

ESSAYS ON CONSCIOUSNESS:

Towards a New Paradigm

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ALL IS ONE: THE ONE, THE UNIVERSE AND CONSCIOUSNESS

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*The ordered universe, which is the same for all,
was not made by one of the gods or by humans.
Rather, it always was, is now, and forever will be an ever-living fire,
ignited in measure, and extinguished in measure.*
Heraclitus, Fragment 30

Abstract. WE ARE IN search of the Absolute, the ultimate fix point of the world, the self-existing entity on which we can stand our footing firmly. To reach that aim we consider the relevant achievements of the last millenia in the light of the enlarged, postmodern science that preserves all the power of physics yet generalizes it to take into account the own laws of life and consciousness. In our search we are led to recognize the essentially complete view of the Universe consisting from three levels of reality: phenomena, laws and first principles. We have found three first principles of the Universe, that of matter, life and consciousness. We show that the architecture of the Universe has a fundamental triune structure corresponding to the first principles of physics, biology and consciousness. We point out that this fundamental Trinity of the Universe is the product of a still deeper, unmanifested entity. We found the ultimate,

self-existing reality what we call as the One, the unified whole of the life principle, the Cosmic Self and the consciousness principle. The One is the realm of infinity, the eternal source of finite things. We show that although it is not self-existing, the existence of the All does not rely upon the existence of anything else. We show how the One permeates the All by the Order of Nature including the cosmic organizational principle, the principle of rationality and the Cosmic Self. We show that in the Order of Nature the One is the alpha of reality and the All is the omega. Surprisingly we found that the principle of non-contradiction, the axiom of logic can be derived from the ultimate nature of the One. We mention some related ideas of ancient myths like the Cosmic Egg and the World Tree, and philosophers like Heraclitus, Proclus, Spinoza, Christian Wolff and Whitehead. We indicate the significance of the One in our personal life to live uncompromising life.

Keywords: science, laws of Nature, first principles, self, self-existing entity, substance, infinity, logic, axioms

THE PRIMARY FACT OF OUR LIFE

The primary fact of our life can be formulated shortly by the following short sentence: *we are living in the world*. The three players of the game are: (1) we as human beings, having consciousness to know life and the world, (2) life that mobilizes us to act in the world, and (3) the world in which we have to act.

We have to act for our life. We have to think how to act. To receive the results required by life from the world, we have to know the world. In scientific terms, we are conscious beings, and consciousness has the fundamental task to know life and the world, ultimately, life and the Universe. Consciousness has the natural task to obtain the relevant and reliable knowledge about the Universe. Considering that what we need is to foresee the changes of the world, what consciousness needs is the knowledge about the laws of

changes, a useful picture of the Universe, a worldview including its most fundamental laws.

The road of consciousness starts from us and its purpose is to reach the Universe. Consciousness has the natural task to show the way towards the optimal symbiosis of our life with the world, ultimately, with the Universe. In the light of recent scientific results we may realize that life is present on Earth since four billion years and during this cosmically significant timespan it made all efforts to develop life and consciousness in an increasing rate of complexity and sophistication. Life on Earth manifests itself like a highly efficient and active cosmic creative power. Astrobiology tells us the life is a cosmic imperative (Davies 1999, 2006; Grandpierre 2017a). In order to live our life in accordance with its genuine nature, we are in search of the motivating power of the Universe that urges us to live our life in a meaningful way.

A SHORT DEFINITION OF THE BASIC CONCEPTS: MATTER, LIFE, CONSCIOUSNESS, UNIVERSE

We define an object as 'matter' when its behavior can be described by physical laws.

The best definition of life known to us is given by Ervin Bauer. *"The living and only the living systems are never in equilibrium; they unceasingly invest work on the debit of their free energy budget against that equilibration which should occur for the given the initial conditions of the system on the basis of the physico-chemical laws"* (Bauer, 1967, 51). This means that life has its own fundamental principle which makes the behavior of living organisms characteristically different from the behavior of physical objects.

Consciousness is defined as being the realm of thinking, including the laws of thinking and, at its 'center', the self selecting the goals. The self is defined, in scientific terms, as the ability to make decisions autonomously, that is, not completely determined by physical and biological factors. The self is the bridge between the realm of thinking and the realm of matter, because

decision making is what initiates actions in the world (Grandpierre and Kafatos 2012, 2013). Consciousness is therefore fundamentally the unified system of the way we interpret life and the world. This world interpretation system is called shortly as worldview. We perceive the world and life with our external and internal senses, perceiving our percepts, feelings and thoughts. Each worldview has its own logic, fundamentally depending on the relative weight of the ontological categories. These perceptions serve as input data for our worldview-dependent logic that makes the decisions (Grandpierre 2014a). The self is the Key of the Universe because it is the only way in which the Universe can act in the finite, material mode of existence.

The Universe is defined as the unified whole of everything that exists. To determine what exists is the task of ontology. The first task of ontology is 'carving Nature at its joints', to find the most useful first divisions of the Universe as a whole. We found the most useful first division of the Universe the following: matter, life and consciousness, corresponding to the fundamental sciences of the Universe: physics, biology and psychology. Modern civilization is based on the idea that fundamentally only physical matter exists. This view is underpinned by the apparent fact that there exists only one exact science, physics. The development of an exact biology hallmarks a new, postmodern civilisation. In the followings, we present an overall picture of the Universe.

THE CENTRAL ROLE OF THE UNIVERSE IN OUR LIFE

Since ancient times man accommodates himself to the Universe as a whole (Couderc 1964). "Man does not exist for long without inventing a cosmology, because a cosmology can provide him a world-view which permeates and gives meaning to his every actions, practical and spiritual" (Kuhn 1995, 6). "Cosmology should not be confused with astronomy. The proper object of the study of

cosmology is not the stars but the universe considered as a whole” (Heyneman 1993, xxiii).

The central role of the Universe in our life is a fundamental fact. Our life is produced by the laws and conditions of Nature. The *Homo sapiens* is a member of the biosphere that is the offspring of cosmic creative powers acting on our planet Earth, one of the planets of the Solar System arising from the Milky Way galaxy which is the offspring of the Universe. These cosmic creative powers are the ones creating life and consciousness. Our life and consciousness are the manifestations of cosmic life and consciousness. These cosmic creative powers connect us in the most intimate way to the Universe. We can realize ourself when we realize that the ultimate motives of our life are given by the Universe. Our personal life is a thread in the cosmic life. We are players in a cosmic game. Our terrestrial life is a mission on planet Earth. Our body is the spacesuit of our soul being a space traveller. We are cosmic ambassadors. Our self has a freedom over the matter of our body. This freedom over matter includes an ontological depth beyond the gigantic network of physical causes. Considering that the gigantic network of the physical causes extends to the entire physical universe, our self has a cosmic status. Our self is the outposts of the Cosmic Self.

MODERNITY AND THE FRAGMENTATION OF OUR WORLDVIEW

Since ancient Greeks, the view claiming that the only real existents are the physical objects accessible for our outer senses has become increasingly popular. Thales was in search of the first principles of the Universe and found it in water, that is, in a material entity. It was a frequent view in Newton’s time that bodies have a complete, absolute, and independent existence (Westfall 1994). Nowadays the apparently dominant view among philosophers is that the Universe does not exist as a big cosmic whole. “The doctrine tells that all there is to the world is a vast mosaic of local matters of particular fact, just one little thing and then another” (see Lewis 1986, ix). In the modern

worldview, the world as a whole is conceived as broken into material fragments, and what remains in this picture is a vast mosaic of finite, self-existing physical objects. In physical cosmological models the domain of material universe observable for us is a finite object.

We would like to point out here that this “little thing” picture is superficial and in a deep sense it is in direct conflict with the most significant achievements of physics. Physical laws play a central role in physics. Modern physics tells that all the material of the Universe has been created from quantum vacuum fluctuations by the physical laws (e.g. Tryon 1973, Hawking 1988, 142; Davies 1992, 73). This means that in this respect the physical laws precede matter. *The existence of matter assumes, fundamentally, the existence of physical laws.* Both the existence and durability of physical bodies are due to the invariable existence of physical laws. Our point here is that physical laws are *unifying laws*. They prevail everywhere in all the space. This fundamental fact calls attention to *the existence of physical laws*.

We have to distinguish between *physical equations* describing reality and *physical laws* that exist in reality. Physical equations exist in human mind but physical laws exist in Nature. Physical laws of Nature represent causal power (e.g. Armstrong, 1993, 422). *It is causal power that distinguish abstract from real entities.* Physical laws govern the interactions of physical objects (Roberts 2008). In the absence of physical laws, physical objects could not interact. Without interactions, physical objects could not exist at all. This means that the existence of laws of Nature is distinctively a robust fact. *The existence of observable matter is conditional since it depends on the existence of physical laws.* These physical laws themselves are unobservable.

MODERNITY AS THE ROAD TOWARDS POSTMODERN SCIENCE

The development of modern physics has paved the way towards the development of an exact science of life and consciousness. Within the conceptual framework of modernity, the origin of physical laws seems to be a scientifically unsolvable problem. As it is formulated

recently, "it seems that almost all physicists who work on fundamental problems" accept that "the laws of physics stand at the base of a rational explanatory chain, in the same way that the axioms of Euclid stand at the base of the logical scheme we call geometry" (Davies 2004). We have to note that in natural sciences the things playing the same role than the axioms in mathematics are not the laws of physics but the first principles. The first principles of sciences can be regarded as the ultimate laws from which all the other fundamental laws can be derived. David Hilbert, one of the most outstanding mathematician of the 19th and the early 20th century postulated that the least action principle can play the role of the fundamental axiom in physics, from which all the fundamental physical laws are derivable (Hilbert 1918, 415/1115; Stöltzner 2003).

We arrive at two important achievements. One is the existence of physical laws which transcends the material mode of existence. The other is the fact that all the fundamental laws of physics can be derived from the least action principle. This means that the existence of physical laws is rooted in the existence of the least action principle. As the physicist Anthony Zee has formulated: "The action principle turns out to be universally applicable in physics. All physical theories established since Newton may be formulated in terms of an action. The action formulation is also elegantly concise. The reader should understand that the entire physical world is described by one single action." (Zee, 1986, 109). The least action principle is the source of all the fundamental physical laws.

The laws of physics has also only a conditional existence. The existence of physical laws depends on the existence of the physical principle. Ultimately, the existence of physical laws is rooted in the existence of the least action principle. In the same way as the material objects could not exist in the absence of the physical laws creating and governing them, the existence of physical laws should be regarded also as conditional because their existence and governance through their input conditions is given by the physical principle. In our search for the self-existent world, we have to consider in the next step the existence of the physical principle.

LAWS OF NATURE AND INITIAL CONDITIONS

In order to answer this question we have to consider first the role of initial conditions for the physical laws. Is there a room for anything else in the world beyond physical phenomena, laws and the physical principle? Let us call attention to the fact that *the equations of physics in themselves are not enough to describe concrete processes*. The fundamental equations of physics are differential equations describing only the changes of physical processes. *In order to obtain concrete process, initial conditions are necessary*. These initial conditions are crucial because they breathe fire into the equations, they are the ingredients which make physical existence possible. These initial conditions are the *input data* for the equations of physics.

The complexity of Nature can be conceived, with the mindset of theoretical physics, as present in the initial conditions, the input elements of physical laws. With the words of Eugene Wigner, the Hungarian-born Nobel laureate, one of the fathers of quantum theory: "The elements of the behavior which are not specified by the laws of nature are called initial conditions." (Wigner 1995, 322). This means that the complexity present in the initial conditions of physics cannot be determined physically.

Complexity is present in an extremely high rate in living organisms. In living organisms, the "input conditions for physical laws" themselves are highly organized in space as well as in time. This organization is called as *biological organization*. Biological organization is closely related to biological behavior, because structure and function are two aspects of biological behavior. This means that the input conditions of physical laws can be organized in a special way to fulfil biological functions, that is, biological aims. If biological behavior has its own, specific, biological laws underivable from that of physics, then new, biological laws of Nature exist beyond the extreme complexity of the input conditions of physical laws. If so, biology may be regarded as the control science of physics, considering that the input conditions of physical laws are regulated biologically for the sake of biological aims (Grandpierre 2007).

We have proposed (Grandpierre, Chopra and Kafatos 2014) that there is room for biological organization, namely, beyond the quantum level. This means that biological causes can continuously modify the physical conditions in every elementary, quantum time step. In every quantum time step the energy is undetermined within the limits of the Heisenberg uncertainty relation. Biological causes can modify the behavior of every elementary particle within these physically undetermined quantum limits. Remarkably, biological causes may modify physical conditions according to biological aims and elicit the physical causes necessary for it.

THEORETICAL BIOLOGY IMPROVING AND EXTENDING THEORETICAL PHYSICS

By our best knowledge, it was only one biologist, Ervin Bauer, who developed a systematic, consequent and adequately general scientific theory of life. Ervin Bauer has successfully determined the essence of life in exact scientific terms. He recognized that life has its own natural laws, and the essence of life can be found in the universal principle of life determining the behavior of all living organisms (see above). It is Bauer's principle that was helpful to make the next step, the generalization of the physical principle of least action. Bauer's theory was recently reformulated in a way that can be regarded as a fundamental extension of modern theoretical physics, generalized at its deepest level (Grandpierre 2007, 2011a,b; Grandpierre, Chopra and Kafatos 2014).

In our formulation, the first principle of biology is the generalization of the least action principle by a minimal but most powerful step. In physics, the endpoint of the least action principle is determined already by giving the initial conditions for it. In biology, living organisms can determine their endpoint. *Generalizing the first principle of physics by allowing the endpoint of the action principle to be a free variable and determined by biological aims* is the smoothest possible way to extend the action principle in biology (Grandpierre 2007). This move makes the most powerful tool of physics, the action principle,

even more powerful. The so obtained theoretical biology is wider and deeper than modern theoretical physics.

If the biological principle is more general than the physical one, it must also permeate the entire Universe. This means we are not living in an inanimate aggregate of material universe, but in a biological, Living Universe (Grandpierre 2002, 2012, 2017). It is this move that makes it possible to extend the modern scientific worldview into a broader, postmodern worldview. This achievement has not only a scientific, but a philosophical significance. In a biological Universe life is not constrained to small occasional volumes within skins and membranes. Instead, life populates the entire Cosmos in an unexpected variety of different cosmic life forms (Grandpierre 2008), all the space between elementary particles and stars. Taking into account that the quantum-vacuum itself is a cosmic living organism (ibid.), we may realize that life exists unconditionally. The living nature of the cosmic vacuum exists unconditionally, because it is based on and vitalized by the cosmic life principle transcending physical space and time. The Bauer's principle tells that living organisms are living when they mobilize all their available energies towards the heights of life. Instead of inert matter, it is activity that is the most basic property of the Universe, activity for the sake of life. The Universe as a whole is a living organism (Grandpierre 2002, 2004, 2012, 2017).

If life has its own first principle, than life is not doomed to play a subservient role in a physical universe dominated by physical laws. If life has its own first principle and it can realize it on a cosmic scale, than it has its own nature, its own life, its own aim and own laws to follow and realize, independently of physical conditions and, ultimately, on physical laws. This makes sense since it tells that physical matter is the limiting case of life in the case of such living organisms that manifest practically zero ability to act and move their macroscopic center of mass in space. The physical principle is a special case of the biological principle. *It is not matter but life is the more fundamental reality.*

Living organisms manifest ongoing structural transformations that are elicited in a way transforming all the chemical energies into the structural energies of the cells. In this way, the physical conditions determining the biological processes are continuously modified in a special, biologically regulated manner necessary to modify the physical processes in a way that they lead, within these continuously and suitably varying conditions, to increase and regenerate biological potentials (Bauer 1967, 45, 49, 62). *This means that within living organisms biology organizes the input conditions of physical laws in a way that the output of physical laws be suitable for biological purposes.* It is the biological principle that is capable to breath fire into the physical laws.

Let us illustrate it by the following example. When we bend our finger, we have to make only one decision. All the rest goes automatically. The result of our decision is, when we think about it more closely, immense and deeply impressive, considering that an immense number of electrons, atoms and molecules will immediately change their motion in an extremely finely orchestrated manner just in one of the possible ways, the special one with suitably changing coordinated velocities that is necessary that their motions when seen from a higher level result the bending of the finger. All these immensely complex and sophisticated orchestrated motions occur by an extreme ease, as if these electrons, atoms and molecules were not physically inert objects changing their state of motion only when suitable strong physical forces act upon them.

All the necessary investment of physical work occur perfectly in the absence of our conscious care and calculation. Nevertheless, if a physicist should solve the task, he would need an immense amount of data about the initial positions and velocities of all atoms and molecules. Moreover, the physicist would need a suitable idea involving the basic connection between the physical data and the required bending motion of our finger. The physicist would need a suitable model of the biological organism containing the relation between decision making and the physical state of our body. Considering that the decision making works in case of any living

organism capable to move their extremities, independently from their actual physical states, the task seems to be definitely unsolvable. In such biological problems, the so powerful method of physical approach proves to be inefficient and insufficient.

But once we realize that the relation between our decision already made, all the subsequent sum of physico-chemical changes is related to the first principle of physics, because it is the physical principle that determines the most efficient pathways in between the already determined endpoint and initial point, we obtain an enormously powerful insight into the physics of the process. The least action principle is ideally suitable for biology because it works in the most economic manner. This is why our body works by extreme ease, seemingly in an effortless manner, when we bend our finger, all the details are arranged without our conscious effort. *The decision making determines the energy landscape in a way that in the biologically determined energy landscape the minimal energy pathway leads from the initial state to the biologically determined endstate in the same way as, in a geographical landscape, a river flows from its source to the ocean. Every detail is arranged by biological determinations.* These biological determinations occur at the subquantum level, that is, at a level of Nature where physical conditions and laws do not prevail. This means that at the subquantum level biological determinations act freely. The body of living organism is a living landscape governed by life (Grandpierre 2007).

We had seen that the laws of Nature arise from the first principles. Now we can see that the first principles are suitable to govern the input conditions of the laws of Nature in a way similar to what the laws of Nature do, organizing the relations between observable phenomena. This means that both the laws of Nature and their input conditions arise from the first principles, with the assistance of biological autonomy.

ENDPOINT SELECTION AND THE FUNDAMENTAL PRINCIPLE OF CONSCIOUSNESS

We can term the activity exploring, interpreting, evaluating and selecting the possibilities suitable to serve as endpoints for the biological principle as conscious activity. We found that the natural task of consciousness is to explore and determine the best conditions for life. Exploring and understanding life and the world is not a small task. Consciousness must be capable to fulfil its natural task. Consciousness must be as deep and broad as life and the Universe are in order to assist life efficiently. Indeed, our biological theory tells that decision making ability is inseparable from life. If decision making is made by consciousness, this means that consciousness is inseparable from life. Considering that life is a cosmic reality, consciousness, its partner and servant, must be also a cosmic reality. If so, *consciousness is capable to understand the nature of life and the Universe.*

We arrived to the basic problem of consciousness. On what grounds may the biofriendly decision-making capability work? Could it work without a factor that ensures the conditions of correct decision-making in respect both of life and the world? Did Nature supply the factor necessary to correct decision-making in any situation? The nature of life demands a consciousness with reasoning capability suitable to evaluate the important inner and outer conditions, relations, individual and communal viewpoints properly. In order that decision-making could be correct, a guiding factor is necessary which is capable to follow the requirements arising from both the principle of life and of matter. This means that *a universal, reliable guiding principle is attached to the biological principle: the rational principle.* In other words, not only matter and life, but consciousness must also have its own fundamental principle. The rationality principle must be suitable to prescribe within any given condition the laws of reliable conjectures in a way that fits both at the physical and biological level. This means that the two basic properties of the rationality principle is the capability to guide consciousness according to the physical and

the biological principle. Consciousness is not the late result of cosmic evolution but one of its fundamental ingredients.

THE CAUSAL RELATION OF THE MODES OF EXISTENCE

Causality is a fundamental tool of cosmic activity. We found three fundamental types of causes: physical, biological and psychological ones, initiated by matter, soul and consciousness. The causal relations between them are enlightening. The biological and psychological causes are able to initiate and govern physical causes. As in the case of bending our finger, *it is the meaning of our decision to bend our finger in a specially organized manner suitable to elicit all the innumerable physical causes realizing the biological or psychological decision*. Although physical causes also can elicit biological and psychological causes, as in the case of a physical injury, the usual way of life is characterized by the priority of biological and psychological causes. Since the natural task of consciousness is to select the best endpoint for the biological principle in the given context regarding the lifespan, the priority among causes is given by Nature to life.

If the natural task of consciousness is to assist life in the best way possible, then there is a *moral world order* indicated by the principle to respect life and act for the best of it.

THE FUNDAMENTAL TRINITY

We found three first principles as the fundamental principles of the Universe: the principles of matter, life and consciousness. These three principles permeate and govern the entire Universe, all material objects, living beings and their consciousness. Among these three principles the principle of matter is a special, limiting case of the biological principle. Considering that the natural task of consciousness is to determine the most suitable endpoints for the biological principle, we found that the rationality principle is inseparable but subservient to the biological principle. We arrived to

realize the cosmic priority of the biological principle that includes the material principle and co-acts with the consciousness principle.

The physical principle has a remarkable property: economy. The least action principle selects the most economical path for physical behavior in terms of action. The biological principle has also a remarkable property: it is a maximum principle directed to create the maximally favorable conditions for the development of life. Similarly, the consciousness principle has also a remarkable property. It prefers the most clear, elegant, simple and beautiful ways of thinking. The three fundamental principles can be formulated in a unified manner. Together they represent the three fundamental types of causality: physical, emotional and intellectual, in the most economic, maximally life-friendly, beautiful and elegant manner.

These three types of causality cover all the fundamental types of causes. The three fundamental principles of the Universe, together with the laws and phenomena inseparable from them, form one unified whole: the Universe. The Universe is unified by its fundamental principles. Similarly to laws of Nature, the first principles transcend the 3+1 dimensions of space and time, the material modes of existence. The laws and first principles of Nature exist in still more fundamental layers of reality in their own modes of existence.

We found three fundamental ontological domains, that of matter, life and consciousness. All together they form a *fundamental Trinity*, the cosmic Trinity of matter, life and consciousness. Remarkably, one of the most important symbols of ancient myths are the World Tree, frequently named also as the Tree of Life or Tree of Knowledge. This fits nicely with the cosmic Trinity we found here: the Trinity of the material universe, the biological universe and cosmic consciousness. These latter ones are also frequently referred to as the World Soul and Cosmic Mind, together as God. In panentheism, God is meant in broader terms including also the material universe.

DISCOVERING THE ABSOLUTE, ULTIMATE REALITY: THE ONE

We are in search of the Absolute, self-existent reality. Scrutinizing the first principles from this point of view, we have three important things to note here. The first is that the physical principle can be derived from the biological one as its limiting case. This means that the physical principle, although fundamental, is not ultimate itself. The second is that the biological principle is inseparable from endpoint selection, therefore from the self, therefore in the cosmic context from the Cosmic Self. The third thing to note is that the Cosmic Self is inseparable from its own first principle, the principle of consciousness. This means that the ultimate principle, the biological principle, is inseparable from the Cosmic Self and the consciousness principle. We can draw an important conclusion. The ultimate reality consists from the biological principle, the Cosmic Self and the consciousness principle. The biological principle, the Cosmic Self and the consciousness principle form an inseparable unit, the ultimate unit of reality.

The primary empirical fact of our life is that we have to act in the world. This possible because the matter of our body is merely a tool in the hands of life and consciousness, because the physical principle is a special case of the biological principle in the limit when the capability to act shrinks to practically zero. In the cosmic context, life and consciousness rules the All, the Universe as a whole. In the light of all the empirical and theoretical evidences, we argue that it is necessary that besides the observable physical universe a different, non-material Universe exists which is free from any material limitations but full with unlimited, supreme life and reason. We call this supreme, non-material but living and conscious Universe as the One.

It is an unsolved problem whether the non-material realities like the laws and first principles of Nature or the self may exist independently of matter or not. Empirical observations tell that our feelings and thoughts can live their own life largely or practically completely independent from the body. In a variety of mental states which are practically independent from our bodily life we experience

inner processes as real life: *imagination, thinking, dreams, or out-of-body experiences*. Moreover, *life has a variety of matter-independent characteristics* (Popa 2004) *as well as information that it possible to become manifested in a completely different material forms: minds, books, tapes, movies etc.* Our theory gives a profound theoretical basis to these empirical evidences.

Our postmodern science leads us to recognize that beyond the fundamental Trinity of the Universe, there exist another Trinity, the ultimate Trinity of the life principle, the Cosmic Self and the consciousness principle: the One. We call attention to the fact that it belongs to the very nature of life to generate, maintain and propagate life. This means that life is a reality that exists by itself. Life as a cosmic reality is a self-existing, self-sustaining, unconditional reality: the life of the Absolute, the One. Life is the par excellence self-existing reality because it has a fundamental self-recreating nature. We can see with our own eyes and experience in our own life that living entities behave in that manner. Life is the active self-existing reality in eternal process. In this light our finding that cosmic life is inseparable from the Cosmic Self and the principle of consciousness means that we found the ultimate reality what have looked after. It is the Trinity of the life principle, the Cosmic Self and the consciousness principle. This unity is the single ultimate reality: the One.

All these discoveries shed light to the substantially deeper and wider realities beyond the overly narrow limitations of the modern scientific worldview. The Universe stands up before us as having a towering architecture with three levels of realities: that of phenomena, laws of Nature and first principles. The Universe has three ontological domains, that of matter, life and consciousness, all of them having their own modes of existence. We may notice the remarkable twofold triune structure of the Universe. Considering the immaterial or spiritual nature of the laws and first principles, we can term this remarkable structure as the fundamental intellectual architecture of the Universe. Considering that the most fundamental aspect of the Universe corresponds to the life principle, we can call the architecture of the Universe as biological. We have arrived to a scientifically guided organic cosmology.

All is One: The One, the Universe and Consciousness

We found that the living Universe, the All, the unified whole of everything that exist contains in itself another unified whole, the unmanifested Universe, the One. Beyond the Universe we are living in, there exists secretful ultimate reality that lives within us, too: the One. Our innermost life survives us as finite beings because our life at its innermost essence is eternal. It is the One. Keeping in mind the ancient idea of Mother Nature, we may express the same in a perhaps more suitable manner: She is the One. The Infinite Living One. Infinite Life in one person embracing Supreme Reason. The Absolute, self-existing reality living in us, most personally, at the ultimate level of our inner world. At the ultimate level, everything is one. Ultimately, All is One. We are One.

THE ONE, THE ALPHA AND THE OMEGA

We arrived to the end of the world. The One is the starting point from the viewpoint of Nature, and the end of our cognitive process. This means that the One is first principles are the alpha and the omega. The One is the alpha, because all the world of laws and phenomena starts from here. The One is the omega because the One is the ultimate object, the highest aim of human cognition. The One is infinite since the first principles of life and mind as well as cosmic biological autonomy are not finite; they are transcending space and time. The One is the Infinite One. The One is living, because its primary ingredient is the life principle. The One has a triune structure because it consists of three fundamental, inseparable ingredients: the life principle, cosmic consciousness, and the consciousness principle. This ultimate triune living organism we can refer to as the ultimate Trinity. The One is an infinite living being.

Life is by its very nature creative. Creativity requires life to be infinite in its ultimate nature because infinity can produce infinity plus finite world because, in the language of mathematics, infinite plus finite is equal with infinite. This means that infinity, life and creativity are one and the same reality from different aspects.

Since life itself is immaterial, it is capable to generate and govern matter with the help of the creative fundamental principle and the cosmically available free energies of the quantum vacuum. *Matter is governable by life and reason.* There exist biological and psychological energies by which we mean energies governed by biological and psychological causes. The will is definitely capable to mobilize real energies to generate biologically and psychologically determined outputs (Baumeister 2012). The biologically and rationally governed energies are capable to produce suitable virtual particle pairs for governing matter (Grandpierre 2012, Grandpierre and Kafatos 2012, 2013).

Ancient myths tell us about the shining cosmic egg that was the source of the universe. In vedic literature Hiraṇyagarbha, the golden egg is the source of the manifested cosmos. An ancient Orphic hymn addresses him thus: "Ineffable, hidden, brilliant scion, whose motion is whirring, you scattered the dark mist that lay before your eyes and, flapping your wings, you whirled about, and through this world you brought pure light."

THE LIFE OF THE ONE - LIFE WITHIN THE ONE

There is life within the One, because eternal feelings and thoughts can be experienced by the One, the Ultimate Being. Eternal ideas like that of mathematics, eternal feelings like that of music can be created in an innumerable number and this infinite set of eternal ideas and feelings can be experienced in an infinite number of contexts. This is the world of the Living One, in other words, Eternity, the realm of feelings and thoughts having eternal values.

It is a remarkable fact that we are free to wish what we like. There are no limits to our wishes. It is exciting to realize that we are free to think what we like. There are no limits to our thoughts beyond the internalized obstacles of the mind. We are, in reality, gods, gods of our inner world, of this inexhaustible inner universe. Our wishes and thoughts does not have to arise from empirical

reality. Our feelings and thoughts may arise first of all from our nature-given thirst for truth, thirst of beauty, thirst of an intact, self-existing world of feelings and thoughts. Our thoughts and feelings may arise from our love of life and live life fully. The One lives its own life independently of any particular occasions. As Alfred North Whitehead has noted, "eternal objects" are the ones comprehensible without reference to some one particular occasion of experience.

THE LOGIC OF NATURE IS FUNDAMENTALLY IDENTICAL WITH HUMAN LOGIC

In actual reality, the road towards the appearance of the Homo sapiens starts from the Universe as a whole. The main stages of this road are the Milky Way, Solar System, Earth, the terrestrial biosphere and humanity. Human cognition walks the same way in the other direction, from the Homo sapiens to the Universe as a whole.

Heraclitus wrote about the logos as the Order of Nature. It is interpreted as the organization perceptible in things and the rational expression of it in words (Kirk 1975, 40). As Giordano Bruno has written about Nature's ladder: "Nature descends to the production of things, and intellect ascends to the knowledge of them, by one and the same ladder." (Bruno 1976, 93). Human intellect walks the road of cognition, Nature walks the road of cosmic evolution, the creation of the world and its changes. Considering that Nature's ladder, the road of cognition and of creation is one and the same from two different points of view, that of humans and the Universe as a whole, we can term this road with the name "the world bridge".

The identity of the road of cognition on which human logic walks and the road of creation on which Nature walks means that human logic and the logic of Nature are fundamentally identical. They should because we are within the womb of Nature and the fundamental principles of the Universe permeate us in the same way as they permeate the entire Universe. This means human logic is much more than formal logic. Nature's logic and truth-following human logic both are the same aspects the creative activity of the

One. *The All and in it and the world bridge from the One to the All are the products of the One with the help of Nature's logic.*

THE ONE AND THE ALL

Realizing that the ultimate unit of existence is the One, we have to distinguish it from the All. The All involves, besides the One, also the principle of matter, and with it the realms of finite entities, i.e. material objects, and their related aspects in the realms of life and mind. The All involves physical, biological and psychological phenomena, laws of Nature and the first principles, besides the unaccountably large number of biological autonomies, individual and collective consciousness. The All can be conceived as the eternal One plus the worlds of finiteness. The All is the Universe as a whole in process, including all the already happened phenomena, the laws and first principles and all the biological autonomies of the innumerable living organisms and their communities.

It may seem that the One and the All as two fundamentally different entities. The One is infinite, immaterial, eternal, unified and indivisible whole. In contrast, the All seems to be the sum of finite entities, each related to material entities, transient, temporary and spatial. Considering that the material principle can be derived from the life principle, one can consider the All as being ultimately identical with the One.

The All is potentially present in the One. The One is present in the All. The One is there at the depths of each and every entity endowed by finite material aspects. The One is present hidden in the All and lives its eternal life within all of us. The One is the ultimate basis and science of our personal and communal life. Together with all living beings, we live in a deep, intimate union with the supreme, inner Universe, the living infinite One.

We found that there are only one self-existing entity in the world: the One, that is, the unified whole of the life principle, the consciousness principle and the Cosmic Self. We found that there

All is One: The One, the Universe and Consciousness

exist another kind of reality which as a whole does not rely upon anything else: the All. *The All is not self-existent because it is created by the One.* Nevertheless, because it contains within itself the One, *the All does not rely on its existence on anything else existing outside of it.*

The One and the All both live in a mode of existence which differs from the finite mode of existence. The All is the unified whole of everything that exists, therefore nothing exists besides it. The All does not have a boundary, in contrast to its material parts that have boundaries or spatio-temporal limits in the usual $3 + 1$ dimensions of space and time. This means that the All, the Universe as a whole, is not material because it does not have material limitations. The All, the Universe as whole is not the direct object of our external senses. Instead, it is the reality beyond our mental, logically and scientifically constructed idea or concept trying to fit reality.

In the One cosmic feelings and cosmic thoughts are living their life. Cosmic feelings and thoughts are the realm of music and mathematics, aesthetics and ethics. The All is something more than the One since it includes finite things, the particular, occasional objects and processes the constitute the observable universe and the transient feelings and thoughts related to them.

THE FUNDAMENTAL AXIOM OF LOGIC ARISES DIRECTLY FROM THE ONE

The fact that the Universe as a unified whole is ultimately One is the most fundamental fact of the Universe, a fact that cannot be any other way. The Universe cannot be ultimately two or three because its fundamental principles are all-embracing, therefore unifying principles. Due to the unifying nature of the first principles, the All is necessarily one at its ultimate level. *The mathematical property of the One, namely, that its number is one, draws with itself the inevitable consequence that all existent entities should be consistent with each other.* The principle of non-contradiction is the direct consequence of the fact that the number of the ultimate entities is one.

The cosmic rationality principle can be conceived as the basis of Logic of Nature. We point out that the universal laws of logic can be derived from the One. *If everything is, ultimately, at the level of first principles, one unified whole, and if everything else arise from this ultimate unified whole, than in Nature's Logic nothing can contradict to anything else.* This means that the Logic of Nature has a fundamental property that can be formulated as the principle of non-contradiction.

Human beings have an access to the Logic of Nature. We can call the full form of logic accessible for human mind as the humanly experienced form of the Logic of Nature. Formal logic is only a part of this natural logic. Since logic is based on the principle of consciousness which is the ideal tool of the life principle, therefore natural logic has a primary commitment to proceed towards the fullness and heights of life.

Considering that the All is a unified whole that is at its ultimate level identical with the One, every actual process and material parts constituting the All should be consistent with each other. Contradiction between actual phenomena would be inconsistent. Therefore one of the ultimate property of the Logic of Nature must be the law of non-contradiction. Remarkably, the law of non-contradiction is the fundamental axiom of human logic.

The principle of non-contradiction is one of the fundamental axioms of human logic. All the parts of the All arise from the Whole according to the Logic of Nature, therefore should be consistent with the Logic of Nature. Of course, the constituents of the One, namely, the life principle, the reason principle and the Cosmic Self also should be consistent with each other, because they form a unified whole, the One.

Our result fits nicely with the unexplained facts of the unreasonable effectiveness of mathematics in science.

THE ONE AND THE FIRST PRINCIPLES - THE MAIN ROAD OF HUMAN KNOWLEDGE

At the origin of modern science Thales and the Greek philosophers initiated a break with traditions preferring a purified, restricted, more materialistic idea of science which qualified the wisdom of the ancients as myth. We think it is timely to recognize that ancient myths has preserved a wider and deeper knowledge about the Cosmos.

According to ancient, traditional knowledge, the term cosmic law designates the principle or set of principles believed to represent the most generalized nature of the order of things in the Universe. As the entry "Cosmic law" of the Encyclopedia of Religions writes: "Confidence in the existence of a principle of order in the Universe at large is, in turn, reflected in a common belief that individual events within society are not random (hence meaningless) occurrences but parts of larger meaningful patterns that extend through time. Furthermore it is this confidence – that the entire universe is established upon and governed by a principle of natural and moral order – that enables human beings, individually and collectively, to deal effectively with intellectual, moral, and spiritual life crises" (Long 1995).

Some of the earliest evidences about mythology tell that the idea of the One as the Supreme Being has preceded the idea of God. As the Rig Veda writes:

"The only One breathed breathless in itself,
Other than it there nothing since has been.

...

Then first came Love upon it, the new spring
Of mind – yea, poets in their hearts discerned,
Pondering, this bond between created things
And uncreated. Comes this spark from earth,
Piercing and all-pervading, or from heaven?
Nature below, and Power and Will above.
Who knows the secret? who proclaimed it here,

Whence, whence this manifold creation sprang? -
The gods themselves came later into being. -
Who knows from whence this great creation sprang?"
(translation by Max Müller 1859, 564)

In Chinese philosophy, 'Qi' or 'ch'i' is the vital principle of which everything is composed, "the ultimate foundation for the existence of the universe"...the "ontological source of the universe" (Zhenyu Zeng 2011).

In ancient Egypt, Amun is the One, Great and Hidden God of the Universe. The name "Amun" ("imnw") suggests imperceptibility in and of itself and derives from the verb "imn", meaning both "to conceal" and "be hidden" (Dungen 2017).

In the ancient Hungarian mythology "the unnamed Supreme Being is the One, preceding and surmounting everything else" (Ipolyi 1987, 4).

In the ancient Babylonian religious system the Supreme God, the first unique principle from which all the other gods took their origin, was Ilu, the One and the Good (Lenormant 1999, 113).

One of the last great philosophers of antique Greece, Proclus believed the true philosopher should become "a priest of the entire universe." In contrast to the skeptic position that the material universe is outside the human consciousness and can only be known through sensory impressions, the Neoplatonists emphasized the underlying unity of all things and considered that the first principle of the Universe is the ultimate One (to Hen). Neoplatonists thought of the One as the source of the good, or perfection, of everything. The One, including the divine Intellect, is beyond being, the "final cause" of all things.

We find remarkable similarities with the philosophy of Spinoza. By his Ethics, the observable nature is the product of "natura naturans" what is in itself, an eternal and infinite essence, that is, God.

As Ralph Cudworth, the leader of the Cambridge Platonists wrote in his book *The True Intellectual System of the Universe* (1678),... according to ancient views the Universe forms a triune structure

of ultimate principles. The first ultimate principle "delightful love, and that which is not blind, but full of wisdom and counsel", the second ultimate principle is the "infinite knowledge and wisdom" (Cudworth 1820, Vol. 1, p.426), while the third and last one is "infinite active and perceptive power" (ibid.).

Christian Wolff, the eminent German philosopher redefined philosophy as the comprehensive science of human knowledge founded upon the fundamental principle of logic, the axiom of non-contradiction, the very first principle of "all metaphysical first principles". His work relies on the idea that there is an intelligible order and interconnectedness between all the different disciplines.

Alfred North Whitehead, the founder of process philosophy has also noted that the order of Nature is given by general principles. "Geniuses such as Aristotle, or Archimedes, or Roger Bacon, must have been endowed with the full scientific mentality, which instinctively holds that all things great and small are conceivable as exemplifications of general principles which reign throughout the natural order" (Whitehead 1925, 5).

The idea of the intellectual structure of the Universe is present in modern science as well. The great discovery of the least action principle as the origin of all fundamental laws of physics has "imbued the philosophers of those days with an unbounded confidence in the fundamentally intellectual structure of the world." (Cornelius Lanczos 1952, xxii-xxiv). "After a lifetime of crabwise thinking, I have gradually become aware of the towering intellectual structure of the world" (Hoyle 1994, 423). In our work above, we found the intellectual architecture of the Universe as the "towering intellectual structure" of principles, laws and phenomena.

Modern science has obtained its most fundamental idea of comprehensive principles from the ancient tradition. As the Encyclopedia Britannica has formulated, the goal of physics "is the formulation of comprehensive principles, or laws of physics, that summarize disparate phenomena in the most general possible way". Indeed, since natural science should grasp Nature and Nature

is all-comprehensive, it requires to find the most general, all-comprehensive principles.

A KIND OF SHORT SUMMARY

From time to time, the growth of science leads to fundamental achievements making a step closer to the original aim of science: obtain as complete and deeply penetrating knowledge about nature as possible. Here we reported on a fundamental improvement of the modern scientific worldview. Our picture leads to the conclusion that ultimately we are cosmic flames, the flames of the One. Our consciousness is, ultimately, the light of the eternal cosmic flame. Our soul is, ultimately, the heat of the cosmic flame.

Humanity is driven by the deep and invincible conviction that our personal life is not finite, that true and infinite freedom must exist in our world, that the truth and goodness are the winners not only on the heavenly realms but this must be so on the Earth, too. In reality, the Earth is a celestial body, a planet of the Solar System.

These invincible convictions have a real and unshakable basis, because all these are rooted in the life of the One within us at the ultimate level of our inner world. We have to admit that the ultimate meaning of our personal present life on Earth is related to the ultimate meaning of all life in the Universe and is based on the actual presence of the infinite world process at the ultimate level of our inner world. Everything is realized within us because cosmic unifying principles are living in our inner world embracing the entire Universe. Everything is living and has its inner world. Everyone of us are endowed with the treasure of the One, the world which is infinitely rich in true, beautiful and good feelings and thoughts having an eternal value. Through the world of the living One within us, the realm of eternal truth, eternal beauty, eternal goodness is continuously urges us to act as fully living, integral and intact beings towards living the uncompromising life. At the ultimate level, life is the Absolute. Living with the power of Absolute, opening our mind

towards the infinite cosmic principles driving our soul and mind we can live our life accordingly to our own, Nature-given way.

We are living in the world. Reason is living within us. Reason connects Man with the Universe. The Universe is the home of Supreme Reason and the Eternal Soul.

In our search for the Absolute, we have found it in the form of the supreme, non-manifested, living and conscious inner Universe. This achievement is due to the developments of philosophy, science and religion. In our days the time is ripe to find answers to ultimate questions. Humanity did developed a deep and wideranging knowledge that has become mature in our days. The development of postmodern science may offer a powerful tool to answer such metaphysical questions on the basis of its wider and deeper approach.

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