



# The Information Philosophy Implication of Yin-Yang <sup>†</sup>

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**Abstract:** Yin-yang, thought in ancient Chinese philosophy, contains rich information philosophy implications. The theory of “Yin-yang Gan Sheng” believes that Yin and Yang’s interaction can make emergences of new things and new life, which implies a kind of information ontology connotation; The Yi (changes) of Yin-yang represents a process of information evolution, which contains dual directions, i.e., the tendency to Yin or Yang; the final result of the evolution of Yin-yang information schema is Sheng (emergence of new things or new life), which manifests the high unity of Tao of heaven and humanity.

**Keywords:** Yin-yang; information; Gan; Yi; Sheng

## 1. Introduction

Yin-yang is an important concept in ancient Chinese philosophy. According to the philosophy of information, “information is the way of existence and the state of matter, and is the attribute of matter”. The world we live in is both a material world and “an information world that shows the multiple regulations of the material world” [1]. Starting from the basis of the existence mode and state attribute of matter itself, the world mode constructed by Yin and Yang puts nature and human society in rich and profound informational contexts.

## 2. The Information Ontology Implication of Yin-Yang Interaction

If the traditional Western philosophy and ontology is deeply influenced by the “constructivism” of Plato, then the ontology of the Chinese traditional philosophy has a characteristic of “Yin-yang Gan Sheng” (the generativity emerging from interaction of Yin and Yang). Gan means the interaction between things, and Sheng means the emergence of new things or new life, which has the meaning of generation and creation. In ancient Chinese philosophy, “Tao” is the most general concept, pointing to the most fundamental and ultimate existence of the world. “The conjunction and alteration of Yin and Yang is called Tao” in Yi Zhuan raises the interaction of Yin and Yang to the ontological level of “Tao”, which is the origin and dynamics of all things.

Terrell Ward pointed out: “matter-energy and information, like Aristotle’s matter and forms, all objects include these two aspects, without any of them, the individual object can not exist. So, when the forms are lost, no individual object can exist. Similarly, the creative flow of matter-energy and information under way in the universe is exactly like the Taoist hybrid ‘flow’ and the blending of Yin and Yang” [2]. There are two noteworthy points about the “blending of Yin and Yang”. One is creativity, and the other is the close connection between matter-energy and information, which also reveals the information characteristics of Yin and Yang. The theory of “Yin-yang Gan Sheng” believes that Yin and Yang’s interaction can make emergence of new things and new life. “Gan” and “Sheng” reflect the movement of the material and information generation process; on the one hand, everything has the attribute of Yin or Yang, and, on the other hand, the attribute of Yin or Yang is presented in the form of information and recognized by us.



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Take the Yi Gua (hexagrams) as an example. As we know, the sixty-four hexagrams of Zhouyi are composed of Yin and Yang lines. According to Wu Kun, “The Eight Diagrams are the way of symbol combination, reorganization and matching, and in terms of the interpretation of its hexagrams and lines, it is an artificial way of generalized symbol representation of information” [3]. In the hexagrams, the Yin and Yang lines do not simply refer to a certain entity but refer more to the properties or relations of things themselves or between things with the characteristics of Yin or Yang. It is a reflection of the existence mode and state of things and contains the general characteristics of information. In essence, in the Yi Gua system, the direct existence and changing process of things are constructed and presented by the process of information evolution as the indirect existence.

For a long time, many views believe that Yin-yang thought emphasizes “harmony”, ultimately pointing to the unity of the opposites. Admittedly, this is indeed an important aspect of the Yin-yang philosophy. It should also be noted that an emphasis on harmony or unity does not mean negation of difference. Yin and Yang are two different concepts, which means we discuss the relationship of them on the premise of differences, and it is the difference of Yin and Yang that can make emergence of new things or new life. Contemporary information philosophy, in essence, believes that the correlation of things also means they are different from each other. Thus, information can be understood and recognized by people in a context with differences. In a word, differences comprise important context in which information exists and is identified. In the thought of Yin-yang, there are differences between different things that are expressed by the information characterized by Yin or Yang. Thus, the interaction, development, and change processes of things are shown, observed, and understood through the interaction and transformation of Yin and Yang’s information. Under the premise of differences, the “harmony” of Yin and Yang builds an information symbol system in the form of self-organization.

### 3. Yi (Changes) of Yin-Yang: The Process of Information Evolution

Kong Yingda said: “Changes run in the Qi of Yin and Yang... that is called Yi” [4]. From the perspective of the origin of Yin-yang concept, Yin and Yang are closely related to the movement and geographical orientation of the sun, so Yin and Yang are related to both time and space. Guanzi said: “spring and autumn, winter and summer represent the conversion of Yin and Yang; the length of time represents the function of Yin and Yang; the alternations of day and night represent the transformations of Yin and Yang” [5]. On the one hand, the changes in Yin and Yang have a time dimension; on the other hand, they also have the space dimension. The unity of time and space means that the changes in things include both time information and space information that are consistent with the contemporary complexity of self-organization system theory, which reveals the intrinsic unity relationship of mutual transformation and the integration of time and space.

In this unity of time and space, Yin and Yang constantly interact and provoke each other’s potential factors. Yin and Yang present various information patterns of things in the forms of opposition, complementarity, transformation, and so on. Qi Runxing says: “The transformation of stiffness and softness of Yin and Yang is equivalent to the transformation of quality and energy in modern physics, as well as the subtle change and circulation of heaven and earth is equivalent to the information exchange in modern system theory” [6]. That is to say, the changes in Yin and Yang actually occur through the interaction of matter (including mass and energy) and the exchange of information. At the same time, the changes of Yin and Yang also contain the dual directions of information evolution, i.e., the tendency to Yin or Yang. This can help us understand many categories in the changes in Yin and Yang, such as development and decline, positive and negative, order and disorder, dominance and recessive, and so on. These patterns are the result and manifestations of information interaction.

Another important connotation of Yi is invariable, which means that although information evolution is a changing process, it is subject to specific space and time conditions and is not a random and completely disordered information evolution. In the changes,

information always condenses time and space contents about the past, the present, and the future. From the perspective of the ontological sense, Yin-yang is constant as a “body”, and the evolution of information based on it will not stop or disappear.

#### 4. Sheng: The Information Value Theory of Yin-Yang

As mentioned above, the changes in Yin and Yang include the dual direction of information evolution, the tendency to Yin or Yang. If we study from the final result of the Yin-yang information evolution, it comes to Sheng, which is also an important feature of Yin-yang information schema in ancient Chinese philosophy. Ten Questions remarks: “Yao asked Shun, ‘what is the most important in the world?’ Shun said, ‘life is the most expensive thing’. Yao said, ‘How can we cultivate our life?’ Shun said, ‘Yin and Yang’” [7]. The idea that Sheng is precious embodies the core of Yin-yang thought in ancient Chinese philosophy. From the perspective of information axiology, Sheng has great significance.

According to the philosophy of information, as the interactions of things are mutual, the value created by them must be bi-directional or multi-directional. The information evolution in the interactions of Yin and Yang is bi-directional, i.e., the trend characterized by Yin or Yang, but the final result and the most important effect is Sheng. As the direction and result of information evolution, Sheng is not only a pure and objective information presentation of nature or human society but also contains an understanding of the values of heaven and humanity.

First of all, conforming to Tao of heaven and respecting nature is the primary content of Sheng. In ancient Chinese philosophy, Sheng has the most direct connection with the nature of heaven. Huang Di Nei Jing remarks: “Now, since antiquity, that which communicates with heaven, the basis of life, is based in yin and yang” [8]. It clearly manifests the fundamental significance of Yin-yang to Sheng. As contemporary information philosophy points out, the real ontological value is objective. In ancient Chinese philosophy, this is the value of the Tao of heaven. Man is not only the product of the evolution of Tao of heaven but also must rely on Tao of heaven to survive and develop, i.e., “Human model earth, earth models heaven, heaven models Tao, and Tao models Ziran” [9].

On this basis, the social significance of Sheng, especially the political and ethical significance, reflects its value of humanity. This humanity value is not only reflected in the basic level of life care but also reflected in the level of moral transcendence. In ancient Chinese medicine, a lot of theories explain human physiological phenomena with Yin and Yang, ask people to keep in good health according to the laws of Tao of heaven, and pay specific attention to and adjust the life state under the premise of Tao of heaven. In the political and ethical aspects, Yin and Yang were endowed with significant social, political, and ethical information contents from Dong Zhongshu. Cheng Hao clearly connected Sheng with goodness. Zhang Zai elucidated the moral significance of Sheng at a higher level of Xing (human nature) and put forward the inheritance of goodness. This is the promotion and transcendence of the value and meaning of human life and also the evolution process of social information from the simple and low level to the complex and high level.

In quality, the concept of Sheng contains not only respect for the laws of nature and life but also the great affirmations and promotions of the creativity and moral significance of humanity, reflecting the high unity of the Tao of heaven and humanity.

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