

Views on the Philosophy of the Mind

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Recent advancements in the area of neuroscience and neuropsychology in the last couple decades bring us to a closer understanding to the nature of ourselves as human. One nature of human that is an amazing phenomena is consciousness. Although no one has been able to understand this phenomena, the findings in the area of neuroscience has greatly influence philosophical views and discussions in trying to catch some glimpses of understanding of this phenomena. A lot of traditional views and problems has been sheen in the light of this new development. A lot of new views and insights has been formulated to try to start deciphering this age old problem. That journey by itself is interesting, but it also raises other interesting issues along the same line.

In this paper, I will not attempt to discuss consciousness. Instead, I will try to look at some philosophical discussions and views that are related to that. I will start by a short surveys of those philosophical views. As a Christian, I am interested also in the relation of our understanding of human nature through science and faith. Thus, I will also try to relate these views with some a basic notion in Christianity, namely free-will.

The first views that I will look at is the most traditional one, called dualism. This is probably the most commonly held view and represents the way we thinks for many of us. As Nancey Murphy once stated that everytime she did survey in every presentation she gives, more than two thirds of the audience believe in some forms of dualism (1999). Almost every pastors in churches also speaks in terms which is dualistic in nature.

The commonly held form of dualism is that there is a separation between mental and physical, or mind and body, or mind and brain. Some people claim that this view has its origin in

a Greek concept from Plato. Plato's idea, which is discussed in his dialogues *Phaedo*, was based on the concept of forms. In short, there are forms of "visible objects", "intelligible objects", and the "states of the soul" (1986). However, the greatest influence for this concept is the one that was formulated by Rene Descartes. Descartes separates the world into two categories of spirit or mental reality (thinking matter or mind) and physical reality (non-thinking matter or body) (1997). The nature of man then consists of this two separate world, that is the mental states or mind, and the physical states or body.

The problem arise with this view is how can the mind interacts and influence with the body, and the other way around, which is known as the age old mind-body problem. Descartes' proposed solution was that the rational mind and physical body make contacts in *pineal gland* through the flow of *animal spirits*, which mediate the interaction between mind and body. Descartes chose the *pineal gland* because he believed, erroneously, that it is unique to human. This proposed solution does not solve the problem entirely, since *animal spirit* must be either in the category mind or body because there are only two categories of the world according to Descartes. In either case, using *animal spirit* as the mediator is only to repeat the problem again: how can the mind, or the body, interacts with the *animal spirit* (which is either body or mind)?

A more modern view of this mind-body problem was proposed by Karl Popper and John Eccles (1977). Popper and Eccles view reality can be categorized into three different world:

World 1: The objective world of physical reality. It is the "universe of physical entities". The laws of physics governs this world. A reductive materialist holds that this is the whole reality.

World 2: The world of the psychic inner self, for example this includes ideas, desires, pains, joys, sorrows, loves, etc. Each of us then would have this world.

World 3: The world of human culture, and this includes all "the products of the human mind, such as stories, explanatory myths, tools, scientific theories (whether true or false), scientific problems, social institutions, and works of arts".

The mind-body problem then can be restated as the relationship between World 1 and World 2. Popper contended that this relationship can be mediated through careful consideration of World 3. His first argument was that World 3, although abstract, are real because it can change World 1. But by definition World 3 obviously has a strong relationship with World 2, since World 3 is the product of human mind, which relates strongly to psychic inner self (World 2). He then relates to World 1 from World 3 through the nature of human language.

"The capacity to learn language -- and even a strong need to learn a language -- is, it appears, part of the genetic make-up of man. By contrast, the actual learning of a particular language is a cultural process, a World 3 regulated process, in which genetically based dispositions, evolved by natural selection, somewhat overlap with and interact with a conscious process of exploration and learning, based on cultural evolution. This support the idea of an interaction between World 3 and World 1; and in view of our earlier arguments, it supports the existence of World 2" (1977).

Although dualism presents a very attractive view, there are several reasons why it must be rejected. First reason is that if we hold dualism position, advancement for the understanding

of human nature would be really difficult, because the mind would then be untouchable and immeasurable by science. Dualism does not bring us anywhere closer to the understanding of human nature, as Donald Hebb (1980) put it, dualism is a "stumbling block for the scientific approach to understanding of man." Dualism also seems to contradict a massive evidence in the neuroscience area that physical events can directly affects thing that are considered as mental events. A concrete examples for this is the success of drug therapy for depression and the well-known case of Phineas Gage. Another objection for dualism is for the unexplainable origin of the mind. If it does not come from the brain, then where does it come from?

The second view that we will consider is called functionalism. A Functionalist basically holds that mental states are simply functional states. Mental states are understood by their relations to:

1. their sensory input
2. other inner states
3. their behavior effect or output

Functionalism also maintains that mental states, such as feelings of conscious awareness, can be simulated by carrying out appropriate computation (Penrose, 1994). This is the basic idea of the strong Artificial Intelligence (AI) assumption, since strong AI believes that those computation can be done in computer. It draws analogy that the brain is merely just a hardware that support the software (the mind). Weak functionalism holds a position that two dynamic system are considered identical if the output of the two systems are the same given the same inputs over a limited period of time.

Functionalism has been rejected by many philosopher of the mind. One objection for example uses a scenario where there are two person that receive an inverted light spectrum. Person A receives red, while person B receive green. While the output or effect behavior of those two person might be the same, their internal states is obviously different and cannot be said identical. Another example would be that it is fairly common to have two totally different dynamic systems that behave the same way regarding input and output over a limited period of time in electrical engineering. This would be a counter example for the weak functionalism case. Penrose also points out that not all physical action can be simulated on a computer, let alone mental states. Such noncomputable example includes the indeterminacy principles in quantum theory, which would be explained later in this paper.

Strong functionalism, on the other hand, requires that two system are identical if there can be one to one mapping between each function of the two system. For example, for a computer program or chip to represent the mind, there should be functions that models every protein, molecule of ATP, neuron, synapse, spinal cord, musculature, entire cerebrum, etc. "Assuming this could be done, which is unlikely, strong functionalism would seem to be a tautology" (Scott, 1995).

Materialism is another alternatives that needs to be considered. Materialism is the more common view among scientists recently, compared with the two previously discussed views. There are two forms of materialism that I would like to consider here. The first one is reductive materialism, or reductionism, and the second one is physicalism. I will start with discussing reductive materialism.

Reductive materialism, in broad terms, basically said that we can reduce our understanding of the universe to an understanding of atoms and molecules that make up the universe. In neuroscience area, this view is adopted to a degree that human, including human mind and consciousness, is reducible to atoms and molecule. The understanding of human nature and behavior can be attained if we can understand all the laws that govern the atoms and molecules that make up the human body. This is also to say that human is nothing but automaton. The consequences of this idea, is as William James (1950) put it:

"If we knew thoroughly the nervous system of Shakespeare, and as thoroughly all his environing conditions, we should be able to show why at a certain period of his life his hand came to trace on certain sheets of paper those crabbed little black marks which we for shortness' sake call the manuscript of Hamlet. We should understand the rationale of every erasure and alteration therein, and we should understand all this without the slightest degree acknowledging the existence of the thoughts in Shakespeare's mind. The words and sentences would be taken, not as signs of anything beyond themselves, but as little outward facts, pure and simple."

Reductive materialism is probably fairly dead in many areas of science, especially physics. If we are to maintain this reductive materialism, we would have a great difficulty in understanding phenomena like consciousness. Some example from physics and chemistry gives a good argument against reductive materialism. First, let us consider water, which can be broken down into its molecule, hydrogen and oxygen. Water has property that cannot be explained in

term of its molecule, that is wetness. No hydrogen and oxygen has a property of wetness.

However the combination of the two gives an *emergent* of this new property. A second example is a concept known as entropy in thermodynamics. In physics, entropy in the second law of thermodynamics is the only concept that gives us the irreversibility in time, hence it gives us the direction, or the *arrow of time*. However, entropy is a macroscopic concept, and cannot be derived from microscopic level, since the all the laws govern the molecules and atoms in microscopic level are reversible in time, i.e. has no direction in time (Kondepudi & Prigogine, 1998). Again, this is an example of an *emergent* property that is not reducible. The physicist Erich Harth (1995), who is one of defender this *emergent* concept, argues:

"To say that all of human affairs is describable and explainable in strictly physical terms is sheer nonsense. It is equally nonsensical to assert that introducing such elements as political philosophies, or laws, or a climate of opinion, means resorting to some kind of mysticism and embarking on a non-scientific cabal. We cannot expunge such concepts from a discussions of societal dynamics, unless we confine ourselves to describing patterns of movement of people through subway turnstyles during rush hour. It must be apparent to all but the most simple-minded reductionist that the attempt to construct a true physical theory of society would be a foolish undertaking."

This same *emergent* property probably applies for consciousness and mind. Atoms, molecules, and neurons that make up the human brain is not conscious by themselves, but we can see the existence of consciousness as an *emergent* property in higher reality.

The second view of materialism that we will look at is physicalism. Physicalism is very popular for philosophers since the success of science explaining the world in around 1800. The great success of physics in describing nature with quantum theory since 1900 adds to the popularity of physicalism.

Physicalism basically said that everything has a physical basis. This physical basis need not be only in physics, but could be in chemistry, biology, etc. In the philosophy of the mind, physicalism maintains that mental states has physical basis in the physical properties, including brain states. This is to say that mental states *supervene* on physical properties. Physicalism also maintains that the same physical properties should result on the same mental state. For example, let us a consider a situation in which there exists a creature x that has a mental states A . Suppose we know all the physical properties, such as brain states and environment property, for the being x as B_1, B_2, B_3, \dots . Then, according to physicalism, it is impossible for a creature y that has all the physical properties B_1, B_2, B_3, \dots which does not have also the mental state A .

Physicalism is different from reductive materialism in the sense that according to physicalism it is not necessary that everything is reduced to atoms and molecules. While reductive materialism maintains that everything must be causally related to atoms and molecules, physicalism only maintains that everything is *metaphysically* connected to the physical properties of the world. George Ellis and Nancey Murphy (1996) also suggests notions about top-down and bottom-up causation in relation to this notion of physicalism. Top-down causation means that the higher level influence the more fundamental level, or macroscopic level influence the microscopic level. As an example, my intention to move my arms is a top-down causation

that results in the neurons in my arms (the lower level) moves according my intent (higher level). Another example is if we consider that I have a container containing gas. If I move the walls or pistons that make up the boundary of the gas, I increase the pressure of the gas. This is a totally macroscopic action, with no information is fed into the microscopic level. However, if we consider the microscopic level of the gas (using the standard model in physics that gas are made up of particle like billiard balls), the particles move faster because the increase in pressure. This is then macroscopic influence the microscopic, or top-down causation. Bottom-up causation means that the lower level influence, or causally influence the higher level. In the former example, I cannot reach out to a place longer than the length of my arms since the atoms and molecule are bound with their interaction energy to keep my arm intact. Thus, bottom-up causation in this example limits my ability to execute my intention. Reductive materialism in a sense only considers this bottom-up causation, without taking into account a top-down causation.

If we are to accept materialism, or physicalism, then this raises issue about free-will. The basic argument is usually as follows. If mental events are connected to brain events, and brain events are govern by the physical laws, then mental events are governs also by the physical laws. Thus we have no free-will.

The first argument would be based on the non-reducible physical properties of the brain events. Let us re-stated the problem as follows:

1. Mental events, such as the decisions to perform an action, must be identical with or caused by the brain events.

2. Brain events are purely physical events and therefore are determined by the laws of physics.
3. Thus, all mental events must be determined by the laws of physics.

We need to examine the first premise more closely. Are mental events reducible to be identical with, or caused by the brain event only? A well known experiment indicates that this is not the case. In the experiment, subjects were injected with adrenalin. However, each subject experienced different effects, such as anger or fear, depending on the social context of the subject. There is then a factor affecting the event that are not reducible to the brain event that contributes to the mental event. Therefore, mental events cannot be simply identical with or caused by the brain events. Mental events "supervene" on brain events and are on higher level of complexity than brain events, because mental events consist also of the relation between the brain events and the non-reducible environment variables.

One might argue that this is *environmental determinism*, not free-will. Let us explore a little further to see if we can come up with solution for *genuine* free-will. Suppose I am going to choose whether I am going to perform or refrain from performing an action x. Suppose also there is no social construct, law, or any other environmental variables that either encourage or discourage me in performing this action. Suppose there is also no conscious or un-conscious internal motives regarding this action in my mental state. This situation, indeed, sometime happens in reality, These are situations for which there is no real reason to choose one action over the other. However, we still choose. Why is that? There are mental states involved here. One is the need to make a choice, the others are probably higher mental states that incorporate

this and finally result in making the decision. "That sense that *I* who chooses seems to amount simply to the fact that I associate myself with the global, transcendent state, rather than with any of its various components." (Ellis and Murphy, 1996)

Penrose (1994) relates this action of choosing from the individual to the collapsing of the wave packet of the quantum indeterminacy. His argument for free-will is based on the indeterminacy principle of the quantum theory. Before I talked about the argument, I must say a little bit about this indeterminacy principle.

In quantum theory, the concept of indeterminacy principle means that an observer cannot make a measurement of a pair of a complimentary entities to an arbitrarily precision. An example of this pair of complimentary entities is position and momentum. This means the more precise observer makes measurement of the position of an electron, the more imprecise the observer can know about the momentum of the electron. Note that this is not because a technological limit, but it is fundamental to the concept of quantum theory. Due to this indeterminacy principle, all we can know about the orbit of electron before a measurement is made, for example, is a statistical average. Thus, the orbit of electron is like a wave packet, and all we know is the probability that the electron will be in a certain position in a certain time. When a measurement is made, the wave packet collapse, depends on the measurement that is made. Indeterminacy principle also account for the dualism properties of the electron, as wave and particle. Before a measurement is made, the electron is represented as neither wave nor particle, but the state is the sum of the two state (wave and particle). This sum of the states is often called the wave packet of the indeterminacy. Depending on the measurement, it collapse to

become either the wave property of the electron, or the particle property of the electron. If a measurement is done to measure the wave property, then the electron will become a wave at that point of when the measurement is made. On the other hand, if a measurement is done to measure the particle property of the electron, then the electron will become a particle at that point of when the measurement is made. Before the measurement, the state is undetermined.

This indeterminacy principle provides a room for free-will because the collapsing of the wave packet to either the wave property or the particle property depends on the measurement being made. This is another example of top-down causation. Thus, quantum theory is subjective to the observer. In the case of the mental state, the action of choose collapse the wave packet of the quantum indeterminacy in our brain states. Thus, brain states is not pre-determined by the physical laws, since the physical laws imply the indeterminacy. The person who choose freely in this sense, is the person who make the measurement, and thus what states the brain is going to depends on the choice made by the person.

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