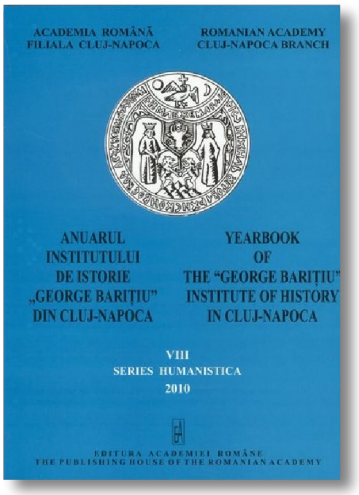

ISSN 1584-4404

Yearbook of the George Barițiu History Institute of Cluj-Napoca
Series *Humanistica*

humanistica.ro

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How to cite this article:
Baruch, Herzl (2010) *A priori Knowledge and Experience in Popper's Epistemology*, Yearbook of the George Barițiu History Institute of Cluj-Napoca, Series Humanistica, Vol. 8, pp. 135–146. DOI: 10.5281/zenodo.22965978

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FILOSOFIE

A PRIORI KNOWLEDGE AND EXPERIENCE IN POPPER'S EPISTEMOLOGY

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Abstract. *While in his early writings, particularly in **The Logic of Scientific Discovery**, the notion of **a priori** knowledge of the world is implicit and the question of the **a priori** is focusing on the deductive method of testing theories, the question of **a priori** knowledge is answered by Popper in its most elaborated way only in his latest book **All Life is Problem Solving**. As a critical rationalist, his position on **a priori** knowledge is a unique one. His unique position is established by connecting rationalism and "a very modest reformulation of Darwinism"*[1]*. This combination, formulated within the perspective of a rationalist evolutionary epistemology, was developed from his basic combination between conjectures and refutations. In this article I delineate two meanings of experience, termed "observational experience" and "problem solving experience" by which I argue that **a priori** knowledge under some conditions comes **before** experience and is **independent** of observational experience but it is always **immersed** in problem solving experience.*

Key words: ***a priori*** *knowledge,* ***a posteriori*** *data, principle of induction, empiricism, critical rationalism, deductive method, tentative theory, error elimination, evolutionay epistemology.*

1. INTRODUCTION

A priori knowledge is usually thought to be independent of experience. Literally the term *a priori* means that which is before experience, while the term *a posteriori* means that which is after experience. Throughout the history of philosophy empiricists were suspicious towards the idea of knowledge that is independent of experience and they tried to limit the notion of the *a priori* and even discard it[2]. Rationalists on the other hand endorsed the notion. Continuing the

[1] K. R. Popper, *All Life is Problem Solving*, London: Routledge, 2002, 47.

[2] For example, Mill denies that there are general self-evident truths, or general *a priori* truths. But he believes that there are examples of *a priori* knowledge known to us by intuition such as bodily sensations ("I was vexed yesterday") and mental feelings ("I feel hungry") (J. S. Mill, *A System of Logic*, J. M. Robson (ed.), Collected Works of John Stewart Mill, London: Routledge and Kegan Paul, 1973 (1843), p. 7). Dewey, continuing Mill's line of thinking and explicitly combining Darwinian insights, rejects the idea that the truths known by intuition are the original premises from

rationalist tradition from Plato to Kant, Popper advances a unique theory of *a priori* conjectural knowledge. While for his predecessors *a priori* knowledge was certain and a necessary pre-condition by which the flux of experience can be known and explained, for Popper it is uncertain and doesn't transcend experience. This brings Popper closer to pragmatism and may be even to empiricism (though not to the inductive method; see section 1 bellow). Like Dewey, Popper tries to incorporate Darwinism into his theory of knowledge. But unlike Dewey's empiricist oriented pragmatism, which restricts to minimum the notion of *a priori*, Popper expands *a priori* knowledge to maximum. Moreover he claims to expand it even more than Kant does (see bellow in section 4). Such argument is unacceptable to rationalists who emphasize the importance of *a priori* ideas in establishing genuine knowledge on a foundational basis. How is *a priori* conjectural knowledge possible without transcending experience and by rejecting a foundational theory of knowledge? I argue that in Popper's theory of knowledge two significant meaning of experience should be taken into account: the traditional and narrow notion of experience, observational experience, and the broad and active notion of experience, problem solving experience. Bearing on these two different meanings of experience, it is the goal of this article to try and clarify under which conditions Popper's notion of *a priori* knowledge is *before* experience, *independent* of experience and, as I suggest, also *immersed* in experience. Such immersion in experience involves both adequate solutions to problems challenged but at the same time it also results with new problems, some of which are very difficult to notice and trace their consequences. I therefore suggest that Popper's major accomplishment is, in a rationalist's tradition framework, the softening of the cleavage between *a priority* and experience. In this respect Popper notion of a priori knowledge both continues the rationalist tradition and deviates from it.

The seeds of the view that conjectural knowledge is *a priori* are planted in *The Logic of Scientific Discovery* (LSD)[3], though they aren't explicit yet. In section one I try to explicate the notion of a priority from his earliest book. However, it is not before the writings of his middle period, especially in *Conjectures and Refutations* (CR)[4] that the notion of *a priori* knowledge, mainly as inborn knowledge and its modifications is explained. In the CR Popper also develops his theory of tradition, which is significant to the notion of *a priority* at the social level, particularly scientific traditions. Popper's pre-evolutionary ideas of a priori knowledge and his theory of tradition as closely related to this concept are

which all others are inferred. Like Mill he grants the *a priori* a role: being *before* experience, but not necessarily independent of experience. Being before experience the *a priori* can be understood as a stipulation upon inquiry (J. Dewey, *Logic*: *The Theory of Inquiry*, v. 12, Carbondale and Eedwardsville: Southern Illinois University Press, 1991 [1938], p. 18). That is to say, it instigates and directs operations of experimental observation. *A priori* statements in themselves do not, other than regulating inquiry, intuitively apprehend a priori ultimate principles of inquiry (*Ibidem*, p. 28).

[3] K. R. Popper, *The Logic of Scientific Discovery*, London: Routledge and Kegan Paul, 1959 (1934).

[4] K. R. Popper, *Conjectures and Refutations*, London: Routledge and Kegan Paul, 1963.

discussed in the second and third sections. And, finally, in his latest period, beginning in *Objective Knowledge* (OK)[5] and elaborated particularly in *All Life is Problem Solving* (LPS)[6], he develops his theory of *a priori* knowledge in the framework of evolutionary epistemology.

2. **POPPER'S EARLY EPISTEMOLOGY**

In Popper's early writings, particularly in LSD, the question of *a priori* knowledge isn't explicitly addressed. It may be implicated by his rejection of inductive logic and his adoption of the deductive logic. The problem of induction as Popper emphasizes is concerned with the question whether inductive inferences can justify universal statements. Popper's answer is negative. As he puts it "no matter how many instances of white swans we may have observed, this does not justify the conclusion that *all* swans are white"[7]. What is *"known by experience"*, like an observation, can account for a singular statement, not a universal one. In order to justify inductive inferences, "we must first of all try to establish a *principle of induction*. A principle of induction would be a statement with the help of which we could put inductive inferences into logically acceptable form."[8] Such principle, according to Popper, cannot be a purely logical truth, like an analytic statement. It can only be a synthetic statement[9]. And he concludes: "Thus the principle of induction must be a synthetic statement; that is, a statement whose negation is not self-contradictory but logically possible"[10]. In this respect Popper claims that Kant's efforts to solve Hume's problem of induction by taking the principle of induction to be "*a priori* valid" wasn't successful. That is to say, the attempt to provide an *a priori* justification for synthetic statements has failed. Moreover, he doesn't think that the appeal to the logic of probable inference can solve the problem[11].

So if knowledge isn't based on experience, in the sense that it isn't derived from a singular sensation (sense data) or observation to general and universal conclusions, what is it based on? One way to try and answer this question as might be hinted in the LSD is to extrapolate from his critic of the "inductivist prejudice" that observation can be directed by a phenomenal language free of theories. Popper claims that such possibility doesn't exist. Rather, our ordinary language is full of theories, which means that observation is always looked for and accomplished in

[5] K. R. Popper, *Objective Knowledge*, London: Routledge, 1972.
[6] K. R. Popper, *All Life is Problem Solving*, London: Routledge, 2002.
[7] Idem, *The Logic of Scientific Discovery, ...*, p.27.
[8] *Ibidem*, p. 28. All italics are in the original unless stated otherwise.
[9] Popper presupposes here that the analytic-synthetic distinction is valid and that there is a necessary connection between the analytic and the *a priori* as an axiomatic point of departure. The analytic is therefore taken or presumed to be true, but it isn't a foundational truth to rely on; nor is it certain.
[10] K. R. Popper, *The Logic of Scientific Discovery*, ..., p. 28.
[11] *Ibidem*, p. 29–30.

the light of theories. And since "theories are nets cast to catch what is called the world: to rationalize, to explain, and to master it"[12], it follows that they precede observation. The closest that Popper gets to a sense of *a priori* knowledge in the LSD is by claiming that our knowledge can be understood as a system of dispositions[13] or points of views[14]. In this respect dispositions and points of views are hypotheses, or knowledge, that we have about the world are *a priori*. However, it might be inferred that *a priority* of our theories that rationalize, explain and master the world, are synthetic and not analytic. Synthetic *a priori*, it should be emphasized, not synthetic *a priori valid*[15]. In other words, they are contingent and revisable. Such assumption concerning the scientific inquiry (or the epistemology of natural sciences) refers to tautological assumptions parallel to the axioms of geometry. In this regard the logical analysis of scientific knowledge is described by Popper as "*the deductive method of testing*, or as the view that a hypothesis can only be empirically *tested* – and only *after* it has been advanced"[16]. Popper assumes that there is an *a priori* "creative intuition" to challenge severe tests[17]. Thus he is concerned with the logic of the examination of scientific theories, its susceptibility to revision by being refutable. A scientific theory then is one that can be criticized and principally superseded by better ones[18]. What follows from the discussion in this section is that there is a vague implicit notion of *a priori* knowledge of net of dispositions to explain and master the world but the hard core disposition is a logical one, the *a priori* "creative intuition" to challenge critical tests, and in its most advanced form the deductive method of testing. The logic of examination of knowledge is analytic in the sense that it is a necessary tautology nonetheless revisable by another tautology. In other words it isn't possible to formulate an analytic *a priori* logic which directs, instigates and principally refute knowledge that is absolute and certain. However, if one tautology loses its fertility, particularly its schema of critical examination, it will be exchanged with a better one, as Popper did when he shifted to evolutionary epistemology. However analytic tautologies by which the deductive method becomes possible will always be necessary.

3. *A PRIORI* KNOWLEDGE IN *CONJECTURES AND REFUTATIONS*

As discussed in the former section, in the LSD Popper mentions the effect of our dispositions (interests and points of views) and language on directing

[12] *Ibidem*, p. 59.
[13] *Ibidem*, p. 99.
[14] *Ibidem*, p. 106.
[15] *Ibidem*, section 2, p. 5.
[16] *Ibidem*. Italics in the original.
[17] *Ibidem*, p. 32.
[18] *Ibidem*, p. 49.

observation. In CR he advances this idea: "Observation is always selective. It needs a chosen object, a definite task, an interest, a point of view, a problem. And its description presupposes a descriptive language, with a property word; it presupposes similarity and classification, which in its turn presupposes interests, points of view, and problems"[19].

By following Kant's theory of knowledge as an active process, Popper widens the scope of epistemology: "(E)very organism has inborn *reactions* or *responses;* and among them, responses adapted to impending events. These responses we may describe as «expectations» without implying that these «expectations» are conscious. The new-born baby «expects», in this sense, to be fed (and, one could even argue, to be protected and loved). In close relation between expectation and knowledge we may speak in quite a reasonable sense of «inborn knowledge»"[20].

What is unique here is that Popper advances the idea of knowledge as disposition to all organisms, which may include reactions and responses on one edge and scientific expectations on the other. *A priori* knowledge is in the first place an inborn knowledge. But while inborn knowledge can explain *a priori* knowledge of organisms and babies it doesn't explain *a priori* knowledge of scientists. One way to explain knowledge at this level, which demands modifications of inborn knowledge, is to examine the relations between hypothesis and observation. In science expectations can be articulated as hypotheses and theories and observation is intented to falsify our theories. For Popper "(t)he problem, «Which comes first, the hypothesis (H) or the observation (O)?», is soluble." He proposes the solution: "an earlier kind of hypothesis"[21]. Since knowledge is always hypothetical, this also means an earlier version of knowledge.

In order to get deeper to the question a further comparison with Kant is required. Popper agrees with Kant that reason can understand only what it creates according to its own design. Reason compels nature to answer its questions, rather than expose what is hidden by her and by allowing her to guide us (as Bacon thought). Like Kant, Popper rejects the classical theory of inborn ideas as absurd. For example, as in Plato's description in the *Meno* according to which inborn ideas dwell in the eternal soul but are "forgotten" in our sensual world when soul and body are joined together in one's lifetime. But unlike Kant, he will allow that genetically *a priori* knowledge isn't valid *a priori*: "This «knowledge» is not however, *valid a priori*; an inborn expectation, no matter how strong and specific, may be mistaken. (The new-born child may be abandoned, and starve.) Thus we are born with expectations; with «knowledge» which, although not *valid a priori*, is *psychologically or genetically a priori*, i.e. prior to all observational experience"[22].

[19] Idem, *Conjectures and Refutations,* p. 46.
[20] *Ibidem*, p. 47.
[21] *Ibidem*.
[22] *Ibidem*.

Kant, according to Popper, confused between genetically or psychologically *a priori* ways of thinking or responding and *a priori* valid beliefs. But Popper thinks that it is not a crude mistake, since "(T)he expectation of finding regularities is not only psychologically *a priori,* but *also* logically *a priori*: it is logically prior to all observational experience, for it is prior to any recognition of similarities (or dissimilarities). But in spite of being logically *a priori* in this sense the expectation is not valid *a priori.* For it may fail."[23]

So, *a priori* knowledge has to do not only with reactions and responses, but also with expectations. Expectations in this respect have more conscious and intentional characteristics than mere reactions and responses. But they do not satisfy the explanation of scientific theories as emerging out of *a priori* knowledge. Scientific theories may be *a priori* but they aren't necessarily inborn. They have to do with theories that involve interests, problems, language and point of views. But more importantly they have to do with a rigorous intentional disposition to falsify the theories. How does the scientist accomplish such knowledge? In order to understand this Popper appeals both to individual and social perspectives. While the account of genetic *a priori knowedge* is individual, it is his theory it is his theory of tradition, particularly scientific tradition, in which the social aspects are explained.

4. **TRADITION**

Closely related to the idea of genetically or psychologically *a priori* knowledge is Popper's conception of tradition. Sometimes he uses the terms atmosphere[24] and institution[25] instead or together with the term tradition. For him tradition is not hostile to rationalism, as most of the enlightenment philosophers thought. As he explains it is a rational thing: "(I)nstitutions and traditions… give people a clear idea of what to expect and how to proceed. I think this is very important. What we call the social life can exist only if we can know, and can have confidence, that there are things and events, which must be so and cannot be otherwise.

It is here that the part played by tradition in our lives becomes understandable. We should be anxious, terrified, and frustrated, and we could not live in the social world, did it not contain a considerable amount of order, a great number of regularities to which we can adjust ourselves. The mere existence of these regularities is perhaps more important than their peculiar merits and demerits. They are needed as regularities, and therefore handed on as traditions, whether or not they are in other respects rational or necessary or good or beautiful or what you will. There is need for tradition in social life.

[23] *Ibidem*, p. 48.
[24] *Ibidem*, p. 121.
[25] *Ibidem*, p. 123–124; 130.

Thus the creation of traditions plays a role similar to that of theories. … Just as the invention of myths or theories in the field of natural science has a function – that of helping us to bring order into the events of nature – so has the creation of tradition in the field of society"[26].

There is a close connection between his theory of *a priori* knowledge and his theory of tradition. In both domains knowledge is based on *a priori* expectations, individual or social. Both supply us with regularities. The analogy between *a priori* knowledge related to the individual and tradition can be taken further. As one cannot begin with observation in order to achieve knowledge one also cannot begin with "cleaning the canvas" of the social world, a term that Popper borrows from Plato, which means "wiping off everything and starting from scratch with a brand new rational world"[27]. Like psychologically *a priori* knowledge, tradition also gives us "something upon which we can operate; something that we can criticize and change"[28]. Changes of traditions and institutions do not come from the "blue-prints", i.e. based on a grand preliminary plan. They are developed from earlier systems.

How do the individual and the social aspects of *a priority* relate to each other? Based on what Popper present in the CR, I suggest that two important conclusions can be drawn. The first is that the individual comes to society and challenge the environment by examining and revising her/his innate inborn knowledge. As mentioned before for Popper almost all our knowledge is *a priori* in the sense that it is there before observational experience. A baby, for example, taking further Popper's example, has inborn expectations to be fed. When it interacts with society, its mother in this case, it may learn how to be fed, according to expectations which are regular the tradition of family life, prior to the baby's existence. If mother prefers to give only milk from its breast, or mostly milk of its breast with small proportion of powder milk from bottles or the other way around, mostly powder milk from the bottle, the baby will modify its inborn expectation, merely to be fed with being fed in one of these alternatives. In any case regularities would be a necessary condition for *a priori* knowledge and its modifications at each sequence of its early life. The baby's innate inborn expectations would interact with its mother's expectations, some of which are part of her tradition and social routines. Now if the baby has revised its expectations, not only to be fed but also to be fed by that particular mother, with that particular milk and in a particular regularity, then it has revised its own *a priori* knowledge as newly learned expectations. It may be said in this respect that after its modification the innate knowledge of the baby isn't only inborn but also partly acquired. I have given here an example in which the individual expectations are revised by society, but it could also be other wise too. The second conclusion to be drawn is that in which society

[26] *Ibidem*, p. 130–131.
[27] *Ibidem*, p. 131.
[28] *Ibidem*.

interacts with the baby and changes for example the mother's expectations (together with those of the nurses or doctor's expectations) and through the mother the regular expectations of feeding the baby in that particular society is revised. For example if a mother in a particular tradition regularly expects to feed its baby 5 times a day every three or four hours, it might have to change its regular social expectations after the interaction with the baby's inborn expectations. Or if it regularly feeds the baby with more powder milk given in bottles and less with milk from the breast, while the baby expect to be fed mainly from the breast. The mother and society in general might revise their given expectations after the interaction with baby if it prefers milk from mother's breast. While children needs more firm routine and dogmas, i.e. regularities, adolescents can and should begin to free themselves from them[29].

Although Popper rationalizes every tradition along with its myths he also claims that what is unique to the scientific tradition is that it adopts a critical attitude to its myths and theories. The rational tradition and the scientific tradition, beginning with the Greek philosophers, instead of accepting tradition non-critically and handing it over, discusses its myths, beliefs, attitudes and practices. Distinguishing the rational and the scientific traditions as critical and refutable poses a problem to his theory of tradition. It is not clear whether what Popper meant to imply was that non-scientific traditions are not critical at all or that they are not as critical as the scientific tradition. If, according to Popper, scientific theories are critical in the most distinguished sense, by being refutable, and other traditions, like metaphysical theories (= non-scientific rational traditions?), are critical in the sense of being critically discussable, in what sense does he rationalize any existing tradition? Also, in what sense can he rationalize the implicit parts of a traditions and theories?

Popper can suggest two different answers to these questions. One answer is based on the radical notion of refutability, in which only the scientific tradition is really rational. The first problem with such an answer is that it cannot be settled with his theory of tradition. The reason for this is that such an answer cannot explain how and why the scientific tradition in Europe has perished for more than a thousand years and revived in the 17th century. The second problem is that Popper does not explain, as he should do according to his evolutionary notion of tradition, what the modern scientific tradition has evolved from. In other words, he should explain how the new system of modern science has emerged from the previous one. Or, if there was no previous scientific tradition, there should have been at least any other previous tradition, even if it was a scholastic and non-scientific one, in which the scientific tradition was in "coma" and it has revived from. His epistemology cannot allow that new conjectures and theories will be presented and modified out of the blue, without any connection to a previous condition of culture where particular problems have emerged. Therefore, the scientific tradition could not have

[29] Idem, *All Life is Problem Solving*, ..., p. 43.

perished in a total manner. It also could not have been established afresh in the Greek culture, but has evolved from earlier scientific notions, or at least earlier systems of knowledge, even if in the Greek culture they may have developed in the most significant way. Also the philosophical rational tradition, including both its intellectualist and empiricist traditions didn't appear all of a sudden, but was developed in traditions. If Popper will claim that the a rationalistic or a scholastic tradition in the middle ages was quibbling, he will he also have to claim that the early modern philosophical tradition, like Bacon's and Descartes', was quibbling too, because they declared that certain and perfect knowledge is possible.

On the other hand, there are non-scholastic traditions that may not be critical in the sense of reflecting on their myths and discussing them, but they are critical in the practical domain, or in what Popper terms "practical theory"[30]. For example, these people may still believe in ghosts but they know how to hunt. And if a certain technique of hunting is not effective they can easily change it and try a better technique. These people may also accept a new myth in an authoritative manner or may be in a collective way. From the perspective of the regularities involved in knowledge most traditions modify their knowledge' other wise they couldn't function at all, not even produce right and wrong myths. In his theory of evolutionary epistemology Popper suggests that in such cases they would endanger their survival (see next section). And if such traditions, including scientific institutions have not been critical enough they might degenerate into the intolerance of "traditionalism and the attitude of Tabooism"[31]. It is not be explained by rigid dichotomies, but by gradually more and less attributes. If Popper wants to save both theories of *a priori* knowledge and tradition, only the second implication is acceptable[32].

We can conclude that traditions should contain *a priori* knowledge, although its regularities and expectations are social, not individual. Agreed or widespread views and dogmas of traditions aren't necessarily innate in all individuals. They are innate in those individuals that have acquired the knowledge of that tradition. They also may be said to be "innate" in the institutions of a tradition, which I think entails that they should be innate at least in some individuals too. That is to say, no knowledge is innate in a tradition without its being innate in some leading individuals. And as many or most of existing traditions have a priori knowledge which is partly intentionally critical they can be revised. And if they cannot be critically revised they become dogmatic, and new knowledge doesn't become part of it. Therefore, all the existing traditions are rational and therefore critical, at least in the minimal sense, while the scientific tradition in its best merits is also critical to its myths in an intentional manner, as Einstein's figure exemplifies in the best way.

[30] K. R. Popper, *Knowledge and the Body-Mind Problem*, London: Routledge, 1994, p. 11.
[31] Idem, *Conjectures and Refutations*, ..., p. 132.
[32] Compare with K. R. Popper, *All Life is Problem Solving*, ..., p. 7.

5. A DARWINIAN PERSPECTIVE OF *A PRIORI* KNOWLEDGE

The question of a priori knowledge combining a revision of Kantian epistemology and Darwinism is formulated in *Objective Knowledge* (OK) (1972) and is advanced in its most elaborated form in *All Life is Problem Solving* (LPS) (2002). Rejecting Kant's idea of the valid *a priori* knowledge and adopting the idea of psychologically *a priori* knowledge is further developed by Popper's Kantian account that the intellect imposes its laws upon nature[33]. As mentioned above based on CR[34] and elaborated here in the OK and LPS the need to impose regularities on our environment is inborn and is based on drives or instincts[35]. Popper reformulates the idea this way: "The laws of nature *are* our invention, they are animal-made and man-made, genetically *a priori* though not *a priori* valid."[36] And as he later on explains, "the term «genetically a priori» … means that something is already there, *before* the a posteriori, *before* any perception"[37].

Based on this distinction, the precedence of a priori knowledge to perceptual knowledge and sensual experience is emphasized, rather than independency. He then goes on to claim that "*everything we know is genetically a priori.* All that is a posteriori is the *selection* from what we ourselves have invented a priori"[38].

Every organism has inborn knowledge, including animals and plants[39]. It is from the subjective perspective mainly the degree of consciousness and intentional criticism that makes a difference between reactions (and responses) and expectations. And from the objective perspective these may be myths and theories. The later may have a higher degree of testability and may have stronger explanatory power[40].

Popper goes further than Kant not only in expanding the notion of *a priori* knowledge to all organisms, but also in decreasing the constructive part played by *a posteriori* knowledge in claiming "that 99 percent of the knowledge taken by Kant to be *a posteriori* and to be «data» that are «given» to us through the senses is, in fact, not *a posteriori*, but *a priori.* For our senses can serve us (as Kant himself saw) only with yes-and-no answers to our questions, questions that we conceive, and ask *a priori*."[41]

And he adds, "Only the *elimination* of hypothesis is a posteriori, the clash between (our) hypothesis and reality"[42].

[33] K. R. Popper, *Objective Knowledge*, ..., p. 23–24.
[34] Idem, *Conjectures and Refutations*, ..., p. 5–6.
[35] Idem, *Objective Knowledge*, ..., p. 24; Idem, *All Life is Problem Solving*, ..., p. 39.
[36] *Ibidem*, *Objective Knowledge*, ..., p. 92.
[37] Idem, *All Life is Problem Solving*, ..., p. 45.
[38] *Ibidem*, p. 46.
[39] *Ibidem*, p. 39.
[40] Idem, *Objective Knowledge*, ..., p. 143.
[41] Idem, *All Life is Problem Solving, ...*, p. 70.
[42] *Ibidem*, p. 47; see also K. R. Popper, *Objective Knowledge*, ..., p. 143.

It is emphasized here that *a priori* knowledge is ***before*** *a posteriori* and that the major role that the data given to us through the senses is critical to the examination and the possibility of refuting (parts of) the theory. It also may have a minor positive role in the preservation and very slight modifications of the theory. Does it follow that the data given to us through the senses under the supervision of *a priori* knowledge is also ***independent*** of experience? The answer to this question depends on what is meant by experience. If experience is merely sensual in the sense of data given to us through the senses then *a priori* knowledge is independent of experience. Moreover it even determines it in order to examine itself. But once *a posteriori* knowledge has been acquired it may corroborate or falsify the theory and in this sense, *a priori* knowledge isn't independent of sensual or empirical experience. A falsified theory, i.e. a revision of our *a priori* knowledge, may cause us to learn that a theory is wrong and why it is wrong[43]. But if experience is understood as a complicated action, always involved with solving problems, then *a priori* knowledge isn't independent of experience. While Popper rejects the traditional notion of observational experience as having a major role in the (re)construction of a theory, as inductivists assume he endorses its major role in falsifying theories. However in the second sense of experience, which I suggest to term problem solving experience, a process of challenging, examining and revising our theories, *a priori* knowledge isn't independent of experience. On the contrary, as "all life is problem solving" it is immersed in experience all the way. What is the logic of this process? It is the logic of problem solving and epistemology becomes the theory of the growth of knowledge[44]. The cycle of problem solving is thus described by a repeated use of this diagram:

$$P_1 - TT - EE - P_2 \text{ (}ibid\text{. 144)}$$

According to this diagram science begins with problems. Then tentative theories as an effort to solve the problem are suggested. They are then critically examined by severe tests, logical and empirical. As a result something new might be discovered and more importantly errors found are eliminated. This raises new problems that call for new solutions in their turn and the cycle goes on and on. And if "(f)or Kant «pure» intuition is an unfailing source of knowledge: from it springs *absolute certainty*" Popper assumes that complete solutions are never possible in principle and therefore certainty is rejected[45]. What about "the deductive method of logic" discussed in LSD (see above), i.e. the view that a hypothesis can only be empirically tested – and only after it has been advanced? I think that it plays a critical role in the examination of the intentional product after the crucial stage of error elimination. However, the logic of problem solving, in three or four stages[46], is a

[43] K. R. Popper, *All Life is Problem Solving*, p. 13.
[44] Idem, *Objective Knowledge*, ..., p. 142.
[45] *Ibidem*, p. 130.
[46] Idem, *All Life is Problem Solving*, ..., p. 3–14.

more elaborated formulation than the two stages formula of conjectures (hypotheses) and refutation, assumed in Popper's pre-evolutionary epistemology.

6. **CONCLUSIONS**

In this article I have presented Popper's theory of *a priori* knowledge as inborn knowledge that is prior to most observational experience and is affected by it either as corroboration or as refutation (or falsification). Almost all our knowledge is genetically *a priori* in the sense that it comes before observational experience. Unlike classical rationalist philosophy Popper reject the idea that *a priori* knowledge can be absolutely independent of experience. It is only partly independent of observational experience, but it isn't independent of problem solving experience. On the contrary it is immersed in problem solving experience. In this respect Popper's rationalist approach combines pragmatism and some empiricism in his theory of knowledge, but not inductivism. As life is always problem solving solutions accomplished are always followed with a condition of old problems unsolved and more importantly with new problems to challenge. The human condition, and in fact the condition of all organisms, is an un-ending challenge for *a priori* knowledge that never can rely only on its necessary regularities. It always has to, intentionally by an agent or non-intentionally by environment, to examine and revise some of them in order to modify and advance knowledge. In this respect it is "doomed" to examine itself, by lower degrees of testability (like the amoeba) or higher degrees of testability (like Einstein), in order to adapt to the environment. Other wise the whole system, or may be all the systems, of knowledge would be eliminated.

7. **REFERENCES**

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