

## “INTENTIONALITY” AND “DIRECTIONALITY”: THE QUESTION OF THE CONNECTION BETWEEN THE ONTOLOGY OF PHILOSOPHY OF INFORMATION AND THE MATERIAL ENGAGEMENT THEORY

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**Abstract:** *“Intentionality” and “directionality” are closely related. Unlike Husserl’s epistemological conception of intentionality, in the theory of material, intentionality is understood as a kind of practical agency, which is the product of the interaction between Material Engagement activities and environmental plasticity. This interpretation of intentionality reminds us that we cannot simply regard “directionality” in the ontology of philosophy of information as a process of constructing transcendental conscious activities. In fact, directionality encompasses a richer connotation than intentionality at the practical and epistemological levels. It points to both a practical process and a conscious process, and these two processes can be mutually inclusive and transformable.*

**Keywords:** *Ontology of Philosophy of Information; Material Engagement Theory; Intentionality; Directionality*

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### Introduction

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The doctrine of ontology of philosophy of information proposed by Chinese philosophy of information has undergone a series of developments but still faces controversies and challenges from scholars both domestically and internationally. Among these issues, the relationship between “directionality” and “intentionality” in the mutual transformation of “being” and “non-being” is particularly worth discussing. In the Material Engagement Theory (MET) proposed by Lambros Malafouris, Professor of Cognitive Archaeology at the University of Oxford, a novel exploration of the issue of “intentionality” has been

presented. Unlike the traditional philosophical notion of intentionality, the MET argues that intentionality is not an inherent attribute of either matter or humans, but rather a property of material engagement activities [1]. Therefore, analyzing the relationship between “intentionality” in the MET and the “directionality” of “being” within the framework of ontology of philosophy of information will provide significant insights for the in-depth study of informational ontology.

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### **Intentionality in Material Engagement Theory**

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Material Engagement Theory (MET) was proposed by Lambros Malafouris, a cognitive archaeologist at the University of Oxford. It aims to re-examine the relationship between humans and the material world and to construct a unified ontology of the relationship between the human mind and things. The main theoretical framework of MET consists of three hypotheses: the Extended Mind hypothesis, the Enactive Sign hypothesis, and the Material Agency hypothesis. The Extended Mind hypothesis focuses on the possibility of the constitutive interweaving of cognition and material culture. The Enactive Sign hypothesis emphasizes how material signs function as a form of semiotic coexistence to shape and create the material world. The Material Agency hypothesis asserts that agency and intentionality are properties of material engagement activities, rather than inherent attributes of humans or matter. These three hypotheses address three different yet overlapping aspects of the material engagement process: cognition, meaning, and agency. Together, they demonstrate the interactive and interventional relationships between the mind, brain/body, and material culture [1].

From the standpoint of anti-anthropocentrism, Malafouris explores the extension of human cognition into the cultural and material worlds, as well as the generation of agency and intentionality. Using cognitive archaeology as a tool, he elucidates the mechanisms of interaction between the mind and things from both theoretical and practical perspectives, addressing the question of how things shapes the mind. Malafouris argues that “agency itself has the capacity to initiate and realize intentionality.” Traditionally, both intentionality and agency are considered attributes of humans, with intentionality being seen as the primary diagnostic of agency. However, this is merely an internalist perspective,

which has long been challenged. For instance, Latour posits that “the notion of the human cannot be detached from the non-human, and the fate of the non-human has become increasingly intertwined with that of the human over time” [2]. Thus, Malafouris' work aims to clarify that although agency and intentionality are closely related, for intentionality, “context” is of vital importance.

The term “background” in Material Engagement Theory is derived from John Searle's distinction of intentional states. Searle categorizes intentionality into two types: prior intention and intention-in-action. The former refers to intentions or deliberate actions formed before an action takes place, while the latter refers to non-deliberate everyday activities. The former follows a sequence from the world to the mind, meaning that conditions in the world must match the conditions specified by the intentional state in the mind. The latter follows a sequence from the mind to the world, meaning that the intentional state in the mind initiates the agent's movement in the world. Only in the state of intention-in-action does the boundary between the internal and external become indistinguishable. Therefore, in the context of Material Engagement Theory, it is only in the state of intention-in-action that agency and intentionality can be closely associated and generate meaning. In this case, intentionality arises within the action, and cognitive activities coexist with intentional states. Regarding the question of which comes first, material engagement or intentionality, Material Engagement Theory points out that the background plays a significant role in the formation of intentional states. The entities existing in the background belong to both humans and materials. Sometimes humans are extensions of objects, and sometimes objects are extensions of humans.

Let us further analyze the issue of intentionality generation in Material Engagement Theory through Malafouris's practical case of “the potter shaping pottery.” Consider the complex interrelations and interactions among the potter's brain, body, the potter's wheel, and the clay at different stages of this activity, and try to imagine the resources required to complete this creative process. For example, focus on the initial few minutes when the potter attempts to place the lump of clay at the center of the wheel. The potter's hands grasp the clay, with fingers slightly curved along the surface curvature, perceiving the clay and exchanging vital tactile information, which is essential for the series of

key decisions to be made in the next few seconds. What guides the potter's skillful positioning of the hands and determines the precise forward or downward pressure needed to place the lump of clay at the center of the wheel? How do the potter's fingers know the exact force required for the proper grip [3]?

In this case, the background includes the potter's own experience and skills, knowledge of pottery-making, the materials used, the tools, and the temperature conditions required for pottery-making. At this point, the conditions in the background belong to both the mental and the material. These shared "conditions" give rise to the potter's intention to create a vessel. Therefore, material engagement occurs prior to intentionality. However, how is the final pottery actually formed? Does the final product perfectly match the potter's initial conception? In this process, the potter is "governed" by "intention-in-action." During the actual making process, due to deviations in conditions such as the humidity of the clay and the firing temperature from the potter's initial assumptions, the potter's intentional actions are constantly adjusted, continually shaping the emergence of new intentions.

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### **Directionality in ontology of philosophy of information**

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Philosophy of information in China was officially established by Mr. Wu Kun in 1982. The system of philosophy of information begins with ontology of philosophy of information, or more specifically, with the division of the domain of existence. Unlike the traditional philosophical ways of dividing ontology, philosophy of information posits that "existence" should be divided into two domains: "matter" and "information." The term "information" here carries a broader connotation. The initial conceptual expression of "information" was: "the self-manifestation of the modes and states of material existence." In the book *An Introduction to Philosophy of Information*, "information" is redefined as "a philosophical category signifying indirect existence; it is the self-manifestation and re-manifestation of the modes and states of material existence (direct existence), as well as the subjective grasp and creation of information by cognitive and practical subjects, which also includes the created cultural world." The first definition is a simple statement of the relationship between information

and matter. However, information itself is a complex system. It is not only the self-manifestation and mode of existence of matter but also a way of pointing towards "non-existence." Tianqi Wu believes that "information should not merely be the manifestation of matter but the manifestation of the entire world" [4]. Therefore, the second definition still does not include the directionality of information towards the worlds of "existence" and "non-existence." Tianqi Wu argues that a more comprehensive definition of information should be: "Information is a philosophical category signifying indirect existence. It is the self-manifestation and re-manifestation of the modes and states of material existence (direct existence), as well as the grasp and creation of it by the subject. Moreover, it is also the pointer to the worlds of existence and non-existence." For philosophy of information, the relationship between "existence and non-existence" is its fundamental philosophical issue. In a general sense, "existence" is an instantaneous node in time and the "non-existence" before or after "existence" is constantly transforming and evolving with "existence."

In the process of mutual transformation between "being" and "non-existence," the following properties are observed [7]: (1) Continuity: The continuity of being is a fundamental property of existent entities, which can maintain certain fixed properties, structures, and relative stability over a period of time in the flow of time. (2) Developmental: The developmental feature of being is determined by the laws of motion and evolution of the entire world. It is the basis for retrospection and prediction. (3) Contingency: Contingency coexists with the developmental feature and belongs to the realm of "post-non-existence," representing the space of possibilities. (4) Retrospective Feature: Due to the continuity and developmental feature of existent entities, they possess the property of retrospection, which is manifested in the form of information. (5) Predictability: Predictability enables individuals with conscious awareness to use their intelligence and life experience to make certain predictive judgments before the transformation process between being and non-existence. (6) Directionality: Directionality implies the meaning of "extending from something to something" and "reaching a goal." When  $N$  transforms into  $N+1$ , it is the process of pointing from "non-existence" to "existence."

Conversely, when we create something through subjective consciousness, it is the process of pointing from a new “existence” to certain “non-existence.” Ontology of philosophy of information suggests that “directionality” is quite similar in connotation to “intentionality” in phenomenology. Here, “intentionality” is only used as an analogy or derived from Husserl’s intentionality. However, Husserl’s intentionality is merely at the epistemological level. Today, the interpretation of “intentionality” has long shifted from the epistemological perspective to the perspectives of practice, occurrence, and existence. It is insufficient to view the issue of directionality between “being” and “non-existence” solely through Husserl’s intentionality. We need to turn to a “practical” intentionality to redefine the connotation of “directionality.”

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### **Interpreting “directionality” through “intentionality”**

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The first to make a practical turn of Husserl's intentionality was Don Ihde, who believed that technology can change human perceptual abilities by mediating human intentional actions and intentional content. Ihde's phenomenology, which he represents, emphasizes that intentionality is shared by both technology and humans. This view coincides with the core of Actor-Network Theory.

Material Engagement Theory is further developed on this basis, with "anti-anthropocentrism" being the starting point of Malafouris' thinking. A new interpretation of intentionality and agency is one of the main tasks of Material Engagement Theory. In this theory, the issue of intentionality involves different interpretations of the transformation process between "being" and "non-being."

Malafouris argues that intentionality is co-aroused and realized by material engagement and the affordances of the environment. In this process, intentionality is not simply an external manifestation of internal brain thoughts as internalism claims. Instead, it is a process where the affordances of the environment ("material existence" and "subjective indirect existence") and the emergent agential actions from material engagement activities together give rise to the "subjective indirect existence" of intentions and transform them into "direct existence" or "non-existence." However, in the specific process of transformation, the affordances within the environment will continuously change. These detailed changes may force the agent's intentions to deviate

from the initial settings, ultimately transforming the "subjective indirect existence" into "non-existence." But there is also another possibility: the changes in environmental affordances are within the agent's activity prediction, allowing the "pre-non-existence" to be transformed into "direct existence."

For example, in the case of "the potter shaping pottery," the potter's intention to create a certain style of pottery arises not from an isolated thought but from the presence of essential material conditions in the environment for pottery-making and the potter's own experiential and skill-based conditions. At this point, material engagement has already occurred. The material domain (world and body) and the mental domain (brain) jointly project structures or concepts into the hybrid domain (mind), giving rise to conceptual structures or meanings that did not originally exist in either of the two input spaces. Thus, the mind is shaped.

During the actual process of shaping the pottery, due to continuous changes in the clay's texture, firing temperature, or other unexpected circumstances, the potter must rely on their experience to constantly adapt and control the process in order to achieve the envisioned style of pottery. Ultimately, there are two possible outcomes: the potter produces a replica of the envisioned pottery or fails to produce such a replica.

We can regard the "background" that initially shaped the potter's idea of "making pottery" as belonging to both the "material existence" (direct existence) and "subjective indirect existence" (self-generated information) within the domain of "being." The potter's conception of the pottery can be seen as "subjective indirect existence" (re-generated information). Before the "final pottery" is produced, the pottery as  $N+1$  belongs to the "post-non-existence." After its production, the pottery exists as "pre-non-existence." If the "final pottery" fails to materialize, it represents a transition from "being" to "non-existence."

Thus, the entire process of pottery-making encompasses the mutual transformation between "being" and "non-existence." This transformation is undoubtedly practical and goal-oriented, fully in line with the phenomenological understanding of the intentional significance of practice in phenomenology.

Unlike practical intentionality, Husserl argues that intentionality is the essential characteristic of consciousness, and consciousness is consciousness because of its intentionality. Therefore, all consciousness possesses intentionality. There are two types of consciousness: one is directed towards something, and the other constructs something. Moreover, construction is more important than direction. Based on Brentano's tripartite classification of psychological phenomena, Husserl divides intentionality into the following categories: the most fundamental and capable of forming an independent conscious act is perception; imagination is founded upon perception, and both perception and imagination are intuitive acts; intuitive acts serve as the basis for non-intuitive acts (such as pictorial consciousness and symbolic consciousness), and together with non-intuitive acts, they form the foundation of representational acts; representational acts, which are also acts of objectification, are the basis for all non-objectifying acts (such as emotions and volitional acts like love and hate) [8]. This classification is similar to the interpretation of “directionality” in philosophy of information, which states, “When we subjectively create something, the directionality of these new ‘beings’ is towards certain ‘non-beings.’ For example, the image and concept of the ‘Pegasus’ we create, although composed of the existing elements of flight and horse from nature, directly point to the ‘non-being’ of the objectively existing Pegasus.”

In this sense, it can indeed be said that “directionality” originates from Husserl's “intentionality,” encompassing all aimless conscious acts. “Directionality” and “intentionality” are both forms of inner structure. Alternatively, “directionality” can be considered one of the essential characteristics of “information.” At this point, the transformation between “being” and “non-being” is entirely at the epistemological level, that is, the process of pointing from “subjective indirect existence” to “non-being.”

In the system of philosophy of information, directionality implies the meaning of "extending from something to something" and the connotation of "reaching a goal." This indicates that directionality encompasses the transformation processes between "being" and "non-being" at both the practical and epistemological levels. This means that when we understand the directionality between "being" and "non-being," we should not interpret this directional

relationship from a singular perspective. Although it can be said that directionality originates from Husserl's intentionality and is similar to it, in fact, the biggest difference between them is that directionality has a richer connotation than the intentionality of the two perspectives. It points to both a practical process and a conscious process, and these two processes can be mutually inclusive and transformable.

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## Bibliography

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- [1] Malafouris L. How things shape the mind: A theory of material engagement. MIT press, 2013.
- [2] Latour B. Pragmatogonies: A mythical account of how humans and nonhumans swap properties. Journal American behavioral scientist, 1994. pp. 791-808.
- [3] Malafouris L. At the potter's wheel: An argument for material agency[J]. Material agency: Towards a non-hropocentric approach, 2008. pp.19-36.
- [4] Q.T.Wu, “New Research on the Ontology of Philosophy of Information” , Studies in Dialectics of Nature, 2023.
- [5] K.Wu, J.Wang, Q.T.Wu, Introduction to Philosophy of Information, Xi’ an Jiaotong University Press, 2020.
- [6] Q.T.Wu, “The Doctrine of Water as the Primary Substance” and the Issue of Being from the Perspective of Philosophy of Information, Journal of Systems Science, 2021. pp. 5.
- [7] Q.T.Wu, New Reflections on the Issue of Being Based on Information Philosophy Theory — The Levels of Being, Being and Non-being, Journal of Studies in Dialectics of Nature, 2015. pp.114-115.
- [8] W.K.Yin, A Comparison of Husserl and Searle's Views on Intentionality and Consciousness, Journal of Wuhan University of Technology (Social Science Edition), 2018. pp.117-122.

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