

Formulating Consciousness: A Comparative Analysis of Searle's and Dennett's Theory of Consciousness

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Abstract: This research will argue about which theory of mind between Searle's and Dennett's can better explain human consciousness. Initially, distinctions between dualism and materialism will be discussed ranging from substance dualism, property dualism, physicalism, and functionalism. In this part, the main issue that is tackled in various theories of mind is revealed. It is the missing connection between input stimulus (neuronal reactions) and behavioral disposition: consciousness. Then, the discussion will be more specific on Searle's biological naturalism and Dennett's multiple drafts model as the two attempted to answer the issue. The differences between them will be highlighted and will be analyzed according to their relation to their roots: dualism and materialism. The two theories will be examined on how each answer the questions on consciousness.

It will be revealed in this research that consciousness can have different brands. Dennett's as one brand, *operational consciousness*, and Searle's as another, *sui generis consciousness*. It shall be concluded that Searle's theory of mind outweighs Dennett's if we take the two theories to answer what human consciousness is. This is due to two reasons: (1) Sufficiency of Explanation, where Searle has more comprehensively explained what consciousness is and (2) Pragmatic Picture of Reality, where Searle's theory can fit more in the social reality.

Keywords: Searle, Dennett, Theory of Mind, Consciousness

Consciousness is a complex theme not only in philosophy, but also in the hard sciences. Psychology makes an attempt in fully understanding the topic, but what they find are only traces of descriptions those which we can correlate with what consciousness is. The descriptive question tailing the theme consciousness is still an on-going debate. What is this consciousness they are talking about? Is it some sort of metaphysical entity? Is it just a product of neuron firings just waiting to be interpreted? Is it a processed data, or maybe just

a process? As we use consciousness in an ordinary language, it means the state of being alert of one's self and one's environment, thus the sub-thesis that confines the attribution of the term to the living things. It also pertains to 'having knowledge' thus the sub-thesis that only animals (or only humans) are attributed with consciousness. But, these sub-thesis are not final in the sense that they are entirely true and entirely acceptable. Debates on consciousness continue to grow and sub-thesis such as above are simultaneously proven and contested. One

of the most popular correspondences that inquire about consciousness is between John Searle and Daniel Dennett.

We know consciousness. We are very much aware of it. But, with all this knowledge we have of consciousness, we lack full understanding of it. John Searle and Daniel Dennett are two philosophers of mind with contrasting opinions concerning consciousness. While Searle claims that consciousness consists of *qualia*, Dennett claims it does not. This paper shall investigate which theory then can better explain human consciousness.

Dualism and Materialism

Dualism and materialism are contrasting theories especially when it comes to their description of consciousness. Dualism treats consciousness as independent from the physical body. It creates a clear distinction between mind and body. Materialism, being simpler, treats consciousness as being a part of the brain system. It discards the premise that there is such a thing called ‘mind’ (or if there is, it is reducible to physics) and everything is just a function or a part of the physical body. On the one hand, since dualism assumes an entity independent from the physical body, it consequently implies the possibility of a soul or a soul-like entity independent from the physical body. On the other hand, materialism denies this. Since everything is a part of a physical body, there cannot be any entity independent from it — thus the denial of a soul independent from the body.

Writings on dualism can be traced back to the time of Plato. Plato described the mind as an ideal and abstract thing and thus it belongs to a world he intuited — the ‘world of Forms’. This mind is what we call ‘soul’. It is there as we are living, and as we die, it stays in the world of Forms. This world of Forms houses all the ideal things not only the concept soul, but so are the concepts love, justice, and other ideal concepts such as ‘chairness’, ‘tableness’, and ‘treeness’.¹ Dualism is more explained by a later

philosopher Rene Descartes. For him, there are two kinds of substance in the world: the mental and the physical. He described the mind as non-physical substance distinct from the body, and the body as a non-mental substance distinct from the mind. We can see how they are distinct from looking at their features.²

Mental	Physical
1. Indivisible	Infinitely Divisible
2. Free	Determined
3. Known directly by means	Known Indirectly of <i>Cogito Ergo Sum</i> ³

First, the mental aspect is indivisible. We cannot cut or group the mental into smaller groups or pieces. Meanwhile, the physical aspect is infinitely divisible. This view of the physical aspect is closely related to scientific theories originating from Leucippus and Democritus stating that everything is divisible into the tiniest particles called *atomos*. Second, the mental aspect is free while the physical aspect is determined. The distinction is best illustrated as: while the physical aspect can be physically measured thus the limits we can perceive it bears, mental aspect comprises ideas, thoughts or imaginations— abstract things which are physically immeasurable. Third, the mental aspect is known directly by means of *Cogito Ergo Sum* while the physical aspect is known indirectly. Descartes’ thesis *Cogito Ergo Sum* means in English “I think, therefore I am.” It is the first certainty to cure his skepticism. He found himself while meditating according to his book *Meditations*. He said:

But finally here I am, having insensibly reverted to the point I desired, for, since it is now manifest to me that even bodies are not, properly speaking known by the senses or by the faculty of imagination, but by the understanding only, and since they are

not known from the fact that they are seen or touched, but only because they are understood, I see clearly that there is nothing which is easier for me to know than my mind.⁴

Descartes' theory poses different problems. First is, "How can the two interact?" or "How can the two causally affect each other?" What Descartes only provided were the descriptions of the mind and body—that they are distinct—missing the question in between, the interaction between the mind and the body. Second is whether the mind is really free or not. The notion of the will is in question since if the mind is free and the body determined, it looks as if the freedom of the mind makes no difference.⁵ Third is the problem we have when we think of other minds; since, only the self's mind can be known directly by means of *Cogito*. This will in turn bring forth another question: "Can we really know anything about the external world?". The fourth and last problem is general to dualism, that which supposes a metaphysical necessity—a soul that is removed from the body. Cartesian dualism is contemporarily known as substance dualism. This kind of dualism is largely contested, but a few philosophers stick with the theory such as W.D. Hart and Richard Swinburne.

The quest in finding what is consciousness is still in discussion as most has thrown away what Descartes has theorized—largely due to inconsistencies and lack of explanations. Another more modest version of dualism arose in the contemporary era. Property dualism discards the ontological weight Substance dualism bears. Property dualism bears its dualistic characteristics in the distinction between two aspects or properties. One property is the physical property while the other property is the conscious property. These conscious properties are neither identical with nor reducible to physical properties but can be instantiated by the same things that instantiated with physical properties. One example is a Chalmers' version of property dualism. He

claims that conscious properties are on a par with fundamental physical properties such as electromagnetic charge. The interaction is bounded by physical and causal laws, but their existence is neither dependent upon, nor derived from any other properties.⁶

Monism, contrary to dualism, claims that there is only the mental, known as idealism, or only the physical, known as materialism. Idealism, popularized by Berkeley,⁷ holds that only the immaterial mental substances do exist. Serious objections for it arose as it utterly denies the existence of the external world.⁸ The opposite, known as materialism, has a more general support as it closes itself in with science and it has less metaphysical problems to think about. It discards the existence of a mind distinct from the body and presumes that there are only the physical aspects.⁹ Materialism, in its quest to find what consciousness is, brought forth several, different, and contesting theories, one of these is behaviorism. One variation of behaviorism, methodical behaviorism is foundational to psychology. Another variation, logical behaviorism, is a theory of mind claiming that any statement about the mind is equivalent in meaning to a set of statements about behavior.¹⁰ Although a theory solely based on the physical/bodily aspects, behaviorism failed to find the causal connection between the mental and the physical. It still bears the same deficiency dualism has in explaining consciousness. Also, its main thesis can be easily defeated with counterexample as there is an instance wherein what one thinks is different from what one's behavior is. As an attempt to improve behaviorism, physicalism claims that physical states are identical to mental states.¹¹ This would mean that there is no more need for the causal connection between the mental and the physical, since they are one and the same. Another theory materialism brought forth for the inquiry of consciousness is functionalism. In functionalism, everything is reduced to functions which are mostly mathematical appropriations and expositions.¹² It claims that there is an

internal causal relation among the elements of the system, of the mind. On the one hand, functionalism is being treated by philosophers as a black box since we do not know anything of its internal processing.¹³ On the other hand, some philosophers claim that those internal processing consists of computation, as in advanced computers, thus the said possibility of conscious machines.¹⁴

Searle's Biological Naturalism

Searle's theory of mind coined as Biological Naturalism begins by claiming that consciousness is a biological phenomenon, putting it at the ranks of digestion or photosynthesis.¹⁵ It is distinct from the physical aspects, but it is not a soul-like entity that has no clear connection with the body. The relationship is that: consciousness, the mind, is a higher-level biological phenomenon that is caused by the lower-level neuronal processes, or the physical aspect.¹⁶ To grasp Searle's theory of consciousness, we must also articulate clear dichotomies that his theory bears. One is the dichotomy between mental as higher level phenomena and neurophysiologic as that lower level. His theory opposes the thesis that consciousness is reducible to computations. The thesis claiming that consciousness is reducible to computations holds that if that is the case, then it is also possible for computer programs to be programmed for it to be conscious. That is not the case for Searle. For him, mental states are real, irreducible and cannot be doubted as also according to the Cartesian principle *Cogito Ergo Sum*. Additionally, he explained this by showing another dichotomy, the dichotomy between the syntax and semantics. Starting with a thought experiment, the 'Chinese Room Argument', the thought is as follows:

Imagine that a bunch of computer programmers has written a program that will enable a computer to simulate the understanding of Chinese. So, for example, if the computer is given a question in Chinese, it will match the question against its memory, or data

base, and produce appropriate answers to the questions in Chinese. Suppose, for the sake of argument that the computer's answers are as good as those of a native Chinese speaker. Now then, does the computer, on the basis of this, understand Chinese, does it literally understand Chinese, in the way that Chinese speakers understand Chinese? Well, imagine that you are locked in a room, and in this room are several baskets full of Chinese symbols. Imagine that you (like me) do not understand a word of Chinese, but that you are given a rule book in English for manipulating these Chinese symbols. The rules specify the manipulations of the symbols purely formally, in terms of their syntax, not their semantics. So the rule might say: 'Take a squiggle-squiggle sign out of basket number one and put it next to a squoggles quoggle sign from basket number two.' Now suppose that some other Chinese symbols are passed into the room, and that you are given further rules for passing back Chinese symbols out of the room. Suppose that unknown to you the symbols passed into the room are called 'questions' by the people outside the room, and the symbols you pass back out of the room are called 'answers to the questions'. Suppose, furthermore, that the programmers are so good at designing the programs and that you are so good at manipulating the symbols, that very soon your answers are indistinguishable from those of a native Chinese speaker. There you are locked in your room shuffling your Chinese symbols and passing out Chinese symbols in response to incoming Chinese symbols. On the basis of the situation as I have described it, there is no way you could learn any Chinese simply by manipulating these formal symbols.¹⁷

By being inside the Chinese Room, the person without completely learning Chinese, is able to behave as if he does understand Chinese. In a language schema, this counts as the syntax. Syntax, as compared to semantics, is formalistic in nature. It is only composed of values devoid of any meaning. The behavior of the one inside the Chinese Room only counts as one of syntax,

a form not containing meaning. Searle wants to point out that the behavior exhibited by the person inside the room, in which it seems he understood Chinese, lacked semantics, that is, it lacked content. The person in the room did not really understand Chinese. For him, syntax is not sufficient for semantics. This creates a clear distinction between computer programs which are entirely defined by their formal, or syntactical, structure and minds which have mental contents. This creates the thesis that a machine able to have mental contents is impossible.¹⁸

Searle described consciousness through what happens when we pinched our skin. According to him:

A few hundred milliseconds after you pinched your skin, a **second sort** of thing happened, one that you know about without professional assistance. You felt a pain... This unpleasant sensation had a certain particular sort of subjective feel to it, a feel which is accessible to you in a way that it is not accessible to others around you. This accessibility has epistemic consequences—you can know about your pain in a way that others cannot—but the subjectivity is ontological rather than epistemic. That is, the mode of existence of the sensation is a first-person or subjective mode of existence, whereas the mode of existence of the neural pathways is a third-person or objective mode of existence; the pathways exist independently of being experienced in a way that a pain does not. The feeling of the pain is one of the **qualia**... Furthermore, when you pinched your skin, a **third sort** of thing happened. You acquired a behavioral disposition you did not previously have.¹⁹

It is crucial to note that Searle's notion of consciousness is of subjective nature—not *epistemic subjective but ontologic subjective*. *Epistemic subjectivity* pertains to subjective thoughts that one knows to know. For example, I thought of my own thoughts. I have the idea of it. This

thinking of my own thoughts then is caused yet by another round of neuron firings. *Ontologic subjectivity*, however, comprise that feelings we get just as we get a particular sensation. It is subjectively distinct since it is only observed by its thinker. Commonly, it is called as *qualia*. To further look at it, he divided the thought process into three. First is the physical activity wherein one will react to, for example a pinch. The pinch made a neuron reaction in the skin and it travels to the brain. This unpleasant sensation has epistemic implications—that the subjective feel of it is accessible only to the person in a way that others cannot. Second is a first-person sensation, in this case, it is pain. It was caused by the first entirely physical neuronal activity. This is also known as the *qualia*. Third is the behavioral disposition caused by the second, first-person sensation. The input signals cause the pain, and pain in turn causes behavioral disposition.

For Searle, the problem that needs to be focused on by philosophy and natural sciences when it regards consciousness are those first person and subjective feelings.²⁰

Dennett's Multiple Drafts Model

It is important to note that Dennett denies the *qualia*.²¹ He said:

Just what are "phenomenal qualities" or qualia? (Qualia is just the Latin for qualities; the singular is quale, usually pronounced kwah 'lay.) They seem terribly obvious at first—they're the way things look, smell, feel, sound to us—but they have a way of changing their status or vanishing under scrutiny.²²

Qualia, according to Searle, are those second features of consciousness. The feeling of something at the moment we start to get the physical input of, for example, pinching, and by that we get the feeling of pain. Dennett denies this sort of subjective quality Searle is pointing out. To support this, Dennett introduced the

Cartesian Theatre. Cartesian theatre is the space in which we view our consciousness, or how we perceive things in general wherein everything we perceive are 'screened' or being shown to us while we start to be on the centre of that consciousness just watching.²³ And, as we see things, everything that is around us, we create the line or the boundary in which at the other side is the self while on the other side is that which we are conscious of—this he calls Cartesian Materialism. For him, this Cartesian theatre, as well as Cartesian materialism, is wrong for the reason that it is illusory.²⁴

Instead, Dennett provided his own positive view of consciousness, the 'multiple drafts model'. According to the multiple drafts model, these ideas or perceptions are various narrative fragments or simply, 'drafts', which are at different stages of editing.²⁵ For him, some or all of these drafts may come together serving specific functions. They do not go to a specific Central Processing Unit in the brain. They are just being 'edited' in the brain producing thought. To determine which of the drafts are conscious or can lead to conscious state is to conceive of a Cartesian theatre. To answer the instance where it seems like the stream of consciousness is flowing in a sequence as if in a Cartesian theatre; Dennett claims that the self is the centre of narrative gravity.²⁶ Consciousness for Dennett would then be similar to a web of discourse, similar to its literal sense when we talk about the web of the spider or the shell of a snail; it works as a house or source of livelihood.²⁷ To complete the model of consciousness, according to Dennett, is a sort of virtual machine, an evolved computer program that shapes the activities of the brain.²⁸

Dennett's theory of consciousness is a brand of computer functionalism. A computer functionalist account of theory of consciousness claims the way we think is similar to how basic functions and computations make a computer application to program. In this light, Dennett developed a thesis that a conscious machine is

possible. By discovering how functions and computations undergo in the human mind, we can then program it to machines.

If the self is "just" the Centre of Narrative Gravity, and if all the phenomena of human consciousness are explicable as "just" the activities of a virtual machine realized in the astronomically adjustable connections of a human brain, then, in principle, a suitably "programmed" robot, with a silicon-based computer brain, would be conscious, would have a self. More aptly, there would be a conscious self whose body was the robot and whose brain was the computer. This implication of my theory strikes some people as obvious and unobjectionable. "Of course we're machines! We're just very, very complicated, evolved machines made of organic molecules instead of metal and silicon, and we are conscious, so there can be conscious machines — us."²⁹

Similarities and Dissimilarities

To clearly give a comparative analysis between the two theories of mind, one of Searle's and the other of Dennett's, we must enumerate the points where the two theories are similar and different. First, let us discuss the similarities.

1. *Both theories endeavor to answer the question of mind, specifically, how can the mind be described.*

The problem is as old as religion where it is an assumption that God is capable of divine intervention.³⁰ This intervention implicates the *control* God has in the world permeating through basic causal factors that affect this world—which includes human decisions. But then, human decisions comprise free will which bears a contradiction to God's intervention. Of course, the problem that stirs with the concept of God in the middle is out of the question, especially for those skeptics about its very own existence.

This *free will* and everything that is incorporated when we talk about the mind, or the very

action— thinking, provided a question that is answered by philosophers of mind: what is the mind, or how can it be described. Searle's and Dennett's are two theories that are just a part of a larger discourse concerning the theory of mind.

2. *Both theories claim to be scientific, specifically, biological.*

Since both consider their theory as biological, they follow a scientific back-up, notably are works by Crick and Edelman³¹—whom both are neuroscientists. Thus, some parts of Crick's and Edelman's view regarding the brain are accepted, including how the brain neurons cause behavioral dispositions.³²

More than being similar, Searle's and Dennett's theories are largely different and contrary. Here are the dissimilarities:

1. *For Dennett, mind is reducible to computational functions while Searle says it's not.*

Dennett adheres to a computational view of the human mind wherein it is possible for thoughts, as human mind's products, to be reduced to functions, thus implying the possibility of a set of functions constituting the human mind that is observable by us in a third-person perspective. This set of functions, then can serve as a basis for us to produce an artificial intelligent being. Whereas, Searle argues against this reducibility by stating that computations are not intrinsic in nature, that which includes the human mind. Searle claims that physics, the natural world, and the human mind have no necessary computational functions. We attribute computations in causal relations partaking in physics, but this does not fully interpret the nature of physics. The case is the same with the human mind wherein there is more difficulty in seeing its intrinsic causal relations. Computations then, for Searle, are only *observer relative*, such that its value solely lies on what is observed in the third person. The main difficulty

arises from the distinction between how the two are derived, computations and human mind. While it is possible to attribute computational functions to physics as it is observed in the third person; the human mind is observed in the first person. Thus, the unbridgeable gap: human as it is observed in the first person and computability as it is observer-relative. This emphasis on the first person by Searle leads us to the second difference.

2. *Searle claims that this subjective quality of consciousness, specifically qualia, is the main issue we must pursue when dealing with the philosophical problem of consciousness while Dennett scraps the very idea of its existence.*

Searle elaborated consciousness by dividing it into three phases. (1) The first is the actual physical contact wherein stimuli begin to react and neuronal processes start its activity. Neurons fire and at this phase, brain scanner, and other machines that are capable of interpreting neuronal activity, can be used to observe what happens in the body when we think. At this phase, we get the *sensation* of the action. (2) After the neurons processed and brought about sensation, there comes the *feeling* of it. A phenomena outside that is purely subjective, and rather than epistemic subjective, it is actually ontologic subjective. Epistemic subjectivity pertains to subjective thoughts that one knows to know. Ontologic subjectivity, however, is subjectively distinct since it is only observed by its thinker. Because of its ontologic subjective nature, it escapes the possibility for it to be under the study of objective science. These feelings, then cause emotions and also causing the third (3), after the sensation is produced by bodily processes, and the feeling is produced in consciousness by these bodily processes, behaviors arise.³³ *Behavioral disposition* is the most empirically observable of the three. These are the bodily actions we do after we get sensations. Muscles move as nerve endings give commands. Searle's theory provided a window to answer the old question wherein there is an explanatory gap

between input stimulus (*in Searle's*: sensation) and behavioral disposition.

Dennett does not want to adopt Searle's purely subjective interpretation of consciousness, and scrapped the idea of it. For him, our minds work only within the objective strata. Input stimuli enter the body through the neurons, the brain or spine reacts, then behaviors occur. If we are to use Searle's draft, Dennett will only consider the first and the third phase. Dennett's claim tends to forget that there is an old problem, such that there is a gap between the input stimulus and behavior. This gap is mainly rooted from the large difference between simple neuron firings and complex mental activity, such includes having ideas, feelings, decisions, etc. Dennett answered this question, while still sticking to his claim of the computational theory of mind, using the multiple drafts model. And, to how it lies between sensation and behavioral disposition; according to him, there is a virtual machine within our brain that processes these functions coming in and out.³⁴

3. *Dennett believes that a conscious machine is possible while Searle believes otherwise.*

These two widely opposed theories are both conclusions of Searle's and Dennett's pursuit of the correct theory of mind. On the one hand, Dennett, because he treats mental functions as reducible to functions such that we can derive conjectures and formulations to mathematically analyze and predict it, highly believes that we can produce a conscious artificial intelligence. By being 'conscious', it does not merely pass some certain test such as the Turing test, but it means that it can act, think, and behave like us, humans. This can be achieved in the time when we understood how the human consciousness works; this then can be engineered and applied to machines producing an artificial intelligence (AI). On the other hand, Searle believes that the problem is whether we can achieve full understanding of consciousness. Without this understanding of consciousness, we don't have

enough formulations for creating AI. Searle is not completely against the idea of an artificially intelligent robot. But for him, we must first tackle the problem of *qualia*, which, according to him must be the focus for answering the problem of consciousness. *Qualia* is still an untapped area within the third person discourse; but in the first person, Searle claims that we know of it.³⁵

Scientific or Unscientific

Both Searle and Dennett are trying to be objective as possible when consciousness is being talked about. Both are referring to consciousness as thinking, sentience, and that anything that we talked about when talking about the mind.

But, let us analyze the consciousness they are referring to. Both claim that theirs is scientific. We must dissect the two theories' being scientific since this attribute gives legitimacy and keeps us close to the empirical. So, are their theories scientific or not? Here are a number of factors on how we can distinguish something scientific or unscientific.³⁶

1. Science tends to progress.
2. Science asks *how*.
3. It uses a reference frame, thus it relies on measurements.
4. Verification Principle. If it is analytically or empirically verifiable, it is scientific.
5. Popper's Falsification. Instead of relying on verification, if it can be falsified, it is scientific.³⁷

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1. Science tends to progress.

Does Dennett's or Searle's theory progresses? Both theories according to the two have their roots from neuroscience, thus the physical and biological origins. We can say that both theories are the progression being talked about in the *progress*. Dennett's path, Strong AI, is quite older

than him, and it sticks to the computationalist and the functionalist interpretation of the mind. Critics claim, including Searle, that Strong AI has not really progressed, hence is in a stagnant phase. Largely, this is due to the Penrose hypothesis stating that Gödel's Incompleteness theorem provides strong evidence against strong AI. Its adherents will deny that and will probably cite ASIMO, SIRI, etc. as empirical proofs for the progress scientists had in creating artificial intelligence.³⁸ Searle would still point out that these examples of thinking robot does not qualify for being conscious like us since it does not have that *qualia*.

Searle's theory, biological naturalism, is rather new. He made his theory to be apart from dualism or materialism, although the theory has slight leaning with dualism according to most of Searle's critics.³⁹ Searle's theory is more unique from other theories. It has a focus to neuroscience leaning the theory with materialism; but with neuroscience, Searle admits exclusively subjective *qualia* creating the dualistic picture. Since Searle's theory places an emphasis on *qualia* and since it has insufficient supports and proofs⁴⁰ for it is only accessible through subjective experience, Searle's theory does not or has not progressed.

But, the two theories are fairly young and it is possible that the two just have not reached the phase where there is an observable progress.

2. Science explains *how*.

Explaining mechanism is one of the features of science. It illustrates how event A causes event B as well as underlying events that undergo with the whole process. Dennett's theory, according to him, is scientific on the basis of its biological foundation.⁴¹ Consciousness, for him, is a product of biological processes, generally. But, it is also according to Dennett that religion and other social phenomena are also biological, with the same case as consciousness. This bears light to what brand of consciousness Dennett talks

about and how he can see the world. Every factor, including social factors that affect humans are biological and all of these are reducible to functions. That is how Dennett closed the gap between the soft science and the hard science.

Neuroscience can stand on its own when asked to explain how. Strong AI gets its explication of mechanism from the framework of neuroscience; but, it is not accurately the same. The problem with this brand of functionalism is that its process, or its mechanism, is out of sight. It is in a black box, so to speak, hence the term black box functionalism.⁴² What we only get are names and definitions cluttered to serve the theory and the mechanism as a conceptual map based from theories of neuroscience. The mechanism derived from neuroscience is twice or more removed from empirical means since it relies on abstract definitions that are only other products from different functionalist theories. Thus, Dennett's theory, if not, duly lacks the ability to explain how.

Searle attempted to give light on the old problem, finding out the mechanism between the input, or the mental state, and the output, or the behaviors. This is the ontologically subjective factor of consciousness, or simply *qualia*. Searle's theory's biological nature comes from his sub-thesis that higher level mental contents are caused by lower level neuronal processes. Lower level neuronal processes act as the input. Higher level mental contents include the *qualia*, and acts as in-between input and output. Behavioral disposition is the output.⁴³ So, how does it really explain? The mechanism of the input is explained and is being explained through neuroscience. The mechanism of the output is sufficiently explained through direct empirical means and behaviorism. The in-between, as Searle claims the *qualia*, has difficulty in showing us what its mechanism is. Searle is quite sure about its existence. We feel it. We genuinely know about it. But, even though we feel it, we are not really sure how it works.

We can get a grasp of it, but it is only that what we know to know—it is only epistemic subjective. This epistemic subjectivity can be subjected to third person scrutiny by using neurological tools. But, an ontologic subjective phenomenon, the in-between input and output can only be accessed through the self, the subjective. This makes the mechanism of Searle's *qualia* rather impossible to identify.

3. It uses a reference frame, thus relying on measurements.

Another factor science has to support its legitimacy is its accuracy and precision due to its use of measurements. Measurements of certain objects or subjects are identified with its relation to standard measurements, such as International System, and basic units.

Important parameters in both Searle's and Dennett's theories are immeasurable. We cannot yet subject Searle's *qualia* or Dennett's multiple drafts to strict scientific standards.

4. Science can be *verified* as in Verification Principle or *falsified* as in Popper's Falsification Theory.⁴⁴

We always know about consciousness, but how can we verify it? This is a problem we have in pursuing a science of consciousness. But, Dennett, since denying the distinct subjectivity, claims that we can verify consciousness through neuron processes. Dennett's framework is simple. There are neurons and neuron firings, and then there are the behaviors. That's just it. Dennett denies a third party that may be named *qualia*, or maybe consciousness. This verification from neuroscience and computationalism is continually tested to successfully create a better and conscious AI. But, Searle claims that what Dennett talks about is not how we tackle the problem of consciousness.

Searle's theory is impossible to verify scientifically by the third person, whereas in the

first person he claims that it is a common sense to us.⁴⁵ Dennett does not support this as he still question the accountability our senses give to us. The description Searle provides when he talks about our cognition of *qualia*, for Dennett, does not suffice. In a gist, to verify Dennett's claim on consciousness and its mechanism, we need to heavily rely on the scientifically verified mechanism provided to us by neuroscience and computational operations. While there is a rather still vague connection between Dennett's theory of mind and neuroscience with computationalism, Searle's theory has a long way to go to get in close with the traditional science since traditional science currently puts its trust to the third person interpretations.

The case is quite the same in terms of whether the two theories can be falsified or not. There are also difficulties. The big problem lies in the observability of the concepts used in the theories. While, Dennett deals with an unobservable black box functionalism together with an imaginary *virtual machine*; Searle deals with an exclusively for subjective-observations-only attribute of consciousness.

The fact whether a certain theory is scientific or not is a larger problem in philosophy of science, simply known as problem of demarcation.⁴⁶ So, the categorization of Dennett's and Searle's theory requires clarification to the problem of demarcation. But, if we are referring to the traditional sense of science and put it to the same level with other sciences that has consensus to be considered as scientific such as biology or chemistry, Dennett's and Searle's are far from being scientific. It can be that the theories the two are pushing are still at a very young age or the two theories are simple imagination.

Are the two theories really biological? Biology is most commonly defined as science pertaining to the study of living organisms. In its most general sense, it may also include the social factors acting according to the living organism; and,

more closely, treating both as biological since they both talk about theory of mind dealing with a vital factor in a study of life, in general.

But, the current tradition we have of biology, it requires a reductive justification from chemistry. This would mean that proofs and explanations of certain biological theories need to be supported by explanations derived from chemistry such as oxygen fueling metabolism or the Krebs cycle of cellular respiration. With chemistry as a requirement, biology, then becomes a stricter discipline, then cutting off the softer side of science including the social sciences. With reductive justification from chemistry, Dennett's and Searle's have too many missing links to create a sufficient explanation of a theory of mind, according to the current tradition of biology.

Dualism and Non-Dualism

To know whether a certain theory of mind is dualistic or non-dualistic is to know the mode of explanation that certain theory will undergo. For a certain theory to become dualistic or not means it has accepted principles that are necessary for that theory. Dualism presupposes two distinct attributions or agents that are coexisting, and somehow, interacting; while, monism scraps either one of the two attributions or agents. Dualism is unpopular with the scientific community, especially those considering the discipline to be more strict since dualism advances the idea that there is more to what traditional empirical science can understand thus delegitimizing science's authority; although, not all dualist accepts attributions or agents outside the grasp of science.⁴⁷

Searle's critics are imposing a label on him stating that he is a closet dualist. Dennett is proclaiming himself as a monist materialist, but a few still describe him as also a closet dualist. *Is it really possible then to present a theory of mind without resorting to dualism, in any form?*

Dennett claims that his theory is a monist theory simply by denying the existence of the other agent, the *qualia* part of the mind. The sort of consciousness is denied by Dennett and was pointed out by Searle that Dennett is making a counterintuitive claim. So if Dennett denies the existence of another agent unobservable empirically, how is he a closet dualist? Since Dennett should account every question targeted to consciousness, this will have to include questions regarding the stream of consciousness we have, the distinct subjective feeling, or the actual process between neuronal sensations, mental processes (consciousness), and physical behaviors, he is forced to introduce a new concept that is rather removed from the strict empirical standard we get from traditional science. This is his so-called *virtual machine*. Dennett's virtual machine has slight similarities with Descartes' evil demon outside our mind. Virtual machine acts as the main processor that directs input stimulus and other properties of consciousness into an empirical behavioral disposition. That creation of another non-empirical entity, even though, according to Dennett the machine is within the territory of computer functionalism, is one signal that a theory is falling to dualism.

Searle denies being labelled as either a dualist or a materialist. He is not a dualist as he insists that his theory is entirely biological. Critics point to Searle's concept ontologic subjectivity to rest the claim that he is a closet dualist. Ontologic subjectivity, or simply the *qualia*, seemingly is another agent that pushes for a dualistic theory. But, it is not the case that if something is that we cannot find anything about, it is already totally different, thus subject to dualistic variation. Searle insists that this ontologic subjectivity must be accepted as a part or subdivision of our entire biological construct. But, for him, this biological construction, including consciousness and the ontologic subjective property of it, must not be considered as entirely physical—because mental constructs are really not. But, if that ontologic subjective property is rather different

to the point that it can't pass within the territory of materialism; is the theory implying one brand of dualism, simply property dualism?

In a gist, Dennett, while proclaiming himself as a monist materialist has his theory contain traces of dualism pointing to his concept of virtual machines. Searle, while his theory looks like a dualistic theory, maintains that his concept of ontologic subjective feature of consciousness is not independent from our whole biological construct to the point that his theory will be deemed as dualistic. Although, it is also not entirely physical as what materialists would suppose.

The Chinese Room Implication

According to the current tradition we have of science, it is rather hard to accept Dennett's and Searle's theory to be scientific. It is not enough that a theory has employed scientific concepts for it to be considered scientific. It needs to establish scientific and/or empirical connection with the scientific concept it employed. There are also some difficulties to explain comprehensively what consciousness is without being dualistic.

How about artificial intelligence? We have insufficient knowledge when it pertains to artificial intelligence since at the pillars of our questions; we are still in a debacle for certain basic definitions such in *conscious* or *intelligence*.

But, Dennett strongly believes that a conscious machine is possible. Artificial Intelligence is possible. This is by fully understanding the complete functional system our thinking process has, that in a sense, we are conscious, and applying this system in a computer program. The process is easy to grasp since tests and developments are currently being made, especially in first world countries like Japan.⁴⁸ But, Searle contests these kinds of hypothesis. Searle strongly believes that computer functionalism is not enough to create a conscious machine. He expounded on this claim

by using his thought experiment, the Chinese Room. It implies that a machine may mimic or adapt perfectly to an environment, language, or social order like a conscious human being but it does not really understand anything.

To further understand what Searle is really talking about, it is helpful to know the distinction between syntax and semantics. While syntax pertains to the form, in the Chinese Room case it refers to the set of questions and the set of answers going on in the room; semantics pertain to the content, in the Chinese Room case it refers to the meaning of the questions and answers going on in the room and it refers to what the Chinese language really meant. To know this distinction between syntax and semantics is to understand the distance between them.

We can fully grasp the syntax, in Searle's theory of mind this would be the neuroscience and behavioral disposition; but, we are wading as to the semantics is, only except with ourselves through subjectivity. Since Searle's concept of ontologic subjectivity is not possible to be understood by the third person, another question enters the query: how can we, as third persons, really know others semantically? Is it just impossible?

What is Consciousness?

After seeing how Dennett and Searle view consciousness, it is now quite clear to me that the two are actually referring to two different things. I named these two brands of consciousness as *operational consciousness* and *sui generis consciousness* to clearly distinguish them from each other. First is Dennett's brand of consciousness. We need to take note what Dennett is trying to talk about when referring to consciousness.

1. It is purely functional, thus it only consists of syntax.
2. It scraps the idea that *qualia* exists, thus the ontologic subjectivity, as in Searle's,

which is exclusively and uniquely accessed by the self is also non-existent.

3. It includes in its explanation the presence of a virtual machine that is yet again purely functional and works as a CPU in us.

It can be said that what Dennett is referring to is what I may call an *operational consciousness*. The term operational pertains to process or a series of actions for achieving a result. It reflects the kind of consciousness Dennett is talking about. Operational Consciousness is purely functional, does not accommodate *qualia*, and it must have a sort of virtual machine to act as its main processor. This is also the brand of consciousness a *conscious* robot must have, if it came to a point where it can ask itself about why is he thinking, why he is afraid, or that certain feeling of pain he is having. The programs are working on its own and developing recycled and almost original scenarios and problem deriving from all of the data contained in the robot. It is also developing reactions it mimics from its environment. The robot is conscious in that example. But, the robot does not have what Searle is talking about: *Qualia*.

Qualia is the key concept we have of how Searle's consciousness differ from Dennett. Searle's consciousness is described as follows.

1. It is not entirely material, but it is not a sort of ghost that is removed from our biological construction. It is an entirely subjective property that is included in our biological construction.
2. It has an ontologic subjective property, known as *qualia*, wherein this property is not observable by the third person, and cannot be as it is different from epistemic subjective—wherein we can report, in a third person, what we have subjectively.

Searle's theory of mind can be referred to as *sui generis consciousness*. The consciousness Searle is referring to is unique compared to how

consciousness is modelled in various theories such as dualism or materialism. It has not necessarily fallen to the set of all physical or material, but it is part of the whole biological construction. This is fairly hard to accept if the whole biological construction is assumed to be entirely physical and objective.

This brand of consciousness breaks itself away from the possibility of a conscious machine. This is due to *qualia*. The fact that consciousness incorporates *qualia*, an ontologic subjective feeling, deems impossible that a machine has consciousness. A machine, even if it already can have feelings as produced by multiple functional processes inside its own CPU, cannot have that ontologic subjective feeling.

What then is consciousness? We have to accept that consciousness has different brands. It is not entirely of us. Consciousness is not only that human consciousness, we distinctively feel.

But, between Dennett and Searle, who both pointed that the consciousness they are talking about is the consciousness we truly have, who is pointing out right? Since the two consciousnesses they have been talking about is different from each other, which brand of consciousness describes human consciousness?

Looking at our consciousness, it really does seem that Searle's and Dennett's theory fits. There is only one contradiction left that cannot compatibilize the two theories. One has *qualia* and the other one has none. We can have another point of distinction: life.

Life is a distinguishing factor that demarcates us from non-living things. But, how can we really know that one is distinctively alive? How can we really distinguish ourselves from the non-living things? Biology can straight face answer the question of demarcation between something alive and something not. But, as time passes and technology progresses, this demarcation provided by Biology is starting to fade. Monerans, Protozoans, and Bacteria have the

attributions required to be labelled as living. They grow and they multiply. But, it is also the case of a biological virus, or a computer virus. Is it living? Most biologists will deny it, but it is appealing to accept that these viruses are alive. This can be answered by Searle's brand of consciousness, *sui generis* consciousness. *Sui generis* consciousness can be a distinguishing factor of whether one is alive or not.

This can lead to more problems since if *sui generis* consciousness has become the basis of life we will then have to question whether animals or plants have that consciousness. In terms of animals, it is not hard to assume that they may not be any different to us, humans. But, plants have a rather directive method of growth and behavior. There are no signs that it is conscious, in terms of how animals, and us, are conscious. Additionally, it is even harder to base our theories on *qualia* since its very own existence is still being put into question by other philosophers, particularly Dennett.

So maybe, Dennett is talking real, when he is talking about operational consciousness. Treating our consciousness as operational meant also to discard the distinguishing mark we have against non-living things. We are like them (the conscious machines), and they are like us to the point that the only comparison is going to be the presence of human flesh. Everything then is reducible to functions. And, since everything is reducible to functions, everything is also translatable and applicable to be contained in other mediums. Reducing everything to functions is helpful to a theory making it simpler as it discards complex unempirical concepts such as *life*. Or, that very instance where everything is reducible to functions could be *life* itself—in Dennett's terms.

We really have a long way to go when it comes to understanding what consciousness, or specifically what human consciousness really is. We have clues. We are aware of its existence. But, we are having a really hard time describing

and defining it. It is largely due to the fact that there are instances in ourselves that we are being deceived by ourselves. The fact that we can always see our nose anywhere we point our eyes is not known by most people because our mind chooses where it looks at. The things we perceive, the way how our mind constructs patterns and combinations for us to direct our perceptions at is another way our perceptions are manipulating us. But, this is normally how our brain works. To understand all about it, in the end, we still have to rely on a stricter discipline and create a science of consciousness. But to create this science of consciousness, Dennett's theory can safely pass as scientific if it leaves out his virtual machine and focused only on the materialist side of his theory. In this case, his theory will be strictly neuroscientific with an outright denial of the concept of consciousness. This big problem though is that he is leaving out the huge chunk of problem we must actually be talking about, consciousness, the distinct subjectivity of it, and the *sui generis* characteristic of it.

Although, Searle is on point putting an emphasis on *qualia* in the discourse of consciousness, it is rather hard to admit it in a stricter analysis, as in hard science. This is the problem of ontologic subjectivity; we distinctively are aware of it, but we cannot explain or report it in a third person. In that case, we are only explaining the epistemic subjectivity.

In reaction to Searle's model, how can we really understand consciousness?

1. We can just leave the fact that there are some things left in the subjective, and thus we cannot really understand consciousness in its entirety. The problem that we cannot know consciousness as in a third person will just rest.
 - a. We can treat consciousness just as a point of distinction we have against *probable* non-conscious beings.

- b. We can fully understand it through spiritualism, or total self-meditation. It should be noted that this is a common answer from religions and the concept God may occasionally arise. And, it should also be noted that accounts derived from the subjective are dubious and unreliable.
2. We can just drop ontologic subjectivity from the whole theory and treat the epistemic subjectivity as an answer and a medium to know what we know as *qualia*. In this case, we can really understand the forenamed. We report what we distinctively know of our *qualia* little by little until other reports of their own *qualia* can create a big social report where synthesis and analysis can be drawn upon.
 - a. Although, this leaves out the very problem Searle is talking about.
 - b. In this case, we are still tapping in the dark, since again, accounts from the subjective are dubious and unreliable.
 3. Or, we can just altogether leave Searle's theory in the trash, and scrap the very complex idea of *qualia*.

Conclusion

How can we really know consciousness? Is it really impossible to understand it comprehensively given that we have to account *qualia*? Or is it really just a simple, functional system that is going on in our brain?

It is really hard to answer all of those questions given that along the way, we are still clueless about almost everything we find. We lack particular distinctions such as between machines and not machines, thinking and not thinking, or living or not living.

For me, what we know of consciousness can at least become a point of distinction between machines and non-machines, thinking and non-thinking, or living or non-living. This is not defining it, but this is only to make consciousness as an attribution. Consciousness is possible to be present in non-machines, and is not in machines. It is present in thinking and not in non-thinking. And, it is present in a living being, and not in the non-living.

Machine and Non-Machine

Machine is defined here as that artificially made object to proceed with several tasks. Consciousness is not present in machines. Thus, it is possible for it to be present in non-machines. But, how about in a case where beings are artificially created and made to be conscious? The answer will rely on the process how it is conscious. Is it operational conscious? If it is just operational conscious, it is considered as a machine; but, if it is *sui generis* conscious, it is not a machine. Artificial *sui generis* consciousness is possible if we use biological raw materials to create a new being. The principle is the same in a science-fiction called *Doctor Who*⁴⁹. Every being that is *sui generis* conscious will always have a biological foundation. There are robots planted with human brains; conscious clones are entirely created from stem cells; and a conscious vehicle (time machine) has some sort of biological heart at its core.

Thinking and Non-Thinking

Consciousness entails thinking; again, we are referring to *sui generis* consciousness. Of course, this will face serious problems as even with the concept thinking, problems arise when it comes to entailing it with consciousness since it does seem not to work in all types of human beings. Does it apply on babies? On a person in a coma? Or, simply a sleeping person? Does it apply to particular diagnosed persons? If it will be based on a *sui generis* consciousness, it will apply to all types of human beings. Do note that *sui generis* consciousness does not only entail the

directional characteristic of consciousness. It puts an emphasis on *qualia*, on ontologic subjectivity. And, it is present on all types of human beings.

Living and Non-Living

This view is most likely unappealing to traditional biologists as this establishes a standard between living and non-living. It is important to note that biology, as a hard science, is largely concerned about whether something is alive or not thus it must rest on their territory. But, there is a diminishing demarcation between living and non-living; something that grows or something that multiplies can be regarded as alive. The criterion, of course, is not simple as that; but due to an increasing variety of species and increasing number of artificial beings; the criterion is falling short. Is ASIMO alive? Or maybe, SIRI? Are viruses considered alive? What about computer viruses? Or, what about even more advanced computer viruses?

We must re-establish what distinguishes living from non-living. And, consciousness, particularly *ontologic subjectivity*, can supply for it. Of course, this will lead to more problems and clarifications such as pertaining to whether plants are ontologic subjectively conscious, or whether animals are ontologic subjectively conscious.

To wrap it up: “Why *sui generis* consciousness suits better to describe human consciousness instead of operational consciousness?”

To answer this question, I have put a criterion to distinguish human consciousness from other consciousness.

1. **Sufficiency of Explanation.** It must explain what we, in the common sense, know. We are aware that we have consciousness. We think. We have feelings. We have the most basic idea of what consciousness must be.
2. **Pragmatic Picture of Reality.** It must fit in the social reality. Those two theories can have different social implications, but only one can fit in the reality we have.

Sui generis consciousness fits with the first criterion. We had our first clue: that entirely subjective experience of thinking. We may not grasp and understand it fully, but we are perfectly aware of it. This subjective experience is left out by Dennett. We cannot just leave out in our explanations what we, in the common-sense, are aware to have. Of course, we can still doubt what we know to know, since there are times that we are deceived by our own senses, but still, we have that feeling of knowing; as what Searle points out.

In the matter of what sort of society the two theories will create, Searle’s will create a demarcation between the conscious and the non-conscious. Dennett’s will do otherwise it will create a surrounding with no conscious distinctions. Everything will just be reducible to functions and everything is just mathematical. This kind of society does really translate to ours.

- ¹ Plato, "Phaedo," *The Republic of Plato*, trans. by J. Adam (Cambridge: Cambridge University Press, 1902), 73-80.
- ² Rene Descartes, "Meditations on First Philosophy," *The Philosophical Works of Descartes*, trans. Elizabeth Haldane (Cambridge: Cambridge University Press, 1911).
- ³ *Cogito ergo Sum* was Descartes' conclusion in his skepticism, wherein he doubted everything from scientific truths to empirical reality. In his doubting, he came to also doubt his self thus, thinking if his self is really existing. But, in his claim, this very doubting is what makes the self to be existing. Thus, *Cogito ergo Sum* as translated is 'I think therefore I am'; I think or I doubt, therefore I am, or the self, exists. Rene Descartes, 1641.
- ⁴ Rene Descartes, "Meditations on First Philosophy".
- ⁵ Jonathan Bennett, *Objections to the Meditations and Descartes's Reply* (2007), http://www.earlymoderntexts.com/assets/pdfs/descartes1642_3.pdf.
- ⁶ David Chalmers, "Facing Up to the Problem of Consciousness," in *Journal of Consciousness Studies* (1995).
- ⁷ Lisa Downing, "George Berkeley," *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta. January 2011. <http://plato.stanford.edu/archives/win2011/entries/george-berkeley>.
- ⁸ *Ibid.*
- ⁹ William Ramsey, "Eliminative Materialism," *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, April 2013. <http://plato.stanford.edu/archives/win2013/entries/eliminative-materialism>.
- ¹⁰ George Graham, "Behaviorism," *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, March 2015. <http://plato.stanford.edu/archives/win2015/entries/behaviorism>.
- ¹¹ Daniel Stoljar, "Physicalism," *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, March 2015. <http://plato.stanford.edu/archives/win2015/entries/physicalism>.
- ¹² However, there is a sort of functionalism, *teleological functionalism*, which treats the term 'function' differently from how machine functionalism treats it. In a teleological sense, a parameter or a subsystem has a function if it plays a vital role for it to fit in a system it belongs to. In this case, this sort of functionalism does not reduce the system into strict mathematical functions as in machine functionalism.
- ¹³ J.J.C. Smart, "The Mind/Brain Identity Theory," *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, May 2007. <http://plato.stanford.edu/archives/win2007/entries/mind-brain-identity-theory>.
- ¹⁴ *Ibid.*
- ¹⁵ John Searle, *The Rediscovery of Mind* (Cambridge: MIT Press, 1992) c. 4, 90.
- ¹⁶ John Searle, *The Mystery of Consciousness* (New York: New York Review, 1997) c. 1.
- ¹⁷ John Searle, *Minds, Brains and Science* (Cambridge: Harvard University Press, 1984), 32.
- ¹⁸ Searle, *The Mystery of Consciousness*, 109.
- ¹⁹ Searle, *The Mystery of Consciousness*, 98.
- ²⁰ *Ibid.*
- ²¹ Daniel Dennett, "Qualia Disqualified," *Consciousness Explained* (New York: Bay Back Books, 1991) pp. 369-411.
- ²² *Ibid.*, "Dismantling the Witness Protection Program", 338.
- ²³ *Ibid.*, "Multiple Drafts VS The Cartesian Theater", 111-115.
- ²⁴ *Ibid.*, 113.
- ²⁵ *Ibid.*
- ²⁶ *Ibid.*
- ²⁷ *Ibid.*, "The Reality of Selves", 415-416.
- ²⁸ *Ibid.*, "The Evolution of Consciousness", 209-226.
- ²⁹ *Ibid.*, "Consciousness Imagined", 431-432.
- ³⁰ Sukjae Lee, "Occasionalism," *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, October 2008. <http://plato.stanford.edu/archives/win2008/entries/occasionalism>.
- ³¹ John Searle, "Francis Crick, the Binding Problem, and the Hypothesis of Forty Hertz," and "Gerald Edelman and Reentry Mapping," in *The Mystery of Consciousness*, 19-52.
- ³² Searle, *The Mystery of Consciousness*, 19-52.
- ³³ Searle, *The Mystery of Consciousness*, 98-99.
- ³⁴ Dennett, *Consciousness Explained*, 107.
- ³⁵ *Ibid.*
- ³⁶ Alex Rosenberg, *Philosophy of Science: A Contemporary Approach* (London: Routledge, 2000).
- ³⁷ Note that this is to address the one of the biggest problems faced by science as a field, the problem of induction where it exposed science as relying heavily on multiple verifications to consider a likely truth.

³⁸ Alex Banning, "The History of Artificial Intelligence," *HSTRY*. <http://www.hstry.com/timelines/the-history-of-artificial-intelligence/>.

³⁹ David Chalmers, *The Conscious Mind: In Search of a Fundamental Theory* (Oxford: Oxford University Press, 1996).

⁴⁰ Dennett, "Qualia Disqualified".

⁴¹ Dennett, *Consciousness Explained*, 24.

⁴² *Ibid.*

⁴³ *Ibid.*

⁴⁴ Falsificationism is an alternative method for science to eliminate the problem with verificationism. The problem is that even with certain number of verification done to a phenomena, still it can be doubted. While verificationism aims to verify what-is, falsification aims to falsify what-is-not. Sven Ove Hansson, "Science and Pseudo-Science", *The Stanford Encyclopedia of Philosophy*, ed. Edward N. Zalta, Summer 2017. <https://plato.stanford.edu/archives/sum2017/entries/pseudo-science/>.

⁴⁵ Searle, *The Mystery of Consciousness*, 97-100.

⁴⁶ Rosenberg, *Philosophy of Science: A Contemporary Approach*.

⁴⁷ Chalmers, *The Conscious Mind: In Search of a Fundamental Theory*.

⁴⁸ Dominic Basulto, "Artificial Intelligence: From Turing Test to Tokyo Test," *Bigthink*. <http://www.bigthink.com/endless-innovation/artificial-intelligence-from-turing-test-to-tokyo-test>.

⁴⁹ *Doctor Who* is a British science-fiction TV series which depicts the adventure of a time-travelling extra-terrestrial who calls himself 'The Doctor'. Themes in each episodes usually portrays life and culture of extra-terrestrial which sometimes can put the humans in danger. The Doctor always opted to save the earth and the humans. The series was produced by BBC in 1963 and ended in 1989. It was rebooted in 2005.

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