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LETTER TO THE EDITOR

The Role of the Exalted Mind in the Observer Observed Quantum Reality

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ABSTRACT

The great advances in science precipitated by the advent of quantum mechanics in the 20th century have profound implications for the nature of reality. The universe is now assumed to be fundamentally quantum at all scales of existence. As such, ancient questions about what the roles of human beings in the universe are, what is the relationship between the observer and the observed, the role of the mind, existence itself and the nature of experiences, can now also be approached in new scientific ways. This provides the opportunity to explore mathematical formalisms that relate to relationships between the observer and the observed, through three principles or universal laws which apply at all levels of existence. These principles form the essence of a vast ocean of qualia of experience. Such approaches that we advocate here provide a formalism that goes beyond specific interpretations of quantum mechanics and have strong philosophical foundations in both Western philosophy as well as the monistic contemplative systems of the East. We present a plausible thesis that what is the unifying principle of all existence is universal Consciousness, which when turned within is pure Awareness of Being. The mind and the countless experiences of qualia in this inner vision encompass ancient eternal views of contemplation where the observer, the observer and the process of unifying them form an undivided wholeness. The exalted ancient yet modern view would resonate with both the non-dual ancient teachings as well as different interpretations of quantum mechanics wherein the observed system and the observing subject are inexorably tied together in an undivided Wholeness of Being. The role of the mind is critical and we use the term Exalted Mind to distinguish higher functions from ordinary mind. The implications for humanity are indeed profound, in our view form the foundation of the emerging scientific and medical paradigms, the dawn of a new era of conscious non-dual, science-based Awareness.

Keywords: quantum, mind, consciousness, awareness, observer, observed, contemplative, qualia

Introduction

Key terms in contemplative experiences arise from ancient traditions and recently science is making some efforts to address experience and the role of the mind, primarily through psychology. Psychology deals of course with the mind, the brain deals with mind, the brain is part of the biological being, therefore biology deals with the mind. So, does quantum mechanics (QM). As such, one would consider perhaps naively that science itself had not much to add to the vast field of contemplative practices and experiences, however, there would be no scientific basis for (any) contemplative experiences without the underlying philosophical foundations. Here we concentrate on QM, rather than the more recent fields of quantum field, particle, grand unified field and string theories, which even though extremely successful in themselves in theory and mathematical formalism, do not actually contain any specific links to the mind, in the way that the original QM did as the founders developed it in the early 1920's. It is the field of interpretations of QM, closely related to philosophy, where questions about the mind and its relation to the physical world enter in full force.

It is fair to state at present that consciousness and the study of its origins, meaning, relation to the human mind and any profound connections of consciousness to the world, continue to challenge all of science. In recent years there are of profound approaches to spirituality in the West, however they are often dismissed by "rational" scientists who actually follow a physicalist worldview. Equally perhaps surprising, many such rational scientists in both the West and East tend to ignore or dismiss the vast fields of spiritual and philosophical teachings and associated practices of the East. It is surprising because such dismissals ignore the very foundation of science, philosophy. As a consequence, although much progress has been made, in understanding of the brain as a "physical" object of incredible complexity, not much progress has been achieved in understanding or even accounting for the most elementary subjective experiences that in a physicalist approach, would refer to the brain and neuronal processes in particular.

Today scientists in many polls when questioned about what are the two most important, unsolved issues facing science, respond that they are the nature of the universe and the nature of conscious experience (Chopra and Kafatos, 2017). May it perhaps be that these two profound issues are closely related to each other? As such, the

foundation of physics, the role and origin of the mind, the nature of consciousness and how consciousness arises, can be approached by science. In the present work, we examine the connection between QM, often considered to only apply to the microcosm, to the mind and beyond at all levels. Medical applications being paramount important. We rely on previous works, cf. Kafatos and Nadeau (1991/2000), Kafatos (2002), Kafatos and Chopra (2014), Kafatos (2015), Kafatos and Narasimhan (2016), Narasimhan and Kafatos (2016), Kafatos and Yang (2016), Theise and Kafatos (2016), Kafatos and Kato (2017), Kafatos and Narasimhan (2019), Chopra and Kafatos (2017), Kafatos (2021).

Three Foundational Principles

In the fundamental relationships between subjects and objects, mathematical formalism provides a common framework, applicable to all levels of experience, revealed primarily by QM and not limited to it. Experiences are based on three foundational principles or Laws (Kafatos, 2015; Kafatos 2021) reflected in quantum reality, in fact all science *and* in the way Consciousness objectifies the world: They are *complementarity*, *recursion* and *creative interactivity*. As such, "science" (the ways of knowledge) results in an exalted view of the human being.

Complementarity (Integrated Polarity) is where the *apparent opposites become unified at the deeper level* of universal Consciousness. It constitutes an indirect argument that QM is the starting point for developing a scientific framework of the science of consciousness. A consequence of complementarity is that it provides horizons of knowledge (Kafatos and Nadeau, 1990/2000). Horizons of knowledge, *are not absolute* they depend on the act of observation (cf. von Neumann).

Universality works through recursive phenomena, "as here, so elsewhere". Recursion assures that all particles are similar; all physical laws apply everywhere; all electrons obey the Pauli Exclusion Principle, etc. The world (and Consciousness which is at its foundation) operates through recursive relations.

Creative Interactivity, provides a framework of interactions at many different levels, from the "very small" to the "very large", between subjects and objects, between sentient beings, between cells and cells, etc. Sentience is a fundamental aspect of experiences or qualia *in Consciousness*, conscious

awareness of objects experienced by conscious beings, the experience of the “other”.

The three foundational principles *give meaning to the universe*, they are the workings of how Consciousness, the *Exalted Mind* manifests the universe and apply at all levels, beginning with the fundamental subject – object relationships and the mathematics of Consciousness.

Below we briefly focus on *qualia* (from the Latin term *qualis*, meaning “of what kind”) which are at the heart of an experience-based philosophy of mind. The reader is directed to Chopra and Kafatos (2017) for thorough examination of scientific issues facing humanity and the role of qualia in shaping our views of the cosmos.

Qualia

The question of how consciousness arises and if there is an underlying reality based on Consciousness has no answer in any system that takes the division of subject and object as absolute. It became clear from the very early days of the development of quantum mechanics that the subject (observer) and the observed (object as a system) are inexorably connected. For example, the problem of measurement in quantum mechanics and the role of the observer have been part of quantum theory from the very beginning of its founding but have still not been resolved and remains the central reason for having so many different interpretations of quantum theory, the issue being how to consider measurement and the so-called “collapse of the wave function” ψ . The standard von Neumann (1955) interpretation of Orthodox interpretation of quantum theory, is that the unitary time evolution of the quantum state is interrupted upon measurement and particular value or outcome emerges, given by the theoretical quantum probability $|\psi|^2$. As such, in the Orthodox view, all information about the quantum system is given by ψ . What specific value(s) of an outcome for the quantum system will emerge though, Orthodox quantum theory cannot predict: Observational choices in the laboratory determine the context of what is to be observed and in resulting outcomes that cannot *a priori* be fully known beyond what the theory provides as knowledge of the possible outcomes. We may even presume, as Eugene Wigner and John A. Wheeler would hold, that without observation or the participation of the observer, quantum systems including individual particles don’t even have any properties! As Wheeler (1981) stated, “no phenomenon is a phenomenon until it is an observed

phenomenon”. The observer’s choices play a most *fundamental* role in the “external” reality that one observes. This is at the heart of Contextuality of quantum phenomena that particularly Bohr knew from the very beginning and fully accepted and other physicists adhering to the Copenhagen Interpretation (CI) view as it emerged to morph into the Orthodox view, as Pauli, Wigner, Wheeler and von Neumann also accepted. The dictum *the observer and her choices are an integral part of the process of what is to be observed* is the fundamental tenet of standard interpretation of QM. However, this is of course not unique, leading to a plethora of interpretations that although all accept the great successes or *mechanics* of how to calculate possible outcomes, they all don’t accept the profound implications of participation.

One may unequivocally state that quantum mechanics opened the door to consciousness as to how the mind participates in what reality is but did not provide a solution as of their true nature of consciousness and its specific aspect of human mind (Kafatos and Nadeau, 2000; Kafatos, Tanzi, and Chopra, 2011). Moving beyond the strict applications of quantum mechanics, and as result of examining the issues involved, there are endless accounts of what experiences (*qualia*) might be and disagreements as how they are experienced *in consciousness* and *by consciousness*, what the role of the mind might be. What does the term “consciousness” really mean? The so-called “hard problem” (Chalmers, 1995) addresses the difficulty of accounting for experience in terms of physical theories and, we content, in a sense implies the fundamental role of qualia. Moreover, experience cannot be taken out of a quantum-based ontology, whether the observer is accepted as being essential or whether the role of the observer is even denied. The reason is that quantum theory ushered in the role of observation and measurement as integral parts of reality (von Neumann, 1955; Kafatos and Nadeau, 2000; Stapp, 2009; 2012; Kak, 2014). Which leads to the *big question*: is the universe real in itself? Or is it just an appearance of an *external* reality? (meaning would it still exist even if all observers, all measurements, all ways of knowing disappeared)? Kafatos and Nadeau (2000) unequivocally said “no” coining the now popular term *Conscious Universe*.

It is interesting to examine the relative contextuality of qualia as expressed by Erwin Schrödinger (2001), who was not a follower of the standard Orthodox view, in the sense that he believed, like

Einstein, Bohm, de Broglie and other great quantum physicists who believed that an external reality exists of itself, and who devised the so-called “cat paradox” to indicate issues that he believed Copenhagen/Orthodox would run against. He held the view that qualia are *not material* and cannot be accounted for by material theories and as such in a sense he also was favoring the *noetic view of quantum reality* which is at the center of the Copenhagen/Orthodox worldview:

“The sensation of color cannot be accounted for by the physicist’s objective picture of light-waves. Could the physiologist account for it, if he had fuller knowledge than he has of the processes in the retina and the nervous processes set up by them in the optical nerve bundles and in the brain? I do not think so.”

We here instead advocate a perhaps *reasonable or common-sense* approach beyond these contradictions of a robust existence of universe (and all that it contains): Quantum theory opened the door to consciousness and the role of the mind in forming “pictures” (or views) of objects “out there” *but* it cannot *in itself* account for consciousness or the mind for that matter. Simply put, we cannot “take out” the subjective experience from the practice of science. In the end, it boils down as to what are the ontological assumptions (or axioms) of a system of thought (Kafatos and Kato 2017). Bohr with his profound understanding of CI, argued that QM is silent on the issues of the participatory nature of consciousness. He opted instead for an *epistemological* approach of doing real physics.

Moving in a sense beyond both camps, the realism versus contextual (Orthodox) realism, if we can call it that, here we argue that ontology is *implied* in QM, it is not just a set of rules of how to calculate possible outcomes but it involves *both*, a very successful epistemology of how to conduct quantum science and an equally successful implied ontology. As such, complementarity is at the very core of quantum “Reality”, between epistemology and ontology: We present a new vision of reality wherein qualia play a fundamental role (Chopra and Kafatos, 2014, Kafatos 2021). This is our view of the *Exalted Mind*, the Conscious Awareness, the Universal Mind that gives meaning to the world we live in and recognizes the primacy of the Divinity at the core of our Existence:

“Qualia science,” as we envision it, resolves the paradox by showing how the universe operates as the domain of consciousness (Kafatos 2011,

cf. also Kafatos 2021). An external physical universe as a given is untenable in the post-quantum era; it now requires radical revision as our frame of reference for what is really real and what is not, replaced by the participatory universe that all of us experience through qualia. The process of undercutting the five senses is valid, what makes any experience viable—consciousness—cannot be undercut. This distinction rescues objectivity and subjectivity at the same time, in a complementary relationship.”

Observers, Objects and Fundamental Mathematics

There are more than twenty interpretations of QM (cf. *Wikipedia*). The von Neumann interpretation assigns a divide between the subject and the object which is exemplified by the Heisenberg “cut” between them. In the standard interpretation, the interaction of the two, subject and object, causes the superposition within the wave function to collapse, or in more precise mathematical terms, leads to the “reduction of the state vector” ψ . The standard QM interpretation assigns a fundamental role to observation and as such opens the door to conscious interacting with observed systems. Some other interpretations, such as the transactional interpretation (Kastner, 2013), and the Orchestrated Objective Reduction (Hameroff and Penrose, 1995) are consistent with the existence of consciousness or assign its origin to quantum processes described by the relevant formalisms.

Going to an even more fundamental level, logically *prior* to a physical system being interacted with: We examine the *relationship between a subject and an object*, of which a quantum system being measured is one case. Such relationship can be taken as the prototype of other complementarities and an algebra to deal with general system of complementarities can be developed. In other words, starting from QM, we explore how to go beyond QM to a more fundamental level of interactions between subjects (observers) and objects (observed systems).

If we consider the divide of the subject and the object, the question arises *how* does this divide arise? We cannot define the divide in terms of the strength (or weakness) of the interaction between the two because there are objects or systems that are separated that do not constitute object-subject dichotomous pairs. It is true that a collection of systems may be separated in terms of the weak

interconnections between them or within a system by the relative autonomy within the subsystems. But that doesn't provide any help in distinguishing a sentient agent from a non-sentient system, a conscious observer from an automaton that records laboratory interactions. The two may or may not be strongly connected.

The principle of Creative Interactivity provides a framework of universal interactions, which in turn give *meaning* or *Context to everything* and allows more complex relationships to emerge. These elements provide a way to a universally existing sentient reality, the core of Consciousness. Since sentience cannot be located in the body or matter, it should be more fundamental than matter. Our claim is that the physical universe *emerges* from fundamental Consciousness, from the Exalted Mind, projected as it is on the screen of Awareness. And interactivity leads to *contextuality*, fundamental in QM, as measurements must have a contextual aspect to them. As such, creativity interactivity, along with complementarity and recursion, together give *meaning to the universe, not one meaning but many contextual meanings and resultant experiences*.

Our starting point, our *ontological assumption is axiomatic*: Stated simply is that underlying, *universal Consciousness operates at every level of reality* cf. Kafatos and Kato (2017). It is founded on the fundamental "I-ness". The basic nature of Consciousness is also basic to each and every one of us: It is the perfect *I-consciousness*, the *I-awareness* (Kafatos 2021). Three principles, on the other hand, allow universal Consciousness, which otherwise would be unmanifest and unknowable, to operate and give rise to all subjective experiences. The Universe is participatory as Consciousness is in partnership, or participation, with everything in it. This participation manifests as sentience *at all levels, in all objects*. It is the experience of universal Consciousness that manifests in countless beings. Consciousness itself can be "primitive" in the sense of evolution of "lower" forms of biological sentience or "exalted" in the human sense that produces poetry, music, philosophy and QM. The "lower" is not a value judgement, it rather means basic. At the individual level, experiences tied to the mind, become subjective. Qualia, as we saw above, give rise to all levels of subjective experience and are the fundamental building blocks of the Conscious Universe. The Universe is nothing more than the Exalted Mind at all scales, levels and experiences.

As developed before (Kafatos, 2015, 2021), we use a *simplified Hilbert space convention*, which has the advantage that it brings forth a familiarity with quantum formalism. As QM is the only advanced physics we have that fundamentally relates observational connections to reality of "objects", the connection to Hilbert space is natural. Although the formalism ultimately refers to Consciousness, it can also be applied to the human observing process via the mind. At first, Subject and Object are *not* differentiated, they form the primordial relationship between what eventually becomes a separated object from subject, the *fundamental complementarity*. The relationship is tied to *I Am* linking the two. The only difference between Subject and Object is a sense of direction (or emphasis): In the "*I Am*", the direction is from (say) right to left. Then in the "*That Am*", the direction is from left to right. "*I (Am) That*", and "*That (Am) I*" are complementary relationships. The emphasis of the statement "*I (Am) That*", is in the *I*, a logical statement (see next section).

I (Am) That (*I* in bold for emphasis), the subjective aspect of the relationship *I (Am) That* is emphasized, signifying the *Will* aspect. Before any knowledge (which is to follow) or subsequent to knowledge any action is undertaken, the subject has to be identifying itself with its own will. The next statement *That (Am) I*, the emphasis is in *That*. Before any action can be undertaken, the object has to be identified, signifying the *Knowledge* aspect of Consciousness. However, in both cases, Will and Knowledge, there is no separation, only a (latent) potential of what eventually becomes a separation between Subject and Object.

The next statement *That (Am) I (Am)* shows balance: It is can be decomposed into recursive, *That (Am) I-I (Am) That (I-I being just I; in fact I-I-I... are all just I)*. The balance between Subject and Object signifies the (potential) for action. Here the Subject and Object even in this balanced state, are still *One*. In action, the Subject and Object are balanced, equally weighted.

Quantum Wholeness and Idealism

The three universal principles apply to many fields where observation and participation are givens, such as psychology in observing one's own self as well as related to practices of meditation. Psychology is tied to the physical realm through chemistry, biology and physics. Human beings are, however, integral living entities possessing minds, feelings, experiences, qualia, which physics can at

best provide some hints of integrated dynamics. The existence of universal principles in both QM and psychology implies that one can explore their common applicability in order to provide a better understanding of the integral human being, aiming towards the view of the Exalted Mind. Human beings are not biochemical machines and as such mechanical analogues can at best provide some rough understanding of processes. Central to both psychology and QM is the role of the participant-observer, the utilization of the mind, both crucial to health, healing and of course well-being, the Exalted Mind. Phenomena such as entanglement and nonlocality, the role of participation of the observer, are in a sense mind-like and one can turn to ancient oriental philosophies which had strong psychological overtones to explore new vistas. The universal principles apply to all levels of existence and all human activities, including healing and psychology, going beyond the belief system of a reality based on body-mind. We examine the possibility that common to both psychology and QM is that Consciousness is at the foundation of the universe and the inner core of all human beings. Perhaps western psychology and oriental psychology are, ultimately, not separate fields but complementary philosophical practical approaches that are both needed for the benefit of humanity. Our view goes beyond both science and psychology and has strong philosophical foundations in Western philosophy as well as the monistic systems of the East.

Building upon the quantum framework, we realize today that QM has many profound implications for understanding the nature of Consciousness. However, not much progress has been achieved in understanding or even accounting for the most elementary subjective experiences (cf. Pribram, 1991). If qualia are produced in the brain, it is curious that many neuroscientists hold the view that the brain has nothing to do with QM, even though tacitly agreeing that QM is the foundation of all physical reality, *including the brain!* What used to be in the domain of philosophy and metaphysics, the origin of the mind, the nature of consciousness how consciousness arises, can now be approached by science *combined* with philosophy. This is our Exalted Mind approach (cf. Struppa et al., 2000; Kafatos, 2014, Kafatos 2021).

What was lacking was a true dialogue between science and oriental philosophy and the merging of the two. Now we have the merging of the two (Kafatos and Kato, 2017; Kafatos and Yang,

2016). Although science is always based on ontological assumptions (its foundations being philosophical) most scientists are reluctant to consider the metaphysical assumptions of what they practice professionally (Kafatos and Nadeau, 2000).

Idealism is a central feature of the philosophy of many great thinkers of the West. In modern times, the emergence QM had a profound influence on the philosophy of Alfred North Whitehead (1925, 1978). Although in the 1910's and 1920's he developed ideas related to mathematics, he turned his attention to philosophy of science and metaphysics, departing from most western philosophy. His ideas mesh well with the foundations of quantum mechanics, arguing that reality consists of *events* rather than *matter*,

“events cannot be defined apart from their relations to other events, thus rejecting the theory that reality is fundamentally constructed by bits of matter that exist independently of one another”. His work *Process and Reality* (Whitehead, 1978) forms the foundation of process philosophy. For Whitehead, process philosophy and QM are intimately connected, directly tying philosophy to modern physics.

Contemplative Practices, the Exalted Mind and Perennial Monistic Systems

Perennial philosophies concern themselves with the nature of Consciousness, the relationship of the individual to the universe and the relationship of the individual to Consciousness itself. The role of Consciousness has been a central part of the philosophical discourse in the monistic schools of the East, particularly Advaita Vedanta, Shaivism and Buddhism (cf. Chatterji, 1986; Kafatos and Kafatou, 1991; Dyczkowski, 1994; Pandit, 1997; Swāmī Shāntānanda, 2003; Swāmī Vimuktānanda, 2005; Singh, 2006; SenSharma, 2007; Swāmī Lakṣmaṇjoo, 2012). The non-dual schools complement the Idealism of the great western philosophical systems of Spinoza, Kant, Hegel, Whitehead and the ancient Greek philosophies of Heraclitus, Parmenides, Socrates, Plato and the Neo-Platonists.

Having provided foundations from QM, from fundamental mathematics, we now turn to the non-dual philosophies, to the Exalted Mind of ancient visions of Reality.

The non-dualistic systems originating in India, specifically *Advaita Vedanta* and Kashmir *Śaivism*, give us a higher view of the individual, the universe

and the nature of Consciousness. Their underlying premise, is that the human being is a reflection of fundamental Consciousness, in fact there is no difference between the individual and universal Consciousness. The Exalted Mind approach backed by both Śaivism and Vedanta is that ultimate Reality, or the Absolute, is One. This underlying reality, *Brahman* in Vedanta and *Paramaśiva* or Supreme Śiva in Kashmir Śaivism (cf. Kafatos and Chopra, 2014; Kafatos, 2021) holds and supports the universe of countless experiences, accepting that Absolute undifferentiated Consciousness is the ultimate Reality, the underlying reality of countless objects, subjects and the processes tying them together, such as observation, sentience, understanding, dynamics, cause and effect. Agreeing on the premise of ultimate Reality, they provide complementary approaches: Vedanta emphasizes that Brahman is the only true Reality and the perception of the universe as something separate from that Reality is an illusion; while Śaivism accepts the universe as real, as it a reflection on the screen of Supreme Śiva. The universe is part of the whole, albeit being the physical, mental, subtle and in fact all objective experiences, of the great underlying infinite sea of Consciousness.

Advaita Vedanta

Vedanta accepts the authority of three sets of works, spanning several centuries: The *Upanishads*, the *Brahma Sūtras*, the *Bhagavad Gītā* (Kuiken, 2006). Its basic principles are summarized in the *Viveka Chudamani* (Crest-Jewel of Discrimination) of the great Master Ādi Śankarā:

- a) “Brahman is Reality” b) “The world is an illusion” and, c) “The individual Self is nothing but Brahman”. Śankarā’s “illusion” is taken to mean the misinterpretation of experience (and not “non-existent.”), the denial of a separate “external” cosmos.

The *Viveka Chudamani* states: “The Ātman is one, absolute, indivisible. It is pure consciousness. To imagine many forms within it is like imagining palaces in the air. Therefore, know that you are the Atman, ever-blissful, one without a second.” The *Aparokshānubhūti* (Self-Realization) of Ādi Śankarā also states in sūtra 45: “There exists no other material cause of this phenomenal universe except Brahman. Hence this whole universe is but Brahman and nothing else”. While sūtra 49 states “Inasmuch as all beings are born of Brahman, the supreme

Ātman, they must be understood to be verily Brahman”. In short, Vedanta’s ultimate teaching is that Ātman (the individual Self of any being) is identical to Brahman.

Triadic Kashmir Śaivism

The ancient system, Śaivism and its more recent specific form as developed in Kashmir more than 1,000 years ago, (Dyczkowski, 1994; Singh, 1980, 2006; Kafatos, 2021), constitutes a body of philosophical teachings, with practical means of experiencing the Divinity in everyday life. Kashmir Śaivism flourished in Kashmir between the 8th – 12th centuries CE, developed and built on the ancient tradition of the Vedas. Kashmir Śaivism was developed in a brief but very active period by sages such as Vamana (779 – 813 CE), Vasugupta (875 – 925 CE), the writer of the *Śiva Sūtras*, Utpaladeva (disciple of Vasugupta, 900 – 950 CE), Kallata (also disciple of Vasugupta), Bhaskara, Somananda, the great Śaivite master Abhinavagupta (950 – 1020 CE), and Kṣemarāja (a great disciple of Abhinavagupta). What Abhinavagupta did was to add ancient Tantric texts and teachings in what we now refer to as Triadic Śaivism.

The truly exalted vision of Śaivism as a *Trika* (triadic) system, consists of the Triad of *Paramaśiva* or supreme Śiva, the Absolute, undifferentiated Being; *Śakti* (universal Energy), also known as Citi (universal Consciousness, as the creative power of the Absolute); and the individual soul. The triadic teaching holds that there is *no difference* between Śiva and Śakti/Citi, and in fact there is no difference between Consciousness which is the One *Paramaśiva/Citi* and the individual. The monism could be also viewed as a three-fold Reality, consisting of Consciousness, the universe, and the individual; or, alternatively, the object, the subject and the processes tying them together: *Paramaśiva*, the supreme Being is identical to supreme Consciousness, the Light of the Self that illumines everything in the universe. The view of the underlying Reality in Śaivism is in harmony with Vedanta (Pandit, 1997). *Paramaśiva* the Absolute, is the underlying substratum of all existence. As Citi unfolds the universe, She (the Creatrix of countless universes) is the ultimate source of all manifestations, all objective existence, all experiences of the subjective selves and as such, is also the source of the mind, giving rise to countless beings and countless worlds. Citi represents the immanent part of existence, while *Paramaśiva* the

transcendent aspect of the One Reality. Śaivism does not deny the existence of the universe, instead it considers the universe as real as the infinite Self, because in fact the universe arises from the Self. Countless or infinite numbers of universes and countless beings and objects are all emanations of the creative power of Citi, the consort of supreme Śiva. The creative process itself manifests in an infinite variety of vibrations (*Spanda*) of Ultimate Reality. Spanda derives from a term which means “subtle motion”, and the ultimate Reality is called Spanda because it pulsates, giving rise to vibrations of the infinite field of Citi. The Three-in-One aspects are not different from each other, they are integral aspects of the One, the undivided sea of Consciousness, which is a dynamic, creative and intelligent Reality.

The first sutra of the *Śiva Sūtras* states: “Consciousness is the Self” (Swāmī Lakshamanjoo, 2007). The actual Sanskrit term for Consciousness refers to luminous awareness, the Light of Consciousness. Moreover, Consciousness means more than just (conscious) awareness, it has the absolute freedom of will, knowledge and action. In other words, Reality, which is the universal Self, is identical to Consciousness (cf. Kafatos, 2021).

How does the universe manifest? What is the source of the universe? The first sutra of the *Pratyabhijñā-hṛdayam*, “The Secret of Self Recognition”, authored by Kṣemarāja (Singh, 1980) states: “Citi, supremely independent universal Consciousness, is the cause of the manifestation, maintenance, and reabsorption of the Universe”. Alternatively, “The universe is the means to attain the realization of free universal Consciousness” (Swāmī Shāntānanda, 2003). The first aphorism gives the underlying cause of the changing universe, as universal Consciousness. Here the three cosmic actions which create, maintain and re-absorb all existence are attributed to Citi. In contrast to the way scientists view the universe as being caused and driven by the laws of Nature, the *Pratyabhijñā-hṛdayam* states that the cause is Consciousness itself. How does universal Consciousness unfold the universe? Sūtra No. 2 of the *Pratyabhijñā-hṛdayam* states: “By the power of her own will, She (Citi) unfolds the universe upon her own screen (i.e. in herself, as the basis of the universe)”. Kṣemarāja describes the universe as being nothing other than the projection by Consciousness onto Consciousness. What appear as differences in the objectified world, are projected

differences in the universal screen of Consciousness. They are not separate from the Self.

Then the question would arise, what is the origin of the vast diversity of objectified existence? Sūtra No. 3 of the *Pratyabhijñā-hṛdayam*, explains: “That becomes diverse because of the division of reciprocally adapted objects and subjects”. In other words, division in what appear as objects and subjects gives rise to all diversity. Moreover, in the *Paramārthasāra* Abhinavagupta states: “Just as in a mirror’s reflection a town or a village appears as an image that is not separate from them, yet it appears as separate, and each separate from the other as well as from the mirror, similarly the universe appears differentiated as one thing is from another, and as well is differentiated from the awakened consciousness of the Self, most pure, though that difference too is not real”. Śaivism emphatically holds that the individual is none other than the entire existence. Sūtra No. 4 of the *Pratyabhijñā-hṛdayam* states: “Even the individual, whose nature is Consciousness in a contracted state, embodies the universe in a contracted form”. Sūtra No. 5 holds that “Consciousness herself, having descended from her expanded state, becomes the mind, contracted by the objects of perception”. In the *Īśvara Pratyabhijñā Kārikā* (Pandit, 2004) Utpaladeva says: “The Great God is the real self of each and every being. He alone endures, through his undiversified Self—his awareness, I am all these”. This complementary relationship between undifferentiated Consciousness and the individual operating through the mind, which itself is nothing but Consciousness, is part and parcel of Śaivism.

Manifestation that gives rise to all objects in countless worlds is referred to in many texts of Śaivism, in the *Śiva Sūtras*, in the *Īśvara Pratyabhijñā Kārikā*, in the *Pratyabhijñā-hṛdayam*, in the *Paramārthasāra*, and in the great culminating opus *Tantrāloka* of Abhinavagupta (Singh, 1980; Chatterji, 1986; Kafatos and Kafatou, 1991; Dyczkowski, 1994; Swāmī Muktānanda, 1997; Pandit, 1997; 2004; SenSharma, 2007; Singh, 2006). The universe is projected out in thirty six levels of creation, or levels of manifestation, or planes of existence, called *tattvas*, from *Paramaśiva*, to the Earth plane (Kafatos, 2021).

We already saw the mathematical expressions/relationships between *I* and *That*. At the highest or “pure” five levels, the separation between subject and object has not occurred. It is in a potential or subtle form, the play between *Aham*

(I am) and *Idam* (That). We look at them from the level of *experience*, or *qualia*. The above *universal five logical statements* of the previous section are

I

That

I (Am) That

That (Am) I

I (Am) That

wherein the Subject and the Object are not separated, are *poised* to move on to separation. However, at the first 5 levels, the *experiencing entities are universal*. In fact, they are all One, Subject, Object and the (latent) relationship between them. The five levels described above are found in Śaivism (Singh, 2006; SenSharma, 2007) and as such, the mathematical formalism developed here links with philosophical monism.

All three fundamental principles, complementarity, recursion and creative interaction or sentience, are operating at these 5 levels: Complementarity is operating as the fundamental relationship between Subject and Object. Recursion operates as the relationships can go either way, left to right, or right to left and in fact can repeat forever, and in fact can be repeated arbitrarily many times, resulting always in undifferentiated Consciousness. And sentience is found in all relationships, the Subject (potentially) senses or interacts with the Object. We emphasize that as no separation has yet occurred, multiple statements like **That (Am) I (Am) That (Am) I...** can in fact repeat forever.

As we move next to the level of breakdown of the above universal relationships, “persistence” of what is pure *Will* gives rise to (limited) will to know and act. “Persistence” of pure *Knowledge* gives rise to (limited ability to) know and then to act. And “persistence” of *Will* and *Knowledge* gives rise to “persistence” of *Action* but in limited form, with limited ability to act. In other words, the same universal statements operate but now in *limited form*: The Subject and Object become separated, they become many subjects and objects. The subjects interacting with other subjects and objects now *appear* as differentiated levels of existence, willing (in a limited way) to know (in a limited way) and act (in a limited way). A certain *veiling of Consciousness occurs, which may be manifest in quantum non-locality* (Kafatos and Kak, 2015)

The simple logical statements that we presented above break down (equivalent to two vector states in Hilbert space) are now to become limited subjects and limited objects and direction (left to right, right to left) now matters. This is equivalent to symmetry

breaking in physics. The mathematics becomes much more complex, instead of **0** and **I**, we now have an infinite set of vectors, representing infinitely many sentient beings, interacting with each other and sensing objects.

At this point, it suffices to say that what occurs is the logical statement **I (Am) Not That**, or **That Not (Am) I**. Here the symmetry applying to the first five levels breaks down. In fact, this breaking down may *allow space, time and mass to arise*; as well as limited will (of subjects), limited knowledge (of objects), and limited action (between subjects and objects), *providing an account of qualia*.

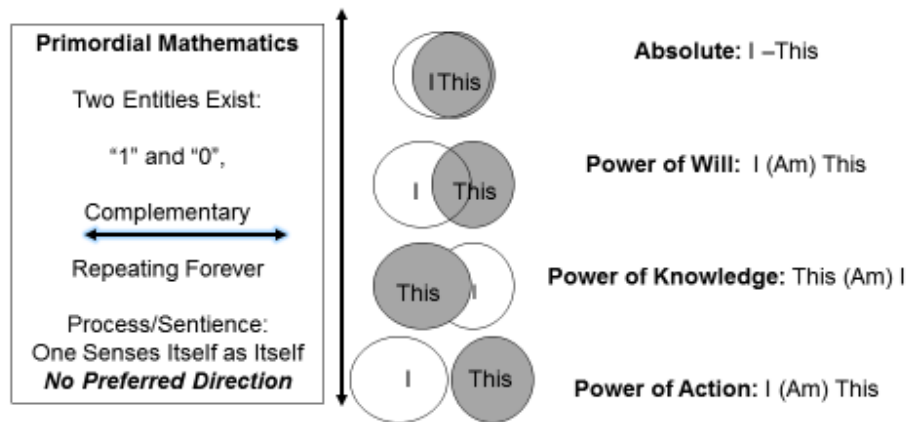
At the level of breakdown of the five pure levels, veiled non-locality and cosmic censorship enter the picture (Kafatos and Kak, 2015): Hence, the world appears as classical, composed of separate subjects and objects. However, the general principles of complementarity, recursion, and sentience still hold but now in an infinitely complex set of entities. The universe is conceptually born. Therefore, *fundamental mathematics at the first five “pure” levels is the expression of the fundamental principles*. Subsequently, in the manifestation of the universe, Consciousness manifests space-time, and objectified existence, including our own intellect, ego and mind. *These manifestations are all qualia*. The Universe evolves out of Consciousness, it is nothing less than Consciousness, in a “condensed” form. Science, through the mathematics of the three principle, is utilized by our minds and intellect to provide the qualia of understanding of our environment. Moving from mathematics to fundamental experience/qualia of *Is-ness*, the Exalted Mind presents five levels, *tattvas*, of Reality:

- 1) **I**: Paramaśiva, absolute undifferentiated existence
- 2) **That**: Paraśakti, absolute undifferentiated Consciousness or Citi.
The first two tattvas are one and are implied at every level of existence, constituting perfect I-Consciousness. The next three levels begin the *potential process of manifestation*:
- 3) **I (Am) That**: In this relationship, as the subjective part of the relationship **I (Am) That** is emphasized, it signifies the *Will* aspect of Consciousness. Before any knowledge (which is to follow) or subsequent to knowledge any action is undertaken, the subject has to be identifying itself with its own will.
- 4) **That (Am) I**: The emphasis is in *That*, i.e. the statement is written as **That (Am) I**. Here, as the objective part of the relationship, *That* is

emphasized. As before any action is undertaken, the object has to be identified. Here, it signifies the *Knowledge* aspect of Consciousness. However, in both these cases, Will and Knowledge, there is no separation, only a (latent) potential of what eventually become a separation between Subject and Object.

5) **I (Am) That:** This statement is the balance between the *I Am* and *That*, it is recursive, i.e. repeated forever. The balance between Subject and Object signifies the (potential) for *Action*. However, the Subject and Object even in this balanced state, are still One. In action, both the Subject and the Object are balanced, equally weighted.

Structure-less, Infinite, Subject/Object are One Separation of Subject from Object is Potential, *not* Actualized



As we move next to the level of breakdown of the above universal relationships, *Māyā*, universal illusion operates. However, She/He is the universal (and most often un-understood) freely-undertaken Power, which limits or hides the true nature of *Paraśiva/Paraśakti*. Without it, no objectified experience could arise. It gives the *appearance* of separation. From this point on, the subject and the object *appear* to be separated: *Māyā* and the next five tattvas which accompany it give rise to, respectively: The experience of time; experience of space; (limited ability) of will (to know and act); (limited ability to) know (and then to act); (limited) ability to act (Kafatos, 2021). This in brief, is how Śaivism accounts for time, space and limited abilities of individual beings in terms of the freely operating Power of *Māyā*.

All 36 tattvas are levels of reality, the different levels of experiences, the qualia of all experiences. As such, Śaivism accounts for both Absolute and relative levels of Reality, including *time and space*, which manifest in the universe. Beyond this commentary, we can also show how the three

universal principles which apply to the quantum, life and all fields, namely complementarity, recursion and sentience, also apply and operate at all thirty six tattvas.

From this monism, the possibility of qualia science can emerge. In qualia science, as in Indian monism, experience comes first. After all, that's how reality actually comes to us, experientially, not in quanta or in differentiated data. At the moment qualia science remains in *potentia*, but the tradition of Indian monism has fleshed out the absolute state of consciousness, its emergence into manifestation, and every minute gradation of existence that the human mind can conceive. What remains is to build a bridge to the worldview of contemporary science through developing appropriate fundamental mathematics linking the two, constituting the first step of creative process.

Beyond Philosophical and Scientific Considerations into the Contemplation of Pure Being, the Exalted Mind

We can speculate how even space-time emerge from the relationships between subjects and objects, when separation breaks the overall structureless, infinite sea of Consciousness. We suggest that the existence of relationship between sentient observers gives rise to a “measure” of separation, hence *space*. While internal accounting of subjective experiences gives rise to “measure” of change, hence *time*. We can explore why the vision proposed here is beyond the usual limitations of the mind. *The Exalted Mind is the vision of undivided Conscious Awareness as the source of countless minds*

and experiences. The Exalted Mind is the *most* natural account of our own inner Nature, the Light of the Self, tied to *direct experience*, which is most basic and most familiar of the human condition.

In closing, the great revealed Tantric text *Vijñānabhairava* (Swāmī Lakṣmaṇjoo, 2012) gives a universal way to reach Reality *within*, accessible to all: Focusing on the out breath and in breath, as they keep repeating in the cycles of life. In between the breaths, the momentary cessation of all activity, is where the mind rests. It is here where inner Divinity resides, sustaining us all. The Exalted Mind springs from this point within us, the inner Silence, the Light of all.

References

- Bohr, N. (1934). *Atomic Theory and the Description of Nature*. Cambridge: Cambridge University Press.
- Bohr, N. (1958). *Atomic Physics and Human Knowledge*. New York: Wiley.
- Chalmers, D.J. (1995). Facing Up to the Problem of Consciousness. *Journal of Consciousness Studies* 2 (3): 200–219.
- Chatterji, J.C. (1986). *Kashmir Śaivism*. N.Y.: SUNY Press.
- Chopra, D., Kafatos, M.C. (2014). From Quanta to Qualia: How a Paradigm Shift Turns Into Science, *Philosophy Study*, 4, No. 4: 287-301.
- Chopra, D., Kafatos, M.C. (2017). *You Are the Universe Harmony*, Random House: New York. NYT Bestseller
- Dyczkowski M.S.G. (1994). *Spandakārikā* (“The Stanzas of Vibration”). Varanasi: Dilip Kumar Publishers.
- Hameroff, S., Penrose, R. (1995). “Orchestrated Reduction of Quantum Coherence in Brain Microtubules: A Model for Consciousness,” in J. King and K. H. Pribram, edit., *Scale in Conscious Experience: Is the Brain Too Important to be Left to Specialists to Study?* Mahwah, N.J.: Lawrence Erlbaum Associates.
- Kafatos M.C., Kafatou T. (1991). *Looking in, Seeing out: Consciousness and Cosmos*. Wheaton, IL: Quest Books.
- Kafatos, M.C., Nadeau, R. (1990; 2000). *The Conscious Universe*, New York: Springer Verlag.
- Kafatos, M.C. (2011). The Science of Wholeness, in *Analecta Husserliana*, T. Tymieniecka, A. Grandpierre (edit.), Springer Science, Business Media, B.V.
- Kafatos, M.C., Tanzi, R., Chopra D. (2011). How Consciousness Becomes the Physical Universe, *The Journal of Cosmology* 14: 3-14.
- Kafatos, M. (2014). “The Conscious Universe”, in D. Chopra (edit), eBook, Deepak Chopra, Publisher, c/o New York: Trident Media Group LLC.
- Kafatos, M.C., Chopra, D. (2014). The Nature of Reality, the Self, Time, Space and Experience, *Cosmology*, 18:456-460 <http://cosmology.com/ConsciousTime115.html>
- Kafatos, M.C., Kak, S.C. (2014). Veiled Non locality and Cosmic Censorship, *Physics Essays*, 28: 182-187 arXiv:1401.2180.
- Kafatos, M.C. (2015) Fundamental Mathematics of Consciousness *Cosmos and History: The Journal of Natural and Social Philosophy*, 11(2):175-188 <http://www.cosmosandhistory.org/index.php/journal>
- Kafatos, M.C., Narasimhan, A. (2016) Mathematical Frameworks for Consciousness, *Cosmos and History: The Journal of Natural and Social Philosophy*, 12(2):150-159
- Kafatos, M.C., Yang, K-H. (2016) The Quantum Universe: the Philosophical Foundations and Oriental Medicine, *Integrative Medicine Research*, 5: 237-243 Elsevier <http://www.sciencedirect.com/science/article/pii/S2213422016300920>
- Kafatos, M.C., Kato, G. C. (2017) Sheaf theoretic formulation for consciousness and qualia and relationship to the idealism of non-dual philosophies, in Simeonov, P.L., Gare, A., Matsuno, K., Igamberdiev, A., Hankey, A. (Eds.). *The Necessary Conjunction of the Western and Eastern Thought Traditions for Exploring the Nature of Mind and Life. Special Theme Issue Integral Biomathics. Prog. Biophy. Mol. Biol.* 131 C. Elsevier, ISSN: 00796107, 242-250
- [Kafatos, M.C., Narasimhan, A. \(2019\)](https://urldefense.proofpoint.com/v2/url?u=ht tp-3A www.springer.com series 6607&d=DwIF aQ&c=TwQYVWcq0sGbkW5mKeqBpQ&r=3 Z0LsbAnx59haR5D1UNC0QhJ756PCgyjJGM GCD6Bl-4&m=pE6XIPP2shqL9IAISBhE5OF-pIHhee62v87EdAWwoWs&s=zcxQpMV41vsk 0jGZgB22eq2 88kknRNd8ICWIN3dBtM&e=)) The Observer and Access to Information in the Quantum Universe, Invited Chapter, in *Quanta and Mind: Essays on the connection between quantum mechanics and consciousness*, ed. Jose Acacio De Barros & Carlos Montemayor, Synthese Library [https://urldefense.proofpoint.com/v2/url?u=ht tp-3A www.springer.com series 6607&d=DwIF aQ&c=TwQYVWcq0sGbkW5mKeqBpQ&r=3 Z0LsbAnx59haR5D1UNC0QhJ756PCgyjJGM GCD6Bl-4&m=pE6XIPP2shqL9IAISBhE5OF-pIHhee62v87EdAWwoWs&s=zcxQpMV41vsk 0jGZgB22eq2 88kknRNd8ICWIN3dBtM&e=\)](https://urldefense.proofpoint.com/v2/url?u=ht tp-3A www.springer.com series 6607&d=DwIF aQ&c=TwQYVWcq0sGbkW5mKeqBpQ&r=3 Z0LsbAnx59haR5D1UNC0QhJ756PCgyjJGM GCD6Bl-4&m=pE6XIPP2shqL9IAISBhE5OF-pIHhee62v87EdAWwoWs&s=zcxQpMV41vsk 0jGZgB22eq2 88kknRNd8ICWIN3dBtM&e=))
- Kafatos, M.C. (2020) *Science, Reality & Everyday Life*, Athens: P. Asimakis Publishers. <https://www.politeianet.gr/sygrafeas/kafatos-k-minas-104892>
- Kak, S. (2014). “Observability and computability in physics”, *Quantum Matter*, 3: 172-176.
- Kastner, R.E. *The Transactional Interpretation of Quantum mechanics*, Cambridge: Cambridge University Press, 2013.
- Kuiken, G.D.C. (2006). *The Original Gita*. OTAM Books, The Netherlands.
- Narasimhan, A., Kafatos, M.C. (2016) Wave Particle Duality, the Observer and

- Retrocausality, *Quantum Retrocausation III*, Daniel P. Sheehan (edit) AIP Conference Proceedings, 1841: 040004-1, 9 pages
26. Pandit B.N. (1997). *Aspects of Kashmir Śaivism*. Boulder: Utpal Publications, Santarasa Books, 1997.
 27. Pandit B.N. (2004). *Īśvara Pratyabhijñā Kārikā* ("Verses on the Recognition of the Lord") of Utpaladeva (translation with commentary). Muktabodha Indological Research Institute, Delhi.
 28. Pribram K. (1991). *Brain and Perception-Holonomy and structure in Figural Processing*, N.J.: Lawrence Erlbaum Associates Publishers.
 29. Roy S., Kafatos, M. (1999). Complementarity Principle and Cognition Process, *Physics Essays*, 12: 662-668.
 30. Schrödinger, E. (2001). *What is life?: The physical aspects of the living cell*. Cambridge: Cambridge Univ. Press. ISBN 0521427088.
 31. SenSharma, D.B. (2007). *Paramārthasāra* ("The Essence of Supreme Truth") of Abhinavagupta (with the commentary of Yogaraja, translation). New Delhi: Muktabodha Indological Research Institute.
 32. Singh J. (1980). *Pratyabhijñā-hṛdayam* ("The Secret of Self-recognition"). Motilal Banarsidass, Delhi.
 33. Singh J. (2006). *Śiva Sūtras* ("The Yoga of Supreme Identity"). Delhi: Motilal Banarsidass.
 34. Stapp, H.P. (2009). *Mind, Matter and Quantum Mechanics*. Berlin, Heidelberg: Springer Verlag.
 35. Stapp, H.P. (2012). *Benevolent Universe?* eBook ISBN: 978-1-105-56456-7.
 36. Struppa, D. C., Kafatos, M., Roy, S., Kato, G., and Amoroso, R. L. (2000). Category Theory as the Language of Consciousness, *Noetic Journal* 8(3):
 37. Swāmī Lakshamaṇjoo. (2007). *Śiva Sūtras* ("The Supreme Awakening"). Universal Shaiva Fellowship (2007)
 38. Swāmī Lakṣmaṇjoo. (2012). *Vijñānabhairava*. Culver City: Universal Shaiva Fellowship.
 39. Swāmī Muktānanda (1997). Nothing Exists that is not Śiva. SYDA Foundation, South Fallsburg, NY.
 40. Swāmī Shāntānanda. (2003). *The Splendor of Recognition*. South Fallsburg: Siddha Yoga.
 41. Swāmī Vimuktānanda. (2005). *Aparokṣhānubhūti* ("Self-Realization") of Adi Śankarā (translation). Delhi: Advaita Ashrama.
 42. Theise, N.D., Kafatos, M.C. (2016). Fundamental Awareness: A Framework for Integrating Science, Philosophy and Metaphysics *Communicative & Integrative Biology* 9(3):00-00 e1155010-19
 43. von Neumann, J. (1955). *Mathematical Foundations of Quantum Mechanics*, translated by Robert T. Beyer, Princeton, NJ: Princeton University Press.
 44. Wheeler, J.A. (1981). in *Some Strangeness in the Proportion*, ed. H. Woolf, Reading, Addison-Wesley Publishing Co.
 45. Whitehead, A.N. (1978). *Process and Reality*. New York: The Free Press.
 46. Whitehead, A.N. (1925). *Science and the Modern World*. New York: Macmillan Company.