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Pursuing Natural Unity, Consciousness Included

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PURSUING NATURAL UNITY, CONSCIOUSNESS INCLUDED

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The Mind-Body Problem

In this paper, I will be exploring ontological explanations of consciousness. My inquiry is shaped by the assumption that the world is intelligible, or the belief that everything in reality can be cohesively explained. (Nagel *Mind and Cosmos* 16) With this assumption, I search for a cohesive picture of the universe, a natural order of sorts in which consciousness has a home. I am not just concerned with local problems of the mind, but ontological questions of the mind and how it relates to other aspects of reality. Explanations of consciousness have been the subject of deep philosophical and scientific exploration for centuries. Whether you are discussing consciousness philosophically or scientifically, it is arguably the most difficult subject to examine, and yet also possibly the most familiar, as it is central to human experience. We are all conscious beings; being conscious is fundamental to human existence. Our personal conscious experience is frequently described as our 'stream of consciousness', the "movie" (Chalmers, *Facing Up*) that is always playing in our minds when we are awake (and possibly while dreaming). This includes sensory experience (smell, sounds, tastes, etc.), our emotions, memories, desires, and the constant narration of all these experiences, or our inner 'voiceover' that describes and integrates all of this information. Every occurrent feeling and thought occurs in our field of consciousness.

Everything we do seems to start from a mental state, a feeling—whether it be a desire, belief, inclination, or all of the above. There is a wide variety of theories of consciousness, philosophical and scientific. All attempts to understand why consciousness exists, how it exists, and how it fits in relation to other aspects of the world. Perhaps the first modern approach to philosophically conceptualizing human consciousness was by Rene Descartes in his work, *Mediations,* where he presented the mind-body problem.

The mind-body problem is essentially the inability to fully explain how seemingly non-physical phenomena like feelings, thoughts, and everything listed previously can occur from or amongst the inherently physical make up of our brain. Our soul, our mind, and our thoughts seem like different, separate things from our body, which is clearly a physical object. (Descartes) Our brain is made up of blood and tissue, and it is curious how these seemingly inanimate, material things are connected to the seemingly animate and immaterial feelings, thoughts, and mental visualizations that make up our life. There is an issue in our understanding of the relationship between the physical world and the mental world, hence the label "mind-body problem".

Descartes concluded that the "mental" must be of a different substance than the "physical" a view called mind-body dualism. (Descartes) The mental being of a 'different substance' basically means that our mind, soul, or what we previously referred to as our "stream of consciousness", is essentially different and separate from our physical body (perhaps placed into our bodies by God.) This division is also called substance dualism; there are two substances in the world: physical things and mental (non-physical) things. Since Descartes' modern conception of dualism in 1641, mind-body dualism and substance dualism has been rejected by most contemporary scientists and philosophers with the influx of neuroscience and psychology's ability to explain mental processes through physical processes, aligning well with the mainstream ontological stance that the world is made up of one substance—physical.

This view, that the world is entirely physical and nothing more, is called ontological physicalism, and it is the most widely held metaphysical position among contemporary philosophers and scientists, and even amongst the general public—a view that I too hold as true. However, as I will explain in this paper, although the physical sciences have made great progress

in explaining mental phenomena in physical terms, the essential question Descartes posed still stands: How does our intangible, immaterial mental states arise from and connect to tangible, physical processes? Furthermore, I will argue that the existence of the mind-body problem, our inability to explain the physical nature of mental phenomena, is pertinent to our entire understanding of the universe, and the existence of this problem may undermine mainstream ontological physicalist views about the natural order of the world.

The Hard Problem of Consciousness

Like previously stated, the physical sciences have made great strides in explaining mental phenomena in physical terms. Most of Descartes' issues with the mind being physical have been solved, which is why substance dualism has taken a back seat in contemporary metaphysical discussions. For example, we now know the specific biological and chemical mechanisms that induce the feeling or the mental state of hunger. There are specific chemical compounds in the form of hormones that send messages to your brain through your bloodstream, saying that you are in need of calories, which results in corresponding behavior—eating. Scientists can explain this phenomenon in the most basic of terms, which would be mathematically. However, in this explanation of hunger there is something missing; somewhere amongst these biological processes is experience. Somehow, when a hormone is released into your bloodstream and travels to your brain, there is an *experience* of hunger. We know that the release of hunger hormones coincides with an experience of hunger, because we all experience it; but how, why, where, and when this happens is still a great mystery. Sure, we know which specific chemicals induce hunger, but we don't know why hunger feels like *this*.

In David Chalmers' paper *Facing Up to the Problem of Consciousness,* he delineates mental phenomena into "hard" and "easy" problems. 'Problems' refer to various subjects of inquiry about the human mind. "Easy" problems are those which "concern the explanation of cognitive *abilities* and *functions.*" (Chalmers *Facing Up* 1) and can be explained by modern sciences. "Hard" being those which "seem to resist" (Chalmers *Facing Up* 2) being explained by modern science. In his paper Chalmers lays out a few easy problems of the mind, including, "The ability to discriminate, categorize, and react to environmental stimulus…The integration of information by a cognitive system…The ability of a system to access its own internal states;" etc. (Chalmers *Facing Up* 2) All of these mental phenomena are associated with cognitive abilities that are readily explained by the physical sciences, namely neuroscience, and can be categorized as easy problems. Another way of understanding "easy" problem of the mind is by thinking of things that one could conceive an intelligent computer having the ability to do. A computer can learn, remember, respond to inputs with outputs, categorize, etc. However, the "hard problem" is our *experience* of these things, which is much more difficult to imagine an intelligent computer having.

Conscious experience, distinct from cognitive faculties, is the in-the-moment, *felt experience* of being conscious—what it is like for you, or anyone, to experience anything. An intelligent computer could be programmed to respond to the input of being hit with an output of crying, yet it is difficult to imagine this computer actually *feeling* any pain or *experiencing* the urge to cry, much less how one would even program "experience" into a computer in the first place. Unlike a computer, while we exist in the world there are *feelings and sensations* that go with it, there are experiences. The existence of conscious experience is "the hard problem" (Chalmers *Facing Up* 2) that resists scientific explanation, which will be further explored in the

following section. The main point is that the hard problem of conscious experience may be in principal unexplainable by the physical sciences, and not simply because we aren't scientifically or technologically advanced enough yet, which is why it is such a "hard" problem.

An objective of a physicalist world view is to find a cohesive picture of the world where everything has been defined as and explained through physical processes. When it comes to the conscious experience, this proves to be difficult, yet figuring out experience's physical basis in the world should be imperative to a physicalist world view. Thomas Nagel, in his book *Mind and Cosmos,* explains this necessity. "We and other creatures with mental lives are organisms, and our mental capacities apparently depend on our physical constitution. So, what explains the existence of organisms like us must also explain the existence of the mind." (Nagel, *Mind and Cosmos*, 14) In this quote, Nagel explains why questions of the mind are so fundamental to other areas of study concerning our existence, for example, areas like evolution, biology, or neuroscience. Our conscious experience is as naturally occurring as the existence of our bodies, and evidentially also occurs in conjunction with our bodies. Therefore, explaining the existence of conscious experience is as important as explaining bodily mechanisms. The problem for Nagel and Chalmers is *why* it usually isn't. In all explanations of things to do with our mental life, like why we feel hunger, pain, love, etc., the physical mechanisms are very clear (hormones, neurons, nerves, etc.), but conscious experience is completely left out. But our conscious experience is so essential to our existence as humans that when attempting to explain how and why humans exist in the first place, it must be a part of this explanation in a central way. As previously stated, the sciences, and in particular, neuroscience, has made great leaps in explaining some mental phenomena physically, yet as we will see, the existence of conscious experience creates a huge problem for mainstream physicalist understandings of the world.

Qualia

Qualia are the qualitative properties that make up conscious experience. The term "qualia" is a way of typifying conscious experience. For the purposes of this paper, qualia and conscious experience are interchangeable, and both will be used from now on. Thus, "qualia" is another way of putting the hard problem that Chalmers discusses.

Qualia are felt experience of existing, the "sensory mental events and states" (Kim *Philosophy of Mind* 273) that we experience when we see a color, feel a pain, taste something, etc. Qualia seems to be the reason we go on roller coasters or watch scary movies. When standing in line for a roller coaster, we are hoping to *experience* something, not accomplish or learn something—but simply experience something happening. Like previously mentioned, if we imagine the things we could theoretically program a computer to do, the problem of qualia becomes evident. For an example, consider the simple situation of eating a slice of pizza. The "voiceover" in your head goes something like this: "That pizza smells good, I want to eat a slice, I will get a slice." When programming a behavior into a computer, we program it to respond to certain inputs with certain outputs. We could program a computer to: see pizza→want pizza→get pizza. However, the *qualitative* properties in this scenario are things that we could *not* imagine programming a computer to do. We could not theoretically program the *experiences* of smelling, seeing, wanting, and tasting pizza into a computer. Mental states have "distinctive qualitative character" (Kim *Philosophy of Mind* 273), meaning that they have felt and/or sensed qualities in the form of sensations. Again, a super computer might be able to distinguish between pizza and not pizza, and accurately choose and "eat" a slice, but would it be able to *experience*

being hungry, *feel* the taste of pizza? Another standard way of putting the concept of qualia is "what it's like", first termed in Thomas Nagel's famous paper *What Is It Like to Be a Bat.*

A a mental state with qualitative properties (qualia), is a state in which there is something that *it is like* to be in that state. The phrase "what it's like" speaks to the qualitative aspect of experiencing something. The "yellowness" and "sourness" of a lemon. It is the raw experience of something, of anything. An intelligent computer might be able to discern the color or flavor profile of a lemon (yellow, sour), but it is difficult to imagine a computer *experiencing* the yellowness or sourness of a lemon; for a computer, there is no qualia, there is no experience. In Nagel's view, qualia exist by virtue of our inherent subjective view of the world. Our experience of the world is *inherently* subjective, and it is in this subjective experience of life that qualia exists. Your experience of being in the world is inherently subjective because it is inaccessible to anyone other than yourself, it cannot be objectively observed or analyzed. An easy problem like the cognitive mechanism of memory storage can be described objectively, as in, the process of storing a memory that occurs in animals can be objectively observed, described and explained through bio-chemical mechanisms and computational terms. The hard problem of qualia is hard because, according to Nagel, it is fastened in our inescapable subjectivity, and therefore impossible to objectively observe and describe, and thus impossible to explain.

To tease out the idea that subjective, conscious experience, is inherently impossible to objectively describe or explain, and therefore a "hard problem", Nagel appeals to the commonsensical idea that animals other than humans also have subjective experiences. He uses a bat for his example. "Bats, although more closely related to us than other species, nevertheless present a range of activity and a sensory apparatus so different from ours that the problem I want to pose is exceptionally vivid (though it certainly could be raised with other species)." (Nagel

Bat 438) Bats are mammals like us, but they have a "fundamentally *alien* form of life". (Nagel *Bat* 438) This alien-ness is found in the drastically different way bats perceive space, which is through echolocation, and not with vision, like us. Although this way of perceiving is so foreign to us, we can imagine that bats have an *experience* of it, just like we do with vision. "the fact that an organism has conscious experience at all means, basically, that there is something it is like to be that organism" (Nagel *Bat* 436) So, the question about the experience of being a bat can be formed as: what is it *like* to be a bat? (Nagel *Bat*) What is a bat's *experience* of echolocation? Science has provided us with a detailed account of how echolocation works. The chemical and electromagnetic relationships that makeup the biological mechanism of echolocation are known and proven. But despite knowing in detail the physical mechanisms involved in echolocation, how can we know what a bat's experience of it is, how it *feels* to echolocate? Nagel's says we can't, because experience is subjective, and thus inaccessible to anyone other than the subject.

We can know all the quantifiable, physical facts about echolocation, and yet still not know the qualitative facts—how it feels. We also can confidently assume bats experience hunger, pain, and lust, also things that contain qualia and that we attribute subjective character to. What is it like to be a hungry bat, what are the qualia experienced by a hungry bat? In order to know this, we must be able to take up the point of view of a bat. But, if we were to try our best to imagine what it is like to be a hungry bat, we would still only be able to do so as far as imagining what it would be like for a human to be a hungry bat, not for a bat to be a hungry bat. It is impossible to know "what it is like" for someone or something else, demonstrating the imperceptibility of qualia. We are bound to our subjectivity, we cannot stop being a human subject with human subjectivity, it is the stage from which everything else follows.

The experience of a echolocating bat is fundamentally distant and unreachable by us; however, we can assume that there *is* an experience of it for the bat. “Members of radically different species may both understand the same physical events in objective terms, and this does not require that they understand the phenomenal forms in which those events appear to the senses of members of the other species.” (Nagel *Bat* 445) By “the phenomenal forms in which those events appear to the senses…” Nagel means the qualia that accompany physical events. And those qualia that accompany physical events are cut off from to objective observation. But it would be incorrect to assume that there is no subjective experience of others just because we can’t observe or experience it. We assume it feels like *something* to echolocate, like how we know what vision feels like, but no matter how much we learn about the physical mechanisms of echolocation, we cannot know what it feels like. Subjective experience is both completely unobservable but unequivocally present. Thus, even when all objective facts are known about a physical event, there are still unknown, inaccessible, subjective facts.

Again, key to this concept is that biological processes like echolocation, or hunger, can be explained objectively and physically while fully leaving out experience. Consider the physical process of vision in animals with eyes. Individual photons emit from a light source, bounce off objects in space, and then find their way to your pupil, more specifically your retina. Photons hit photoreceptor cells in your retina called cones and rods. When a photon collides a photoreceptor, a huge amount of information is collected and transmitted to the brain. The numerical value mathematically modeling velocity, momentum, angle of contact, wavelength, frequency, and many other quantifiable properties of the photons are recorded by photoreceptors. These things are the information our brain uses to create a picture in your mind of the world around you. For example, the distance a photon travelled from an object to your eye could be deduced from the

data collected by the photoreceptors. From the measurement of a photon's fundamental physical properties, your brain calculates how far away something is from you, and what color it is.

This description is extremely crude, and definitely simplified, but the main point here is that the only reason why we know where an object is in space is seemingly due to a simple math. I say "simple" because the rich, colorful, *qualitative* experience we have of vision doesn't seem like it can just come from a mere quantifiable measurement. When we program computers to "see", we can only do so in virtue of the progress we've made in understanding how our own vision works. A computer can calculate its respective distance to an object based on the numerical information received from photons, like us. So, seeing computers are doing the same data collection from photons that we do, except without the qualitative properties that go along with it. Using quantitative information, a computer just "knows" how far away something is; it probably doesn't "experience" or "see" this distance, like us—why would it need to? It is curious why we don't also just "know" the distance of objects from the quantitative properties of a photon, without experiencing it. From this perspective, it seems plausible that if we did not have experience, everything would still be exactly the same. As in, it seems that even if we did not have an experience of vision, if qualitative aspects were not there, we would still be able to successfully move about the world just like we do now. Because all the information we need to know about space comes from different the physical, quantifiable properties of photons, which can be mathematically processed without a "vision" or a "movie" of the world around us. But of course, we are conscious, and computers are not; therefore the existence of qualia seems to be directly related to why we are conscious, subjective beings in the first place.

To make things more complicated, we also cannot experience anyone else's experience of vision. The understanding we have of the way photons visually communicate the world

around us is objective, universal and the same in all humans and animals who see. But the way it *looks* to someone is a complete mystery, because we cannot literally take up another point of view. The way vision looks to any given person is an essential fact about vision that is absent from explanations of it, which makes our explanation of vision incomplete.

So, we can know in the most microscopic physical detail what biological processes, chemical mechanisms, and mathematical sequences are producing hunger, allowing a bat to echolocate, or causing us to see, but this still does not tell us anything about how it feels to experience these things. Recall Chalmers delineation of easy and hard problems. The physical mechanisms that cause us to see, or cause us to feel hungry, can be objectively described, making them an easy problems. However, the aspect of hunger and vision that is *experienced,* the sensation that we feel but cannot objectively observe in others, is part of the hard problem. The fact that we have a "vision", or "movie" of the world around us instead of simply "knowing" where everything is mathematically like a seeing computer, is the hard problem. Thus, every phenomenon has not only objective, quantitative facts that explain it, but also subjective, qualitative facts. The facts of how it *feels* to be hungry is only knowable from a subjective perspective, and if there are fundamental facts missing from our explanation of a mental state like hunger, then there is an incomplete explanation of what hunger is.

This objective/subjective dichotomy is at the heart of the hard problem of consciousness for Nagel. To Nagel, the existence of subjective experience exposes a major gap in our understanding of the mind. For if human (and other creature's) existence can be fully explained scientifically and physically while fully leaving out subjective experience/qualia, there is a major hole in our physicalist understanding of the world, as essential facts (qualia) have been left out. (Nagel, *Mind and Cossmos* 436) Philosopher Jaegwon Kim disagrees, in his book *Physicalism or*

Something Near Enough. For Kim, qualia exist but are merely epiphenomenal, meaning that they are casually impotent. If qualia do not have any effect on the physical world, they are not causally efficacious. If qualia are not causally efficacious, then, according to Kim, the existence of them does not present a *foundational* problem for our physicalist world-view, although it does present a problem. The question of mental causation and causal efficaciousness is central to the mind-body problem because if we can understand how the mental effects the physical and vice versa, we can get closer to understanding the role of the conscious experience in the world.

Mental Causation

How can a seemingly immaterial substance like the mind connect with and exert causal powers on a material substance, and vice versa? After all, this was the question posed by Princess Elisabeth to Descartes in the 15th century. How can something immaterial, mental, have causation on the material, physical? If the mind is to have any effect in the physical world, mind-to-body causation must be explained. Contemporary philosopher Jaegwon Kim writes, "mental causation is fundamental to our conception of mentality, and to our view of ourselves as agents and cognizers; any theory of mind that is not able to accommodate mental causation must be considered inadequate, or at best incomplete." (Kim *Physicalism* 87). It is essential that our mental states are able to interact and affect the physical world if we are to have any human agency. In other words, our beliefs and experiences about the world must be able to influence how we interact with the world if we as conscious beings are to have any causal powers in the world. For example, my belief that sexism is wrong must somehow translate into physical actions I perform in the world, if not, I do not have moral agency. However, I do, so this causation must be explained. On a more basic level, it must be explained how a mental state like

the desire to drink water can somehow cause an action in the physical world, like getting a glass of water. It is causation between mental states and physical states that allows us to navigate the physical world and the physical objects within it.

Mental states like beliefs, passions, and desires don't *seem* physical, like how a tree or an infection is, but they do *cause* physical things, like retrieving water or participating in the Women's March. The idea here is if we know how the mental and the physical interact, we can get closer to solving the mind-body problem. Kim concludes in his book *Physicalism, or Something Near Enough,* that mental states are (for the most part) physical. This is for two main reasons. One, concurrent with a physicalist worldview, the physical domain is causally closed. (Kim *Philosophy of Mind* 214) Kim states this metaphysical principal as the "causal closure of the physical domain: if a physical event has a cause, then it has a physical cause." (Kim *Physicalism* 17). Causal closure is part of a physicalist view. It means that in searching for a cause of a physical event, one need not "look outside the physical domain" (Kim *Philosophy of Mind* 214), nothing non-physical can cause a physical event. The physical action of retrieving water *has* to have a physical cause. This doesn't in principal necessitate that there *aren't* non-physical things in the world, it just means the ones that are casually efficacious are. Therefore, if mental states are to be causally efficacious in the physical world (which they are), they *must* be physical. "…causally efficacious mental phenomena must be reducible to physical ones, and…given the closed character of the physical domain, any phenomenon that is causally linked with a physical phenomenon must itself be a physical phenomenon" (Kim *Physicalism* 88). The second reason Kim concludes that causally efficacious mental states are physical is due to the thesis of mind-body supervenience.

There are many versions of mind-body supervenience, but the essential premise is that the mental supervenes on the physical, meaning that physical indiscernibility entails mental indiscernibility, there can be no mental difference without a physical difference. (Kim *Philosophy of Mind* 9) This just means that changes in the mental coincide with changes in the physical, but not necessarily vice versa. This doesn't mean that mental events are the same as physical events per se, just that all mental events have a physical event basis. This is certainly intuitive, for there are many instances of physical changes resulting in mental changes; for example, taking drugs, undergoing a head injury, taking antidepressants, etc. Mind-Body supervenience states that for every mental event, there is a physical basis of it, i.e. mental events are only possible via physical events. Thus, mind-body supervenience demonstrates that every mental event is instantiated by a physical event and there is no mental change without physical change, and the principal of causal closure tells us that physical effects *only* have physical causes. Both of these premises lead to the conclusion that any mental efficaciousness is due to a physical basis for said mental event. (Kim, *Philosophy of Mind* 219)

Thus, a step towards understanding the role of the mental in the world is by concluding that there must be *something* physical about mental states, this thesis is called conditional reductionism. Even if mental states are not wholly physical, the aspect that is causally efficacious is. So theoretically, all causally efficacious mental states can be defined as physical states Defining a mental event in physical terms is to *reduce* it to the physical. To find what mental states are causally efficacious, Kim and Chalmers both employ a method of reduction called identity reduction, which necessities that things must be functionalized to be reduced to lower level processes.

Reduction

Scientific inquiry relies on reduction, or the practice of investigating and describing complex phenomena in terms of other phenomena that are thought to represent a simpler or more fundamental level, sufficiently explaining the original phenomena in question through more universal, general rules or processes. Behaviors can be reduced to biological processes, which can be reduced to chemical ones, which can then be reduced to mathematical sequences—the lowest level of physical reduction. Our investigation of mental causation demonstrates that if something is causally efficacious, it is physical; since mental states can be causally efficacious, they are physical. If mental states are physical, they are reducible. But how can we reduce mental phenomena?

According to Kim, a specific kind of reductionism is necessary to reduce the mental—identity reduction. In this model of reduction, in order for something to be reduced it must be functionalized. A "function" of something is its causal role in a system, as in, a function of something is the causes and effects it instantiates. In the previous sections, "easy problems" were defined as things that can be "explained by science", or can be objectively observed, described, and explained. If something can be objectively observed, described, and explained by science, it is functionalizable and reducible, so easy problems are defined as being something that is functionalizable and reducible. Kim details a physicalist theory of the mental of which depends on a functional conception of mental states.

Kim writes, **"**What then is required to reduce a mental property, say pain? I believe that what has to be done is, first, to *functionalize* pain (or, more precisely, the property of being in pain): namely, to show that being in pain is definable as being in a state (or instantiating a property) that is caused by certain inputs (i.e. tissue damage, trauma) and that in turn causes

certain behavioral and other outputs (i.e. characteristic pain behaviors, a sense of distress, a desire to be rid of it)." (Kim *Physicalism* 22). In other words, to functionalize a mental state, you must demonstrate that that mental state is definable in terms of being in a state that is *caused by* certain inputs and that in turn *causes* certain outputs. For example, the definition of cup is a functional definition: a container for drinking from. (Merriam-Webster) There is nothing to a cup other than its function. A cup *is* something that performs the function of a drinking vessel. Easy problems are like this, they are nothing more than their functional definition. For example, to functionalize the mental phenomenon of reportability "…is just to explain how a system could perform the function of producing reports on internal states." (Chalmers *Facing Up* 1) If we can find the functional role of a mental phenomenon, we have done most of the explanatory work—we have successfully explained the mental in physical terms, we have successfully reduced the mental to the physical. If this can be done, which it can be for many things, the next step is to establish the physical mechanism that performs the function, (Chalmers *Facing Up* 1) which is just to say we must find the underlying physical process that performs the function, which can then be defined though cognitive, neural, biological, mathematical, or otherwise physical representations. Moreover, because function implies causal efficaciousness, and only physical things are efficacious, even if the actual underlying physical mechanism for a mental state is unclear, as long as the *function* is clear, as long as it is reducible, then it can be assumed that there *is* an underlying physical mechanism.

Thus, if one can reduce the mental to its functional or causal roles, then one has successfully reduced the mental to the physical. The reason the hard problem of conscious experience is hard is because it cannot be functionalized, "…it is not a problem about the performance of functions. The problem [of conscious experience] persists even when the

performance of all the relevant functions is explained." (Chalmers *Facing Up* 1). The hard problem of qualia or subjective experience is different from easy, functional problems. "What makes the hard problem hard and almost unique is that it goes *beyond* problems about the performance of functions." (Chalmers *Facing Up* 2) It goes beyond functional analysis because even if one can fully explain the functions of a mental phenomenon, there remains the further question of why for this mental phenomenon its functions are "accompanied by experience". (Chalmers *Facing Up* 2). Recall the description of vision. Even when all the functions of photons, cones, rods, etc. are explained, there remains the unexplained, qualia. This is the same as Nagel's concern over the ability to objectively explain everything while leaving out subjective experience. The hard problem is hard because after all functional explanations of the mind have been made, there is still a further question about experience. Why does the function of a mental state *also* give rise to an experience? In Chalmers words, "Why doesn't all this information-processing go on "in the dark", free of any inner feel?" (Chalmers *Facing Up* 6) like how we imagine a seeing computer works. There are objective, physical, and reducible facts about a mental state, and then there are also qualitative, subjective, experiential facts—how do these relate, and why do qualia exist in the first place? "Experience may *arise* from the physical, but it is not *entailed* by the physical." (Chalmers *Facing Up* 12) Physical explanations do not *entail* experience because they are logically and functionally coherent without it, yet experience *does* exist. This is the contemporary explanatory gap. (Chalmers *Facing Up* 3)

So, why does conscious experience exist, and what is its role and origin in the causally closed physical system of the world? Through mind-body supervenience, the principal of causal closure, and identity reduction to explain mental causation, progress was made in the mind-body problem. Yet the hard problem of consciousness still remains. "We know that conscious

experience *does* arise when these functions are performed, but the very fact that it arises is the central mystery." (Chalmers *Facing Up* 2). Qualia has a unique and separate position in philosophical and scientific exploration because it cannot be functionalized and reduced to a more fundamental level—"there is an explanatory gap between functions and experience." (Chalmers *Facing Up* 6). Since it is theoretically possible that a super computer, or an AI version of myself could perform behaviors exactly like ours without experience, why does qualia exist at all?

To review, the problem of mental causation that confounds ontological physicalism is possibly solved for types of mental phenomena that can be functionally reduced, i.e. easy problems. This gets us closer to a unifying physicalist theory of the world encompassing the mind. But qualia are not functionally definable (either in principal or simply not yet), and hence the problem of mental causation is not solvable for experience, and an explanatory gap is exposed. "What stands in the way of solving the problem of mental causation is consciousness. And what stands in the way of solving the problem of consciousness is the impossibility of interpreting or defining it in terms of its causal relations to physical/biological properties." (Kim *Physicalism* 25).

A Single Natural Order

According to Kim, since it cannot be functionalized, qualia are epiphenomenal, meaning they are not causally efficacious on the physical world. For Kim, the question of agency and mental causation is the most important in the mind-body problem. In this quote he states his concluding position on the matter. (In the quote, the phrase "mental residue" refers to conscious experience/qualia.) "Can the antiphysicalist celebrate his victory? Hardly. For one thing, the

mental residue encompasses only qualitative states of consciousness, and does not touch the intentional/cognitive domain. And it is this domain that our cognition and agency are situated." (Kim *Physicalism* 93) As shown in this quote, for Kim, mental causation is what gives us agency, is the crux of figuring out if mental states are physical or not. So if that is sorted out, most of the important work has been done.

But *are* qualia causally efficacious? The sheer experience of things seems like it must have an effect. The fact that we are aware of and can report on qualitative aspects of mental states suggests causal efficaciousness, for it seems like, for example, the color quale experienced from different shades of blue paint effects which blue paint is chosen to paint your room. On a more basic level, the simple fact that we are aware of qualitative aspects of mental states suggests they have a causal purpose. If fact, Kim states that there *are* aspects of qualia that are efficacious, as some aspects of qualia are "…directly manifestable in behavior and therefore functionalizable." (Kim *Physicalism* 95) This is in their similarities and differences. To understand this point, imagine a person with an inverted optical color spectrum. To them, green looks like red, blue looks like orange, etc. At first this may seem like a big difference, but actually, two people with inverted optical color spectra would theoretically exhibit the same discriminative behavior. (Kim *Physicalism* 95) This means that even though to someone with an inverted optical color spectrum red "looks like" green, they would still call it "red", and stop when they see it at a traffic light. What matters for function isn't the intrinsic qualitative aspects of colors, but the differences and similarities between them. We cannot know *what* quale is being experienced when someone other than ourselves looks at a ripe orange, but we can know that it is different from what color quale a spinach leaf produces, and that it is similar to a carrot's. "…the intrinsic qualities associated with qualia are, or may be, undetectable, but difference and

similarities between qualia, within a single individual, are behaviorally detectable, and this opens a way for their behavioral functionalization." (Kim *Physicalism* 96) Similar to how it is plausible there that there is an AI clone of myself exhibiting the *exact* same behaviors as myself without experience, it is also possible that someone with completely different qualia from me exhibits the exact same behaviors—thus it is concluded that because the intrinsic qualities of qualia do not have an effect on behavior, they do not have a function and are therefore epiphenomenal. Kim states that because qualia similarities and differences can be functionalizable, perhaps qualia as a whole will eventually be reducible, and our physicalist world view is kept intact.

Chalmers, on the other hand, thinks that reductionist methods will *always* fail in the face of explaining experience. He writes, "To explain experience, we need a new approach. The usual explanatory methods of cognitive science and neuroscience do not suffice. These methods have been developed precisely to explain the performance of cognitive functions, and they do a good job of it. But as these methods stand, they are only equipped to explain the performance of functions. When it comes to the hard problem, the standard approach has nothing to say." (Chalmers *Facing Up* 6). According to Chalmers, the reason reduction does not work to explain experience is because the question of experience is not about the performance of functions. He contends that although it is tempting to think that consciousness will eventually be explained by science, as other natural mysteries have (like gravity), conscious experience resists any sort of reductionistic scientific approach. The questions of past natural mysteries were "about the observable behavior in physical objects, coming down to problems in the explanation of structures and functions." (Chalmers *Facing Up* 13). The problem of experience goes above and beyond function. The problem is the *conceptual* point that the explanation of functions is not enough to explain experience because it is "conceptually coherent that any given process could

exist without experience." (Chalmers *Facing Up* 13) Functional explanations of the mind will still beg the question of experience.

Chalmers concludes that since experience is irreducible to current physical laws, it might simply be a fundamental element of the universe, alongside the fundamental physical elements of mass, charge, and space-time. Granted, simply stating the experience is fundamental doesn't help explain *why* experience exists—but Chalmers responds to this by saying that we also don't know "why" there is matter, electrical charge, or time in the first place either. "Certain features of the world need to be taken as fundamental by any scientific theory." (Chalmers *Facing Up* 15) There are many theories that posit the mental as being a fundamental element of the universe, and it is most robustly explored in panpsychism, "the thesis that some fundamental physical entities have mental states" (Chalmers *Panpsychism* 1) Panpsychism is an interesting candidate for the hard problem, but it comes with a great number of problems on its own, those of which are beyond the scope of this paper. What matters is that Chalmers' conclusion of the hard problem is that experience must be a fundamental part of the universe, inherently different from other, reducible elements.

The conclusion that experience is simply an irreducible, fundamental element does not go far enough for Nagel. He thinks that the failure of reductionism for subjective experience speaks to a far larger issue with our entire understanding of science and the universe as a whole. On the other hand, for Kim, just deeming qualia as epiphenomenal is a good place to wrap up. Although conceding that there is still much work to do in all areas of investigation, Kim states that the existence of qualia is simply a "mopping-up operation". (Kim *Physicalism* 96) At this point I agree with Nagel and not Kim. Specifically I think that in the list of issues that Kim thinks require more work, two stand out as to why: 1) "…whether qualia epiphenomenalism is

consistent with the assumed fact that the subject of experiences is cognitively aware of them and is able to make reports about them…", and 2) "…whether it is possible to combine qualia epiphenomenalism with full causal efficacy of qualia similarities and differences." (Kim *Physicalism* 96) It seems that the things we can call efficacious are only possible *because* of the existence of qualia, so how can they both be the reason why efficacious mental states exist, and also be casually impotent? Kim states the gravity of these issues when he writes, "Why are there such things as qualia? Because we need them as place markers; without them there can be no qualia similarities and differences. Without content, there can be no form, no structure…why are there just *these* qualia and not possible other ones?" (Kim *Physicalism* 96) The fact that there cannot be form without content, there cannot be similarities and differences between qualia without qualia itself, presents to me a conflict that undermines Kim's conclusion that qualia are epiphenomenal. Thomas Nagel thinks that the existence of qualia is not an extraneous aspect of the mind, but in fact so fundamentally central it undermines our entire understanding of the physical world.

Nagel frames his position on the mind-body problem in the context of our entire understanding of the physical world and natural order. He states: "We and other creatures with mental lives are organisms, and our mental capacities apparently depend on our physical constitution. So what explains the existence of organisms like us must also explain the existence of mind. But if the mental is not itself merely physical, it cannot be fully explained by physical science. And then…it is difficult to avoid the conclusion that those aspects of our physical constitution that bring with them the mental cannot be fully explained by physical science either."(Nagel *Mind and Cosmos* 14) Essentially, he is stating that since physical processes occur with qualia and since qualia cannot be explained, perhaps the explanations of the physical

processes are incorrect. The possibility of a physicalist theory successfully explaining the natural order of the world is doubtful when considering that anything that explains the existence of physical life must *also* explain the existence of the mind. As we saw through Kim's investigation, reductionism fails for qualia. But if reduction is a necessary component of the physical sciences, and if science it is to explain *all* of the natural world—it *must* be able to explain qualia. If qualia can't be reduced, it means our physicalist, reductionist scientific methods are flawed, and we must question every other piece of knowledge it produced.

The reason why *everything* our reductionist project discovered must be questioned (not assumed as false, just questioned) is because of the assumption of world intelligibility previously mentioned. Assumed in Nagel's view is that the world is "intelligible", which means that the world is not only describable but also understandable. (Nagel *Mind and Cosmos* 16) In this excerpt he explains the intelligibility that he is assuming in his analysis of consciousness: "…first, an assumption that certain things are so remarkable that they have to be explained as nonaccidental if we are to pretend to a real understanding of the world; second, the ideal of discovering a single natural order that unifies everything on the basis of a set of common elements and principles—an ideal toward which the inevitably very incomplete forms of our actual understanding should nevertheless aspire." (Nagel *Mind and Cosmos* 7) In the first part of this quote, Nagel is rejecting the idea that qualia are "epiphenomenal", that they are merely an extra "accident" of nature, because of how essential they are. In the second part he is explaining how a goal of a "single natural order" that explains everything should be part of scientific inquiry. In other words, if we believe the world is intelligible, we believe that for everything we observe and describe, we should be able to find a reasonable explanation for why it exists and how it relates to everything else.

Like Nagel says, this is not an unrealistic assumption in the slightest—for it seems that every scientific discovery was in part possible because of the belief that seemingly arbitrary things can be made coherent in relation to the rest of the world—the belief that the way things are makes sense. With this in mind, the hard problem and the explanatory gap between reducible states and irreducible qualia is much more serious. The physical sciences have provided us with fundamental elements and physical laws that are thought to explain everything in the material world, but something more is needed to also explain how these same elements and laws can also explain the existence of conscious beings. (Nagel *Mind and Cosmos* 20) Thus we are left at a crossroads. Either qualia will be *eventually* explained through reductionist physical science, we just haven't gotten there yet (and our in principal reasons for believing it can't are just false), or qualia cannot *in principal* be explained by reductionist physical science, and therefore the physical sciences are insufficient for understanding the entire world, and there must be something else equally as true and valid as physical science which can be combined with it that can help explain it.

There are *facts* about existence (qualitative facts) that are just left out of scientific theories of the natural world, and this seems unacceptable given the fundamental nature of these facts. We cannot have *form* without *content.* It is important to consider that maybe we cannot have the concepts of "red" and "green" without the *experience* of red and green first; that identical human behavior in say, a robot, is actually an impossibility without qualia. "The intelligibility of the world is no accident. Mind, in this view, is doubly related to the natural order. Nature is such as to give rise to conscious beings with minds; and it is such as to be comprehensible to such beings. Ultimately, therefore, such beings should be comprehensible to themselves. And these are fundamental features of the universe, not byproducts of contingent

developments whose true explanation is given in terms that do not make reference to mind." (Nagel *Mind and Cosmos* 17) For Nagel the main problem with physicalist accounts of the world is that the subjectivity that *allows* us to discover external scientific truths is the very thing that is incoherent within our web of objective, physical facts.

Nagel's stance on conscious experience differs from Kim's, and this is partly because Nagel has a different conception of "qualia", although similar. For Nagel, the "explanatory gap" as it were, is between subjective and objective facts and points of view. From this perspective, qualia are the building blocks of subjective experience. Not merely a side effect of mentality, they are the foundational elements of what conscious experience is made of. "What has to be explained is not just the lacing of organic life with a tincture of qualia but the coming into existence of subjective individual points of view—a type of existence logically distinct from anything describable by the physical sciences alone." (Nagel *Mind and Cosmos* 44) Nagel claims that the concept of "qualia" is actually much bigger and encompassing than it is characterized by some (for example, in Kim's account). We are not asking why there is this extra sprinkle of qualia, or simply why functions give rise to experience; we are asking the much broader question of why there is a subjective point of view at all.

"The physical sciences can describe organisms like ourselves as parts of the objective spatio-temporal order – our structure and behavior in space and time – but they cannot describe the subjective experiences of such organisms or how the world appears to their different particular points of view." (Nagel *The Core* 1) Objective spatio-temporal order is everything that is objective and describable by the physical sciences and hence things that adhere to laws of physics. But in addition to this there is a subjective point of view that is that is not describable by physical laws, seemingly not "in space", and not objectively observable—yet is a necessary

aspect of our physical existence. Nagel believes that objective/subjective problem is so difficult and different enough from other questions about the natural world "that we should be suspicious of attempts to solve it with the concepts and methods developed to account for very different kinds of things." (Nagel *Mind and Cosmos* 42) He thinks that we should expect a "major conceptual revolution at least as radical as… the original scientific revolution itself…We ourselves are large-scale, complex instances of something both objectively physical from outside and subjectively mental from inside." (Nagel *Mind and Cosmos* 42). He believes that to understand conscious experience and subjectivity there needs to be a major conceptual shift, one that synthesizes the objective and the subject.

What Nagel offers in the face of the failure of physicalism is the possibility of a different conception of the universe and its natural order entirely. He believes that a reconception of the physical world is necessary if we are ever to figure out how the mind came into existence. Throughout his book *Mind and Cosmos*, he entertains many ideas that the majority of scientists would brush off as fiction, namely theological or religious explanations of consciousness. He also entertains the possibility that humans are just intrinsically cognitively unable to understand the existence of experience. In the conclusion section of *Mind and Cosmos,* he writes, "Above all, I would like to extend the boundaries of what is not regarded as unthinkable, in light of how little we really understand about the world." (Nagel *Mind and Cosmos* 127).

Maybe part of our boundary-extending conceptual revolution is a changed understanding of the concept "physical". Perhaps the problem in our current world view is we don't know what we actually mean when we use the word "physical" and "non-physical". Philosopher Barbara Montero calls this *The Body Problem.* She stipulates that the reason the mind-body problem is such a hard problem is because we don't have a clear definition of what 'physical' even is, much

less ‘mental’. “…it seems that in order to solve the mind-body problem, we must solve the body problem.” (Montero 183)

The biggest contender for what we mean by “physical” is that things that are physical are things that are in accordance with the laws of physics. Something is physical if it is made out of the physical particles (protons, electrons, neutrons) that have been observed scientifically and recorded as a part of natural physical laws. “In its simplest form, the physical is said to be whatever the physicist, or more precisely, the particle physicist, tells us exists ~what we might now think of as quarks and leptons, as well as the exchange particles, gluons, gravitons, etc... And the nonphysical is everything else, if there is anything else.” (Montero 187) This makes sense at first. But consider the fact that our laws of physics are most likely false, as science is always making progress and laws are always changing to fit this progress, like how the scientific world underwent a massive theoretical shift when electromagnetism was discovered. If a new particle was discovered tomorrow, physicists would still call it “physical” even though it is not technically ‘a part of’ the current laws of physics. If an entirely new particle was observed and measured, physicists would surely just expand their physical laws and hence the definition of physical. “…it is not today’s physics upon which we are to base our notion of the physical, but, rather, a completed physics, a physics in the end.” (Montero 191)

But since we don’t know what the “physics in the end” is, we are left with a very unsatisfying notion of the physical. If we think that the goal of physics and other science is to create a cohesive explanation of reality, which as previously stated, it is or it should be, we will take the “physics in the end” to be a theory that can explain everything and anything in the universe. If a physics at the end it explains everything, then seems that *any*thing that does or

could exist is physical. But if everything that exists or could exist is physical, then the fact that conscious experience is physical is a trivial fact, not worth the thousands of papers on the topic.

In Kim's in *Physicalism or Something Near Enough,* he defines "contemporary physicalism" as "the idea that all things that exist in this world are bits of matter and structure aggregated our of bits of matter, all behaving in accordance with the laws of physics, and that any phenomenon of the world can be physically explained if it can be explained at all." (Kim *Physicalism* 86) For our present topic, key here is the last part of this quote: "any phenomenon of the world can be physically explained if it can be explained at all." Here Kim seems to be essentially saying that anything that is explainable is physical. If we believe the world to be intelligible, which Nagel argued we must in order to discover anything about it, then we can assume that everything in the world *is* explainable. So, we are again left with a definition of physical by which something is as physical if it exists in reality.

The reason Chalmers comes to the conclusion that physicalism is very likely false and that experience is fundamental in nature is because he makes a strong delineation between what things are physical and not. From Chalmers perspective, something is physical if it is a part of physics, and to him physics is "the study of structure and dynamics" (Montero 193). But like previously states, because conscious experience has intrinsic qualities, it is something *more* than an explanation of structure (or function), therefore it can't be physical (with "physical" referring directly to the study of physics). The position that consciousness is a fundamental part of reality, but not made up of the current physical laws according to physics (laws that have to do with matter and energy), Chalmers calls "naturalistic dualism" (Chalmers *Facing Up* 15). He writes "The fundamental laws of nature are part of the basic furniture of the world, and physical theories are telling us that this basic furniture is remarkably simple. If a theory of consciousness

also involves fundamental principles, then we should expect the same. The principles of simplicity, elegance, and even beauty that drive physicists' search for a fundamental theory will also apply to a theory of consciousness." (Chalmers *Facing Up* 15) In this quote, the overall goals and principals of a "theory of consciousness" are the same as current theories in physics—figuring out the "basic furniture of the world". If a theory of consciousness was developed and discoveries were made, I think the scientific world would, as it has done thousands of times, just expand the definition of what "physical" is to encompass the theory of consciousness. As such, even if completely different from anything we saw before, consciousness would be deemed "physical". And as we learned from Nagel, ontologically separating theories of consciousness from physical theories is incorrect because our consciousness is dependent on our physical makeup, so anything that explains our body and brain must also explain our consciousness, and the two cannot be separated.

The reason Nagel argues against physicalism is also because of his specific delineation of what is physical and not physical. For Nagel what is physical are things that are observable and have a location in objective space-time. Subjective experience, on the other hand, does not seem to have a location in space, and is not objectively observable, therefore it does not fall under the category of "physical" things. The contention here is very similar to Chalmers: Physics studies things that are observable in space-time, and since conscious experience is not objectively observable in space, it does not adhere to physical laws, and therefore is not physical. But *if* the world *is* intelligible, then we *will* find some way to explain subjective experience, eventually. And when we do, I believe that we will probably call it "physical".

If something is physical, it is scientifically observable, which means it is measurable. When something is measurable, it is quantifiable. All of our current scientific methods of

measurement are based on the collection of quantifiable data. “But in spite of the great accomplishments of the natural sciences in their present form, it is important both for science itself and for philosophy to ask how much of what there is the physical sciences can render intelligible—how much of the world’s intelligibility consists in its subsumability under universal, mathematically formulable laws governing the spatiotemporal order. If there are limits to the reach of science in this form, are there other forms of understanding that can render intelligible what physical science does not explain?” (Nagel *Mind and Cosmos* 18) Experience is not quantifiable, so we cannot use our usual methods of scientific investigation to explain it, which is why so many conclude that experience isn’t physical. As Chalmers says, “When it comes to the hard problem, the standard approach has nothing to say.” (Chalmers *Facing Up* 6)

But we will probably learn new ways of observing reality, acquire new methods of measurement and data collection that will allow us to explain consciousness—we just have to figure out what those new methods are. Perhaps these new methods won’t even be called “measuring” at all, but something else entirely. Granted, inventing new consciousness data collecting methods will be *vastly* different from those of the past, as all current scientific data-collecting methods deal with quantifiable data. This is why Nagel thinks we need a *huge* shift in our perspective of reality, and I predict that this shift will involve integrating non-mainstream and mainstream ways of thinking and learning. For example, an integration of theistic ontological theories and atheistic ones, or possibly a new perspective on what knowledge can be gained from mystical or spiritual experiences. I believe that we will eventually explain consciousness by way of a radical shift in our collective world-view, and even if it isn’t made of our current conception of matter, we will still call it “physical”.

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