

Metaphysics: Intelligible Questions and the Explicable World of Intentionality

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Metaphysics deals with the intelligible world of questions and the explicable world of intentionality. Metaphysics is explicable, and its explicability is connected to questions related to what there is to know about the nature of reality. While physics deals with what is and what else there is, metaphysics deals with the nature of reality and what else there is to know about the nature of reality. If the content of metaphysics is considered as "answers" to questions related to cosmology and consciousness, then metaphysical claims must be understood in the context of the questions that necessitate such claims. For without understanding the relevance of the questions, we cannot establish the 'truth' or 'falsity' of metaphysical claims. The relevance of the questions is the basis for establishing the veracity of the metaphysical distinctions. Hence, all metaphysical distinctions are a non-reductive explanation of what is considered as being reductive. The content of consciousness or intentionality deals with the following metaphysical distinctions, namely, the matter/mind, the essence/existence, the space/time, the concrete/abstract, the particular/universal, and the contingent/necessary distinctions. These distinctions are made possible because of the questions raised by the intelligent mind. Two questions that connect physics and metaphysics are-- what is there and the nature of what is there. Two further questions that promote our interest in physics and metaphysics are: what else is there to know, and what else is there to know about the nature of reality. Reality and the nature of reality are the same. However, because the mind makes this distinction, we can state that what is physical is an empirical given, and what is metaphysical is a phenomenological or an existential given.

Keywords: metaphysics, intentionality, subjectivity, creativity, freedom and time

Introduction: Questions Related to Ontology/Metaphysics: Understanding what is Physical and what is Phenomenological

The two famous questions that necessitate the relationship between physics and metaphysics are Leibniz's question -- *why is there something instead of nothing* (Leibniz 1890, p. 213) and Quine's question *on what there is?* (Quine 1948, p. 38). These two questions are related to two other questions raised in this paper—what else there is to know, and what else is there to know about the nature of what is? What is fundamental to the continued pursuit of metaphysics is the question: what else is there to know about the nature of reality. Because reality and nature of reality are inseparable, the following metaphysical distinctions are made in this paper; namely, the mind/matter, the essence/existence, the space/time; the particular/universal, the concrete/abstract, the contingent/necessary distinctions help us understand the relationship between matter, mind, and metaphysics. So

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this paper intends to discuss the questions that initiate metaphysical distinctions to better understand the nature of reality, for "all consciousness is consciousness about something" (Sartre 1977, p. 11) and its nature.

Ontology deals with what is reductive. What is reductive is basically the 118 elements in the universe. Fundamental to each element is the atom. And for over 2000 years, it was believed that the atom was the smallest part of reality and was indivisible¹. We are now aware that atoms are divisible in that fundamental to atoms are electrons, protons, and neutrons. And what is fundamental to protons and neutrons are quarks. We also know that atoms exist in the context of time/space, gravity, electromagnetic force, fields, and energy. However, everything associated with matter has its beginning with matter (Weinberg 1977, p. 147). Time, space, gravity, electromagnetic force, quantum fields, and mathematics do not have a special beginning, but have their beginning with the beginning of matter (Nicholson 1999, p. 235). Observing the universe, the following scientists have made four fundamental or significant discoveries: (1) Emilie Du Chatelet purported that energy cannot be created or destroyed (Hagenruber 2011). (2) Antoine Lavoisier purported that mass cannot be increased or decreased.² (3) Einstein argued that mass and energy are interchangeable (Serway et al. 2013). (4) Higgs argued that everything exists in quantum fields³.

Metaphysics deals with the non-physical/non-reductive phenomena of what is reductive. The content of intentionality is the content of metaphysics (Brentano 2002). The single characteristic of metaphysics is the non-reductive description of its content, for all metaphysical distinctions and assertions are a non-reductive account of a reductive given. The two inseparable aspects of reality, namely physics and metaphysics, are fundamental aspects of the same reality (Wald 1990, p. 74), though one is a reductive or an empirical given and the other a non-reductive or phenomenological given. In understanding the nature of matter, the mind provides the basis for all the distinctions that are fundamental to the study of reality. If the assertion of property dualism that physical phenomena and mental phenomena are a phenomenological given, then physics and metaphysics are inseparable (Priccirillo 2010). Reality and the awareness of reality are inseparable. "Consciousness and matter are different aspects of the same reality" reality (Wald 1990, p.74). For "all consciousness is consciousness of something." It is one thing to argue that consciousness requires a neural base but another to argue that the brain alone can cause consciousness, for we know that temperature, pressure, oxygen, and nutrients also play a role in the actualization of consciousness. Consciousness could be a fundamental aspect of reality. However, the essential property of consciousness, namely, intentionality and subjectivity can only be a phenomenological or existential given. What separates us from animals is

¹Dalton understanding of the Atom, until J.J. Thomas discovered the electron which redefined the atom as being divisible.

²American Chemical Society International Historic Chemical Landmarks. Antoine-Laurent Lavoisier: The Chemical Revolution. <http://www.acs.org/content/acs/en/education/whatischemistry/landmarks/lavoisier.html>.

³Sean Carroll, What is the Higgs Boson? Sean Carroll Discusses the God Particle. <https://www.youtube.com/watch?v=wCZr8mUsJ2s>.

metaphysics. While animals are aware of reality, we aware of the nature of reality. As such, humans are metaphysicians, for no animal can be a metaphysician for animals can never understand the nature of reality.

Consciousness and the content of consciousness are distinct. One is a reductive given, and the other is a non-reductive given. The reductive understanding of consciousness establishes the relationship of causation, contingency, and correlation of mental states to brain states; that is why we understand mental states as a neural state (Smart 2011 p. 119) an emergent property (Searle 2011, p. 703), or quantum phenomena⁴. The non-reductive understanding of consciousness establishes intentionality (Chalmers 2002, pp. 473–479), subjectivity, and creativity as a phenomenological given which will always be subject to change or revision. That is why while MRI (Magnetic Resonance Imaging) reading can establish whether one is conscious or not—alive or dead, we cannot confirm who or what one is conscious of. However, the causation, contingency, and correlation of mental states to brain states cannot explain the following: (1) how a material brain can generate an immaterial self, (2) how a determinate matter creates an indeterminate mind, (3) how insentient atoms in the brain can generate intentionality, subjectivity, and creativity⁵, (4) how a sense-receptory brain that processes sense-evident data can generate a mind that creates and processes self-evident truths—such as mathematics, morals, and metaphysics, (5) why it takes a brain that is made of insentient atoms or neurons to create a mind to define what an atom or neuron is, or (6) how reductive matter can generate non-reductive metaphysics.

Methodology

The phenomenological method is employed to investigate metaphysical claims in the context of the questions that necessitate metaphysical assertions. However, while questions relate to what is reductive or physical, metaphysical claims relate to what is non-reductive or phenomenological. When we extrapolate Leibniz's and Quine's questions, we can raise questions related to the concrete, namely, specificity, temporality, contingency, and existence, or make metaphysical claims related to the abstract, namely, identity, immortality, necessity, and essence. Once we accept that there is something and want to know the nature of reality, it results in the content of intentionality or metaphysics. This paper intends to establish the link between consciousness and the content of metaphysics along with the questions that initiate metaphysics.

Understanding the content of metaphysics in the context of the questions that initiate metaphysics makes the explicability of metaphysics *palatable*. Just as what a hypothesis is to science, the relevance of questions is to metaphysics. Only in the context of the significance of the question can we establish the truth or veracity of metaphysical claims. While ontology deals with what is, metaphysics deals with

⁴S Hameroff, Anesthetic action links consciousness to quantum vibrations - - 6/11/2018 https://www.youtube.com/watch?v=VG8_hlnFdWM.

⁵Giulio Tononi “Why is consciousness so baffling” https://www.youtube.com/watch?v=dK72pPa_gSE.

the nature of what is. Matter and awareness of matter or consciousness have to be related, for consciousness and matter are different aspects of the same reality (Wald 2011, p. 74) or better, what 'is' and the 'nature of what is' are the same. However, what is physical is reductive, and what is metaphysical is non-reductive. Reality and awareness of reality are intertwined because of the mind, "To be and to be known—existence and its recognition" (Wald 2011, p. 68) are the same. Both reality and the nature of reality are the same (Wald 2011, p. 74), but the mind makes the metaphysical distinction-- one as being concrete and the other as abstract. One is an empirical given, the other being a phenomenological or existential given.

Consciousness and Content of Consciousness: A Phenomenological or Existential Given

Consciousness is a brain process (Chalmers 2002, pp. 56–57) hence reductive, but the content of consciousness, namely the content of intentionality (Chalmers 2002, pp. 473–479) along with subjectivity, is non-reductive. As such, there are two ways we can define what consciousness is (1) the reductive understanding of consciousness is to explain the relationship between causation, contingency, and correlation of mental states to brain states. That is why we can understand mental states as a neural state, an emergent property, or a quantum phenomena. (2) the non-reductive understanding of consciousness is to explain the content of consciousness as the content of intentionality and subjectivity⁶. The essential features of consciousness, namely intentionality, subjectivity, and creativity, are to be understood as a non-reductive or phenomenological given. In the paper, we shall discuss the content of consciousness or intentionality in the context of the questions that necessitated such claims because of the non-reductive nature of metaphysics. All metaphysical distinctions entail a reductive given and a non-reductive explanation for what is reductive. The content of consciousness is limited to discussing metaphysical distinctions in the context of understanding the nature of reality and the questions that necessitate metaphysics.

Matter/Mind Distinction

The first metaphysical distinction that has both a reductive and a non-reductive aspect to it, is the matter/mind distinction. What is reductive are the basic elements in the brain and what is non-reductive is the metaphysics associated with the mind. We know what there is in the universe. From Democritus' times to the present, we have become aware of the basic elements in the universe⁷--their atomic structure, mass, weight, and the structure of the subatomic or the quantum

⁶S Hameroff, Anesthetic action links consciousness to quantum vibrations - - 6/11/2018 https://www.youtube.com/watch?v=VG8_hlnFdWM.

⁷How to find the number of protons, neutrons and electrons from the periodic table <https://www.youtube.com/watch?v=JjozjUCsSaU>.

world. First, we thought that atoms were the smallest unit of being and were indivisible, then we discovered that atoms were divisible and consisted of protons, neutrons, and electrons; later, we found out that each proton and electron is made of quarks--(Proton having two up quarks and one down quark and the neutron has two down quarks and one up quark)⁸, and now we have discovered the Boson (Baggott 2013, pp. 89, 181) or the "God particle."⁹ Further, we realized that what we call particles are actually fields¹⁰ in that there are many electrons, many photons, and many bosons, each in their respective fields, namely the electron field, the electromagnetic field, and the Higgs field. Atoms were first considered as the smallest unit of matter that could not be cut; then came Einstein, who argued that atoms could be split, which introduced us to the quantum theory. Quantum theory or particle physics¹¹ purports that there are two types of particles, one having mass and the other being massless¹² such as Fermions and Bosons (Baggott 2013, pp. 89, 181). Now we further know that there are two forces at work in the quantum world—the strong nuclear force and the weak nuclear force. The strong nuclear force is the attractive force between protons and neutrons that keep the nuclei together, and the weak nuclear force is the radioactive decay of certain nuclei.¹³ So there are only three basic particles now called fields in the universe, namely electrons, up quarks, and down quarks (what protons and neutrons are made up of), surrounded by four forces, namely, gravitational, electromagnetic, strong, and weak nuclear forces¹⁴.

The first atoms that came into existence in the first few minutes after the big bang were hydrogen and helium (Weinberg 1977, p. 113). And after the birth of stars, science tells us that carbon and oxygen, along with a few others atoms, came into existence in the universe. And after the supernovas (Weinberg 1977, p. 18) or the death of stars the rest of the elements in the periodic table came into being. What is interesting about the periodic chart is that we have found all the types of atoms in the universe that is represented in the periodic table. Based on the number of protons in each element, we have numbered the 118 elements in the periodic table¹⁵. Everything that exists has atoms; humans are no exception. For instance,

⁸What Happened At The Beginning of Time-with Dan Hooper, <https://www.youtube.com/watch?v=dB7d89-YHjM>.

⁹Attributed to Physicist Leon Lederman-- was meant to poke fun at how difficult it was to detect the Higgs. The Title of Lederman's book was "The Goddam particle" was changed to "The God Particle" when the publishers weren't pleased with the phrasing.

¹⁰Sean Carroll, What is the Higgs Boson? Sean Carroll Discusses the God Particle. <https://www.youtube.com/watch?v=wCZr8mUsJ2s>.

¹¹The Map of Particle Physics | The Standard Model Explained. <https://www.youtube.com/watch?v=mYcLuWHzfmE>.

¹²Why do some particles like gluons not have mass? <https://www.youtube.com/watch?v=eqwgDzJlkoY>.

¹³<https://www.nobelprize.org/prizes/themes/forces/#:~:text=The%20Strong%20Nuclear%20Force%20is,two%20forces%20differed%20a%20lot.> (Lars Brink "Forces").

¹⁴Beyond the Higgs: What's Next for the LHC?-With Harry Cliff. <https://www.youtube.com/watch?v=edvdzh9Pggg>.

¹⁵Elements-Defined by their Numbers of protons. https://chem.libretexts.org/Courses/College_of_Marin/CHEM_114%3A_Introductory_Chemistry/04%3A_Atoms_and_Elements/4.05%3A_Elements-Defined_by_Their_Numbers_of_Protons.

humans are basically water which is made of two hydrogen atoms and one oxygen atom. But since the mass of oxygen is 16, mass-wise humans are 65% oxygen, 18% carbon, 9.5% hydrogen¹⁶, and nitrogen 3.3%. (Remaining 4 percent is made up of other metals—like calcium, Potassium, Lithium copper, and iron. Every atom that exists was created in the beginning, as such each atom in the human is as old as the universe itself.

What is the brain? The brain is a neural organ composed of insentient matter, yet the neural brain is the basis for the sentient mind. However, it is hard to establish whether the brain is a necessary condition or a sufficient condition for consciousness. For we can be certain that the brain alone cannot cause consciousness because we know there are other factors like temperature, pressure, oxygen, and nutrients, without which we cannot have consciousness. So unless we know what role temperature, pressure, oxygen, and nutrients play, we cannot be sure whether the basis for consciousness is the brain alone. We know that there is a relationship between the brain and the mind. As such, we can establish the correlation of mental states to brain states (Chalmers 2002 p. 248); we can establish the causal nature of mental states to brain states; we can also establish the contingency of mental states to brain states. The question is, can establishing the relationship of brain states and mental states and correlates of mental states to brain states squeeze consciousness from the brain¹⁷.

What is consciousness"? What makes brains conscious?¹⁸ The mind is irreversibly dependent with the brain¹⁹. ". . . mind and matter could be seen as a complementary aspect of the same reality" (Wald 2011, p. 74). Consciousness is a brain process (Chalmers 2002, pp. 56–57, but the question is, does the brain cause consciousness? What is the relationship between mental states and brain states? What are mental states? In the ancient world, the mind or the soul was understood as being immortal and that the soul is the user of the body (Goller 2012). The soul is eternal, and death is not the death of anything but merely the separation of the soul from the body²⁰. Again the ancient world defined that either the soul is in the body or the body is in the soul (Goller 2012, p. 5). Contemporary theorists like (1) the Identity theorist argue that mental states are identical to brain states (Hirst 2011)—in that consciousness is a brain process (Chalmers 2002, pp. 56-57). (2) Reductive materialists argue that there are mental states, but they can be reduced to brain states (Heil 2011, p. 119). (3) Non-reductive materialists argue that there are mental states, but they cannot be reduced to brain states (Heil 2011, p. 703). (4) Eliminative materialists argue that there are no mental states; all states are brain states. (5) Behaviorists argue that there are mental states, but they are behavioral

¹⁶Ruchi Shah, "Elements That keep Us Alive Also Give Color To Fireworks" <https://biobeat.Nigms.nih.gov/2015/07/elements-that-keep-us-alive-also-give-color-to-fireworks/>.

¹⁷Giulio Tononi, Why is Consciousness so Baffling? https://www.youtube.com/watch?v=dK72pPa_gSE.

¹⁸Christof Koch, What makes brains conscious? Episode 706 Closure to Truth <https://www.youtube.com/watch?v=3qjgvMfTKhI>.

¹⁹David Eagleman, Are the Brain and Mind the same thing. Episode 1005 Closer to Truth <https://www.youtube.com/watch?v=2i9UPTDUFJo>.

²⁰Olshevsky TM "The Relations of Soul to Body in Plato and Aristotle". Project MUSE Scholarly journals on line, 391 <https://web.stanford.edu/~mvr2j/ucsccourse/soulolshe wsky.pdf>.

dispositions (Putnam 2011b, p. 100). (6) Functionalists argue that there are mental states but mental states are functional states (Putnam 2011a, p. 162).

Modern theories such as (1) Emergence theory of the mind suggest that consciousness is a neural emergence (Heil 2011, p. 703), (2) Supervenience theory of the mind suggests that mental states supervene on brain states, in that there can be no changes in mental states without changes to brain states²¹. The mind is contingent on the brain for its presence (McGinn 1989, p. 353). (4) The Computational theory of the mind suggests that the brain is a computer with a programmer inside it—the self, which interprets the information from the transducers as metaphysics. Is the brain the producer of consciousness, or is it a receptor like a radio or TV²²? If it is understood as a receptor, it does not produce anything; it only transmits what is transmitted. To argue that the brain causes consciousness is like arguing that the radio causes music when in reality, the radio is only a receptor²³. And if the brain is understood as a conduit of the soul, then each self can represent a different frequency. What is common in each of us is the soul (intentionality), and what is distinct in each is the self (subjectivity). If we argue that intentionality and subjectivity are an essential property of consciousness (and neural emergence is one way, not the only way in which consciousness can be actualized), then we can explicate consciousness as being an inseparable part of matter or the universe.

Current studies in neuroscience put emphasis on understanding consciousness as a quantum phenomenon. If consciousness is a quantum phenomenon, then it is a result of quantum collapse²⁴, and the cellular structures called microtubules associated with collective pi resonance quantum oscillations²⁵ are critical to consciousness. The Penrose-Hameroff theory of quantum consciousness argues that microtubules are structured in a fractal pattern which would enable quantum processes to occur.²⁶ Quantum fractals could provide the basis as to whether consciousness is a classical or quantum phenomenon.²⁷ If anesthetics can temporally²⁸ suspend consciousness, then consciousness cannot be understood independent of neurons. We are aware that under anesthetics, consciousness can be suspended²⁹. Further, we know that sleep can temporally shut out our

²¹<https://plato.stanford.edu/entries/supervenience/> “there cannot be a A-difference without a B-difference.

²²Sam Parnia “What is consciousness” <https://www.youtube.com/watch?v=NcCDlxFkAcY>.

²³David, Eagleman, Are the Brain and Mind the same thing. Episode 1005 Closer to Truth -<https://www.youtube.com/watch?v=2i9UPTDUFJo>.

²⁴David, Eagleman, Are the Brain and Mind the same thing. Episode 1005 Closer to Truth -<https://www.youtube.com/watch?v=2i9UPTDUFJo>.

²⁵Anesthetic action links consciousness to quantum vibrations - S. Hameroff - 6/11/2018 https://www.youtube.com/watch?v=VG8_hlnFdWM.

²⁶Christiane de Morais Smith, Can Consciousness be explained by Quantum physics. <https://singularityhub.com/2021/07/25/can-consciousness-be-explained-by-quantum-physics-new-research/>.

²⁷Christiane de Morais Smith, Can Consciousness be explained by Quantum physics. <https://singularityhub.com/2021/07/25/can-consciousness-be-explained-by-quantum-physics-new-research/>.

²⁸Anesthetics actions links consciousness to quantum vibrations (1846 gas anesthetics introduced). https://www.youtube.com/watch?v=VG8_hlnFdWM.

²⁹Anesthetics and consciousness, Stuart Hammeroff <https://www.youtube.com/watch?v=N0hU6CZok34>.

consciousness. We are also aware of what distinguishes us from animals, namely the phenomena of intentionality and subjectivity, present only as part of human nature or condition. The generation/genesis of consciousness or cognitive states is and will always remain a mystery. The brain is about 80% water, and for water to turn into consciousness is a miracle (McGinn 1989, p. 349).

If energy and mass are interchangeable, then energy is either an intrinsic part of matter or matter is an intrinsic part of energy. Similarly, the mind is either an intrinsic part of matter or matter is an intrinsic part of the mind, "consciousness and matter are different aspects of the same reality" (Wald 1990, p. 74); as such, mind and matter can also be interchangeable. However, what we want to know is whether consciousness is an essential property of matter or an accidental property of matter. If consciousness requires a neural base, then only what is neural can be considered as consciousness. This would imply that if there is a God, then God would have to have a neural basis for consciousness. However, if the brain is understood as a sufficient condition, then it is possible to envision a non-neural basis for consciousness in the universe.

So there are two ways in which we can explain what consciousness is. The reductive explanation of consciousness is to define consciousness as it relates to what is physical, in that consciousness can be understood as a reductive given, an emergent property or a quantum phenomenon. The non-reductive explanation of consciousness is to define consciousness as it relates to what is metaphysical, in that consciousness can be understood in terms of its essence, namely intentionality, subjectivity, and intelligibility. So we can either explicate the reductive property of consciousness or the non-reductive essence of consciousness. What is the essence of consciousness? The essence of consciousness is (1) intentionality --what is common to each one of us, (2) subjectivity or the self --what is unique in each one of us. What is common in each one of us is intentionality, for all consciousness is consciousness about something". What is distinct in each one of us is the self or subjectivity along with qualia.

Essence/Existence Distinction

The second metaphysical distinction that has a reductive and a non-reductive aspect to it is the essence/existence distinction. What is reductive is the 'is' of identity or existence. What is non-reductive is its essence. Everything that exists, exists with essence. So when we see something, we are aware of either its existence or its essence. Most people observe the essence of what exists. For essence implies existence but seeing the existence of something does not imply one knows its essence. Essence//existence distinction is possible only if its existence has a beginning. If an existent does not have a beginning, then the essence of an existent would be inexplicable. However, if an existent has a beginning, then we not only can make an ontological distinction between essence and existence, we can also say that essence precedes existence, if there is an intelligent cause for its existence. The metaphysical distinction between essence and existence can be traced to

Plato³⁰. The world of Ideality defined the world for a long time and still does. The question is can we separate essence from existence? What is common in everything that exists is existence, but when we ask what exists, then it separates one entity from everything else? Are essence and existence distinct? When are they separable/inseparable? What does "essence precedes existence" mean? Are there beings whose essence and existence are inseparable? Who defines essence? Is essence part of existence? Can we talk about essence independent of existence? When we begin to observe the world, what captures our attention is either the existence of objects or the essence of objects. In either scenario, we have to address the question which comes first. For either essence precedes existence or existence precedes essence. To Plato, the world of essence precedes the world of objects. In fact, to Plato, the world of objects are mere copies of the world of essence. Reality at its best is the world of essence or ideas. But to Sartre existence precedes essence (Sartre 1949, p. 28). If the universe is without a beginning, without cause or essence as Sartre would argue then it is almost impossible to define essence (Sartre 1977, p. 725). That is why Quine argued for the inexplicability of essence (Quine 2013, pp. 23–72). Unless one is the creator of something, then it is expected to be able to define the essence of something.

The physical eye can registrar the 'is' of existence, but the rational or metaphysical eye is required to establish the 'is' of the essence. The 'is' of identity or the 'is' of composition (water is H₂O) establishes the 'is' of existence, but can the 'is' of identity or composition establish the 'is' of the essence? What establishes the 'is' the essence. What role does the 'is' of composition play in establishing the 'is' of essence. Does the essential properties of an object define the existence of the object or the essence of the object? Essence is elusive. Quine (2013, pp. 23–72). When we look at a table, how much of the 'is' of composition determines the essence of the table? The table could be made of wood, metal, or stone and still be a table. Similarly, we know that consciousness has a neural base supported by the right temperature, pressure, oxygen, and nutrients. The question is how much of its neural base is the basis for intentionality and subjectivity. With reference to mental states, we see that the existence of mental states can be traced to a neural base, but when we look at the essence of consciousness, we notice that what is essential to consciousness, namely intentionality and subjectivity, are not a property of any particular neuron. We cannot say that the brain causes consciousness because consciousness is dependent on other entities that sustain life –such as temperature, pressure, oxygen, and nutrients, so the brain alone cannot cause consciousness. So emergence, supervenience, and quantum phenomena are terms attributed to explain how consciousness comes into being.

Concrete/Abstract Distinction

The third metaphysical distinction that has both a reductive and a non-reductive aspect to it is the concrete/abstract distinction. Both the concrete and the

³⁰David Macintosh, Plato: A Theory of Forms. (In Plato's *Republic –The dividing line*) (https://philosophynow.org/issues/90/Plato_A_Theory_of_Forms).

abstract objects can be reductive; however, our understanding of what is concrete and abstract is non-reductive. In understanding the relationship between matter, mind, and metaphysics, we realize the concrete/abstract distinction further explicates the nature of reality. The concrete/abstract distinction defines how the mind categorizes reality. There are concrete objects (trees or shrubs) and abstract objects (like mathematics or morals). All reality, both concrete and abstract, has its beginning with the beginning of matter. However, abstract realities such as mathematics have their beginning related to matter only if we first accept that matter cannot be separated from the mind, nor can the mind be separated from matter. If this is accepted, then both concrete and abstract realities have their beginning with the beginning of matter. The mind gets information from the world of matter which is filled with shapes, sizes, and designs. This information is processed as mathematics in mind. As such, space, time, and mathematics all come together with the beginning of matter because we cannot separate matter from the mind, nor can we separate mind from matter. Matter and mind are not only interconnected but interchangeable because they are different aspects of the same reality (Wald 1990, p. 75). It is the mind that defines this metaphysical distinction. While laws of physics have their beginning along with the beginning of matter, the laws of mathematics seem to have no beginning³¹. However, mathematics also has its beginning with matter. The world of matter implicitly projects mathematics. We cannot separate matter from mathematics. If we connect matter with the mathematics, then it is easy to connect mathematics to the mind.

Without minds, there can be no mathematical truths, yet its truth is not of our making (Dummett 1993, p. 218). Is $2+2=4$ true because we say so, or do we say so because it is true? It is not true because we say so, nor do we say so because it is true. We say $2+2=4$ because of how the mind understands the world of matter. At first glance, it seems there seems to be no reason to project the need for a beginning for mathematical truths—in that they seem to be ageless and timeless. However, realities such as mathematics begin with the beginning of matter, and by the information, the world of matter provides the mind through the transducers. It is the information from the world of matter that the mind interprets and understands as mathematics. If metaphysics deals with the nature of reality, then mathematics is metaphysics at its best. Mathematics is in every nook and corner of the world of matter or universe. Another way of looking at mathematics is to liken it to secondary qualities. Just like the transductions from the transducers are interpreted as color, smell, and sound; similarly, all the information the transducers generate is interpreted by the mind as shapes, numerals, and sets—or mathematics. While sound, smell, and sight (color) are considered as visible secondary qualities, mathematics can be considered as comprehensible secondary qualities. So just like we do not create color, sound, or smell, we do not create mathematics—it is simply how the mind interprets transductions sent by transducers to the brain. There is no place nor location for color out there or in your mind; similarly, there is no particular place or location for mathematics out there or reductively in mind.

³¹Max Tegmark - Is Mathematics Invented or Discovered? <https://www.youtube.com/watch?v=ybIxWQKZss822>.

We do not talk about the birth and death of triangles like we talk about the birth and death of stars³² because the birth of the universe entails the birth of mathematics. It also means that matter and mind are necessary before one can talk about the realities of mathematics. Mathematics does not have an independent existence. It is an assertion the mind makes, yet it is not created by the mind; it is because of the way the mind understands the world of matter. Plato argued for an immortal mind for eternal realities such as triangles and circles do not have a beginning, but can be known only because of an eternal mind. However, in this paper, it is argued that all realities, including mathematics, have their beginning with the beginning of matter. The birth and death of stars create both the world of matter and mathematics.

There are both concrete and abstract objects, and we can understand the nature of both concrete and abstract objects. The question is, what gets our attention first—is it the objects or the nature of objects? Metaphysics deals with both the nature of the concrete and the abstract objects. But what is interesting about objects and the nature of objects, is that objects are visible, but the nature of objects is invisible. We can see circles but we have to comprehend the notion of circularity. It is in the understanding alone. One is out there, and the other is in one's mind. One has a place and location outside the mind; the other does not have a place nor location anywhere.

What do we understand when we hear the word 'one'? Do we see numerals (example: Roman numerals), or do we think of numbers? What do we see when we see a clock? Do we see the time of the day or think of the notion of temporality or eternity? When we see something circular, do we see a circle, or do we think of the concept of circularity? Similarly, what do we see when we see things --do we see the existence of objects, or do we understand the essence of the objects. What we see and understand of reality is the basis for defining reality. When we see a red object, do we see the color red, or do we comprehend the concept of redness. Metaphysics deals with the abstract, but the abstract is about our understanding of what exists. We do not have access to reality as is; we only have access to how we understand reality. That is why the analytical and questioning mind plays an important role in what is known about reality. Discussing the content of metaphysics in the context of the questions that initiate metaphysics provides the basis for the explicability of the nature of reality. Since metaphysics is our understanding of reality, there is no place and location for it outside our minds or inside our minds.

Space/Time Distinction

The fourth metaphysical distinction that has both a reductive and a non-reductive aspect to it is the space/time distinction. Particular space and temporal time can be understood as being reductive. But the concepts of space and time are non-reductive when we understand that matter cannot be actualized independent of

³²The platonic view is that triangles and circles are eternal and since we require a mind to know such realities then there must be an eternal mind in whose mind such realities exist.

space and time. As such, time and space begin together, and its beginning is tied up with the beginning of matter (Nicholson 1999, p. 235). The beginnings of matter simultaneously necessitate space and time. When matter had its beginning, space and time can either be understood as being a necessary aspect of being or can be understood as an emergent aspect. We cannot have matter without space and time—for all matter occupies space in time. Space and time have a beginning, but it begins with the beginning of matter. (We cannot see space nor time but without it there would be no matter or life).

As such, all beings that have a beginning have their beginning in the beginning. All atoms that exist now had their beginning in the beginning. All beings share three space-related dimensions, namely length, breadth, and height. But when we begin to observe objects, we soon realize that we are missing something—the temporal dimension. Space and time are emergent properties with every existent. All matter/life exists in the context of space and time. A paradigm shift was required when space and time were considered fundamental to reality. Further, until recent times space and time were understood as two separate aspects of reality. But Einstein argued that they are inseparable and argued that they must be understood together, hence the space-time notion (Nicholson 1999, p. 63). Space and time begin with the beginning of beings. Time, like space, becomes a reality with the beginning of matter. The beginning of space and time can be traced back to the beginning of matter.

If (1) gravity wraps time and space (Nicholson 1999, p. 63), (2) if quantum mechanics is serious when it argues that an atom can be in two places at the same time³³, and (3) if traveling at the speed of light stops time³⁴, then the string theory can purport a theoretical possibility of a time machine that can go into the future or into our past³⁵. The theory of relativity purports that time dilates because of gravity—the atomic clock registrars' time dilation. Time goes faster the farther away you are from the earth's surface compared to the time on the surface of the earth. This effect is known as "gravitational time dilation."³⁶ While time begins to tick faster or slower once beings come into existence, consciousness is aware of how time passes one moment at a time and aware of timeless/abstract truths like mathematics and temporal truths such as aging. However, what must be noted is not only the relationship between matter, space, and time but the two important aspects of matter, namely gravity and the laws of physics. Gravity and laws of physics do not come before or after the existence of matter; it comes with the existence of matter. Gravity and the laws of physics cannot be understood independently of the physical world. Gravity and the laws of physics are an integral part of the physical world.

³³How does Time stop, <https://usm.maine.edu/planet/how-does-time-stop>.

³⁴How does Time stop, <https://usm.maine.edu/planet/how-does-time-stop>.

³⁵"Time Machines", Stanford Encyclopedia of Philosophy <https://plato.stanford.edu/entries/time-machine/>.

³⁶Time Dilation—Einstein's Theory of Relativity Explained. <https://www.youtube.com/watch?v=yuD34tEpRFw>.

Particular and Universal (Properties)

The fifth metaphysical distinction that has both a reductive and a non-reductive aspect to it is the particular/universal distinction. Here the particular is reductive, and the universal is not. Understanding the relationship of matter, mind, and metaphysics is to understand the particular/universal distinction. When we observe the world, we either see things as particulars or as universals. The particular/universal metaphysical distinctions can be traced back to how the mind processes what we perceive in understanding the nature of reality. When we see a red object, what do we see, the color red or the property redness? If we see a red object, then it deals with the particular, but if we see redness, then we are dealing with the universal. The question that necessitates the particular/universal distinction is to ask whether we see the color red or the property of redness? We cannot separate the particular from the universal. Seeing red is also understanding redness. Seeing a red object is different than seeing one red object among many red objects. How many objects are there that are red? If the answer is many, then the shared property becomes obvious. We either see specific things, or we see them as one among many objects it represents. Similarly, when we see a dog, we can see either a dog or one dog among many dogs. Other questions that necessitate such distinction—similarities and dissimilarities project the need to classify and distinguish one from the other. Specificity is the basis for identity, but properties (sameness) are the basis for what is universal. Universals are abstract concepts/properties and do not require space or shape (Cacullo 1984, p. 533), though they can be instantiated intangible objects in space and time. As such, what is universal can, unlike what is particular, be in two locations at the same time—because it is only a 'property (Ehring 2003, p. 327). Universals are properties that are shared by many objects, which is why they do not have to have a particular location. The mind can distinguish those properties in things and understand them by adding "ness" to the ends of words—such as redness. One distinctive distinction is that while what is considered as particular has a place and location in time, what is universal has no (particular) place or location in time. As such, unlike objects which cannot be in two places at the same time, universals can be in two places at the same time. Further, while objects are visible, what is considered as the nature of the objects is invisible.

One feature of the particular is identity, which can be defined as having either numerical identity or qualitative identity. Numerical identity speaks about remaining the same, yesterday, today, and tomorrow.³⁷ There can be no changes due to time. The clock is a good example of numerically being the same now and five minutes later—even though the time now is different than earlier. Qualitative identity speaks about the state of being the same in nature or quality (two pieces of chalk). The properties or qualities are the same³⁸. However, just because

³⁷Oliver Black, London, "Personal Identity, Numerical and qualitative" <http://sammelpunkt.philo.at/id/eprint/2853/1/black.pdf>.

³⁸"Numerical identity does not require Qualitative identity" <http://www.rightreason.org/2009/numerical-identity-does-not-require-qualitative-identity/>.

something is the same, it does not mean it is one and the same. Being exactly the same does not imply being one and the same.

Contingent/Necessary Distinction

The sixth metaphysical distinction that has both a reductive and a non-reductive aspect to it is the contingent/necessary distinction. What is contingent can be reductive and what is non-contingent is understood as being non-reductive. In understanding the relationship between matter, mind, and metaphysics, we realize that certain existents are contingent, and certain existents are necessary. The mind is aware that concrete and abstract objects either have a beginning or do not have a beginning. Either they are dependent or not dependent; true in a given world or true in all possible worlds. As such, all beings are either contingent or necessary. Being contingent implies-- having a beginning, being dependent, which could have been otherwise, and being true or false in a given world. Being necessary implies --having no beginning, being non-contingent, cannot be otherwise, and is being true in all possible worlds. Necessity can further be understood as being factual/existential; physical/ nomic, metaphysical/logical, Logical or metaphysical necessity can be explained by laws of thought (Nolan 2011, p. 321), physical or nomic necessity can be explained by laws of physics (Roberts 2021), Factual or existential cannot be explained because we cannot explain factual necessity or brute facts—not because we don't know its explanation but because there isn't an explanation (Ehring 2003). Why anything exists or necessarily exists cannot be explained. Logical necessity purports that its negation involves a contradiction; metaphysical necessity purports that its non-existence is impossible—it cannot be otherwise. Physical necessity purports that what is, is what it is. Water is H₂O—it is what it is. As such, what is, is explicable but why it is what it is, is inexplicable. That is why while physical necessity is explicable, factual necessity is inexplicable.

What is the relationship between the three types of necessity? Metaphysical necessity sits between logical and physical necessity³⁹. Logical necessity entails metaphysical necessity, not vice versa; metaphysical necessity entails physical necessity, but not vice versa.⁴⁰ Necessity displays itself in human understanding in many ways. Necessity is the property of existing necessarily—non-contingently. A further distinction can be made between *a priori necessity* and *a posterior necessity*. Until 1980 only *a priori* necessity was defined as being true in all possible world. But Kripke argued that once we discovered that water is H₂O, then only what is H₂O can be called water, and can be called water in all possible worlds (Kripke 1980, pp. 116, 128). All we can say is state what there is in the universe and how the universe exists, but we will never be able to explain why things exist or why anything exists.⁴¹

³⁹Metaphysical necessity, https://en.wikipedia.org/wiki/Metaphysical_necessity.

⁴⁰Metaphysical necessity, https://en.wikipedia.org/wiki/Metaphysical_necessity.

⁴¹The Map of Particle Physics | The Standard Model Explained <https://www.youtube.com/watch?v=mYcLuWHzfmE>.

Conclusion

The single characteristic of metaphysics is the non-reductive account of its content, for all metaphysical distinctions and assertions are a non-reductive description of a reductive given. Consciousness and the content of consciousness/metaphysics are distinct. One is neural or reductive, and the other is non-neural or non-reductive. Because the content of consciousness is non-reductive, we can establish the truth of metaphysical claims only in the context of the questions that necessities such as assertions. While reality and the nature of reality are the same, the mind makes this metaphysical distinction in defining the nature of reality. The questions associated with understanding the nature and relationship between matter, mind, and metaphysics allow us to make the following metaphysical assertions related to the concrete or abstract objects: (1) Matter, space, fields, time along with mathematics, have their origin together. Mathematics like space and time do not have a special beginning. Space, time, and mathematics have their beginning with the beginning of matter (not before or after). (2) Mass cannot be increased or decreased; energy cannot be created or destroyed; mass and energy are interchangeable (3) Consciousness is a brain process hence reductive, but the content of consciousness, namely the content of intentionality or subjectivity, is non-reductive. While the physical eye can establish the 'is' of existence or what is reductive, the metaphysical eye establishes the 'is' of the essence, which can be considered either as an essential or emergent property of matter.

Because property dualism purports that there is only one substance with two properties, namely the physical and the mental phenomena, we can argue that matter and mind are inseparable. When consciousness is understood as a reductive given, it can be understood as a neural state, an emergent property, or a quantum phenomenon. When consciousness is understood as a non-reductive given, the content of intentionality, subjectivity/qualia, and creativity can be understood as a phenomenological or existential given. The reductive aspect of consciousness can only establish whether one is alive or dead. It cannot establish who is alive or consciousness's content. The non-reductive explanation of consciousness establishes who is alive and can explicate the content of consciousness or intentionality. However, what will always remain a mystery is (1) how a material brain can generate an immaterial self, (2) how the determinate world can create an indeterminate mind, (3) how insentient atoms can generate sentient intentionality, subjectivity, creativity, (4) how a sense-receptory brain that processes sense-evident data generate a mind that creates or processes self-evident truths—such as mathematics, morals, and metaphysics, (5) why it takes a brain that is made of insentient atoms or neurons to create a mind that defines what an atom or neuron is.

The reductive world of physics becomes the non-reductive world of metaphysics because of how the mind understands the world of matter based on the questions the mind entertains. While what is physical remains the same, what is metaphysical is subject to constant change and revision because questions related to the nature of reality are always in flux. The ontological acceptance of both the physical and mental phenomena as an empirical and a phenomenological given is the basis for why physics and metaphysics are inseparable. When the

essence of consciousness, namely intentionality and subjectivity, are considered as an essential property of matter and not an accidental property of matter, intentionality or metaphysics can be understood as a phenomenological given. Reality and the nature of reality are the same; one is an empirical given, the other being a phenomenological or existential given.

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