

General Principles of the Unitary Theory of the World

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Abstract

Much effort has been done to comprehend the basic principles and rules which govern the existence and the development of the World. Physicists set themselves a goal of creation a Theory of Everything. Their approach to the description of the World is based on the categories such as Time, Space, Mass, Energy, Radiation, Particles, Electromagnetic Forces, Gravitation, etc. However, the World do not represent only these physical objects, formations and phenomena, but also Living Organisms, Live, Flora, Fauna, Human Beings, Human Society, Humankind with its Culture, Arts, Aesthetic, Feelings, Science, etc.

That is why an author has suggested following categories for description of the origin and development of the World in all of its features and processes: Laws of Nature, Potential to exist of Physical World in the “State” of Singularity, Communications/Relations/Interactions, Forces, Real Physical World, with its observable quantities: Time, Space, Energy and/or Mass, Direction, Information, Intellect, Potential, and Contingency. These individual basic quantities are being „present“ or are „acting“ in individual elements, parts, processes,of the Objective Reality as multiples of their elementary quanta. The individual basic quantities, elements, parts, processes, .. E_i of the Objective Reality exist in mutual interactions, which cause changes, transformations and/or motions (including appearance or disappearance) of the individual basic quantities of the Objective Reality as a whole, respectively.

The suggested concept enables to describe (or to express or to „absorb“) all of the known quantities, characteristics, phenomena, elements, parts, processes, laws, behavior etc. of the Objective Reality on the basis of positivistic knowledge and experience, and verified theories.

Introduction

An understanding of the origin and a nature of the World is one of the most urgent needs of the Mankind. Man has always realized the importance and the fundamental significance of correct and precise understanding and knowledge of the World for his living and surviving.

Much effort has been done to comprehend the basic principles and rules which govern the existence and the development of the World. Many philosophical hypotheses, and theories have been postulated so far on these subjects (Klaus & Buhr (1985); Ojzerman (1985); Stoerig (1991)). They were based on such philosophical categories and principles like:

- God as the principle of the Objective Reality,
- Mass as the Objective Reality, which exists outside human consciousness,
- Idea and/or Spirit as a primary actor in the Objective Reality,
- Motion as an inseparable attribute of the Mass,
- Cognition of Objective Reality,

and many others.

However, each of them has stressed only some of the observed, deduced, induced, presumed, logically constructed or simply postulated features of the World. Huge amount of knowledge, experience and facts have been gained in specific scientific disciplines, such as mathematics, physics, chemistry, biology, and other human activities and experience of the Mankind (Halliday & Resnick (1981); Malisek (1986); Vesela (1988); Fischer (1986); etc.).

A special attention deserves the Standard Model of Universe which is based on the Theory of Big Bang (Weinberg (1998); Hawking, S.W. (1991)). The Model respects contemporary empirical and experimental observation and theoretical methods and description reached especially in physics and cosmology. The Model has introduced a concept of the Singularity, which expresses the fact that there had not existed any time, space, mass,

energy, and anything else at the beginning of the World, i.e. approximately 200 ms before the Big Bang had come on. It states also that the known physical laws have been acting since 200 milliseconds after the Big Bang had appeared till now giving the existence and features of elementary and/or atomic particles, mass, radiation, photons, cosmic nebulas, suns, planets, galaxies and further cosmic and physical objects.

Physicists even set themselves a goal of creation a Theory of Everything, too (Hawking, S.W. (1996,2004); Weinberg (1996). The dominant contemporary approach of the physicists (and some other scientists) to description of the World is thus based on the categories such as Time, Space, Mass, Energy, Radiation, Particles, Electromagnetic Forces, Gravitation, etc. (Green (2001); Hawking, S.W. (1991); Thorne (2004); Grygar (1997); Novikov (1989); Fraser & Lillestøl & Sellevåg (1996); etc.)

Author of this contribution is of an opinion that the World represents not only elementary and/or atomic particles, mass, radiation, photons, cosmic nebulas, suns, planets, galaxies and further cosmic and other physical objects and formations of physical objects, but also Living Organisms, Live, Flora, Fauna, Human Beings, Human Society, Humankind with its Culture, Arts, Ethic, Aesthetic, Feelings, Science, etc.

The aim of this contribution is to introduce a new concept of the Unitary Theory of the World, which is based on a specific structure and interactions of axiomatic elementary quantities, to outline the ways how to grasp and describe fundamental principles of our World and our existence.

The Basic Axioms of the Theory

The concept introduces seven basic axioms of the Unitary Theory of the World and explanation of their function in the creation and development of all entities and features of our World as follows:

§ 1. There had existed four principal categories of the Objective Reality before our Universe/World (denoted thereafter as E_W) begun:

- Laws of Nature (in the sense of “Lex Naturalis”), denoted further as E_{LN} ,
- Potential of our “Real” World (E_{PPW}) to exist (but not yet in existence) in the “state” of singularity,
- Contingency (E_C), and
- Communications/relations/interactions (expressed via \wedge , \vee , and \vdash logical symbols).

§ 2. At the beginning of our Universe/World: Contingently, the Potential to exist of the Physical World started to communicate with the Laws of Nature and thus changed or transformed itself into the Forces (E_F), which gave origin to the Real Physical World (E_{RPW}), with its observable quantities: Time (E_T), Space (E_S), Energy (E_E) and/or Mass (E_M), Direction (E_D), Information (E_I), Intellect (E_R), Potential to exist (E_P), and Contingency (E_C).

It can be noted down using notation of the formal logics as follows:

$$E_{LN} \wedge E_{PPW} \wedge E_C \vdash E_{LN} \wedge E_F \wedge E_C, \quad (1)$$

$$E_{LN} \wedge E_F \wedge E_C \vdash E_{LN} \wedge (E_T \vee E_S \vee E_E \vee E_M \vee E_D \vee E_I \wedge E_R) \wedge E_P \wedge E_C, \text{ resp. } (2)$$

The symbols “ \wedge ”, “ \vee ”, and “ \vdash ”, are for a logical “and”, “or”, and “it can be derived from”, respectively (Janak (1976)). They express communication, interactions or relations among the individual quantities and laws.

Note 1: An inherently indicated sequence of individual quantities in relations (1), (2) and others, has not to be understood as a time consequence, since there was no Time at this stage of the beginning of the World.

§ 3. These individual basic quantities are being „present“ or are „acting“ in individual elements, parts, processes,of the Objective Reality as multiples of their elementary quanta.

Note 2: At the time being, the following values of the basic elementary quanta are known (CODATA (2002); Broz & Rokovec (1987)), for:

Time (Planck's Time): $5.39121(40) \times 10^{-44}$ s,

Space (Planck's Length): $1.61624(12) \times 10^{-35}$ m

Energy (Hartree): 4.360×10^{-18} J

Mass (Hartree): 9.110×10^{-31} kg

Others can be understood as follows:

Direction: +/-, or up/down, or forward/backward, etc., respectively;

Information: bit

Intellect: the individual Laws of Nature inherent/obtained in the specific elements/processes of the Objective Reality;

Potential to exist: probability $\langle 0,1 \rangle$

Contingency: arbitrary act in development of the World.

§ 4. The individual basic quantities, elements, parts, processes, E_i of the Objective Reality (OR) exist in mutual interactions.

These interactions cause changes, transformations and/or motions (including appearance or disappearance) of the individual basic quantities $E_S, E_T, E_E, E_M, E_D, E_L, E_R, E_P, E_C$, and elements, parts, processes, E_i of the Objective Reality as a whole, respectively.

These interactions can be noted down as follows:

$$E_{LN} \wedge (E_S \vee E_T \vee E_E \vee E_M \vee E_D \vee E_I \wedge E_R) \wedge E_P \wedge E_C \vee E_1 \vee E_2 \vee E_3 \vee \dots E_{i-1} \vee E_{i+1} \vee \dots \vdash E_i \quad (3)^1,$$

or

$$E_{LN} \wedge (E_S \vee E_T \vee E_E \vee E_M \vee E_D \vee E_I \wedge E_R) \wedge E_P \wedge E_C \vee E_1 \vee E_2 \vee E_3 \vee \dots E_{i-1} \vee E_i \vee E_{i+1} \vee \dots \vdash \text{OR} \quad (4),$$

respectively,

where $E_1, E_2, E_3, \dots E_i$ are symbols for individual/specific elements, parts, processes, etc. of the Objective Reality (OR).

In other words, the elements, parts, processes, phenomena, etc. of the Objective Reality can be expressed, or composed, or derived, or characterized by means of the above mentioned basic quantities, as “a result” of all mutual interactions of existing elements and processes.

§ 5. Transformations or motions of the elements, parts, processes, ... E_i of the Objective Reality are govern by „grammar“ or „syntax“ rules which are usually known or understand as the Laws of Nature (E_{LN}).

These rules are inherent in elements, parts, facts, features, attributes, E_i of the Objective Reality, too.

They are „applied“ or “realized” via E_I, E_R, E_D quantities, i.e. they can be expressed by means of the elementary quanta of information E_I , intellect E_R , and direction E_D .

§ 6. The interactions among the elements, parts, processes, of the Objective Reality do not change always/necessarily each of the characteristic dimensions, or values, or quantities, etc. of elements, parts, processes, E_i of the Objective Reality considerably or at all.

¹ The expression $E_{LN} \wedge (E_S \vee E_T \vee E_E \vee E_M \vee E_D \vee E_I \wedge E_R) \wedge E_C \vee E_1 \vee E_2 \vee E_3 \vee \dots E_{i-1} \vee E_{i+1} \vee \dots \vdash E_i$ is read: E_i is derivable from $E_{LN} \wedge (E_S \vee E_T \vee E_E \vee E_M \vee E_D \vee E_I \wedge E_R) \wedge E_C \vee E_1 \vee E_2 \vee E_3 \vee \dots E_{i-1} \vee E_{i+1} \vee \dots$.

That is why these interactions can repeatedly result in relatively stable forms of individual subjects (elements, parts, processes, ... E_i) of the Objective Reality.

§ 7. Actualization/Realization/Existence of the individual eventualities in the Objective Reality, including Its state or form as a whole, is in principle contingent, even though some of their consequences may be relatively stable and repeatable as has been mentioned above.

Discussion and Remarks

The suggested theory states/underlines the significance of laws of nature, as well as physical entities, and Contingency for the origin and development of the World. According to this theory, real specific processes, objects, entities, substances, phenomena, knowledge, etc. can be defined, described, “constructed”, actualized, realized using the above mentioned basic elementary quantities and their interactions. The quantities and interactions could be denoted as our “World Existence Dimensions”.

In other words: our World consists of independent/separate components, such as:

- Laws of Nature (which we are trying to reveal/discover/describe/use...),
- Physical Entities/Quantities (we can observe, measure, study, use, to work with them, to modify them, ...),
- Potential to exist,
- Contingency,
- Intellect (which enables us to learn, get and to structure knowledge, experience and information, intentionally use also the Laws of Nature, and properties/features of the Physical Entities, and also to estimate consequences of contingency variants,), which are in mutual interaction/communication/motion/modification...

The Unitary Theory of the World reveals that real World, we live in, is not only three-, or four-, or more dimensional, but infinitely dimensional, and it is expanding unceasingly in its dimensions, contingencies, new entities, etc., which also „belongs“ into a scientific/philosophical description of the World.

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The suggested concept enables to describe (or to express or to „absorb“, etc.) all of the known quantities, characteristics, phenomena, elements, parts, processes, laws, behavior etc. of the Objective Reality on the basis of positivistic knowledge and experience, and verified theories, because many of the discussed categories and phenomena have been yet studied, known, and applied in human practice relatively thoroughly.

Moreover, the created concept (and also suggested notation) enables also to structure systematically - on the “sub-microscopic, “„microscopic“ and/or „macroscopic“ level - all of the quantities, elements, parts, processes, ... E_i of the Objective Reality, including the interactions, relations, laws, among them, even though they have not been known completely, correctly, preciously, or at all so far. Thus, the concept can be helpful also in searching for such possibly existing but so far omitted and unknown features of the objective reality. It also describes the fact that the “individual cosmoses” are continually born and passed – in the frame of “our” current universe, e.g. at the genesis of a new human being, or a new knowledge, or of some artifact etc.

The above mentioned principles sum up the accessible knowledge on the World and Its inherent laws and behavior, as well. They are in “natural” agreement with these laws and experience. The submitted theory respects and absorbs basic cosmological findings, as well

as the knowledge and experience gathered by special natural science, such as physics, logics, mathematics, chemistry, biology, etc. Moreover, it provides also a sufficient “intellectual space” to incorporate all the “superstructure” sciences and branches such as technology and engineering, informatics, cybernetics, as well as psychology, sociology, aesthetics, pedagogy, history, art and cultural sciences, theology, and others, into the homogeneous scientific environment.

The Unitary Theory of the World underlines the fact that we are able reveal principles and entities of the World, however, we cannot recognize the real World in all of its detailed parts and features and predict its development.

The introduced theory does not solve the problem why the World emerged and why it has got just such parameters and behavior as it has/owns/exhibits. It is focused on the two principal questions: how the World was originated and how It has been developing so far and – probably how It will develop in future.

These philosophical aspects may help us to improve and deepen our scientific knowledge, and also may enable solving some practical tasks - sociological, psychological, ecological, and others.

Hopefully, the critical verification of the suggested theory by individual scientific and branch specialists, philosophers and others, will make it more precise, comprehensive and applicable in further scientific, technical, social etc. branches.

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