

The Death and Rebirth of Physicalism

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Abstract

This research investigates prominent philosophies of mind, juxtaposes them in an arbitrary fashion, and interprets them to see if we can find any analytical reconciliation between them. Our epistemological inquiry in this paper, will not be confined to mere metaphysical deliberation alone, but will concordantly make use of contemporary terminology from philosophy, psychology, physics, and quantum mechanics. Such is the nature of this fundamental query, that we find it highly necessary to revitalise the discourse regarding the basis for a broad spectrum of foundational application and articulation of contemporary scientific language. This paper does not necessarily serve the function of being a simple introduction to these theories. Rather, we might take isolated examples from esteemed thinkers and scientists, who previously have elaborated on these theories, to illustrate the points we find most relevant to our own analysis. This short paper is thus, not a rigorous attempt to arrive at some ultimate philosophy or theory of mind, but it's rather an exposition of the most controversial ideas within the discourse. Our own research on these topics, might hopefully give rise to a higher level of objectivity on the matters at hand.

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Preface

The human body is a magnificent machine, one which gives access to external information, through a myriad of complex functions by way of our senses, working in tandem with our introspective sense of individual cognition. The processing of such data occurs at a swift pace, wherein the body on its own biological accord, intervenes as a delaying mechanism, making sense of the dynamic and everchanging external outside world. Accordingly, as this information is filtered by our conscious mind, it yields us a subjective and almost instantaneous experience, one which we saliently identify as the mind-body connection.

Our brain in general neuroscientific terminology of habituation, is viewed to be an operational non-associative learning mechanism, an innate non-reinforced response modality to external stimulus. Thus, it makes sense of external phenomenon, disregarding stimulus which it deems as unnecessary as it diminishes innate responses to repeated stimulus.

This aspect of our cognition is intriguingly very similar to the *Illusory truth effect*, as it is a psychological phenomenon, wherein humans have the tendency to believe false information as factually correct when confronted with repeated exposure.

Additionally, to our complex conscious processing of external and internal stimulus, our subconsciousness is viewed to play the role of a limiting factor toward our focal awareness, contributing its function as a sub-level storage for our knowledge and experiences. This highly complex, and unconscious, cognitive processing, seemingly affects our behaviour, cognition, and feelings to a large extent, this remains, a scientifically poorly understood feature of our brains.

Hence, we seek to inquire philosophically; the overarching meta-modalities of neural and psychological mechanisms, which uphold the binary interactional aspects of simultaneous conscious and unconscious experiences.

Towards this aim, it is prudent that we clarify our terminological jargon, as to not further complicate the matters at hand unnecessarily.

Philosophy of Mind; studies the philosophical aspects of a possible ontological source and intrinsic nature of the mind and its relationship with the body.

Theory of Mind; studies the psychological mental capacities of people and their inherent ability of understanding human inter-relational behavior by application of mental states as differing from one's own states of mind.

As such, the distinction is clearly made, to further enable us to focus our inquiry primarily based on the aspects of query related to the questions of *Philosophy of Mind*. Whereas concordantly, we will to less degree of freedom, deal with the psychological traits of convergence between conscious impulses as thoughts, or perception, and their ascension from the unconscious mind into awareness conversely. Henceforth, our aim is not to create complete analogues for processes which inhibit the flow of awareness of internal information from the unconscious mind into awareness. Such psychological phenomenon encapsulates a wide range of neurological functional and internal involitional acts such as: repression, suppression, and disassociation, these also sadly yet not fully mapped out in neuroscience and psychoanalysis.

Historical Background

During the scientific developments of the past 200 years, we see how descriptions of the nature of the mind, has come to rest firmly on the foundation of a materialistic worldview. *Classical Physics* has yielded a highly productive reductionistic and deterministic proclamation, regarding the inner workings of nature and natural experienced phenomena. These natural laws are viewed as being without reason or purpose, absent is any trace of contemporary teleological critical thinking regarding evolutionary development of the human mind and it's amazing yet mysterious qualities. Nature is then understood absolutely in terms of clockwork mechanical configurations, whereas interpretations of relations between material and immaterial objects, has become a mere playing field of mindless laws acting their influence on ambiguous and random frameworks of physics, chemistry, biology and finally our psychology. Despite our best scientific efforts and measurements, by way of highly technical apparatus, any other conclusive empirical results other than ambiguous evidence for materialism has not been found in any experimental research.

Hence our current nonsensical scientific foundations remain ambivalent, towards any philosophical attempts which even try, to convene, that there may be more than only physical phenomena which naturally might be able to influence other physical phenomena either continually or in a discrete manner. Clearly such assumptions are themselves metaphysical claims, made on a rather underserved burdens of proof which disregards the need for clarification of an absolute ontology of observation, verification, and possible way of perceptual falsification. Concealingly the issue and failures of scientific materialism, and its dogmatic promotion, has historically potentially done more harm than good to the human mind. Hence, questions of the immaterial mind, have thoroughly been ridiculed and criticized within the physics community at large. Ironically, the same materialist paradigm, has during the 19th century been met with its own metaphysical conundrums with the advent of *Quantum Mechanics*. Notwithstanding, such developments have had zero effect on the materialistic status quo of neuroscientific reductionist position on the *Mind-Body Problem*. Thus, the playing field of mindless laws, has turned into a desolate battlefield of competing minds for epistemic legitimacy. Herein, the success of scientific materialism, has thoroughly given credence and authority to the emancipation of psychology and development of *Behaviourism*. It has as a function of cognizant feature of learning, eloquently been ascribed in its full range to the external environmental conditioning of internal mind. As such, all our actions have been adequately reduced to mere reflexive features in response to external stimulus.

Dualism and Material Physicalism

Dualism can be applied in a variety of ways to describe a multitude of phenomena. Yet if we were to focus on a particular use of the word, which is of interest for our intended inquiry, we can say that dualism; is the belief that not everything in the universe is completely physical (or can be reduced to physical causation) thus our consciousness and our various mental states, are an example of this presumption. This is the common description given when talking about mind-body dualism. The ontological argument for dualists follows as such: There are specific human phenomena, such that can never be explained through physical causation alone or by simply using a material lens of analysis. Therefore, we can assume; that these abstract phenomena point to the fact; that the human mind operates outside or even independent of the physical realm.

Consequently, such instances of operations of our mind, cannot be fundamentally grasped by itself.

To illustrate even further, we can think of: *The knowledge argument*, or better known as “Mary’s room” thought experiment, proposed by Frank Jackson in 1982:

Mary is a girl who has lived all her life in a monochromatic room, devoid of any colours whatsoever. Mary has during this time, been given all sorts of books and informational materials that describe colour in detail, and she has with time become an excellent neuroscientist. She knows what colour is, how people describe it, she comprehends how electromagnetic waves give rise to the spectrum of light and is aware of all possible theoretical knowledge there is to be known about colour. The dualists would now argue; that when Mary steps outside for the very first time in her life, and sees colour for the first time, she will understand something about the nature of objects and colours that in fact transcends all the previous information she attained about such objects through cognitive learning alone. This is called: *Qualia*. Qualia, escapes language and can never be truly grasped by human imagination or via physical causation. Qualia then is the ultimate proof of a dualist’s viewpoint regarding the nature of immateriality of the human mind. If everything indeed was only physical, the mere information and descriptions of colour, should by necessity suffice to grasp the phenomena itself.

On the other hand, we have *Material Physicalism* or simply materialism. *Materialism*, has been the orthodox view, dominating the discourse on the philosophy of mind for centuries. Its roots can be traced further back to Aristotle’s conceptualization of *Realism*, as opposed to the *Idealism* of Plato, but the major shift can be seen during the period Age of Enlightenment in Europe during the 17th and 18th century. The enlightenment was an intellectual period, wherein obsession with hyper objectivity and analytical reasoning set the academic agenda. The tenets of *Positivism* brought about an epistemic paradigm shift, leaving no space for what could be considered anti-science. Thus, any explanations of natural phenomena, that could be deemed to be “immaterial”, were immediately contradicted. After all, what does it mean for something to exist, if it doesn’t materially occupy some location in space and in time?

Hence dualists were pushed out, exclusively into the realms of metaphysics, and their ontological position was reduced to making mostly unprovable claims about the relation of human abstract mind to the physical body.

Now obviously, materialism too, is a metaphysical thesis, but it has been so pervasive on the discourse of epistemology, that we tend not to view it as such. Rather we tend to take it at face value, as an objective scientific argument, and fact of nature.

These two theoretical viewpoints have been in constant conflict with one another. The battle commenced earnestly with dualists like René Descartes, winning ground, only later to be overturned by deterministic thinkers like Baruch Spinoza who upheld rationality out of necessity for materialism, hence he saw this as being the driving force in the development of classical physics. *Classical Physics* on this ground, promises us absolute and objective knowledge. For a moment during our scientific development, it seemed, that if we only knew the velocity and location of all particles in the universe, we would also be able to predict all concurrent events in the future. This idea is fairly coined in the term “Laplace’s demon”, it stands as a philosophical and non-mathematical articulation of causal determinism, resting mainly on *The Principle of Sufficient Reason*, therein invoked by Pierre-Simon Laplace in 1814, as the ground for justification of a mechanistic and predictable universe, carrying within it, both a cause and reason for its physical existence. There was as such, nothing left to be discovered. The idea of an immaterial mind became obsolete.

Transformation of Classical Physics

Everything would again come to change with the advent of Quantum Mechanics in the early 20th century. Quantum Mechanics seemed to turn on its head a lot of assumptions, that we had previously made about the world, including the very concept of physicality itself. After all, the scientific method had before then, been unable to successfully identify; that seemingly all “physical” particles, could literally materialise out of the empty vacuum field, given enough energy and time. This fact is now known to be a function of nature itself, and not merely a mathematical thesis.

Thus, according to the *Uncertainty Principle*, which was articulated by Werner Heisenberg in 1927, states accordingly: that the exact position and the velocity of a particle, cannot both simultaneously be measured exactly. The same rule also applies to the amount of energy in a specific region of space, in any given timeframe.

Together these two aspects of reality, seemingly yield us the potentiality and probability of physical objects, to appear and disappear out of reality, for no apparent reason, other than the principle itself.

One of the biggest challenges to dualists has been this obstacle; how could the material body, affect the immaterial mind, or vice versa? Because if there in fact is no formal mode of communication, between the two realms of the tangible and intangible worlds of physical and non-physical aspects of reality itself, we'd have to deny the entirety of human sensations as being "real". Descartes was unable to lay out a good answer. Enter on the stage Nicolas Malebranche, with his 18th century *Occasionalism*, which completely denied that mental causation takes place, and rather blamed God for being the agent of all mental causations, with the human mind as a mere "occasion" for abstract divine intervention in the physical and definitive world.

Spinoza's *Double-aspect theory*, taking the form of a mind-body monism at earlier times, had also felt as an incomplete and rushed proposition, setting up a sort of equivalence between the physical and mental, as both being the ground of description of the only one substance. His stance then was of comprising two aspects, or "modes" of the same infinite aspect of the absolute substance, therein likewise identified as being God. These resolutions, tried to come an agreement, whereas causation of the physical through the mental, was attributed to external metaphysical realms. Such interpretations of separation, between the physical and abstract, could very well be described by adjusting our assumptions to accommodate for a mind-body communication by analogy of the inner workings of the body, towards any possible external influence, thus acting volitionally through the awareness of the introspection of the mind. We later indeed find extrapolations of such explanations, as proposed by William James at the turn of 19th century; wherein the physical brain is seen to be a mere vessel, a form of transducing medium, acting on par with an antenna receiving and transforming external impulses or signals into perceptual experiences.

Simply said, following the premise of our senses, which for instance convert sound waves from our ears to electrical currents in our brain and further yield the perception of sounds, or how light through electromagnetism gives rise to our vision through our eyes, could be proclaimed to be evidence of our physical brains transducing consciousness, rather than giving rise to it.

Such conclusions of course, would not only quickly diminish the existence of our free will, but also factually induce a strengthening of the foundation upon which a deterministic theory of physicality of the Universe can safely rest undisturbed. The myriad of questions such a conclusion would bring about, is unimaginable. What kind of content consist in the transmission if our brain is merely a receiver? Who or what is sending that information? Are all our senses truly oblivious to these hidden messages?

Regardless of what may or may not be communicated, between the transcendent and physical realms, or by what or whom, for dualists, the inception and implications of *Quantum Theory*, seemingly has given them new invigorated feelings of theoretical entitlement, and many possible new paths for revitalized efforts when attempting to redefine the existence of a formalized *Modus operandi* between the mind and the body. With these developments on a sound empirical ground, the academic discussion of anti-physicalism was reopened, and the dualists have thoroughly begun to argue their case more confidently.

A priori Justification of Mind

Andrea Lavazza, at Centro Universitario Internazionale, writing on his "Problems of physicalism regarding the mind" argues; that if all our brain functions arise from material causes, that are determined through blind evolutionary lines, that would imply that even our logical laws are contingent.

This obviously contradicts the orthodox model of language developed by Gottlob Frege in early 20th century. For him, the notion that logical laws are transcendental, and that our thoughts or ideography, are subjective instances of our logical interaction with these objective laws is a given. Therefore, for any logical assertion to make sense, we must assume that there must be a transcendental and immaterial mind, before making such judgements. However, this would imply; that the human immaterial mind, as an agent, has a definite and unchangeable final form, even in the transcendental realm.

This is perhaps not untrue, as we have seen that science has documented that our consciousness has been evolving throughout hundreds of thousands of years. A division, of such unchanging development of universal laws of ontology, would raise concerns on the nature of truth statements, and on the nature of such functions, of division itself.

Another response is that the logical laws might be objective and ever-changing, so it's also evolutionary necessary for us to evolve our brains, only in a very particular way that can interpret these objective laws correctly, through time, increasingly and sufficiently, to be able to "catch up" with the final form of those laws, or else we would be extinct from the onset of life. A dualists response to this would be, that the treatment of logical laws is itself a form of Platonic idealism, that necessarily reinforces a dualist position.

Even though materialism is, and probably will remain the orthodox view, the dualist counterarguments don't seem to go away. We want to propose; in the old fashion, after the work of Ludwig Wittgenstein in middle of 20th century, that the reason for this conundrum, is because this remains fundamentally a linguistic problem, not an actual problem which can be resolved by application of the scientific method. Hence the concept of physicality itself, seems to us not to be very well defined, taking all possible aspects into consideration after all is said and done!

What does it really mean for something to be physical or material? Does it mean that something must exist in space and in time? Should the position and temporality of elementary particles dictate or constrain our mind's ability to predict the future of any instances of unfolding reality? Why do we feel obliged to comprehend such determining laws of nature through our logical and mathematical conceptions? Just because we can, is not a sufficient answer. The question serves as a controversial scientific dilemma, whereas the burden of proof seemingly falls on a collective effort our minds, rather than on any particularity of personhood. As we have noted, the early 20th century brought about seismic changes in natural sciences, albeit this advance sadly and recognizably, left the humanities and social sciences lagging far behind in their measure of academic success.

Thus, the notion of scientific predictability, was solely attributed to the foundations of mathematics and logic firmly underpinning the great advance of natural sciences in reshaping all that we see and can touch. On this point, we will not deal with reinforcement learning, as to what inflictions we feel. As these immutable laws of science have ravaged our minds, the issue of their intrinsic epistemic nature, has to a large extent unquestionably been approved of.

Thus, as scientific discoveries, being seen as a priori knowledge; objective truths that proceeded any theoretical deductions which humans imposed on nature, through either observation or experience of phenomenon, we are collectively left bewildered to its authority in changing our world, for better or worse.

Intriguingly, these same conclusions of certainty, of our rationality projected on our observations and data, have with the advent of Quantum Mechanics only further exuberated our descent into the subjective abyss of uncertainty, utterly impeding our predictive abilities. The greatest turning point in physics, we ascribe to Max Planck in 1900, who postulated; that the energy of light is proportional to its frequency, denoted by *Planck's constant* h in the equation $E=hf$. With this work, the quantization of reality was firmly set as the front stage upon which Albert Einstein in 1905 took it upon himself, to identify the photoelectric effect. He discovered that light exists in discrete quanta of electromagnetic energy, what we today call photons. As such, these giants of science, transmuted the Universe at large, from a continuous reality down towards discrete bits of energy, transforming endlessly from energy to mass and vice versa. The splendour of such advances of the human mind, were undoubtedly wholly attributed to the immaterial laws of mathematics and logic. Our minds eye, and our superior ability to imagine and elucidate the unseen, and predict the unknown, and all our intangible traits of nature, had now at last been crowned as the pinnacle of creation itself, yet as always honour falls to one mind, not a collective of minds.

Consistency of Language

The dualists might be right regarding the contingency of our mind, in relation to observables and our experience of the physical world, but a dualist position doesn't have to follow logically. The quantum theory, of the microscopic reality, uses a radically different logic when we compare it with our macroscopic world.

The rational explanation follows as such; the macroscopic world, follows the laws of classical physics, therein reality is continuous and dividable.

This implies; that we can always reduce any of its parts to even smaller constituent parts. Before humanity embarked into the reality of quantum theory, this was the status quo of our description of reality. Yet, when we attempt to apply our traditional rules of logic to the quantum world, we end up with paradoxes.

The fabric of reality and consequently of our mind, doesn't seem to uphold our classical physical notions of physical continuity, i.e., our mind feels as if it is "physically disconnected" from its surroundings. Again, this is not to say that dualists are right however, but rather that the entire discourse is built upon misunderstandings and linguistic confusion, about the discrete nature of reality itself, and that there wouldn't be a debate at all if we were to better define our interdisciplinary terminology regarding the whole or parts of the mind.

Quantum Mechanics is exactly that, it redefines our language, and deduces from consistent approximations the innermost fundamental distinguishable parts of reality. Thus, despite controversy among various prominent interpretations of QM, they all remain consistent with the main all-encompassing equation which lies at the core of quantum theory. Hence, as we try to understand this formalism developed by Erwin Schrödinger in 1928, the task that lies ahead of us, is to fully try to comprehend what it really means. To even try, to describe reality and all quantum systems, through the evolution over space and continuous time of an abstract mathematical *Wave Function* ψ (psi), most of us, if not all, quickly fall prey to the savage beast of scientific elitism. Hence, our own level of competence, demarcates our ability of language, to successfully envelop a justified interdisciplinary effort towards this goal as we utterly fail in the attempt to bring equity to the field of humanities.

Needless to say; despite the success of interpretations of the wave function, in its description of the ultimate nature of reality, no adequate understanding has been reached that justifies our predictive abilities by simply measuring of reality with an equation, which itself may not be real. Throughout this entire discourse, the very concept of physicality then seems to be taken for granted by many authors on bare faith alone, in the discoveries of other disciplines, and rarely anyone, attempts a unified definition.

Notwithstanding the lack of such efforts, it does not justify a defeatist approach towards an objective Philosophy of Mind. Thus, by clarifying this misconception of language, we concordantly return, to what can and cannot be determined. As it follows from the Schrodinger equation, which is deterministic in its predictability of a quantum system.

In spite, of the observable macroscopic features of the world, consisting of quantum systems, those systems themselves are rather ironically non-deterministic. Here we come to reach the fullness of controversy, between Classical Physics and Quantum Mechanics, either our scientific predictive abilities are consistent with nature, or they are not. If then the Universe, in its overall essence, deterministic, then the implication follows; that the initial parameters that gave rise to what is physical, also gave rise to our minds. Convergently on the same initial values, if on the other hand, the Universe came into physical being by random chance alone, then all physical and non-physical features within it, must also be interpreted to be purely probabilistic (stochastic), including our minds. Such random initial circumstances, if true, by all intent and purpose, could lead to a wide range of potential actualized outcomes, diverging even the nature of our minds far away from any physical initial conditions of reality.

Thus, if we were to try and come up with a definition of the mind, we either would end up with some obsolete 18th century classical definition, or we'd have to expand the definition to such a vast degree, that even encompassing self-referencing contradictions would seem to be a necessary as to demand for instance the incorporation of *Dialethesim* in our logic. This then, is the very definition of nondualism, which would allow us to accept even contradictory statements which are both true and false.

Fruitlessness of Words

Hence, the reason why the task of defining physicalism seems to be impossible, is exactly because the term doesn't refer to an actual tangible thing or a material relation in-between objects in the external world. Rather our conceit of physical materialism, is a pure mental impression and representation, a self-imposed social construction of our futile sensual efforts in describing our bodily separation, both from the outside world, and from all other objects therein, including one another.

This is what we all allow to continue by means of abstract mathematical application and linguistic imperfection, as if any hungry or thirsty child could only eat words or drink numbers and still survive?

Just like a particular taste cannot be discovered in the external world, or even described with words such as sweet, sour, or bitter, the same holds true for physicality, it is mostly perceived as a feeling.

Real Feelings

What we define as felt experience is a *Qualia* in and of itself, known only to the mind that perceives it. It describes nothing but our feeling of externally induced sensations. Thus, statements like; “our world is (or isn’t) purely physical”, are completely meaningless, because they are built upon a non-technical term, they are outdated logical reasoning which is purely subjective and contextually. Such descriptions are contingent on the prevalence of success of our personal convictions, those held in our own mental faculties regarding our individual *Philosophy of Language*. Therefore, these statements are largely unverifiable, if not a complete agreement can be reached, for example based on the *Semantic Theory of Truth* as proposed by Alfred Tarski in 1930s. Such an undertaking may possibly yield a final range of sentences, whose properties can put an end to debate over the physicality or immateriality of the universe and human mind.

The dualism versus physicalism debate, has henceforth historically been developing on very shaky grounds. For any of these arguments to be valid and verifiable, we would have to first define what we mean by “physical”, and only then check to see if this definition holds true in our internal and external world. So far, our assertions seem to lead us to the contrary. Therefore, for this debate to be meaningful, physicalism, must be re-conceptualized in a very literal sense of the word. New theories, even so much more complex than the physical versus non-physical debate, have constantly kept on emerging.

Neutral Monism and Property Dualism

Neutral Monism is a thesis that attempts to offer an alternative to the dualist/physicalist approaches on the questions of *Philosophy of Mind*. Among the best-known proponents of neutral monism historically we find: Bertrand Russell, Ernst Mach, William James, and Alfred North Whitehead.

Even though neutral monism can hardly be defined as a monolithic school of thought (focus on commognition), it seems like, that what these thinkers largely had in common, was a general dissatisfaction both with the dualist and the physicalist approach towards the nature of mind. They heavily criticized the widespread idea; that reality was constituted of independent bits of matter, and those interacted with one another and produced our conscious reality.

Also, the dualist view was criticized for its regard of these bits of matter, as if they somehow simply were interacting with undefined immaterial substances of some sort. Instead, the ontological order of things for them, seemed to be based on fundamental temporal processes and events, meaning an interrelated network of events, affecting, and being affected in constant interaction from one moment to the other.

Coincidentally, the kind of mindset we recognize in these titans of scientific inquiry, is also found in David Bohm. He also felt that it was necessary for humanity to develop a solely verb-based language. This according to his assumptions, would be a predicate to enable our languages to conform to the true nature of reality. For him, reality is wholly guided by hidden transformations of forms through processes, he called this new language; *Rheomode*.

For these great thinkers’ reality is everything that happens, it is all in all, its exact essence, which is indivisible. On Whitehead’s own terms, this called for a processual ontology or: process philosophy. Therefore, according to this line of thought, there isn’t something physical and something besides that which is non-physical. Thus, any object or entity, existing separately on their own, are but a mere complicated net of events, all in fact relating to one another and the greater existence. The visions describing such processes were also developed by Bohm as he proposed; that what appears to be solid, in fact functions according to a hologram, a projection which has the ability store information within patterns of interference, this became known as Bohm’s “holonomy physics”.

Eye of the Beholder

Ernst Mach, however, seems to differ in his stance as his assumptions lean heavily into physicalist approach when it comes to reality, but differs from the physicalist approach when talking about the human mind.

In his “Analysis of Sensation” he postulates; that as an event in the brain can be considered, to be mental, when we relate it to memories or mental images, and rather to the physical, when we relate it to the perception of physical laws. As such, we focus our awareness solely on the physiology of the brain, as it is subservient to physical laws. Thus, the mental and the physical, aren’t really in conflict with one another, but rather are just different departments of study.

He writes in “Knowledge and error”; “*Consciousness is not a special mental quality or class of qualities different from physical ones; nor is it a special quality that would have to be added to physical ones to make the unconscious conscious. A single sensation is neither conscious nor unconscious: it becomes conscious by being arranged among the experiences of the present.*”

In Mach’s terms as he understood it, there ought to be a unified movement that should be consistent throughout all the sciences. This epistemic attempt would later be called *Neutral Monism* by Russell, who coined the term. Russell’s and Whitehead’s *Neutral Monism*, thus goes further, as it questions the very idea of reality’s physicality. Russell also emphasised the limits of physical sciences when partaking in this discussion, as he stated, “*All that physics gives us is certain equations giving abstract properties of their changes. But as to what it is that changes, and what it changes from and to—as to this, physics is silent.*”

Indeed, even the classical view of physics and its incompatibility with psychology, was seen by Whitehead to be the source of the mind-body problematic intersection. Even though Russell was critical, and even openly ridiculed some of the conclusions of Mach’s and James’s theory, he did acknowledge that sensations could be taken to be non-mental parts of the physical world. Yet Russell, still thought, until his eventual conversion to *Neutral Monism*, that there was in fact a difference between the object, and its impression or sensation on our abstract mind.

He writes, “*I shall give the name sensibilia to those objects which have the same metaphysical and physical status as sense-data, without necessarily being data to any mind. Thus the relation of a sensible to a sense datum is like that of a man to a husband: a man becomes a husband by entering into the relation of marriage and similarly a sensible becomes a sense datum by entering into the relation of acquaintance.*”

Russell would later come to his full conversion to *Neutral Monism*, only after dropping his *Acquaintance Theory*, which for him implied; that knowledge is obtained only by experience; thus, he would come to agree with Mach and James on the *neutral* (neither physical nor mental) nature of sensations of our consciousness. Likewise, Whitehead would later postulate along this same line in his “Process and reality”, on the nature of reality itself.

That; *Neutral Monism*, rejects both dualism and physicalism, in favour of a neutral explanation, one that doesn’t have to lean either way, but can explain both consciousness and the material world by using a unified *monic* (one) lens. This view accounts for all psychological or physiological phenomena, without leaving any gaps of observation as we turn our gaze from one position to the other. As such, these ontological gaps, from which the old dualist versus physicalist debate could re-emerge, were finally filled in. Simply said; this is a way of seeing dualism and physicalism, as two sides of the same coin, albeit through poorly formulated semantics.

In contrast to *Neutral Monism*, we have: *Property Dualism*. Its assumption can be used to denote views that hold; that the external world is made up of one singular substance, this singular substance in its turn, may give rise to both physical and mental properties, thus we again get: *Dualism*. This should not be mistaken with *classical dualism* or *substance dualism*, in which two different kinds of substances exist (mental, physical). This is a seemingly small difference, gives *Property Dualism* a big advantage over *Substance Dualism*. For instance, property dualists do not have to worry about the problem of mental causation, since two different kinds of substances don’t have to communicate with each other for this theory to hold true. Thus, minds aren’t a different kind of substance to the physical, rather it is a physical substance, one that is possessing and manifesting mental properties.

This view, like *Substance Monism*, is more easily defensible, on the contemporary discourse, due to its scientific ontology. Despite its name, *Property Dualism* is closer to *Physicalism* than *Dualism*.

Property Dualism mainly comes in two forms; *Non-Reductive Physicalism* with proponents like Jaegwon Kim (although he sees his view as coming something “near enough physicalism”, wherein mental properties cannot be reduced to physical properties).

His arguments thus neatly fit a property dualistic approach, one which holds that mental properties cannot be explained by the physical sciences. Simply put, this view is in favour of the idea; that the physical supervenes the mental, and it's depended on it for various changes. For example, if I'm experiencing pleasure, while 10 minutes ago I was experiencing boredom, something must be physically different between these two brain states, something that is generating this difference in my conscious experience.

The other kind of *Property Dualism* expresses the opposite sentiment, mainly that the mental properties are *emergent* and supervene the physical brain as its levels of complexity are sufficiently reached. So, for example, the reason why your brain is physically different in the two brain states (boredom and pleasure) is ultimately because; that you have the mental property to have the tendency to seek out external inputs, in the physical world of pleasure, and attain it. As such, your mental properties make output changes on the physical world in return. The theory of emergence, thus also falls, under the property dualistic umbrella. This view is supported by a lot of thinkers like John Stuart Mill or C. Lloyd Morgan, but for our convenience, we will choose to consider the views of physicist Max Tegmark as we represent this standpoint.

Too keep it short, based on Tegmark's and the emergentists argument, particular physical combination of elements might reach a level of complexity, one that manifests attributes that simply cannot be found in the individual physical components of said system. Just like consciousness cannot be pinned down to a particular neuron, but "emerges" from the organisational structure of its totality, so also water for example, is felt as being wet, but "wetness" cannot be found by looking at a H₂O atom alone. Wetness thus emerges when those atoms are structured in a very particular way. On "Our Mathematical universe" Tegmark claims; that our whole reality is ultimately mathematical, and everything else emerges from it. Another theory worth mentioning in this section, is the *Quantum mind*, which to be completely honest is comprised of many speculative hypotheses, rather than being an actual coherent theory.

The main idea shared here; is that *Classical Physics* cannot explain consciousness through inference, reason being because our brain operates on a quantum level.

Either this view takes a full or partial regard to this position, it can in the end only have a quantum mechanical based explanation. For example, as Bohm points out, in his "Quantum theory"; there are incredibly striking examples of thought processes following some sort of quantum logic. At some level of the brain, Bohm argues; that there are certain neurological points, that are so balanced and delicate, that they can only be described via quantum logic. Despite this hypothesis being not so well received at the time, more and more respected people, such as the physicists Roger Penrose, have also been supporting this view recently.

Also, worth mentioning here, are John von Neumann and Eugene Wigner who together developed the interpretation which posits; that the consciousness of a given subject observing an event, serves as the demarcation line that precipitates the "collapse" of the wave function. This implies; that as an observer, by way of interaction between physical objects, our brain is also essentially a part of the observed quantum system. Our qualia, thus depends on the measured values which gives reality a definite outcome as such breaking with the presupposed random probability of chance. The inevitable effects of this pervasiveness of observation, means that our minds not only influence the microscopic reality, but also the *Cosmos* at large.

Obviously, both, of these schools of thought, are more recent and sophisticated than the traditional dualism/physicalism debate. The arguments, get more nuanced, and have gradually moved away from religiously inspired premises. The property dualists have come up with a set of incredibly complex hypothesis that are fascinating to read about. However, one can't help but feel, that especially in the case of the quantum brain theory, they will inevitably fall into *Solipsism*. Our thoughts are such, that our knowledge of *Quantum Mechanics* is way too limited for us to precisely apply and map out on a neurological scale. However, there could be found a way to reconcile the quantum brain theory, which basically follows non-reductive physicalist assumption, based on *Property Dualism* lines together with *Neutral Monism*, especially then Whitehead's version. Whitehead's theory is a radical metaphysical thesis. It questions the idea of physicality, and uncovers the seemingly stable material world, only to discover a dynamic ever-evolving net of events.

This is compatible with most findings of *Quantum Mechanics* and can perfectly be reconciled with the quantum brain theory, after it accrues its necessary precision and empirical validity. *Neutral Monism* and *Property Dualism* do not necessarily have to contradict one another, but rather they can complement each other's premises. Whitehead's system provides the framework, which the various property dualistic interpretations can expand on. If we were to free ourselves from unnecessary linguistic constraints, then we can see how these metaphysical theses flow together smoothly and can potentially lay a new foundation for the discourse on consciousness, and the need to clarify many issues of Philosophy of Mind.

Monism and Substance Dualism

Monism as a school of thought, is split into two main groups, the *Existence Monism* and *Priority Monism*. The difference between them can be very subtle but is nonetheless an important one.

Monism can be defined as the metaphysical thesis which states; that everything is made of one kind of thing, or only one kind of *Substance*. No other substances or things exist. Everything else is a rearrangement of that one substance. (We're not talking here about *Natural Philosophy* which states that the physical world is composed of indivisible components i.e., *Atomism*). In a monist view, everything should, ultimately be, just one single object. No matter how much you observe, you should be unable to find anything in the Universe that is different from this object. Existence monists hold that there is only one fundamental object, only one that makes up everything, and it has no parts. Priority monists hold that there is ultimately one single object, one that is prior to its parts, but that this object might in fact be made of different parts, all with different attributes. The most prolific monist is undoubtedly Spinoza. Borrowing from Descartes the ontological tools like substance, attribute and mode, Spinoza went on to construct a very different and complex view of reality, as being contrasted with Descartes's *Dualism*.

For the sake of this paper, we will be focusing our discussion on *Priority Monism*, since *Existence Monism* is no longer taken seriously on modern discourse as it implies that only the Universe exists, and any division thereof would be an arbitrary or artificial construct.

To visualise, the priority monist world let us take Jonathan Shaffer's at Rutgers University, New Brunswick's example. Imagine a circle that is made up of two semi circles. Is the full circle derivative of its semi-circle parts, or are the parts derivative of the full circle? Which one is prior? The whole or its parts? The monist holds the view, that the full circle is prior and then comes everything else, including its parts all logically follow from it. *Pluralists* (dualists included) hold the opposite view. (Note here that we're talking about *Priority Monism* and not *Existence Monism*) The debate right now, isn't over what really exists, as the position occupied by existence monists are rare. Both sides of the argument admit; that all sorts of things exist, and that they have different parts. The debate is constructed over the priority of the basic object, versus its parts.

One Universe

To support the argument, let's take the cosmos as a whole, first and foremost, and have the parts come later, as being dependent, on the whole. Let us then look at another Schaffer's examples. Here he illustrates the point, more precisely with regards to what is commonly known: as the EPR paradox.

$$[\psi \rangle_{\text{EPR}} = \frac{1}{\sqrt{2}}[|\uparrow\rangle_1 |\downarrow\rangle_2 - \frac{1}{\sqrt{2}}[|\downarrow\rangle_1 |\uparrow\rangle_2$$

The paradox of entanglement is a thought experiment proposed by physicists Albert Einstein, Boris Podolsky and Nathan Rosen. The paradox describes what happens when we conduct a measurement on two distinct particles, both which are entangled and correlated even across long spatial distances. The correlation is such, that our measurement of one of them, instantly affects the properties of the other. This is an empirical fact, and as such it cannot be explained by classical physics as it apparently violates the demand of a deterministic Universe. This according to Einstein, presupposes that only the immediate surrounding of an object (principle of locality) can influence its properties. Thus, the final resolution to this problem, seemingly depends on which a particular interpretation of quantum mechanics we hold as true, as communicating faster than light across distances is prohibited by Special Relativity.

Shaffer argues; that such a thing as entanglement, can only be resolved if we accept a monistic view of cosmology, in which the whole is prior to its parts. The Cosmos then is one gigantic entangled system. Shaffer makes this claim, both in a physical and mathematical sense.

Physically speaking, he claims that the system was entangled prior to the Big Bang, wherein every bit of matter was condensed into a singularity in an unimageable dense energetic state. The initial "explosion" (expansion) thus served to create entanglement by uniformly enforcing homogeneity, and the Schrödinger's equation preserves this entanglement throughout evolution.

If we assume, that we can hold a justified position, and that our primary view of the *Problem of Change* must be interpreted in a metaphysical sense, then we must argue; that this must be a change of an existing identity. Gottfried Wilhelm Leibniz in the 17th century is credited with definitions of "identity" in his "Discours de métaphysique". Therein he contains the formulation of his principle of the identity of "indiscernibles" (it is impossible for two numerically different objects to have all the same properties.) To our understanding, this is not so obvious, about the actual role that the *Problem of Change* plays, in philosophy, as a legitimate unanswered question, which also occupies Classical physics and Quantum Mechanics. Since it is not at all clear, what the *Problem of Change* really is, and why it must be a metaphysical problem at all, and not a physical problem. Hence due to John Stuart Bell's theorem which dictates; that if the empirical evidence in quantum theory is correct, then there is no local causal chain and our reality is not at all causal (local) in its true nature, Bell says nothing about a universal causality. "Non-local" consequently means; a lack of a direct interaction between single events that are separated too far from each other in space, and too close together in time for the events to be connected to each other through a casual information flow, one that moves faster than the speed of light. This, of course as mentioned, violates the maximum speed limit of light, which states that information cannot move faster than light between two separate points in space and time.

A conflict thus arises in our interpretation, which of course has its origin in our own being, as humans are constantly changing. This leads to an ignorant cognitive conflict and interdisciplinary dissonance. Change requires both numerical identity and qualitative difference we are made to believe. "Nevertheless, numerical identity implies qualitative identity, which excludes qualitative difference. Equality and difference remain antithetical, even under ambiguity." Says Ryan Wasserman, of Western Washington University in his "Problem of Change". Thus, it lies in the words; numerically quantitative and

qualitative hermeneutic understanding of the interpretation of the words, deduces that there is a cause, a purposeful intention on our part, one that gives us the clear distinction; that the means at our disposal which leads us towards a common measure, is our changing language, not the outcomes of values.

Let's contrast this with Spinoza's *Monism*. We have stated, at the start of the section, that there are two kinds of monism, *Priority Monism* and *Existence Monism*. However, people like Ghislain Guion of University of Geneva argue; that Spinoza's *Monism* falls into a third category, namely *Substance Monism*. To quote Spinoza directly: "*Part and whole are not true or actual beings but only beings of reason; consequently in Nature there are neither whole nor parts*"

Spinoza is here arguing; that key concepts of parts and wholes, are inherently human, and not concepts of the natural world. Therefore, disagreeing with *Priority Monism*, Spinoza thought there could only exist one single substance. As he lays this out in his "Ethics", a substance, must be self-sufficient, in and of itself, and cannot find it's conception contingent on other things or substances. Otherwise, it would cease being a substance. If two different substances exist, that means that they have nothing in common with each other, since they are both self-sufficient and cannot contain one another. This is logically impossible. Therefore, one single infinite substance must exist. For Spinoza, this is nature or God, the uncaused cause of casual events. This substance contains infinite attributes and cannot be divided. If it could be divided, the different parts of the substance would both either contain its entire essence, or not. In the first case, we would end up with multiple substances of the same nature which is impossible. In the second scenario, the divided parts of the substance, would no longer be only one substance. Thus, the universe is made up of only one substance, which is infinite and inseparable.

As opposition to *Substance Monism*, we will take *Substance Dualism*. Even dualists, might for the most part agree, at least ontologically with the monists. However, there is usually one object, that they refuse to believe is made up of the same basic object or substance, and that is the human mind.

Henry P. Stapp, at the University of California, drawing from John Newman's theory of Quantum mechanics and brain, asserts that:

“In orthodox quantum mechanics a person’s brain is, instead, the instrument by means of which that person’s mind/ego, embedded in a physically described world, learns about this physical world in which it finds itself, forms valid expectations about its future experiences, and acts to influence what it will find to be the case.”

Such dualist line of defence also comes from neuroscience. In their paper “Neuroscience, dualism in disguise” Riccardo Manzotti and Paolo Moderato make the claim; that the foundations of neuroscience, are by necessity of a dualistic framework, one that is embedded in the science itself, but never stated or admitted. They take this quote from Christof Koch summarizing his research to illustrate their point: *“Subjectivity is too radically different from anything physical for it to be an emergent phenomenon (...) I see no way for the divide between unconscious and conscious creatures to be bridged by more neurons. Experience, the interior perspective of a functioning brain, is something fundamentally different from the material thing causing it and that it can never be fully reduced to physical properties of the brain. (...) I believe that consciousness is a fundamental, an elementary, property of living matter. It can’t be derived from anything else; it’s a simple substance”*

Here, Koch seems to be attacking reductive physicalism, and at the same time claiming that consciousness, must be a radically different substance from everything else. Manzotti and Moderato make the claim; that no science can be metaphysically neutral, and that all scientific frameworks start with metaphysical assumptions. This is the case with dualism and neuroscience alike. The inability of neuroscience to locate conscious experience, in a particular group of neurons, hence must tell us something very important.

The Scientific Brain

Neuroscience in recent years, has discovered a lot of casual connections, between neural activity and consciousness, but these findings say nothing about the nature of this physicality transforming into consciousness, or as to why it happens. It merely draws on temporal or topological correlations.

No matter how many correlations are drawn, it seems from their own viewpoint, that we will never achieve or even defensively be able to refute a final theory of consciousness which is not grounded in *Physicality*.

This is because neuroscience at best, clings to reductive *Physicalism*, and at at worse to *Dualism*, such this view leads to searching in the wrong direction, without ever it ever truly realising its dualistic premise.

At the end of this paper, one profound question still arises. Can *Neutral Monism* and *Substance Dualism* work together within a single framework? *Existence Monism* and *Substance Dualism* obviously can’t. However, when it comes to *Priority Monism* and *Dualism*, there might be enough space for both theories to fit in a single framework. First, *Priority Monism* doesn’t deny the existence of parts different from the whole, but only asserts; that the whole is prior to them. This doesn’t have to contradict the assertion; that the human mind is a different substance from the rest of the Cosmos. However, this does contradict Spinoza’s *Substance Monism*; where he asserts that there can only be one single substance.

The End of Physicalism

So, it becomes clear, that when we talk about *Substance Dualism*, working within a priority monist framework, we are not talking about a substance, with the old Spinozist criteria (an indivisible, infinite, self-sufficient substance). Our “neo-substance” is self-sufficient, only in the sense that it’s emergence cannot be mapped out in a purely physical description, and therefore it’s conception can only come from within itself. Our neo-substance, is, neither finite nor infinite, because these are purely physical concepts that cannot grasp the essence of our substance. With the reinvention of substance, *Priority Monism* can work very well with *Substance Dualism*. There can be two kinds of substances. The only criteria: that the whole is prior to them both. Since we disqualified Spinoza’s infinite substance, there’s no reason why this model of reality wouldn’t work. The universe can still be an entangled system, provided that the two different substances communicate together.

We won’t show here, how that can be possible, as this task alone would need its own paper, but we will just point out: that there’s no inherent contradiction in this picture of the world.

This subject is incredibly complicated and raises conflicting attitudes, and it is very easy to fall into infinite regress and logical errors, thus we don’t claim to have finally cracked the code.

However, we think that providing a framework with no inherent contradictions, or rather even better, embracing them, is a great place to start!

Defining the role of observers, in quantum mechanical terms, requires that we manage to quantify what essentially makes us sentient as we dynamically interact with other quantum states. Disturbing physical systems, is not, simply a supernatural issue of “mind over matter”. It rather goes to the heart of understanding of what a measurement is, and what the impact would be, on the expectations of *Empiricism*, if we one day come to find that observers indeed, collapse the wave function. A determinate reality leaves little room, for fine-tuned Universe to disregard an objective position on the Anthropic principle as the world being real, even if only for the sake of us observing it as its ultimate cause or reason. In the end, we must ask ourselves; if in fact it doesn't matter if it is real or not? If what we know, contradicts our experience, then our confidence in our measurement methodologies and empirical data also must be doubted.

Hence, describing the transition from the hidden quantum world, to our visibly assembled atomic world with our current language and scientific methods, is not satisfactory for an objective overarching *Philosophy of Mind*.

The ancient question of change or no change, between Heraclitus and Parmenides remains as valid today as ever before. It is the same story that repeats itself between *Analytical* and *Continental Philosophy*, the same struggle for relative existence that became known already during the time of *Sophists*. We see therefore that there is a professional confusion, about the *Principle of Contradiction* as much as it is a struggle in interpretation of *Leibniz's Law*.

If the assumptions of Heraclitus are true, then we must admit; that neither *Natural Science* nor *Philosophy* in and of themselves are true descriptions of reality. Science is then consequently unable to observe change without resorting to necessary assumptions about philosophical statements regarding permanent aspects of the same reality i.e. *Physical Realism*. If on the other hand it turns out, that philosophy concludes; that change is in fact not possible, then, all our metaphysical assumptions which are foundational to *Natural Sciences* are not fulfilled, and their preconditions will fail to ever manage to combine *General Relativity* with *Quantum Mechanics*.

Researchers of all kinds must as soon as possible embark on the interdisciplinary approach and support of the philosophical work that takes place in higher educational institutions. Their metaphysical assumptions will be crucial, because if *Physics* and *Quantum Mechanics* have blindly erred in bifurcation of the construct seen as the mind-independent reality, in their fundamental assumptions, about non-locality and quantum entanglement, the resulting ramifications of this egocentric linguistic determinism on human consciousnesses, will be utterly devastating.

Conclusion

The true nature of consciousness has undoubtedly been left to the devices of *Empiricism*, yet this kind of *Logical Positivism* cannot by any measure be claimed to have contributed to a better world for our fragile minds. Science in all its splendour, continues to proclaim its demand of moral grandeur in delivering objective truths, regardless of its deliberate or unwanted side-effects on nature and life on this planet.

To the greatest of extent, the scientific method has been unmatched in its quantitative predictions and extreme vigour as it turns the undesirable facts of the Universe, into adequate approximations of desired reality. Reproducing its empirical discoveries, it has managed to overturn epochs of superstition and philosophical ambiguity into attainable revolutions for our shared epistemic advances and material progress.

These facts, nevertheless, should not be taken as facts of nature, or as a guiding purpose of the collective will of humanity. As the continued struggle emerges for a common yearning of predictability in all sciences, the need for qualitative descriptions of our ontological past, present and future, and of the foundations of science in general, must be addressed to prepare a just and fair ground for development of our theoretical and practical consensus driven models of consciousness.

Hence, our language and definitions, seem to us, as being highly inaccurate. *Quantum Mechanics* as often stated: is the most accurate of any scientific theories. Yet, as a scientific theory, it manages only to make statistical predictions which always have non-zero probabilities of being wrong. Given enough time for our consciousness to develop, temporal circumstances might very well prove, that our statistical distributions were a lie, which at the very end of a prolonged existence, finally were not able to confirm our predictions.

Descartes's «malicious demon» went to some extent to raise such doubt, about our own conviction and ability to discern *Epistemology*.

Of course, to endanger our minds, after a mere few centuries of application of the scientific method, would ethically be very irresponsible of us. How some of us will claim; that *Physicalism* prohibits us, from making experiments infinitely many times because the Universe is as it is, or to even be able to try to prove that such a potential lie is real, comes as no surprise. Yet, for the sake of consciousness, in all its beauty, it would be prudent of us, to imagine, that given an arbitrarily extended lifetime, the potential for us to carry out such an experiment, infinitely many times, might very well tell us something true about the cause and purpose of our imperfect minds.

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