

ON THE ROLE OF INFORMATION IN THE NATURE

John-Tagore Tevet, Erki Tevet
Research group of structure semiotics

Abstract: The nature means here all that was happened in the Universe from its creation to present time. Information in the Nature is treated here as the data about the laws of Nature, i.e. binary relations between natural objects. Natural objects have material, energetic or intellectual form.

INFORMATION

More and more attention has recently been paid to the role of information in nature. Information is originally understood as meaning of data and messages intended for the humans.

All natural phenomena and processes are descriptive, ie they are information: Information reflects the organization of the system. Organization is thus an intrinsic feature of the system and can be considered as structural (qualitative) information. Structural information reflects (includes) both natural objects and the binary relationships between them.

Most of the laws of Nature are still hidden from humans. It is the role of human being to gradually discover them and exploit them in a self-serving way. So we have learned to count things, to use numbers, to measure phenomena, and to invent the wheel, the sewing machine, the computer and more. So we have begin to understand about the things – arises the *ability to think, the intellect*. But we can also *fantasize and lie*.

Brenda Dervin (1976), known as the founder of the school of so-called sense making, looked at the concept of information from the perspective of *Karl Popper (1972)*. He distinguished between the following types of information:

1. Objective information that is external to person and describes reality.
2. Subjective information that is our vision or reflection of reality.

So-called *sense-making* information enables to "move" between objective and subjective information, understand the world and operate correspondingly to this understanding.

Dervin assert that such approach emphasize the importance of primary sources the subjective information and informatics and aside the arguments on priority of formal infosystems.

Michael Buckland's (1991) typology distinguishes three categories when considering the concept of information:

- (a) Information as a process of informing, conveying information and indicating a change in the state of human knowledge.

- (b) Information as knowledge reflecting what has been acquired in the first category.
- (c) Information as a "thing" referring to informative data and documents.

These are just a few examples of attempts to define and classify information.

It must be acknowledged, however, that there are many different approaches to information today, and the major disagreements are about the truthfulness, physical existence, orientation, uncertainty and applicability of information. Most definitions agree that information is "something" that reduces uncertainty or changes perceptions of reality.

This is the mainstream or schoolboy information about information. Now let us define the nature of information from the structural semiotic point of view.

From the meaning making aspect, ***information can be considered to forming, creating, generating or inducing something.***

Thus, the *Reformation* means the *reorganization (restoration)* of something and the *deformation the change (destruction)* of something, etc.

In different terminologies, the term "information" may have different meanings, whereby information can be distinguished from data. Objective information takes the form of, for example, such as a natural binary relationship between an object and its environment, such as gravity (gravity waves) and other physically acting relationships.

An creature's primary source of information is his environment.

The behavior of an human being is based on the information he uses of his own choice. Some individuals need personalized counseling. In order for creatures to behave in the same way, they must be influenced in that direction. Similar information is injected into individuals during training.

Naturally, let's distinguish between "passive" information that does not affect the behavior of its receiver, and "activated" information that affects its behavior. An example of activated information is the homoeopathic treatment of a person, which is not physiological but informative (algorithmic).

A distinction must be made between information operations: 1) between the specimen and its environment; 2) between the phenomenon of nature and its environment. Natural phenomena expressed in the form of the information about the Nature's laws (command, algorithm) to which they are subject.

Information as a phenomenon controlling the matter. A person can *receive information with all five senses*. Information comes in the form of *text, sound, smell, taste and tactility*. Interpretation of the information obtained is individual. The amount of information that surrounds us is inexhaustible and enlarge steadily. Each individual is able to accept only a limited amount of information around him. Information that is not accepted by an individual is called *noise*. Information is a binary relationship between a medium and its acceptor. If the medium is "more powerful" than its acceptor, then it be subject to the first.

The objects in the information field, moreover, are multilayered (multiaspected) in which one can see one aspect, the other the other, and so on. For example, while some professionals know only a few details about the nature of black holes in world space, others can capture other details, and most simple people do nothing. Even the real laws of Nature that nobody knows are still part of the information field of world space. Any kind of unearthing of new information tends to be difficult.

The information can be presented and received visually, audibly and with all five senses. Thus - *in writing, in encoded form, in the form of pictures, tables, graphs, signals, signs, formulas, equations and equation systems, as well as verbally, sonically, as well as in the sense of smell and taste.*

Far from all the phenomena and laws of Nature, we have not information yet, The search for this information has been going on for millennia, The more new information we get, the greater the amount of information that has turned out to be unavailable.

Let us return briefly to the practical problems of information.

On the other hand, information pressure on the individual is constantly increasing, especially in the form of advertising, so-called objective and social media. Its credibility must be treated with cautious. Legends, myths, and scripture texts are also information. This information is sometimes taken very seriously. This is a metaphysical cultural phenomenon that has been common to humankind from the beginning, and it is up to the individual to decide whether or not to attend.

One expressing of information is deliberate misinformation, telling lies, which is one of the qualities that make a person different from an animal. This is mainly due to ideological-political motives. Exists also a practice to ignore or make fun of some fixed natural phenomena. This is the case, for example, with the formation of crop circles.

MATTER

Our Nature without matter is no representable.

The **matter** (sometimes also *substance*) 'is an objective form of expressing the phenomena of Nature. It has traditionally been used in philosophy as by Aristotle.

As a rule has matter his **structure** and **substance**, that also organize and order. Substance of matter can itself be *some substance where*, for example, the matter of a house are bricks. Not all substances have matter, but only hylemorphic substances.

The assertion that the matter of elements is the initial matter which does not exist in the actual state is unacceptable from an informational point of view. Matter is opposed to **structure** (*form*), which organizes and put to order the substance.

Matter exists in the form of *elementary particles, gaseous, atomic, molecular, granular and cellular*. Therefore, all the natural objects are anything related with the matter.

In modern philosophy matter was treated as matter in the physical sense, and the properties of matter were often regarded as merely perceptible by reason. As new discoveries began to be made in physics about the construction of matter, the current perceptions of matter changed and contradictions arose between the scientific and philosophical concepts of matter or substance. The study of the concept of matter remained mainly within the philosophy of physics. In modern physics differentiate the basic forms of matter as matter and field.

In dialectical materialism, matter is the self-movement attributed to matter, which changes the traditional notion that matter is passive. Matter is understood to be an objective reality given to human through the senses. As such, matter is related with consciousness.

According to current estimates, we only know about 4% of the expressions of matter. As we discover new expressions, the percentage is likely to begin to decline.

There exists also some "dark matter" and "antimatter", about which we very little information have.

ENERGY

Our Nature without energy is no representable.

Energy is traditionally considered to be a scalar physical quantity that characterizes the ability of a body or force to work. Types of energy are usually listed as *mechanical, kinetic, potential, thermal, hydraulic, nuclear, radiation and chemical bond energies*. Electricity is produced both through material work and through the accumulation of solar and other natural energies.

From the natural point of view, ***energy is the activated state of matter.***

Unactivated matter is inactive. Nature is subject to the compelling information (laws of nature). The change of natural parameters is an objective natural information process, which does not depend on the "will" of nature but on the valid laws of Nature (information). For example, if volcanic magma parameters change (it can be measured), it is possible to approximate further phenomena. Nature has no choice, Nature itself does not decide that today we will make a volcanic eruption at point A and tomorrow we will organize a tornado at point B. Nature is subject to the laws of nature, which constitute as evergreen information (algorithms).

Most of the laws of Nature are hidden to us, and "over rocks and stumps" step on step we learn about them. For example, black energy holes with a high energy concentration cover the information in it, and so on. This information mining process never ends.

According to current estimates, we only know about 4% of the expressing of energy. As we discover new expressions, the percentage is likely to begin to decline. There exists also some "dark energy" and "antienergy", about which we very little information have.

The phenomena of Nature be expressed on the base of matter, energy, information and intellect.

INTELLECT

Our Nature without intellect is no representable.

Intellect is a term used in studies of the human being, and refers to the ability of the mind to come to correct conclusions about what is true or real, and about how to solve problems. Historically the term comes from the Greek philosophical term "nous", which was translated into Latin as "intellectus" (derived from the verb "intelligere", "to understand", from "inter", "between" and "legere", "to choose" and into French and then English as "intelligence" (other than "intellect"). Intellect is in fact considered as a branch of intelligence.

Intellect is a natural attribute used in the study of the human mind, and it refers to the ability of the mind to draw the right conclusions about what is true or false and how to solve problems. Discussion of the intellect can be divided into two broad areas. In both of these areas, the terms "intellect" and "intelligence" have continued to be used as related words. Discussion of the intellect can be divided into two broad areas. In both of these areas, the terms "intellect" and "intelligence" have continued to be used as related words.

According to Aristotle, the "ascent" ("nous") of the soul is the highest part of the soul which is unique to human. Understanding the structure of something ("intelligences" that thing) without taking in the matter that is the substrate of that thing.

In philosophy, especially classical and medieval philosophy, intellect or nuance is an important subject related to the question of how people know things. Especially in late antiquity and the Middle Ages, intellect was often offered as a concept that allowed the philosophical and scientific conceptions of nature to be combined with monotheistic religious conceptions, creating the link between the soul of every human being and the divine intellect (or intelligences) from space itself.

John Locke has the "understanding" ability to think. *Leibniz* has the ability to possess ideas, reflect and deduce. *Christian Wolff* understands the ability to imagine things realistically, the ability to imagine things realistically. *Immanuel Kant* contrasts mindfulness with the "spontaneity" of active mental activity, the "spontaneity" of cognition, "the ability to evoke imagery by ourselves." Understanding is "the ability to think about the object of the sensory contemplation", the "ability to make decisions", the ability to make concepts, decisions and rules, the "ability to reflect". Etc.

The concept of intellect is related to features such as **intuition** (ability to capture truth directly; special manifestation of cognition based on systematization and abstraction of experience), **inspiration** (full concentration of spiritual power on the object of creation;

Pushkin says inspiration is needed both generalization of experience and prior knowledge) and, **interpretation** (based on generalization of experience and prior knowledge) and, of course, **information**. Intellect, however, does not mean proclaiming its understandings everywhere.

It can be said that intellect is the *ability to adapt to one's environment*. IQ tests are tests of specific environments and do not objectively reflect the intelligence being tested. Let us not ignore the fact that *animals also have their own intellect*.

Stages of intellect acquisition			
Information vacuum	Gaining experience	Interpretation, abstraction, generalization of experience – metaphysics	Awareness, the emergence of new approaches and or discoveries

The reader may rightly criticize here and claim that it is impossible for a metaphysician to obtain systematic knowledge using self-cognitive methods. Logical arguments against applied metaphysics: 1) subjectivity does not mean objective cognition; 2) rationalism without objective data will never go beyond theory; 3) the human mind reflects objective reality in a simplified form. Unfortunately, the absolute objectivity of the human animal is manifested only at the level of individual phenomena.

So far, information and intelligence have not been captured in the context of nature as a whole. Intellect in nature manifests itself through creative information. The phenomena of nature can be divided into *creative*, such as the creation of a new or evolution of something, and *genetic*, such as "reproduction."

One strange phenomenon lately in vogue is "artificial intelligence". This is human-programmed behavior. It has various expressions: 1) Automata (robots) designed for the rapid realization of complex and time consuming operations. 2) Robots that are a hobby for teens. 3) Robots imitating humans as entertainment.

Officially, "artificial intelligence" or "synthetic intelligence" is machine intelligence. "Artificial Intelligence" is also a branch of computer science that investigates intelligent agents - devices that perceive their environment and perform activities that maximize the likelihood of achieving a goal. Colloquially, it speaks of "artificial intelligence" when a machine mimics activities considered to be characteristic of the human spirit, such as learning and solving tasks. The term was introduced by John McCarthy in 1956, who defines artificial intelligence as the science of creating intelligent machines.

CONCLUSIONS

Intellect no means a mere terrestrial phenomenon, that expressions we call to **Metaintellect**. But the writers here are interested in genuine natural intelligence. Information and intelligence are not mere earthly phenomena. Information originated in the creation of the world, and may be the cause of what we here to *meta-intellect* called.

Let us introduce here the concept of the **information space** of the Nature (Universe, World), which contains information about all events, from the Big Bang to the present moment [1]. There is an enormous amount of objects and binary relationships between them in the World, of which only a small group of professionals are aware. Information space also includes our home planet Earth, with all its information gadgets, some subsets of which can already be operated by many individuals.

The arising of Nature (that is, the Universe or the "World" or chronotope) 13.8 billion years ago is naturally, materialistically descriptive (ie based on the Big Bang theory) and is constantly being refined. The first moments of the Big Bang, which excited (activated) the mass of highly compressed matter, when the first laws of nature arose from gravity and other interactions, to arising of our own elementary particles, are already well described. The Big Bang's "pregnancy" lasted 330 million years before the first galaxy was born. The formation of solar systems (star systems) and planets, as well as their biological manifestations, are also part of the same process of creating the world.

Intellect originated in the creation of the world, and may be the reason for its creation. The emergence of Nature (ie, the Universe or "the World") is naturally (materialistically) descriptive (ie, based on the Big Bang theory) and is constantly being refined. The fact that there must be some **reason** for something to occur or disappear in Nature cannot be ignored. Unfortunately, the **reason** (cause) of origin of the universe is not scientifically (materialistically) describable.

Now we must briefly "rise" or "descend" to the level of "Metaintellect" (metaphysics).

The Bible is an interesting opus in the sense that everyone can read what they are looking for. The writers here are impressed by the text in which "Word" can be interpreted as "Information" or as the "logos":

In the beginning was the Word, and the Word was with God, and the Word was God. He was in the beginning with God. All things were made through Him, and without Him nothing was made that was made. In Him was life, and the life was the light of men. And the light shines in the darkness, and the darkness did not comprehend it. (John 1:1-5)

(I will add an official comment here. Christ is not here. "Word" can also mean "numbers")

This "Word" can be considered the "Word of Creation the World". This Word must be very weighty and meaningful. It requires extraordinary will and ability to accomplish this. It can be conceived as a project (algorithm, program) representing all the laws of Nature. God is on our home planet represented as a commanding and praiseworthy phenomenon. In fact, faith in God could mean faith in, knowledge of, and fulfillment of the Laws of Nature.

To avoid conflicts with materialists, let's call God here the "Metaintellect", which contains information about the laws of Nature, ie. gravity and other interactions, the formation of elementary particles, the formation of galaxies, solar systems and planets, and the

generation of biological phenomena. It is interesting to note that the Big Bang's "pregnancy" lasted 330 million years before the first galaxy emerged.

Quantum physicist *Stephen Hawking (2018)* regards the emergence of the Universe as "coincidental" and categorically denies the existence of any "Metaintellect" (God), though he himself eventually doubts coincidence [2].

Logist and cosmologist *Errol E. Harris (1991)*, however, explores the cosmological principle of anthropology, which has nothing to do with chance [3]. The principle of anthropology seeks to justify the emergence of the world by the need to observe it. We are interested how the Big Bang was launched [1].

The anthropology principle is a cautious but necessary attempt to revive medieval views on the general nature of the world. After all, nowadays the main interest is in the details of the phenomena, and generalization with the "big picture" is no longer in vogue.

There are different views to the point that there has never been a Big Bang, and now everything is as it has been forever. However, there are fewer and fewer people who think this way.

By all accounts, the "causer" of the creation of the world seems to be a great experimenter, with both "divine" and "satanic" nuances in his creation. Note that the existence of the world is based on the accuracy of very precise parameters.

Indeed, before the Big Bang took place, there had to be information (rules) somewhere about the formation of the Universe in the form of the galaxies, star systems, planets, and living systems on them. Just like horse sperm has information on how to become a horse and acorn information on how to grow into an oak, etc.

There are differences of opinion up to the fact that there was no Big Bang, and in present time everything is as it has been forever. However, such speculations are fewer and fewer.

Intellect was exists already before the creation of the world, and seems to be the origin of it. We may never know what form the source information took, whether in binary code, as a program, or some other form, and how big it was in bits.

Religions were arises already in the time of the primitive people, when they understand that they were dependent on the phenomena of Nature. Later, Nature was discarded and religions developed on their own track. Now science has brought us back to religion in the form of "Meta-intellect" (where the Ten Commandments can be treated as interpretations of the Laws of Nature.) By the by, Einstein was very religious person. (Judaism is the only religion that claims that the entire Universe was created by God.) The history of mankind begin to be tick 13.8 billion years ago.

All of our existence is based on the *intellectual interpretation of the Laws of Nature (Universe) and observing with attention our environment.*

So we are *intelligent organisms*, created by the "Metaintellect". To us is programmed with some physiological and psychological properties, but we behave on the information that has acquired in our environment. We play of our role. So many of us are creative, most tend to be consuming or obeying. This is our "**personal life**" or "**I**".

To basis of all our existence is the perception of environment and making the adequate intellectual judgements.

In order to extend the life span of mankind, it would be advisable to monitor the environment and react appropriately. In order to extend the life span of mankind, it would be advisable to monitor the environment and react appropriately. All actions that are harmless to the environment are also acceptable. But there are those who see it as "environmental hysteria". And so we will soon be buried under the pile of things we produce.

All of our existence is based on perception of the environment and information controlling matter.

References

1. J.-T. Tevet. Hierarchy of the systems: A view to the story of Universe (in Estonian). – ISBN, 9989949815425. *S.E.R.R. Tallinn, 2015*.
2. S. Hawking. Brief Answers to the Big Questions. – *Oxford, 2018*.
3. E. E. Harris. Cosmos and Anthropos: A Philosophical Interpretation of the Anthropic Cosmological Principle. – *Humanites Press, Inc., 1991*.