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Emergentism Reconsidered

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Abstract

This paper argues that emergentism is not committed to downward causation but of direct causation. Events that are believed to be caused by a mental state, whether physical or mental, are actually caused by a physical state with a mental property. These mental properties are caused by the complexity of a collection of several physical components. Emergentism, as a view, is often faced by the fallacy of composition given its nomological nature which leads one to resort to dualism. Mental properties cannot exist in and of itself, but it only supports the physical through entailment. Lastly, it gives a brief discussion regarding some of the conditions of the possibility of emergent properties in conjunction with the characteristics of biological organisms.

Introduction

In this paper, I will argue for the reconsideration of *emergentism* to hopefully contribute in answering the mind-body problem. First, I will focus on the idea that the conception of causality in emergentism is not committed to downward causation like previously thought. Downward causation is a criterion for *substance dualism*. *Substance dualism* is the idea that there are two distinct properties, the physical brain and the mind. Though I argue that *emergentism* can be considered distinct from the traditional *monism* or *physicalism*, having one substance, it differs as the emergence of a property allows for a new quasi-substance seeing *emergentism* as a type of *anomalous monism*¹ (Davidson 1970). In this paper, I am not suggesting *emergentism* debunks *supervenience causation*, but rather clarify the misconception about downward

¹ Anomalous monism is a type of property dualism which denies that the mind and the body are two distinct substances. The relationship of these two properties is that one is contingent to the other.

causation² as an objection to the *emergentist* view. Instead, I am using *supervenient causation* to explore the *emergentist* view further (Kim 1984).

To give a brief overview, *emergentism* is a perspective originating from the philosophy of art, wherein a new property emerges once it attains a high level of complexity (O'Connor & Wong 2015).³ *Supervenience*, on the other hand, explains that complex properties supervene from lower level properties (McLaughlin & Bennett 2014).⁴ The distinction between the two are quite ambiguous, but I do think that *supervenience* can only be understood through retrospection, thus showing direct causality. *Emergence*, on the other hand, shows as to what process different higher levels are achieved. *Supervenience*, in its earlier usage by the British *Emergentist* Lloyd Morgan, “used the term ‘supervene’ to characterize a relation that emergent properties bear to their base properties” (M&B, 2014). Additionally, Kim used C. D. Broad’s definition of a new epiphenomenalism to explain his *supervenience* theory of causation. He claims that this new epiphenomenalism allows for mental causation given that mental causation supervenes an underlying physical state (1984). This becomes more puzzling as *emergentism*’s peak of popularity was when Broad had written about his piece during the early 20th century (O&W 2015). This paper will try to highlight what *emergentism* is, and attempt to distinguish it from epiphenomenalism and *supervenience*, and illustrate how causation works.

Causation

The success of science provides a threat to understanding the mind and especially consciousness. Given the arguments for qualia, the physicalist view does not seem plausible. Adhering to dualism provides a bad connotation due to its affinity with souls and God, which compromises Ockham’s Razor by multiplying entities needlessly given physicalism. Emergentism tries to link the two through nomological causality.⁵ Thus, I do agree with some of the dualists argue about consciousness being a fundamental property. I also do agree with the existence of quale or subjective experience (Shoemaker 1975). Keith Campbell asserted there is no denying consciousness making central state materialism and its claims to have solved the mind-body problem (1984). However, *central state materialism* or *identity theory* denies qualia and that all is strictly physical. Epiphenomenal dualism also does not seem like a plausible view, as it denies mentally caused events (Searle 1998). In this paper, I will address the causality in more detail.

² Jagwon Kim’s argument against emergentism as a viable view is that he thought it asserts downward causation.

³ For the sake of shortening, I will use O&W to cite their entry in the Stanford Encyclopedia of Philosophy

⁴ I will use M&B to cite their entry in the SEP

⁵ At least for now, there are events that we could not determine what the actual causes are. In biology, for example, the origins of life is still a puzzle.

To better understand *emergentism*, the classical example of water is provided. The chemical formula for water is H₂O and remains the same for water vapor, liquid, and ice. However, the arrangement of H₂O molecules results in the property of water being a liquid, solid, or gas. Searle wrote:

An emergent property of a system is one that is causally explained by the behavior of the elements of a system; but it is not a property of an individual elements and it cannot be explained simply as a summation of the properties of those elements (1997).

This provides more value given that water as a liquid also obtains other characteristics such as wetness or being a solvent. Thus, the emergent property increases the capabilities of water through its properties.

Assume then that H₂O in its plain molecular state, in the absence of other emergent properties, can cause an effect on other molecules. For example, sulfide (SO₃) combined with H₂O can give us sulfuric acid (H₂SO₄). Using this analogy relating to the mind, we can visualize the reflexive mechanism of pain. When one touches a very hot pan, one tends to retract his arms back even before pain was even realized⁶ as a mental state. To put it into terms, P causes P*, where P is a physical event and P* as a new physical event. The physical stimulus stays within the physical without the need for any mental event. With the absence of a mental state, pain cannot be pain⁷ for pain is essentially subjective and is only realized. The problem with this is when an individual is in coma or paralyzed and no longer have these types of reflexes. If there is a damaged nerve on top of the site and depending on the severity, the person no longer feels the pain. If one sees it without feeling it, they can conclude that it is painful and probably know that it is painful. This is due to the causal analysis of mental concepts: cause has certain effects and effects have certain causes; but effects can only be achieved if the necessary conditions are met (Armstrong, 1977). We only know that it is painful, even if we do not feel the pain (other minds) because we have receptors that can relate the event by induction to previous experiences through using other sense-perceptual faculty or faculties.⁸ In this case, the necessary conditions were the interconnectedness of the central nervous system and the peripheral nervous system should be somewhat intact.

⁶ *Realization Strategy*: Mental properties are realized by physical properties, and mental properties are causally relevant if their realizing base properties are causally relevant.

⁷ This pain is more of a matter of ontology where pain is something that causes a change in behavior and intentionality. The first pain is used as a word in physiology.

⁸ Sense of sight, for example, allows another person to observe pain hence creating a quasi-experience of that pain. The perception coming from the sense of sight is being related by the person to conception.

Now, let us explore causation with these emergent properties given our example, water. H₂O cannot bind with salt (NaCl) the same way the previous example of SO₃ can to produce H₂SO₄. It is (partially) achievable⁹, however, if H₂O possesses an emergent property (liquidity) with a trait of being a solvent. The salt can be easily dissolved in water and the water takes another trait of being “salty”. Thus, we can see that the emergent property allows for causations that cannot be explained if all explanations are reduced to physical explanations. It needed the property to dissolve salt and that causes another effect both in the water and in the salt. The brain is far more complex substance, however, but I believe that this is what is occurring. Capacity for qualia is another characteristic of the brain, which emerges through its complexity of both composition and behavior. To put this into more explicit terms, M (mental state) emerged from P, thus M is caused by P, and M allows for P to cause for a specific P* to occur given *emergentism*. M caused P*, as M is a necessary condition for P to cause P*. P in conjunction with the effect M allows for P*, where M* (a new mental state) emerges from P*. M* is not directly caused by P in conjunction with an M, for M* can only be an effect that emerges from P*.

Differentiating this with Kim’s *supervenience* is the most difficult task, for causation in *supervenience* is almost the same, or must I say that it is the same. Kim’s thesis about *emergentism*’s downward causation M causing P* and M’s relationship with M* as epiphenomenal is false. There are series of events that happen which make this different. It is the value of M for P* to occur and the connection between M and M*. In Kim’s *supervenient* causation, he illustrates that there is some indirect causation between M and M* given that M* supervenes P* (1984). In this kind of causation, M does not have any indirect causation nor relation to M*. I could not say that M had caused M*, but what I could say is that P, which entails M, had indirectly caused M* by directly causing P*. M* has a relationship to P* through direct causality. The type of causation can be explained the same way as that of *type identity theory*, as essentially, P causes a series of P’s, except that P has an entailment of M as a property given its complexity.

Downward Causation and Dualism

To further the discussion about downward causation, it is important to understand that by adopting *emergentism*, the emergent property does not become a separate substance from where it emerges. The mental state does not necessarily imply a higher level event, but the mental state is just a property. The mental state is not a different substance than that of the physical state. Adhering to downward causation would make *emergentism* a dualist view. This is not the case. H₂O remains water regardless of whether it has the property of liquidity. It is not just the mental working to cause an

⁹ Salt binding with water is not through electron sharing.

event, but that mental is just a property, and together with the physical, causes another physical event.

Emergent properties can change together with the lower properties. An artwork¹⁰ for example, may not be as beautiful if some of its physical components are altered. Something as simple as the lighting and position of the artwork can change whether it remains beautiful. There is a connection between the property and the lower levels that cause it. If a higher level property is altered, then rest assured the lower level property will be altered as well. However, changes in the lower level do not determine change in higher levels. For example, it is understood that an ion exchange occurs through the sodium-potassium pump during muscle movement, but causality cannot be determined just from knowing about the occurrence of ion exchange. We cannot ascertain the muscles are going to work just by this information.

Some information can be predicted with high probability. The physical brain might change a person's mood when induced with psychotropic medications. The physical events, like visual experience, for example, are transposed into the mental by the organization of impulses between the synapses. There are qualia that were all emerging from the arrangement and behavior of the brain. This claim can be more thoroughly supported by electroconvulsive therapy (ECT). The experiences of people who had undergone ECT changed. During ECT, tonic-clonic seizures and drooling occurred in these people. The mental did not cause the whole set of events, but the alteration of behavior of electrical impulses in the brain had triggered the alteration of both physical and mental components. Another example is a person with Alzheimer's disease. The memory's degradation which is framed as mental by the dualist is, in fact, an effect of an alteration of the brain state. With a person with Alzheimer's disease, the alteration of the brain state is related to a decrease in the acetylcholine levels in the brain. It is without a doubt that the mind and body are causally related, but not of two different things.

Emergentism is not compatible with dualism. Given the characteristics and traits of *emergentism*, I argue that it is pluralistic rather than dualistic. Emergent properties are consistent with *higher order theories of consciousness* (HOT). *Emergentism* allows for a kind of stratification of consciousness (Kim 1992). The more complex a system is, more higher states can emerge from it. If we consider each level of this stratification, then we are allowing not just monistic or dualistic, but a pluralistic view of consciousness. HOT occurs when a conscious thought is consciously acknowledged from a pool of other conscious thoughts. It postulates that some types of thought require higher levels of consciousness, like thinking, as to perceiving something through the senses (qualia) do not need this kind of higher level (Rosenthal 1986). However, I do

¹⁰ Since the term originated in the philosophy of art, it is the same phenomenon in the philosophy of mind except with subtle differences that will be explained later.

not require this kind of pluralistic idea of consciousness given that these types of thought can still be quasi reducible to the physical. It will just be P entails M which entails M^H where M^H is a higher order thought.

According to Antonio Damasio, human consciousness is distributed by three parts, the medulla oblongata, the cerebral cortex, and the thalamus, all communicating with each other to create the current human consciousness (2010). This is also relatable to Freudian psychoanalysis encompassing the id, ego, and superego. The complexity of the consciousness is directly linked to the physical. Through evolution and looking at the composition of other vertebrates, we can see how the formulation of a higher level of consciousness might have emerged. Thus, HOT is a plausible theory given *emergentism*. If we look into our peripheral nervous system towards the central nervous system, we can see how such a theory would work. The reflexes, for example, are the simplest organization of a sensing to acting loop. The reflexes are more primordial. The medulla oblongata responds to the autonomic nervous system. Breathing, for example, is controlled by the medulla. However, we can consciously not breathe. These are higher levels of causation, situations where conscious choice affects our central nervous system. Therefore, given this stratification of the mental and its relation to the physical, it might be concluded that it is pluralistic. But for reasons that I will mention later, it remains an anomalous monistic view.

The Characteristics of Biological Organisms

One might argue that *emergentism* posits more problems than it solves. On the face of it, the view itself is perhaps absurd and advocates some type of magic to explain the occurrence (or emergence) of new properties. It is indeed due to my claim of direct causation between the body and its property, the mind, that I am compelled to give importance that the existence of the mind is nomological¹¹ and without any strict laws explained in metaphysics (Davidson 1970). It is easier to understand that if the lower level properties are manipulated, then those of the higher projects some type of effect (Woodward 2003). However, if the cause is altered, then a desired effect is expected. This might be due to three reasons. First, there are criteria that causality requires that needs to be satisfied before an effect occurs (Armstrong 1977). Second, there is the problem of induction (Vickers 2016). Lastly, neurons have different biological traits and characteristics which make them more complex (Damasio 2010, Godfrey-Smith 2016). In the proceeding paragraphs of this essay, I will try to clear up the absurdity of *emergentism* by attempting to deconstruct the nomological aspect to give it more validity.

¹¹ Further explanation of how we can relate the nomological into what we actually know will be discussed later in this essay.

Causality as a requirement can be explained through the action-potential mechanism in biology: the all or nothing law. A threshold needs to have sufficient action-potential to satisfy a necessary condition for the occurrence of an effect. Different neurotransmitters facilitate this process of inhibition and exhibition and it all happens within the synaptic cleft. An earlier example, a complete spinal cord lesion, would not have any action-potential reaching the brain, so in this case the pain is not felt. Another example is a person whose pain tolerance is higher than others; they would not report the same sensation. However, like previously mentioned, we know that the actions are painful (conception, analogy). A complete opposite of this, for example, is a person being tortured and shown a blow torch that is to be used on his back. A popsicle is switched and the person felt pain from anticipating that it will burn one's back. The thresholds for pain fluctuates due to mentally-caused events.¹²

Hume introduced us the problem of induction. A causes B if and only if were A to occur, we would anticipate B will also happen. This problem is not something that I will dwell on much in this essay, but it is worth pointing out that previous events do not ascertain the events that will follow, especially in complex structures.

Biological processes are complex, but biology is important to understanding causation. From the above problems of causal requirements and induction, understanding biology can help us understand the underlying causal processes. By laying out some of the inherent traits of the physical brain and its components, it will show that there is much to know about the brain. Biological processes are sometimes randomized. Natural selection is a process of selecting favorable traits; for if traits help individuals to survive, then they are selected for. Natural selection, however, would not occur without randomized mutations. The next step from homeostasis is that the environment changes and kills off those that which could not survive. After that step, next is to mutate and favor those whose mutations are adaptive to the environment. Another random event in these biological processes is observed in heredity. Sometimes, recessive traits appear even if there is a significant chance for dominant traits. Even if both parents have brown eyes, but because they have recessive alleles for blue eyes, there is a chance that their offspring will have blue eyes. The effects given causation cannot just simply be determined.

Maybe consciousness is fundamental since the emergence of life. The levels of complexity of consciousness vary depending on how they have evolved through time. When differentiating a unicellular organism to a multicellular, we can see that the functions of the unicellular are now distributed to specific group of cells. The multicellular becomes highly complex and each cell drops their primitive functions¹³

¹² Mentally-caused will be used from here on out as P entails M.

¹³ A unicellular organism's apparatus or organ for excretion, eating, digestion, and motility are all in one cell.

and "specializes"¹⁴ in a particular function. It is similar to a phenomenon observed in a society. An individual is capable of focusing on art or developing other skills given that other individuals would specialize in food production. The societal functions are carried out by individuals working together. Modern agriculture allows for these "specializations" to occur. The organization of individuals can now be said to have reached a certain level of complexity where society emerges from individuals. As we can see, the property of being a society is only attained through the behavior among individuals, but it is not the totality of individuals (population) nor the individuals themselves that defines what a society is. Like the relationship of the mind and the body, the society is the behavior of individuals within the population. Consciousness is just a teleological trait of human life and a product of the complexity achieved by multicellularity.

Another biological characteristic of neurons is that they are plastic. When neurons are damaged, other neurons are capable of taking the role of these other neurons. A person with hemispherectomy, for example, can still be fully functional regardless of having half the brain removed. This can support the case for dualism, but I will argue that it is not so. Biological organisms are highly adaptive and neuroplasticity is just another example of the brain's trait in order to keep itself functional. It is just as important as other types of asexual reproduction (liver repair, blood production, etc.) that occurs intraorganism and sexual reproduction that occurs interorganism. The emergent property of the mind is more related to the behavior of the parts (continuous neural activity) than the number of neurons involved. To better understand this principle, imagine *The China Brain* by Ned Block (1978). Except here, I will use it to show that the arrangement does not matter but the relationships and behavior of the components do. Supposed a massive earthquake affects the population of *China* drastically. Their population is cut in half. The *Chinese people*, however, are resilient and their nationalism increased. Because of this, the *Chinese people* are able to boost their economy in better ways than in the past. Thus, *The China Brain* survived and is capable of maintaining their previous state, if not better. Due to this biological trait, I argue that *emergentism* is consistent with functionalism. Multiple realizability can occur as the neurons can adapt the specialization of other neurons, thus, pain does not solely occur at one origin or location. *The China Brain* is a mind in itself given its complexity.¹⁵ Collective consciousness is a good example of how our minds extend, not just to physical objects, but to other minds as well. An individual is a far more complex structure than a neuron and is of a higher state than a single neuron. A group of

¹⁴ Specializations happen when the functions of one cell becomes distributed to multiple cells carrying one function per each cell.

¹⁵ Collective consciousness is a type of consciousness in itself. It is just a lot more different for the amount of autonomy of individuals are different than that of neurons.

neurons, however, can attain consciousness separate from its actual, thus, “double consciousness” may occur, like that of a split-brain.¹⁶

Conclusion

Emergentism, as a view, might be able to describe the phenomenon of the mind and consciousness. It does not commit to downward causation like previously thought, but rather closer to *supervenient causation*. The difference is that only physical states can cause both physical and mental events, given it entails a mental property. Dualism resorts to the easier explanation of things and evades the harder questions. The harder question is not just in the search for what causes consciousness or why is there consciousness, I think that those can easily be answered by our current understanding of science. The harder question is how emergent properties occur from reaching higher complex structures and that would require further research.

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¹⁶ A case where the corpus callosum is removed.

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