**Jump Out of Information Mysticism Defined Nature of Information**

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**Abstract.** There are lively controversy and differences on the definition of nature of information by general information theory, information philosophy, etc. Disputes and differences are rooted in the mystery of information or information mysticism. The reason for the mysticism of information is that philosophy has not accurately solved the philosophical significance of grasping the achievements of scientific and technological information theory. In fact, information is not something transported by carrier and walking in between information source and information sink, nor another mysterious thing different from their masters, information is definitive property of ubiquitous thing interact or retain (reflect) in other things (carrier), or prescriptiveness of something transformed into the form in which it exists.

**Introduction**

From information technology to information economy then to information society, information “is comprehensive refreshing” all we face and our own “way of knowing and lifestyle” and something “seems to have some magic” power, “by virtue of its universal character, magical property, it is opening up a new civilization, is creating a new era” [1]. However, in these studies, explorations and discussions, especially in the philosophical discussion of the unified information definition and the nature of information, an attitude to information completely different that of common people pervades, from information reflection to worship, then from theory suspension to mystery tendency of deification. Information mysticism makes the philosophical discussion of information become more and more away from information, losing the concern of reality, then loses its proper theoretical guidance significance.

1. **Evolution Analysis of Scientific Understanding of Nature of Information**

Usually information research in those specific areas is called narrow informatics. In narrow informatics level or field of vision, the concept of information refers to the experience of a gradual expansion process. As a brief overview of some scholars: in many western literature, the two words “information” and “message” are commonly used in the early research of information. After the emergence of telecommunications technology, people believe that information is signal. In 1928, in the thesis *Information Transmission*, Hartley understood information as the way to choose communication symbols, with the freedom selection to measure information. In 1948, Shen Nong, in *Mathematical Theory of Communication*, proposed the method and the general formula to use probability theory as a tool to calculate the source information and channel capacity, Shen Nong clearly defined the amount of information as the reduction of degree of random uncertainty. In 1950, in the book *Control and Society*, Wiener presented his understanding of information: “information is the process that we adapt to the outside world, and this adaptation reacts to the outside world, name of content when we exchange with the outside world.”[2] With the application of electronic computers,
people have put forward that information is data. In addition, some view information as intelligence, knowledge and so on. Narrow informatics defines the gradually reduction of news, signals, data, information, knowledge and random uncertainty and our exchange with the outside world as the concept of information. This is actually narrow informatics’ gradually grasp with the expansion of research field of scope and type of information. In other words, the meaning of those information concepts are information, they are information, different types of information. This would have been a clear and unequivocal fact that there is no problem in the field of narrow informatics, or information technology activities. But in the information theory circle, especially on the philosophical discussion of information issues, a very common argument which seems to have no objection is widely accepted: for example, “narrow informatics seizes the common points on the surface of information, they are message, signal, data and information are transmitted by the communication, which answers what contains information, but did not directly answer the question of what information is.” [2]

In this paper, the author argues that such statement is very questionable. First of all, if the philosophy does not meet limited definition of the scientific and technological information theory of different types of information, and strive to give a more general definition of information on the general, which is understandable, should and must. But if philosophers deny that the objects (phenomena) to which the concept of scientific and technical information refers are information, and want to seek something different from them, it is the arrogance of philosophy and the departure from science. Because the concept of philosophical information can only be a grasp of the commonalities of the various concrete informational phenomena and can not be anything outside them (if possible). Second, it is because of such philosophical arrogance and departure from science that quietly (inevitably) bury the knowledge of information as seeds of mysticism. Because, narrow informatics does not give universal information or information in general definition (in fact, this is not necessary for narrow informatics), is acceptable. It only tells us that “what contains information”, but not directly answers the question of what information is, “it is inexplicable! When narrow informatics clearly tells us that news, signals, data, intelligence, knowledge, etc are information, but you insist that their mentioned “knowledge” is not information, information is “something contained” in knowledge. What is the “something” except the mysterious imagination you attached in or outside knowledge?

2. Analysis of Philosophical Exploration of Nature of Information

With the gradual popularization and expansion of narrow informatics, people have recognized the universality of information, and have produced realistic needs and theoretical interests of further research on generalizing information or general information. In order to reveal the nature of information from the general sense, someone introduced the concept of degree of difference, believing that “information is difference”, “information is non-uniform distribution of material and energy in time and space”, trying to solve this problem from a scientific point of view. But strictly speaking, revealing the nature of information in general sense, to define the nature of information is no longer a scientific problem, but philosophical exploration of information. Such philosophical exploration of nature, under warning by Wiener “information is neither material nor energy”, began to arouse a lively discussion and controversy. There are many views known as generalized information theory and information philosophy.

The information philosophy, which was born in the 1980s, divides information theory into different levels, such as information philosophy, information science and information technology theory. Information philosophy’s defined nature of information is a matter of opinion, and has a wide variety of views. The classification of Hongkun Hui and Yang Ya largely reflects its basic general situation: Firstly, direct ontology. Directly view information as nonuniform distribution of material energy in the space and time, believing that information, material and energy coexist in the world as the three elements of the existence of the world, and some even directly view the existence of things and the state of motion as the existence of information. Second, attribute theory. Information is viewed as a
material property, function. Thirdly, relationship theory. Information is viewed as a relationship existence, which is the relationship between information production and existence. Fourth, characterization, display theory. It holds that information is neither material, energy, nor property, relationship and function of things, that is, information does not refer to thing itself but refers to the properties of things, representation, display of status. In the paper, the author believes that Hong Kun-hui’s own definition is also this type: “Information is the existence way of things and phenomena, it is a state (mapping, reflecting) through certain media and movement of things, it marks indirect existence of things and phenomenon.” [3]

When listing the above four points of views is consistent with the views of the original intention of the holders, in this paper, we must point out the following points: First, the definition of the above-mentioned philosophical information, although noting the relationship between information and things (inseparability), information exists in the relation between one object and other objects, information display or reflection of relation between object itself and other object, and the relation between one object and other object, but the definition itself has not reached the logical height of the starting point of philosophy. These representations take into account too many aspects, such as attributes, movements, carriers, functions, states, characteristics, etc. The logical starting point of philosophical information theory, which can only be the simplest, complicates and makes the problem more confusing. This confusion, in addition to showing that philosophical thinking is not in place, immature, as shown by the facts, is bound to cause controversy.

Secondly, these definitions in dispute seem to be largely influenced by Wiener warning- “information is neither the material nor the energy”. They premise their philosophical research on such a statement based on scientific view from scientist- Wiener. As a result, there appears some simple rejection against Wiener’s warning that the information is attributed to the material own attribute, movement, function, status, characteristics so that the specific characteristic of information is to be eliminated, which in fact reflects a tolerance or fear to new achievements in information technology. This kind of tolerance and fear formed obvious contrast with the strong tide of reality information, which make information phenomenon still under the circumstance of being mysterious and being unable to understand in theory; or directly accept Wiener’s views and follow his warnings to search the mysterious information beyond material and energy, and adopt various ways and rack our brain to define what the mysterious information is. During the process of search and definition, the viewpoint that the information is a kind of “substantial elements of new world” or “a new world” which we found it different from the viewpoint that the material and energy which we are familiar with, the previous viewpoint is the most typical, the most influential and most popular. This paper holds that this statement did not only make the problem clear but more mysterious except that the metaphorical meaning of this statement cleared the definition of information. In fact, as far as philosophy is concerned, there is only one world with which we are faced. No matter what the world is defined by philosophers (that is, material or spirit), the unity of the world must be proved and explained by philosophy. The information can neither be a third world nor the second or first world for there not being such problems in philosophy. Information is one of the richness and content of the same world we are faced with, therefore, the discovery of information is only a reflection of our understanding of the richness and complexity of the world itself has been. In another word, there is no essential difference between world from the perspective of information and from the perspective of substance and energy in the process of understanding and grasping the world, of all which are specific forms that we understand and grasp the world and only represents our deepen understanding and the historical evolution about the richness and complexity of the world.

Therefore, thirdly, the philosophical research about what information being, which is in the dispute of two tendencies that the specific characteristic of information is eliminated and new achievements in information technology is tolerant (the first view) and the inherent relation and uniformity of material is separated by information so that the information itself is mystified (the above second views), become utter chaotic. The essence of this controversy or confusion lies in the mysticism of philosophical information. Above these two views are essentially the forms of the information being mystified. The
first viewpoint is that the information is secretly mystified after information being suspended in the theory while the second viewpoint is directly mystified after information being separated from the material world. Such information that has been mystified has lost the connection and the inherent consistency that should have is as well as the information mentioned in the field of science and technology that we are familiar with. This philosophical theory about this kind of mysterious information cannot help us to understand the essence of information and cannot provide a practical guidance for our life but make philosophers be bothered because there are some essential differences between this kind of mysterious information with the technological information, in another words, because this kind of mysterious information has been separated from technological facts.

3. The Philosophical Definition About the Essence of Information and Others

The definition about information, as the starting point of theoretical research, should be a judgment that can reveal the essence of information in principle and also be a simple judgment with comprehensive governing and minimum stipulations. As far as theory of information science and technology is concerned, it should indicate confirm what the information is in its specific research field (that is the essence of information). However, in terms of philosophy, we should directly answer or judge what information is instead of answering questions likewise the way of technology theory. The direct judgment for the essence of the information from the perspective of philosophy, covering the essence of information from the perspective of science and technology, is based on the search for commonalities of science information.

At least, above the theory of science and technology information provides us with these following aspects about the philosophical judgment. First, all the information is related to the relationship between something with other things, and there is no information without this kind of relationship, which is the boundary basis to define information. Second, all kinds of information are in fact reflection of different relationship between things, marks left others (objects) in the process of interaction, or indications and reservation about itself, which is the content basis to define information. Third, therefore, all things can be specified and exchanged each other in the process of interaction, and each thing is the information sink of other related thing, and the thing itself is kind of form that information lies in, besides, there will be no information and the myth of information without any kind of concrete form (that is the thing itself) of information lying in. There is only concrete form of information continually transfer to another forms with mutual transformation of things, namely, one thing is transferred to another thing during the infinite progress of general relations and interaction between one thing with other things. For example, knowledge is information, which can be transformed object into the consciousness of the human mind, the language, electronic signals and codes, video images, and so on from the inherent characteristics of the object. This is the true concept of information, which marks that we can grasp informative forms of things (that is, the mutual specified relations of things), which is also depth and height about the awareness of informative concepts and is the fundamental basis to define the nature of the information.

According to these criteria, in accordance with the above definition principle, we can say: the information is something’s prescriptive characteristics that are retained (or reflected) on another things (carrier), or transferred into existent form of other tings. As for the further discussion about this kind of prescriptive characteristic, we need to make further systematic theory in the field of philosophical information instead of making rash statement in the definition of theoretical logic’s starting point. Such as the quality and quantity of information, the existent form and type of information, the movement and evolution of information, the content and structure of information, the function of information, the characteristics of information, the model and complexity of information, etc. Otherwise, it will lead to confusion in theory.

Different from the above definition about philosophical information in the dispute, firstly, our definition is with governing advantages and higher generality in logic because we adopt “prescriptive characteristic” as the superior concept for our definition. From prescriptive characteristic being the
logic starting point, we can deduce the quality, quantity, degree and nature, phenomenon, content, form, structure, characteristic, function, mode of the information. On the contrary, if it is not, we directly adopt any concept “that can be specified and manifested by further logical deduction as the superior concept and apply them into definition”, which would not only lead to mutual argument, but lead to the possibility of the logic about informative and rich content being deduced being lost. As a result, the awareness and theoretical explanations about information would become unreasonable, hollow or mysterious. Secondly, in our definition, we directly regard something of prescriptive characteristics that is retained or reflected from one as the carrier, which essentially put an end to the mysticism that information is mystified.

The mysticism that information is mystified, on the one hand, is a direct and philosophical acceptance from Wiener warning in the perspective of the science, which lead to information being mystified as the mysterious ‘the third kind of element” (for example, there goes a standpoint that the information, material and energy, as the three elements of the world, exist in at the same time) or as “the third world” etc. On the another hand, the mysticism is that the most representative even the popular standpoint that we have previously quoted - “the theory of information in narrow sense just captures superficial common that all kinds of information have, namely, the information, the signal, the data, the intelligence is transmitted by communication, answers what contains information, but not directly answers what information is.” In fact, this standpoint stems from a formula about transmission the information in the theory of science and technology information: source of the message - sink of the message - destination of the message. In this formula, information is regarded as something that flows between the three of them. Such an application-type science formula is directly accepted by some philosophers without criticism, and it is asserted that information is another mysterious existence that is different from the source, the carrier and the destination of the message.

In fact, in the philosophical sense, the source, the sink and the destination of the message are the same specific existence or objects, and the information is the reflection, the record and the superficial characteristic between these existences in the process of continuous interaction and mutual prescriptive characteristic, or it is just revelation about things common mutual prescriptive characteristic. In the philosophical ontology sense, everything is not only the source, but also the sink and the destination of the message. In accordance with the nature of interconnections of things, we can make a deduction that the transmission from the source to the carrier then to the destination is infinite and can be superimposed and can last forever, whose continuation and superimposition is continuously transformed in the existing form of the information about mutual prescriptive characteristic of things. The above science formula is only a very limited section about mutual prescriptive characteristic of things from the process of constant transformation. Such a limited study is of necessary and significant for the theory of scientific and technological information, however, this limitation is not enough for philosophy. When the limited extension of this section is suspended to the two ends in the further philosophical sense further from the infinite view, the essence of the problem (information) will be completely revealed so that the source is the sink and destination; the sink is the source and destination, and the destination is the source and sink. Therefore, the sources, the sink, the destination, are the forms of information so that the information is not another mystery following between the source and the destination via the sink. It is another thing reflection in the university and mutual prescriptive characteristic of things. The infinite nature and the possibility of the continuous transformation of things will lead to endless existent forms of information.

References