CLARIFICATION OF THE DEFINITION OF THE TERM "CONCEPT"

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Abstract: The general theory of information is a synthetic approach, which organizes and encompasses all main directions in information theory. It is developed on three levels: conceptual, methodological and theoretical. On the conceptual level, the concept of information is purified and information operations are separated and described. On the methodological level, it is formulated as system of principles, explaining what information is and how to measure information. On the theoretical level, mathematical models of information are constructed and studied. The goal of this paper is to clarify the concept of information and discuss its mathematical models, establishing relations with physics as the most developed science.

Keywords: Information, operator, principle, theory, concept, knowledge, representation, interaction.

On the one hand, information is the basic phenomenon of our world. We live in the world where information is everywhere. All knowledge is possible only because we receive, collect and produce information. People discovered existence of information and now talk of information is everywhere in our society. As Barwise and Seligman write in recent years, information became all the rage. The reason is that people are immersed in information, they cannot live without information and they are information systems themselves. The whole life is based on information processes as Loewenstein convincingly demonstrates. Information has become a key concept in sociol-ogy, political science, and the economics of the so-called information society. Thus, to better un-derstand life, society, technology and many other things, we need to know what information is and how it behaves. Debons and Horne write, if information science is to be a science of infor-mation, then some clear understanding of the object in question requires definition. On the other hand, the actual nature of the information and knowledge produced and distributed by information technology remains abstract and actually undefined. Even more, many researchers assume that this diversity of information uses forms an insurmountable obstacle to creation of a unified comprehensible information theory. For instance, Shannon wrote that it is hardly to be expected that a single concept of information would satisfactorily account for the numerous pos-sible applications of this general field. Gofman and Gilligan argued that the term information has been used in so many different and

sometimes incommensurable ways, forms and contexts that it is not even worthwhile to elaborate a single conceptualization achieving general agreement. Capuro, Fleissner, and Hofkirchner even gave an informal proof of the, so-called, Capuro trilemma that implies impossibility of a comprising concept of information. In spite of this some researchers has believed in a possibility to achieve a unified definition of in-formation by building a unified theory of information . The reality supported this belief and such a unified theory called the general theory of information has been created. In it, utilization of a new type of definition, which is called a para-metric definition, made it possible to adequately and comprehensively define information.

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In the case of the general theory of information, the parameter is even more general. The para-metric definition of information utilizes a system parameter. Namely, an infological system plays the role of a parameter that discerns different kinds of information, e.g., social, personal, chemical, biological, genetic, or cognitive, and combines all existing kinds and types of information in one general concept "information". This parametric approach provides tool for building the general the-ory of information as a synthetic

approach, which organizes and encompasses all main directions in information theory If it is suggested that an information theory is a general, or unifying, theory of information, then it is necessary to demonstrated that this theory comprises all other directions in information theory, as well as covers all uses of the term information. Assessing the general theory of information by this condition, we see that in the book it is demonstrated that the general theory of information includes all major directions in information theory with core mathematical models. Ac-tually, it is possible to this for any existing now direction in information theory. Moreover, the gen-eral theory of information either encompasses other uses of the term information or puts these uses into a correct context by assigning to them other concepts from the general theory of informa-tion. In such a way, the general theory of information covers all uses of the term information. In the first section of the paper, a brief synopsis of the information theory history is given. In the second section, problems with correct understanding of the phenomenon information are dis-cussed. In the third section, meta-axiomatic foundations of the general theory of information are presented. In the fourth section, operator mathematical models of information in the context of the general theory of information are described. In conclusion, some open problems in information theory are given.

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