Journal of Philosophy and Linguistics
Research Article Peer-review, Open Access

Scientific Theory and Intersubjectivity in Popper's Work

Badang Ayangma Martin Luther King [1]

Abstract: The choice of Popper's thought is significant for us because it highlights the importance of reasoning through singular existential statements. Too often, his philosophy is quickly reduced to his scientific method falsificationism. Yet at its core, it contains an analytic philosophy that rejects all forms of dogma. Rooted in the legacy of Kant, who emphasized the role of statements in the construction of scientific theories, Popper distances himself from universal statements, which, rather than advancing thought and allowing science to progress, lead instead to an infinite regression.

Popper presents himself as an empiricist, but not in the positivist sense of the Vienna Circle. That positivism excluded metaphysics and recognized only meaningful statements as expressions of science. Such an empiricism is reductive, as it dismisses any form of inquiry that could broaden our understanding of the cosmos. Einstein, for example, did not make discoveries by mere fidelity to facts, but through creative intuition—what became known as theoretical physics. Popper, by contrast, affirms and defends a new empiricism that incorporates the possible provided that such possibilities are subjected to intersubjective testing in order to qualify as scientific theory.

Popper's analytic philosophy accords a central role to singular existential statements. It is through experiential statements that we arrive, via conjecture and refutation, at scientific theories. Science or rather, the logic of discovery—requires no ultimate (universal) statement. Verification or demonstration would reduce science to a fixed schema, which for Popper amounts to infinite regression. Each singular existential statement is a spatiotemporal reference point with its own specificities. From these specificities emerges a singular universal particular to each cultural sphere.

Singular existential statements therefore allow the scientific model itself to be redefined. There are no absolutes and no universals—only singular statements which, through plural syntheses, can give rise to a singular universal. Through such an approach, each people may be recognized in its specificity, establish its own scientific jurisdiction, and thereby defend its scientific production. Popper's philosophy is thus particularly relevant for an Africa seeking to affirm its scientific autonomy.

Keywords: scientific autonomy, intersubjective testing, scientific theory, universal, singular.

[1] *Doctor of Philosophy with a specialization in Logic and Epistemology*
Lecturer at the École Normale Supérieur de Bertoua-Cameroun

World of Semantics: Journal of Philosophy and Linguistics (2026)
http://wos.semanticjournals.org/index.php/JPL.org

Introduction

It is by a question that we make our entry into the world, it is again by an unresolved question that we leave it. Is it inevitable to question oneself without having an indubitable truth? It is up to each of us to answer for it. But let us specify that through thought, man takes charge of his life and asserts his autonomy within this existential complexity. Language thus plays a very important role because it is with it that we interact with this world in search of our fulfillment. The latter thus passes through a relationship that is not passive (dogma) but active (research, questioning).

The fields of thought are plural, the one that is the object of our reflection is that of analytic philosophy. It is a branch of philosophy that gives pride of place to language as the way par excellence for knowledge of the cosmos. It is through language that we set working hypotheses, it is also through language that we build systems of thought that allow us to understand the world. To think is to think in and through language. It is quite possible to go back to the ancient period to understand how Aristotle defined the logos that make up the world. But it is with his heirs that the theoretical choice was made.

For the positivists (Wittgenstein, Carnap, Russell, Schlick), knowledge requires a perfect correspondence between fact and theory. Thus a typology of statements is put in place with the aim of disqualifying metaphysics from science. Only statements taken from physics can be true or false. This analytic philosophy is reductionist. Science cannot be reduced to the mere description of the facts we perceive. In its methodological process, it leads to positing a universal by which particularities are held. Thus, by verification, the value of particularities is affirmed not as particularity but as they belong to the universal. A problem arises, that of the place of existential singular statements in the construction of scientific theories. Is it the universal that we should start from or from the particular cases? Starting from the universal, we are far from science, Popper defends. Science is made up of the conjunction or better still, of the synthesis of singular statements which, by corroboration, will affirm a universal. It is these existential statements that we need to give science its full fecundity. Popper sets up a new empiricism that includes metaphysics (through the mediation of research). Each people will be able, through its theoretical specificity, to bring a plus to this science which needs progress. Our relationship to reality is plural (natural and metaphysical). It is by subjecting it to intersubjective tests that we will give it a scientific stamp.

I. Critical Rationalism

Rationalism is a theory of thought that gives a special place to reason. Authors such as Descartes, Kant, Bachelard can be cited. Popper poses himself in opposition to these, he refuses a cumulative approach to knowledge. It is through criticism that science is affirmed and progresses. Two notions will allow us to grasp how the shift in centers of interest redefines the relationship we have with science.

1. The definition

There is no science without a concept that carries the essential attributes of that concept. It is in him and through him that the link that unites particularities is affirmed. This conditioning is ensured by a logical processing that controls the deductive inference of the link. As Kant says in *the Critique of Pure Reason*, "to know is thought by concept". The concept thus plays the role of axiom and the definition highlights the logical link that unites the sensible variety. But this logical link can, instead of reviving the scientific dynamic, inscribe it in an infinite regression.

The definition has the flaw of positing a universal at the outset. It polarizes thinking and prevents the

possibility of exploring other fields of reflection ; Critical Rationalism[1] is opposed to this approach, he favours conclusion over definition. Menger, taken up by Popper, affirms: "Definitions are dogmas; Only the conclusions we draw from it can offer us a new insight."[2] The definition is attached to a conviction that we have for a reality, a fact. It poses itself as a representation and will work to give itself symbolic and theoretical tools to pose itself in truth. His logical systematization thus carries all its weight and ensures the deductive coherence in progress by its theoretical consistency. But let us specify that it is in the nature of elements in their plurality to give substance to plural approaches. We are increasingly confronted with contradictory and complex realities that shake up our previous patterns of thought. As a result, we can no longer stop at the mere evidence of the principle laid down as an axiom to affirm the veracity of a theory or a fact. This is why, according to Popper, methodological rules do not obey an obvious and principled truth that would give logical coherence the internal expression of this truthfulness. Methodological rules are and must be taken as human efforts to understand reality. They should therefore be set up as conventions. It is in the name of applicability that the latter, that is to say of its fecundity, that it will be able to integrate the bosom of science without worry.

Science therefore does not reside in an ultimate definition (inductive principle) but in the plurality of hypotheses whose intersubjective tests will make it possible to perceive its vitality. It is at the end of the consequences of these tests (successful or not) that a conclusion is reached. Science is therefore not in the definition (starting principle) but in the conclusion (analysis of intersubjective data). It is the conclusion, or rather the consequences, that revive research and give new content to scientific theories.

2. Theory and the Primacy of Singular Statements

Theory has a universal character and needs in its operativeness an enunciation, or rather a singular experience. It is thanks to this tool that we try to grasp the cosmos. "Theories are nets meant to capture what we call 'the world'; to make it rational, to explain it and to master it. But[3] one question remains, that of knowing where is the precedence in the construction of this instrument of thought? Is it in the universal or in the singular that all theoretical initiative should start? For Popper, every theory begins with a singular fact, a hypothesis. Science has no beginning, it has no end. But neither can it ignore the work done by traditions of thought prior to it. It rejects absolute utterances, a timeless universal. It is nourished by experience (singular, existential utterances) to renew the universally accepted. Thus, the universal is not a definitive achievement, it is the starting point of a new theory. We wrote Popper "two different kinds of statements, both necessary for a complete causal explanation: (1) universal statements, i.e., hypotheses having the character of natural laws, and (2) singular statements relating to the particular event in question and which I will (henceforth) call initial conditions."[4]

Popper is opposed to strict theories that take the universal as a given (unshakable laws of ultimate statements). Thus, it is enough to make a logical deduction or inference (verification) to have the situation of each particular case. For him, every law is the initial condition of a theoretical experiment within the logic of discovery that he implements. Thus, the experiment will be able to approve it (corroborate) or refute it (refutation) by a singular statement (test). Theories should therefore not be subject to a timeless principle posited as a universal and be methodologically reduced to a deductive inference. Theories need plural experiences to enrich themselves, to amend themselves, to renew themselves. It is this approach that makes scientific dynamics fruitful. As Popper points out, "... We must not stop looking for universal laws and a coherent theoretical system, nor must we ever give up our attempts to explain by a causal link any kind of event that we can describe."[5] Science feeds on our

[1] Popper wrote in one of his works: "We do not know, we can only conjecture." Popper, K.R., *Conjectures and Refutations: The Growth of Scientific Knowledge*, Paris, Payot, 1985, p. 28. There is no apodictic knowledge. Only the testing of theories (refutation) can allow us to access knowledge.
[2] Popper, *La logique de la découverte*, Paris, Payot, 1985. p. 52.
[3] Ibid., p. 57.
[4] Ibid., p. 58.
[5] Ibid., p. 59.

experiences and not on a timeless universal. It is thus up to each reality taken in spatio-temporality to give substance through singular existential statements that will become, as a result of laborious work, scientific theories. It is therefore vital for research to go back to our experiments if we want to discover new theories. The notion of the existential singular statement thus retains all its relevance in that each people in its spatio-temporality is defined by the universal and particular specificities that define it. It is in this way that each people can bring its singularity to the construction of science. It is therefore important to detach ourselves from any reductionist approach which, instead of serving science, reduces it to an inflexible universal.

II. Popper and the rejection of positivism

Popper's empiricist philosophy is posed in opposition to that of the Vienna Circle. They affirm by verification a perfect correspondence between fact and theory. But there is no universal in nature.

1. Problem of the induction principle

The inductive approach is a methodological approach that affirms knowledge of realities through a logical inference ranging from the particular to the universal. It relies on an analytic philosophy to transcribe with veracity what things are, not in their being (essence), but in perception (state of things). Thus work is done at the level of language, we will speak of basic statement, protocol statement, typology of statement, sign, symbol to describe the reality that surrounds us.

But for Popper, the principle of induction poses a problem in its logical process. The inference from the particular to the universal is prejudicial. How and why to affirm a universal? "I would also argue that an inductive principle is superfluous and must lead to logical inconsistencies."[6] This is what Schlick emphasizes well before Popper, who takes it up again: "The problem of induction consists in wanting to logically justify universal statements relating to reality... We agree with Hume that there is no logical justification for this kind; there simply cannot be, because these statements are not true statements."[7] This is because no statement drawn from experience can give us an absolute or universal truth. Each statement has its truth in its spatiotemporal limit even if it is positively or negatively amended. This is why it is necessary to move from an absolute or universal relationship (verification) to reality to a relative relationship (corroboration).

The principle of induction is a belief, an ideal that translates all perception into a perfect symbolic language. The universal, declared and systematized implicitly by verification, leads scientific dynamics to an infinite regression, argues Popper. For it is impossible to arrive at a perfect correspondence between fact and theory. Our beliefs cannot and must not totalize reality. It is a relationship to existence that builds us and leads us to one theory to the detriment of the other. As a result, it is to it that we are attached in their simplicity, controversies and complexities. This is why Popper favours a critical relationship with science and rejects any form of evidence. All our certainties and theories must be placed as a working hypothesis to revive the logic of discovery. Thus, it is the experiences and hypotheses translated in Popper by the singular existential statements that create and renew our relationship to reality.

Kant defended a principle of universal causality by an "a priori" that would determine all perception and processing of information. But what can justify a universal when we are in experiences and have not been able to total the experiences? In the absence of an empirical certainty based only on psychology (conviction), let us evolve through degrees of "truthfulness". For, as Popper reminds us, "The belief in inductive logic is due, in large part, to a confusion of psychological problems with epistemological problems."[8] It is indeed this demarcation between science and non-science that Popper highlights and detaches himself from positivism.

---

[6] Ibid., p. 25.
[7] Ibid., p.33.
[8] Ibid., p. 26.

2. The demarcation between science and non-science

Kant's contribution to the construction of analytic thought cannot be questioned. For although a rationalist, he gives importance to the empirical component although he privileges understanding). For Kant, science requires a sensible diversity drawn from space and time (a priori framework of sensibility) adjusted by a logical treatment allowed by the categories of understanding (a priori framework of understanding). Metaphysics has no empirical support, it leads us to paralogisms, contradictions. For the ancient positivists, science resides in concepts, notions or ideas drawn from sensory experiences (sensations (or data of meaning), impressions, perceptions, visual and auditory memories. For modern positivists, science is not in sensory notions or concepts but in protocol statements (judgment of perception, atomic propositions).

The positivists define the problem of demarcation in a naturalistic way. They interpret it as a problem of natural science[9], instead of Popper

Considering that their task consists in proposing an adequate convention, they believe that they must discover a difference existing in the nature of things, so to speak, between empirical science on the one hand, and metaphysics on the other. They tirelessly try to prove that metaphysics is, by its very nature, nothing more than a meaningless tale; "sophistry and delusion," as Hume says, that we should "deliver to the flames.[10]

For Popper, the followers of inductive logic have an essentially natural approach. This is where they are at fault, science cannot be reduced to its natural or better perceptual component alone. I will respond to this objection by stating that "my main reason for rejecting the inductive method is precisely that it does not provide an appropriate distinguishing mark for the empirical, non-metaphysical character of a theoretical system, in other words, I reject it because it does not provide a criterion of demarcation."[11]

The rejection of metaphysics in the name of empiricity alone is reductionist. There is, however, in empirical science another, very rich, one might say, artificial, which springs from our love and attachment to research. It is in it and through it that the cosmos opens up to us. It cannot be reduced to the exclusivity of the senses or reason. It needs an interpretive approach. The interpretive approach is open and allows us to move away from the reductionism specific to positivism in this case. The demarcation between science and non-science is not to be found in the rejection of metaphysics for physics alone (statements endowed with meaning). But in the confusion between psychology (belief) and epistemology. Psychology is the place of our convictions in the face of a plural and enigmatic cosmology. Thus, we are taking a cumulative approach to data. Epistemology is the place where the theory is put to the test in order to be reassured if it holds (application, effectiveness) or refuted. She is stimulated by the search for work.

3. The Inclusion of Metaphysics in Scientific Research

Positivist philosophy is defined by a typology of statements set up by Wittgenstein. Propositions endowed with meaning are reduced to elementary propositions (atomic, perceptual judgment). They are descriptions or images of reality. Mathematical statements are tautological and metaphysical statements are meaningless, and the latter must be eliminated from the world of science.

For the positivists, only experience can allow us to make scientific statements through the description of facts. These protocol statements can be true or false. They are the only ones who inscribe us in the scientific dynamic within this analytic philosophy. Let us be clear, the main task is to arrive at a perfect correspondence between theory and fact. But this essentially natural approach has the specificity of depriving man of all power in the construction of symbols or instruments in the service of the exact

[9] Wittgenstein writes in the *Tractacus*: "4.2 – The totality of true propositions constitutes the totality of the natural sciences." Wittgenstein, *Tractacus logico-philosophicus*, trans. P. Klossowski, Paris, Gallimard, p.Article 82.
[10]Ibid., p. 31-32.
[11] Ibid., p.3O.

transcription of facts. The task of the thinker is to bring to light states of affairs through statements. This is why Popper treats these positivists as naturalists with the task of highlighting the properties of Nature. Protocol statements describe the states of affairs made possible by perception. By a work of verification, it is possible to establish a correspondence between fact and statement.

For Popper, this positivist approach is a disguised conventionalism. He reduces the subject to his or her empirical perception alone instead of opening him or her to the complexity of the cosmos. There is an empirical perception but also an intelligible perception. It is in this conjunction that the subject truly enters the bosom of science and frees the subject from his dogmas for science. The new scientific empiricism gives the subject a prominent place in scientific research. He is no longer under the influence of Nature, he opens up to the possible. Science cannot depend solely on elementary statements. For Popper,

any more than metaphysical statements, scientific laws, can in fact be logically reduced to statements of elementary experiments. If applied consistently, Wittgenstein's criterion of full meaning[12] rejects, as meaningless, the natural laws whose search is 'the supreme task of the physicist', as Einstein puts it.[13]

It is therefore important to move from an empiricism that excludes metaphysics to an empiricism that includes it. But let us make it clear, it will always be up to an empirical test (intersubjective test) to attest to its validity or to reject it. What is the method to be put in place to give science the fertility it needs?

III. The scientific method

Unlike a classical method that posits a principle and operates a deductive inference, Popper chooses conjectures and refutations. The method proper to discovery does not consist in reducing oneself to logical control alone, on the contrary it must be refuted, compared in order to judge its validity. As he will say,

The method I have consists in posing the problems with clarity and in examining with a critical spirit the various solutions that are proposed... Whenever we try to give a solution to a problem, we should try as rigorously as possible to go beyond it rather than defend it.[14]

This method, which he calls falscificationism, does not reject previous theories in the name of his criticism. On the contrary, it questions it in order to renew or amend it.

1. General Method of Rational Discussion

There is science because there is a concern. There is concern because there is a problem that is not right. Solving it requires a method. The method itself requires an attitude that is not authoritarian and exclusive, but open and intersubjective. This is why for Popper, it is not a question of shutting oneself up in his chapel and affirming with certainty that the analytical method is the only one that can tell the world in its different facets. So what would we do with other readings of reality? It is one among many others and should, in the name of dynamics, be open and plural. Reality is cosmological and each theory comes into play with its representations, convictions and beliefs. What we must avoid is being reductive in our approach. There is no ultimate utterance as Popper says. Each one starts from a singular statement which is a referential field, a perceptual specificity with its universals, beliefs and convictions to interact with the world. As a result, an intersubjective relationship is fundamental in the construction of knowledge. As the preface states, we must try "to find out what others have thought and said about this problem, why

[12] Wittgenstein also goes beyond his philosophy. Reading Wittgenstein in his latest work, *On Certainty*, the meaning he assigns to propositions is overwhelming. We move from the truths carried by statements endowed with meaning to truths defined by a system of reference, our convictions. He writes: "the truth of certain propositions belongs to our system of reference". Wittgenstein, *De la certitude*, Paris, Gallimard, 1965, p. 45. Certainty contrasts with doubt and questions our relationship to the world.

[13] Ibid., p. 33.

[14] Ibi., p. 13.

they have tackled it, how they have formulated it, they have tried to solve it".[15] Science does not begin with us, there is an anteriority, a past with a certainty that is certainly different from that of today. It is by going there that reason becomes more fruitful, not by laying down an exclusive and authoritarian principle.

We thus see, through Popper's general method of rational discussion, the rejection of a monologue. It is not an "I" cut off from the world that makes science, it is a conjunction of subjectivity that gives substance to an intersubjectivity. This is why we must avoid a Cartesian solipsism that transpires through the cogito: *I think therefore I am*. Thought alone is not enough, we need a world with which we think because it is with it that our thought patterns are built. It is from this world that the problem springs and from thought, from attempts at solutions. It would therefore be pretentious, according to Popper, to define the world by its subjectivity alone or, better, by scientific chapel. Science needs a method, and the method needs an opening of its field if it wants to be the place not of a tautology but of discovery.

To do this, it is not limited to the how, which would reduce it to the games of symbols and signs. It attacks the why in order to highlight the subjective animations, prejudices, convictions, beliefs that implicitly weigh on the method defended. It is by combining the why and the how, the implicit and the explicit, to quote Stéphane Lupasco, that we best grasp the heterogeneous forces that have contributed to giving the homogeneous form (theory) that is now validated. It is by feeding on the past, on a tradition of thought that is certainly different with its certainties and errors that it is possible to take steps. As Penn Buckinghamshire says in Popper's preface, "if we ignore what others think or have thought in the past, rational discussion ends."[16] It is indeed the methodological framework of Popper's thought that transpires in the concept of intersubjectivity. To think is to think with others by taking into account their work, although the method is intended to be critical, it is not exclusive in principle.

2. The stages of testing the theory

It is the mission of scientists to bring theories to life to increase our knowledge of the world. They are intended to be always useful and fruitful in their applications. Thus, these do not exclude new theories in their dynamics that can improve our understanding of the cosmos. Thus, each theory taken in its universality must be able to be posited as a working hypothesis to give substance to a rival theory. Popper defends a critical rationalism. It is not a cumulative relationship that makes science. On the contrary, it can betray the scientific dynamic and lead us to an infinite regression. Science feeds on discovery. This is why the methodological choice would be specific; subjecting theories to intersubjective tests in order to ensure its ability to carry or not the scientific dynamic by its applicability. The testing of theories posed as a working hypothesis is defined by 4 phases. The purpose is to know how the application of the new theory is a progress in science. Thus, in the analysis of the consequences of the theory, there is prediction, tautology, contradiction or rival theory.

1. Logical comparison of the conclusions with each other and by which the internal coherence of the system is tested.
2. To search for the logical form of the theory, which is to determine whether it has the characteristics of an empirical or scientific theory, or whether it is, for example, tautological.
3. Comparison of the theory with other theories in order to determine whether it would constitute progress in the event that it survived our various tests.
4. Finally, the theory put to the test by proceeding to empirical applications of the conclusions that can be drawn from it.

This methodological work makes it possible to evaluate the theory. Thus, if we accept Popper, writes:

The need to be objective for scientific statements, those statements that are part of the empirical basis

[15] Ditto.
[16] Ibid., p. 13-14.

must also be objective, i.e. they must be able to be subjected to intersubjective tests... Thus, if the basic statements must in turn be able to be subjected to intersubjective tests, there can be no ultimate statements in science.[17]

When a theory passes tests, i.e. when it resists the systematic tests (decision) put in place to test and evaluate it, we speak of a theory that has proven itself or is corroborated. It is therefore important that the researcher's laborious work is also evaluated by other subjects or better by a judicial body with the vocation of carrying and defending science.

IV. The scientific decision

Scientific objectivity does not lie in a perfect description of nature. There is no universal language that will allow this. Any scientific theory is an essay, so it is up to the actors of science to consult each other and decide what should or should not be accepted. It is therefore no longer a universal that speaks in the name of science but an intersubjective test.

1. From the universal to the intersubjective test

The term subjective translates our feelings of conviction, our sensitive representations. He cannot participate in the construction of scientific statements. Popper asserts, "A subjective experience or a feeling of conviction can never justify a scientific statement and can play no other role in science than that of the object of empirical investigation (psychology)."[18] We must leave the subjective for the universal. It is to Kant, Popper continues, that the merit of having built the veracity of scientific theories from a logical treatment of statements (the categories of understanding). He writes, "Kant was perhaps the first to realize that the objectivity of scientific statements is closely linked to the construction of theories and the use of universal assumptions and statements that accompany this construction."[19]

Popper relies on a thought of Kant to detach science from any form of subjective caprice. A justification is objective if it can, in principle, be controlled and understood by anyone. Thus, something is valid, writes Kant, "for anyone in possession of his reason, the foundations are objective and sufficient."[20] Kant thus set up a logical processing that served as a universal basis for the control of data. But this universal basis is detrimental to any theoretical initiative that is singular in its premises. This is why, in the name of a verification that would be justified by a universal foundation without empirical veracity, it is intersubjective tests that must be started. "But I claim that scientific theories can never be fully justified or verified, but they can nevertheless be tested. I would therefore say that the objectivity of scientific statements lies in the fact that they can be intersubjectively subjected to tests. »[21]

They need a legal body to study theory in depth in order to integrate it into the great field of scientific dynamics.

2. The Judicial Body in Science

According to Popper, the validity of a theory depends on a jury that gives itself the duty of evaluating the theory in order to include or exclude it from the great field of science. It thus makes use of a set of rules, laws and principles that serve as a guide for analysis and evaluation. But let us remember, the weight of traditions of thought, of deterministic and exclusively logical individual convictions can hinder the jury's analysis and verdict. Faced with this desire to promote research, the jury must be in love with science (in attitude), rigorous and flexible (in exercise) in order to remain defenders of science. Because it is important to emphasize that the task is certainly arduous but cardinal for scientific dynamics. As Popper points out, "their application is part of the application of the theoretical system and only this application

[17] Ibid. p. 44.
[18] Ibid. p. 43.
[19] Ibid. p. 42.
[20] Ibid. p. 41.
[21] Ditto.

makes possible all subsequent applications of the system in question".[22]

There can therefore be no science without this scientific jurisdiction which would analyze and validate or not the theory. The actors of science work and must submit to this body in order to have this fundamental legal credibility for the application of the new theory. Its application will thus be the perfect proof of its fecundity. But it is important to remember that,

The empirical basis of science is not based on anything absolute. Science does not rest on a rocky foundation. The audacious structure of theories is built in a way on a swamp. It is a construction built on stilts. The stilts are sunk into the swamp but not to the point of meeting some natural or "given" base, and when we stop trying to sink them further, it is not because we have reached firm ground. We stop, quite simply, because we are convinced that they are strong enough to support the edifice, at least temporarily.[23]

There is therefore no theory if it has not been accepted. The court's decision helps to give it greater legitimacy. It is the strongest expression of intersubjectivity as a locus of validity of theories. For as he says,

If this decision is positive, that is to say if the singular conclusions prove to be acceptable, or verified, the theory has provisionally passed its test; we have not found any reason to dismiss it. But if the decision is negative, or, in other words, if the conclusions have been falsified, this falsification also falsifies the theory from which it had been logically deduced.[24]

Popper can thus allow us to better understand the role of scientific actors in the discovery of new theories but also and above all the autonomy of science.

3. Summary table of Popper's thought

	Inductive and positivist logic	***Popper and his system of thought***
Object of science	Physics (states of affairs, fact)	Physical and metaphysical (State of affairs + possible)
Procurement Process	Sensation perception (immediate empiricism)	Sensible and intelligible perception (empiricism by mediation)
A player in science	Biological nature	We – intersubjectivity
Severance line test	Empirical science defends statements with meaning and rejects statements without meaning (metaphysics)	Empirical science includes metaphysics but subjects it in the name of research to an intersubjective test
Method in science	Verification	Falsification
Science Movement	Regularity of facts/ accumulation of data/ determinism	Neither continuous nor discontinuous / critical/ Unpredictable
Scientific objectivity	Basic Statements / Induction Principle (General Specific)	Singular statements (test-hypothesis) / interpretation or intersubjective test/ Decision
Scientific truth	Correspondence/Universal Laws/ True or False	Corroboration / Laws of the Test / Degree of Truth
Value of truth	Fidelity to the original principle/ Faith in Nature	Utility and application/ reflects the fecundity of the theory

[22] Ibid., p111.
[23] Ditto.
[24] Ibid., p. 29.

Conclusion

Popper's thought is of double interest, both at the level of the demarcation between science (epistemology) and non-science (psychology), and at the level of the substitution of universal statements by singular existential statements. Science does not reside in convictions, in timeless certainties. It is intersubjective tests that must be used to approve or refute a theory. Research thus opens the breach to the possible and updates the metaphysical component. Quantum physics takes us into a universe where the mere fact, perception alone, no longer allows us to have exact knowledge about the object. We have to make do with the possible, the probable. Thus, through tests or better still, working hypotheses, new theories can take shape according to their applicability.

It is therefore important to move away from methodologies based on an absolute and universal framework for a methodology that gives pride of place to the singular. It is from existence that we derive theories in their simplicity and complexity. It is singular existential statements that scientific theories are nourished by. Each people is a singularity, a spatio-temporal referent with its specificities (universal, particular, syntheses of syntheses). It is up to each people to set to work to give substance to theoretical specificities that are beneficial to the construction of scientific autonomy.

Bibliography

1. Descartes, René., *Discourse of the method*, Paris, Nathan, 1981.
2. Rudolph Carnap., *Les fondations philosophiques de la physique*, Paris, Armand Colin, 1973.
3. Moritz Schlick., *Les états scientifiques et la réalité du monde extérieur*, in Actualité scientifiques et industrielles, N° 152, Paris, Hermann, 1934.
4. Kant, Emmanuel., *Critique de la raison pure*, Paris, Quadrige/PUF, 1944.
5. Popper, Karl., *Conjectures and Refutations: The Growth of Scientific Knowledge*, Paris, Payot, 1985.
6. *La logique de la découverte*, Paris, Payot, 1985.
7. Wittgenstein, Ludwig *Tractacus logico-philosophicus*, trad. P. Klossowski, Paris, Gallimard, 1922.
8. *De la certitude*, Paris, Gallimard, 1965.