible response to this question is “observation,” for observation allows us to see phenomena that escape rationality. However, such a response would illustrate the inductivist character of the Popperians. In wanting to avoid any form of dogmatism, Popper consequently found himself obliged to be defined as a realist but not an essentialist, of approaching positivism while refraining from inductivism, and defending a deductive scientific approach while still wanting to avoid essentialism.

5. CONCLUSION

The vehement critique of Popperian thought by the a-priorists maintains that Popper wanted to fight against totalitarian dogmatism while avoiding all other dogmatisms, including a-priorism. The critique of a-priorism’s dogmatic nature suffered from the fact that Popper, too, was moving towards a certain dogmatic derivation, and to avoid doing this had to make some concessions. Hoppe returned with the critique that a-priorism could not avoid being dogmatic, and explaining that the Popperian approach did not lend itself to dogmatism (Hoppe, 1989). In fighting against German essentialism, he found himself in a position where he must abandon either his presupposed anti-essentialism, or his critique of the

⁴ Except perhaps by craziness, but if he can enumerate a truth by craziness, he can also do so rationally

positivists. Popper's success stems less from his ability to rally the anti-historicist positivists towards the search for scientific foundations, than the fact that he was one of the greatest, if not *the* greatest, theoreticians of the scientific method, and critic of ideological simplicity. Science is a constant battle; its discussions and controversies are timeless. Ideologies are, too.

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