

Our Phenomenal Universe

Resolving the Mind-Body Problem

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Abstract

Many philosophers argue that the mind-body problem is unresolvable, that there are irreconcilable differences between the physical world and the way the mind experiences it. Several others argue that the problem represents an incompleteness of the Galilean view, which conceptually divides the world into two models (physical and consciousness). Recent debates have centered around a proposal to radically alter the physical model to account for the mind-body relationship. However, critics argue that the general approach is flawed and that the specific proposal results in a ‘messy’ and highly complex model with inconsistencies with well-known phenomena. This paper, first, critically examines the argument that the general approach is flawed. Then this paper argues that the proposal is much broader than necessary and that the aspects required to resolve the mind-body problem do not significantly alter the physical model. This results in, I argue, a resolution to the mind-body problem without increased complexity for either model or the aforementioned inconsistencies.

Keywords: Mind-Body, Explanatory Gap, Color-Body, Hard Problem, Emergence, Phenomenal Consciousness

1. Introduction

The Galilean revolution divided the world into two distinct conceptual models, the physical model and that of consciousness. Since then theories of emergence have been developed to explain the relationships between the physical brain and the conscious mind. These theories show how nearly all aspects of consciousness including subjective experiences are explainable in terms of the physical model (e.g. neurological structures) (Feinberg and Mallatt 2020). However, as Feinberg and Mallatt (2020) concluded there remains what Levine (1983) referred to as the ‘explanatory gap’ when it comes to an explanation for *phenomenal consciousness* (a.k.a the mind-body problem, the hard problem of consciousness). Phenomenal consciousness relates to the qualitative aspects of experience, such as how pain feels (Tye 2021, Van Gulick 2021). Attempts to deconstruct phenomenal consciousness into a set of irreducible elements has not yet reached a consensus (Tye 2021). However, there is a general consensus that the set of irreducible elements of phenomenal consciousness (P-elements) includes qualia (e.g. pain, taste, redness)

and elements related to space, time and self (Tye 2021, Van Gulick 2021). The common modern view maintains that the irreducible P-elements belong solely to the consciousness model. However, the irreducibility of these P-elements prevents them from being emergent (Revonsuo 2010), leading many philosophers to argue that the explanatory gap will never be resolved. One opposing view is what Cutter (2022) refers to as ‘anti-modernism’. This view, championed by Shoemaker (2003), Kalderon (2007) and Allen (2016, ch. 9), asserts that the Galilean physical model is incomplete and should include irreducible P-elements (a.k.a. secondary qualities, irreducible phenomenal properties). However, Cutter (2022) argues that the explanatory gap is not resolved even if P-elements are included in the physical model. Although this general argument is disputed in section 2 Cutter (2022)’s other arguments provide compelling reasons against adopting anti-modernism.

The anti-modernist approach (like that of emergence in general) seeks to make the consciousness model a higher-order version of the physical model. That is, the approach implies that the physical model should model reality in its entirety, with the consciousness model providing only higher-order concepts, based on the physical model’s concepts. Given that all conceptual models are merely mental constructs this is a valid approach but as Cutter (2022) explains, it does come with costly trade offs. In general terms, the main trade off is added complexity for the physical model. As long as aspects of consciousness can be explained by relationships between existing elements of the physical model (as with established theories of emergence) there is no such tradeoff. However, the anti-modernists’ proposal to add P-elements to the physical model does introduce complexity. Essentially this would undo some (or all) of the benefits of having defined these two separate models (see section 2).

Fortunately, making the consciousness model a higher-order version of the physical model is not the only way to resolve the ‘explanatory gap’. Another obvious approach would be the idealists approach of making the physical model a higher-order version of the consciousness model but this approach would likely have similar tradeoffs. Instead, this paper offers an alternative which avoids complicating either model. This alternative drops the presumption that either model is a complete model of reality. Instead, both models are considered to be models of the same underlying system (reality), with the physical model abstracting away qualitative aspects (e.g. how pain is felt) and the consciousness model focusing on them. Historically speaking, this alternative makes sense since both models were derived from a single model (the pre-Galilean world model) and there was no original intent for one to be a higher-order version of the other. The basic idea behind this approach is that when the world was conceptually divided into these two models, some fundamental aspects of reality were included only within one or the other model. This would result in some aspects of the physical and/or consciousness model not being explainable by the other model, such as phenomenal consciousness not being explainable in terms of the physical model. This basic idea fits with the anti-modernist’s assertion, expressed by Shoemaker (2003), that the physical model is incomplete. However, I argue that it need not be

complete because although phenomenal consciousness cannot be explained by either model, it can be explained by considering both models and their relationship (of modeling a common underlying system).

When an aspect (such as phenomenal consciousness) is unexplainable by either model it may still be explainable by considering the relationships between the two models. For example, the laws of physics could be contained solely within the physical model but relationships within the underlying system (reality) could cause these laws to govern what is phenomenally experienced. Such relationships can expose elements of the underlying system that are partially expressed in each model. Once identified these elements can be wholly incorporated within one of the models (as suggested by anti-modernists) or their partial expressions can be linked via a relationship between the models. This paper takes that latter approach by, first, showing how P-elements are already partially expressed in the physical model. Meaning P-elements are included in both models but are simply conceptualized differently within each model. Then, this paper shows how this existing partial expression of P-elements is sufficient to realize the goals of anti-modernism. This suggests that the physical model need not be extended since it already contains the aspects of the anti-modernists' proposal necessary to resolve the explanatory gap. By resolving the 'explanatory gap' without altering either model the models are spared any additional complexity and no inconsistencies with current theories are introduced.

2. Anti-modernism

Anti-modernism grew out an idea put forth by Shoemaker (2003) and built upon by Kalderon (2007) which asserts that the excluding of qualitative aspects from the Galilean physical model is the source of the explanatory gap. Kalderon (2007) argues that (qualitative aspects of) colors are not mere mental effects but are mind-independent properties of physical objects and should be included in the physical model. Although Kalderon and others focus on the P-elements of color (and frame the debate as a 'color-body' problem) their arguments are, as Cutter (2022) points out, understood to be generalizable for all P-elements. Kalderon's proposal is basically to extend the physical model to fit the evidence - to account for the existence of phenomenal consciousness by adding its irreducible elements to the physical model. Cutter (2022) offers several compelling arguments against anti-modernism, including a general argument that challenges the basic idea that adding P-elements to the physical model could resolve the 'explanatory gap'.

[W]e can conceive of zombie worlds—worlds physically like our own, but devoid of experience—we can also conceive of chromatically enhanced zombie worlds—worlds physically like our own, and in which material surfaces are imbued with colors, but where no one experiences these colors (or anything else). (Cutter 2022, 7)

The argument is based on the premise that the ability to ‘conceive’ a chromatically enhanced zombie world without any associated experiences implies that phenomenal experience would not emerge from such a world. I argue that the act of conceiving this world is the act of imagining it (in the so-called mind’s eye), which is itself a phenomenal experience (though not as vivid as actually being in such a world). One cannot add imaginary color to an imagined world without experiencing the imagined color. For example, one cannot conceive of a pink elephant through any means other than a phenomenal experience of imagination. This suggests Cutter (2022)’s explicit premise that one can conceive of worlds without experience may not be true.

One could argue for Cutter (2022)’s position by suggesting that the mind’s eye acts as an outside observer and that phenomenal experiences of the imagination do not imply there would be a phenomenal experience within the world. By conceptualizing the mind’s eye as an outside observer the mind’s eye takes on the role of a subject that is outside of the zombie world’s physical reality. However, the idea that consciousness is an outside subject is precisely the point of contention between the modern view and anti-modernism (Cutter 2022). In effect, this stance presupposes the modern view and so cannot be used to invalidate the anti-modernist view, it only shows that the modern and anti-modern views are incompatible.

Rather than conceiving this world to test anti-modernism the scenario can be logically analyzed. To imbue material surfaces with color is to add P-elements to the world. Phenomenal experience is a composition of P-elements but one, perhaps, which requires certain types of P-elements. For example, a phenomenal experience may require the P-elements necessary for space, time, self and possibly at least one qualia. If true, no phenomenal experience would emerge from the chromatically enhanced zombie world but one would be formed if the right types of P-elements were added. In simple terms, if all elements necessary to realize phenomenal experiences were included in the physical model then by definition phenomenal experiences would be explainable in terms of the physical model. However, this assertion only supports the general idea that altering the physical model could resolve the explanatory gap. There remains the challenge of determining how to incorporate the P-elements into the physical model such that existing relationships within the physical model are preserved and the proper relationships between P-elements and the rest of the physical model are established. Cutter (2022)’s more detailed critiques about the specific proposed changes to the physical model are compelling (e.g. exposing contradictions with well-known phenomena), meaning the specific proposal may not resolve the explanatory gap and even if it does it may cause more problems than it solves.

Furthermore, Cutter (2022) argues that even if adding P-elements to the physical model resolved the explanatory gap, the costs of doing so outweighs the benefits. Cutter (2022)’s arguments detail how adding P-elements would result in a radically altered, ‘messy’ and complicated physical model. These arguments may be reflecting the fact that the proposal does not simply extend the physical model but changes its role. Fundamentally, the physical model is a model

focused on the quantitative aspects of reality (what is experienced), such as the rules governing change. It abstracts away the qualitative aspects (how things are experienced). This is complemented by the consciousness model which is focused on the qualitative. Adding P-elements to the physical model breaks this clean distinction between the models and fundamentally changes the role of the physical model. Pushing all aspects of reality into the physical model effectively restores the singular world model of the pre-Galilean era. Such a radical step back could necessitate the re-evaluation and potentially a reformulation of existing theories across modern physics (to express them in terms of a radically altered physical model). Rather than risking such an immense cost this paper suggests an alternative approach to resolving the ‘explanatory gap’. As will be discussed this alternative does not alter the physical model and it avoids the contradictions with well-known phenomena which were expressed by Cutter (2022).

3. The Physical Model

The physical model is divided into several submodels which describe physical systems from the quantum to the cosmic scale. A goal of modern physics is to develop a fundamental physical model, one which all other physical models are higher-order variations of. This fundamental model would, theoretically, be able to describe physical systems at any scale of existence. Current proposals for such a model include the Standard Model, that of quantum information theory and Tegmark (2008)’s model of a mathematical universe. Each of these models are described by a set of *fundamental truths*. The fundamental truths of a model are the assertions that define the model itself and which cannot be proven by the model (Wormell 1958). This fits the Kantian idea that a priory fundamental beliefs (‘intuitions’) are necessary for all conceptual models (Tasi 2001). Although the fundamental truths of one model may be proven by a more fundamental model this is not true for the most fundamental model (whatever that is). Therefore, ultimately the physical model’s most fundamental elements are a set of fundamental truths.

The fundamental truths that govern all physical systems could be those that describe the elements and rules of the Standard Model or those of quantum information theory. Or those models may be non-fundamental with more fundamental truths left to uncover. In any case, these fundamental truths, by definition, cannot be based on other truths and given the principle of uniformity of nature (Selby-Bigge 1964) they cannot come from mere speculation (otherwise the universe would be subject to the whims of speculation). The only way to establish the fundamental truths required by the physical model is for these truths to be self-evident.

Being self-evident is the defining quality of P-elements. This defining quality is the source of common expressions like ‘seeing is believing’ and has been reflected upon by such influential philosophers as Descartes (1955) and Levine (1983).

One might say, it makes the way pain feels into merely brute fact.
(Levine 1983, 357)

In being self-evident, a P-element is (in part) a self-evident truth. P-elements can therefore be conceptualized as self-evident truths. Given this and the physical model's need for self-evident truths I suggest that P-elements are already included in the physical model but are conceptualized as fundamental truths. That is, P-elements have both a quantitative (what is experienced) aspect and a qualitative (how it is experienced) aspect which are represented in the physical and consciousness models, respectively. Furthermore, P-elements are not only conceptualized in both the physical and consciousness models but serve as each model's fundamental concepts. That is, the physical and consciousness models are just two different ways of looking at reality (which is composed of P-elements) based on different conceptualizations of P-elements. Despite being fundamentally linked, the abstracting away of different aspects of P-elements means that neither model contains all the fundamental concepts necessary to fully explain the other model - hence the explanatory gap.

If (as suggested) reality is fundamentally composed of P-elements then the fundamental truths of all physical systems would ultimately be based on the self-evident truths associated with P-elements. That is, the types of P-elements would contain all the (fundamental) truths necessary to model all physical systems at all scales of existence. This assertion aligns with the scientific method's insistence on observation, since observers experience the world phenomenally. The role of the observer is to extract truths from their phenomenal experiences, truths that are ultimately based on P-elements. If correct, this means that all scientific models of physical systems are ultimately based on P-elements. Even when measurement devices stand-in for a conscious observer the validation of those devices must ultimately relate back to validation from a conscious observer and therefore to P-elements.

The physical model focuses solely on information which can be described/conceptualized. As expressed by quantum information theory, physical systems are describable as a set of true/false statements (Wheeler 1989). The consciousness model, on the other hand, focuses on how information is experienced (qualitative aspects). Qualitative aspects cannot be described (or conceptualized) the closest equivalent is to imagine an experience. For example, when someone experiences a headache they cannot articulate the qualitative aspect of the experience (how the pain is felt) but they can explain where the pain is felt and the intensity (in relative terms). Therefore, a doctor who has never had a similar experience can still understand and make logical deductions about the pain (such as that it is a migraine) but they cannot feel what is happening. To feel another's pain requires recall of a similar past experience through imagination (which is itself a phenomenal experience). This distinction between concepts and experiences is what justifies having two distinct models. If the anti-modernism approach was taken this distinction would be blurred resulting in a lack of conceptual integrity for the Galilean view. Instead of

adjusting the physical model I suggest that the P-elements are already present in the physical model. Furthermore, I argue (in section 4), the way these P-elements are conceptualized is sufficient to resolve the ‘explanatory gap’. However, rather than phenomenal consciousness being emergent from physical systems, I argue that physical states and phenomenal experiences emerge simultaneously.

4. The Explanatory Gap

When someone looks around and sees four walls, a floor and a ceiling, they believe that they are in a room. The self-evident nature of this higher-level belief is inherited from the P-elements associated with the experience. This belief is not representative of a fundamental truth of reality but instead a higher-level belief based on many fundamental truths (e.g. the axioms of vector spaces). Theories of emergence describe how this kind of belief of the mind reflects a physical state of the brain.

The process of emergence has been debated for over a century (Lewes 1877, Broad 1925, Feigl 1958, Popper and Eccles 1977, Searle 1992, Scott 1995, Bedau 1997, Kim 1998, 2006, Andersen et al. 2000, Feinberg 2001, 2012, Van Gulick 2001, Chalmers 2006, Clayton and Davies 2006, Thompson 2007, Bedau and Humphreys 2008, Beckermann et al. 2011, Deacon 2011, Nunez 2016, Mallatt and Feinberg 2017, Feinberg and Mallatt 2020). These theories explain nearly all aspects of consciousness as emergent properties of complex physical systems (Feinberg and Mallatt 2020). However, there exists what Levine (1983) refers to as an ‘explanatory gap’ in trying to explain the emergence of phenomenal consciousness.

Theories that this gap will eventually be closed are called weak emergence (Bedau, 1997) or emergence¹ (Searle 1992, Feinberg 2001, 2012). Contrary theories, that the gap will never be fully resolved are called strong emergence (Bedau 1997, Chalmers 2006, Clayton and Davies 2006, Revonsuo 2010), emergence² (Searle 1992) or radical emergence (Feinberg 2001, Van Gulick 2001). Revonsuo summarizes the view of those who believe this gap will never be resolved:

Supporters of strong emergent materialism point to the fundamental differences between the subjective psychological reality and the objective physical (or neural) reality. The former includes qualitative experiences that feel like something and exist only from the first-person point of view; the latter consists of physical entities and causal mechanisms that involve nothing subjective or qualitative about them and exist from the third-person point of view or objectively. Nothing we can think about or imagine could make an objective physical process turn into or “secrete” subjective, qualitative “feels.” It is like trying to squeeze wine out of

pure water: it is just not there, and there can be no natural mechanism (short of magic) that could ever turn the former into the latter.
(Revonsuo 2010, 30)

If phenomenal consciousness is emergent then Revonsuo's argument would suggest that physical reality must contain the ingredients for phenomenal consciousness (i.e. P-elements). This aligns with the idea suggested in section 3 that the physical model's fundamental elements are the P-elements (though conceptualized as fundamental truths). This idea intrinsically links the physical and consciousness models at their most fundamental levels and consequently at all levels. Thus allowing for the identification of relationships between higher-level concepts across the models. For example, this fundamental link can be used to identify the higher-level concepts in the physical model that relate to phenomenal consciousness. Phenomenal consciousness is by definition a set of interrelated P-elements. Combining this definition with the idea that P-elements are the fundamental elements of both models leads to a hypothesis that I call the Phenomenal Universe hypothesis (PUH), which states that:

Reality is fundamentally a network of P-elements.

If the physical and consciousness models are (as suggested) simply two ways of modeling the same underlying reality then P-element networks (P-networks) should be represented in the physical model. In the physical model the corresponding high-level concept would be of a quantitative rather than qualitative nature but should be structurally consistent with phenomenal consciousness. In the physical model P-elements are conceptualized as fundamental truths so a P-network would be conceptualized as a network of truths. A basic premise of the philosophies of science, mathematics and logic is that higher-level truths represent relationships between lower-level truths. For example, mathematics proofs show how a higher-order truth (the theorem) equates to relationships between a set of lower-order truths (e.g. elementary mathematics). So, the relationships contained within a P-network would be conceptualized as higher-level truths. This is precisely the model described by quantum information theory whereby the state of a physical system (which is a higher-level truth) is seen as a network of true or false relationships (Wheeler 1989). Therefore, the PUH would predict that every phenomenal experience should correspond to the state of a physical system. This eliminates the explanatory gap by offering an explanation for the causal link between physical states and phenomenal consciousness. Though instead of suggesting phenomenal consciousness emerges from physical states the PUH suggests that they have a common cause, the existence of the P-network that they both represent.

When a physical system's state represents a P-network which includes the P-elements required for phenomenal consciousness (e.g. self, time and space) then it becomes the very definition of phenomenal consciousness. For example, the state of someone being in a room is a set of truths,

such as the color of the walls, floor and ceiling and their relative locations to the subject. As Kant asserted, such a set of truths is contingent on the intuitions of time and space (Tasi 2001). Kant claimed that ‘the intuitions of time and space are a priori given to the mind’ (Tasi 2001, 25) and that these intuitions are subjective (Hirsch 1996, Tasi 2001). The PUH, instead, suggests that the fundamental truths required for this set of higher-level truths are established by P-elements, the same P-elements that form the phenomenal experiences of the mind. In this example, the P-elements of self, time, space and various qualia provide the fundamental truths and form a P-network. The existence of this P-network is represented in the physical model as the set of higher-level truths and in the consciousness model as a phenomenal experience.

In Cutter (2022)’s arguments against anti-modernism he points out a number of phenomena that contradict the idea that physical objects are imbued with P-elements. One such phenomena is what Cutter (2022) calls ‘Arbitrariness’ whereby different observers looking at the same object may experience its color differently; where one might see it as green others might see yellowish green or blueish green. This phenomena reflects the basic assertion of neurology, that the relationship between the external objective world and our perception of it is not direct, that the external world affects our neurology which in turn produces our perceptions. This means, it is the structures of the physical brain not the objects themselves that are reflected in our phenomenal experiences. With the PUH the physical model is unchanged, so the relationship between the external objective world and neurological structures is assumed to be as described by modern physics and neurology. This means that the P-elements of a phenomenal experience are part of our physical brain not the external objects. The objective world (apart from observer embodiments) could simply be higher-level truths dependent on the fundamental truths (P-elements) included within observer embodiments. Therefore, two observers with differing brain structures can undergo different phenomenal experiences in the same physical environment. Unlike anti-modernism, there is no assertion that physical objects are imbued with P-elements - and therefore no contradictions with ‘Arbitrariness’ or other related phenomena. Although observers are embodied in the objective world they may distinguish themselves from other objects by virtue of them including the nodes of reality’s P-network.

What establishes reality’s P-network is beyond the scope of this article. However, given that time is a P-element, the dynamic nature of reality might not come from a mutating P-network. Instead, there could exist a single, fixed, P-network that defines reality across all of space and time, similar to the idea of eternalism. However, within the P-network, space and time are nodes not dimensions. So, the P-network itself need not take the form of 4D spacetime, as described by relativity. The space in which the P-network exists could be of unlimited dimensionality, similar to the spaces described by variants of string theory (Naschie 2000). Phenomenal experiences of dynamic 3D environments would emerge from P-element subnets that included self, space and time. This emergent nature of both space and time is not novel but was proposed by Cowen (2015) and is the basis for theories of quantum gravity (Becker 2022). Viewed through the

physical model, time is conceptualized as the laws that govern change; whereas, with the consciousness model time is experienced. These two conceptualizations of time may be what led Einstein to refer to the experience of time as an illusion (Neffe 2007). These consistencies with modern physics reflect the fact that the PUH does not change the physical model but instead identifies a relationship between it and the consciousness model. By not altering the physical model no inconsistencies with existing theories are introduced and no reformulations of these theories are required.

5. Summary

The anti-modernism proposal to add P-elements to the physical model may allow phenomenal consciousness to be explained in terms of the physical model. However, as detailed by Cutter (2022), adding P-elements as they are conceptualized in the consciousness model would radically complicate the physical model. Such additions would change the essence of the physical model from being a model for quantitative aspects of reality to modeling reality as a whole, similar to the world model of the pre-Galilean era. This could necessitate a reformulation of scientific theories and principles across modern physics. I argue that these potential costs are avoidable because P-elements are already sufficiently represented in the physical model to resolve the explanatory gap (without alteration to the physical model).

In contrast to anti-modernism this paper does not seek to model reality in its entirety within either model. Instead, both models are simply presumed to model the same underlying reality. In order to explain the mind-body relationship this paper offered the idea that the fundamental elements of the physical and consciousness models are P-elements. For the consciousness model this idea relates to phenomenal consciousness being the only aspect of consciousness unexplained by emergence. For the physical model, this idea was based on the assertions that: (1) the physical model's most fundamental concept is truth; (2) self-evident entities can be conceptualized as truths; and (3) P-elements are self-evident. Based on the definition of phenomenal consciousness this idea was extended to produce the PUH which states that reality is fundamentally a network of P-elements. Although P-elements are conceptualized differently in each model this establishes a link between the two models at their most fundamental level. Such that entities in one model imply corresponding entities in the other. For example, a phenomenal experience implies a corresponding physical state because they are simply two different conceptualizations of the same underlying entity, a P-element network.

If the PUH is correct and the universe is fundamentally phenomenal then its consistency with quantum mechanics may suggest that quantum mechanics is the study of P-networks. After all, quantum mechanics has been developed based on the scientific method which relies on observation, of which relationships between P-elements is an integral part. Whether this is the case or not, these consistencies could lead to knowledge sharing between the philosophical

disciplines of consciousness and modern physics, potentially resulting in valuable insights within both domains.

Statements and Declarations

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