Does Wu Kun's Philosophy of Information define what is Information?

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Abstract: The need for a generally accepted definition of "what is information" is self-evident and acute. However, Kun's definition of information as a **philosophical category indicating indirect being** is unable to satisfy this need, especially when it comes to an everyday usage of the term. That forced me to seek for a more suitable definition of information. Despite the differences, Kun and I agree that we witness today a paradigm shift from data-based computational way of thinking to information-based cognitive way of thinking (Kun calls that "informalization of science"). Below is provided a short comment on the issue.

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In [1], Wu Kun states: "In my philosophy of information, I give the following definition of information: "**Information is a philosophical category indicating indirect being. It is the self-manifestation of the existing mode and status of matter (direct being**)"").

The need for a generally accepted definition of "what is information" is self-evident and acute. Since introduction of Shannon's Information Theory, nobody has dare to propose something new and original, and we live with Norbert Wiener's 1961 dictum: "**Information is information**, **not matter or energy**", [2]. Not the most fitting definition, not an insight or a research guiding spark. Neither Shannon himself, nor none of his followers have never challenged the issue; they had restricted themselves to **information measures** only (devised by Shannon's Information Theory).

By the way, not the theoretical wisdoms of Shannon's Information Theory have made him so legendary and worldwide known. These were his practical source-coding and channel-coding theorems (which were byproducts of the main theory), that did have a tremendous impact on the development and deployment of contemporary communication systems.

The lack of a relevant information definition reflects the lack of a proper understanding about the nature and the spirit of information. Without such understanding, one will never be able to advance and to reach his goals.

These were the reasons that pushed me to cook up my own information definition. It sounds today like this: **"Information is a linguistic description of structures observable in a given data set".** Usually, two kinds of structures could be distinguished in a data set – primary and secondary data structures, which I propose to call physical and semantic data structures. Respectively, their descriptions would be **Physical and Semantic information** about the structures in a given data set, [3].

What follows from that is that living beings, in their interaction with the surrounding world, send and receive data messages carrying information, which indisputably can be defined as physical information. That is why, from the very beginning, from the mid-50s of the past century, scientific research was devoted first of all to physical information studies only. Shannon's information, Fisher's, Kolmogorov's, Chaitin's, Renyi's, and others, they all could be seen as physical information incarnations.

In an information processing system (living or artificial), physical information at the input receives its meaning (is being interpreted) on the basis of semantic information already retained in the system. These peculiarities of information processing are only now become recognized and are being put into consideration.

At the Vienna 2015 Summit Wu Kun in his invited talk said that **all scientific and philosophical domains are facing an integrative trend of paradigm reform, which I name as "informationalization of**

sciences". I think I have a slightly more suitable explanation for this generally observable phenomenon: We witness a paradigm shift from a physical information based research approach to semantic information based research approach. In more familiar terms, we witness a paradigm shift **from Computational to Cognitive way of thinking**. By Computational we mean data processing, that is, physical information processing based approach. By Cognitive we mean semantic information processing based approach.

Without clear delineation between physical and semantic information, the paradigm shift in contemporary science (as well as other peculiarities of information use and processing) cannot be properly understood and accepted.

References:

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