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The Scientific and Philosophical Meaning of the Concept of 'Information'

El significado científico y filosófico del concepto de 'información'

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ABSTRACT

In this paper the relationship of philosophy, specific sciences and information from the point of view of their own information specifics is considered. The information is the diversity inherent in one or another (any) thing. In the article, information is understood not in a mathematical sense – as a complete abstraction (abstraction) from the content moments. The philosophical category "information" is designed to take into account the universal signs of diversity inherent in all things, taking into account all without any exceptions of their content. The category "information" in a certain sense coincides with the category "content".

Keywords: "Artificial intelligence"; criteria of scientific character; diversity; reflection.

RESUMEN

En este artículo se considera la relación de la filosofía, las ciencias específicas y la información desde el punto de vista de sus propios datos específicos. La información es la diversidad inherente a una u otra cosa (cualquiera). En el artículo, la información se entiende no en un sentido matemático, como una abstracción completa (abstracción) de los momentos de contenido. La categoría filosófica "información" está diseñada para tener en cuenta los signos universales de diversidad inherentes a todas las cosas, teniendo en cuenta todo sin excepciones de su contenido. La categoría "información" en cierto sentido coincide con la categoría "contenido".

Palabras clave: "Inteligencia artificial", criterios de carácter científico, diversidad, reflexión.

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INTRODUCTION

There are many interesting topics associated with the relationship of philosophy and information. These are the philosophical problems of cybernetics, and the philosophical problems of informatics, the philosophical problems of information technology, the philosophical problems of artificial intelligence etc. Indeed, all listed and not listed similar problems are of great importance and deserve attention. There is a large body of publications related to this problem.

More than 60 years have passed since N. Wiener introduced the notorious concept of information to general scientific usage, in "Cybernetics" (1948), and from there it spread to all levels, from everyday life to philosophy. Around the same time, information theory was formed (K.E. Shannon). There are a lot of definitions of the concept of information (more than one hundred definitions of information are known), but so desired and unambiguous definition, suiting everyone, was never found (Wiener, 1983).

In the present paper, we would like to dwell on a question that has never been raised by anyone, according to the available literature. This is the question of the relationship between philosophy, specific sciences and information from the point of view of their own information specifics.

The problem here is that we do not understand well what the same philosophy, specific sciences, and information itself like a special qualitative information formations are. Obviously, there is a lack of positive knowledge about this. So far, for example, there is no more or less generally accepted definition of what information is in general. Shannon's and his similar definitions are more likely to be of some aspect character (Shannon, 1993). They do not include some basic and essential content of what can and especially needs to be understood as information.

MATERIALS AND METHODS

In this paper, we proceed from the following working philosophical definition of information: information is the diversity inherent in one or another (any) thing, let it be a material or ideal thing. The "thing" in this paper is any formation. Starting with the Universe as a whole, and ending with any element of the content of consciousness, the so-called. ideal subjectness: theory, myth, fairy tale, etc. The concept of information, in our opinion has long been performing functions of one of the basic categories, such as the functions of categories: "content", "form", "structure" in philosophy. The category of information fixes the fact that any formation of any kind of being represents a certain variety. Each thing consists of something and includes some parts (elements), relations and connections between them (structure), relations between different properties and relations themselves, both inside this thing, and in relation to the environment (super-system). Even the very concept of "information" is a special information formation, characterized by a special variety inherent only in this concept. This own variety of information can be called "meta-information diversity", information about "information", the variety which characterizes the structure of this concept, its relationship with numerous other concepts of various sciences, as well as philosophy. We believe that the last circumstance is very close and understandable to representatives in the area of information technology, in general, because they permanent have to deal with information, its various aspects and various information processes at every step (Walton, 2017).

Modern science is based on the classical Galilean paradigm: to measure everything that is measurable, and to make measurable everything that is not measurable. And if you cannot make measurable an immeasurable love, an endless desire for knowledge, a human consciousness as a whole, nothing and other qualitative phenomena, then all of them, not fitting into mathematical beliefs, are in general outside of science. Such is a soul which is neither a heart-pump nor a fragment of the brain substance and the energy expended by it. The information is like soul: Information is information, neither a matter and nor energy. Materialism which does not recognize this cannot be viable at the present time (Wiener, 2001).

So, information is diversity, and, understood not only and not so much in the mathematical sense – as a complete diversion (abstraction) from any substantive content, fixing in the most abstract form exclusively the structural (formal) aspect of the being of things (Bourbaki, 1963, pp. 19-23; Bourbaki, 1965). The philosophical category "information" is designed to take into account some universal signs of diversity inherent in all things, taking into account all without any exceptions of their content. Actually, the category of "content" just records the consideration of each thing on the basis of accounting for everything which is somehow inherent in this thing and characterizes it. In a certain sense, the category of "information", as it is interpreted in our paper, coincides with the category "content", but only in a certain sense. And most importantly, what distinguishes them from each other is that the content of a thing cannot be separated from the thing itself. Each thing is its content. While information is not just a content of a thing, but such a content of a thing, or the existence of the content of a thing, which, as it were separates from the thing itself and is transmitted, transported and translated outside.

RESULTS AND DISCUSSION

As an alternative to the quantitative representation of information, the adepts of the functional information offered to consider information as a designation of the content obtained from the external world in the process of our adaptation to it and the adaptation of our feelings to it (Wiener, 1958). Such information – the designation – can be interpreted as a sign message (in the form of material signs), transmitted in space-time by means of signals. According to this definition, signals should be perceived by the human senses and the technical devices invented by them, i.e. based on perceived physical (material-energy) fields.

For example, on other things, it is included in the content of those, exerting or not some influence on these things (Allo, 2017). The information associated with this or that thing coincides with the content of this thing, only being the content of this thing, when it has not yet separated from it, is not in a state of transmission, translation of one or another kind.

All that has been said above about information and content and their relationships oddly enough, is clearly in harmony with the so-called reflection theory. In the Soviet period, in the Soviet philosophy particularly in dialectical materialistic philosophy, this theory played and continues to play a decisive role in many respects when considering the theoretical and cognitive questions of all kinds of human activity, primarily those related to knowledge and sciences. Indeed, in this philosophy-dialectical materialism, the consciousness of man in general and his basic cognitive function, in particular, along with the creative-constructive function, is understood as the specific reflection processes inherent in man in connection to the presence of his universal apparatus of such reflection, namely, the human brain (Losee, 2017). At the same time, reflection is understood, of course, not as a mirror image in the literal sense of the word. Reflection is understood here precisely as a process of transition, translation and transfer of the content of the cognizable object into the consciousness of a person. Now we can rightfully say that here is the transfer and the translation of the content of things, or rather, information. On this occasion, it is not superfluous to recall the well-known statement of K. Marx in *Capital*: "The ideal is the material, transplanted into the human head and transformed into it" (Marx, 1983). This, of course, is a metaphor, an analogy, but a very relevant metaphor. It is appropriate here to recall V.I. Lenin's thesis, that there is a certain property, similar to the consciousness of man, inherent in all matter, and this property is a reflection (Lenin, 1923).

If we turn to the area of IT-technologies, their creation and application, it is possible, based on our interpretation of information, to note the following. Information technologies, developing and using various material carriers, are designed to ensure, as far as possible, the complete transfer of information (= diversity), enclosed in one or another thing, into other things, making it, in a certain sense, part of the content of these other things. That is, these technologies "transplant" some things into others, although not necessarily in the

"head of a person", but, for example, from one computer to another, or in the so-called "artificial intelligence". At the same time, they endow some of these other things – computers and "artificial intelligence" with different transferring and transformational possibilities, the ability to operate with the content of things, to perform with it all kinds of actions that cannot be done with real things in principle, that is, to perform with the content of things all those procedures, or at least some which a person commits in his mind, starting with a simple almost really "mirror" (passive) reflection, and ending with their the most incredible transformations for real things. What, for example, takes place in the case of various kinds of modern fantasy variants, in literature, cinema, installations, computer art, and before that in myths. By the way, it is the same thing happening in the consciousness of the cognizing person, creating in his mind different kinds of idealized objects, putting forward hypotheses, creating models and forming theories (Lundgren, 2017). And, what is especially noteworthy, constructing on the basis of these theories, there are completely special and unusual objects, which are not in nature and cannot exist without man, but which then materialize and are embodied in real things and processes.

In modern computers, we are dealing with the preservation of information, the diversity inherent in things in a variety of ways, primarily related to the capabilities of the average person. This refers to the forms, sounds, colors that are inherent in things. But this also concerns the numerous arbitrary actions of a person with things – ideal actions, actions with information analogs of things which are produced in the mind of a person. However, all this are already well-known truths.

Let us concern the correlation of information and specific sciences, information and philosophy and especially the relationship between philosophy and specific sciences, in terms of our accepted understanding of information as the diversity inherent in things. Let us try again, to discuss the question of whether philosophy is a science using this approach. In this case, the question arises if does this apply to any philosophy, or only to a certain kind of philosophy or philosophizing? In our opinion, this issue is more topical than ever. The further fate of philosophy depends on this or that decision of this question, and in many respects also the fate of specific sciences. As we are deeply convinced, the normal development of science, especially modern one, is impossible without direct participation in this philosophy, more precisely, without the participation of the level of philosophical reflection inherent in every developed, serious science, philosophical understanding of all its sides. Such comprehension is always present in science as the question as this interpretation and also who and by what means, what intentions it is engaged with.

Many researchers concern the question of whether philosophy is a science. Today, strangely enough, the question of whether philosophy should strive to adopt the form of science is actively debated. It cannot be in principle a specific science. But we believe the philosophy cannot, with reference, at least to the practice of modern scientific knowledge, avoid develop in itself, assimilate the criteria, norms and approaches of scientific activity. We are convinced that today we need to get used to speaking not so much about particular sciences as about some completed Platonic ideas or monads of Leibniz, but about a united and integral knowledge in which all the so-called specific sciences, philosophy, and all cognitive practices which are characteristic of society areas which do not specialize in cognition. And yet philosophy should not only avoid the scientific form, but often consciously strive for it (Khalin, 2005).

In this paper, we will dwell only on one point. It has been said above that we are considering here the very information, as well as philosophy and specific sciences in their informational quality as well as what they are as specific varieties. In the category of "information" it was said that this issue is a question of the meta-information aspect of information. That is the information as a category concept is some knowledge which, taken in its "living" form, is a certain element of the consciousness of many people. The diversity which is contained in the respective components of the consciousness of all these people is the information contained in the category and in the concept of "information". In other words, the category "information" itself is not information about something else, namely it is information about the very concept of "information".

What can be said about philosophy and specific sciences in their information aspect? As the corresponding types of knowledge, both philosophy and specific sciences are the content of the consciousness of a vast multitude of people as bearers of this knowledge, in particular, scientists, researchers of all kinds, ranks and categories, first of all. As appropriate activities in the formation of this knowledge, their processing and application, specific sciences and philosophy are processes of reflection, including transformation, the diversity presented in a variety of things, particularly, in the objects of cognition, i. e., information, enclosed in things in the form of their inherent diversity (Marx, 1983).

To be a science is to receive, transform and apply information contained in things in the form of their particular diversity according to certain rules, if you will the canons or the criteria of scientific character. Specific sciences strive precisely to follow the same criteria developed by their own representatives, to systematically develop reliable, constantly verified and refined knowledge about certain sides, levels and aspects of reality. Therefore, knowledge is private, not embracing all reality. Who is engaged in developing knowledge about reality in general and how can this happen? The last question is on the nature of philosophy, and in particular the possibility or impossibility of being philosophy as a science. Philosophy, in the person of the first Greek natural philosophers (Thales, Anaximander, Anaximenes, Heraclitus, etc.) arises as the first practice in the history of mankind of reflecting the diversity enclosed in the world around them, in the form of primary abstractions, concepts and categories. It arises as a generalization of the experience at that time (the subject of abstraction) of citizens of ancient Greek polities (Milet, Ephesus, etc.). In the experience, which was generalized by the first philosophers, of course, experience in the form of scientific knowledge did not include. It was still very far away to a science and specific sciences. But there was already a wide variety of specific utilitarian experience about various phenomena of nature, social and spiritual life of people. Accordingly, a philosophy of a certain kind arose. There was a lot of contrived and speculative in it. It is not by chance that the terms "natural philosophy" and "speculation" received in the future numerous negative connotations. But it was precisely philosophy. In it, the first signs appeared of that is inherent in the diversity of all things without exception. There were common signs. But it was started not with the signs themselves, but simply with the statement of existence – the being of things, both material and ideal (the soul), and ending with attempts to express the ideas of the beginning, the parts and the whole, the unified and the diversified.

CONCLUSION

With the appearance of the foundations, and then the actual sciences as such, in a more developed form, in which philosophy took the most active part (philosophy is the mother of all sciences), the philosophical level of mastering reality by man began to proceed more and more from a generalization of experience in the form of knowledge, developed by already specific sciences. Thus, new directions of the philosophical development of reality appeared: at the level of the universal one, at the level of those aspects of diversity (= information) that are actually present in the content of all things without exception, and which resulted from direct generalization, i.e. extract relevant information from the knowledge accumulated by specific sciences. Such a philosophy is the scientific philosophy.

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