

Truth Analysis of Definition of Information [†]

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[†] Presented at the IS4SI 2017 Summit DIGITALISATION FOR A SUSTAINABLE SOCIETY, Gothenburg, Sweden, 12–16 June 2017.

Published: 9 June 2017

Abstract: The definition follows the propositional logic, the definition of information is no exception. In recent years, the starting point of the research on the definition of information involves generally investigation of the history of the concept, interdisciplinary research and different aspects of cognition that includes ontology, epistemology, and linguistics and so on, the understanding about the definition of information is divergent. As long as it is about definition of information, regardless what kind of study, however, follows the propositional logic. So the true and false judgment about the definition of information is actually judgment on the proposition of the definition of information. This paper classifies various kinds of intension and definition of the information in the propositional structure by analysing the propositional structure of definition of information and various kinds of defined method about definition of information.

Keywords: information; definition; propositional logic

1. Introduction

1.1. Research Background and Purpose of the Work

In contemporary society, information research has formed a variety of paths and research paradigms. One of the most popular research paths at present in academia is the study of unified theory of information. Some scholars believe that it is necessary to form a unified theory of information and which is also feasible, although it can be obtained at different theoretical and practical levels. Wolfgang Hofkirchner [1] and Søren Brier [2] are two of representative scholars.

The investigation on the unified theory of information have the following aspects in summary: the unifying concept of information, the unifying definition of information, the unifying theory of information and the unifying research method of information. A variety of research institutions dedicated to the unity of information also emerge and rise: FIS (Foundations of Information Science), a workshop entitled Information Theory and Practice and the Unified Theory of Information (UTI) Research Group [3]. The research on the definition of information is one of the most important problems in the study of the UTI. Many supporters of the UTI provide the argument for the unified theory of information through the study of the unified information definition. But there are scholars who believe that: “the lack of a commonly accepted definition of information is not as threatening as it may seem, as each study within the discipline may choose an own definition, as well as an own philosophical framework, when there are some alternatives to choose between. More important is the development of a common methodology of inquiry and some range of standard questions regarding the concept of information” [4].

It can be seen that a unified definition of information is only a necessary condition of a unified theory of information rather than a sufficient condition. First, the study of UTI is not only the unifying definition of information, but also other aspects and levels. Second, it does not necessarily mean that we have a unified information theory even if we get a unified definition of information.

So this article is not to provide argument for a unified theory of information, but only to analyse the “definition of information itself” according to the propositional logic, to analyse when we put forward a definition of information, What we (both scientists and philosophers) presuppose? What we predicate? And fundamentally, as one of the most fundamental problems in information research, what the diversity of research methods and content the definition of information explains? And then classifies various kinds of intension and definition of the information in the propositional structure by analysing the propositional structure of definition of information and various kinds of defined method about definition of information.

1.2. Research Method

When we (whether scientists or philosophers or interdisciplinary researchers) give the definition of information with propositional logic (In fact, we can only use the form of proposition or predication), we all expect and identify that the definition of the information that we give is true. In other words, for this definition we all have the truth appeal. However, by careful study we found that the truth value of this definition is actually not depend on our views. Namely, we have actually assumed the objectivity of the “intension and the extension” of the concept of “information”, as well as the objectivity of our knowledge. The so-called objectivity refers to the independence of the fact to our judgment or opinion. Because if the definition of information is dependent on our views, then, we can give the truth value to our own predications or propositions. So, all the people who have defined information can be confident and take it for granted that the definition of information he was given is the most consistent with the meaning of the information, and his definition is really that one. But that is not the case. The reason why they think their definition is true is out of the consideration and attitude of pragmatism.

In the sense of propositional logic, we find through the above analysis that a definition of information, in fact, already contains three different aspects of information simultaneously.

The reason I have taken this analysis method is that, on the one hand, follows the rules of the propositional logic itself, and on the other hand inspired by the analytical framework of Anton-Friedrich-Koch about the question of truth [5].

2. Truth Analysis of Definition of Information

In the first part I have briefly mentioned the propositional logic analysis of information definitions, next I will analyse the different defined methods of information that have already exist. Of course it is impossible to list all, here I can only give some representative point of view. In contemporary society, the study of information definition generally has the following categories: First, reveals the nature of information through investigation and analysis of the history of the concept of information. Second, interdisciplinary research is to examine the different definitions of information in different disciplines (philosophy, natural sciences, social sciences, computer fields), and to seek a unified definition on this basis. Finally, the different aspects and perspectives of information research: the ontological level of information inspection, epistemological level of information inspection, linguistic of information inspection, and phenomenological perspective of the study.

Study on history of concepts reveals the development and change of the intension of the concept of information, which to some extent is beneficial to our understanding of the concept of information, the study of various interdisciplinary paths as well as research on distinct levels of cognition constantly expand and promote the referent range and content of information, which is also helpful to us to forming a unified definition of information, and then forms a unified theory of information. But what is more important is that we should make clear that to what extent the definition itself and the content which we want to describe are consistent, that is, to what extent the proposition of “information is ...” in line with the facts. And the more this kind of inner unity is stronger, the deeper the degree of conformity, perhaps our knowledge of the information is even more in-depth and profound. Otherwise, either there is a great difference between the content of this definition and the

fact that we want to use it to describe, or the fact that we predicate is not actually “information itself”, but something else. This involves the legality and the validity of the use of information concepts.

In the part of the introduction we already know that any definition about information contains actually three different levels of information. Now we can briefly state:

First, proposition itself on the definition of information, presupposes the objectivity of the information.

Second, the true value of the definition predicates the objectivity of our knowledge about the information.

Third, the diversity of information definitions indicates the pragmatic appeals for information definition.

3. Conclusions

A variety of definition on information is actually different aspects of information. Through the propositional logic analysis of the information definition, in a large logic framework we can make these different aspects of information to be unified.

Conflicts of Interest: The author declares no conflict of interest.

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