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VIRTUAL REALITY FROM THE STANDPOINT OF COMPLEXITY SCIENCE

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Abstract. An extended approach to the comprehension of virtual reality is developed in the article. Virtual reality is understood not only as a logically possible or cybernetically constructed reality but also as continuous turbulence of potencies of the complex natural and social world we live in, the wandering of complex systems and organizations over a field of possibilities, such a realization of forms and structures in which many formations remain in latent, potential forms, and are in the permanent process of making and multiplying a spectrum of possibilities, lead to the growth of the evolutionary tree of paths of development. It is shown that such an understanding of virtual reality corresponds to concepts and notions developed in the modern science of complexity. The most significant concepts are considered, such as the nonlinearity of time, the relationship of space and time, the uncertainty of the past and the openness of the future, the choice and construction of the future at the moments of passing the bifurcation points. Some cultural and historical prototypes of these modern ideas of virtual reality are given. It is substantiated that the vision of virtual reality being developed today can play the role of a heuristic tool for understanding the functioning and stimulation of human creativity.

Keywords: virtual reality; virtual world; creativity; constructivism; complexity science; nonlinear time; complex systems

The route we pursue in time is strewn with the remains of all that we began to be, of all that we might have become.
Henri Bergson (Bergson 1911, 100)

1. Introduction

The virtual reality is understood in this article in the broadest sense. It is not only artificially created reality (Krueger 1991) or cyberspace (Gibson 1987), but also natural and social world in which we live, in its infinite tendencies of becoming, creativity, the emergence and growth of new forms of being, hidden

from us in the abyss of non-existence. The standpoint of the modern complexity science leads us to such an understanding. However, in fairness, it is worth noting that already in non-classical, quantum physics, the idea of virtuality becomes essential: for each individual quantum state, there are many (and possibly unlimited) alternative future states or potential realities.

There is a large scope of literature on virtual reality (or augmented reality) and virtual worlds. Scientists argue about the ontological characteristics of virtual reality and its intrinsic value (Heim 1993; Heudin 2004; Metzinger 2018; Mooradian 2006; Paíno Ambrosio & Rodríguez Fidalgo 2020). Comprehending virtual reality, we can follow the path of creating a new fundamental ontology, namely new basic concepts, treating in a new and non-traditional way simple and self-evident theoretical constructs, as space, time, causality, etc. Such transformation of the classical categories of space and time might be connected with the disclosure of the content of such new concepts as "coherence", "determination by(from) the future", "openness of being", "spontaneous internal activity", "randomness", "instability", "nonlinearity". From an epistemological perspective, virtual reality is available to us through "three I's: Immersion, Interaction, and Imagination" (Paíno Ambrosio & Rodríguez Fidalgo 2020, 4).

The science of complexity, also called synergetics, gives us certain methodological instruments and theoretical concepts to interpret the correlation of time and space, time and eternity, different temporal modes (past, now and the future) in a non-traditional way (Knyazeva 2012). It is in such a theoretical perspective that the problems of virtual reality are considered in this article. The passage of a complex system along one of possible paths of evolution (movement towards one of the possible structures-attractors) is a glide over the abyss of potentials, over an infinitely rich virtual reality. As a result of the switching of different kinds of modes (rapid growth and structure formation, on the one hand, and a decline in activity and a full or partial decay of organized forms), it is possible to return to the old, to the previous unrealized structures and paths of evolution. It is conceivable to draw new forms from the world treasury of forms of being and from the treasury of knowledge samples, as Buddhists believed.

Every time the world we observe actualizes only a small percentage of its possible states. The world is something that has been managed to realize here and now. The world is a play of actual forms of being over the abyss of the virtual world, over the gaping abyss of chaos, the potentials of being, that is both terrifying and attractive for us. H. Bergson leads us to such an understanding in his work "Creative Evolution", one of whose statements is taken as an epigraph to this article. The rarely cited philosopher Hans Vaihinger (1852 – 1933) built a whole philosophy of "as if" (als ob) (Vaihinger 1924) and showed that the

world reinvents itself, constantly makes tests, probes this or that way to the future. In his opinion, fictions are not only forms of representation and artificial constructs of consciousness, but also manifestations of the life force of the world itself, which is bubbling with new forms. The idea of game was proclaimed and preached by Hermann Hesse, considering it as an eternal idea which has lived in the world and declared itself long before any its implementation (Hesse 1927).

The cultural prototypes of such an understanding of virtual reality are numerous. This is hermeticism and its texts of the 2nd-3rd centuries A.D. about a mystical way of life, in which an idea is presented that the world will perish only when it exhausts all its possibilities of being. This is Buddhism and its idea of dharmas as structure-processes, which for a while emerge from non-being as an oblivion and plunge into it again. This is also the essentially constructivist doctrine of I. Kant with its representation als ob ("as if"). This is philosophical phenomenology and existentialism with its idea that both the world and the person in it are a project, the designer of himself and his own actions: a man is a project for itself, and a man is the future of man (J.-P. Sartre). This is the Russian cosmism with its idea of man as a co-creator of cosmic evolution, as a subject of active transformation of the cosmos and himself in it, mastering time.

Everything in nature is subject to random fluctuations and variations. But variations are not absolutely random, "blind": from the very beginning, there are preferences for certain forms and structures. Not only living but also non-living nature, has internal "attractions" to certain forms, certain quasi-goals of development. In the words of Vladimir S. Solovyov, nature manifests its aspiration for life and wanting to live (Solovyov 1988, 372). However, only certain sets of forms are realizable and feasible. Some evolutionary rules of prohibition are imposed on other forms. They are unstable and – when trying to implement them – quickly evolve to stable forms, "fall" on them. Structures and formations of nature, which the processes of evolution go to, in complexity science of complexity are called structures-attractors. By no means, all possible formations of nature appear to be manifested, implemented at every stage of evolution. Many structures remain to exist in an unmanifest world, which is hidden from us, in a kind of "world treasury of forms". The manifested structures and forms seen by us are only the top of the iceberg.

Structures-attractors are pre-given, they are probably embedded in complex open and nonlinear systems (media); they are determined purely by internal properties of these systems. They are the unmanifested and unrevealed, the "spirit of becoming" of systems. The most important here is Aristotle's idea of entelechy. Entelechy is the definition of the essence of a thing through its goal, the highest meaning of its being, i.e., in the language of complexity science – through a structure-attractor. In other words, the structure-attractor is a goal of a thing's self-development, its path to itself.

On the basis of the above-mentioned understanding of structures-attractors as own forms of open non-linear systems (media), the complexity science sets other accents in our vision of selection as a mechanism of evolution. When the processes of evolution of complex forms and structures are considered, it is usually assumed that selection leads to their improvement. From the point of view of complexity science, there are internal laws of development, in other words, selection works only in the field of predetermined possibilities; only those forms that are embedded in a certain complex nonlinear media itself are available to selection. These forms (or quasi-goals of evolution) are not created by selection, but are determined by own properties of a certain media.

The extended approach to virtual reality, substantiated in this article, consists in the understanding that virtual worlds are, firstly, the past as unrealized forms and structures, not yet traversed paths of evolution, and, secondly, the future, a scattering of possible organized forms, corresponding to a spectrum of possible paths to the future.

2. Virtualistics in the Context of Constructivism

The field of knowledge within which virtual reality is studied is sometimes called virtualistics. Modern virtualistics is closely related to constructivism (Benjamin 2016), which has become mainstream in philosophy, science, and culture. Constructivism is viewed as one of the most influential concepts and methodological approaches in philosophy of science as well as in many practically oriented fields, such as the theory of organization, the theory of management, futures studies and foresight, pedagogy, etc. Virtualistics has an even greater influence on various areas of design (Laing & Apperley 2020), for design is the invention and construction of reality that meets the needs and values of a person.

A significant argument in favor of constructivism comes from modern concepts of virtual reality. We live in a world in which it often becomes impossible to distinguish between the real and the virtual, between the physical as external, independent of a subject, and the endophysical, which comes from the subject and partly bears the signs of his/her nature. Layers of virtual reality overlapping each other due to a person's immersion in Internet surfing, electronic interactions, communication in social networks, creating our own avatars, and playing with images of oneself are the realities of today. The roots of the phenomenon of total virtualization can be seen in the evolution of life. Animals, mastering their environment, experience it, and at the same time themselves in this environment, choosing the best place for a nest or a burrow, marking their territory, etc. This element of randomness, unprogramming, random wanderings is especially characteristic for young individuals. A child, as a cognizing subject, while playing, tries the world without distinguishing between the real

and the fictional, the unreal, which can be or become real. A savage lives in images contrived and invented by him; for him, there is no virtual reality at all: everything is real events, or, on the contrary, everything is virtual. The "as if" thinking, which Kant taught, pointing to the ability of productive imagination, is familiar to the savage. A creative scientist proliferates hypotheses, multiplies the problematic nature of the world, tries different ways to solve a problem, that is, increases the diversity in his search field, thereby often achieving a solution to the scientific problem under study. Playing with virtuality is both the basis for the formation of a person in ontogeny and phylogeny, and the basis for the developed mind of a creative personality. If virtual reality with all its growing layers and hyper-possibilities is also a reality, then it is not possible to recognize what reality itself is. But we are able to construct reality in accordance with the images we have of the desired or preferred futures.

3. The Image of Nonlinear Time as a Platform for Virtualistics

So, the world is open and overflowing with a huge number of possibilities, unmanifested forms, not yet realized structures-attractors, the world is a storehouse of possibilities. Actualization of a part of these possibilities, testing what can and what cannot be done in the world here and now, what is not only desirable but also feasible (i.e., might be done) in a given situation that has a certain space-time configuration – this is precisely that nonlinear image of time that can be learned from complexity science. Time is a property of the evolutionary processes themselves, and the nonlinearity of time manifests itself in 1) the multiplicity of paths to the future, the presence of development alternatives, 2) in the acceleration and deceleration of evolutionary processes, switching between different modes, 3) in the presence of points of singularities where the greatest risks appear but also novelty can be born, 4) in the influence of the future or from the future (from structures-attractors). A visual representation of nonlinear time is a *tree of time*, similar to the evolutionary tree in biology.

The Belgian physical chemist Ilya Prigogine, who throughout his life fulfilled his youthful dream, which he expressed in 1937 in three short notes for a student journal and which consisted in unifying natural sciences and philosophy by solving the riddle of time (Prigogine 1997). The riddle of time for Prigogine consisted in his desire to understand the origin of the *arrow of time* and the nature of bifurcating processes. He spoke directly about the nonlinearity of time: "Every complex being is constituted by a plurality of times branching one over another, according to their subtle and multiple articulations" (Spire 1999, 25). Of course, this image of bifurcating, branching time is metaphorical, but it reflects the inner spirit of our century of acceleration of all processes and radical transformations through bifurcations.

If we turn to belles-lettres, then here we can find a number of similar images of time. J.W. von Goethe appears as a deep thinker who created his own concept of time. Even the time of nature is historical, as I. Prigogine wrote about it today. According to Goethe, time is a) a possible, potential, conceivable time ("mögliche, potentielle, gedachte Zeit"), b) a property closely related to space. Goethe drew pictures to represent time. For him, space bears in itself traces of time, and "time comes from the observed space, is built on it, possibly limited by it and has its own horizon in it ... Time becomes visible as an ordering of space or as destruction of space" (Pörksen 1999, 62 – 63).

A beautiful and deep image of nonlinear time was made by José Luis Borges, the Argentine philosophizing writer, in his essay "*The Garden of Forking Paths*": "The Garden of Forking Paths" is an enormous riddle, or parable, whose theme is time… [It] is an incomplete, but not false, image of the universe as Ts'ui Pên conceived it. In contrast to Newton and Schopenhauer, your ancestor did not believe in a uniform, absolute time. He believed in an infinite series of times, in a growing, dizzying net of divergent, convergent, and parallel times. This network of times which approached one another, forked, broke off, or were unaware of one another for centuries, embraces all possibilities of time" (Borges 1941).

The vision of time from the point of view of the science of complexity is close, on the one hand, to existentialism and phenomenology (I enter space and time from myself, it is no longer external to me, my bodily nature determines the peculiarities of my perception of the world, cuts the fabric of the world "according to my own measures", "according to my shoulder"), and on the other hand, epistemological constructivism (I actively master time and I deliberately construct the future, I make a conscious and balanced choice of the desired future from a certain spectrum of potentially possible variants, which are in principle feasible in a given environment and in a given situation).

4. Cultural Prototypes of the Modern Understanding of Virtual Reality: Buddhism and Russian cosmism

Buddhism. Potential and unmanifest. According to the Buddhist, Taoist, Shinto mentality, every smallest particle of the Universe is a special world, spiritualized by its own life and at the same time by a universal life, one with everything else in the universe. It is in a sense identical, equivalent to other, small and large fragments of the Universe. Each particle carries a spark of the universal spirit, participates in the totality of the impersonal cosmos. In philosophical language, this idea of the unity and coherence of the world, a single all-pervading connection of everything with everything, is expressed as a property of the monadic nature of the elements of the world.

In Buddhism, the idea of the connection between everything with everything is presented primarily in the theory of dharmas. Dharma is the basic concept of the Buddhist worldview, which is extremely multifaceted. It is used to designate both "carriers" (some substrates) and "carried" (relationships and qualities). First, the dharmas constitute a kind of unified and continuous stream of transient elements of being. Secondly, dharmas are born and die every moment, depending on each other, and they, as a rule, act together, unite into conglomerates. "From the point of view of the Buddhist system, all elements – dharmas – are something homogeneous and equivalent; they are all interconnected" (Rosenberg 1991, 128). Thirdly, dharmas are not eternal and unchanging elements of being, but the existence of processes (also in complexity science, a structure is a process), outbursts of the energy of being. "In front of us, there is a picture of the world as an undulating ocean, like waves from the depths, separate elements of life are constantly rolling out from somewhere. This undulating surface is, however, not chaos, but obeys some strict laws of causality. Some elements constantly appear in concomitant with others, certain also continuously follow others. This teaching "about the jointly dependent birth of elements" is the most central point of the entire Buddhist worldview. It is inextricably linked ... both with the scattering of all things into separate elements and with the momentary succession of some combinations of elements after others" (Shcherbatskoy 1989, 232 – 233). The connection between everything and everything and the continuous flow and transformation of existential forms in the Buddhist worldview is comparable to the difficult distinction between the real and the virtual, an unsharp and fuzzy boundary between them.

Another powerful idea of the East, which is also close to the modern understanding of virtual reality, is the idea of the potential and the unmanifest. The harmonious structure of the universe – the Cosmos – is born from the primordial Chaos, and Being comes from Non-being, and the phenomena that man observes emerge from the abyss unlimited in their potencies. The image of Non-being is especially remarkable. Non-being is potential, unmanifest, unformed. It is an everlasting, all-generating and all-consuming basis of things. And Being, on the contrary, is actual, manifested, formed, it is a temporary, transient manifestation of Non-being. According to "I Ching" – the Chinese "Book of Changes", forms appear to us from Non-being and, having exhausted themselves, again plunge into Non-being. It is also curious that Non-being, although it is interpreted as formless, it is, in fact, infinitely rich in forms, though not yet realized, in the process of becoming. Non-being contains everything, all forms, in an implicit, undeveloped, hidden form. Such an image of Non-being or primordial Chaos largely coincides with the understanding of a nonlinear medium developed in modern complexity science, in which the whole set of possible forms (spectrum of structures-attractors of evolution) is hidden in potency, in an unmanifested form.

The Buddhist idea of universal connectivity, the unity of everything in the world and the cyclical overflow of Non-Being and Being (unmanifest and manifested) into each other can resonate with the models of complexity science in another way. It can be assumed that there is a certain primordial medium on which all the other observed and studied media grew up, just as in linguistics they assume the existence of the Indo-European proto-language as a root for all Romanic, Germanic and Slavic languages. Then, all the media with which we deal in life and in a scientific experiment appear as certain fluctuations (perturbations), visible manifestations (or modifications) of this single base - pre-media. Therefore, all visible media are connected with each other through this primordial medium. That is, the unity of world media, of systems and their elements, perhaps, is the unity of their origin, the availability of a common root from which they all spring. And the coherence of the world of nature can be interpreted nor simply as an interaction of everything with everything and neither the dependence of everything on everything, but rather as connectedness, again through a single origin, on the pre-medium, and a possible – in the case of an oscillatory regime – renewed immersion into it again.

As for the medium of consciousness, here Buddhism also assumes the existence of a special primordial or primary state, which is designated as "ālayavijñāna", "citta" or "manas". This is a fundamental store-house consciousness, i.e., the consciousness "containing the rest of the dharmas in the form of seeds or embryos" (Rosenberg 1991, 153). According to later versions of Buddhism, all existence is necessarily considered mental. Therefore, such a pre-medium of the universe, as a matter of fact, is identified with a potentially infinitely rich and undeveloped state of store-house consciousness. "The entire Universe, the real world, seems to consist of an infinite set of possible ideas, which are, as it were, in a "dormant" state, in the store-house of consciousness" (Shcherbatskoy 1988, 66).

Russian cosmism. Man is viewed as the bearer of the entire metaphysical inventory of nature. The idea of man's being embedded in the cosmos and his involvement in all past and future events runs through the works of Russian cosmists. In Nikolai A. Berdyaev's writings, for example, we read: "The mental elements of a person are cosmic ... In a person, you can discover all the strata of the world, the entire composition of the world. Man is not a fractional part of the universe, not a fragment of it, but a whole small universe, which includes all the qualities of the big universe, imprinted on it and imprinted on itself" (Berdyaev 1994, 82). Man is unusually complex, multicomponent. He is like a microcosm or a point of a hologram, which carries in a convolute, unmanifested form a whole, a multitude of hierarchical temporal and spatial plans of the cosmos. He "outlives the entire universe in himself" (Berdyaev 1994, 83).

The man rolls up everything in himself, and this idea is akin to the idea of the Eastern sages "one in everything and all in one." This secret, unmanifest in a person is associated with the elements of sleep, night, darkness, gloom, i.e., chaos in which the possibilities of daytime manifestations of being seethe. In the chaos lies the whole set of hitherto unrealized or currently unrealizable forms of being. And since a person in a hidden, latent form is a bearer of everything, then it is through him that tests of the world, probing of the future, theurgic making of the world are possible. A person is able to use his body and mind as a tool for understanding the world and co-creating the world on a par with God. This is the meaning of theurgy.

Russian cosmists developed the image of Sophia as Divine Wisdom. Sergei N. Bulgakov speaks in this connection about the Sophian nature of human creativity. "It is metaphysically substantiated by the real involvement of man with the Divine Sophia, who conducts the divine forces of the Logos into the world and in relation to nature as a product signifying *natura naturans.* A person can cognize and influence nature, "subjugate" it, be its "king" only because he carries in himself, albeit in a still undeveloped form, potentially, a compendium of all nature, all of its metaphysical inventory, and as the inventory is being deployed and actualized, he takes possession of nature" (Bulgakov 1993, 158). In the metaphysical abyss of non-being, to which the deepest layers of the human soul are involved, everything is already available in a potential, virtual, undetected form; there are entities that can be brought to the level of existence. There, in the abyss of nothingness, where everything is weighed and the possibilities of the future development of the world are played out, everything has already been given.

Bulgakov explains that "human creativity, therefore, does not contain anything metaphysically new, it only reproduces and recreates from existing, already created elements and according to newly found, recreated, but also previously given samples" (Bulgakov 1993, 159). But at the same time, he adds that man as a created entity is immanently inherent in the desire to overcome his createdness, to become like God *natura naturans* (creative nature), that is to join the creation of new forms in the treasury of non-being, from which nature draws its strength.

There is a parallel here with complexity science. As a result of studying relatively simple mathematical and computational models of evolutionary processes in complex systems (media), a result of fundamental importance has been: a continuous nonlinear medium potentially contains various types of process localization (various types of structures) (Knyazeva & Kurdyumov 2008). A continuous dissipative medium acts as a carrier of various forms of future organization, as a field of possible paths of evolution. Both the human personality and social organizations carry their own spectra of dynamic structures.

Spectra of possible forms of organization are a hidden, "tacit" knowledge of corresponding media themselves. Many possible organized forms remain so forever in the unmanifest world. The invisible part of the iceberg of generally possible forms is enormous in comparison with the visible tip of the already actualized and accomplished. Pavel A. Florensky expresses the same idea in relation to a person in his essay "Organ projection": "Tools are created by life in its depths, and not on the surface of specialization, and in its depths, each of us has potentially many different organs that are not identified in his body, and can, however, reveal them in technical projections" (Semenova & Gacheva 1993, 161).

From the standpoint of complexity science, the role of man as a subject of action and transformation of the world and of actualization of the virtual is very significant and twofold.

First, knowing the whole tree of possible evolutionary paths (calculating it, when possible, mathematically, or understanding it in a qualitative way), it can facilitate a certain system to get into the most favorable and feasible paths of evolution. According to complexity science, the actions of an individual person are significant, especially near moments of instability of various kinds: either in the vicinity of a bifurcation point, branching of evolutionary paths of a system, or near the moment of blow-up.

Secondly, since a spectrum of possible paths is determined purely by intrinsic properties of a system, then, by changing own properties of the system, man can partially rebuild the evolutionary tree of this system, i.e., to gain access to the metaphysical treasury (store-house) of its forms. The Sophian nature of human creativity, which was mentioned by S.N. Bulgakov, consists in the need to realize the entire burden of responsibility when using the metaphysical inventory of nature. In order for the creative and constructivist activity of man to be successful, its attitudes must be consistent with its own paths of evolution of cosmos, with inner possibilities of the development of the cosmic medium itself or some of its fragments. This conclusion follows exactly from complexity science. This means that a person should create in partnership, in collaboration with the cosmos.

5. Virtualization of a Creative Personality

The virtualization of the human personality is associated with the expansion of the space of the human soul in states of *creative inspiration*, *sleep* (especially at the special stage of sleep with dreams, recorded by rapid eye movement - REM), *death*, when the human body dissipates, returning to the universe, and the human soul expands so that it can again embrace the universe. All three states, it turns out, are strikingly related to each other (Varela 1998).

It is important for each of us to realize that our future depends on many things, but, above all, on each of us. A man actively constructs himself as a person in his life, in scientific and cultural creative activities, in education, and in self-education, which lasts all his life. The well-being of a person is in his own hands. A person actively integrates himself into society, finds a "cognitive (cultural, political, etc.) niche" that befits him, which is associated with his adequate self-realization.

From the point of view of complexity science, a person is by no means a toy in the hands of destiny: both each person and humanity as a whole have a multitude of destinies. Complexity science proclaims not destiny, not fate, but the openness of the future, a plurality of perspectives, many different future worlds. This openness of the future and the ability of the world to create innovations are due to the fact that randomness, internal spontaneity, unconditioned deviation, an automaton (from the ancient Greek – **αυτο−ματον -** chance, accident; spontaneity) in the sense of Epicurus are unavoidable and lie at the very basis of being. The birth of something new is possible only in a world filled with chances. If everything in the world is rigidly pre-determined, fatal, then the formula "nothing is new under the moon" would be fair and time would again become an illusion, as it was in classical science.

Of course, man is an extremely complex creation of nature. One can even say that each individual person is more complex than society because he carries everything social (through his social roles) and everything natural, both individual, personal and universal, determined by the entire history of the human race. With one part of his Self, he can *know* that the future has alternatives, that his own life path and the path of development of the society in which he lives are not predetermined. And with the other part of his Self, he can *believe* in his destiny, in the predetermination of his future. These two horizons - the *horizon of knowledge* and the *horizon of faith* – do not intersect and do not contradict each other, but coexist, quite get along in it.

As Alexander S. Pushkin wrote, the chance is God the inventor. But, as the Russian proverb says, "Trust in God, but don't make a mistake yourself!". And man does not fail ... He has the power and the right to choose which way to go, which future, and how to consciously build. Constructing the future is, in fact, choosing the world in which he is going to live. Therefore, the words of the French existentialist philosopher Jean-Paul Sartre sound quite right: "Man is only what he makes of himself. Man projects himself into the future. Man is, first of all, an intention." Attitudes, plans are the expected and desired future. But, getting into the evolutionary channel, into the cone of magnetism of a certain attractor, a person drawn by the future is built from the future. This inner play of freedom of choice and pre-determination, attraction to the future (plan) and attraction from the future (attractor as a future state), the anticipated

and the really coming, multiple and unambiguous, unfolding and collapsing a fan of possibilities is the essence of the modern understanding of the flow of life and human creativity from the position complexity science.

A person is simultaneously full of intentions and plans and attracted by the future state, is active and has the right to choose his own path, especially in states of instability, when he can influence the formation of a new social pattern, and against his will, is carried away by powerful streams of currents to structures-attractors. He actively builds and rebuilds himself and his closest or even the more distant social environment, his Lebenswelt (Kurt Lewin) and his Umwelt (Jakob von Uexküll), and is conditioned both by his own nature and by the environment to which he evolutionarily adapted.

Hermann Hesse wrote: "Each man's life represents a road toward himself, an attempt at such a road, the intimation of a path. No man has ever been entirely and completely himself" (Hesse 1960). Genuine creativity requires complete dedication from a person. This is a dissolution of oneself in the world, an attempt to merge with the cosmos. This is the expansion of the space of the human soul, the virtualization of the personality. A person must give himself to the world, be ready to lose his Self, in order to find it, in order to gain himself again. A person must dissolve himself in the world, dissipate in it in order to structure himself in a new way, to emerge from the cosmic element renewed. A person should not be afraid to part with himself in order to meet himself again. The act of creativity is an act of personal transformation, finding oneself, actualizing the possibilities hidden in the soul and mind. The creative personality is like a Phoenix bird: it incinerates itself in creative fire and is reborn renewed, enlightened, awakened to a new life.

Parting with oneself is a manifestation of courage, not everyone is capable of this. It is scary, but at the same time attractive, it allures creative people. Parting with oneself in an act of self-giving to the world (in a creative outburst, in the rise of inspiration, in love, in a dream) is something opposite to egoism; this is altruism, but egoistic altruism, for as a result a person builds himself from another, builds and rebuilds himself from the world, cultivates his own ego, cultivates himself as a person. "The aim of life is self-development," says Oscar Wilde through the lips of the hero of his novel "The Picture of Dorian Gray". And self-development, self-organization, self-realization of oneself in the world is a person's path to himself.

One of the new approaches in cognitive science is the conception of embodied, situated, and enactive cognition (Knyazeva 2013). Enaction is the inbuilding of a person into the world. That is, a person always knows only through action, it is through action that intellect is forged, cognitive abilities are developed. And a person thinks not only with his brain, he feels not only with his consciousness, he thinks and feels with his whole body. Man is a

corporeal being. He remembers with his whole body; feelings never deceive, the most genuine feelings are, as they say, skin sensations, the sense of touch. Marina Tsvetaeva also wrote that touch is never forgotten. There is no dispute about sensations, as well as about tastes. Tactile sensations are always true and never forgotten. There is the cumulative and all-pervading connection of all levels of cognition, the inseparable connection of cognition with action, cognition through actions in the environment, and through interaction with the environment that forms the cognizing being and which he modifies for himself. Such is the connection of a person with the world, you and me, each of us.

A person can be in various states: a waking state, a state of creativity, creative flight and inspiration, a state of a person in a dream, a state of dying. As noted above, there is a deep analogy between different types of states: creativity, sleep, dying. A person "tries" death in a dream, falling asleep, he goes through the stage of slowing down the processes and spreading along the old tracks in order to re-ignite. In a dream, a person also seems to part with himself – as if here he pushes some kind of boundary of human corporeality – he goes into a kind of virtual world, which, of course, is conditioned by his life experience, his daytime existence, the tasks he solves, but scrolls this experience in his own way, shovels this experience, and then, waking up, the person returns to the common world. Often it helps to see the world differently and solve the problem because creativity is exactly the ability to see differently. The most creative part of sleep is dreaming, which is recorded as rapid eye movement (REM sleep). But dreamless sleep was considered by the ancient Indians to be the deepest mystery. In general, up today it is not clear what is going on there. Perhaps, in a dreamless dream, a person can come into contact with some distant future of civilization. True, since this is a dreamless dream, we cannot verbalize this experience, we cannot convey its content to friends, colleagues, and people around us. That is, the person himself, perhaps, becomes different, there is a change in the deep structure of his personality. But the experience gained, this state in a dream when a person parts with himself and learns something about the world, cannot be described in words.

Another example is the state of creativity. How do artists create? A Zen artist says, "To paint this pine tree, I have to become the pine tree myself." Recently, I watched a documentary about a legendary Russian actor Innokenty Smoktunovsky, in which he shares his experience on how to play a role. "I do not play this image (it was about Prince Myshkin from the Fyodor Dostoevsky's novel "Idiot"), I become him, I live him." This is also going beyond the limits of Self, beyond the boundaries of your own bodily and mental. One should live and experience this image, reincarnate into it. And, reincarnating into another person, one might discover in himself a different, perhaps even deeper and more genuine Self. Becoming different, an artist becomes himself.

In the language of the science of complexity, all creativity is a resonance of a creative person with the world. A person gives himself up to the world, and besides, he gives himself completely, without a trace, without looking back. So, it is known that some poets, who gave the world high examples of poetic creativity, admitted that "I do not write, but someone else leads my hand," "I cannot help but write," "I strive for a pen and the pen strives for the paper". It is a piercing feeling that fetters a person and forces him to write. This is the realization that he must write and must create, he must do something in this world, fulfill his universal mission. Any creativity, like a dream, is a surrender of oneself to the world, merging with the world, stretching to the limit of the boundaries of human corporeality. But recoil for what? In order to find yourself, to reassemble yourself piece by piece. A person who is not afraid to part with himself, dissipate in the environment, dissolve himself in the world, is truly a whole person, for he permanently and dynamically rebuilds his integrity.

And here, too, there are two approaches. On the one hand, a holistic approach, that is, only a whole, integrated personality, such as Smoktunovsky, could create such artistic images. Only the one who has a lot inside himself is a person without boundaries. Because if a person has nothing inside of him, has no internal content of his own, there is no core left in him, no content of his own. He is all absent-minded, disoriented in the environment. On the other hand, there are socially oriented people who have matured a little spiritually, whose solid core of personality is in the stage of formation, they can give all of themselves to the world, but at the same time, endless and constant social connections, support from the others as well as participation in this world are important to them. And the one who has found this hardcore in the own soul, must move away from the world, for a while, go into the desert, into seclusion, into loneliness, leave in order to collect himself, in order to then again give himself to the world to the end and tell this world a New word. And so, it turns out that a person is a kind of pulsating creature. It is because he has collected this solid core in himself, insofar as he is aware of his mission on this Earth, he is ready and feels his calling to endlessly give himself to the world, to give himself without a trace. Give without regret, so that later you can discover something else in yourself. And if you hold something for yourself, you will not succeed. If you constantly give everything completely and drain the well of your soul to the very bottom, only then will you collect a whole picture of yourself.

Thus, it turns out that in accordance with these new approaches to cognition and creativity, the self-organization of a person, when he constantly virtualizes himself as a personality, extend the boundaries of his corporeality or his consciousness, and then collects himself as a person, this is the person's path to himself.

6. Concluding Remarks

An extended approach to understanding virtual reality is possible and, moreover, relevant in the light of modern scientific trends. Some of its aspects and capabilities have been discussed here. Virtualization and possible worlds are applicable to the past and the future. For the past, these are unrealized paths of development, which, in the light of the cyclical character of the evolution of nature and human history, can still be realized (in particular, theoretical history deals with this). For the future, these are alternatives of development and possible future worlds (alternative studies and scenario planning are an important component of modern Futures Studies). As for the work of human consciousness, it constructs and creates different worlds in the processes of creativity, imagination, sleep, which allows finding ways to transform and renew reality. Following the ideas of Plato, Descartes, Schopenhauer, one can assume that the worlds constructed by creative inspiration or imagination, and the worlds of dreams can be sometimes brighter and more significant than our ordinary world. And the borders between the imaginary world and the real world are fuzzy and fluid. It is not for nothing that imagination and immersion are considered techniques for interacting with artificially created virtual reality and cyberspace. Moreover, it is possible that we can create and produce artificial virtual worlds, since we ourselves by our nature are plural and ambiguous in our activities and in the work of consciousness.

Henri Bergson is right that "the route we pursue in time is strewn with the remains of all that we began to be, of all that we might have become" (Bergson 1911, 100). It is no coincidence that these words are taken as an epigraph to the article. The remains of the past coexist with us and now can be called from the depths of non-being, from virtual reality to actual and manifested being. The potential, unrealized, hidden, virtual in the world is immeasurably richer than the actual, realized, manifested in it. The world is a game of actual forms of being over the abyss of the virtual world.

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