

In Defence of Strong Emergentist Panpsychism

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Abstract

Panpsychism is the view that physical objects possess phenomenal properties. According to this view, as well as their more familiar properties such as shape, size and charge, the 'essence' of physical matter partly consists of mental properties at a fundamental level. The view shows great promise for providing a solution to Chalmers' hard problem of consciousness. It will be made clear that the reasons that motivate one to adopt panpsychism are compelling. By accepting panpsychism we can recognise the world possesses micro-phenomenal properties and from here it seems we have the beginnings of how consciousness arises in our universe.

Many contemporary panpsychists subscribe to 'constitutive panpsychism'. Drawing on 'the combination problem', I will argue that this form of the doctrine is untenable. The central claim of the piece is that 'strong emergentist panpsychism' should be adopted in its place. There is empirical evidence for the existence of strongly emergent properties in biochemical systems. If it is intelligible to hold that non-experiential properties can strongly emerge from (more basic) non-experiential properties, it is equally intelligible to hold that experiential properties can strongly emerge from (more basic) experiential properties. The intelligibility of strong *phenomenal* emergence will thus be established. This will demonstrate that strong emergentist panpsychism can provide a defensible, and a highly plausible solution to the hard problem of consciousness.

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1. Introduction

Everything that one is or has come to be aware of forms a part of our consciousness making it the most familiar yet the most mysterious aspect of our existence (Velmans and Schneider, 2007: 1). The term 'consciousness' can most clearly be comprehended through Nagel's understanding of the term. If something is conscious, there is something 'it is like to *be*' that organism (Nagel, 1974: 436). So for something to be conscious the subject must possess *qualia* – an instance of subjective, qualitative experience. There are currently three prominent theoretical approaches that attempt to address the problems associated with consciousness. Dualism and physicalism, for independent reasons that will become clear, face certain difficulties in attempting to explain the nature of consciousness. In what follows I will argue that panpsychism is a more plausible and promising view. Panpsychism is the view that 'mentality is ontologically fundamental and ubiquitous... fundamental in the sense that it [cannot] be explained in terms of anything else... [and ubiquitous] to say that every aspect of concrete reality partakes of mentality in some way or in some measure' (Seager, 2009: 206). Every physical thing, in addition to its non-experiential properties, is 'categorically' mental on a fundamental level – it possesses *some* underlying phenomenal property. Phenomenal properties are found amongst the properties that constitute the world's essence. Atoms, electrons, and molecules, they all possess consciousness on a primitive level. These primitively conscious properties are thought to come together in some way to form 'O-consciousness' – meaning the 'ordinary' macro-consciousness experienced in humankind.

Firstly, the compelling explanatory power of panpsychism will be established and the theory's strong promise for addressing the problems associated with consciousness will be brought to light. This will be achieved by establishing the virtues of panpsychism, outlining its 'motivational aspect' (the motivations for adopting panpsychism), and demonstrating the elegant way it avoids the problems faced by physicalism and dualism (chapter I). In chapter I, I will start to discuss the 'formulation aspect' (the way one can formulate panpsychism into an explanation of O-consciousness) by looking at the currently popular doctrine of *constitutive* panpsychism. The difficulties posed by the combination problem will prove too substantial to be overcome. It will be argued that one should instead seek a more plausible form of the formulation aspect (chapter II). The synthesis 'strong emergentist panpsychism' will then be proposed. A plausible conception of strong emergence will be established and one will argue that consciousness complies with this notion. By recognising strong emergence in biochemistry, an empirical argument for strong phenomenal emergence will be established. This remodelling of the formulation aspect will prove that strong emergentist panpsychism is a plausible and highly possible theory of consciousness (chapter III). One will defend the view that strong emergentist panpsychism is the most plausible and elegant theory of consciousness.

2. The Hard Problem of Consciousness

The problem of consciousness is one that requires some clarification. The term 'consciousness' is sometimes used in explaining the structure, function and dynamics of consciousness, 'the ability to discriminate stimuli, or to report

information, or to monitor internal states, or to control behaviour. We can think of these phenomena as posing the 'easy problems' of consciousness' (Chalmers, 2002: 247). As well as being accessible to the subject, these are objective aspects of consciousness that are also accessible to the third-person. Examples include reporting mental states, and modelling the differences between the states of wakefulness and sleep. They are directly susceptible to the standard methods of cognitive science. To solve the 'easy problems' of consciousness, neuroscientists and empirical investigators have their task laid before them. In pursuit of explaining said phenomenon, there is no real mystery here. Eventually these problems can be explained in neurobiological terms, linking together objectively perceivable internal states to behaviour or stimuli. Neuroscientists know their task and it is not irrational to postulate that someday their task will be complete, and the objective aspects of consciousness will be revealed.

For a being to be subjectively conscious there must be something it is like to qualitatively *be* that being. Thus, 'an organism has conscious mental states if and only if there is something that it is like to *be* that organism – something it is like *for* the organism' (Nagel, 1974: 436). If there is something it is like to be an organism, they possess *qualia* – an instance of qualitative experience. When Mary (the colour blind scientist) sees the colour red, she acquires the *quale* of seeing red; there is something it is like for her to see red, as she has a subjective qualitative experience.

'The hard problem of consciousness is the problem of experience' (Chalmers, 2002: 247). A being is conscious in this sense when they experience states of

'perceptual experience, bodily sensation [or] mental imagery' (Chalmers, 2002: 247-248). Each phenomenal experience, such as Mary's seeing red, has a phenomenal character or *qualia*. The hard problem is how and why we have *qualia*. Why do physical processes give rise to qualitative experience, and how does this type of qualitative consciousness come about? On this conception of consciousness, the territory is much more unforgiving.

The easy problems of consciousness are easy because the neuroscientist can explain cognitive functions by specifying the neurobiological mechanisms that give rise to them. By doing so, the easy problem of consciousness can be answered. The hard problem of consciousness is much more problematic because its explanation must go beyond the usual methods of cognitive science. The question to be answered is 'how and why do physical processes give rise to experience?' (Chalmers, 2002: 248), a question that science cannot seemingly begin to address (as will become clear in sections '3.1' and '3.2.2'). Answering the hard problem of consciousness is the subject of our enquiry. To provide an answer to this question, one needs to explain the relation between brain states and qualitative experience - one needs to answer the question 'why and how do we have *qualia*?'

Chapter I – Panpsychism

3. Panpsychism

The word 'panpsychism' comes from the Greek *pan* meaning 'everywhere' and *psyche* meaning 'soul'. The term encapsulates panpsychism's fundamental doctrine, however, in pursuit of parsimony one will consider 'soul' here to mean

a mental property that is attributable or that helps constitute consciousness.

According to the panpsychist, everything is in a sense conscious, as fundamental physical entities possess an element of consciousness in their basic makeup.

Phenomenal properties are a fundamental feature of the world. Every physical fundamental, such as atoms, electrons, and molecules, have a constituent element of consciousness *categorically*. To address the hard problem of consciousness, the theorist must account for qualitative properties. Panpsychism incorporates them within the actual *fundamental fabric* of the world - the world has ontological consciousness.

Many contend that panpsychism flies in the face of our basic intuitions.

According to panpsychism tables and chairs are conscious, but surely this isn't the case? But this objection is based on a misunderstanding. A chair or a table, as a whole, isn't conscious - what is conscious is its elementary constituents. The degree of consciousness that a microphysical property *is* can vary from being primitively conscious to being cohesively macro-conscious. So the consciousness found in ordinary objects is extraordinarily elementary, or so most panpsychists hold. The nature of consciousness can be considered 'not a sharp line, but a difference of degree; an oyster is less mental than a man, but not wholly unmental' (Russell, 1961: 209).

3.1 The Motivational Aspect of Panpsychism

To illuminate the reasoning behind the 'motivational aspect' of panpsychism, it seems appropriate to begin with scientific revolutionist Galileo. Galileo can be

said to exemplify an imperative innovation, central to both the success of scientific enquiry and fundamental panpsychist reasoning.

Philosophy is written in this grand book, the universe, which stands continually open to our gaze... It is written in the language of mathematics, and its characters are triangles, circles, and other geometric figures without which it is humanly impossible to understand a single word of it; without these, one wonders about in a dark labyrinth.

(Galileo, 1957: 237-8)

One can take 'philosophy' here to mean 'physics'. Galileo understood the language of physics to be mathematics. Only through mathematical language is one able to achieve lasting truth in the domain of science. Mathematical language provides a highly logical method of modelling natural phenomenon; it is explicit and definite. Thus, science restricts its scope of enquiry to what can be described mathematically. The revolutionary shift in scientific methodology perseveres today. Galilean, and later Cartesian advancements shift from the Aristotelian qualitative understanding of the universe to a quantitative one.

'Some attributes or modes are in the things themselves, while others are only in our minds' (Descartes, 1983: 25). In the light of the new science, qualitative properties are circumscribed to the mind. So qualities of experience such as smell, colour and taste are excluded from the world. 'Hence if the living creature were removed, all these qualities would be wiped away and annihilated' (Galileo, 1957: 274). It's hard to see how the mind can be a physical property if the physical world has only the properties that modern science ascribes to it. It

doesn't seem possible that we can explain the qualitative, if we only incorporate quantitative properties into our conception of the world (as '3.3.2 physicalism' will show).

By stripping the world of sensory qualities one describes the world mathematically. Consequently, physics has systematically built up a rich body of information about the natural world. By segregating the mind outside of science's scope of enquiry, from the outset physics appears to concede an inability to explain consciousness. One will return to such considerations in due course. The point in case is that the quantitative mathematical-causal methodology of science abstracts from the actual world. It limits our conception of the world to a quantitative understanding, but the actual world has a qualitative aspect to it. Science is restricted in its ability to formulate a complete picture of the universe because of its austere vocabulary.

Physics tells us that an electron with a negative charge is disposed to attract those with a positive charge, and repel those with a negative charge. But it is silent on the 'categorical' nature of electrons – what an electron actually *is*. Physics provides us with hypotheses' of the mathematical-causal relations between electrons. It systematically builds up a rich tapestry of knowledge purely out of dispositions. But it tells us nothing about what an electron *is*; only what it *does* or has the ability to do. Science specifies an object's dispositional behaviour, but it provides us with no information of its *nature* independent of that behaviour.

In fact, our knowledge of atoms is like that which a ticket collector has of the population of his town: he knows nothing of those who stay quietly at home.

(Russell, 1961: 150)

Science is a discipline written in the language of mathematics, limited to mathematical-causal methodology, empirical observation, and is thus purely concerned with behavioural tendencies (an object's nature and not its essence). Physics tells us nothing about electrons or mass independently of what those properties dispose objects to do.

What science provides us with is 'physical' knowledge, the discoveries of physics - which various physicalists believe exclusively constitute the world's *essence* (Strawson, 2006: 4). It seems intuitive to many that the world must consist of more than just the *physical*, as there must be an underlying fundamental nature to the dispositions that science describes. The intuition is evidently a strong and compelling one no doubt.

I do not endorse however, that this intuition in itself provides a sufficient reason for rejecting 'dispositional essentialism' – the view that an object is essentially dispositional in *essence*. However, like Vetter I do maintain that the reasoning in favour of dispositional essentialism is insufficient and deeply problematic.

Bird's 'dispositional monism' is the view that *all* properties are dispositional in essence. For Bird, laws are grounded purely in the dispositional essence of a property. He first proposes that there is nothing to say that a *categorical* essence

(something other than a disposition) is necessary. In categoricalism, 'nothing about a property itself will determine what these [distortional] laws will be' (Vetter, 2011: 204). They're separate and not causally related to dispositions themselves, and therefore they cannot be proved *necessary* to a disposition. Bird then proposes that dispositional monism is the most parsimonious and likely explanation of the world's fundamental essence.

But in doing so Bird overlooks a key problem in his argument. 'If regularities themselves are explananda, then dispositional essentialism has not delivered the explanation it has promised' (Vetter, 2011: 212), and it seems highly plausible that they are. Bird overlooks the possibility that dispositions are themselves explananda – something that requires an explanation in itself. His argument is that categorical essences aren't necessary and dispositions are sufficient for the role – but it is possible and highly likely that dispositions are themselves explananda (stand in need of explanation), so they cannot be sufficient. Vetter shows that Bird has in fact confirmed that something other than a disposition must anchor the physical. The point in case is that *essence* must be prior to a disposition as dispositional monism is not only counter-intuitive but also theoretically weak.

A genuine concrete world which consists of nothing more than a purely abstract mathematical-causal nature is unintelligible. A stronger argument than the contrary can be made in favour of the *categoricalism principle* - the concrete world must have an underlying categorical nature. According to panpsychism, all physical properties are categorically *quiddities* – meaning that the properties

expressed by science have *essences*. Quiddities for the panpsychist incorporate some mental properties that are primitively conscious. Within the fundamental nature of all physical properties micro-phenomenal properties exist, and so the world is to an extent *ontologically qualitative*.

Post-Galileo, qualitative properties have been left out of our scientific conception of the world. The reason why we aren't familiar with the complete essence of the world is because it consists of some phenomenal properties that lie outside of scientific methodology. The motivational aspect of panpsychism pieces together the gaps in our current conception of the world. The notion is plausible, highly likely to be true, and carries with it great explanatory power.

3.2 The Formulation Aspect and Constitutive Panpsychism

So there are compelling reasons for holding that the world's fabric consists of underlying categorical properties, which are quiddities, and these quiddities possess phenomenal properties of some sort. So according to panpsychism microphysical entities possess micro-conscious properties.

Now, as postulated, according to the panpsychist all microphysical entities possess micro-phenomenal properties in addition to their dispositional properties. *Constitutive* panpsychism is one way of understanding how macro-phenomenal properties (O-consciousness) can come about from micro-phenomenal properties. 'To put things intuitively, constitutive panpsychism holds that microexperiences somehow add up to yield macroexperiences' (Chalmers, 2013: 8). So take the structure of microphysical properties in the

brain. Each microphysical property has fundamental micro-phenomenal properties that partially constitute its essence. By the unique assembly of these microphysical properties, their micro-phenomenal essences are somehow able to combine to yield a macro-phenomenal property. So O-consciousness is constituted by a combination of micro-phenomenal properties. Constitutive panpsychism shows how O-consciousness can be clearly and simply explained through the existence of micro-phenomenal properties.

Constitutive panpsychism is promising, but more importantly it exemplifies panpsychism's formulation aspect. Through the considerations that motivate one to postulate the fundamentality of micro-conscious properties, a platform for explaining O-consciousness can be established. It is highly likely, plausible, and evidently compelling that microphysical properties possess micro-phenomenal properties in *essence*. One therefore has the constituent tools necessary for theorising how macro-phenomenal properties can succeed them. Panpsychism can potentially explain how and why we have the complex conscious states that we do, whilst incorporating the phenomenal properties that are presently missing from our conception of the world. If constitutive panpsychism is true then we have an answer to the hard problem of consciousness. Our task will shortly be to investigate the plausibility of constitutive panpsychism. However, the strong promise and explanatory ability of panpsychism is our current focus.

The motivational aspect of panpsychism provides the metaphysician with an excellent set of tools for explaining O-consciousness (the formulation aspect). By recognising the existence of consciousness in *every* physical thing, it seems we're

half way there to reaching an explanation of O-consciousness. The panpsychist view that has been proposed is undeniably captivating. The phenomenal realm is characterised by the physical, as it *is* the physical. Every physical fundamental has the categorical nature of being micro-phenomenal, and there is a genuine prospect of solving the hard problem of consciousness in this notion. These considerations show that panpsychism has a lot of potential for solving these otherwise intractable problems.

3.3 The Metaphysical Landscape

By illustrating the metaphysical landscape one can recognise the compelling elegance of panpsychism. Dualism and physicalism are two alternative theories of mind which both uphold views that oppose panpsychism. Taking each in turn, one will provide reasons to reject each view and demonstrate that panpsychism is more plausible in each case.

3.3.1 Dualism

The most plausible form of dualism is considered to be Cartesian substance dualism. Cartesian dualism is the view that mental phenomenon are non-physical. According to this view, two distinct types of substances exist, the material (extensional) and the mental (non-extensional). Descartes argued that one has reason to be radically sceptical of what their senses perceive, and the only thing that one can *guarantee* is that they can think; 'Cogito ergo sum' (Descartes, 1983: 5). One can doubt that their body exists, but they cannot doubt that they are a 'thinking thing' and therefore the mind must be separate from the

body - so the mental must be distinct from the physical.¹ Dualism taps into an age-old intuition that *I* am in some sense separate from my body. There is clearly something appealing about dualism from a pre-theoretical point of view, and Descartes' argument serves to sustain it. However, there are two significant problems with dualism.

For Descartes, minds are non-extensional (absent from space), where as bodies *are* extensional (located in space). But how can these two radically different substances causally-interact? If mental substances are non-extensional, how can they reach into the extensional and cause some physical effect? This is known as the causal-interaction problem.

For anything to cause a physical object to move...there must be a transfer of energy... But how could there be an energy flow from an immaterial mind to a material thing?... How could anything 'flow' from something *outside space* to something *in space*?

(Kim, 2006: 42)²

Despite the unconvincing efforts of postulating a unifying 'pineal gland', the physical realm remains causally closed. Something physical cannot be caused by something non-physical, as it is *in the nature* of causation that the physical is causally closed – 'every event in the material universe is caused by some other material event' (Heil, 2013: 26). The problem for the dualist is that they cannot comply with causal closure if they want to say that the mind and body can

¹ There are various arguments that support substance dualism, however this basic form of the 'doubt argument' suffices for our purposes.

² Here Kim is outlining Elisabeth, Princess of Bohemia's causal-interaction argument against Cartesian Dualism.

causally interact. Accepting the mystery of interaction is insufficient for the metaphysician. There must be a more plausible account of consciousness that doesn't inherit the causal-interaction problem, as it cannot be seemingly overcome.

And I admit that it would be easier for me to concede matter and extension to the mind than it would be for me to concede the capacity to move a body and be moved by one to an immaterial thing.

(Elisabeth in Kim, 2006: 43)³

In pursuit of the most plausible theory of consciousness one has sufficient reason to abandon dualism in the light of the causal-interaction problem. It would be un-parsimonious to postulate that it is a law of nature that mind and matter can causally interact. Moreover, a second criticism is that it is equally un-parsimonious to assume the existence of a second substance in the first case. The dualist has a choice, either she faces the knockdown causal-interaction problem, or she adopts a radically un-parsimonious theory. Neither seems preferable for the theorist of consciousness.

3.3.1.1 Panpsychism and Dualism

Dualism is seriously un-parsimonious as it postulates the existence of an entirely separate second substance. Panpsychism on the other hand says that mental properties are themselves physical, so there's no need to posit non-physical minds. Panpsychism therefore runs free of the radical un-parsimony associated with dualism. By the same token panpsychism, unlike dualism, isn't exposed to

³ Elisabeth, Princess of Bohemia is quoted here from Kim's *Philosophy of Mind*.

the causal-interaction problem as mental properties reside in physical things, and so share their causal powers. Panpsychism demonstrates elegance in avoiding these theoretical difficulties.

Panpsychism avoids the problems of dualism but carries its spirit. The dualist wants to say that mental properties are necessarily crucial and that the world consists of more than just the physical. For dualism non-extensional properties exist and panpsychism sustains this conception. The key difference for panpsychism is in the notion that mental properties in a sense *anchor* what the dualist conceives to be the physical. This anchoring relation avoids the problems faced by dualism but carries on the essence that motivates one to adopt the view.

3.3.2 Physicalism

Physicalism is the view that everything *is, supervenes on* or is *necessitated by* the physical. The 'physical' being what Dowell would consider the properties found in current and future physics (Dowell, 2006). So mental properties are nothing over and above physical properties. Consciousness is a *function* of, or just *is* the workings of our physical brain mechanics. Accordingly, physicalism is considered a very parsimonious theory. Nevertheless, physicalism is the subject of two significant criticisms.

3.3.2.1 The Transparent Conceivability Argument

First, one must establish a principle imperative to our enquiry - the 'transparency of phenomenal concepts' principle. Form a pincer with your thumb and index finger and pinch the skin on your forearm. You feel that

familiar feeling you have felt countless times before - pain. You know 'what it is like' to feel pain – you grasp the *quale*. By feeling pain you understand the *transparent* nature of pain. You know 'what it is' to feel pain, and know completely *what* your pain is. Pain is a phenomenal concept, and like pain, all phenomenal concepts seem to be transparently known to us in this way. Providing this reasoning is acceptable, phenomenal concepts are transparent. Physical concepts are also transparent as their nature is revealed to us through scientific enquiry.

Following this line of reasoning, one can assert the following conceivability argument against physicalism.⁴

Zombie= a human duplicate that lacks consciousness.

Premise 1) 'There are zombies' is conceivably true.

Premise 2) If 'there are zombies' is conceivably true, and each of the terms in 'there are zombies' expresses a transparent concept, then 'there are zombies' is possibly true.

Premise 3) Each of the terms in 'there are zombies' expresses a transparent concept ('transparency of phenomenal concepts').

Conclusion) 'There are zombies' is possibly true and hence physicalism is false.

⁴ Interpreted from Chalmers' discussion of 'zombie worlds', (Chalmers, 1996: 94-95).

'There are zombies' is possibly true, and therefore consciousness is not necessarily entailed by the physical properties alone. A zombie has the exact same biology as any ordinary human being, yet it does not possess consciousness. The fact zombies can possibly exist means that physicalism is an inadequate explanation of O-consciousness. Consciousness is necessary to humankind, yet physicalism does not ensure its presence. If a mad scientist recreated only my *physical* body in another world, I would not necessarily be conscious and therefore physicalism must be false. The physical properties alone do not necessarily entail consciousness.

3.3.2.2 The Knowledge Argument

Frank Jackson's knowledge argument can be stated as follows.

Mary is a brilliant scientist who is... forced to investigate the world from a black and white room via a black and white television monitor. She specialises in the neurophysiology of vision and acquires... all the physical information there is to obtain about what goes on when we see... red.

(Jackson, 1982: 130)

Now suppose Mary is set free from her black and white room, she bursts into the open world and sees a red rose for the first time. When Mary sees the rose; 'it seems just obvious that she will learn something about the world and [her] visual experience of it' (Jackson, 1982: 130), namely the *quale* of seeing the colour red. Mary's knowledge of all the physical facts when confined to the black and white room must have been incomplete, because she learns something new

when she sees the rose. There was something more than just the physical facts here. Mary knew all the physical facts yet she did not know *all* the facts, and therefore it follows that there must be something more than just the physical facts, i.e. non-physical facts. The knowledge argument provides substantial reason to doubt physicalism's plausibility.

Post-Galileo, by stripping the external physical world of Lockean secondary properties, it doesn't seem surprising that physicalism can't account for them. The zombie argument and the knowledge argument demonstrate that through the knowledge of physical properties alone, one cannot necessarily, or in any case come close, to knowledge of qualitative properties and O-consciousness respectively. In the light of the conceivability and knowledge arguments the metaphysician has sufficient reason to abandon physicalism. To explain consciousness we need something more than just the properties described by current physics.

3.3.2.3 Panpsychism and Physicalism

As we have seen, physicalism fails to account for qualitative properties, as the mental facts are not necessarily entailed by the physical facts. Panpsychism is not physicalism on the basis of the 'no fundamental mentality' constraint (Wilson, 2006: 61). The constraint states that physicalism should exclude future physics from postulating that physical entities are fundamentally mental (as the panpsychist does). The constraint is employed in order to maintain a distinction between physicalism and panpsychism. Regardless of this constraint, it remains

possible that science *will* incorporate mentality as fundamental, and it should therefore be ignored for our purposes.

By incorporating mentality into the physical fundamentals, the problems with physicalism disappear. Panpsychist zombies aren't conceivable. As phenomenal properties constitute the *essence* of microphysical properties, phenomenal properties are *necessary* to microphysical properties. When the microphysical properties are duplicated in another possible world, the phenomenal fundamentals will also be duplicated, and therefore consciousness is necessarily entailed. As the physical facts turn out to be the mental facts, complete knowledge of all the facts is also obtainable. Panpsychism runs free of the problems associated with physicalism but fits with a physicalist conception of the world. The panpsychist is augmenting the range of properties that physical things possess. By recognising that phenomenal properties are a constituent part of a microphysical property's essence – phenomenal properties are deeply incorporated within the physical, and are therefore necessarily entailed by the physical facts. The views of panpsychism do not contradict with those of current and future physics but do comply with them. There exists only one type of substance, as mental properties are fundamentally *a part* of physical properties. Panpsychism demonstrates its elegance in complying with the beliefs that motivate one to adopt physicalism, whilst avoiding the difficulties that lead one to abandon the view.

3.4 Adopting Panpsychism

There is strong reason to postulate that the world has a fundamental essence and it is highly likely that this essence partially consists of phenomenal properties. By adopting this view, one seems to have the necessary tools for addressing the hard problem of consciousness. Constitutive panpsychism demonstrates this possibility; micro-phenomenal properties can sum together to form macro-phenomenal properties (0-consciousness). The notion is not only innovative but also compelling by the virtues and elegance that it possesses.

Panpsychism successfully avoids the most challenging difficulties asserted against theories of consciousness and the elegance it demonstrates in doing so should not be understated. But panpsychism goes a step further. It 'promises to share the advantages of both materialism and dualism and the disadvantages of neither' (Chalmers, forthcoming: 1).

The elegance of panpsychism can be attributed to its explanatory power and cunning ability to avoid significant criticism. The most common reason for abandoning panpsychism is because the view is counter-intuitive. But this carries no significant force here. Even the physicalist would agree that 'whatever the source of the contrary intuitions [is], they do not constitute serious obstacles to the theoretical beliefs' (Papineau, 2008: 59). In physics, special relativity is highly counterintuitive, but does this mean that it is implausible? No. Our pre-theoretical intuitions carry no weight here, especially in the face of the overwhelming elegance and virtuousness of panpsychism. Panpsychism shows great promise for providing an answer to the hard problem of consciousness -

we may be able to explain *qualia* through the notion that everything is fundamentally experiential.

Chapter II - Abandoning Constitutive Panpsychism

4. The Combination Problem

Constitutive panpsychism upholds that micro-phenomenal properties add up to yield macro-phenomenal properties (O-consciousness). The theory is compelling and demonstrates genuine promise for providing a plausible solution to the hard problem of consciousness. Unfortunately, this popular form of panpsychism faces a serious objection. The combination problem is a group of arguments that pose a significant challenge to the plausibility of constitutive panpsychism. Three forms of the problem will be assessed and each will serve to demonstrate the seriousness of the challenge.

William James provides an outline of the general challenge (sometimes identified as the 'subject summing' problem).

Take a hundred of them [feelings], shuffle them and pack them as close together as you can... each remains the same feeling it always was... ignorant of what the other feelings are... [suppose a 101st feeling came about] by a curious physical law... they would have no substantial identity with it, nor it with them, and one could never deduce the one from the others.

(James, 1890: 160)

James's argument is that isolated micro-phenomenal properties cannot combine to aggregate a further macro-phenomenal property. It stems from James's argument that opposes combination altogether. Two hydrogen atoms and one oxygen atom do not 'combine' together to form water, they are connected only by a covalent bond - H₂O is still nothing more than two hydrogen atoms, one oxygen atom and their bond. Nothing can combine in the constitutive sense to aggregate something *further*. If nothing can combine, then it is implausible that micro-phenomenal properties can combine to form macro-phenomenal properties. The general problem can be stated as follows.

Premise 1) Micro-phenomenal properties combine to form macro-phenomenal properties.

Premise 2) Nothing can 'combine'.

Premise 3) If 'premise 2' is true then 'premise 1' is false.

Premise 4) 'Premise 2' is true.

Conclusion) Micro-phenomenal properties cannot combine to form macro-phenomenal properties.

Constitutive panpsychism claims that micro-phenomenal properties can sum up and combine together to yield O-consciousness, but as the argument makes clear, nothing can combine. If nothing can combine then constitutive panpsychism must be false.

4.1 The 'bottom up' Combination Problem

The 'bottom up' combination problem claims that it is possible that phenomenal subjects can exist, without anything *further* being necessary. If we can conceive of micro-phenomenal properties existing without macro-phenomenal properties then it is possible. By way of exercising the 'transparency of phenomenal concepts' principle formerly employed against physicalism, the following argument can be asserted against constitutive panpsychism (Goff, 2009: 297).

Panpsychist zombie= a human duplicate possessing micro-phenomenal properties without O-consciousness.

Premise 1) Panpsychist zombies are conceivable.

Premise 2) Phenomenal and physical concepts are transparent ('transparency of phenomenal concepts').

Premise 3) If something is transparently known, it is conceivable and therefore possible.

Conclusion 1) Panpsychist zombies are possible.

Premise 4) If panpsychist zombies are possible, then micro-level subjects cannot constitute O-consciousness.

Conclusion 2) Constitutive panpsychism is false.

The argument functions on the notion that if it is conceivable that conscious subjects can exist without anything further, then it is therefore possible – following the 'transparency of phenomenal concepts'. It is clearly possible that we can conceive of micro-phenomenal properties in the absence of something

further. If it is possible that micro-phenomenal properties can exist in isolation, then macro-phenomenal properties aren't necessary. Micro-phenomenal properties do not necessitate the existence of macro-phenomenal properties and therefore constitutive panpsychism must be false.

4.2 The 'top down' Combination Problem

When Mary experiences the colour red, the experience doesn't seem to be made up of lots of micro-experiences. It seems almost undeniable that the experience of seeing red is fundamental and unified. Constitutive panpsychism upholds that macro-experience is constituted by lots of other micro-experiences. If phenomenal concepts were transparent, as they seem to be, then the individual experiences that constitute our ordinary experience would reveal themselves - but they don't. Either phenomenal concepts are opaque (unknown - their nature not revealed to us), or macro-experiences are not constituted by micro-experiences. The argument can be summarised as follows (Chalmers, forthcoming: 12).

Premise 1) The nature of consciousness is revealed to us through introspection.

Premise 2) If constitutive panpsychism is correct, consciousness is constituted by a vast array of micro-experiences.

Premise 3) Whatever constitutes consciousness is part of its nature.

Premise 4) A vast array of micro-experiences is not revealed to us through introspection.

Conclusion) Constitutive panpsychism is false.

The argument succeeds on introspection's ability to reveal to us the nature of consciousness. Introspection points to the fundamentality of a singular and unified consciousness, and not to many individual instances of micro-consciousness. We have strong reason to believe consciousness is a fundamental unified whole and no evidence to support the contrary. Consciousness seems to be fundamental and therefore constitutive panpsychism seems to be false.

4.3 The Combination Argument

The combination problem seriously challenges the plausibility of constitutive panpsychism. There are a number of other forms of the combination argument such as the palette and the structural mismatch problems, but the subject summing, the top down, and the bottom up combination problems more than suffice here. To consider the combination problem a *problem* seems naïve. The difficulties aren't problems to be overcome, but arguments that successfully attack the plausibility of constitution.

It's very hard to see how constitutive panpsychists will show how micro-phenomenal properties can constitute macro-phenomenal properties. Macro-phenomenal properties do not necessarily entail micro-phenomenal properties, and our O-consciousness seems to be a unified whole. Moreover, if we're going to take seriously the notion that nothing can combine, micro-phenomenal properties cannot combine to form macro-phenomenal properties. Each of these arguments against constitutive panpsychism is significantly powerful and should not be taken lightly.

A successful response to the combination problem seems near impossible. Nothing can combine in the constitutive sense, and the potential of showing that something can seems highly unlikely. If something can be shown to combine in the way necessary for phenomenal constitution (something that seems unachievable in itself), the constitutive panpsychist would still have to show that phenomenal concepts are mildly-opaque/opaque (partially/not transparently known to us). Even then, one would be left with the task of demonstrating that introspection cannot reveal to us the nature of consciousness.

The combination *argument* against constitutive panpsychism demonstrates that the view is highly likely to be false. The arguments that lead one to abandon dualism and physicalism seem just, if not less critical. A response to the argument seems unobtainable and extremely optimistic. In the light of these considerations, it is advised that one should abandon constitutive panpsychism. The difficulties it faces are too substantial to be overcome.

Chapter III - Adopting Strong Emergentist Panpsychism

5. Emergence

Panpsychism seems to have the capacity to address the hard problem of consciousness, a rare and valuable asset that is certainly worth conserving. In order to avoid the combination argument an alternative way of formulating the doctrine must be established. In the exposition that follows it will be shown that by implementing 'emergence' into the panpsychic framework, an understanding

of how micro-phenomenal properties could possibly produce O-consciousness can be obtained.

5.1 Defining Emergence

'Emergence relates to phenomena that arise from and depend on some more basic phenomena yet are simultaneously autonomous from that base' (Bedau and Humphreys, 2008: 1). So an emergent system is one that is more than just the 'sum' of its constituent parts. For a property to be 'autonomous' in this sense, it is unpredictable or unexplainable from its base. It is intelligibly useful to split these senses into two groups.

One group of ideas are manifest in... emergent properties [being] 'novel' and 'unpredictable' from knowledge of their lower-level bases, and [in the second group] that they are not 'explainable' or 'mechanistically reducible' in terms of their underlying properties.

(Kim, 2008: 129)

The second group exclusively characterises *strongly emergent* properties, however in first group *weakly emergent* properties also fall under the same definition. Weak emergence can be defined as follows.

The central idea behind weak emergence is that emergent causal powers can be derived from micro-level information but only in a certain complex way... weak emergent phenomena can be derived from full knowledge of the micro facts.

(Bedau, 2008: 160)

A property is therefore weakly emergent, if by obtaining knowledge through a *a posteriori* observation; one can simulate the elementary interactions of a complex system and thus predict the emergent property. By acquiring complete knowledge of all the interwoven complicated relations between its parts, the unpredictable property would turn out to be predictable.

Strongly emergent systems cannot be predicted through a complete knowledge of their constituent properties and their elementary interactions. A strongly emergent property is entirely unpredictable and unexplainable.

We can say that strong emergence requires that high-level truths are not conceptually or metaphysically necessitated by low-level truths.

(Chalmers, 2006: 244)

This definition of strong emergence incorporates both of the senses grouped above. A strongly emergent property is neither mechanistically reducible nor explainable, nor is it predictable through the complete knowledge of the interactions between its parts. A property of this kind is something *more* than its constituent parts and their interactions. Like weakly emergent and constitutive properties, it does depend on its parts and their interactions, but there is something *further*, something *greater* present in the macro-subject.

The form of emergence we require to explain O-consciousness is strong emergence. If phenomenal concepts are transparently known to us (following the 'transparency of phenomenal concepts'), then one would know if O-consciousness emerges from them in this way. Weak phenomenal emergence

would be revealed to us as we have a *transparent* knowledge of phenomenal concepts – we’d be able to tell if our macro-phenomenal states were actually emergent through introspection. If phenomenal concepts are transparent, by the definition of weak emergence we could predict the emergent property.

Phenomenal concepts are transparent, yet we cannot predict consciousness - so weak emergence doesn’t suffice for our explanation. The formulation aspect will therefore be redefined through the notion of strong emergence.

5.2 The Strong Emergence of Consciousness

Chalmers argues that consciousness is the only phenomenon that is a clear case of strong emergence.

It is a key fact about nature that it contains conscious systems; I am one such. And there is reason to believe that the facts about consciousness are not deducible from any number of physical facts.

(Chalmers, 2006: 246)

The reasoning Chalmers employs to support the notion that consciousness is a strongly emergent phenomenon is not panpsychist based. He upholds that there is a compelling case in favour of the notion that consciousness strongly emerges from non-experiential properties. Chalmers’ argument is that consciousness cannot be deduced from the physical facts and this suggests that it is a strongly emergent property. His reasoning is found in the arguments that one formerly asserted against physicalism.

It seems plausible that consciousness somehow depends on the neurophysical goings on of the brain. In *our* world, duplicating brain states will in many metaphysical views entail the duplication of consciousness. The conceivability argument that was formerly employed against physicalism demonstrated that the duplication of physical brain states in another world would not necessarily entail consciousness. So physical properties do not necessarily entail consciousness, but 'consciousness still *supervenies* on the physical domain' (Chalmers, 2006: 247). Consciousness is not deducible from the physical facts, but it somehow shares an intimate supervening connection with them – it is 'naturally but not logically supervenient on low-level facts' (Chalmers, 2006: 247). Consciousness clearly supervenes on the microphysical, but it is not mechanistically reducible to these microphysical parts. It depends on neurophysical brain activity but cannot be explained by this activity alone. So consciousness must be something *further* and *greater*, yet still dependent on the microphysical. According to Chalmers, this means that it is highly plausible that consciousness strongly emerges from non-experiential properties.

Chalmers' reasoning is certainly compelling. The unique relationship between microphysical brain activity and consciousness effectively suggests that consciousness is a strongly emergent property. Brain states *do* have an effect on conscious experience, but even if we did possess complete neurophysical knowledge, the emergence of consciousness would remain unpredictable. The nature of consciousness clearly fits our defining characteristics of what it is to be a strongly emergent property.

The argument in favour of consciousness' strong emergence is compelling. However, Chalmers' view involves a radically strong form of emergence that incorporates an ontological move from the physical to the mental. By crossing this quantitative-qualitative ontological gap, one endorses an extremely radical and an almost unintelligible form of strong emergence. You can't build a cathedral from mental properties and you can't build consciousness out of physical properties. I strongly endorse the view that strong emergence cannot cross ontological boundaries that are this profound. To postulate that it does is to endorse a radically mysterious notion of strong emergence that has consequently been rejected by many metaphysicians, on the basis of it being 'incoherent... [as it has only acquired] an air of plausibility... simply because it has been appealed to many times in the face of a seeming mystery' (Strawson, 2006: 12). Strong emergence as Chalmers understands it to be is too mysterious of a notion, although it 'is logically possible, it is [too] uncomfortably like magic' (Bedau, 1997: 377). There isn't, and it's highly possible that there never will be empirical evidence favouring this type of emergence. The 'experiential-to-experiential' and the 'non-experiential-to-non-experiential' ontological *links*, are surely preferable to the 'non-experiential-to-experiential' ontological *leap*. In pursuit of a more intelligible and plausible form of strong emergence, it is prescribed that one should impose the following constraint.

The Strong Emergence 'Ontological Boundary' Constraint- a property *P*, cannot strongly emerge from any given number of properties *X*, if *P* is ontologically distinct from *X*.

Theories that conform to the 'ontological boundary' constraint increase the intelligibility of strong emergence, and avoid appealing to a radically mysterious form of the notion. It's easier to see how natural laws could link things which are fundamentally of the same nature, than those which are very unlike one another. It is more plausible that properties could be linked, nomologically, to subjects which possess properties of their own type.

Panpsychism upholds that all microphysical properties possess properties that are fundamentally mental. So the microphysical activity of the brain is ontologically phenomenal. The panpsychist can still recognise that O-consciousness is strongly affected by, and dependent on brain activity. But as the microphysical workings of the brain have phenomenal properties that constitute their *essence* - O-consciousness can be said to strongly emerge from these micro-phenomenal properties. The panpsychist makes no ontological jump and therefore complies with the 'ontological boundary' constraint. The emergence of O-consciousness from micro-phenomenal properties is still unpredictable and certainly isn't mechanistically reducible. O-consciousness remains neither 'conceptually [nor] metaphysically necessitated by' micro-phenomenal properties. Strong emergence in the panpsychist framework takes a less radical and a more intelligible form.

The notion that macro-phenomenal properties strongly emerge from micro-phenomenal properties is an appealing explanation of how O-consciousness can come about. By employing Chalmers' reasoning, O-consciousness' dependence on the brain and its strongly emergent nature can be recognised. The nature of

consciousness fits well with our definition of strong emergence. By imposing the 'ontological boundary' constraint panpsychist strong emergence is certainly preferable and more plausible than non-experiential based strong emergence. From a certain configuration of micro-phenomenal properties structured in the brain and their relations, O-consciousness can strongly emerge. Incorporating strong emergence into the panpsychist framework provides us with an explanation of how O-consciousness arises from micro-phenomenal properties, and we have therefore identified a plausible formulation aspect.

5.3 Verifying the Plausibility of Strong Emergence

Strong emergence is often criticised as being too radical and mysterious of a notion to be taken seriously. The 'ontological boundary' constraint imposes a restriction that avoids radical conceptions of strong emergence. It is more plausible and less rogue for properties to emerge from same *type* properties. By adopting panpsychism, a plausible account of consciousness' strong emergence can be established. In order to demonstrate that strong emergence amongst ontologically identical properties is feasible; one will identify empirical cases of this type of emergence. The example that follows is an empirical case favouring strong emergence - ordinarily employed to explain how non-experiential properties can emerge from other non-experiential properties. On the proviso that one is a panpsychist, cases of 'non-experiential-to-non-experiential' emergence are correspondingly cases of 'experiential-to-experiential' emergence. So what we are in fact identifying are cases of strong *phenomenal* emergence.

5.3.1 Strong Emergence in Biochemical Networks

The following argument from Boogerd succeeds by identifying an important element within our definition of strong emergence, synchronic unpredictability.

Synchronic unpredictability means that a systemic property is not predictable, even in principle, from the properties of subsystems in isolation.

(Boogerd, 2005: 159)

Synchronic unpredictability complies with our definition that 'high-level truths are not conceptually or metaphysically necessitated by low-level truths', but it functions on a crucial (and seemingly acceptable) notion; that in order for a system to be predictable, we must be able to predict the behaviour of its parts in less complex systems. Thus, if we are to explain the behaviour of a system this should be characterised by 'the behaviour of the parts only within less complex systems... [and therefore a systems parts must be taken] in isolation' (Boogerd, 2005: 140).

Complex biochemical networks can be modelled in two ways. The *top-down* approach involves predicting the behaviour of the components from the actual system's systematic behaviour. The *bottom-up* approach involves predicting 'system behaviour using information about the properties of parts, independently of their systemic context' (Boogerd, 2005: 149). Our focus will therefore be on the *bottom-up* approach. The behaviour of a complex biochemical system should be predictable from the information of the properties of its subsystems in isolation. These subsystems are composed of modules.

Modules, like their constituents, have intrinsic properties, relational properties, and component properties. Systems behaviour of modules depends in turn on the component properties of their parts.

(Boogerd, 2005: 154)

By understanding the behaviour of these properties in their composing modules, we should arrive at an explanation of how the system's parts will behave in less complex systems.

Take the complex biochemical system '*S*'. *S* consists of two subsystems '*S1*' and '*S2*'. *S1* and *S2* are comprised of modules, which themselves depend on the component properties of their parts. The component properties of *S1* and *S2* actively interact in *S*. In modelling biochemical systems through the *bottom-up* approach *S1* and *S2* should entail the behaviour of *S* 'independently of their systemic context'. However, Boogerd argues, in order to predict the behaviour of *S*, the active relations between *S1* and *S2* as they exist in *S* have to be taken into account. When *S1* and *S2* are considered in isolation these active relations do not exist. So to predict the behaviour of *S*, the component *relational* properties in *S1* must be duplicated in *S2* and vice-versa. The only way of knowing which properties must be duplicated in order to predict *S* is through a complete knowledge of *S*'s behaviour, but this would not be possible through the *bottom-up* approach. There wouldn't be a legitimate reason for selecting the duplication of one property over the other. By studying the subsystems *S1* and *S2* in isolation, we cannot deduce the behaviour of these parts in less complex

systems, and therefore the behaviour of *S* is irreducible.⁵ Thus, the way a subsystem will behave in *S* cannot be predicted by considering the subsystem by itself, or in combination with any other subsystems which are simpler than *S*. From this we can draw the following conclusion.

The parts [(*S1* and *S2*)] of a genuinely novel structure [(*S*)]... might behave in a way that is not deducible from the part's behavior in other structures... If the behavior of some system's parts is irreducible in this respect, then all properties that depend nomologically on the behavior of the system's parts are irreducible too.

(Stephan, 2004: 98)

As shown, the system's parts (*S1* and *S2*) *will* behave in a qualitatively different way when placed in a less complex system than *S*, so their behaviour cannot be deduced. As the system (*S*) nomologically depends on its parts (*S1* and *S2*), it must therefore be irreducible in itself. This fulfils the 'synchronic unpredictability' condition and we therefore have a case of strong emergence.

These considerations are drawn from a case study of molecular cell physiology. *S* functions in the same way as many microorganisms. They 'exhibit a variety of systematic properties, such as homeostasis, regulation, [and] plasticity... that appear to transcend the physical properties of their constituent parts, including enzymes [and] individual pathways' (Boogerd, 2005: 133). Boogerd concludes that this is a clear case of strong biochemical emergence, and it seems to be a

⁵ This is an interpretation of an argument formulated by Boogerd, 2005: 155-156.

'general phenomenon for other [non-experiential] complex systems' (Boogerd, 2005: 160).

5.3.2 Accepting Strong Phenomenal Emergence

The argument that has been outlined demonstrates that from non-experiential properties, other non-experiential properties can strongly emerge. On the proviso of panpsychism (of the kind I am discussing here), the categorical natures of non-experiential properties are experiential in nature. Because every physical thing is partially conscious, these cases of strong 'non-experiential-to-non-experiential' emergence are correspondingly cases of strong 'experiential-to-experiential' emergence. Following this, what we have in fact identified are empirical cases that demonstrate the way in which experiential properties may indeed strongly emerge from other experiential properties. The argument suffices to demonstrate the plausibility and high possibility of strong phenomenal emergence.

We have empirical evidence that supports the hypothesis that experiential properties can strongly emerge from other experiential properties - providing that one has adopted panpsychism of course. The notion that consciousness emerges from other phenomenal properties obviously complies with the 'ontological boundary constraint', and the nature of consciousness itself exhibits the characteristics of being a strongly emergent phenomenon. Some complex phenomenal systems seem to exhibit strong emergence and it is highly likely that consciousness is one of them. We have formed a compelling intelligible

understanding of how O-consciousness could strongly emerge from micro-phenomenal properties.

5.4 Returning to the Formulation Aspect

In the first case, when we identified the formulation aspect of panpsychism as constitutive panpsychism, the combination argument in all of its forms seemed too challenging to be overcome. In the light of this, it was prescribed that a form of emergence should be pursued as a plausible alternative.

By adopting strong emergentist panpsychism the combination problem can be avoided. The strong emergence of O-consciousness from micro-phenomenal properties is a plausible and theoretically attractive notion. O-consciousness fits the criterion of being a strongly emergent phenomenon as it complies with the notion that 'high-level truths are not conceptually or metaphysically necessitated by low-level truths'. Implementing Chalmers' reasoning into the panpsychist framework clearly demonstrates this compliance. The primary concern with strong emergence is that it appeals to something too mysterious and unintelligible to be taken seriously. By employing the 'ontological boundary' constraint the type of strong emergence available to the theorist is not radically unintelligible. Providing that one has adopted panpsychism, strong phenomenal emergence can be recognised in complex biochemical systems, and this demonstrates that strong 'experiential-to-experiential' emergence is likely to exist. We know that O-consciousness *can* strongly emerge from micro-phenomenal properties, but we will never know precisely *how* - as by definition,

this will forever lie out of even *omniscient* comprehension. Despite this, the form of strong emergence advocated can still be considered intelligibly plausible.

By accepting that micro-phenomenal properties are a part of the world's *essence*, one can formulate an explanation of O-consciousness. O-consciousness can be said to strongly emerge from micro-phenomenal properties. This occurs when micro-phenomenal properties are locally structured in a specific way – similar to their structural order in the brain. The view is empirically supportable, faces no knockdown criticisms, and is the most plausible formulation of panpsychism.

5.5 Answering the Hard Problem of Consciousness

Why are neurobiological functions of the brain accompanied by qualitative experience, and why and how do we have *qualia*?

The doctrines of panpsychism and the motivational aspect give us likely and plausible reason to believe that the world is to an extent *ontologically conscious*. As every microphysical property is to some degree, in essence a micro-phenomenal property, we can incorporate this into an explanation of O-consciousness. O-consciousness can strongly emerge from micro-phenomenal properties. 'Experiential-to-experiential' emergence in complex systems seems to exist - providing one has already adopted panpsychism - and it is likely that consciousness is one of these systems.

Neurobiological functions of the brain are accompanied by O-consciousness because they are themselves ontologically conscious. The unified, fundamental

experience of O-consciousness strongly emerges from these individual instances of micro-consciousness and this is why we have *qualia*.

5.6 Limitations of Strong Emergentist Panpsychism

Despite strongly advocating strong emergentist panpsychism, there are clearly some limitations to the view. Strong emergentist panpsychism demonstrates great promise for being a solution to the hard problem of consciousness - but this isn't to say that it solves the problem.

There are two primary assumptions that have been made in the view that has been proposed. (1) Phenomenal properties partially constitute the world's fundamental essence. (2) The world's micro-phenomenal properties can interact, and one of these interactions involves strong emergence.

Although it seems highly likely, the world may not be ontologically conscious. At least, there are certainly more people who reject panpsychism than accept it on the basis of their intuitions, and although these intuitions carry no decisive weight in theorising - there still remains a *prima facie* strangeness to the view. It is possible that the world's essence consists of solely non-phenomenal properties, or even consists of something entirely unknown. In the light of modern science there is no empirical way of verifying that the world lacks a phenomenal essence, but by the same token we can't scientifically confirm that it does. Despite the strong reasoning provided, panpsychism is itself an assumption and this is clearly a limitation to the view.

Secondly, it is possible that strongly emergent properties will turn out to be predictable.

Within the physical realm it always remains logically possible that the appearance of emergent laws is due to our imperfect knowledge of microscopic structure or to our mathematical incompetence.

(Broad, 1923: 81)

The logical possibility will always overshadow the strong emergentist, that emergent laws are in fact the products of our imperfect knowledge. But it is important to state that this logical possibility is not an overwhelming one. Science seems hesitant to confirm the existence of strongly emergent properties despite the evidence in their favour. Science is concerned with only completely non-mysterious properties and laws. Despite the fact that a plausible case for strong emergence can be made, science imposes the restraint of non-confirmation. Strong emergence is still considered, and always will be mysterious, but through the reasoning provided one has begun to make the notion more intelligible.

The limitation of the view is that it eludes confirmation on the current methods of physics. We have no way of scientifically confirming that panpsychism is in itself true, or that micro-phenomenal properties can strongly emerge in a way necessary for O-consciousness. One can provide a theory that strongly suggests its truth, but this will never be empirically recognised. The present view is attractive because there is currently no knockdown argument against either panpsychism or strong emergence in isolation, and thus the prescribed synthesis

avoids knockdown criticism too. We have sufficient reason to abandon alternative theories of consciousness but strong emergentist panpsychism is too elegant to encounter any of its own. Strong emergentist panpsychism is the most plausible form of panpsychism and demonstrates a real potential to address the hard problem of consciousness. The limitations of the view seem to come with the territory. Some assumptions need to be made because of the inscrutable nature of the phenomenal. The best that we can do is provide an argument that strongly indicates that the view is likely to be true, and it seems that we have done just that.

6. Conclusion

In conclusion, strong emergentist panpsychism is a promising solution to the hard problem of consciousness. We have successfully demonstrated the explanatory power, plausibility and the strong likelihood of panpsychism. This was achieved by establishing the motivational aspect, the virtues of panpsychism and by showing its elegance in avoiding the problems faced by physicalism and dualism (chapter I). The combination problem demonstrated that the difficulties with constitutive panpsychism are too serious to be overcome. Micro-phenomenal properties can't 'combine together' in the required sense, and consciousness doesn't exhibit the characteristics of being a constitutive phenomenon (chapter II). The alternative formulation aspect - strong emergentist panpsychism - was proposed in its place. An intelligible form of strong emergence was established and the empirical evidence in its favour showed the notion was highly plausible. On the proviso that one is a panpsychist, strong phenomenal emergence in complex systems seems to exist, and it is likely

that O-consciousness can emerge in this same way. From micro-phenomenal properties, we can form an understanding of how O-consciousness can strongly emerge (chapter III). It has been established that panpsychism should be adopted over physicalism and dualism on its theoretical virtues, and that strong emergentist panpsychism is preferable to constitutive panpsychism in the light of the combination problem. A compelling argument can be made for strong emergentist panpsychism. This illustrates that strong emergentist panpsychism is a preferable, defensible and a highly plausible solution to the hard problem of consciousness.

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