

THE AESTHETIC CODE: AESTHETIC PROCESS THEORY FROM THE PERSPECTIVE OF INFORMATION

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Abstract: *This paper examines the aesthetic process through the lens of information philosophy, seeking to innovate traditional aesthetic theory. Western aesthetics has been shaped by a subject-object dualism that overlooks the informational nature of beauty. Chinese aesthetics, with its "unity of heaven and humanity," similarly lacks a detailed analysis of the informational aspects of the aesthetic process, resulting in a lingering mystique. The philosophy of information offers a new framework, distinguishing between natural, self-oriented, and regenerated information, which forms the basis for understanding aesthetic processes. Aesthetics is redefined as an information reception and processing activity, where beauty's stimulus is transformed into aesthetic feeling through complex subsystems involving sensation, knowledge, emotion, memory, and association. This transformation is characterized by randomness and complexity, mathematically described by generalized information entropy. The theory shifts aesthetics from essentialism to processualism, integrates philosophy with information science, and enhances our understanding of the world.*

Keywords: *Philosophy and Methodology of Informatics ; Aesthetics; Process Theory; Complex Systems.*

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Introduction

The Dualism of Western Classical Aesthetics Neglects the Nature of Information

In the history of Western aesthetics, discussions on the concept of "beauty" date back to Pythagoras, but it was Plato who first theoretically addressed the issue. Plato proposed the "idea" of beauty, namely "beauty itself," a notion that has influenced subsequent millennia and established the dualistic aesthetic thought between subject and object. Since Plato, the Western academic community has continued to explore and debate the essence of beauty, which can generally be divided into two categories: one explains the essence of beauty from the objective attributes and characteristics of things, and the other from the perspective of spiritual ontology and subjective psychology.

The Pythagorean school of ancient Greece was the earliest to explain the essence of beauty from the objective attributes and characteristics of things, arguing that "beauty is harmony." This view, along with Aristotle's aesthetics, became an important tradition in the West and continued to be elaborated upon until the 17th and 18th centuries.

The explanation of the essence of beauty from the perspective of spiritual ontology and subjective psychology can be further divided into two situations. One is to explain the essence of beauty from the objective spiritual ontology, such as Plato's theory that "beauty is the idea." Later, Hegel defined beauty as "the sensuous manifestation of the idea"[1], following the same theoretical path as Plato. The other is to explain the essence of beauty from the subjective psychology of the beholder, such as Hume, who provided a purely individual subjective criterion for beauty.

Although these two categories of views on the essence of beauty in the West appear different, they both follow the premise of dualistic thinking between subject and object. This implies a fundamental problem: the standard of "beauty" produced under the severed opposition between subject and object. They failed to recognize that both the subject and object in the aesthetic

process exist as information essence. For instance, if the essence of beauty is explained from the objective attributes and characteristics of things, how can the abstract "beauty" be sought? And if it is explained from the spiritual ontology and subjective psychology, is there a relatively unified standard for "beauty"? Clearly, despite thousands of years of contemplation on "beauty" in the West, this fundamental issue remains unresolved, presenting an opportunity for the information paradigm to provide a solution.

The Unity of Heaven and Humanity in Chinese Aesthetics Lacks an Information Medium

Chinese aesthetic ontology often focuses on the concept of "Tao" or "Heaven," which, like the Western "idea," is an abstract intellectual concept and an external support for enhancing human nature in ancient times when the capacity of the subject was weak. Therefore, it also has a dualistic tendency transcending the sensuous world. However, unlike the West, "ancient Chinese philosophy highlights the unity of sensibility and rationality in 'one world'"[2], with the "unity of heaven and humanity" as the consistent theme and the core spirit of Chinese aesthetics. It emphasizes that in one's emotional world or through contemplation of external objects, the limited flow of human life can interact with the infinite flow of the universe, thereby becoming enriched and sublimated.

Nevertheless, this "unity of heaven and humanity" in Chinese aesthetics is shrouded in a cloud of "mystique." Chinese aesthetics is often descriptive rather than structural, which means that the exact nature of "unity of heaven and humanity" and how to achieve it have been neglected in previous scholarship due to the lack of attention to the information medium in the aesthetic process. Therefore, it is difficult to obtain an operational method and standard. Thus, studying aesthetics with a theoretical information paradigm can clarify and deepen the traditional Chinese aesthetic view of "unity of heaven and humanity." By revealing the information in the aesthetic process, the mystique of this unity can be demystified.

Limited Research on Aesthetics from the Perspective of the Philosophy of Information

With the development of the modern scientific revolution, the modern scientific paradigm has become information-oriented. Therefore, any contemporary philosophical theory must pay attention to this new trend and utilize the philosophy of information in theoretical construction and practice. Professor Kun Wu pointed out that "information science, which developed in the mid-20th century, has unfolded on four levels: engineering information science, domain or departmental information science, general information theory, and philosophy of information." [3] However, this information revolution has been slow to penetrate the field of aesthetics. Through retrieval technology, I searched for hot terms related to the philosophy of information in important journals, but found no trace of "aesthetics."

Moreover, according to calculations by other scholars, "the involvement of information philosophy research in Chinese philosophy and social sciences is 0.73, which is relatively good. In contrast, the involvement of information aesthetics research is less than 0.01, almost non-existent." [4] It can be said that the direction of information aesthetics in our country needs further exploration.

The Aesthetic Process Theory of Information Carriers

Direct and Indirect Existence in the Aesthetic Process

One of the revolutionary and breakthrough aspects of the philosophy of information is its revelation of the existence of information and the consequent reclassification of the domains of existence, thereby constructing a new world picture of existence, which provides an opportunity for the development of aesthetics. Professor Kun Wu pointed out that, compared with the general paradigm of traditional philosophy, the paradigm of philosophical ontology is hierarchical. "Existence = matter + spirit" is the highest paradigm of traditional philosophy. "Materialism, which posits that matter gives rise to spirit, and

idealism, which posits that spirit gives rise to matter, are not the highest paradigms of traditional philosophy but rather second-level theoretical paradigms." [5]

Therefore, Professor Kun Wu regards reality and direct existence as concepts of equal degree, while non-existence and indirect existence are considered concepts of equal degree. Thus, when viewed from an indirect perspective, indirect existence becomes a reflection of direct existence; when viewed from a direct perspective, indirect existence is a manifestation of direct existence. Consequently, consciousness becomes a form of reflection because there is a directly existing object outside of consciousness, and within consciousness, there is knowledge of this object. Therefore, subjective existence becomes an indirect existence that reflects direct existence. This indirect existence can ultimately be defined by the concept of "information."

After the reclassification of modes of existence, further distinctions are made for the category of indirect existence, namely information. These distinctions include natural information, self-oriented information, and regenerated information. Thus, the world is in a dual and multidimensional motion and development involving one material world and three information worlds, which lays a solid foundation for the theory of the aesthetic process.

Aesthetics as a Process of Information Reception and Processing

The question of "where beauty lies" can be concluded from the perspective of information as follows: "beauty" lies in the reception and processing of information.

On the one hand, "beauty" requires a stimulus, which originates from four worlds, namely one material world and three information worlds. This stimulus appears in the form of information and exists as natural information before being received by the subject. After being received, it is transformed into self-oriented information, and "aesthetic feeling" is manifested as regenerated information.

On the other hand, not all stimuli of "beauty" will produce "aesthetic feeling." The key lies in the reception and processing of the stimulus of "beauty" that wanders in the information field. Similarly, the stimulus is not born as "beauty"; it only becomes a "beautiful" stimulus when it generates "aesthetic feeling" after being received and processed, that is, it affirms the value of the stimulus as "beauty" at the moment it is successfully transformed into "aesthetic feeling."

The acceptance and processing of the stimulus of "beauty" essentially possess an inherent randomness, which is primarily accomplished through the processing of six subsystems: the sensory subsystem, the knowledge subsystem, the emotional subsystem, the memory subsystem, the associative subsystem, and the output subsystem, as shown in "Figure 1".

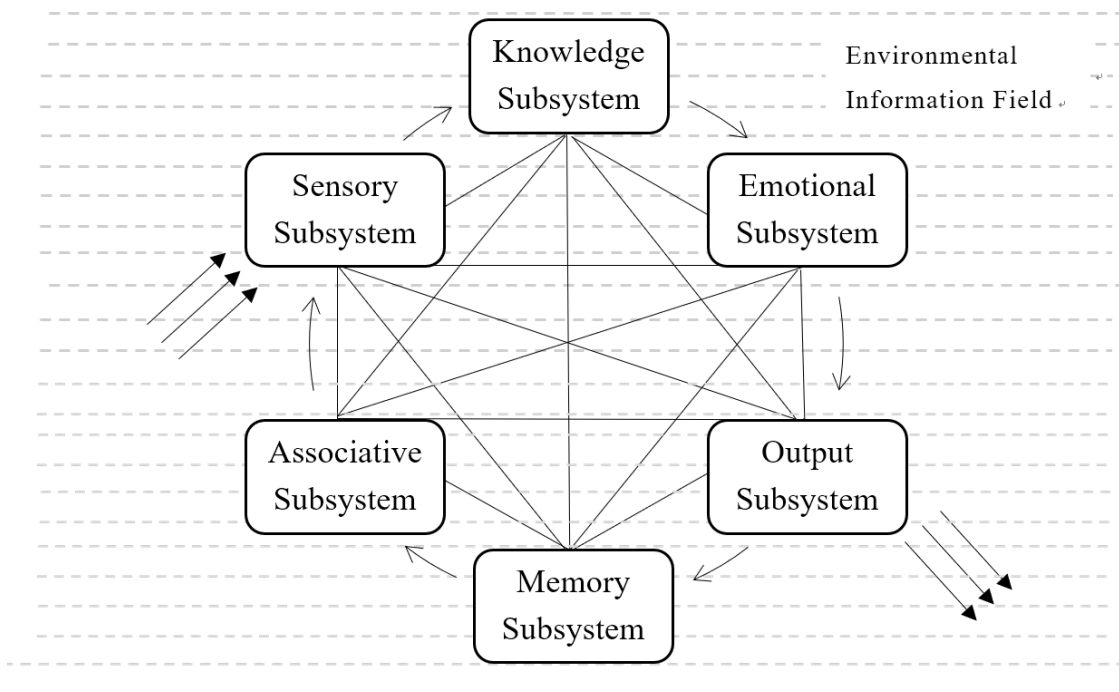


Figure 1. Structural Pattern of the Aesthetic Feeling Generation Process with Intrinsic Randomness

Within this information processing system, each of the six subsystems performs distinct functions. For instance, the "sensory subsystem" mainly acts as the

"input subsystem," enabling us to discover and receive the stimulus of "beauty" as natural information. It is specifically manifested in human senses such as sight, hearing, smell, taste, and touch, which are the first steps in perceiving and experiencing beauty. If we want to experience the beauty of a vase, we first need to receive the stimulus of "beauty" through the sense of "sight."

In summary, "beauty" lies in the process of receiving the stimulus of "beauty," which may originate from one material world and three information worlds, and processing it in a complex manner with inherent randomness, ultimately leading to an output. Therefore, to put it succinctly, "beauty" is in the reception and processing of information.

The Complexity of Beauty

After revealing that beauty is a process, a mathematical elaboration of the complexity of the internally random aesthetic feeling generation process structure is presented here. In this system, each subsystem is a dynamic and interconnected whole. Dynamic indicates that each subsystem is in the flow of the process, and interconnected indicates that each subsystem is in a network. We believe that everything is interconnected, that is, X_1 is connected to X_2 , X_2 to X_3 , and so on, endlessly. Therefore, when discussing the occurrence and function of a certain subsystem, all factors, including the subject itself, must be involved to form an infinite "information ocean." Thus, the process of the emergence of aesthetic feeling can be defined as a stable, causally related, specific, finite, relative, and functional structural mode formed by a set of specific elements $X_1, X_2 \dots X_n$ on a certain level of the "information ocean" of "nothingness."

The generalized information entropy S_J , which is analogous to quantum information and describes the superposition and entanglement characteristics in this system, can be generally expressed as[6]:

$$S_J = - \int \rho(x,t) \ln \rho(x,t) dx \quad (1)$$

The form of SJ is due to the consideration of all possible emerging low-order and high-order superposition and entanglement modes, which can include all possible superposition and entanglement modes. The process of emerging a stable, causally related, specific, finite mode from a certain level of a set of specific

elements $X_1, X_2, X_3 \dots X_n$ in an infinite information ocean implies the constraint conditions that the elements should satisfy, which can be generally transformed into the form of first to fourth-order moments of $X_1, X_2, X_3 \dots X_n$. [7]

$$\langle X_i \rangle = f_1, \langle X_i X_j \rangle = f_2, \langle X_i X_j X_k \rangle = f_3, \langle X_i X_j X_k X_l \rangle = f_4 \quad (2)$$

The process of information emerging "beauty" and making the world manifest is to select the path that satisfies the extreme value from all possible paths or path integrals SJ. Mathematically, it is to maximize equation (1) under the constraint conditions (2). Through Lagrange optimization and defining variables, the "aesthetic" evolution of the environmental information field as a unified information process can be derived. Specifically, this evolutionary process is one where information emerges from the "nothingness" of the information ocean, forming a stable configuration or surface connected by specific X . As information is received and output evolves, each subsystem continuously adjusts the changes in X_i based on the original things. With the quantitative and qualitative changes in X_i , a new surface with new things emerging in a spiral outward development is formed, realizing the evolution and processing of different hierarchical things and forming an outwardly developing involute spiral. This allows each system to be organically combined and presents the feeling of "beauty."

Conclusion

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Pioneering a New Path for Aesthetics

The aesthetic process theory from the perspective of information has essentially been constructed, and its value and significance are evident from its breakthrough and revolutionary nature. By using the information paradigm to solve aesthetic problems, it is discovered that aesthetics is a process theory, with its "beauty" lying in the process of "receiving stimulation → processing, handling, transforming → output." The aesthetic process theory under the information paradigm, as the highest grasp of the world, is not a simple scientific understanding of the object because it cannot truly grasp the world. Instead, it is an interactive understanding of humanity and rationality, manifested in aesthetic interactive experience, full communication, and mutual empathy, thereby achieving a true understanding and the highest grasp of the world. It completes the shift from subjectivity to intersubjectivity and integrates traditional Western and Chinese aesthetic views.

Perfecting the Philosophy of Information

As an important part of human spirit, aesthetics illuminates reality from the spiritual aspect. However, this information revolution has been slow to penetrate this field. Therefore, constructing and developing aesthetics with the information paradigm has become an important theoretical path and academic exploration. The aesthetic process theory from the perspective of information proposed in this paper can be said to break down the barriers between the two fields that were previously considered inseparable. It boldly advances into the field of aesthetics with the information paradigm, opening the door for later researchers to explore this interdisciplinary field and adding bricks to the perfection of the philosophy of information. Only in this way can we hope to break free from the shackles of traditional and mainstream authoritative constraints and make further pioneering and revolutionary progress in the development of the information science paradigm and the philosophy of information.

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