



# The Ecological Philosophical Signification of Affordance

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**Abstract:** In Gibson's theory of ecological visual perception, "affordance" is perhaps the most controversial concept. Concrete meaning of affordance should be researched adequately. According to Gibson's original theories, the concept reflects the relationship between organisms and environment, but it refers to feature of environment itself. Clear definition of affordance is conducive to avoid philosophical relativism.

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## 1 Introduction

In psychology, Gibson is well known for his theory of ecological visual perception (named after the title of his book *The Ecological Approach to Visual Perception*), and "affordance" is perhaps the most controversial concept in the theory. So what exactly is affordance? The problem should be figured out according to the basic concepts of ecology.

## 2 Analysis of the Conceptual Controversy

The concept of "affordance" has aroused academic concern and controversy, which could be caused by Gibson's negative statement:

In "Theory of Affordance", chapter 8 of the book mentioned above, concerning the basic concept, Gibson suggested: "But, actually, an affordance is neither an objective property nor a subjective

property; or it is both if you like. An affordance cut across the dichotomy of subjective-objective and helps us to understand its inadequacy[1]." In traditional theories, a concept has to belong to physical or mental, but Gibson break through the doctrine. Perhaps this is the objective reason why Fodor and Pylyshyn accused Gibson of an empty concept of affordance.

## 3 The Theoretical Basis from ecology

To clarify the basic characteristics of affordance, it is necessary to tracing the basic concepts of ecology. Haeckel, one of the main founders of ecology, believes that ecology is the science of studying the interaction between organisms and their surrounding environment, including non-biological environment and biological environment<sup>[2]</sup>.

The key words in the definition above include organism, environment and relationship. Of course, there are subjects such as biology, physiology, in which organism is researched, and the philosophical theories regarding organisms as ontological concepts include Bergson's "philosophy of life", while the underlying ecological philosophy is fundamentally different from it. It is worth noting that the other two terms, regarding the basic regarding the basic characteristics of affordance, are precisely corresponding to "relationship" and "environment" as the central words to explain the concept. In *Understanding Affordances: History and Contemporary Development of Gibson's Central Concept*, Dotov, Nie and Wit advocated: "Heft (2001) attributes affordances to the intrinsic properties of

features, objects and events that tie us together in relations.”; however, “Chemero (2003, 2009) argues against understanding affordance as a property of the environment. Instead, it is a relation between an animal’s ability to act and aspects of environment<sup>[3]</sup>.”

#### **4 Affordance as Property of Relationship**

It is easy to understand that the definition of ecology is relational-oriented, that is, the environment in the ecological sense is the environment closely related to and inseparable from the organism, while the environment without organisms, such as the environment in space, has no direct relationship with ecological research.

But is it appropriate to treat affordance as relational? The question is whether the relationship is major, important, or trivial. From the philosophical point of view, most philosophers admit that one can understand the world only on the premise of obtaining sense from experiences, which ultimately comes from the real environment. Descartes, Kant and Husserl, as well as the dualists of mind and body, the transcendentalists, all admit that there exists relationship between human and the real world. However, while they admit the objective reality of the environment, they all believe that the real environment is unknowable to us. Taking Kant as an example, the ontological concept of “thing-in-itself” he put forward actually refers to the objective environment. The problem is that we cannot obtain any intellectual knowledge of “thing-in-itself”. It can be seen that regarding affordance as relational is likely to return to the approach of apriorism or mind-body dualism, and may fall into relativism.

#### **5 Affordance as Feature of Environment**

The view of affordance as an environmental feature represents a new perspective. Gibson paid particular attention to description and discussion of environment, as Chemero stated: Gibson’s posthumous magnum opus, *The Ecological Approach to Visual Perception* (1979), is perhaps alone among books about perception in devoting nearly 50 percent of its pages to discussion of the nature of the environment that animals perceive<sup>[4]</sup>. In discussing how to define affordance, Gibson points out: “Ecologists have the concept of niche. A species of animal is said to utilize or occupy a certain niche

in the environment. I suggest that a niche is a set of affordance.” Niche means tabernacle in wall, whereas in ecology, it refers to specific living environment of an organism. “This is not quite the same as the habitat of the species; a niche refers to how an animal lives than to where it lives.” A niche refers to a kind of environment, and a kind of place after all. The word “environment” in ecology is also similar to the word “place”, reflecting both where and how to live.

In addition, Gibson had his positive statements to define the concept of affordance: “It is equally a fact of the environment and a fact of behavior. . . . . An affordance points both ways, to the environment and to the observer.” There is distinction between The niche for a certain species and what some animal psychologists called the phenomenal environment of the species. The world should not be regarded as “subjective world”, or the world of “consciousness”, different from objective world. The relationship between behavior and environment should not be confused with the relationship between mind and world, which is emphasized by traditional philosophy and psychology.

“In architecture a niche is a place that is suitable for a piece of statuary, a place into which the object fits. In ecology a niche is a setting of environmental features that are suitable for an animal, into which it fits metaphorically.” The word “feature” can be used to refer to people’s facial character and so on. Gibson specialized in visual perception of land animals in terrestrial environments. Although not identical like artificial environment, although quite similar and harmonious in many aspects, there are differences in each two position in natural environment. Perhaps it is because land animals confront more complex living environment, their overall level of visual perception is higher than that of marine animals. Gibson defined layout like this: “Layout refers to the persisting arrangement of surfaces relative to one another and to the ground.”<sup>[1]</sup> 307 In Gibson’s term series describing affordance, layout is a key element of surface. Surface is the real object of visual perception, and “ecological laws” mainly aims at surface. Surfaces of different levels and scales finally form the whole environment on which land animals live, namely the ground (or earth). From layout to the entire ground, there exists a progressive chain, which is essential to the living environment and visual environment. Once the “chain” of the environment itself is ignored, the

concept of affordance is bound to fall into abstractive trap.

Affordance is regarded as property of relationship between organism and environment, which is often based on relativity of affordance, for example: affordances correspond to variety of activities, including locomotion, support obtaining, manipulating, and perception, an opening in front of the perceiver often means positive and beneficial affordance of locomotion, but cliff valley, pit, or trap as an opening obviously means negative and harmful affordance of support. However, fundamentally speaking, there is no organism living outside its environment, but there really exist a desert environment in which no organism can live. Environment is, after all, pre-exist, and therefore comes first; organisms are formed by environment and linked with environment closely. Gibson said: "There is only one environment, although it contains many observers with limitless opportunities for them to live in it."<sup>[1]</sup> 138 The organism depends on its environment for its life, but the environment does not depend on the organism for its existence. To deny the connection between organisms and the environment, or between species, that is, to deny the role as "environment" and fundamental functions of other pre-created species, is to deny the basic ideas of Darwinian evolution. At the same time, this view inevitably leads to a dualist theory that divides the body from the mind, and the material from the mind. Reed is one of Gibson's successors. In his book named *Encountering the World: Toward an Ecological Psychology*, he discussed adaptation of organisms to the environment and regulation of environment to organisms, then the effects caused by affordance in evolution, for example, the same kind of animals in different environments present a quite different figuration, whereas different kinds of animals in the same environment is obviously similar in appearance<sup>[5]</sup>.

## 6 Philosophical discussion based on affordance

Descartes, Kant, Husserl and other philosophers hold the view of mind- body dualism and apriorism, denying that human's consciousness (including perception, thinking, etc.) has substantial connection with the natural environment. The underlying ecological philosophy is opposed to such

philosophical theories that sever the relationship between organism and environment. Theories against this philosophical view include Bergson's "philosophy of life", but it is still distinct from ecological philosophy: although Bergson pay much attention to interpretation and discussion of organism, he thought that the organism is independent, in essence is not restricted by environment, and that environment may only become obstacle to them.

The earliest ideas of ecological philosophy can be traced back to Darwin's *The Origin of Species*, and the native successor in Europe is Haeckel. The radical empiricism represented by William James and empirical naturalism represented by John Dewey (also known as "pragmatism) in the United States were strongly influenced by ecological philosophy. William James's psychological theory of functionalism is particularly concerned with the adaption of organisms to the natural environment, thus indicating an obvious ecological philosophy view. Gibson's theory of ecological visual perception, with its theories of "affordance" and "direct perception" as the two pillars, clearly returned to ecological theory. Gibson pointed out that "But note also that the environment as a whole with its unlimited possibilities existed prior to animals. The physical, chemical, meteorological, and geological conditions of the surface of the earth and the pre-existence of plant life are what make animal life possible. They had to be invariant for animals to evolve." Although William James fell into the trap of dualism at some stage of his academic study, ecological philosophy is clearly opposed to it: "An affordance cut across the dichotomy of subjective-objective and helps us to understand its inadequacy." Although ecological philosophy does not deny initiative abilities of organism, we should emphasize the environmental preconditions to avoid traditional philosophical dualism and apriorism.

## 7 Conclusion

Organisms come into being in natural environment, so in a sense, environment is decisive to organisms, that is, the kind of organisms is determined by the kind of environment. When discussing ecological community, other kinds of organisms even can be considered as part of the environment relative to the given species. Taking affordance as an environmental characteristic is conducive to hold back relativism

tendency and clarify decisive influence of environment on organisms.

## Reference

- [1] Gibson JJ. *The Ecological Approach to Visual Perception*[M]. Boston: Houghton Mifflin Company, 1979: 129.
- [2] Qin XL. *Ecological Psychology*[M]. Shanghai: Shanghai Education Publishing House, 2006, 44.
- [3] Dobromir G, Dotov DG, Lin N. Understanding affordances: history and contemporary development of Gibson's central concept[J]. *Avant*, 2012(2): 28-39
- [4] Chemero, A. *Radical Embodied Cognitive Science*[M]. London: Massachusetts Institute of Technology, 2009: 106
- [5] Reed ES. *Encountering the World: Toward an Ecological Psychology*[M]. Mew York: Oxford University Press, 1996: 42-43.