KANT, PHILOSOPHY IN THE LAST 100 YEARS AND AN EPISTEMOLOGICALLY DIFFERENT WORLDS PERSPECTIVE

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Abstract. A fundamental error has dominated philosophy and science since ancient times, the assumption of the existence of the universe or a unique world, the "unicorn-world", in which all the entities like planets, tables and micro-particles, minds and bodies have been placed all together. I show that in the period of the development of Einstein's theory of relativity and quantum mechanics, following Wittgenstein's linguistic turn, the philosophers multiplied only conceptual framework and rejected the intuitions from Kant's transcendental idealism in explaining the "world". I replace the unicorn-world with epistemologically different worlds perspective and within this new framework, I analyse Friedman's approach to Newton and Einstein's theories and then the relationship between the theory of relativity and quantum mechanics.

There are some key elements that have framed human thinking from the beginning, the human subject, the world (or universe) and the perceptual-conceptual frameworks through which the subject observes-conceives the world. Directly correlated to these key elements there are three concepts of unity which have played a major role in science and philosophy, the unity of self (consciousness), the unity of the world, and the unity of knowledge and of science. As I showed elsewhere (----) the assumption of the unity of the world or uni-verse represents a major error in human thinking and this error has generated many pseudo-problems in philosophy and science. This supposed unity of the world is the postulation of a one single ontological world in which everything has been placed (by 'everything' I mean all entities, such as Gods, angels, minds and bodies, planets, tables and micro-particles). Metaphorically, I called this unique world or 'uni-verse' the '*unicorn-world'* to emphasize its mythological-religious roots. We can identify this thinking paradigm, the unicorn-world, within the majority of myths, theological doctrines, philosophical approaches, scientific theories, etc. Philosophers and scientists have tried to find the foundations of this unicorn-world in which human beings have their own place. The ontological unicorn- world

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paradigm has led us to an epistemological unity, the unity of knowledge (and science). In philosophy, positivistic theories have attempted to explain the unity of science, for example, just as materialist theories have attempted to assert the unity or identity of mind and brain. In science, certain physicists try to discover the theory of everything. Consequently fundamental pseudo-notions like 'ontology', 'epistemology', the 'relationship' between micro and macroparticles, 'essence of things', '(ultimate) reality', 'the world', or '(scientific) realism vs. anti-realism', 'fundamental level', 'elementary particles', 'theory of everything', 'bootstrap', 'hyperspace', etc. have dominated the philosophy and science precisely because of the unicorn-world paradigm of thinking.

How has it been possible for such a paradigm to frame our thinking for so long a time? The acceptance of this perspective by scientists and philosophers was quite understandable until the end of 19th century, when the theory of Newton was an accepted scientific theory that explained the macroscopic world. However, the trouble is that after the introduction of Einstein's theory of relativity (RT) and the theory of quantum mechanics (QM) at the beginning of 20th Century the error has persisted.

In the first section I underline the role of *constitutive a priori* elements (categories and pure intuitions) in constructing the phenomenal world in Kant's philosophy. In the second section, I introduce the Epistemologically Different Worlds (EDWs) perspective that rejects the unicorn-world. In the third section, I try to offer a general view of logical empiricism in the context created by abstract scientific theories. I try to show that logical empiricism (analytic philosophy and philosophy in general) have been quite wrong to eliminate the constitutive elements in their attempt to explain the external 'world', which has merely preserved the unicorn-world perspective. I claim that even if the scientific theories (Einstein's RT and QM) become more abstract and the elimination of intuitions was a normal development of science, the preservation of the unicorn-world represents a major error in science and philosophy. In the last section I discuss the work of some major philosophers who preserve the unicorn-world and multiply only conceptual frameworks.

1. KANT AND THE CONSTITUTIVE *A PRIORI*

In this part, I briefly underline the role of constitutive elements for the unity of the world and of scientific knowledge in Kant's philosophy. Like other philosophers and scientists of his day, Kant believed in Newton's theory of gravitation as explaining the motions of different objects (from tables and stones to planets) within the same world. Kant's aim is to construct the foundation of Newton's theory and one of his main epistemological questions is 'How do we know an object?' He generates a 'Copernican revolution' in philosophy by explaining scientific knowledge, the objects (internal and external) conform to our

modes of cognition in our process of knowing them. This means that the *conditions of possible experience* (transcendental apperception with its functions, categories and pure forms of intuitions) that belong to a subject *constitute* the phenomenal objects. In order to avoid Humean scepticism, Kant offers arguments for the objective reality categories. The phenomenal objects are objects of our experience and the conditions of experience – pure intuitions of space and time and categories – offer us the objective validity of our knowledge. However, these conditions of possible experience are ontologically loaded.[1] In Pârvu's interpretation, we have the conversion of ontology in *'*immanent thinking*'* because the role of the categories is to construct the structural definition of the concept, 'one object of possible experience'. The categories, as 'functions of thinking' (Kant A535) structurally define the object of possible experience. Parvu (2004, 120) Categories are the functional foundation of experience; or in other words, they are the foundation of 'immanent ontology'. The ontological-immanent function of the categories is that they represent the constraints that define, structurally, the object of possible experience. Kant constructs the table of categories for determining the conditions of possibility of *a priori* forms of synthetic judgments that correspond to intellectual principles, the foundation of the transcendental laws of Newton's science. (Cohen 1885, 410 in Pârvu 2004, 336) Pârvu asserts that the insertion of categories within the frame of conditions of possible experience reflects their constitutive role for the form of experience. Parvu (2004, 407) In Friedman's terms, the synthetic a priori judgments that represent the pure part of scientific knowledge are the results of schematism formed by categories and pure intuitions; these judgments represent the conditions of the possibility of the empirical part. 'And it is in this way that such synthetic a priori judgments are *constitutive* of the objects of experience.' Friedman (1999, 59-60) Kant claims that categories are empty without empirical intuitions. (A 51/B75) If empirical intuitions are the results of interaction between things-in-themselves and pure intuitions then noumena (things-in-themselves) and phenomena (the appearances, i.e. the results of interaction between things-in-themselves and our schematism) refer to the same unique world. The analogies reflect the unity of nature. All phenomena must lie in one nature. (A216/B263)

Friedman analyses the relationship between modern thinking (the end of 19th century and 20th Century) and Kant's approach regarding pure and applied mathematics to illustrate the role of intuitions in scientific knowledge. Friedman (1992) One idea in which I am interested is that, without polyadic logic, Kant could not make the distinction between pure geometry (the study of formal relations between propositions in a particular axiomatic system) and applied geometry (the truth or falsity of such a system under a particular interpretation in the real world).

[1] In Pârvu's words, the theoretical structure of *The Critique of Pure Reason* is ontologically loaded because it presupposes the search for conditions of possible experience. Parvu adopts a structuralist (Stegmuller, Moulines, Balzer, etc.) interpretation of Kantian philosophy. However, philosophers from Heidegger to Paton have investigated this ontological interpretation.

(Friedman 1992, 55 and Chapter 1) In other words, "…geometrical reasoning cannot proceed 'analytically according to concepts' –that is, purely logic – but requires a further activity called 'construction in pure intuition.'" Friedman (1992, 56) It means that with monadic logic it is impossible to represent the infinity of objects (points) in space or its continuity that are involved in geometrical figures. Therefore, Kant appeals to the geometrical *construction in pure intuition*. The paragraph B40 from the *Critique* reflects Kant's idea (see also A24-25/B39). Friedman (1992, 68-9) For Friedman, the role of pure intuition is to guarantee the construction in mathematics used for proofs. Friedman (1992, 92) He argues that the unity of Kant's system requires explicitly the mixture between mathematical and physical ideas. Friedman (1992, 77) For Kant the only *possible* geometry is the Euclidian one. Logical possibility, that is in fact pure mathematics, is just the conditions of thought together with pure intuition; real possibility, that is the pure part of mathematical physics, is composed from conditions of thought and empirical intuition and this notion corresponds to the modern notion of physical possibility. (Friedman 1999, 94, footnote 63)[2] For any instance of objective knowledge (where our representations have objective meaning or content) concepts and intuitions must be united. (A51-2/B75-76) Friedman illustrates this by saying that objects for any concept are provided only by empirical intuition. Friedman (1992, 101 quoting A239/B298-9)

We may summarize the forgoing by saying that Kant has two reasons for not questioning the unicorn-world, (1) Pure intuitions generate a one-to-one relationship between categories and external world. (2) Newton's theory explains one external world. In fact, for Kant, all three concepts of unity are essential, he also accepts as a postulate the existence of the 'I' or the unity of self, 'a bare consciousness'. In Kant's day, long before the existence of QM, it was quite normal to plead for all three concepts of unity.

2. THE EPISTEMOLOGICALLY DIFFERENT WORLD (EDWS) PERSPECTIVE

In this part I introduce the EDWs perspective (or the perspective of the observer) that has the major role of replacing the unicorn-world with EDWs.[3] I

[2] This distinction is reflected in the distinction between general and transcendental logic. The former logic is independent of any intuitions and sensibility, whereas the latter is '… not abstract from the entire content of knowledge' (A55/B80 qtd. in Friedman 1992, 96) Kant accuses the dogmatism for employing concepts from general logic in explaining the external world. In this sense such notions are 'empty' concepts. Moreover, Parvu explains the distinction between Kantian theory of searching for formal conditions of possibility of experience and dogmatic (or analytic, in our days) philosophy that explains only the logic-analytical concepts of general experience. (Pârvu 2004, 394)

[3] This section draws upon Vacariu (2005) in which I offered further detail about the EDWs perspective. In that article I showed that the mind-body (brain) problem is a pseudo-problem that is a consequence of adherence to the unicorn-world. Thus the mind and the brain/body belong to

introduce three key elements, the subject (as an observer of both external and internal entities), the conditions of observation, and the observed objects. The main idea is that the same subject (that presupposes the first unity) using different conditions of observation (that rejects the second unity) can observe epistemologically different (ED) objects that belong to EDWs (that rejects the last unity). I introduce here the first four principles from ----- but I avoid the arguments from that article in support of them,

(P1) Under different conditions of observation, the human subject observes epistemologically different worlds of the world (thing)-in-itself.
(P2) As human attention is a serial process, the human subject cannot simultaneously observe epistemologically different worlds.
(P3) The set of judgements that describe the phenomena of each epistemological world must follow the rule of conceptual containment that is given by the conditions and limitations within the concepts of the judgements. These conditions and limitations are governed by the properties of (internal or external) tools of observation.
(P4) In physical terms, the part-counterpart relation (that is the brain-body relation) corresponds to human subjectivity or human experience.

I now introduce the fifth principle (P5), partially following Kant and Bohr,[4] I consider that the notion of existence can be defined only from an epistemological viewpoint. The subject, using one set of observational conditions observers one EW. According to (P3), each set of observational conditions is *constitutive* in 'observing' its corresponding EW. For the observer, due to the conditions of observation, each epistemological world has its own entities, structures, processes, laws, etc. We can establish only the *correspondences* between entities and laws of two epistemological worlds. The objective reality is given by principle (P3) that entails the observational conditions. It would be completely wrong to understand EDWs as either ontological levels of existence, levels of analysis, or aspects of the world. It is not about levels or aspects but about EDWs! We can notice that the human subject is only a particular case of an entity among all other entities. Therefore, we can extend the notion of the observer to all entities, each entity 'observes' other entities, i.e., it interacts with other entities that have the same structure. An entity exists only if it has certain limits of interaction with other entities; an entity cannot interact with the entities that have different structure and belong to an EDW. Each entity interacts with ('observes') the class of entities within the same EW. Why do we need to postulate the existence of such entities that belong to EDWs? The 'I' has continuously tried to identify entities in all

epistemologically different worlds. In the previous paper there are more two principles through which I supported the claim that the brain and the body of a human subject only *correspond* to human subjectivity or to the 'I'. In this paper, I investigate only the relationship between the human subject and certain external EWs, such as the micro and macro EWs.

[4] For the relationship between Kant and Bohr see Kaiser (1993) and Harre (1986, mainly pp. 301–6).

EDWs. In our case, the Quinean slogan 'No entity without identity' is secured by different observational conditions that represent the existential preconditions (in Kantian terms) of various sets of entities that belong to EDWs.

Now I can introduce a new concept, the hyperworld or hyperverse. The hyperworld would be all the EDWs 'observed' simultaneously. The hyperverse, an abstract world, at least from my point of view, represents the hypervisualisation of one hyperbeing, that is, the combination of all EDWs in one image. In a particular EW, one object exists only because it interacts with or observes the class of entities that belongs to that EW. ED interactions represent the *constitutive* elements for individuation of ED entities that belong to EDWs. The EDWs perspective is fundamentally an anti-metaphysical view. My approach can be regarded as an extrapolated transcendental idealism, not only human beings but also each entity interacts/observes with entities from the same EW. Moreover, I transcend 'multiple worlds' or parallel universes in an ontological-epistemological sense, even if I extend the perspective of the observer to all entities (from an extended transcendentalist view). The meaning of 'epistemologically different worlds' is crucial for the entire approach. As I adopted the specified anti-metaphysical point of view, I have somehow to bring together both epistemology and ontology in the same expression, or even to transcend them by proposing the concept of 'hyperworld' or 'hyperverse'. We can now introduce the last principle, the principle of objective reality,

(P5) Each epistemologically different world has the same objective reality.

To get rid of reason (b) from introduction for producing the unicorn-world error, we need to re-define the notion of ontology, it is about an epistemological ontology and this is the reason for the expression 'epistemologically different worlds'. Exactly because of our ontological/epistemological limits and the limits of interactions of each ED entity, we have to admit the existence of EDWs. Thus, terms like 'appearance', 'phenomena', 'noumena', 'reality', 'real world', etc., are improper. Some philosophers and scientists claim that macro-objects are 'appearances'. Human beings are macro-objects. Thus, not only are tables, chairs, and planets (and gravities caused by them) appearances but human beings are appearances too![5] The Cartesian 'I', the part-counterpart relationship, exists for us as the limit of EDWs. In the micro-epistemological world, the 'I' corresponds to a network of micro-particles, their functions, and the relationships among them. Because of our limits, the 'I' as an entity has no identity in such an EW. The existence of 'I', with its limits and with the possibility of changing the

[5] The concept of metaphysics is wrong because it presupposes the unicorn-world. From Plato (with his forms or ideas pictured by the allegory of the cave) until Whitehead (that claimed that all philosophies after Plato are just footnotes to Plato's philosophy) and the philosophy of last century, the dominance of the unicorn-world has been devastating. And this is available not only for philosophy but also for the human thinking in general.

observational conditions, implies for us the existence of EDWs. The number of EDW's is not fixed for us and it is given by the subject's ability to develop new tools of observation, which offers new EDWs. Now, the issue of 'How different do observational conditions have to be?' is a difficult one in the sense that there is lot of fuzziness in each EDW. Clearly, we move from one EW to another only if we pass an epistemological-ontological 'threshold'. It is sometimes difficult to specify the threshold precisely. Passing the epistemological threshold means to pass from observing one EW to observing another. Each EW has its own different entities, laws, processes, etc. However, if you can see, using the same tools, one thing at one moment and then later that thing changes into other multiple things (like in the example of one forest and multiple trees), then you still observe in the same epistemological world. In this case, one parameter of the observational conditions continuously changes, i.e., the distance between the observer and the observed object(s). However, while the forest and its trees belong to the same EW, the table and its corresponding microparticles from the quantum-world do not exist in the same EW just because a person needs to pass the epistemological threshold (and thus to change the observational conditions) in order to observe both EDWs. As Bohr mentioned, we have to use macro-object tools for the observation of the quantum-world. With our eyes, we observe the table as a whole. Using a standard microscope we magnify, within a limit, a part of the table. We are still in the same EW. Using an electron microscope, we pass the threshold and we observe another EW, the quantum-world. We need to recognise that this process of magnification is not a continuous one. Therefore, we can see that it is a mistake to think that microparticles are in the same world as our tools of observation and us, or that the network of microparticles is identical with that macro-object because they form that object.

I will end this section by highlighting something about the conditions of observation. There are scientific theories that involve either spatio-temporal frameworks that are unobservable by human perceptual mechanisms (RT) or the relationship between the theoretical and empirical parts is undecided (QMT). Therefore, 'conditions of observation' stands for a notion that might be given the extended Kantian expression 'the conditions of possible ED experiences' or for the extended Friedman's expression 'ED constitutive a priori principles' of scientific theories. (See the next section.) For us, these conditions of experience that can involve theoretical and/or empirical notions are the constitutive elements of discovering EDWs. I indicated above that the EDWs exist independently of our process of observation. Because the observational conditions are conditions of possible ED experience or epistemological/ontological constitutive structures of such experiences, each observational condition is 'ontologically loaded' in relation with its EW. Within the hyperverse, we have the conversion of ontology into 'constitutive different interactions'. Each entity (for instance a planet *or* an electron) follows certain *constitutive* principles of interactions with other entities

(other planets or other microparticles). These constitutive principles of interactions (that would correspond to Kantian intuitions) 'secure' (Friedman's word in what follows) the individuation of each EW's entities.

3. A GLANCE AT LOGICAL POSITIVISM

For Kant, the transcendental apperception and empirical intuitions establish an objective reality for a one-to-one relationship between human knowledge (that includes Newton's theory) and the one world (the unicorn-world). In philosophy a main trend against Kant was analytical philosophy. It is quite difficult to define analytic philosophy. According to Hanna, there are three essential parts of the analytic tradition, "(1) logicistic philosophy (led by Frege, early Moore, and early Russell); (2) linguistic philosophy (led in its first or ideal language by early Wittgenstein and Carnap, and then in its second or ordinary language phase by the later Wittgenstein); and (3) scientific philosophy (led by Quine)". Hanna (2001, 10-1) Logical empiricism or positivism (with Schlick, Reichenbach, Carnap, etc.) which I am about to examine, is included in analytic philosophy.

Let me say a few words about analytic philosophy. There are two factors in analytic philosophers that determine the preservation of the unicorn-world, (a) the elimination of the human subjectivity, of intuitions, and method of synthesis that involve in fact the elimination of constitutive elements from their approaches, and (b) the over-evaluation of the analytic method. Regarding the last factor, Hanna characterizes analytical philosophy through Russell's words, "Ever since I abandoned the philosophy of Kant… I have sought solutions of philosophical problems by means of analysis; and I remain firmly persuaded…that only by analysis is progress possible." (Russell, *My Philosophical Development* 14-15 qtd. in Hanna 2001, 5) If Ryle considers that the theory of meaning was the "occupational disease of twentieth-century Anglo-Saxon and Austrian philosophy", Hanna continues with this 'tone of voice' saying that analytic philosophy "… is the joint product of two intimately connected occupational diseases, a preoccupation with the theory of meaning, and a preoccupation with the logico-linguistic theory of necessity." Hanna (2001, 6) Wittgenstein's *Tractatus,* the 'linguistic turn' in analytic philosophy, strongly influenced logical positivism. Logical positivism was against the metaphysics of the 19th century and this is one reason that it embraced Wittgenstein's philosophy. Romanos emphasizes the difference between metaphysics and positivism, metaphysics inquires into the existence and structure of reality, while positivism replaces these inquiries with "What are we really talking about?" and "What is the structure of our language?" Romanos (1983, 33) While Romanos stresses the Kantian aspects of positivism, concerning the conceptualisation of empirical experience, I wish to emphasize the idea that positivism concentrates only on concepts that belong to language and eradicates the

notion of intuitions. Wittgenstein underlines the role of language in relation to reality, "Language pictures the world through projecting the logical form of the facts." (Wittgenstein qtd. in Romano 1983, 34) Within this frame of analytic philosophy, it was without sense to question the existence of the unicorn-world.

As I wrote in the introduction, I am interested in pointing out the relationship between logical empiricism and scientific discoveries from that period. In the first decades of the 20th century there were two main quite abstract scientific theories – Einstein's RT and QM – that explained 'different empirical parts' of the world or 'levels of reality'. Without any intuitions, which become useless in these scientific theories, the relationship between the empirical and theoretical parts of scientific theories turned out to be quite problematic. The process of abstraction of scientific theories creates the proper framework for philosophers to multiply only the conceptual frameworks but not the world. The Kantian one-to-one relationship was therefore replaced by a many-to-one relationship, i.e., many linguistic/conceptual frameworks-to-one world. I want to show that, even if the elimination of intuitions was a correct process in scientific theorizing, the preservation of the unicorn-world, especially by philosophers, has been a huge error. We can say that there are several elements that constituted the framework for the elimination of intuitions from logical empiricism (and later from philosophy of science), logicistic philosophy (Frege and Russell), Wittgenstein's *Tractatus*, Poincaré's conventionalism, and the development of abstract scientific theories from mathematical physics (Einstein's TR) that eliminates the role of intuitions in explaining the external world.

Following Friedman, let us analyse the relationship between science and logical empiricism in more detail. (Friedman 1999, 2001) The development of modern geometry in the late 19th century (Riemann, Helmholtz, Lie, Klein and Hilbert), together with the theory of relativity, created the framework for logical empiricism to reject synthetic a priori judgments in scientific knowledge. Through Hilbert's axiomatization of Euclidean geometry, the necessary role of intuition in pure mathematics was rejected. Moreover, through the development of non-Euclidean geometries and the theory of relativity they rejected the Kantian notion of applied mathematics. Friedman (1999, 60) However, Schlick and Reichenbach accepted one of the main Kantian ideas, there is no direct relationship between sensory information and our correct knowledge/explanation about/of the world. Thus, they rejected the immediate given and eradicate completely the role of intuitions. Nonetheless, the Kantian notion of the *a priori* is preserved because it creates the possibility of experience. I note that the whole experience belongs to the same unicorn-world. Reichenbach makes the distinction between axioms of coordination (nonempirical principles that are, in Reichenbach's terms, 'constitutive of the concept of the object of knowledge') and axioms of connection (empirical laws). Such *a priori* principles are not anymore universal and necessary principles. Friedman (1999, 61) Reichenbach maintains that not only traditional Kantianism is wrong, but also traditional empiricism. Again, the argument is that

there is no direct relationship between mathematical concepts (geometrical concepts) and physical reality. Analysing in details the relationship between Schlick and Reichenbach, Friedman draws the conclusion that for Reichenbach

> … in the context of general relativity, physical geometry (the metric of physical space) is *no longer* constitutive. …the metric of physical space (-time) is now dependent on the distribution of mass-energy via Einstein's field equation. …geometry is empirical, and, in fact, Euclidian geometry is now empirically false. Friedman (1999, 66)

Because of this reason, Reichenbach rejects Poincare's conventionalism while Schlick accepts conventional or nonempirical geometry. I think that through the relativization of Kantian constitutive principles and the elimination of intuitions Reichenbach, with his 'constitutive of the concept of the object of knowledge', makes a step toward the 'linguistic turn'. Carnap formulates the last step in defining the meaning of logical empiricism, "… the sense provides the material of cognition but mathematics and logic form the organized system of knowledge." (Carnap 1928a/1967, v-vi in Friedman 1999, 9) For Carnap, intersubjective communication draws from 'purely structural definite descriptions' and not from sensory ostension. (Carnap's expression in Friedman, *idem*) The 'linguistic turn' eradicates the constitutive elements in constituting the external world. Wittgenstein and Carnap (with his 'linguistic framework') are emblematic for 'linguistic philosophy'. Hanna (2001).

4. CARNAP, FRIEDMAN AND THE HYPERVERSE

Form a particular viewpoint, the approaches of Carnap, Goodman and Friedman are somehow related to EDWs perspective. Therefore, in this section, I analyse the relationship between some philosophical notions (Carnap's linguistic frameworks (Carnap 1950), Goodman's 'worldmaker' (Goodman 1978), and Friedman's constitutive a priori principles (Friedman 2001)) and the EDWs perspective. Carnap is a representative figure of analytic philosophy and therefore my criticism of his linguistic frameworks can be viewed as a critique of analytic philosophy in general. Moreover, somehow a similar critique is valid for science in general as well. Scientists have not been concerned with the unicorn-world because particular scientific theories have local empirical success in explaining 'aspects of the world' (that are in fact parts of EDWs). However, I believe philosophers should have enquired about the unicorn-world from a meta-scientific or philosophical level (see Friedman below). Therefore, I will examine the works of two either philosophers, Nelson Goodman—who can be situated somewhere between analytic philosophy and philosophy of science—and Michael Friedman—as a philosopher of theoretical physics. Their approaches are both related to the EDWs perspective.

Carnap replaces traditional metaphysical and ontological frameworks with linguistic frameworks. The Kantian constitutive elements that realize the

relationship between subject and world is replaced with something more abstract than Reichenbach's principles of coordination, linguistic frameworks. According to Friedman, the linguistic frameworks are based on two distinctions,

(1) Formal or analytic sentences (L-rules) that include logic and mathematics and empirical or synthetic sentences (P-rules) that are empirical laws. Friedman (2001, 31-32) I emphasize Friedman's remark that this distinction is a purely formal or logical one Friedman (2001, 40) and therefore that the principles of coordination (from Reichenbach) become 'lost' in linguistic frameworks, and that in the *Aufbau* Carnap tries to "… incorporate the problem of coordination *within* the logical systematization of science …". Friedman (2001, 82, footnote 14) This problem is transformed into a logico-mathematical one in making the distinction between logical and descriptive terms, analytic and synthetic sentences. Essential for EDWs perspective is the idea that losing even the role of Reichenbach's coordination principles the constitutive part is eliminated and the relationship between linguistic frameworks and the world becomes empty.

(2) The distinction between internal and external questions. Each framework has its rules and internal questions. The questions of the existence of new entities take place within the particular framework. The answers to such questions are given by purely logical methods or empirical methods if the framework is logical or factual. The role of the linguistic rules is to form and test the statements. The rules of each linguistic framework determine the 'existence' of objects. That means the objects themselves *exist* as long as the linguistic rules allow for the formation of certain linguistic expressions corresponding to them. The ontology is based not on metaphysical principles but on the rules and entities of each linguistic framework. Carnap abandons the idea of *absolute correspondence* between reality and human knowledge and this necessitates the elimination of the constitutive part. Each linguistic framework is neither true nor false in relation to reality. The external questions refer to the existence or reality of the system as a whole, such as the system of physical objects or that of natural numbers. Carnap (1950, 73) Thus, which linguistic framework we adopt is an external question and the answer to such question is a conventional or pragmatic one. All linguistic frameworks have the same objective value.

From an EDWs perspective we can understand that Carnap has relativised ontology precisely because of the elimination of the Kantian constitutive part (mainly the intuitions). Otherwise, the constitutive part would require the absolute correspondence (or one-to-one relationship) between 'reality' and a unique linguistic framework. The existence of Einstein's theory of relativity and quantum mechanics from that time forced Carnap and all the other philosophers to reject this absolute correspondence. In the EDWs perspective, the extended Kantian constitutive parts, which correspond to EDWs, discard the reduction of an object's existence to linguistic entities. Because of the constitutive different interactions, all ED objects exist in EDWs (the hyperverse) without any help of our linguistic rules

and entities. Missing constitutive elements, the linguistic frameworks (or actual conceptual schemes) are simple 'conventions' (Poincare) because they explain the same 'world'.

It seems that Carnap's approach is an approach characteristic of analytic philosophy. For the past century, analytic philosophy has created a confusing path for philosophy. It is a path which misses the constitutive elements of the EDWs. However, only partial re-introduction of constitutive elements in philosophical approaches (of explaining scientific theories) is not enough to discard the unicorn-world (see Friedman's approach below). Transcending the analytical approach (and all its remnants) is possible only by replacing the unicorn-world with the EDWs.

More recently, Friedman re-introduced and developed Reichenbach's notion of *relativized a priori principles* in explaining Newton and Einstein's theories from mathematical physics. He replaces Quine's holism of belief for knowledge with a dynamical and stratified system of knowledge constituted on three levels, (1) empirical laws of nature (like Newtonian laws of universal gravitation or Einstein's equation for the gravitational field; (2) constitutive a priori principles, such as principles from geometry and mechanics that construct paradigms (in Kuhn's sense) or conceptual frameworks and "define the fundamental spatio-temporal framework within which alone the rigorous formulation and empirical testing of the first or base level principles is then possible"; and (3) philosophical meta-paradigms or meta-frameworks that guide the transition from one paradigm or conceptual framework to another. Friedman (2001, 45-6) Extrapolating Kant's idea, Friedman considers that *a priori* constitutive principles define "the fundamental spatio-temporal framework of empirical natural science." (2001, 43) For each scientific theory there are certain *a priori* constitutive principles that define its proper space of empirical possibilities. Friedman (2001, 84) However, the question is how can we define 'the space of empirical possibilities' for each individual theory? Are *a priori* principles equivalent to observational conditions, i.e., the *a priori* principles create EDWs and therefore 'the space of empirical possibilities' is equivalent to EDWs?

Newton and Einstein's theories offer us different spatio-temporal structures. Do these structures belong to EDWs or to the same EW? There are different reasons for which we cannot even compare these two theories. Einstein has transformed the light principle that was an empirical principle for Newton into a constitutively *a priori* one. 'Einstein has "elevated" an empirical law to the status of a convention or to the status of coordinating or constitutive principle'. Friedman (2001, 88) Within the special theory of relativity the spatio-temporal framework is Minkovski's four-dimensional space-time. If in Newton's theory the gravitational force is independent from inertial mass, in the general theory of relativity they are equivalent. In Newton's period, people could not even conceive certain notions from Einstein's theory. The general theory of relativity requires a different spatio-temporal frame than the one postulated by Newton's theory. In this sense,

Friedman presents 'three revolutionary advances', a new field of mathematics, tensor calculus or the general theory of manifolds (originally elaborated by Riemann), Einstein's principle of equivalence, and his equations for the gravitational field. Friedman (2001, 37-8) The principle of equivalence and Einstein's field equations require a curved space-time structure. Thus geometry 'functions' as part of the constitutive framework for our experience. Friedman (2001, 62) The constitutive *a priori* part establishes the knowledge about experience, '…this sense, that they are *a priori* to or independent of experience.' Friedman (2001, 73) The *a priori* physical principles (mechanical part) mediate between abstract mathematical tools and empirical phenomena. The function of this mechanical part is to create, in one mathematical-physical theory, the necessary link between two parts with different structures, abstract and empirical. But a legitimate question here would be what exactly designates this concept of the 'empirical part'? For Einstein, the coordinating principles constitute a new framework for space, time, and motion (Friedman 2001, 107) and therefore all the empirical laws have constitutive meaning only in the framework created by *a priori* constitutive principles. Even the individuation of entities requires such conceptual frameworks. For describing these forces it is a necessary geometry. Essential for the EDWs perspective is Friedman's footnote on page 55 about Einstein, who adopted a perspective on the relationship between this necessary geometry and the entities as 'practically rigid bodies' that ignores microphysics forces. Friedman (2001, 114) The frame of reference for both theories is given by space, time, and motion but the theories refer to the same entities even if we can individuate empirical objects and their relationship only through such constitutional frameworks. In fact, the spatio-temporal structures of these theories are different mainly regarding their metric. Therefore, even if the forces that operate within each theory are different, these theories refer to the same EW, one theory being wrong the other correct. Empirical tests – the perihelion of Mercury – confirmed Einstein's theory.

As we noticed above, the constitutive *a priori* principles 'secure the empirical content of each theory'. What does 'empirical content' mean for GTR and QM? The classical answer is that these theories refer to different *local* empirical aspects of the same world or different levels of reality. What do 'different aspects of the world' or 'levels of reality' mean? From an EDWs perspective, these questions are pseudo-questions because they involve the unicorn-world error. Notions like 'aspects of the world' or 'levels of reality' pose no problems to scientific theoreticians because their theories are 'local'. Friedman remains a prisoner of this scientific framework. In fact these notions are empty concepts, in the Kantian sense. Friedman is missing one more step to achieve the right approach—the EDWs perspective. He applies these conceptual frameworks to the same unicorn-world even if each scientific theory has certain relative *a priori* principles, a constitutive framework that 'secures the empirical content of the theory'! Friedman

(2001, 83) For Friedman there is only one world, or more precisely one 'external space with empirical possibilities.' Friedman (2001, 84)

I think that the EDWs perspective could be a better alternative for explaining Bohr's complementarity and superposition, nonlocality and nonseparability. The Copenhagen interpretation to complementarity makes the same error, assuming the existence of the unicorn-world. In this interpretation, at one moment using one tool of observation one subject can observe the wave. When she changes the measurement apparatus for seeing an electron, the wave function collapses at a certain location. The measurement apparatus produces this collapse. The error in this conception is that three objects are postulated in the same unicorn-world, the wave that collapse, the electron (microscopic object) and our measurement instrument (macroscopic object). To avoid this paradox, Bohr's stratagem was to negate the existence of the particle until that particle is observed, in that moment the wave function collapses into the electron at a certain location. Bohr's approach represents one extreme position. The other extreme position for quantum mechanics problems is the many-worlds approach (Everett, De Witt, Deutsch, etc.). Between these extremes there are other approaches, but all these theories assume the existence of the unicorn-world.[6] The extended perspective of the observer with its hyperverse is beyond all these approaches. Using different macro tools of observation, one human subject can observe, in different times, the electron and the wave that belong to EDWs. This idea is more clearly if we imagine a person who has no senses, except that she was born with electron microscope instead of eyes. For such a person microparticles and their relationships exist but not tables, another electron microscope and planets. That much wanted 'interaction' between micro- and macroparticles 'exists' only in the unicorn-world! It is an error to consider the wave, the electron, and the macro tool of observation in the same unicorn-world. The wave and the electron exist both at the same time, but in EDWs. In fact, the electron from one EW *corresponds* to the wave from another. The collapse of the wave represents the process through which the observer, using different tools of observation, makes the switch from one EW to another.[7]

[6] Taking the 'collapse' as a criterion, Putnam makes a classification of different interpretations of QM Putnam (2005). The unicorn-world has produced many Ptolemaic epicycles. We can see these interpretations of QM as paradigmatic Ptolemaic epicycles for a pseudo-problem. Putnam is right in saying that the interpretation of QM is 'a philosophical problem in detail' but he is wrong when claims that the 'scientific realism' is the premise of his discussion. The scientific realism is the 'scientific' unicorn-world. The rejection of the unicorn-world can be done only from a philosophical meta-paradigm and this is the EDWs perspective.

[7] Putnam replaces 'measurement problem' from QM with 'collapse problem'. For him, the question is "Do we or don't we need to postulate a 'collapse' and if we do assume a 'collapse', what should we say about it?" The collapse problem refers to the relationship between micro and macro-observables. The "…macro-observables retain sharp values (by macroscopic standards of sharpness at all times" while "…micro-observables have sharp values only when measured, where measurement is to be defined as a certain kind of interaction between micro-observable and macro-observable."

It seems that the EDWs perspective can reveal that QM (describing those three fundamental forces acting on the microscopic scale) and GTR (describing gravitation force among large-scale objects/structures like planets, galaxies, etc.) are incompatible. Gravity is caused by massive objects that warp the surrounding space. Thus, gravity is a property of space. If we ignore the constitutive principles of both theories (that reflect, for us, the form of the ED interactions among the ED entities), we can think that the mass of a planet is the sum of the corresponding micro-particles' masses, and then we can *think* that the gravity of the planet corresponds to the sum of all gravities produced by all those microparticles. Nevertheless, in the Kantian framework this concept would be an abstract concept without any 'empirical meaningfulness'.[8] Each theory has different constitutive principles that 'secure its empirical content'. In this case, the constitutive principles of each theory *individuate* ED entities ('micro-' and 'macro-'objects) that belong to EDWs.

Each planet constitutively interacts with other planets; in the other EW, each electron constitutively interacts with other microparticles. Trying to relate GTR and QM (that means to put planets and electrons in the same EW) is impossible because the constitutive principles corresponding to each theory are totally different and each theory explains its own EW. However, the existence of 'I', (see principle 4) with its limits and with the possibility of changing the observational conditions, implies the existence of entities from EDWs and their interactions and *vice-versa*! As we saw above, ignoring microphysical forces, Einstein adopted a perspective on the relationship between geometry and practically rigid bodies. Within the framework of GTR, we can say that each planet has its own 'constitutive viewpoint of interactions' with other planets (or its own 'intuitions for observing' other planets) and the same thing is available, in the other EW, for QM and microparticles. In this sense the Kantian transcendentalism is extended from human subject to all ED classes of entities that belong to EDWs. Science and philosophy missed exactly this element of the 'constitutive viewpoint of interactions' for ED classes of objects that constitutes EDWs. Using different conditions of observation and thus being able to observe ED classes of objects (like microparticles and planets), we made the mistake to locate them in the same world, the unicorn-world. Each class of entities has its own EW. An epistemologically entity observes/interacts only with the members that belong to the same EW. For each epistemological entity only the members of its EW exist and nothing else.

(Putnam 1965, 149–55 in 2005, 624–5) From EDWs perspective, this 'kind of interaction' seems to be a Ptolemaic epicycle of the unicorn-world.

[8] I use Hanna's expression. Explaining the difference between objective validity and objective reality in Kant's philosophy, Hanna comments on A239/B298-9 and A248/B305, writing that "… empty concepts cannot be meaningfully applied by us either to noumenal objects or to objects of our sensory intuition, and in that sense they are ''impossible''-that is, impossible to *use*." Hanna (2001, 90–1)

I emphasize again that the unicorn-world error is the consequence of an inevitable movement, i.e., the elimination of constitutive elements (mainly intuitions) in explaining the 'world', epistemologically different constitutive elements (in an imaginary view, with ED kinds of 'intuitions' that are in fact ED interactions that have, in EDWs, the same role as the Kantian intuitions, see section 1) would require EDWs and not such empty concepts as 'different aspects of reality'. For Kant, it is the 'I' and the one-to-one relationship between the schematism (that includes both categories and intuitions) and the world. Following the abstraction of scientific theories (that normally rejects the role of intuitions), logical empiricism and all the philosophers in the last 100 years have transformed the Kantian relation into a many-to-one relation, i.e., the subject (that corresponds to the 'I') has different linguistic or conceptual frameworks that explain one world. For Carnap, Goodman, Quine and Putnam the question 'What really exists?' has no sense, it is a pseudo-question. Ironically, both Kant's accusation of dogmatism in using empty concepts and Einstein's reason (and Reichenbach's) for rejecting Poincare's conventionalism are available for them too. Putnam assumes that the existence of the 'thing-in-itself' requires a view from an 'Archimedian point' that is a view from an ideal or impersonal knowledge.[9] However, he claims that realism—which assumes basically one unique world—is not incompatible with conceptual relativism. Putnam (1987, 17) I emphasize, in philosophy, the relationship among three notions, conditions of possible experience/a priori constitutive principles, 'world'/'aspects of the world'/'levels of reality'/'empirical content of a theory', and conceptual frameworks. From one side, the elimination of the constitutive part (in analytical philosophy and its remnants) involves the preservation of the unicorn-world and the multiplication of empty conceptual frameworks. From the other side, multiplying constitutive elements of different scientific theories with 'local empirical contents' (Friedman) preserves the unicorn-world. Beyond these inoperative or incomplete philosophical alternatives is the EDWs perspective that rejects the unicorn-world and introduces many-to-hyperone relationships between ED constitutive interactions and the hyperverse. The motto of this article indicates Einstein's image of the world. As we saw above, his perspective that highlights notions like separability and locality was completely against Copenhagen interpretation of quantum mechanics (Bohr, Heisenberg, etc.) that rejects such properties. From an EDWs perspective, each side explains properties that belong to two particular EDWs. The (un)famous conflict between these paradigms was possible only because of the unicorn-world's hegemony. The

[9] "The same notion of a 'God's Eye View', the same epistemic ideal of achieving a view from an 'Archimedian point'—a point from which we can survey observers as if they were not *ourselves*, survey them as if we were, so to speak, *outside our own skins*—is involved in both cases. The same notion that ideal knowledge is *impersonal* is involved." Putnam (1990, 17) This Archimedian point is similar with Nagel's view from nowhere. This Archimedian point would presuppose an entity outside from all EDWs and this is evidently impossible.

EDWs perspective that implies the rejection of the unicorn-world exonerates not only philosophy but also physics and other sciences from such pseudo-debates.[10]

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[10] I want to briefly analyse a Ptolemaic epicycle constructed among others within the unicorn-world in contemporary physics. It is about dark matter and dark energy. Let us consider some EDWs: at least one micro-EW (with microparticals and their interactions), macro-EW (with microparticals like tables, stones, individual planets and their E interactions), galaxy-EW (with galaxies and their E interactions). From an EDWs perspective, the galaxies seem to be E entities that are different then the tables, stones and individual planets. In the same way as an electron does not exist in the macro-EW, a planet does not exist in the galaxy-EW. Between galaxies, probably there are certain E interactions (E laws) that are different then the E laws between individual planets, stones and tables. Within the unicorn-world, at 'macro-level', dominated by the macroscopic laws, for solving the anomaly that the "universe" expands faster and faster (i.e., the distances between the galaxies increase faster and faster) we invented such empty notions like dark matter and dark energy. Obviously, there are other EWs then those I mentioned above. The *existence* of EDWs does not depend on our conditions of observation but on the interactions between ED entities. With new tools of observation, we discover (we do not create) new EWs. To answer the question, "How many EDWs exist?", we need heuristic and scientific methods. Therefore, this is a scientific and not philosophical problem. However, following Friedman (with his meta-paradigms) we can now return, with the EDWs perspective, to the long forgotten image of philosophy that was guiding the science.

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