

## **The Explanatory Gap Argument and Phenomenal States: A Defense of Physicalism**

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**Abstract:** This paper critically examines the explanatory gap argument. It argues that the argument, contrary to its aim, fails to undermine physicalism because there is, in reality, no gap in the world. The paper supports the physicalists' response to the explanatory gap argument. It submits that the gap that exists in the explanations of consciousness is a conception, about and not an ontological feature, of consciousness (by extension, the mind). Hence, even if the explanatory gap is sustained, it proves no point against physicalism and the physicalists' account of the nature of consciousness in the world. The paper is divided into two sections. The first section carefully articulates the explanatory gap argument. The second section argues that the explanatory gap argument fails to support the reality of a property of consciousness that is not amenable to scientific investigation and theories.

**Key words:** Explanatory gap argument, physicalism, phenomenal states, consciousness

### **Introduction**

In reformulating the mind/body problem, the concept of body is enlarged to include the brain and its cognitive properties and processes; the mind is construed as consciousness or mental state, and phenomenal consciousness as its distinctive property. Given the assumed difference between the properties of the body and the mind, the question – ‘why should physical processes in the brain give rise to the experiential riches of consciousness?’ or ‘how and why phenomenal consciousness arises from physical properties and entities?’ appears to be a rhetorical way of denying the monists’ (mostly the physicalists) position that consciousness and its properties are amenable to the natural laws of the physical sciences, through which the body is explained. This, in contemporary literature, is known as the hard problem of consciousness. In its simplest expression, “the hard problem of consciousness is to fully explain phenomenal consciousness – the subjective,

qualitative dimension of our mental lives – in physicalistically respectable terms.”<sup>1</sup>

To address the problem, two positions, among others, are prominently held. One of these is to uphold the dualists’ assertion that any explanation featuring only physical items, relations, and processes cannot explain phenomenal consciousness. Some scholars who hold this view are David Chalmers,<sup>2</sup> Frank Jackson,<sup>3</sup> Joseph Levine,<sup>4</sup> Colin McGinn,<sup>5</sup>, among others. The other position affirms the physicalists’ denial that there is such a difficulty, and that a physicalist explanation of consciousness covers all there is to explain about consciousness<sup>6</sup>. This position is supported by Peter Carruthers,<sup>7</sup> Daniel Dennett,<sup>8</sup> Michael Tye<sup>9</sup> to mention just a few.

The dualist position on the hard problem of consciousness is that phenomenal consciousness is a distinctive kind of property which is separate from the physical properties of the body. The dualist justificatory arguments for this position can be found in three related arguments: *the knowledge argument*, *the explanatory gap argument* and *the conceivability argument*. In these arguments, there is a common ground for the position that there is an epistemic as well as metaphysical gap between physicalism and phenomenal consciousness: From the premise that we cannot deduce any physical truth about our mental experience from phenomenal truth about mental experience, the knowledge argument concludes that physical properties are ontologically different from mental properties. The conceivability argument, from the ground that one can rationally conceive of the physical truths in the absence of mental truth, concludes that mental properties and physical properties are ontologically separate. The explanatory gap argument, starting with the premise that mental properties cannot be explained by reference to the same explanation of

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<sup>1</sup> Wayne Wright, “Explanation and the Hard Problem,” in *Philosophical Studies*, 132 (2007), 301.

<sup>2</sup> David Chalmers, *Conscious Mind: In Search of a Fundamental Theory* (Oxford: Oxford University Press, 1996) and *The Character of Consciousness* (Oxford: Oxford University Press, 2010).

<sup>3</sup> Frank Jackson, ‘Epiphenomenal Qualia’ in *Philosophical Quarterly*, 32, (1982), 127-136 and ‘What Mary Didn’t Know,’ in Block Ned, Flanagan Owen and Güzeldere Güven eds., *The Nature of Consciousness: Philosophical Debates* (Cambridge, Mass.: MIT Press, 1997), 567-570.

<sup>4</sup> Joseph Levine, “Materialism and Qualia: The Explanatory Gap,” in *Pacific Philosophical Quarterly*, 64 (1983), 354-361.

<sup>5</sup> Colin McGinn, *The Problem of Consciousness: Essays Toward a Resolution* (Oxford: Blackwell Publishing, 1991).

<sup>6</sup> Physicalism is the claim that everything there is in the world – including human minds – is either itself a basic physical entity or else constituted by basic physical entities. For more on the position of physicalism, see Sven Walter and Heinz-Dieter Heckmann, *Physicalism and Mental Causation: The Metaphysics of Mind and Action* (Imprint Academic, 2003).

<sup>7</sup> Peter Carruthers, *Phenomenal Consciousness: A Naturalistic Theory* (Cambridge: Cambridge University Press, 2000) and *Consciousness: Essays from a Higher-Order Perspective*, (Oxford: Clarendon Press, 2005).

<sup>8</sup> Daniel Dennett, *Consciousness Explained* (London: Allen Lane, 1991)

<sup>9</sup> Michael Tye, *Consciousness, Colour and Content* (Cambridge, Mass.: MIT Press, 2000). and *Consciousness Revisited: Materialism without Phenomenal Concepts* (Cambridge, Mass.: MIT Press, 2009).

physical properties, concludes that that each of these properties is ontologically distinct.

The focus of this paper is the explanatory gap argument. The paper supports the physicalists' response to the explanatory gap argument. It questions the inference of ontologically distinct properties of mental states from the inability to offer a conceptual account of one kind of properties in terms of the explanation offered for another kind of properties. The paper is divided into two sections. The first section carefully articulates the explanatory gap argument. The second section argues that the explanatory gap argument fails to support the reality of a property of consciousness which is not amenable to scientific investigation and theories.

### The Explanatory Gap Argument

The explanatory gap argument is the claim that certain aspects of our conscious mental life cannot be captured by any objective physical explanation. The claim is premised on the assumption that whatever physical explanation of a subjective conscious experience we might give will completely leave out a certain property of our mental life. The exact property that would be left out is what it is like to undergo the experience. This property is also referred to as 'phenomenal property of consciousness,' 'qualia,' 'subjective quality of experience.' For example, for a mental state, such as pain, there is what it is like to feel pain. To explain this property of pain is to explain phenomenal consciousness of pain. The point of the explanatory gap argument is that any objective causal explanation of pain, be it in biology, neuroscience, or psychology, will fail as a complete account of pain. This is because there is a property of pain, the phenomenal consciousness of pain, which the physicalist explanation of pain excludes, and this exclusion creates a gap in her explanation of pain.<sup>10</sup>

Another sense of explaining the explanatory gap argument is to argue that one of the aims of science is to explain not only how things are in nature, but also to account for why things are as they are in nature. So, if it is the case that nature is one large, lawful, orderly system, then it should be possible to explain the occurrence of any part of that system in terms of the basic principles that govern nature as a whole. However, the deepest problem of understanding nature as a complete whole is, given its feature of subjectivity, the problem of explaining and accounting for consciousness. Proponents of

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<sup>10</sup> See, for some statements of the problem, Joseph Levine, "Materialism and Qualia: The Explanatory Gap," in *Pacific Philosophical Quarterly*, 64 (1983), 354-361; Clyde L. Hardin, "Qualia and Materialism: Closing the Explanatory Gap," in *Philosophical and Phenomenological Research*, XLVIII:2 (1997), 281-298; Ned Block and Robert Stalnaker, "Conceptual Analysis, Dualism and the Explanatory Gap," in *The Philosophical Review*, 10:3 (1999), 315-360; Karol Polyn, "Phenomenal Consciousness and Explanatory Gap" in *Diametros*, 6 (2005), 62-52; Gilbert Harman, "Explaining an Explanatory Gap," in *American Philosophical Association Newsletter on Philosophy and Computers*, 6:2 (2007), 2-3 and Michael Tye, *Consciousness Revisited: Materialism without Phenomenal Concepts* (Cambridge, Mass.: MIT Press, 2009), 237.

the explanatory gap argument claim that a physicalist account merely explains, at most, the structures and functions of a phenomenon, but explaining structure and function is irrelevant to explaining consciousness, because consciousness lacks objective structure and function. Therefore, no physical account can explain consciousness. The explanatory gap argument is associated in its powerful variants with, among many others, Thomas Nagel,<sup>11</sup> Joseph Levine,<sup>12</sup> and David Chalmers<sup>13</sup>

Let us take the lead of Joseph Levine in elucidating the explanatory gap argument a little further. A functional explanation of pain would enumerate the causal roles associated with pain. For example, we can say that pain is caused by damages to some tissues in the body; it causes us to cry 'ouch,' and causes some involuntary actions in us, such as instant jerking, touching or holding of the affected part of the body, etc. Moreover, Levine accepts that in cognitive science, it is possible that pain is identified with the firing of C-fibers, and this explains why pain does what it is said to do. This is precisely the functionalist or physicalist account of pain. However, according to Levine,

there is more to our concept of pain than its causal role, there is its qualitative character, how it feels; and what is left unexplained by the discovery of C-fiber firing is why pain should feel the way it does! For there seems to be nothing about C-fiber firing which makes it naturally "fit" the phenomenal properties of pain, any more than it would fit some other set of phenomenal properties. Unlike its functional role, the identification of the qualitative side of pain with C-fiber firing (or some property of C-fiber firing) leaves the connection between it and what we identify it with completely mysterious. One might say, it makes the way pain feels into merely a brute fact.<sup>14</sup>

Hence, for Levine, the causal or functional aspect of a mental state is ontologically different from the properties of the mental state: the explanation of a mental state, such as pain, cannot suffice as an explanation of the phenomenal properties of pain. Furthermore, Levine argues that we have no idea of how the qualitative character could be a property of a physical object.

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<sup>11</sup> Thomas Nagel, 'What is it Like to be a Bat' in Block Ned, Flanagan Owen and Güzeldere Güven eds., *The Nature of Consciousness: Philosophical Debates* (Cambridge, Mass.: MIT Press, 1997), 519-527.

<sup>12</sup> Joseph Levine, "Materialism and Qualia: The Explanatory Gap," 354-361 and Joseph Levine, *Purple Haze: The Puzzle of Consciousness*, (Oxford: Oxford University Press, 2001), 6.

<sup>13</sup> David Chalmers, 'Consciousness and its Place in Nature,' in *Blackwell Guide to Philosophy of Mind*, ed. by S. Stich and F., Warfield (London: Basil Blackwell, 2003), <http://consc.net/papers/nature.html> (accessed August 1, 2010)

<sup>14</sup> Levine, *Purple Haze: The Puzzle of Consciousness*, 357.

There would be a gap in such an account. He gave an example, “as I now look at my red diskette case, I’m having a visual experience that is reddish in character. Light of a particular composition is bouncing off the diskette case and stimulating my retina in a particular way. That retinal stimulation now causes further impulses down the optic nerve, eventually causing various neural events in the visual cortex. Where in all of this (sic) can we see the events that explain my having a reddish experience? There seems to be no discernible connection between the physical description and the mental one, and thus no explanation of the latter in terms of the former.”<sup>15</sup> (Levine, 2001: 76-77). It is the lack of this connection that creates the lacuna being described as explanatory gap. However, as I shall argue in this paper, it is important to note that Levine’s assumption of an ontological distinction between a mental state, which is identified with c-fiber firing, and its properties is arbitrary. This is because, if, according to Levine, “there is more to our concept of pain than its causal role, ...” it follows that what is inadequate is our conception of pain, and this failure does not suggest that mental states and their properties are separate ontological entities. I shall return to this argument shortly, but let us understand the explanatory gap argument a little more.

The explanatory gap argument becomes more explicit when considered alongside with Saul Kripke’s notion of a “rigid designator.” A rigid designator is an expression which refers to or designates the same thing with respect to all possible worlds.<sup>16</sup> For him, ‘possible world’ is shorthand for what might have been the case. He uses the term ‘possible world’ to elucidate the point that descriptions might designate more than one object but proper names designate the same object in all possible worlds. So, if terms that refer to phenomenal consciousness (or qualia) and brain properties (or brain processes) are rigid designators, each of the terms would refer to ontologically distinct processes or properties. As a result, an identity statement such as “the feel of pain’ (qualia term) is the same as ‘c-fiber firing’ (a brain term)” would be false. This is so because each of the two terms rigidly designates distinct entities or properties, and there has to be an explanation that links the two ontologically distinct entities or properties with each other. It is the absence of this link that creates the gap in the functionalist or physicalist explanation of pain.

To explain the explanatory gap in another perspective, consider these two identity statements:

- (a) “Water is H<sub>2</sub>O”
- (b) “Pain is c-fibre stimulation.”

It could be argued that the difference between these statements lies in the kind of explanation derivable from each of them. In (a), the identification of water with H<sub>2</sub>O suggests that information about every property of water,

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<sup>15</sup> *Ibid.*, 76-77

<sup>16</sup> Saul A. Kripke, *Naming and Necessity* (Oxford: Basil Blackwell, 1980), 48.

such as its freezing and boiling points, its liquidity at a room temperature, its colourlessness, its transparency, etc, can be fully explained in terms of  $H_2O$ . Also, in (b), the identification of pain with c-fibre stimulation implies that information about pain is explainable in terms of c-fibre stimulation. However, proponents of the explanatory gap argument claim that there is more to the concept of pain that is not explained in terms of c-fibre stimulation: “There is its qualitative character, how it feels; which is left unexplained.”<sup>17</sup> Putting it differently, Campbell claims that “in particular, the identity statement (b) does not tell us why pain feels the way it does. The psychophysical identity statement (expressed by (b)) then leaves us with an explanatory gap that is absent in the case of water and  $H_2O$  (expressed in (a)).”<sup>18</sup>

The explanatory gap argument, as it stands, has been challenged as being unsound. The reason is that the argument is based on a wrong comparison between mind and brain identity statements on the one hand and “normal” scientific identity statements on the other.<sup>19</sup> The kinds of explanation warranted by the two identity statements (a and b) differ. Each of the two different concepts on the two sides of the psychophysical identity statement in (b), i.e., “Pain” and “c-fibre stimulation,” picks out different phenomena in two different domains: “pain” picks out a mental state, which is (traditionally) identified as a non-physical phenomenon, and “c-fibre stimulation” picks out a purely physically identifiable phenomenon and properties. In view of this, the statement that identifies pain with c-fibre stimulation is neither a fully physical nor a fully psychological statement, and such an identity statement is not normal. In a normal identity statement, such as “Water is  $H_2O$ ,” the two different concepts – “water” and “ $H_2O$ ” – pick out purely physical phenomena. It is, therefore, wrong to compare mental-physical identity statement with a normal scientific identity statement like “water is  $H_2O$ ,” where the entities on both sides of the identity statement are fully physical. It is understandable to expect that a normal scientific identity statement such as ‘water is  $H_2O$ ,’ would offer a complete explanation of water or  $H_2O$  without any remainder. The point of the explanatory gap argument is that a psychophysical identity statement, such as ‘pain is c-fibre stimulation’ failed to yield a full explanation of pain or c-fibre stimulation, hence, the physicalist’s claim that the pain is the same as c-fibre stimulation is wrong. Obviously, the truth of physicalism seems to be unaffected by this reasoning. This is because given the understanding and usage of the concept of ‘pain’ as referring to a phenomenon which is different from the phenomenon referred to by the concept of ‘c-fibre stimulation,’ an identity statement expressed by the two concepts would be a suspect. However, notwithstanding this error, there is the way things are in nature, which is not affected by the way we understand and use concepts. Physicalism is a theory about the nature of the world, and it

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<sup>17</sup> Levine, “Materialism and Qualia: The Explanatory Gap,” 375.

<sup>18</sup> Neil Campbell, ‘Why We Should Lower Our Expectation about the Explanatory Gap,’ in *Theoria*, 75 (2009), 37.

<sup>19</sup> Marcel Scheele, ‘Never Mind the Gap: The Explanatory Gap as an Artefact of Naïve Philosophical Argument,’ in *Philosophical Psychology*, 15:3 (2002), 333-342.

asserts that the mental is physical. The truth of this assertion cannot be challenged by the way we understand and use concepts, but by examining the nature of phenomena in the world.

Moreover, let us, for the sake of argument, accept the comparison of water-H<sub>2</sub>O and mental-physical identity statements. Proponents of the explanatory gap argument could argue that in the 'water-H<sub>2</sub>O' identity statement, given all the relevant empirical or molecular information about H<sub>2</sub>O, it seems impossible to deny that H<sub>2</sub>O are the defining characteristics of water. Hence, 'water-H<sub>2</sub>O' expresses a necessary truth, and we can say necessarily, what is explained by 'water' is explained by 'H<sub>2</sub>O,' thus, there is no gap in the identity statement: 'water-H<sub>2</sub>O.' However, the mental-physical identity statement, "pain is c-fibre stimulation" did not express a necessary truth because 'pain' refers to phenomenal properties that are not parts of relevant physical and functional mechanisms referred to by 'c-fibre stimulation.' This, therefore, further confirms the claim of the explanatory gap argument that there are gaps in the psychophysical identity statement: "pain is c-fibre stimulation."

However, I think it is possible to argue that the conclusion derivable from above is unwarranted. This is because it could be argued that the same gap noticed in "Pain is c-fibre stimulation" could also be found in the water-H<sub>2</sub>O identity statement. According to Saul Kripke, the distinction between necessity and contingency is a metaphysical distinction about how the world is. If the world could not be different from the way it is, then facts or claims about the world are necessary. If, on the other hand, the world could be different from what it is then facts or claims about the world are contingent.<sup>20</sup> The point that the water-H<sub>2</sub>O identity statement expresses a necessary fact about the world is, however, challenged by Hilary Putnam's twin earth thought experiment where there is the possibility of the existence of a sample of water which does not contain two molecules of oxygen and one molecule of hydrogen.<sup>21</sup> (Putnam, 1975: 215-271). This suggests that the world could be different from what it is, and the possibility of a world where water is XYZ suggests that it is a contingent truth that 'water is H<sub>2</sub>O.' Thus, there is no asymmetry between 'water is H<sub>2</sub>O,' and the mental-physical identity statement, "Pain is c-fibre stimulation" as alleged by proponents of the explanatory gaps arguments.

What to deduce from the above is, according to Mark Bradley, "... either all such cases will involve explanatory gaps, and there is no special threat to materialism (or physicalism) from the existence of qualia, or there are no such cases which involve explanatory gaps, and so materialism (physicalism) is safe" (Bradley, 2003: 4). This conclusion puts defenders of the explanatory gap argument against physicalism in a dilemma. The proponents of the explanatory gap argument could, however, argue that the conclusion poses a false dilemma

<sup>20</sup> Kripke, *Naming and Necessity*, 36.

<sup>21</sup> Putnam Hilary, *Language, Mind and Knowledge* (London: Cambridge University Press, 1975), 215-271.

and insist that there is an explanatory gap in the mental-physical identity statement. This is because, granted that the water-H<sub>2</sub>O identity statement does not express a necessary truth, the alternatives to H<sub>2</sub>O are still microphysical properties. Hence, if water is H<sub>2</sub>O or water is XYZ, the identity of water with any of these microphysical properties offers, whether necessary or not, a completely physicalist explanation of water. However, in the case of mental-physical identity statement, what is missing is something that is completely different from what a physical or functional concept or principle can capture. Therefore, it is still intelligible to argue that the water-H<sub>2</sub>O identity statement offers a complete physicalist explanation, because any variation in it can be accommodated within the physical explanation. But there is a gap in the mental-physical identity statement, because the variation in it introduces a unique property which is not found within the domain of physical or functional explanation. The basis of my challenge against the explanatory gap argument is the introduction of this unique property. Given the introduction of this unique property, two implications are immediately derivable from the explanatory gap argument. First is that the explanatory gap argument establishes an ontological gap between physical and phenomenal properties, hence the world is bifurcated into two: physical and phenomenal, and the way to solve the mind/body problem is to extract *facts* from the world that bridge or close the gap. The harder problem would be what kind of *fact* would bridge or close the gap? Empirical facts would come from and would be about the observable, physical or empirical parts of the world, and this might not suffice as facts in the phenomenal or non-physical parts of the world. Hence, physicalism would be irredeemably false. The second implication is that the explanatory gap argument establishes an epistemological gap; it is about our ability to know and conceptualize the true nature of things, and the explanatory gap says nothing about the real nature of things in the world. The answer to the question, 'how and why phenomenal consciousness arises from physical properties and entities?' would not depend on ontological facts or what is exactly obtained in the world, but upon the scope of our knowledge, the limitations of our knowledge claim, our knowledge and use of concepts, etc. Consequently, the explanatory gap proves nothing against physicalism as an ontological account of world. Since the explanatory gap argument cannot obviously prove that physicalism is both false and true, in what follows, more arguments are proffered to answer the following question: 'are there gaps in the world, so that physicalism is false, or there are no gaps in the world, so that physicalism is true?'

### **What the Explanatory Gap Argument Proves**

One physicalist position is that there is no gap in the physicalist explanation of consciousness, and by extension, of the mind, because there are no such gaps in the world, hence once the physical properties and processes of



consciousness are explained, there is no problem of explaining any phenomenal properties of consciousness, because, according to the physicalist, such properties, if they exist at all, are also physical properties. In arguing for this position, physicalists argue that experiences are fully physical, and there is no explanatory gap posed by their phenomenology, so the supposed gap is unreal. For instance, Michael Tye argues that the so-called “explanatory gap” arises largely from failure to recognize the special features of phenomenal concepts.<sup>22</sup> According to him, phenomenal states, to which phenomenal concepts apply, are not subjective in the first person sense. If they were, they would have been distinguished from objectively observable states. Phenomenal states are not properties of the subject that has them; rather phenomenal states are observer independent properties of the world. The intuition that a phenomenal concept, for example, ‘pain,’ must refer to phenomenal states, which are subjective properties of experience, and “c-fibre stimulation” describes an objective phenomenon – is erroneous. This wrong intuition is the source of the claim that there is a gap between pain and c-fibre stimulation.

Moreover, according to Tye, what is derived from the perspectival subjectivity of phenomenal states is that the phenomenal *concepts* that apply to the phenomenal states also share the feature of subjective perspectivity. In addition, given the perspectival nature of indexical concepts (the perspectival nature of indexical concepts is that each indexical concept such as ‘this,’ ‘here,’ ‘that,’ etc is *a priori* linked with the concept ‘I’ and other concepts that designate a one and only entity. So, each indexical concept incorporates a certain perspective, namely the very special, first person, independent or singular perspective); it is assumed that phenomenal concepts, which apply to phenomenal states, are also indexical concepts. Tye’s argument is that unlike an indexical concept where a specific identified entity is at the centre, what is at the centre of the phenomenal concept is not the self or any singly identifiable entity, but the phenomenal experience, which is firmly attached to objects being experienced. Therefore, irrespective of the idea of subjectivity suggested by the phenomenal concept, what the phenomenal concept refers to is not the individual using the concept, but the phenomenal state, and *the phenomenal state belongs to the object of perception*, not the owner of the experience.<sup>23</sup> Once it is clear that phenomenal states are properties of, and arise from objects, and, in as much as, experience of an object is fully explained physically, it follows that phenomenal states are also explained. Since an explanatory gap exists only if there is something unexplained that needs explaining, and

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<sup>22</sup> Michael Tye, ‘Phenomenal Consciousness: The Explanatory Gap as a Cognitive Illusion,’ in *Mind*, 108:432 (1999), 707.

<sup>23</sup> John O’Dea, “The Indexical Nature of Sensory Concepts” in *Philosophical Papers*, 31:2 (2002), 169-181.

as it argued, there is nothing that needs to be explained, the conclusion is that there is no gap in the world. Thus, the explanatory gap argument fails to disprove the truth of physicalism.<sup>24</sup>

However, it is doubtful that the argument above has successfully shown that there is nothing that needs to be explained. First, if, as Tye grants, phenomenal states are perceiver-independent, what then does the idea of 'point of view' or 'perspectival experience' suggest? Let us accept Tye's characterization of phenomenal states as properties attached to objects. Thus understood, these properties are susceptible to explanation by Physics. However, the point of the proponents of the explanatory gap argument is that peculiar to the subjects that perceive an object is 'what it feels like' to perceive the object. This, 'what it feels like' is what needs to be explained and captured with a concept. The 'what it feels like' is, according to the dualist, a subjective phenomenon, it is, therefore, proper to expect that the concept that captures be a phenomenal concept. Thus, phenomenal concept, contrary to Tye, expresses the point of view, the perspective of the subject that has the 'what it is like,' and not another ontology. If this is right, then the challenge that an identity statement expressed by a phenomenal concept and a physical concept has gaps stands, because each of the two concepts picks out different kind of phenomena. There is a need for more explanation to justify an identity statement between them. Second, according to Tye, redness, the phenomenal property of red is embedded in red objects, say tomatoes, roses, etc. When I look at a rose, the redness I perceive is an intrinsic property of rose. It is what I experience when I perceive the redness of rose.<sup>25</sup> It is on this basis that the phenomenal concept, 'redness' is not indexical. However, if phenomenal states are object-independent, it is doubtful that the object-dependent intrinsic property, redness, perceived as part of rose, is the phenomenal state of my experience of rose. Surely redness is the property of rose, not of my experience. Redness of rose can be given cognitive explanation, what need to be explained are the properties of my experience and not the properties of the object. In view of this, the explanatory gap argument stands. Its claim is that explaining the property of redness as being embedded in the object I am perceiving is possible, but that such an explanation will leave out reddishness, the property of my experience of redness.

In response to the above, I think that the fundamental assumption in the explanatory gap argument that the phenomenal state or property, identified as 'what it feels like,' is subjective is derived from the idea that phenomenal concept is an indexical concept. This argument is not enough to establish the ontology of the phenomenal state as a distinct non-physical phenomenon. Truly, the idea of a phenomenal concept presupposes the existence of a phenomenal state or property, and since phenomena are ordinarily private or

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<sup>24</sup> Tye, 'Phenomenal Consciousness: The Explanatory Gap as a Cognitive Illusion,' 719

<sup>25</sup> Michael Tye, *Ten Problems of Consciousness: A Representational Theory of the Phenomenal Mind* (Cambridge, Mass.: MIT Press, 1995), 145.

subjective entities as contrasted with the objective entities,<sup>26</sup> it is correct to assume that the phenomenal state exists as a subjective entity not explainable by any physical concept. The error in this reasoning, however, is that the assumption that the phenomenal state is subjective because phenomenal concepts are used to refer to it. In this direction, it is important to note that Tye redefines his objection against the explanatory gap argument. He no longer believes that there are phenomenal concepts. He, however, reiterates his position differently. For him, the phenomenal character of the experience of red, for example, is in red. Thus, I am aware of the phenomenal character of the experience of red by being aware of red. When I introspect, my attention goes to the external quality red, and thereby I am aware of the phenomenal character of the experience of red. This suggests that red is the phenomenal character of the experience of red.<sup>27</sup> Once a physicalist explanation of red is given, it suffices for an explanation of the phenomenal character of the experience of red. Unless the dualists have some other justification for the ontology of phenomenal states as distinct entities or properties, I think Tye's idea that red is the phenomenal property of mental experience of redness prevents us from multiplying entities unnecessarily. Even if this particular phenomenal property of the mental experience of redness is not contained in the physicalist explanation of red, what to do is to expand the physicalist explanation of red to accommodate such a property.

However, it is possible to argue that Tye's identification of the phenomenal property of the experience of red with red is not clear. This is because given the initial definition of phenomenal state or property of a mental experience as being subjective, it follows that the phenomenal property of the experience of red belongs to the subject who has the perceptual experience of perceiving a red object, and it is not clear how an explanation of a property that belongs to a red object being perceived suffices to explain the phenomenal property of the perceptual experience of the perceiver of the red object. If this distinction between the property of an object, and property of the perceptual experience of the object subsists, it is correct to submit that ontologically the two kinds of properties are distinct, and any explanation of one in terms of the other would further justify the claim of the explanatory gap argument. This argument, as earlier pointed out, is derived from our definition and understanding of phenomenal property of mental experience as a distinct entity in the world. What really needs to be established is that there is such a property that exists in the world prior to our conceptualization. Hence, one possible defense by the physicalist is that the gap in our explanation of mental experience in terms of physical terms is an epistemological gap which does not really exist in the world.

Another physicalist response to the explanatory gap argument is to argue that there is an epistemic, but no ontological gap between the physical

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<sup>26</sup> Quinton Anthony, "The Concept of a Phenomenon" in Edo Pivcevic, *Phenomenology and Philosophical Understanding* (Cambridge: Cambridge University Press, 1975), 2.

<sup>27</sup> Tye, *Consciousness Revisited: Materialism without Phenomenal Concepts*, 138-144.

and phenomenal domains. Even though there is a gap between the physical or functional concepts of consciousness and phenomenal concepts of consciousness, an empirical study would reveal that the two concepts refer to only one entity or property in nature. So, the epistemic explanatory gap does not undermine physicalism.

Parts of the arguments for this position are: Irrespective of the gaps in our understanding and the uses of concepts, wherein there is a controversy whether or not an explanation of concept a 'x' entails an explanation of concept a 'y,' or whether or not a complete explanation of 'x' leaves out an explanation of 'y,' the gap did not show that 'x' and 'y' are names of two distinct properties in nature. In fact, by means of empirical discoveries, 'x' and 'y' may refer to one and the same thing. Moreover, the identity between physical concepts and phenomenal concepts could be contingent. There is, however, a sort of empirical necessity that explains the identity between physical properties and phenomenal properties. It is also not important whether the truth of the statement of this kind of identity is known *a priori* or *a posteriori*. Empirical discoveries could either be a necessary fact or contingent fact. It is not compulsory that the discoveries are known *a priori*. A necessary empirical discovery is a fact which cannot change from what it is, but which is discovered through sense experience. An empirical discovery that is a contingent fact is a fact that can change, and is discovered through sense experience. An example of an empirical discovery which is necessary is "Water is H<sub>2</sub>O." This is a fact about the water that, given the empirical world, cannot be different from what it is, so it is necessary; but the truth of this statement is discovered through empirical investigation. It is not known *a priori*. This implies that if, by virtue of our empirical investigation, we are unable to discover the truth of the statement "water is H<sub>2</sub>O"; this would not suggest that water is not H<sub>2</sub>O. When, however, our empirical understanding improves, we would discover that the statement "Water is H<sub>2</sub>O" represents the truth. In view of this, physicalists have argued that the appearance of an explanatory gap in the case of pain and c-fibre stimulation is a function of the status of scientific discovery.

Given that the discoveries in Molecular Science are already advanced and considered reliable, there seems to be no gap in the explanation of water in terms of H<sub>2</sub>O. There, however, seems to be an explanatory gap in the case of psychophysical identities. This, I would like to agree with Campbell, is not because the psychophysical entities are ontologically distinct, but because the understanding of the real nature of these entities is, at present, fairly rudimentary, immature and incomplete. It is assumed that as neurology, neurosciences, neurophysiology and neuropsychology progress, and we learn more about the brain and its properties, there is every reason to expect that the explanatory gap will be eliminated.<sup>28</sup>

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<sup>28</sup> Campbell, "Why We Should Lower Our Expectation about the Explanatory Gap," 37-38

The position defended in this paper is that the gap that exists in the explanations of consciousness is a conceptual and not an ontological gap. The significance of this position is that it advances the efforts, in neurophilosophy<sup>29</sup>, at building a theory of consciousness where all facts and generalizations about consciousness are gathered under the rubric of science. This is what Owen Flanagan referred to as a science of the mind<sup>30</sup>. More important, the denial of an ontological gap between mental states and phenomenal states supports the monist's (particularly physicalist) challenge of the dualist bifurcation of the mind into physical and phenomenal properties, thereby, preparing the grounds for resolving the age long mind/body problem in metaphysics and the higher form of the problem which is now rebranded as the hard problem of consciousness in contemporary philosophy of mind.

### Conclusion

It must be noted that the status of the neurological, neuroscientific, neurophysiological and neuropsychological theories is a reflection of the epistemic limitation of human beings; it is, therefore, not a sufficient ground to conclude that physicalism is false. An objection to this physicalist claim, exemplified by Chalmers, is that current work on the neural basis of experience does not come close to addressing the hard problem of consciousness. Faith in the scientific approach is unjustified and blind to the philosophical nature of the problem.<sup>31</sup> Thus, in a way, Chalmers restates the explanatory gap argument. But, it is important to note that the supposed gap could be obvious if, as claimed, *there is* a phenomenal quality attached to a mental state that is yet to be accounted for in any scientific explanation of the mental state. The position argued for in this paper is that given the truth of physicalism,<sup>32</sup> then the explanatory gap argument merely sets a goal for the physicalists to offer an account of the phenomenal quality, the existence of which proponents of explanatory gap argument affirmed. This goal does not undermine nor diminish the truth of physicalism. Moreover, the anti-physicalists argument of the proponents of the explanatory gap argument could be turned around to justify the physicalism. This is by claiming that the reason for the persistent problem of phenomenal consciousness is the immature status of neurology, and other disciplines concerned with the human nervous system, and that if we

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<sup>29</sup> Neurophilosophy is the philosophical interpretation and application of neuroscientific concepts, findings and results of research experiments in neuroscience in addressing traditional philosophical questions. For further details, see Georg Northoff, "What is Neurophilosophy? A Methodological Account," in *Journal for General Philosophy of Science*, 35:1 (2004), 91-127.

<sup>30</sup> Owen Flanagan, "Prospects for a Unified Theory of Consciousness," in Block Ned, Flanagan Owen and Güzeldere Güven eds., *The Nature of Consciousness: Philosophical Debates* (Cambridge, Mass.: MIT Press, 1997), 100.

<sup>31</sup> Chalmers, *The Conscious Mind: In Search of a Fundamental Theory*, xi-xiv.

<sup>32</sup> Physicalism is the philosophical position that everything there is in the world – including human minds – is either itself a basic physical entity or else constituted by basic physical entities.

are patient and persistent, further discoveries in neuroscience would one day furnish us with the answers that we seek. Owing to our limitations in neuroscience, truths about phenomenal states or properties of mental experience are not now known. But, the search for the physicalist account of the phenomenal qualities or properties of mental states is encouraged by the assertion advanced by Alan I. Leshner, the Chair of the *Forum on Neuroscience and Nervous System Disorder* that “the neurosciences are unquestionably among the most rapidly advancing and exciting fields of science, no matter how broadly construed.” More important, Leshner submits that:

The neurosciences are at a critical point where scientific knowledge is beginning to provide a much clearer glimpse into the underpinnings of who we are. Neuroscience has introduced new possibilities for understanding what makes us human – our mind, our selves. The ability to look into the brain of living, awake and behaving individuals and watch our minds in action is just one example of the new tools now available that could tell us a tremendous amount about our humanity and perceived individuality. This progress could be quite threatening to people’s long held values or beliefs about themselves.<sup>33</sup>

The import of the argument in this paper is to further confirm what is implied in Leshner’s submission that everything that exists, including human beings, is nothing more than a complex physical system, which is ultimately and completely explicable in empirical terms. The fact that this does not fit well into some long held values or beliefs does not refute the metaphysical claim of the physicalists that phenomenal properties of experience are part of the physical or functional properties of experience. Hence, it is safe to conclude that with the advancement of our knowledge in all kinds of neuroscience, neurology and other cognitive sciences, we might discover that the supposed gap between phenomenal states and mental states is epistemological, and does not exist in the fabric of the world.

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<sup>33</sup> Alan I. Leshner, “Questions and Answers with Leshner I Alan,” in *Neuroscience Quarterly*, (Spring 2009), 4-5.

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