**A VISION OF COMPLEXITY IN LUPASCO -NICOLESCU DIALOGUE**

**AND IN THE SCIENCE-MEANING DIALOGUE\***

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**Abstract**. The study starts from the question posed by Stephane Lupasco, “How can philosophy, in its desire for stability and permanence, accept as a foundation science, which is a state of perpetual boiling, of continuous change?” and the Lupasco-Nicolescu dialogue in Nicolescu’s philosophical visions leading to a conception of levels of reality, transdisciplinarity and complexity. Explaining and inter-relating these concepts, the study prepares the stage for a discussion of the dialogue between science and meaning. The complexity of reality understood by Basarab Nicolescu in a multi-layered modeling, in the model of levels of reality is decisive for the complexity of knowledge. This philosopher proposes the concept of transdisciplinarity defined as what is at the same time between disciplines, and within various disciplines, and beyond any discipline. The purpose of transdisciplinarity is the understanding of the present world and the unity of knowledge. At the same time, his conception highlights an epistemological dimension of compactness (“that which is woven together”; it is not the opposite for „simple”).

**Keywords:** Transdisciplinarity; compexity; Basarab Nicolescu.

How can philosophy, in its desire for stability and permanence, accept as a foundation science, which is a state of perpetual boiling, of continuous change? Although this question and the implicit objection are important, they dim upon a detailed analysis of Lupasco’s philosophy, which expands through its generalizations the limited framework of physics. From the more general results of contemporary science, Lupasco’s philosophy extracts even more general law-like aspects, in a search for invariance and universality. It is precisely in this invariance, in this search for general laws that cross all scales and that govern phenomena at all scales, resides, in Nicolescu’s opinion, the intimate connection between Lupasco’s philosophy and Tradition. *According to Lupasco, invariance is the logic of energy*.

The included middle captures contradiction as one aspect of the invariance, or of a more complex comprehension of invariance. The included middle does not in any way mean that we can affirm one thing and its opposite. This way of thinking would destroy any possibility of prediction and, therefore, any possibility of a scientific approach to the world as all simplistic thought does.

In a more complex conceptualization, the included middle means to recognize that, in a world of irreducible interconnections (such as the quantum world), making an experience or giving an interpretation to experimental results implies inevitably to select an aspect of the real over other aspects which are either considered unimportant or are not yet comprehended – a “clipping of the real that affects the real itself”.

 “The real entity can thus reveal contradictory aspects that are incomprehensible, even absurd, from the point of view of a logic based on this or that postulate. These contradictory aspects cease to be absurd in a logic based on the postulate ‘this’ at once with ‘the other’, or, rather, ‘neither this nor the other’. The rigorous development of his axiomatic formalism leads Lupasco to postulate the existence of a third type of dynamics, namely, the antagonistic dynamics, which coexists with that the dynamics of heterogeneity, governing living matter, and with the dynamics of homogenization, which governs physical matter at the macroscopic level.”[[2]](#footnote-2)

The new conception of the antagonistic dynamic reveals a type of “cosmic code”[[3]](#footnote-3), a mechanism presupposing the existence of a state of rigorous equilibrium between the poles of a contradiction, in a strictly equal semi-actualization and semi-potentialization state. This state, called by Lupasco the state T (T being the initial of the included third part or option, namely, “the middle”), characterizes the microphysical world, the world of particles and, nowadays, the world of sub-particles. The new dynamic acts as a veritable conciliatory force between heterogenization and homogenization. This way, the homogeneous-heterogeneous binary structure is conceptualized as a structure of energetic antagonism and it is replaced by a ternary structure, whose general consequences in the conceptual plane were analyzed by Lupasco himself in the work titled *The Three Matters*[[4]](#footnote-4).

 Along with the development of quantum physics, theory and scientific experience brought to the fore the appearance of mutually exclusive and intriguing contradictory couples (A and non-a), such as: wave and corpuscle, continuity and discontinuity, separability and non-separability, local causality and global causality, symmetry and lack of symmetry, even time reversibility etc. The intellectual disconcerting state for the classical realists and the great interest triggered in science, philosophy and culture caused by quantum mechanics consists in the fact that those couples of contradictions cannot be otherwise than mutually contradictory when they are analyzed through the reading grid of classical logic, which is based on the axiom of identity: *A is A*, the axiom of non-contradiction: *A is not non-A* and the axiom of the excluded middle stating that there is no third term T (T from “included third state”) that is both A and non-A. Nicolescu argues that these are valid for a singular level of reality, ontologically, or a disciplinary level of knowledge, epistemologically, where the second and third axioms are obviously equivalent. Nevertheless, with the development of quantum mechanics, in the ‘30s, the pioneers of the new science had to search for a new logic, called “quantum”. Nicolescu mentions that, in 1936, Birkhoff and van Neumann presented a first proposal of such a quantum logic, but since then, other scientists such as Mackey, Jauch, Piron, etc. approached *the study of a coherent formulation of a quantum logic*, meant to solve the paradoxes generated by quantum mechanics, offering a greater predictive power than through classical logic. Nicolescu quotes Heinz Pagels showing that *most physicists, like most other people, hesitate to abandon their usual, Boolean way of thinking, which is copied after the way in which ordinary language corresponds the world of experience*.[[5]](#footnote-5)

The reticence of scientists and epistemologists comes from the fact that the adoption of a quantum, non-Boolean logic might be associated to the strangeness of their minds rather than to the physical world, since quantum logics have modified the second axiom of classical logic - the axiom of non-contradiction - introducing the non-contradiction with more truth values ​​instead of that of the binary couple (A, non-a), which seems for most scientists more credible as a deformation of truth than a complex vision of truth, which in fact is. These multivalent logics were criticized from the standpoint of their weak predictive power and they did not consider that the modification of the third axiom, the axiom of the excluded middle represents a solution for the unprejudiced mind. In Nicolescu’s view, which is not singular[[6]](#footnote-6), it was Lupasco's historical merit to have asserted that the logic of the included middle is a true, formalizable and non-contradictory logic. Lupasco was a thinker of the new eon of the philosophy of complexity who emerged too soon. Nicolescu’s right that his notion of “levels of reality”, setting in perspective the discussion, and *opening the way towards a philosophy of transdisciplinarity and complexity*, if understood, brings clarity to the philosophy of the included middle, too.

Nevertheless, the notion of levels of reality is not so easy to understand either. The comprehension should start from Lupasco, who gave the axiomatic formalism for the included middle that is inspired by a meditation upon quantum logic and quantum mechanics, but it is not immediately translatable to quantum mechanics, nor to philosophy. Nicolescu cites J. S. Bell, who remarked that in quantum theory certain notions, such as observed systems and observatories that measure observables, dim and get included into one (possibly wider) category of “beables”[[7]](#footnote-7), entities capable of being, an interpretation in confluence with Lupasco's concept of potentialization, which explains as well at a certain extent Lupasco’s idea that each system is to be conceived as a system of systems, hence, as a very dynamic (let’s say, for a more intuitive comprehension, “modular”) structure potentially apt for change and also apt for actualization (and stability).

Nicolescu sees the general axiomatic formalism developed by Lupasco in *The Principle of Antagonism and the Logic of Energy* as the very skeleton of quantum logic and Niculescu’s interpretation is in this respect in accordance with N. Bohr’s vision. He emphasizes the originality of Lupasco’s approach in comparison with Bohr’s, stating that no matter how much the phenomena exceed the capacity of classical physics explanations, the scientists link the legitimacy of results to their possibility to be expressed in classical terms. The results of the observations are received as contribution to science when they are expressed in an unambiguous language, with “scientific” appropriate terminology (that of classical physics). As Bohr, Lupasco also chose to identify a new direction in investigating physics and reality: a to simultaneously admission of entities and non-entities, even if they never appear simultaneously in the same plane of investigation. The progressive slide of contradiction towards non-contradiction is acceptable for the majority of the scientists as a principle of complementarity.

The problem with quantum mechanics is reduced to the explication that quantum phenomena show us aspects of a different nature. But there are cases when quantum experiments indicate the paradoxical view of nature and reality: like the quantum events that are both continuous and discontinuous.

Lupasco took scientific ideas such as these of Bohr, emphasizing another principle, a principle of contradiction organizing and structuring a new vision of reality. Lupascu’s new vision of reality is *the ternary dialectic of reality* and here the contribution of Nicolescu finds a strong pillar. In classical physics the notion of “energy” is derived starting from the notion of “object”, while in modern, relativistic and quantum physics, the relation has the other direction. The very notion of “object” is in fact replaced in quantum physics by that of “event”, of “relationship”, of “interconnection”. The “movement” becomes the “change in energy”. The energetic dynamism governs all physical phenomena. And in Lupasco as in Nicolescu energy, due to its fundamental constituents, “possesses at the same time the property of identity and the property of individualizing differentiation”. Nicolescu capitalized philosophically that the manifestation of a certain phenomenon is equivalent to a certain actualization, to a tendency towards identity. Already, as Lupasco interprets Heisenberg’s relations, the concept of

“potentialisation has its source in quantum physics, but it captures a generalization that goes far beyond the realm of physics into a philosophy, an ontology of antagonistic teleology. Causality is local and covers a narrow domain of reality – *a level of reality*. A global causality is present at all levels of reality. An immediate consequence of the introduction of this concept of potentialisation along with actualization gives us a broader understanding of nature, of its dynamics, of philosophical change and a philosophical understanding of our physical understanding of reality. Hence, *reality is in fact a perpetual oscillation between actualization and potentialisation: acknowledging only the actualization we arrive at a segmented “real”, for there is not absolute actualization.[[8]](#footnote-8)*

In order to get to a more coherent definition of reality, B. Nicolescu considers that only notions such as “actualization” and “potentialisation” are not sufficient. As a consequence he interprets the passing from the stages of potential status to those of actual status in equilibrium and dynamism for, since Lupasco, we find that any energy possesses antagonistic dynamisms, and they must be such that the actualization of one involves the potentialization of the other, or, both are to be situated on the two trajectories of transition from potential to actual and from actual to potential, towards or in a state at the same time of equal potentialization and equal actualization going toward what is real: in a ternary structure.

“In the scientific analysis of a physical, biological, sociological or psychic system, we must seek to highlight its anti-system, its contradictory system (and science is full of all kinds of anti-systems). But much more delicate work is necessary to highlight this third evanescent term, which is in the state T of rigorous balance between the contradictory stages. And how can you prevent yourself from thinking that it is precisely in this direction that the capital discoveries will be made in the coming decades, if the energetic dynamism of the T state, obeying what Lupasco calls *quantum ortho-deduction*, is really the very substrate of Reality?”[[9]](#footnote-9)

Nicolescu suggests that a different perspective on the ternary structure of Lupasco’s philosophy can be obtained by analyzing the notions of homogenization and heterogenization, which he introduced. Homogenization is the process directed towards the identical, towards an endless accumulation of all systems in one and the same state, towards a total disorder, towards death conceived as immobility. The physical source of this concept is the Second Principle of Thermodynamics (or the Carnot-Clausius Principle) which shows that, for a closed macro-physical system, entropy increases, disorder increases, energy degrades to heat. In the microphysical world, homogenization governs the evolution of particles, such as photons, which do not obey Pauli's exclusion principle: they can accumulate indefinitely in the same quantum state. Lupasco uses the term tri-dialectic to characterize the structure of his philosophical thinking, a term that expresses the ternary, tripolar structure (homogeneous-heterogeneous-state T) of any manifestation of Reality, the coexistence of these three inseparable aspects in any dynamism accessible to logical, rational knowledge. Analyzing Lupasco’s thought and his antagonistic dynamisms, in their varied systemic balances, Nicolescu arrives at a meditation about “energetic antagonism”, which “implies an undefined chain of contradictions: two antagonistic dynamisms giving rise to a system, this system, will involve an antagonistic system of the same order; then, these two systems will involve a system of antagonistic systems, and so on, according to the so-called, “systemogenesis”. This is a first view of complexity that Nicolescu undertakes, which is still very close to Lupascu’s conception.

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Nicolescu’s interpretation of complexity is based on his idea of a multi-level structure of reality and not just a ternary structure, which gives way to interpretations of abstract art and of all aspects of reality including intolerance and xenophobia.

The consequences of this ternary structure for the dialogue between science and religion have been explored, as well, and these investigations are particularly fruitful in conceptualizing the phenomenological understanding of the levels of reality.[[10]](#footnote-10) In *What Is reality?*  Nicolescu shows that

“In the name of God, God is killed. Where the New Testament is inclusive, totalitarianism is exclusive. This is the enormous contemporary stake of accepting or not accepting the Tertium [the included middle – our clarification]. The assassination of transcendence is the fulfillment of binary thinking. The relative becomes an absolute, so that everything and its opposite can be affirmed at the same time. Are the adversaries each acting ‘in the name of God’? Which God? Should there be as many gods as there are religions?”[[11]](#footnote-11)

 The included middle is illuminating in an analysis of simplistic and binary logic exclusive ideological trends such as xenophobia, racism, anti-Semitism or xenophobic nationalism. These trends are indeed a “debauchery of binary thinking”, expressed in propagandistic slogans that express nothing else than the totalitarian thought, which is religious, fundamentalistic and exclusive in manifestations, as Peter Sloterdijk[[12]](#footnote-12) has argued, too. So, the logic of the included middle is more inclusive and more democratic at the social level acting as a redeeming democratic vector.

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 **COMPLEXITY THROUGH TRANSDISCIPLINARITY**

In Basarab Nicolescu, we should follow an original train of conceptualization starting from quantum physics and Lupasco’s philosophy of the included middle, capitalized philosophically, via an epistemological-ontological and phenomenological concept, “the levels of reality”, which illuminates the concept of “transdisciplinarity” as the very foundational investigation of complexity.

Transdisciplinarity is Nicolescu’s term, born in the meditation about the correlations between mathematics and poetry in his first book titled *Ion Barbu, Cosmologia Jocului Secund* [*Ion Barbu, The Cosmology of the Secondary Play*].[[13]](#footnote-13) The fascination with the possible integrative interconnections of the human thought is defining for Basarab Nicolescu and the starting point for his original conception of reality as a multi-levelled reality. In books such as *What Is Reality?*  and in numerous articles, such as “Gödelian aspects of nature and knowledge” published online on the platform *Centre International des Recherches et Études Transdisciplinaires* (*C.I. R. E.T.*) that he created, reality is defined as „that which *resists* our experiences, representations, descriptions, images or mathematical formalizations”. [[14]](#footnote-14)

The term “resist” should be interpreted as something law-like and reliable: but it is a metaphoric use of the term “resistance”, associated to formalization, certainty and to the scientific character of knowledge.

Nicolescu capitalizes upon the philosophy associated to quantum physics by Lupasco and his own meditations emphasize quantum physics as a new stage in human experience with abstraction which becomes a mediator between the human thirst for knowledge and nature, a tool for describing reality, and almost a constituent part of nature.

In Nicolescu’s view quantum physics, mathematical formalization is inseparable from experience and this was abstraction is part of the manner in which people come to conceptualize nature. Abstraction “resists” as a formalization that is reliable and produces reliable and verifiable pieces of knowledge. The knowledge produced is not just an image of reality, but *the reality of a discipline at a specific moment*, or, a level of reality. It resists, Nicolescu shows, emphasizing in a Gödelian perspective that these abstractions and formalizations have internal consistency and they need to further integrate experimental data without destroying that self-consistency. And Nicolescu continues exemplifying that in ‘virtual’ reality or in computer generated images, there are mathematical equations which resist: a single mathematical equation gives birth to an infinite series of images, which are part of reality as abstraction forms an integral part of reality.

Science is led via disciplinary research. And disciplinary research opens access to facets and whole levels of reality. In Nicolescu, so far as nature participates in the being of the world one must ascribe an ontological dimension to the concept of reality. Nature is an immense, inexhaustible source of the unknown which justifies the very existence of science. Nicolescu places this unknown realm both in between and beyond the levels of reality, which are disciplinary levels of reality.

This is the reason why reality is not only a social construction, the consensus of a collective, or of some intersubjective agreement; reality is in Nicolescu has a trans-subjective and trans-objective reality, in the sense that it has a trans-disciplinary dimension and what is known is possible to be amended, continued and changed, as Nicolescu showed, “to the extent that one simple experimental fact can ruin the most beautiful scientific theory.”[[15]](#footnote-15)

The intriguing idea that “Nature participates in the being of the world, hence, there is an ontological dimension to the concept of Reality” emphasizes the endless interplay of potentialisation and actualisation going through the state T in ternary instantiations of reality. But reality is conceived also as a systemic development. Systems are evolving under specific general laws: quantum entities are subordinate to quantum laws, which depart radically from the laws of the macro-physical world. That is to say that two levels of Reality are *different* if, while passing from one to the other, there is a break in the laws and a break in fundamental concepts (like, for example, causality). No mathematical formalism permits the rigorous passage from one world to another.

Starting from the discontinuity of the quantum world, Nicolescu comes, paradoxically to sustain a coherent view of nature and reality. he considered that the semantic glosses, tautological definitions or approximations are unable to replace a rigorous mathematical formalism and that the recent decoherence models have nothing precise to say on the passage between the quantum level and the macro-physical level: therefore, in fact, the main problem is not decoherence but precisely *coherence.*

There are even strong mathematical indications that the continuous passage from the quantum world to the macro-physical world would never be possible. But there is nothing catastrophic about this. *The****discontinuity****which is manifest in the quantum world is also manifest in the structure of the levels of Reality.* However, that *does not prevent the two worlds from co-existing.*

Complexity begins with transdiciplinarity which means to attempt to comprehend in integrative manner the multi-dimensional and multi-referential reality. The levels of Reality are radically different from the levels of organization, considers Nicolescu, as these have been defined in systemic approaches. In his view, the difference stays mainly in the fact that the levels of organization do not presuppose a break with fundamental concepts: several levels of organization appear at one and the same level of Reality. The levels of organization correspond to different manner of structuring of the same fundamental laws.

Another important aspect to emphasize is the phenomenological *grund* for the levels of reality. In Nicolescu, the existence of different levels of Reality has been affirmed by different traditions and civilizations, but these affirmations were founded on religious dogma or on the exploration of the interior universe. The twentieth century did place a great importance on the questioning of the foundations of science. Edmund Husserl and other scholars have discovered the existence of different levels of perception of reality by the subject-observer. But these thinkers, pioneers in the exploration of a multi-dimensional and multi-referential reality, have been marginalized by academic philosophers and misunderstood by the majority of physicists, enclosed in their respective specializations. The view of Basarab Nicolescu is totally conforming to the one of Heisenberg, Pauli and Bohr.

Basarab Nicolescu emphasized that Werner Heisenberg came near the concept of “level of Reality” in his famous *Manuscript of the year 1942*(published only in 1984). There, Heisenberg, who knew well Husserl, introduces the idea of three *regions of reality,*able to give access to the concept of “reality” itself: the first region is that of classical physics, the second is that of quantum physics, biology and psychic phenomena and *the third* represents that of the religious, philosophical and artistic experiences. In Nicolescu’s view, this classification indicates a closer connectiveness between the Subject and the Object. Also, the notion of levels of Reality emphasizes the philosophical understanding of the nature of indeterminacy allowing for a deeper understanding of the transdisciplinary integrative approach.

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**THE SCIENCE MEANING DIALOGUE OF “THAT WHICH IS WOVEN TOGETHER”, IN COMPLEXITY**

To comprehend transdisciplinarity is to capture the fact that as each discipline is situated at a single level of Reality, where it formulates and follows its own laws, the whole of reality is described as multi-layered and fragmented area, a significant fragmentation accomplished by the multiplication of specializations. The 20th century brought a real disciplinary big bang, we reached, as Basarab Nicolescu warns us, the incredible figure of 8000 disciplines, hyper-specialization in one of them, inevitably implying ignorance and incompetence in the other 7999. This humorous critique of the fragmentation of knowledge is implicitly a reaffirmation of Nicolescu’s preoccupation with the unity of knowledge which is very important in the philosophy of complexity. What else is a philosophy of complexity if not a quest for the unity of knowledge?

Complexity is “that which is woven together” and Basarab Nicolescu explicitly underlines his agreement with this definition of complexity given by Edgar Morin. It is no accident or coincidence that David Deutsch was talking about “the fabric of reality”. Complexity imprints the opposite move, a tendency in the opposite direction of that created by the *disciplinary big bang*. The explosion of complexity is both the source and the effect of this disciplinary big bang, implying that it is either chaotic, or, it hides a new order demanding a new form of knowledge. As a consequence, in this interpretation, transdisciplinarity is based on an acceptance of complexity (conceived similarly by Edgar Morin and Paul Cilliers).

Conceiving a multi-levelled reality presupposes their complex plurality and, *mutatis mutandis*, in our interpretation of Nicolescu, a *kaleidoscopic complexity*, or, a complexity of complexities. But Nicolescu acknowledges himself that there is a horizontal complexity, of a single level of reality, inherent in each discipline, and a vertical complexity, brought to light by transdisciplinarity. And these aspects form the foundation of our interpretation of kaleidoscopic complexity.

In Lupasco-Nicolescu perspective, the axiom of the included middle (represents a logical option) states that there exists a third term T which is at the same time A and non-A crucial for the comprehension of the notion of “levels of Reality”. The T-term is the key in understanding indeterminacy: being situated on a different level of Reality than A and non-A, it necessarily induces an influence of its own level of Reality upon its neighbouring and different level of Reality: the laws of a given level are not self-sufficient to describe the phenomena occurring at the respective level. In Basarab Nicolescu, the Gödelian structure of the unity of levels of Reality is associated with the logic of the included middle. In consequence, *it is impossible to construct a complete theory for describing the passage from one level to the other*and *for describing the unity of levels of Reality*. If it does exist, the unity linking all the levels of Reality must necessarily be an *open unity.*

In Nicolescu, there is the possibility of vertical complexity, allowed for by the mediation of the logic of the included third. This way, his conception highlights an epistemological dimension of compactness (“that which is woven together” in such compactness; and which it is not the opposite for „simple”). But there is also a horizontal complexity, which is disciplinary. The horizontal complexity and the vertical, transdisciplinary complexity are always mediated by controversial or paradoxical elements of knowledge, playing the role of the included middle, and emerging at some point from the non-resistance mysterious areas or from other disciplinary levels, or from “beyond” as these areas are part of the integrative transdisciplinary approach, too.

The transdisciplinary model of Reality is both objective and subjective for nature itself is in Basarab Nicolescu both objective and subjective with the following nuances: First, there is an*objective nature*, which is connected with the natural properties of the transdisciplinary Object. Also, the objective nature is examined by (subject to) *subjective objectivity.* This *subjective type of objectivity* is conceivable as subjective to the extent that the levels of Reality are connected to levels of perception. But this relates to a phenomenological Husserlian conception, too. Nevertheless, the emphasis here is on objectivity, precisely because the methodology employed is that of science. Second, Nicolescu conceives as well the s*ubjective nature*, which is connected with the natural properties of the transdisciplinary subject. Since this subjective nature can be studied and it is already studied scientifically, it is also purposeful topic of investigation (subject) to *objective subjectivity*. This subjectivity is objective to the extent that the levels of perception are connected to levels of Reality. Nevertheless, the emphasis here is placed on subjectivity, to the extent to which the methodology is employed is that of the science of being, an existential approach, a sort of metaphysical staring into the abyss which crosses all the traditions and religions of the world. Third, Nicolescu conceives as well *trans-Nature*, which is derived from a subtle similarity in nature which exists between the transdisciplinary Object and the transdisciplinary Subject, because they are part of the same existential purposeful project. Trans-Nature concerns the domain of the sacred, but, another interesting aspect emphasizes that it cannot be approached without considering the other two aspects of nature (objective nature and subjective nature) at the same time.

By this complex consideration together of Nicolescu’s objective nature, subjective nature and sacred trans-nature, the philosopher places meaning with information and structure at the common *grund* of matter and spirit in his conception of the world, though without acknowledging it explicitly in these exact terms, Basarab Nicolescu talks about the compulsory dialogue between science and meaning, which is a perspective in consonance with Mihai Drăgănescu’s.[[16]](#footnote-16) Certainly, the threefold structure of reality is found in many great traditions. But the specific and single quality of Christian thinking on the Trinity can be strictly demonstrated. The paradoxical coexistence of the one in three and the three in one already implies the potential of manifestation of divinity through Nature.

In a fascinating work, *Science, Meaning and Evolution: The Cosmology of Jacob Boehme*[[17]](#footnote-17), Basarab Nicolescu approaches together the unique encounter between creative imagination, Christian thought and Jacob Boehme's genius. Boehme could thus discover, in his own interior being, a trans-nature, explained as a true universal dynamic through the interaction between the mani-fold structure of reality and the mani-fold self-organization of reality conforming to it. The Christian meditation on the Trinity thus reveals all these potentials, in a “prophetic explosion embracing all the cosmoses”. Viewing in this perspective nature as a specific mani-fold, mani-directional integrative locus in the dazzling dynamic of the manifestation of divine, Nicolescu discovers the spiritual dimension of the scientific investigation which should be considered in a complex view of nature. This way, the philosopher arrives at a necessary between science and meaning, where meaning stands metonymically for spirituality and the divine. This encounter (a second Renaissance) is defined as “a major event which will probably produce the only true revolution of this century”.

Contemporary science is certainly international, considers Nicolescu, but its deep roots always remain anchored in a national specific (“in the soil of its birth”). On the one hand, science attains its own limits, determined by its own methodology, arriving at the acknowledgement of its need for meaning, or, as we may reckon, of transdisciplinary opening for full or further development.

“Science has been able to examine the indications found in Nature in a magnificent way, but, because of its own methodology, it is incapable of discovering the meaning of these signs: Science, doubled back on itself and cut off from philosophy, can only lead to self-destruction because of its dominant position in our society.”[[18]](#footnote-18) This quote shows the lack of ontological understanding of these signs of nature from the part of science. In our view, this is one reason why philosophy seems to have a better perspective on complexity than science. Philosophy is more prepared to see the inter-woven aspects in togetherness than science, whose whole approach is to discern and separate for probing, setting aside the investigated object for examinations. The signs of nature are indeed more and more numerous, more and more powerful, for the more we see the more emerge in the complexity of nature; and we are in agreement with Basarab Nicolescu, but in our phrasing; philosophy is sided with complexity better equipped for an ontological understanding of signs. The meaningfulness of signs is their existence and this is a philosophical truth. For this reason, the dialogue between science and meaning becomes, indeed, more necessary than ever, in order to orient knowledge toward meaning and not away from meaning via rigid and formalized evaluations.

In our opinion, this is a dialogue of transversality and complexity, a dialogue that in the first place shall emphasize, simply put, the role of philosophy as pre- and post-science, an idea that is a principal preoccupation for us and has high relevance in complexity studies.

In the preoccupation with the stimulation of a dialogue between science and meaning, Nicolescu identifies the “third mark of the New Renaissance”, *a mediation between science and meaning*. A new Philosophy of Nature needs such a mediation to overpass the science meaning separation. And in this mediation, we should recognize a transdisciplinary attempt.

It is clear that mediation cannot imply simply a return to tradition, theology, or some traditional ideology. A good place of departure for a new Philosophy of Nature can be *only* modern science, but a “science which, having reached its own limits, tolerates and even demands an opening to being”. As Kuhn and Rorty, Basarab Nicolescu arrives at the conclusion of the necessity and appropriateness of inscribing science within culture. Although science is already a part of culture, this “opening to being” is a superior act of culture and a superior positioning within culture in the sense that it can sustain a transdisciplinary scientific and cultural approach.

Basarab Nicolescu proposes a dialogical vision of complexity where the past and the present achievements of science, art, Tradition, and all other forms of knowledge are comprehensively open, included and meaningful. Nicolescu appreciates that it is already a gain that through “its own methods, science has discovered the existence of levels of reality avoiding the deadly danger of a science (see also, John Horgan) privileging only one level of reality, therefore lacking depth, meaning, transdisciplinarity and complexity. The *polyphonic dimension of being* is characteristic for man and it is only legitimate to be pursued as *transdisciplinary direction* in human ontologies, science and epistemology.

 The transdisciplinary approach integrates levels considering also the great unknown, the spiritual and mysterious realms, between and beyond the levels of reality mysterious spaces of the great unknown that are not forbidden to be explored by science, philosophy and theology; they are just not easily or methodically accessible unless revelation (Lucian Blaga, d’Espagnat[[19]](#footnote-19)) and inspiration come in play. Rediscovering and revaluing the great texts of the past, such as those of Jacob Boehme, we may connect to fertile sources of inspiration on the path toward (more) of complex thought. For, as Nicolescu states, unlike Rorty, that “Boehme shows us how the multiple splendours of Being are reflected in the mirror of Nature; in its turn, modern science has brought about our discovery of increasingly dazzling signs while looking into this mirror”[[20]](#footnote-20). However, unlike Ilya Prigogine, Nicolescu appreciated that modern science's opening to being will not lead mankind back to pantheism, but it shall lead to a “horizon infinitely richer than that of pantheism”.

Physical universe and humanity are seen as two facets of one and the same Reality. man should wholistically integrate himself as being in novel alliance – that of man with himself in a comprehensive being better equipped for complexity. As Nicolescu has shown commenting about a philosophy of complexity in *Science, Meaning and Evolution: The Cosmology of Jacob Boehme*[[21]](#footnote-21), „science may be teetering on the edge of an abyss of discovery as formidable as the Copernican Revolution” relevant for many directions of research, the new research that allies science and meaning[[22]](#footnote-22) in transdisciplinary attempts.

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1. \* This is a pre-print; an extract from a more extended paper in the collective volume *Conference Proceedings*: *Un*-Bordering Disciplinarity. *Trans-*/*Cross*-/*Post*-Disciplinary Approaches to Humanities and Social Sciences, under print. Rediviva Press, Italy, 2024. [↑](#footnote-ref-1)
2. Basarab Nicolescu, 2009. *Ce este realitatea?* 21,22. [↑](#footnote-ref-2)
3. Heinz R. Pagels, 1983. *The Cosmic Code*. Toronto, New York, London, Sydney: Bantam Books, 155. [↑](#footnote-ref-3)
4. “Any energetic system is a function of antagonistic forces (…) Every energy not only present plural antagonistic dynamism, but also these dynamisms are with necessity so that the actualization of one dynamism implies the potentialisation of another dynamism or both are on dynamic trajectories passing from actual to potential [phases] and, reversely, from potential to actual [phases] toward a rapport between them where they are in a state of equal potentialisation and actualisation. (…) All systems are systems of systems. (…) It is in the examination of the systems of systems, which are more and more complex and ample that *the three privileged orientations of energetic systematization* areemerging, offering matter three specific aspects, or, even more, organizing three types of matter [physical, biological, spiritual, or, “matter”, “vie”, “soul”] (…) The matter is not the realm of the inanimate as it was once thought to be”. See Stéphane Lupasco, 1982. *Les Trois Matières*. Strasbourg: Editions Coherence,11-43. [↑](#footnote-ref-4)
5. B. Nicolescu, 2009. *What Is Reality?* 26. [↑](#footnote-ref-5)
6. See, in this respect, besides the works of Basarab Nicolescu, Constantin Noica, 1936. „Filosofia lui Ștefan Lupașcu” [“The Philosophy of Stéphane Lupasco”]. *Revista Fundațiilor Regale* [*The Journal of Royal Foundations*] *(5)*; Gaston Bachelard, 1942-1943. “Stéphane Lupasco: L’expérience métaphysique et la pensée humaine”. *Revue philosophique* (*10-12)*; Ferdinand Gonseth, 1947. “À propos de deux ouvrages de M. Stéphane Lupasco”. *Dialectica* 1(4); Jean-Francois Revel, 1960. “Les trois matières”. *France-Observateur*; Karel Appel, 1956. *Le philosophe* Stéphane *Lupasco* (*particular collection* apud B. Nicolescu*,* 2009. *What Is Reality?* 264); Georges Mathieu, 1961.”Les trois matières vu par Mathieu”. *Arts*; Paul Serant, 1961. “La recherche philosophique contemporaine”. *Revue des Deux Mondes*; Vasile Sporici, 1980. “Originalitatea gândirii lui Ștefan Lupașcu. Filosofia într-o vastă sinteză pluridisciplinară” [“The originality of Stephan Lupasco’s thought. Philosophy in a vast pluri-disciplinary synthesis”]. *Contemporanul* [*The Contemporary*](40) and others.

 [↑](#footnote-ref-6)
7. J. S. Bell, 1984. *Beables for Quantum Field Theory* CERN TH 4035/84. Genève. [↑](#footnote-ref-7)
8. B. Nicolescu, 2009. *What Is Reality?*30-31. [↑](#footnote-ref-8)
9. B. Nicolescu, 2009. *What Is Reality?*, 32. Meditating upon Lupasco’s *quantum orthodeduction*, we realize that this perspectival idea of *ortho-* as in-depth investigation and situation of reality is capitalized upon also by another contemporary Romanian philosopher, Mihai Drăgănescu (1929-2010) in works such as *Orthophysics* (1985)*, The Ring of the Material World* (1989)*, or The Depths of the Material World* (1979)*.* [↑](#footnote-ref-9)
10. See also Michel Camus, Thierry Magnin, Basarab Nicolescu and Karen-Claire Voss, 1998. “Levels of Representation and Levels of Reality: Towards an Ontology of Science”. In: *The Concept of Nature in Science and Theology*. Geneva: Labor et Fides. [↑](#footnote-ref-10)
11. See B. Nicolescu, *What Is Reality*, 25. [↑](#footnote-ref-11)
12. Peter Sloterdijk, 2012. *La folie de Dieu. Du combat des trois monothéismes* [The Madness in God. About the struggle of the three monotheisms]. Paris: Libella - Maren Sell. [↑](#footnote-ref-12)
13. B. Nicolescu, 1968. *Ion Barbu, Cosmologia Jocului Secund*. Bucharest: Editura pentru Literatură [The Press for Literature]. Ion Barbu, or Dan Barbilian, was a well-known Romanian mathematician who was also a poet. [↑](#footnote-ref-13)
14. B. Nicolescu, 1998. “Gödelian aspects of nature and knowledge”. *Centre International des Recherches et Études Transdisciplinaires* (*C. I. R. E. T.*), (12). Cf. https://ciret-transdisciplinarity.org/bulletin/b12c3.php. [↑](#footnote-ref-14)
15. B. Nicolescu, 1998. “Gödelian aspects of nature and knowledge”. *Centre International des Recherches et Études Transdisciplinaires* (*C. I. R. E. T.*), (12). Cf. https://ciret-transdisciplinarity.org/bulletin/b12c3.php. [↑](#footnote-ref-15)
16. The science -meaning dialogue is relevant in paideutic perspective, too. Ionut Isac shows that we can conceive a desirable type of transdisciplinary education can be defined metaphorically as an “education of liberation”, a very subtle and complex relationship between beings in the state of “permanent questioning and integration” throughout their life. [↑](#footnote-ref-16)
17. As Jacob Boehme was one to conceive a cosmological model that “unites God, man and the cosmos,” postulating a commonality of nature between the human mind and the universe, *between creation and evolution*, so as to proceed with the hypothetical and deductive steps whose implications Basarab Nicolescu explores. This commonality means that the two terms, *Mind* and *Universe*, are to be associated in an analogical relationship, as noticed in the Foreword of the text. A beautiful final quote capture that “ It is moving to witness this encounter of a sophisticated and cosmopolitan physicist with a man from the opposite end of the modern age: blunt, unschooled, and untraveled except on inward paths. Especially impressive is Nicolescu’s humility in the face of the shoemaker’s revelations. That it might fall to the destiny of Boehme’s work to break the imaginal and moral impasse of modern science borders on the incredible. Yet within these pages, the inconceivable has actually taken place.” (Joscelyn Godwin) At the same time it is emphasized by Nicolescu, the translator Rob Baker and Antoine Faivre, in the Afterword, that the human mind might sometimes be capable of interiorizing, then of refracting in the form of images and symbols, the very structures which “maintain the universe in its inmost parts” (“Was die Welt in Innersten zusammenhält”, *So that I may perceive whatever holds*, and it continues: *The world together in its inmost folds*, as shown in Goethe's Faust). Developed in the *Alexandrian Corpus Hermeticum* (during the third century) the notion of interiorization opens the meditation about the consonance between the depths of mind and the depths of universe. And thus, Raymond Abellio, struck by the close analogy revealed by a comparison of the sixty-four hexagrams of the I Ching with the elements of the genetic code, called the attention to the possibility of such a commonality of nature relating knowledge and spirit via meaning. Basarab Nicolescu, 2013. *Science, meaning & evolution: the cosmology of Jacob Boehme*. Foreword by Joscelyn Godwin. Afterword by Antoine Faivre. Translated from the French by Rob Baker. Copyright©Basarab Nicolescu 2013, cf. https://www.basarab-nicolescu.ciret-transdisciplinarity.org/BOOKS/Science\_Meaning\_and\_Evolution.pdf. [↑](#footnote-ref-17)
18. *Science, meaning & evolution: the cosmology of Jacob Boehme*. Foreword by Joscelyn Godwin. Afterword by Antoine Faivre. Translated from the French by Rob Baker. (p. 65) Copyright©Basarab Nicolescu 2013, cf. https://www.basarab-nicolescu.ciret-transdisciplinarity.org/BOOKS/Science\_Meaning\_and\_Evolution.pdf. [↑](#footnote-ref-18)
19. Lucian Blaga, 2018. “Luciferic knowledge”, chapter. In: Botez, Angela, Allen, R. T., Șerban, Henrieta Anișoara, 2018. *Lucian Blaga: Selected Philosophical Extracts*. Delaware: Vernon Press. Bernard d'Espagnat, 1994. *Le réel voilé - Analyse des concepts quantiques*, Paris: Fayard. [↑](#footnote-ref-19)
20. *Ibidem*. [↑](#footnote-ref-20)
21. *Ibidem*. [↑](#footnote-ref-21)
22. In the new science-meaning alliance, transdisciplinarity and complexity are probably meaningful even for these fascinating novel language games in nascent AI beings and furthering the language modelling of language games for artificial intelligence. [↑](#footnote-ref-22)