

THE ONTOLOGY OF SOFTWARE

Riko
Universitas Indraprasta PGRI, Jakarta
riko@unindra.ac.id

ABSTRACT

The nature of software (computer program) has been the debate among philosophers in philosophy of computer science. The pursue of the ontological status of software through the *essence* of it seems unconvincing. In this article, I would argue that software is the end point of the existence of the machine. This existentialist approach is hoped to unveil the ontological status of software that remains unclear until today.

Keyword: software, computer program, ontology, essentialist, existentialist, philosophy of computer science

INTRODUCTION

In this article, I would like to argue that computer has consciousness. This thesis, will the made it possible to make a stand that computer might have existential experience, and therefore, to claim software is the extension of hardware, not of partial or detached and independent entity.

The problem within the essentialist's account of the ontology of software that motivates me to propose the existentialist approach.

THE CRISIS OF ESSENTIALIST APPROACH

The pursue of the nature of software (in this article, the term "software" refers to "computer program") is within the domination of essentialist approach. The essentialist approach is a method to reach the ontological status of the nature of things. This method insists that the limited and specific property of a thing belongs to or pictures the whole nature of a thing.

There are at least three conclusions the essentialist approach has about the nature of software: mathematical objects, technical artifacts and programs and specifications. These three approaches share similar unanswered question in common: how to understand the software (abstract object) can have such connection with the hardware (physical object), and the reverse. This unanswered question rests on the fact that the existence of each objects are different by form and substance.

The crisis holds by essentialist approach of software is somewhat similar to the mind-body (dualist) problem in the philosophy of mind on seeking the "explanatory gap" between the mind and the body. The philosophy of mind struggles to answer on how to make sense the relation between the mind (abstract object) and the brain (physical object/body) on consciousness. If both were different by substance or form, on what occasion they can interact to one and another?

In order to cope such crisis, I believe that we can go to another direction while let others pursuing the essential part of software. There is disagreement about which part of these are more important between the two in computer: the software or the hardware. This

suggests that there is a problem beyond the essential part that needs also to reveal. The problem I believe come from the existential part of the software.

Turning into the existentialism approach is somewhat problematic. Existentialism is the method of investigation of the existence of human being. The key point of existentialism is the role of human consciousness. In short, the existentialist would say, "I know what I know".

Going further on consciousness, existentialism also adds that there are beyond rationality aspects that need to put into considerations. Human is not only the thinking thing, but also emotional (feeling, moods, and so forth) one. The existentialist believes that human being can only get involve with the in a fuller feature, that is with the rationality and the emotion (Macquarrie, 1973).

What would happen to this approach if it is used to understand the existence of nonhuman being things?

THE ACCOUNT OF CONSCIOUSNESS

As I have mentioned earlier that the key feature of existentialism is the role of consciousness. Existentialism believes that essence comes after existence. Human being has not been determined about themselves before they were born into the world. Human being must involve herself into the world in order to understand about what or who they are right after they can show themselves that they are conscious.,

The existence of consciousness has somehow been questioned scientifically. The question is on the empirical evidence: how can anyone confirm its existence as everybody can confirm the existence of the sun. Consciousness is subjective state that occurs to anybody to enable them to be aware of the surrounding.

Philosophers of mind like Searle and Chalmers have been arguing about this. None of them share the same agreement about this. Searle (1993) said that consciousness is a biological phenomenon. Consciousness is nothing but like any other common biological processes such as digestion. Searle (1993) argued that the "brain processes cause conscious state" (p. 7). So, it is not the consciousness that causes the brain's process. He noted that it takes the neurobiology revolution to get the detailed process of such state.

In his view about consciousness, Chalmers (1995) considered two views, that is, fundamental and universal. By fundamental, Chalmers suggested that the existence of consciousness must be accepted as a postulate fundamental law. This postulation kind of claim has long been practiced by physicist in taking for granted the existence of space, time and mass. This postulation claim is necessary to be taken since it is difficult to seek further exploration on the essence of such phenomenon.

By universal, Chalmers suggested that consciousness might universally apply. This means that not only human has consciousness, but also animal to elementary particles like photon. In short, every being in the world has consciousness with variety degree. This view

is known as panpsychism. The word “pan” refers to “all” and “phyc” refers to “mind”, every system has consciousness.

From two views above, Chalmers is more convinced to fundamental law of consciousness. He made it possible to take into account by linking it to information processing. This linking scenario will make sense the connection of consciousness to physical world. When there is information processing, the consciousness presents. The complexity of consciousness will depend on the complexity of information processing.

EXISTENTIALISM ACCOUNT ON SOFTWARE

As Searle (1993, p. 6) put it that the “brain processes cause the consciousness processes”, this suggested that the “physical” things produces the “mental” things. But, Searle’s account on this ontological process of existence is not in agreement with dualism mind-body that treats both entities separated. The consciousness which is produced by the brain is just the result of the process occurs inside the brain.

The way Searle explained the causal relation between the brain and the consciousness, in my consideration, can be adapted to my view about the existentialism account of computer. Chalmers’s account on the linking of information process and the existence of consciousness is also valuable in this article.

The essentialist view concerning software and hardware is treating both as separated and independent entity. This causes the difficulties on how to reveal the essence of software. So I proposed that the software is just the extension of hardware.

Software is just the manifestation of hardware. Software is dependent to hardware and the form of higher level of hardware that without which software never exist. Software has never been a single entity that is equal to hardware.

The complexity of software has made it possible to process information. The more complex the information, the more complex consciousness involve. The form of how the software shows its consciousness is by its own control on operation. It will show the “error” message if there is something that needs to be confirmed about what goes wrong. This message is just like how man expresses about the feeling they have inside their mind to show.

REFERENCES

- Chalmers, D. J. (1995). Facing up to the problem of consciousness. *Journal of Consciousness Studies*, 2(3).
- Macquarrie, J. (1973). *Existentialism*. New York, NY, USA: Penguin Books.
- Searle, J. R. (1993). The Problem of Consciousness. *Social Research*, 60(1), 3–16.