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Dual Aspect Framework for Consciousness and Its Implications: West meets East for Sublimation Process

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Abstract

The extended dual-aspect monism framework of consciousness, based on neuroscience, consists of five components: (1) dual-aspect primal entities; (2) *neural-Darwinism*: co-evolution and co-development of subjective experiences (SEs) and associated neural-nets from the mental aspect (that carries the SEs/proto-experiences (PEs) in *superposed* and unexpressed form) and the material aspect (mass, charge, spin and space-time) of fundamental entities (elementary particles), respectively and co-tuning via sensorimotor interaction; (3) matching and selection processes: interaction of two modes, namely, (a) the non-tilde mode that is the material and

mental aspect of cognition (memory and attention) related feedback signals in a neural-network, which is the cognitive nearest past approaching towards present; and (b) the tilde mode that is the material and mental aspect of the feed forward signals due to external environmental input and internal endogenous input, which is the nearest future approaching towards present and is an entropy-reversed representation of non-tilde mode; (4) the segregation and integration of information, and (5) the *necessary* ingredients of SEs (such as wakefulness, attention, re-entry, working memory, stimulus at or above threshold level, and neural-net PEs). This framework leads to structural and functional coherence between the mind and the brain, bridges the explanatory gap (the gap between SEs and their neural-correlates), and leads to our mundane subjective experiences. This extended dual-aspect monism (eDAM) framework (Vimal, 2008, 2010, 2013, 2015a, 2015b) could be the fundamental basis of various religions and philosophies. This is a Western perspective. On the other hand, Eastern perspectives emphasize the practical methods for achieving *altered* experience at *samadhi* state. An important corollary of these methods (such as yogic method) is the sublimation of negative aspects of seven groups of self-protective energy system (desire, anger, ego, greed, attachment, jealousy, and selfish-love) into their positive aspects. Their negative aspects create war and suffering, whereas their positive aspects advance science and technology, family values, peace, and happiness. Here, the Western perspective framework is extended to include the concepts of the sublimation process to encompass Eastern perspectives. The four elements (war, suffering, peace, and happiness) are ubiquitous in both space and time because they are essential contributors to the variations for natural selection in our evolutionary system. The sublimation process optimizes the system: minimizes war and suffering, maximizes peace and happiness, and enhances family values and individual progress. This is consistent with both Eastern and Western perspectives.¹

Key words: Extended dual-aspect monism,

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1. Introduction

The mind-body problem is central to the understanding of consciousness in individuals and in groups of interacting individuals such as family, society, nation, and world as a whole. There are over forty meanings attributed to term 'consciousness' that were identified and categorized according to whether they were principally about function or about experience.² Based on this, consciousness may be *optimally* (that has the least number of problems) defined as a mental aspect of a system or a process, which has two sub-aspects: *conscious-experience* and *conscious-function*.³ Various disciplines that affect our lives can be grouped into three categories: science, philosophy, and religion. It could be argued that various religions and philosophies have created wars and suffering while preaching

dogmatically how to live peacefully. On the other hand, science does not address family values very well. The goal of the present article is to look critically for a link between all three disciplines and to investigate whether we can find a fundamental basis common to all religions and philosophies. Once we find the underlying common framework then the differences between religions and philosophies become superficial. Western views in psychotherapy and clinical research (conventional medicine) and Eastern views on holistic living have created a significant amount of empirical data. Data are data and remain immortal if collected rigorously.

In this context, the following layout is presented. First, a Western framework of consciousness based on neuroscience, called the **extended dual-aspect monism (eDAM)** framework (Vimal, 2008, 2010, 2013, 2015a, 2015b),⁴ is extended to include the essence of Eastern perspectives. Second, a framework called *Purusha-Prakriti*, based on Eastern perspectives, especially from Hinduism, is described. We will show how war and suffering can be minimized, and how peace and happiness can be maximized by the process of sublimation in both frameworks. Third, various complementary frameworks are critically examined. Fourth, some empirical and clinical data from a sampling of religions and philosophies are elucidated using the **eDAM** framework. In addition, empirical data of (1) the cycle of birth, life, and death, (2) the soul, and (3) God are interpreted in terms of this framework. Fifth, the seven groups of the self-protective energy system are detailed as they play important role in war, suffering, peace, happiness, the advancement of family values, and individual progress. Sixth, the sublimation process is detailed. Finally, the conclusion provides a synthesis of our main thesis.

2. The Neuroscience-Based Framework and Sublimation Process

The neuroscience-based **extended dual-aspect monism (eDAM)** framework (Vimal, 2008, 2010, 2013, 2015a, 2015b) was originally developed to explain how subjective experiences (SEs) occur in our brain and to address the explanatory gap between SEs and their neural correlates.⁵ It consists of four components: (1) dual-aspect primal entities; (2) *neural-Darwinism*: co-evolution and co-development of SEs and associated neural-nets from the mental aspect (that *carries* the SEs/proto-experiences (PEs) in *superposed* and unexpressed form) and the material aspect (mass, charge, spin and space-time) of fundamental entities (elementary particles), respectively and co-tuning via sensorimotor interaction; (3) matching and selection processes: interaction of two modes, namely, (a) the non-tilde mode that is the material and mental aspect of

cognition (memory and attention) related feedback signals in a neural-network, which is the cognitive nearest past approaching towards present; and (b) the tilde mode that is the material and mental aspect of the feed forward signals due to external environmental input and internal endogenous input, which is the nearest future approaching towards present and is a entropy-reversed representation of non-tilde mode; and (4) the *necessary* ingredients of SEs (such as wakefulness, attention, re-entry, working memory, stimulus at or above threshold level, and neural-net PEs).

The eDAM framework can be concisely described as follows:⁶ There are three entities that need to be linked: *structure*, *function*, and *experience*. Various materialistic neuroscience models link *structure* with *function* well, but fail to link them with *experience* that leads to the explanatory gap of materialism: how an *experience* can be created from non-experiential matter (such as brain *structure*)? To address this explanatory gap, it was hypothesized that each of the fundamental entities (strings or elementary particles (fermions and bosons)) has two aspects: (i) material aspect such as mass, spin, charge, force, quanta, and space-time, and (ii) mental aspect. The mental aspects of strings, elementary particles, and inert matter are considered as the *carriers* of *superimposed* fundamental *experiences* (or SEs/PEs) in unexpressed form. The *superposition of multiple possible experiences* is based on the hypothesis ‘the mental aspect of wave is wave-like and is a function of experiences’, which is based on the assumption that matter (wave/particle) has double aspects (mental and material aspect). “These possibilities are actualized when neural-networks are formed via *neural Darwinism*, and a specific SE is selected by a *matching* process; these processes also bind elemental *micro-minds* into one *macro-mind*. Here, the term *mind* refers to SE.” In addition, for example, SE *redness* will never be selected and experienced without the formation of redness-related V4/V8/VO-neural-network. The ‘brute fact’ of dual-aspect is justified because SEs are fundamental, inherent, and irreducible. The dual-mode concept from the framework of thermofield dissipative quantum brain dynamics⁷ was explicitly incorporated in the extended dual-aspect monism (eDAM) framework (Vimal, 2008, 2010, 2013, 2015a, 2015b) without decreasing the degree of parsimony as it was implicitly already present. “The two modes are: (1) the non-tilde mode that is the material and mental aspect of cognition (memory and attention) related feedback signals in a neural-network, which is the cognitive nearest past approaching towards present; and (2) the tilde mode that is the material and mental aspect of the feed forward signals due to external environmental input and internal endogenous input, which is the nearest future approaching towards present and is a entropy-reversed representation of non-tilde mode.” Furthermore, one could argue that there are at least five pathways for information

transfer in the brain dynamics: (i) classical axonal-dendritic neural pathway, (ii) quantum dendritic-dendritic microtubule (MT) (dendritic webs) pathway, (iii) Ca-related astro-glial-neural pathway, (iv) extracellular volume transmission, and (v) soliton propagation. “We propose that (a) the *quantum conjugate matching* between *experiences* in the mental aspect of the tilde mode and that of the non-tilde mode is related more to the mental aspect of the quantum microtubule-dendritic-web and less to that of the non-quantum pathways, and (b) the classical *matching and selection* processes to the mental aspect of the non-quantum pathways.” In all cases, a specific SE is selected (a) when the tilde mode interacts with the non-tilde mode to *match* for a specific SE, and (b) when the *necessary* ingredients of SEs (such as wakefulness, attention, re-entry, working memory, stimulus at or above threshold level, and neural-network-PEs) are satisfied. When the conjugate match is made between the two modes, *the world-presence (Now)* is disclosed; its content is the SE of subject (self), the SE of objects, and the content of SEs. “The material aspects in the tilde mode and that in the non-tilde mode are matched to link *structure* with *function*, whereas the mental aspects in the tilde mode and that in the non-tilde mode are matched to link *experience* with *structure* and *function*.” It is argued that (a) this [extended dual-aspect monism \(eDAM\) framework \(Vimal, 2008, 2010, 2013, 2015a, 2015b\)](#) has fewer problems (such as the justifiable ‘brute fact’ of dual-aspect), and (b) it addresses the problems of other framework including the explanatory gap in materialism. In addition, we have worked through double aspect theory at a level which has not been previously elaborated because it touches *bottom*.

Furthermore, in the [eDAM](#) framework, “there are three competing hypotheses: *superposition* based \mathbf{H}_1 , *superposition-then-integration* based \mathbf{H}_2 , and *integration* based \mathbf{H}_3 where *superposition* is not required. \mathbf{H}_3 is related to the dual-aspect panpsychism. ... The *experiences* (or PEs/SEs) superposed in fundamental particles may simply be *potentialities* or *possibilities* that manifest *reality* only in the context of particular experiments or observations. For example, when long wavelength light is presented to the ‘V4/V8/VO’ Red-Green neural network, the *potentiality* of SE *redness* turns into *reality* via (conjugate) matching and selection mechanism. One could argue that this *potentiality* can be viewed as one of the motivations for the evolution to eventually form neural-networks in brains so that SEs can be realized. In other words, neural-networks can be viewed as ‘attractors’ for evolution. The *matching* process ... is required in all above three hypotheses; whereas, the *selection* process is required only in \mathbf{H}_1 (not in \mathbf{H}_2 and not in \mathbf{H}_3). This is because the mysterious *emergence* process is necessary in \mathbf{H}_2 and \mathbf{H}_3 (but not in \mathbf{H}_1). In other words, the

matching and *selection* processes are required in \mathbf{H}_1 ; whereas the *matching* and *emergence* processes are necessary in \mathbf{H}_2 and \mathbf{H}_3 and hence the mystery of *emergence* still remains in the latter two hypotheses. In \mathbf{H}_1 , the mental aspect of the fundamental entities and inert matter is the *carrier* of superimposed fundamental *experiences* (or SEs/PEs) in unexpressed form. In \mathbf{H}_1 , a specific SE is selected in a neural-network as follows: (i) there exist a *virtual reservoir* (plenum) that *stores* all possible fundamental *experiences* (SEs/PEs), such as in the mental aspect of the fundamental entities in superposed form, (ii) the interaction of stimulus-dependent feed-forward (tilde mode) and feedback signals (non-tilde mode) in the neural-network creates a specific neural-network state, (iii) this specific state is assigned to a specific SE from the *virtual reservoir* during *neural Darwinism*, (iv) this specific SE is embedded as the mental aspect of memory trace of neural-network-PE, and (v) when a specific stimulus is presented to the neural-network, the associated specific SE is selected by the *matching* and *selection* process and experienced by this network that includes also self-related neural-network⁸. In addition, the *necessary* ingredients of SEs (such as wakefulness, attention, re-entry, working memory, stimulus at or above threshold level and neural-network-PEs) must be satisfied before the network can experience.”⁹

Materialism (internal representation)¹⁰, functionalism (sensorimotor interaction with environment)¹¹ or naturalistic dualism¹² alone cannot explain how our subjective experiences (SEs) occur in our brain or our behavior—we need an additional hypothesis of co-evolution and co-development of the mind and the brain. As above, we propose that nature consists of entities with dual aspects with *experiences* (SEs/PEs) superposed in their mental aspect and the mass, spin, charge, and space-time in their material aspect. These entities have mental (*experiences*) and material aspects, which co-evolved, co-developed, and co-tuned with the environment into mind/consciousness (*functions plus experiences*) and their neural-correlates (neural-nets in the brain), respectively. Consciousness is a basic biological adaptation with an evolutionary basis.¹³ Co-evolution¹⁴ of the brain and the mind started with the Big Bang, and continues today by possibly being embedded in human genes.¹⁵ The co-developmental process begins when a spermatozoon meets an egg and continues until the onset of adulthood. The specificity of SEs and their neural correlates co-develops from the non-specificity of elemental superposed experiences and their material aspect by interaction and tuning of neural-nets with the environment. The non-specificity of elemental superposed experiences and specificity of SEs are reciprocally related. Orchestrated objective reduction¹⁶ and quantum field theory¹⁷ models can be extended to include our framework.¹⁸ For example, fronto-parietal attentional, wakeful, and re-

entry signals to a color area interact with a feed forward, stimulus-dependent retino-cortical signal leading to SEs of color via the mechanism of these models.¹⁹ The co-evolution and co-developmental processes lead to a dual-aspect model: SEs (such as ‘redness’ to ‘greenness’) and their neural correlate (such as ‘V4/V8/VO R-G neural-net’) are two aspects of the same psychophysical entity (such as Red-Green channel).²⁰ In other words, to distinguish the dual-aspect view with neutral monism²¹, one can re-write this as follows: A neural-network has two aspects; its mental aspect is a specific SE experienced subjectively and its material aspect is its related anatomical mass and neural-activities measured objectively such as by functional magnetic resonance imaging (fMRI)²². Our framework leads to structural and functional coherence between the mind and the brain, and bridges the explanatory (or psycho-physical) gap (the gap between SE and its neural correlate).

The **extended dual-aspect monism** framework, originally developed from Western perspectives²³, is now extended to encompass Eastern perspectives in premises (18)-(21) below. The philosophical arguments in terms of premises run as follows. Whiteheadian scholars will notice the proximity with the “philosophy of organism”:

(1) Nature consists of primal entities, called *Ädi-Shiva*²⁴ entities, which are equivalent to strings or elementary particles (fermions and bosons) in the **extended dual-aspect monism** framework.

(2) Each of the *Ädi-Shiva* entities has two aspects: material and mental.

(3) The material aspect of *Ädi-Shiva* entities is matter; matter has intrinsic material attributes such as mass, charge, spin, and space-time.

(4) The mental aspect of *Ädi-Shiva* entities is intrinsic, irreducible experiences (PEs/SEs) in superposed and unexpressed form.

(5) Matter (the material aspect) has two sub-aspects: wave and particle, which are related by the bridging law is $\langle E = mc^2 = h\nu \rangle$, where E is the energy, m is mass, c is velocity of light, h is the Planck constant, and ν is the frequency of the wave aspect of matter.

(6) The mental aspect of an entity is a function of experiences.²⁵

(7) The material and mental aspects of *Ädi-Shiva* entities are causally related:²⁶ conclusion from (1)-(6).

(8) Nature consists of *Ädi-Shiva* entities, which have causally related mental and material aspects, which co-evolved, co-developed, and co-tuned with the environment into mind/consciousness (functions and experiences) and their neural-correlates (structures: neural-nets in brain), respectively: conclusion from (1)-(7).

(9) Materialism (internal representation hypothesis) alone cannot explain how subjective experience (SE) occurs/emerges in the brain, but it is necessary to explain the processing of information in the brain related to SE.

(10) Functionalism (sensorimotor interaction hypothesis) cannot explain how SE occurs, however, it is necessary to explain the processing of information related to sensorimotor interaction with the environment related to SE.

(11) Materialism and functionalism cannot bridge the psycho-physical (or explanatory) gap.

(12) Naturalistic dualism — “a nonreductive theory based on principles of structural coherence and organizational invariance and a double-aspect view of information”²⁷ with the assumption that SEs exist as irreducible fundamental physical²⁸ entities — or a dual-aspect model (an entity has material and mental aspects) can bridge the psycho-physical gap, but cannot explain how structural coherence between the mind and the brain arises and whence such a large number of SEs emerged.

(13) The hypothesis of co-evolution and co-development of the mind and the brain suggests that SEs and their respective neural nets co-evolved, co-developed, and co-tuned with the environment from the mental and material aspect of *Ādi-Shiva* entities or elementary particles.

(14) Co-evolution and co-development of the mind and the brain leads to structural and functional coherence between the mind and the brain.

(15) Co-evolution and co-development of the mind and the brain is an essential extra ingredient for bridging the psycho-physical gap and explaining how structural coherence between the mind and the brain arises and from where such a large number of SEs came into existence: conclusion from (9)-(14).

(16) The four essential ingredients for explaining SE, information processing, and bridging the psycho-physical gap are (i) dual-aspect primal entities, (ii) *neural-Darwinism*: co-evolution and co-development of the mind and the brain and sensorimotor co-tuning, (iii) matching and selection processes, and (iv) the *necessary* ingredients of SEs (such as wakefulness, attention, re-entry, working memory, stimulus at or above threshold level, and neural-net PEs).

(17) The subjective experience via premises (1)-(16) with internal representation in normal mind-dependent reality or conventional reality²⁹ is *indirect*.

(18) To acquire *direct* subjective experience (SE), the subject (observer) needs to attain the *samadhi* state. In this state, the observer *feels* that the observer (*karta*), the observed (*karm*), and the process of observation (*kriya*) are unified. For example, the three entities (i) an object such as a tomato with its physical red color, (ii) the processes of observation, i.e. the long wave length light reflected from the tomato to photoreceptors in the retina, which are then converted in physiological signals, eventually reach the brain and the color visual area to create an internal representation of the tomato's physical red color, and (iii) the observer with the SE of redness are *felt* as a single unified entity to the subject in the *samadhi* state. If the object is the observer's enemy, then in the *samadhi* state, the observer, his/her enemy (the observed), and the process of observation will be unified (observer's enemy = observer). Thus, the enmity will be sublimated to compassion, humility, and love; this will transform the observer, and the related suffering caused by enmity will disappear. This is a very important implication in the process of *direct* subjective experience.

(19) *Samadhi* state is extremely hard to attain. However, yogis claim that it is not impossible. It can be achieved by yoga³⁰ such as *rāja*-yoga (yogic methods), *jnana/gyan*-yoga (knowledge based logical reasoning and right thinking process), *bhakti*-yoga (the path of prayer and devotion), *karma*-yoga (the discipline of right action), and *prema*-yoga (path of compassion, humility, and love). It is argued that this state of mind might be under consideration for future co-evolution of mind and brain for higher civilization. If evolution finds it useful then *Samadhi* state may be genetically programmed; if this happens then we do not have to work so hard to attain this higher state of mind. There are many advantages of this state such as the sublimation of negative aspects of protective energy system into compassion, humility, and love even to enemies; the disadvantage is that it may reduce variations for the natural selection related to evolution because of the reduction of war and suffering (see below). Alternatively, the Buddhist middle path can be followed to minimize suffering to the some extent; the philosophy underlying the middle path includes the dependent co-origination (*pratītya-samutpāda*: Sanskrit: □□□□□□□□□□□□□□□□) of Buddhist-Indian philosopher Nāgārjuna.³¹

(20) Nature provides seven groups of self-protective energies (*rakshaseeya saktiyan*: RS) to protect an individual system: desire (*kama*), anger (*krodha*), ego (*mada*), greed (*lobha*), attachment (*moha*), jealousy (*eershya*), and selfish-love (*swarthmay prem*). Each of these has both positive and negative aspects. Positive aspects are useful and lead to individual progress, whereas negative aspect lead to suffering and war

when two or more people interact as in a family, a society, a nation, or a world. Negative aspects must be sublimated (converted) into compassion, humility, and love to minimize suffering and war and to maximize happiness and peace. The yoga³² related to physical exercise (*hatha-yoga: asana*), breathing exercise (*pranayam*), and meditation (mental yoga or *sadhana: pratyahar, dharna, dhyan, and samadhi*) help in the sublimation process (SP).

(21) As long as the negative aspects of the seven groups of protective energy system are intact, war and suffering will exist. Evolution needs variation for the natural selection to occur, and negative aspects create variations, therefore war and suffering are inevitable, as are positive aspects that lead to individual progress. That is, war and suffering have significant contributions to evolution, and just as they existed in past (as history suggests), they exist now, and they will exist in the future. This is a bitter truth that we simply have to accept, and we must try our best to optimize the system by the process of sublimation. The important implication of our framework is that war, peace, suffering and happiness are ubiquitous in nature in both space and time, and the sublimation process is essential for optimizing them. Religions, philosophies, and now science (such as conventional medicine) try their best to reduce suffering and enhance happiness. To sum up, since evolution is essential and cannot be eliminated, war, suffering, peace, and happiness will always exist to create more variations for the natural selection. This appears to be one of laws of evolution.

3. Purusha-Prakriti Eastern Framework and Sublimation Process

Though there are many frameworks in Hinduism, the common theme among them can be summarized by the following premises:³³

(1) There are two types of entities: Consciousness (*Purusha*) and matter (*Prakriti*). Since *Purusha* and *Prakriti* are the fundamental categories, we call it the ‘*Purusha-Prakriti* framework’.

(2) *Purusha* is fundamental, ubiquitous, irreducible to brain states (*Prakriti*), and is a non-causal entity.

(3) Brain evolved from *Prakriti*.

(4) *Manas* is subtle matter and evolved with the brain; it is not the same as mind in Western perspective. *Manas* is the liaison between *Purusha* and the brain’s internal representations.

(5) *Jiva* (the person) is embodied consciousness (*Purusha*) and is constrained by the mind-body complex. *Jiva* may be interpreted as self-consciousness, *personal-self*, or self.

(6) *Jiva* has *indirect* subjective experience of external stimuli via *manas* interacting with internal representations in the brain in the normal state.

(7) *Jiva* has *direct* subjective experience of an object in the *samadhi* state: The observer (*karta*), the observed (*karm*), and the ‘process of observation (*kriya*) are all the same, and happening in the same neural-network, according to the Eastern perspective, and consistent with the Western perspective³⁴. In a normal state of mind *karta*, *karm*, and *kriya* appear distinct to us, but in the *samadhi* state of mind, a subject will presumably *feel* that this trio is the same (the unification process). This is what yogis call it by various names such as *pure consciousness* or *direct experience*.

(8) The seven groups of protective energy system in humans, and the sublimation process, are consistent with Western perspectives and are described in premises (20)-(21) of Section 2. Sublimation of the negative aspects of the seven groups of protective energy system into compassion, humility, and love minimizes suffering and war and maximizes happiness and peace.

(9) Yogic methods (such as Patanjali’s Ashtang yoga) lead to *liberation* of *Jiva* at the *samadhi* state, i.e., *Jiva* is in full communication with the eternal *Purusha*. In addition, at the *samadhi* state, the sublimation process is considered complete, and the subject is considered transformed because his/her negative aspects of the seven groups of protective energy system are sublimated into humility, compassion, and love for every being.

4. Other Frameworks, Critique, and Causal Effects of Consciousness

According to Chalmers, most of views related to the metaphysics of consciousness can be classified into six types.³⁵ Reductive views (Type A-C) consider subjective experiences (SEs) as physical processes that do not involve expansion of a physical ontology. On the other hand, nonreductive views (Type D-F) consider SEs as entities irreducible in nature, meaning they involve expansion or reconception of a physical ontology. **Type-A** materialists³⁶ deny a psycho-physical gap. However, they face significant criticism because they deny the entity we all experience daily. **Type-B** materialists³⁷ accept an epistemic gap between the mind and the brain, but deny an ontological gap. “They identify SE with certain physical or functional states”, but it is not clear from where an SE emerges. **Type-C** materialists³⁸ “accept the deep epistemic gap, but hold that it will

eventually be closed by further research” and hence it is an unstable framework. **Type-D** dualists, or interaction-dualists³⁹, “deny the causal closure of the microphysical, and hold that physical states cause phenomenal states” and *vice-versa*. They assume that the mind exists as a separate channel, which interacts with the brain. However, it faces an association problem (such as how to associate ‘redness’ to red-green cell). **Type-E** dualists, or epiphenomenalistic dualists,⁴⁰ “accept the causal closure of the microphysical, and hold that phenomenal properties play no causal role in affecting the physical world. ... Physical states cause phenomenal states, but not *vice versa*.” This framework is deeply counterintuitive and inelegant. **Type-F** monists, or panprotopsyichists⁴¹, consider that “consciousness is constituted by the intrinsic properties of fundamental physical entities” and plays a causal role. They “accept the causal closure of the microphysical network, but hold that phenomenal or protophenomenal properties are integrated with it and are located at the fundamental level of physical reality.” Here, “it is postulated that macro-psycho-physical laws (connecting physical and phenomenal properties) evolved from micro-psycho-physical laws (connecting micro-physical and proto-phenomenal properties).”

The **extended dual-aspect monism** framework⁴², with three hypotheses (**H₁**, **H₂**, and **H₃**), is a general framework that encompasses other frameworks as special cases. For example, in *reductive* frameworks (Types A-C), the main idea is that the mental entities can be reduced to fundamental entities. This is consistent with our assumption that SEs can be reduced to proto-experiences which, in the **extended dual-aspect monism** framework with hypothesis **H₃**, can be considered as the intrinsic irreducible property of matter (see also premises (4)-(8) of Section 2). In *non-reductive* frameworks (Types D-F), the main idea is that the mental entities are irreducible fundamental entities (at some level). This is also consistent with the **extended dual-aspect monism** framework with hypothesis **H₁**, where experiences (SEs/PEs) are fundamental, irreducible, intrinsic entities that are superposed in elementary particles, atoms, molecules, and inert matter; a specific SE is selected during matching process in neural-networks.

In the ancient *Purusha-Prakriti* framework, premises (2) and (4) of Section 3 have consistency problems: if *Purusha* were non-causal, then *jiva* (embodied *Purusha*) would also be non-causal, whereas consciousness (*functions* and subjective *experiences* that are *jiva*’s attributes) have causal effects. “One could argue that consciousness causes⁴³: (i) increased flexibility and sophistication of control such as in novel situations, (ii) enhanced capacity for social coordination such as enhanced self-awareness and understanding of other’s minds, (iii) more unified and densely

integrated representation of reality such as the unity of experienced space, (iv) more global informational access such as in global broadcasting⁴⁴, (v) increased freedom of choice or free will such as in the selection of our own action, and (vi) intrinsically motivating states such as in the functional and motivational roles of conscious affective states (e.g., pleasures and pains).⁴⁵ Furthermore, “1. By relating input to its context, consciousness defines input, removing its ambiguities in perception and understanding. 2. Consciousness is required for successful problem solving and learning, particularly where novelty is involved. 3. Making an event conscious raises its “access priority,” increasing the chances of successful adaptation to that event. 4. Conscious goals can recruit subgoals and motor systems to carry out voluntary acts. Making choices conscious helps to recruit knowledge resources essential to arriving at an appropriate decision. 5. Conscious inner speech and imagery allow us to reflect on and, to an extent, control our conscious and unconscious functioning. 6. In facing unpredictable conditions, consciousness is indispensable in allowing flexible responses.”⁴⁶ “In sum, consciousness appears to be the major way in which the central nervous system adapts to novel, challenging and informative events in the world”.⁴⁷ Moreover, PTSD (Posttraumatic stress disorder), psychosomatic effects, and hallucination in mental disorder patients (such as schizophrenia) are examples of the causal effect of consciousness on the brain and behavior. In quantum Zeno effect⁴⁸, the rapid repetition of identical Process 1 actions (such as the rapid repetition of ‘Yes’ response to the Process 1 intentional acts may entail ‘Yes’ and hold it in place) may lead to a powerful effect of mental effort on the material world.⁴⁹ Furthermore, *manas* is considered a liaison between *Purusha* and the brain’s internal representations, similar to the framework of mind-brain interaction via quantum processes at the synaptic cleft.⁵⁰ This has an association problem: how is a specific SE associated with a specific stimulus? In addition, it is not clear how and from where various SEs came into existence. Therefore, this framework needs modification, which is achieved in the more general **extended dual-aspect monism** framework.

The sublimation process is a higher order, luxurious process (as it is not the necessity of survival) and involves the conversion of the negative aspects of the seven groups of protective energies (that are needed for basic survival of an individual). The fulfilment of an individual’s basic needs (such as a place to live comfortably, healthy foods, and comfortable clothes to wear, and resources for entertainment) is a prerequisite of the success of the sublimation process. Unless this prerequisite is met, the sublimation of the individual survival energy into humility, compassion, unselfish and unconditional deep love for the benefit of family, society, nation, and whole world may not be completely successful. Furthermore, the

prerequisite is variable and changes from person to person. Some people have little need for basic necessities, while others have a greater need. Therefore, a nation, or the United Nations, should formulate certain criteria for meeting basic needs if the sublimation process is to be implemented nationally or internationally.

5. Empirical Data, their Explanation, Sublimation Process, and Interpretation of Cycle of Birth-Life-Death, Soul, and God and application in minimizing war and maximizing peace

There are many frameworks with their own underlying philosophy of the mind and the brain. They also have some useful practical techniques for reducing physical, mental, and social suffering. Each framework tries to interpret its techniques in its own way. We argue that these useful techniques, to a significant extent, can be interpreted in terms of the [extended dual-aspect monism](#) framework, which is more general and might be the underlying basis of other frameworks. For example, suffering reduction techniques in Eastern perspectives (such as the eight steps of Patanjali's Ashtang yoga, the eight paths of the Buddhist system, Ayurvedic medicine, Acupuncture technique associated with traditional Chinese medicine) and Western perspectives (such as allopathic and homeopathic medicine) might be directly or indirectly related to this framework. Further research is needed to test these hypotheses.

Religions and philosophies lead to war and suffering because of ignorance. This ignorance is derived from the assumption that various religions and philosophies are fundamentally different. The general tendency is for people to consider their own religion or philosophy as the only one that carries truth, whereas other religions or philosophies are considered to be false. This attitude creates conflict. The ignorance and conflict can be minimized if people realize that the fundamental basis is the same for all religions and philosophies because the truth (conventional mind-dependent reality and ultimate reality⁵¹) must be the same for everyone. The [extended dual-aspect monism](#) framework suggests just that. The apparent differences between various religions and philosophies are superficial and/or cultural (such as lifestyle, eating habits, social functions, language, political structures, etc). Once the [extended dual-aspect monism](#) framework is understood by the public at-large, war and suffering will be

minimized, and peace and happiness will be maximized.⁵² This would be a great achievement of the systems based on science.

Furthermore, in certain sense, the **extended dual-aspect monism** framework may be a sort of consistent with (1) Eastern perspectives (such as essence of Yoga, Vedanta, Buddhism, etc.) as they may be directly or indirectly related to or perhaps derived from the **extended dual-aspect monism** framework, (2) an Ayurvedic, holistic yogic lifestyle for stress-free daily living, and (3) the two-channel concept — (a) Eastern higher family-values, and (b) Western higher scientific and technological achievements — as they can be enhanced using the process of sublimation, which is one of the premises of the **extended dual-aspect monism** framework.⁵³ Further research is needed to test these hypotheses. This type of research is worth doing to investigate the fundamental framework that is the underlying basis of all views. So far, the **extended dual-aspect monism** framework is the optimum framework because it has the least number of problems compared to other frameworks as discussed elsewhere.⁵⁴

There are many frameworks — each one like a window showing the same truth in different ways. In the **extended dual-aspect monism** framework, our seven groups of protective energy system are mental entities and must have neural correlates; they are co-evolved, co-developed, and co-tuned. According to this framework, if the mind is sick or suffering, its neural correlates will also be dysfunctional, and *vice-versa*. This protective energy system, consistent with both Eastern and Western perspectives, is described in the premises (20)-(21) of Section 2. They have negative and positive aspects. These attributes protect our system, which works well as long as the system is isolated. However, if we are in a family where systems interact closely, then negative aspects lead to suffering. This is consistent with Buddha's noble truths: there is *dukha* (suffering), which has *karan* (cause) and also has *niwaran* (solutions) and the solutions are Buddha's eight noble paths (or concisely the middle path). Though these attributes appear mostly mental, they also lead to physical suffering because the mind and the brain are two aspects of the same entity (dual-aspect model) and are causally related. This is consistent with the *karma* concept (cause and effect) in Buddhism. Both Eastern and Western systems provide many techniques in many contexts to minimize suffering. Religious and scientific techniques for minimizing suffering can be re-interpreted in terms of the **extended dual-aspect monism** framework. For example, one of the Eastern techniques is the process of sublimation (conversion) of negative aspects of the seven groups of self-protective energies into humility, compassion, and love via yogic methods such as Patanjali's Ashtang Yoga, Maharishi Mahesh Yogi's transcendental meditation (TM), Sahaj yoga, etc. Yogic

methods effortlessly optimize the system, which minimizes suffering. Another example is the Buddhist system that provides eight noble paths: Right Understanding, Right Thought, Right Speech, Right Action, Right Livelihood, Right Effort, Right Mindfulness and Right Concentration. These methods help considerably in sublimating the negative aspect to the positive aspect of the seven groups of the self-protective energy system, leading to humility, compassion, and love.⁵⁵

Patanjali's Ashtang Yoga is apparently based on a sort of dualism: When *Purusha* (consciousness) shines like a spotlight on *chitta* (internal representation), SE occurs. The embodied *Purusha* is called *jiva*, which is imprisoned inside a subject. The eight steps Patanjali's Ashtang Yoga lead to the *samadhi* state, at which *jiva* is liberated from the prison and joins to *Purusha*. Though these premises have problem, as critically examined in Section 4, the empirical result of Patanjali's Ashtang Yoga (eight steps: *Yam, Niyam, Asanas, Pranayam, Pratyahar, Dharna, Dhyan, and Samadhi*) is that physical, mental, and social suffering is reduced; this is empirical data. This data can also be explained in terms of the [extended dual-aspect monism](#) framework. A neural-network has two aspects: the mental aspect (function and SE) and material aspect (related neural correlates). These eight steps tune up our system by appropriately balancing the chemicals and activities in the neural-network, which lead to reduction of physical, mental, and social suffering. This is also a sort of neural explanation of the sublimation process. All other techniques that reduce suffering can be similarly interpreted in terms of the [extended dual-aspect monism](#) framework, making it more general.

5.1. War and Peace

Since evolution needs variation for the natural selection, and war, peace, suffering, and happiness play important roles in generating variations, these entities will persist forever. We have to accept this bitter truth and act accordingly. The best we can do is to optimize the system (minimize war and suffering, and maximize peace and happiness)⁵⁶ by optimization methods such as the process of sublimation. Eastern perspectives (such as *Gita*) suggest one should have a stable mind (*esthir buddhi*), i.e., one should not become too elated on good days, nor get too depressed in bad days. Rather, one should try to have neutral or positive feelings all the time. This thinking process minimizes suffering and can be considered another method of sublimation. Almost all religions, philosophies, and science (conventional medicine) have their own methods for the sublimation process.

There are other empirical data such as the cycle of birth, life, and death, and concepts of soul and God that can be interpreted using the [extended dual-aspect monism](#) framework, as follows.

5.2. An interpretation of the cycle of birth, life, and death

One could argue that birth is the integration of energies from nature via the process of reproduction, and thus, we are transformed energies from nature. We come from nature and will go back to nature for recycling, so to speak. In addition, our parents live in us as we are made 50% of mother's genes and 50% of father's genes. We must transfer this genetic information, so we need to produce children, and raise them in the best possible way. This channel is usually known as family-values. The more love and care we give to our family members, the greater family values we will have. If a family member is misguided, for whatever reason, we must forgive them and offer our love. Tender loving care is one of the entities that can change the bad nature of a family member, in the long run. With this, we can develop a better world with a better fundamental family unit. This development can be called 'life'. If this is missing, then negative energies make us sad and unhappy. One could argue that death is a disintegration of our integrated energies into forms that can be recycled. Thus, there is no birth or death; simply a transformation of one form of energy into other. Our permanent home is Nature. We come here for short time empty-handed from Nature, and we have to return to our permanent home empty-handed. And also by this reasoning, ownership is not useful because it generates suffering (such as suffering during division of property in divorce), and hence assets we acquire should be used for the benefit of family and humanity.⁵⁷

5.3. An interpretation of the Soul

The term "soul" is ill defined, but it can be interpreted as self-awareness, *personal-self* or *self* (SE of subject)⁵⁸, which is a selected mental entity (as in hypothesis \mathbf{H}_1) or an evolved mental entity (as in hypothesis \mathbf{H}_3). It is a part of the mind/consciousness, which occurs or emerges in the brain according to the [extended dual-aspect monism](#) framework. One could argue that its attributes are related to the processing of dual-aspect information via two channels: (1) general-genetic information and (2) individual-specific information. Therefore, contrary to some religions and *Purusha-Prakriti* Eastern Framework (Section 3), the soul is NOT immortal. Our *soul* or *personal-self* dies when we die. However, the *general-self* (that does not have any acquired information related to *personal-self*) is a

superposed SE that is inherent and eternal according to hypothesis H_1 .⁵⁹ The *personal-self* or *self* (SE of subject) is selected (as per hypothesis H_1) or emerged (as per hypothesis H_3) and then embedded in the self-related neural-network⁶⁰ when this net is formed via *neural-Darwinism*. When we die, our *personal-self* or *soul* also dies. Yet, most of us have the urge to be immortal. This urge can be partly fulfilled. We can preserve our *soul's* attributes in terms of our ideas and concepts to some extent for longer time by preserving the two channels: (1) we can preserve the general attributes (genetic information, such as height, hair, skin, and eye color) of our *soul* by transferring the genetic information to children. This part is immortalized for a long time through family values by raising children in the best possible way. (2) Each one of us is an individual entity and has own specific attributes (even twins are different), which also can be immortalized for a longer time. We can preserve our specific attributes by doing something that can be recorded, for example publishing research articles, establishing trusts, public service, and so on. For example, a scientist's specific attributes or ideas are preserved in published articles, which are presumably kept for long time. One can also set up an immortal irrevocable trust (such as the Nobel Prize) with some initial seed money for the purpose specific to an individual's attributes. Here, *soul* or *personal-self* is defined as a mental entity that has attributes related to both general-genetic and individual's specific information.

Furthermore, in the **extended dual-aspect monism** framework, I-ness (*soul* or *personal-self*) is selected or emerged property of the neural net. This network (a group of interacting neurons) needs to be awake, attentive, and re-entrant and has working memory to have a subjective experience (SE).⁶¹ That is, it needs to interact with ARAS (ascending reticular activating system) that controls wakefulness-sleep-and-dream and fronto-parietal cortical system that controls attention. Thus, when I say, "I saw a flower," this means some cells were activated and hence they have that SE; in addition there is a self-related neural net that is I's hardware. This means when the brain dies, the *soul* dies. However, if we keep up both channels, then we can live longer in terms of information (our ideas or concepts). Thus, we have a justification based on neuroscience to have children and raise them to the best of our abilities, because our ancestors live in us as we carry their genetic information, which will be continued in our children. For keeping our personal-specific attributes alive we must do something in life as great people did, or at least set up a family trust as a legacy.

5.4. An interpretation of primal entity (God)

The term “God” is also ill-defined. One could argue that all the processes in this universe can be grouped into the following three processes: **Generator**, **operator** (maintainer), and **destroyer**. For example, consider the reproduction process where millions of sperm rush towards an egg in the first marathon of life, and the one who reaches first enters the egg for the formation of a baby. All other sperm are annihilated (destroyed) by the changing pH values of the egg’s surrounding environment. The process of cell division and development of the fetus is the process of maintenance. These three processes are ubiquitous in nature. Thus, in the **extended dual-aspect monism** framework, one could argue that God is ‘a bag of all kinds of processes’ including the co-evolution, the co-development, and the sensorimotor co-tuning processes of the mental (consciousness: functions and experiences)⁶² and material aspects of entities.

5.4.1. Whitehead’s *Process and Reality* and the extended dual-aspect monism (eDAM) framework

From the perspective of our discussion⁶³, relational ontology based Whitehead’s *Process and Reality*⁶⁴ exploits interesting features, such as (1) its use of topological and mereological notions, (2) *its arguments in favor of a God of sorts (although it is debatable whether Whitehead's God is the God of revealed monotheism)*, (3) Whitehead's rejection of mind-body dualism (similar to elements in oriental faith traditions such as Buddhism), (4) the fundamental elements of the universe are occasions of experience, which are “pulses” or “drops” of experience, while the “beings” disclosed in the so-called normal state of consciousness are societies of such occasions. In order to differentiate Whitehead's approach from panpsychism, David Ray Griffin has coined the term “panexperientialism.”⁶⁵

In some respects, Whitehead’s philosophy and the monads of Leibniz resemble one another. However, Whitehead’s occasions of experience, unlike Leibniz’s monads, are interrelated with every other occasion of experience that precedes it (in time). Actually, it is this very suppression that creates time: *all experiences are influenced by prior experiences, and will influence all future experiences. This process of influencing is never totally deterministic; an occasion of experience consists of a process of prehending other occasions of experience, and then of reacting to it. Because no process is ever deterministic, free will is essential and inherent to the universe.*

Process philosophy gives God a special place in this universe of occasions of experience. God encompasses, to a significant degree, all the other occasions of experience, but also transcends them (as a result, claims

Hartshorne, Whitehead embraces panentheism). Because free will is inherent to the nature of the universe, God is not omnipotent in Whitehead's metaphysics. God's role is to offer enhanced occasions of experience. God participates in the evolution of the universe by offering possibilities, which may be accepted or rejected.

The comparison between Whitehead's Process and Reality (PR) and our the extended dual-aspect monism (eDAM) framework (Vimal, 2008, 2010, 2013, 2015a, 2015b) is as follows: (1) both PR and eDAM framework reject mind-body dualism, but the eDAM framework accepts a dual-aspect view. (2) PR proposes that 'the fundamental elements of the universe are occasions of experience'; the eDAM framework proposes that Nature consists of primal (*Ädi-Shiva, Brahman*) entities, each has *inseparable physical* and mental aspects (so do actual occasions, says Whitehead explicitly), which co-evolved and co-developed into brain and consciousness (functions and *subjective experiences* (SEs)), respectively. (3) PR's panexperientialism is close to panpsychism, whereas the hypothesis H_3 of the eDAM framework is close to dual-aspect panprotopsychism. (4) Both have similar notions of time (all occasions are influenced by prior occasions, and will influence all future occasions). (5) PR argues that processes are NOT deterministic, whereas the eDAM framework with hypothesis H_1 suggests that the selection of SE sometimes depends on the input stimulus (redness is selected for a long wavelength stimulus), however, the allocation or assignment⁶⁶ of SEs might not be deterministic during co-evolution. (6) Both accept that God participates in the evolution of the universe by offering possibilities, which may be accepted or rejected; however, the eDAM framework's God is a bag of processes, each having three attributes (generation, maintenance, and destruction). (7) In some sense, the eDAM framework that employs neuroscience, psychology, and metaphysics is a more general than PR with the understanding that neuroscience/materialism is by definition more local than metaphysics.

5.4.2. Emergentism of Fingelkurts & Fingelkurts

(Fingelkurts & Fingelkurts, 2009) distinguishes subjective experience (SE) from perception as: "what subjective experience is and how it differs from perception. According to the contemporary agreement in the professional community *subjective experience* is a phenomenal world inside the brain (so called "world-for-me") that is the collection of simultaneously present phenomena (such as seeing, hearing, touching, feeling, embodiment, moving, and thinking) that happen to a person right now (Revonsuo, 2006).": "*Perception* is a causal chain establishing systematic covariance

between distal external states and the experiential states at the phenomenal level in the brain (as effect). [...] The last link in the causal chain establishing accurate perception is the phenomenal level, bringing about or rather, *being or constituting perceptual experience*” ((Revonsuo, 2006), p. 129).

(Fingelkurts & Fingelkurts, 2009) elaborates further the difference between SE and perception, and difference between religious, mystical, and spiritual experiences as: “we do not perceive phenomenal objects at all; we simply experience patterns of activation at the phenomenal level of brain organization. In other words, phenomenal objects are self-presenting, they do not exist without being experienced; they are constitutive of the experience (Revonsuo, 2006). [...] *religious experience is the very moment of experiencing of ultimate divine reality or ultimate divine truth, a transcendence of events or universe, timelessness, spacelessness, and divine being and/or union with it in any combination with an accompanied memorable feeling of reality, emotions and thoughts with a religious content.* [...] In the mystical experience, all “otherness” disappears and the person becomes one with the transcendent. The person discovers that he or she is not distinct from the cosmos or the other reality but one with it. Here God or divine evaporates into abstract Ideality. Spiritual experience concerns experience of or communion with supernatural beings (the spirit(s)) or phenomena. Here, besides God a wide range of supernatural beings can be experienced: spirits of dead relatives, spirits of plants and animals and so on. Religious experience, however, relates to or consists of transcendent God or divine realm. [...] Religious experience has a very long history (over 40,000 years [vs. anatomically modern humans ~ 200,000 years ago]).”

(Fingelkurts & Fingelkurts, 2009) discusses the biological basis of religious experiences as: “*appropriate biological basis is needed* for a religious experience to occur. [...] religious experience is not determined by environmental and cultural factors, rather it is modulated by them. [...] Joseph speculates that those who evolved a religious-moral conscience capable of redirecting and controlling the dangerous limbic impulses, were more likely to survive, and, presumably, more likely to successfully breed (Joseph, 2001). This idea is in line with the fact that religious experience has some protection against certain types of mental and physical ill-health (see reviews in (Koenig & Cohen, 2002; Marks, 2005)) and this “power” of religious experience has very likely contributed to its evolutionary success. [...] Another point of view is that religious cognition is a

byproduct of the evolved mind and as such, religious experience has no adaptive value per se. Selection may preserve religious tendencies because it preserves the more broadly functional design that produces them ... For example, (Previc, 2006) suggested that religious experience coevolved with an expansion of the dopaminergic (DA) brain system and with such DA-mediated phenomena as abstract reasoning. [...]

(Fingelkurts & Fingelkurts, 2009) discuss the emergence of religious SEs as, “one can derive a common denominator: as organisms become organised in more and more complicated ways, new properties emerge. Although the manifestation of new properties is dependent on the laws of physics, their behaviour is irreducible to any of the underlying levels (emergence principle¹). At each level of emergence, new structures are created and new causal forces are at work (Clayton, 2006). In this sense, according to (Clayton, 2007), divine entity ‘could guide the process of emergence through the introduction of new information (formal causality) and by holding out an ideal or image that could influence development without altering the mechanical mechanisms of evolution or adding energy from outside (final causality).’ [...] Two different points of view have emerged from this brief review: one treats the religious experience as a byproduct of human evolution and another explains the origin of religious experience as the result of the divine influences in biological evolution.”

(Fingelkurts & Fingelkurts, 2009) discuss the producing’ point of view and neural correlates of religious experiences as: “A ‘producing’ point of view (sometimes it is referred as neuroscientific and/or cognitive) is a reductionistic one and can be summarised as follows: our brain is structured so as to provide us with experiences that make us believe there is a God, but this belief may merely be the result of internal brain activity and our interpretation of it. [...] the intense activation of the frontal and temporal cortices and limbic system, as well as (de)activation of the parietal cortex give rise to religious experience [...] *religious experience does not involve a specific neural system and probably requires joint activation of a family of systems each of which is usually involved in nonreligious contexts.* ... phenomenal experiences are reflected in meta-

¹ *Emergence* refers to the way a complex system and pattern arises out of a multiplicity of relatively simple interactions and the complexity of this system makes possible types of phenomena which could not be generated by the components alone or summed together (Kim, 1992).

stable patterns of neuronal interconnectivity among brain areas and systems. [...] The right hemisphere is involved more than the left in the reception and production of religious experience [...] *no consistent inter-hemisphere prevalence of one particular brain area during religious experience.* [...] Viewed objectively and dispassionately, personal experience of God does not constitute appropriate scientific evidence of God's presence or existence. [...] The reviewed results of neuroscience neither prove a 'producing' point of view nor disprove a 'perceiving' point of view. Therefore, the only conclusion from observed neuroscientific studies is that religious experience is *reflected* in brain activity and that the brain somehow *mediates* some aspects of religiosity. Additionally, neuroscience may eventually help researchers to explain the human ability to express and understand God."

(Fingelkurts & Fingelkurts, 2009) discuss the second view: "The 'perceiving' position (sometimes it is referred as theological) can be summarised as follows: our brains have the capacity to perceive God, and since our brain is designed to attune us to reality, this points to the likelihood that there is a God. [...] conscious agency which can be described by means of 'circular causality' (Varela & Thompson, 2003) ... Indeed, humans are driven not only by survival and reproduction but also by complex sets of insights, goals and beliefs [...] the results of neuroimaging studies into the conscious and voluntary regulation of various emotional states (sexual arousal, sadness, negative emotion) show that metacognition and cognitive recontextualisation selectively alter the way the brain processes and reacts to emotional stimuli [(Beauregard, 2007)] [...] findings strongly support the view that (a) the subjective nature and the intentional content (a first-person perspective) of mental processes (e.g., thoughts, feelings, beliefs and volition) are neither identical with nor fully reducible to brain processes; (b) that mental processes or events do exert "downward" causal influence on brain plasticity and the various levels of brain functioning (e.g., molecular, cellular and neural circuit) (Beauregard, 2007; Benedetti, Lanotte, Lopiano, & Colloca, 2007; Varela & Thompson, 2003); (c) mind-matter interaction and mind-mind interaction effects may exist (Radin & Nelson, 2002; Wackermann, 2004); need to be reproduced and investigated further). However, mental processing does not occur without concurrent physical activity in the brain. [...] It follows from this brief critical review of the arguments for the "perceiving" point of view that evolution managed to evolve an organ—the brain—capable not only of reflecting on itself but of experiencing something higher than itself ... This became possible due to the emergence

of a form of causation distinctive from physics: mental/conscious agency which (a) is neither identical with nor reducible to brain processes, (b) which exerts ‘downward’ causal influence on brain plasticity and the various levels of brain functioning. However, the presented review while not proving a ‘perceiving’ point of view not disproves it either.”

(Fingelkurts & Fingelkurts, 2009) discuss downward causation, soul as equivalent to conscious mind, physical and mental processes as two aspects for the same brain state: “humans are driven not only by survival and reproduction but also by complex sets of insights, motives, intentions, thoughts and beliefs. These mental processes and events do exert a “downward” causal influence on physical processes (brain plasticity and the various levels of brain functioning) [...] the potential for religious experience is an innate biological characteristic. Development of this characteristic is a biosocial issue, and the realisation of religious experience is a psychobiological issue. Thus, all this makes it suitable for “bridging” biology and theology to describe and later to explain religious experience. [...] consciousness/mind/spirit and brain/body/matter to be seen as different sides of the same phenomenon, neither reducible to each other [this appears to be double-perspectivism or double-aspectism]. [...] the “soul” as it has been described formally from a theological point of view is the very same and precise description of the human mind with its consciousness as defined in cognitive neuroscience (and related scientific fields): mind refers to the collective aspects of intellect and consciousness which are manifest in some combination of thought, perception, emotion, will and imagination. [...] We would argue that soul (using the theological/religious terminology) and conscious mind (using the cognitive neuroscience terminology) are different descriptions of the very same phenomenon [...] Physical (‘objective’) and mental (‘subjective’) processes are considered as two basic and complementary aspects of the same whole informational brain state (Fingelkurts, Fingelkurts, & Neves, 2009). In this sense it is possible to come closer to understanding how something subjective has causal interactions with something objective. [...] It follows from this paper that religious experience is a complex subjective psychoneuro-physiologic phenomenon. [...] We agree with Newberg and colleagues that considering that religious experience is the only state where a person claims to have broken the bounds of his/her own human self-consciousness and come into intimate contact with ultimate reality, it is very important to study religious experience because that may be the only way of solving the problem of how to get outside the subjective mind (see

(Newberg, Alavi et al., 2001; Newberg, d'Aquili, & Rause, 2001; Newberg & d'Aquili, 2000)).”

Each of SEs including religious, mystical, and spiritual SEs should have a neural correlate. (Fingelkurts & Fingelkurts, 2009) uses materialistic emergentism metaphysical framework for the occurrence of religious experiences in brain. This has Levine's explanatory gap, which cannot be addressed. However, our extended dual-aspect monism (eDAM) framework (Vimal, 2008, 2010, 2013, 2015a, 2015b) can address it as a complementary to materialism.

6. Details on Seven Groups of Self-Protective Energy System and Sublimation Process

According to the **extended dual-aspect monism** framework, the seven groups of protective energies (*Rakshaseeya Saktiyan*: RS) are useful, say, for the advancement of a career to some extent, but are harmful if the negative aspects are implemented among family members. It is emphasized that only the destructive part of RS needs to be sublimated. The constructive part is beneficial to the advancement of career and family values if used appropriately. The seven RS are not mutually exclusive; they are briefly described as follows.

(1). *Kama* (desire): Negative desires cause destructive stress in a family. For example, one may desire an expensive car priced beyond their budget. To fulfil this desire, one must take on extra work to earn more money, reducing the time spent on nurturing the family. Let us suppose someone's lifelong goal is to do research. If this person works hard for grant-funding, and thus also raises enough money to buy a better car, then it is a good desire. However, if this person must work odd jobs that are unrelated to the goal, then time and energy are wasted, signifying a bad desire.

(2). *Krodha* (anger): The positive aspect of anger generates stress as a medium to resolve problems, which is beneficial; but its negative part is destructive. Moreover, love solves problems in more positive ways. Therefore, it is advisable to let love solve problems, because sublimated humility, compassion, and love are more powerful than all seven *rakashas* (self-protectors) combined.

(3). *Mada* (ego): Extreme negative *mada* pollutes the institution of marriage. *Swabhimani* (self-pride), and all entities related to self must be sublimated to *DivyaPrem* (deep love) for better relationship between

husband and wife. This is what “surrender” means in the **extended dual-aspect monism** framework. Just as we surrender to God, we surrender to *DivyaPrem*, one of the highest order entities our brain can generate. Good *swabhiman* leads to work hard to keep up our dignity. Bad *swabhiman* is not useful, not even at work.

(4). *Lobha* (greed): Good *lobha* is to have positive aspirations, whereas bad *lobha* is harmful. For example, aspiring to have a BMI (body-mass-index) of 19-21 is good *lobha* because one needs to have proper exercise and proper diet to accomplish this. If one has *lobha* for unhealthy food, it is alright as long as one does not overeat. This is a minor RS.

(5). *Moha* (attachment): Attachment is good as long as it is constructive. Love has a positive energy and *moha* has a negative energy, even though they may appear to be empirically similar. If a mother has bad *moha* towards her children (who usually make serious mistakes), then it needs to be sublimated to love; this will be better for both family-values and professional progress.

(6). *Eershya* (jealousy): The positive aspect of jealousy is constructive such as in enhancing career goals by working hard when you feel jealous of your colleagues. However, the negative aspect of jealousy is very dangerous and one of most destructive negative energies. For example, if a spouse has a friendship with a person of the opposite sex, then the other spouse’s jealousy will cause stress, which could destroy the relationship. However, if there is deep love between them, the love can help in resolving these issues. There are significant amount of data on unsublimated couples on the tendency to seek companionship outside of the relationship. If a couple is not sublimated, this could happen after marriage as well. However, in sublimated couples, this immoral, destructive urge never appears because couples are fully content with each other. In relating to members of the opposite gender, people can develop moral, good, and stress-free relationships modelled after brother-sister, mother-son, or father-daughter morally right relationships. Friendships with opposite sex outside the marriage should ideally not be necessary since your spouse is your best friend that you can communicate with all the time.

(7). *Swarthmaya Prem* (selfish love): Unsublimated couples usually have selfish love. Look around and you will find this is true for over 75% of couples. That is why both husband and wife need to sublimate the negative aspect of selfish love.

7. Details on the Sublimation Process

The seven groups of protective energies (*Rakshaseeya Saktiyan*: RS) are useful for professional progress (academic and work) but they create many problems in family, such as family feuds and divorces. For this reason, we need to sublimate their destructive components for better family life. There are many methods for the sublimation process in various religions, philosophies, and science (conventional medicine) under various names with their own limitations. For example, in *bhakti yoga*, various types of prayers at home, temples, mosques, churches, and other religious centers are also methods of sublimation. However, they are limited to a specific religion and hence are not very helpful in minimizing suffering caused by religious wars. We need methods that sublimate the seven RS across religions and philosophies. Therefore, various current methods need to be extended to include the implications of the [extended dual-aspect monism](#) framework, specifically, that the fundamental basis of all religions and philosophies is the same. Multiple religions and philosophies have done great service to people using their own methods of sublimation. However, these methods are not very successful due to their underlying interpretation being based on unreliable, incomplete, and misleading truths. Therefore, if all the religions and philosophies are re-interpreted in term of the [extended dual-aspect monism](#) framework, the same methods will be very effective in the sublimation process. It should be noted that these methods were very effective in the ancient era when science was not advanced. Now that science has revolutionized almost everything, it would be wise for religions and philosophies to be re-interpreted accordingly. Deep love instantly sublimate the seven RS, but how this great emotion occurs in us needs further research.⁶⁷ Furthermore, everybody has his/her own way of sublimating the seven RS for the person or object of his/her choice. Some of such methods are described below:

(1) Daily exercise creates appropriate chemicals in our brain for the sublimation to take place. In addition, it yields better physical and mental health and brings the body-mass-index (BMI = weight in kg / square of 'height in meter') to 19-21, the ideal number for yogic-life.

(2) Daily *hath-yoga* (physical yoga), *pranayam* (breathing exercise), and *Sudarshan Kriya yoga* (SKY: hyperventilation technique)⁶⁸ practice also generates appropriate chemicals in our brain for the sublimation to take place. Additionally, it helps in the fine-tuning of internal organs for better physical and mental health.

(3) Meditation, such as transcendental meditation (TM)⁶⁹ or Patanjali's Ashtang Yoga⁷⁰ sets up an optimal internal environment for sublimation to take place, in addition to better mental health. TM should be learned from a TM *guru*. The following three-step relaxation method somewhat deviates

from TM, but yields somewhat similar results: sit comfortably (preferably lotus posture), close the eyes and repeat any (preferably meaningless) word. The word ‘OM’ works fine for some. If thoughts come, ignore them, do not fight with them, but let them go away. Do not concentrate; just try to repeat the selected word. You will enter into *yoga-nidra* (yoga sleep, your head will go down) in 10-15 min and then you will be awake. Repeat the steps for 30 minutes twice a day or anytime you feel tired, anxious, or cannot fall sleep.

(4) Sublimate (melt, convert) the seven RS into humility, compassion, and deep love (*DivyaPrem*) by autosuggestion and motivation in daily life, in addition to sublimation via steps (1)-(3). Test it every moment; it is okay to fail, but try again. The most important RS are *kama*, *krodha*, *mada*, and *earsnya*. This is the process of surrender (*Aatm-Samarpan*) and leads to *DivyaPrem*, humility or humbleness, and makes us a better person for a higher civilization.

8. Conclusion

1. The neuroscience based [extended dual-aspect monism](#) framework is the underlying common basis of conventional mind-dependent reality and hence that of science, all philosophies, and all religions. This is because, so far, it is the most optimum framework as it has the least number of problems compared to other frameworks: the only problem of this framework with hypothesis H_1 is the ‘brute fact’ of dual-aspect view.

2. The sublimation process (SP) sublimates the negative aspect of self-protective energies into their positive aspect, which leads to compassion, humility, and love for every being. There are many methods of SP; one of the methods is to attain the *Samadhi* state, at which the observer, the observed (including enemies), and the process of observation merge leading to SP.

3. Once science (such as the [extended dual-aspect monism](#) framework)—interpreted holistically—becomes the foundation of all religions and philosophies, and people put effort towards the sublimation process, war & suffering will be minimized, and peace & happiness will be maximized.

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Notes

- ¹ **Keywords:** extended Dual-Aspect Monism (eDAM); Evolution of consciousness; Internal representation; Sensorimotor interaction; Subjective experience; Proto-

experiences, Explanatory gap; Mind-brain problem; Purusha; Prakriti; Eastern and Western perspectives; Yoga; Sublimation process; Whitehead; *Process and Reality*; Occasions of experience.

The most recent longer version of this article is available at

<<http://www.geocities.com/rlpvimal/Consciousness-and-its-implications-recent-version.pdf>>.

² Vimal, 2009a.

³ Vimal, 200x-d.

⁴ Vimal, 2008a, 2008b, 2009b, 200x-a; MacGregor & Vimal, 2008.

⁵ Vimal, 2008a, 2008b, 2009b, 200x-a; MacGregor & Vimal, 2008. For the explanatory gap, see Levine (1983).

⁶ Vimal, 2009b, 2008a. Quotes are from Vimal, 2009b.

⁷ Vitiello, 1995; Globus, 2006.

⁸ Northoff & Bermpohl, 2004.

⁹ Vimal, 2009b.

¹⁰ Baars, 1997; Crick & Koch, 1998; Dehaene & Naccache, 2001; Dennett, 2001; Edelman, 2003; Lee, Blake, & Heeger, 2005; Rees, Kreiman, & Koch, 2002; Sheinberg & Logothetis, 1997.

¹¹ O'Regan, Myin, & Noë, 2005; O'Regan & Noë, 2001.

¹² Chalmers, 1995; Chalmers, 1997.

¹³ Baars, 2005; Edelman, Baars, & Seth, 2005.

¹⁴ Hameroff, 1998; Johnston, 2005; Stapp, 1996.

¹⁵ Vimal, 2008a, 2008b, 2009b, 200x-a; MacGregor & Vimal, 2008.

¹⁶ Hameroff, 1998b, 2005; Hameroff & Penrose, 1998; Penrose, 2001; Penrose & Hameroff, 1995.

¹⁷ John, 2002, 2005.

¹⁸ Vimal, 2008a, 2008b, 2009b, 200x-a; MacGregor & Vimal, 2008.

¹⁹ Vimal, 2008a, 2008b, 2009b, 200x-a; MacGregor & Vimal, 2008.

²⁰ Vimal, 1998a; Vimal, 2002a.

²¹ Stubenberg, 2005.

²² Vimal et al., 2009; Cowan et al., 2006; Schiffer et al., 2004.

²³ Vimal, 2008a, 2008b, 2009b, 200x-a; MacGregor & Vimal, 2008.

- ²⁴ *Ädi* is a Sanskrit prefix; it means ‘initial’ or ‘first’. The term *Ädi-Shiva* is borrowed from Hinduism, which started since RigVedic period (~ 4000 BC: see also Vimal and Pandey-Vimal, 2007).
- ²⁵ According to Vimal (200x-e): We investigated if the superposition of SEs/PEs in \mathbf{H}_1 and \mathbf{H}_2 is consistent with the mathematics of string theory. We found that the material aspect of the behavior of system in string theory remains invariant with the introduction of mental aspect as a function of temporal (Vimal and Davia, 2008) and spatial experiences (SEs/PEs). This requires that SEs/PEs in superposed form might be present in one space and one time ‘hidden’ dimensions of F-theory to satisfy the condition of minimum action. In addition, the Neumann and Dirichlet boundary conditions were also satisfied. For hypothesis \mathbf{H}_3 , the equations of string theory remain the same; we simply need to acknowledge that a string has dual-aspect; its mental aspect is string-PE. We concluded that it is possible to unify consciousness with all four fundamental material forces by the introduction of (i) SEs/PEs (as in \mathbf{H}_1) or PEs (as in \mathbf{H}_2) in superposed form in bosonic and fermionic strings or (ii) the bosonic-string-PE and fermionic-string-PE based on *integration* principle (as in \mathbf{H}_3). This leads us towards the theory of everything.

Alternatively, here in hypothesis \mathbf{H}_3 (dual-aspect panpsychism), a tentative bridging law for mental (v') and material (v) aspects of *Ädi-Shiva* entities may be $\langle hv' = (E = mc^2 = hv) \rangle$, which leads to $v' = v$. If this is true, then proto-experiences may be embedded intrinsically in material attributes such as mass or space-time. Since matter (fermions and bosons) could behave as wave or particle, a wave can also have mental and material aspects in a dual-aspect view. This implies that PEs can be wave-like, which justifies the frequency v' for PE.

- ²⁶ According to Vimal, 200x-f : (i) all conventional entities lack inherently existence, except subjective experiences (SEs)/proto-experiences (PEs) that are fundamental and irreducible and hence inherently exist; (ii) the entities that lack inherent existence dependently co-arise, and hence causality for them can be rejected but instead *conditions* (such as efficient, percept-object, immediate, and dominant conditions) might be necessary, as in Nāgārjuna’s philosophy; (iii) it is not clear that SEs that exist inherently cause entities that lack inherent existence, but one could argue that (a) Nāgārjuna’s rejection of causality needs to be reconsidered and (b) superposed PEs/SEs in the mental aspect of stings or elementary particles might be the motivation for the evolution to form neural-nets to realize a specific SE; (iv) It is not clear that structure, function, experience, and environment cause each other, but they might be linked via *conditions* (v) an entity has double aspect: mental and material aspects, (vi)

string is a dual-aspect entity that dependently co-arises from string-vacuum or *brane*, and (vii) the **extended dual-aspect monism** framework is consistent with these premises. For example, PEs/SEs inherently exist and are in superposed form in the mental aspect of (a) string-vacuum and/or *brane* before Big-Bang, (b) strings, elementary particles (bosons and fermions) and all evolved entities after Big-Bang, and (c) entities before and after Big-Freeze/Big-Crunch. However, the selection of a specific SE has dependent co-origination (and hence not inherently existent, consistent with Nāgārjuna), i.e., a specific SE occurs in brain when (i) relevant neural-net is formed via *neural Darwinism*, (ii) the specific SE is selected via matching and selection mechanisms, and (iii) the *necessary* ingredients—such as wakefulness, re-entry, attention, working memory, stimulus at above threshold, and neural-net PEs—are satisfied. If this is true, then only experiences (PEs/SEs in superposed form) are inherently existent and other entities have dependent co-origination.

²⁷ Chalmers, 1995.

²⁸ The terms ‘physical’ and ‘physicalism’ include both material and mental aspects in the **extended dual-aspect monism** framework.

²⁹ Vimal, 200x-f; Nāgārjuna & Garfield, 1995.

³⁰ <http://en.wikipedia.org/wiki/Yoga>.

³¹ Vimal, 200x-f; Nāgārjuna & Garfield, 1995. Acharya Nāgārjuna (150 - 250 AD) was an eminent Indian brahmin-buddhist philosopher and the founder of the Madhyamaka school of Mahāyāna Buddhism.

³² <http://www.astangyog.com/astangyog.html>.

³³ Rao, 2005; Vimal, 200x-b, 200x-c.

³⁴ Vimal, 2008a, 2008b, 2009b, 200x-a; MacGregor & Vimal, 2008.

³⁵ Chalmers, 2003; Vimal, 2008a. Quotes are from Vimal, 2008a.

³⁶ Globus, 1995; Dennett, 1991; Dretske, 1995; Harman, 1990; Lewis, 1988; Rey, 1995; Ryle, 1949.

³⁷ Block & Stalnaker, 1999; Hill, 1997; Kripke, 1980; Levine, 1983; Loar, 1990, 1997; Lycan, 1996; Papineau, 1993; Perry, 2001; Tye, 1995.

³⁸ Churchland, 1997, 2003; Crick & Koch, 2003; Koch, 2004; McGinn, 1989; Nagel, 1974; Van Gulick, 1993; Van Gulick, 2001.

³⁹ Beck & Eccles, 1992; Foster, 1991; Hodgson, 1991; Hodgson, 2005; Popper & Eccles, 1977; Sellars, 1981; Swinburne, 1986.

⁴⁰ Campbell, 1970; Jackson, 1982, 1998; Robinson, 1988.

- ⁴¹ Chalmers, 1996; Feigl, 1958/1967; Griffin, 1998; Lockwood, 1989; Maxwell, 1979; Russell, 1927; Stoljar, 2001; Strawson, 2000.
- ⁴² Vimal, 2008a, 2008b, 2009b, 200x-a; MacGregor & Vimal, 2008.
- ⁴³ Van Gulick, 2008.
- ⁴⁴ Baars, 1996.
- ⁴⁵ The quote is from Vimal, 2009b. For further causal effects of consciousness, see also Velmans (2009), Baars & McGovern (1996) and <http://www.geocities.com/rlpvimal/Consciousness-and-its-implications-recent-version.pdf>.
- ⁴⁶ Velmans, 2009.
- ⁴⁷ Baars & McGovern, 1996.
- ⁴⁸ Misra & Sudarshan, 1977.
- ⁴⁹ Stapp, 2005.
- ⁵⁰ Beck, 2001; Beck & Eccles, 1992.
- ⁵¹ Vimal, 200x-f; Nāgārjuna & Garfield, 1995.
- ⁵² See [Section 2](#), premises (20)-(21).
- ⁵³ See [Section 2](#), premises (20)-(21).
- ⁵⁴ Vimal, 2009b. The only problem of the [extended dual-aspect monism](#) framework with hypothesis **H₁** is the 'brute fact' of dual-aspect view.
- ⁵⁵ See also [Section 2](#), premises (20)-(21).
- ⁵⁶ **How to minimize terrorism:** One of the root causes of terrorism is misunderstanding the foundation (metaphysics) of religions and science. If somehow they can be educated using the least problematic metaphysics such as the extended dual-aspect monism then it will certainly minimize terrorism; see [\(Vimal, 2012b\)](#) and [\(Vimal, 2009c\)](#).

[Nadeem Haque \(4/4/16\)](#): If they can understand that the source of all consciousness is a singular intelligence that created the universe and become conscious that we are all part of that originator's creative plan - all of us - all entities, then it will create a sense of affinity, including brotherhood, inclusivism, non-discriminatorianism, and humanity which will be subsets of this realization. This is what all prophets and sages throughout the ages came to make us realize and is still present in the true meaning of the original scriptures. So the eventual understanding of the true connection between man and 'God' will

create human unity, justice and peace and hence no 'terrorism' from any quarter; individual or state.

Vimal: Thanks for the excellent response. I agree. However, can you pin-point why then we have terrorism these days and why they do not understand and what should be done? There got be some better way so that they can understand what you wrote. As we all know, billions of dollars are spent, lot many people are losing their lives, and still not decreasing, rather it is increasing.

My view is that metaphysics (foundation) has problems. So we try other less problematic metaphysics. God can also be consistently interpreted in terms of the least problematic extended dual-aspect monism. For example (I wrote it in the context of Hinduism, but it is more or less same in other religions):

If we take seriously *Viśiṣṭādvaita* (1017-1137 AD: mind (*cit*) and matter (*acit*) are adjectives/aspects of primal entity *Brahman*) *Vedānta*'s hypothesis of two-bird (one is *ātman*/soul/ruh and other *Parmātman*/God/Allah) sitting very close to each other, then both soul and God are biological beings: soul is the self (subjective experience of subject in our wakeful conscious state of mind-brain system) and God is the experience in *samādhi* state of mind-brain system, i.e., *Parmātman*/God/Allah is the name of the manifestation of dual-aspect unmanifested state of *Brahman* at *samādhi* state of our mind-brain system. In other words, God/Allah/*Parmātman* is inside us and hence watching us every moment what we think, what we say (vocally or sub-vocally), and what we do (i.e., *manṣā-vāchā-karmanā*); so we should be very careful every moment! For further details, see (Vimal, [2012b](#), [2012c](#)). This fact that God is inside each of us and watching us every moment might make them to reconsider what they are thinking, saying, and doing.

⁵⁷ There are many ways to minimize the suffering caused by ownership without any loss. For example, if you own large property then family members may have conflict of interest and cause suffering to you by legal-claims. To minimize this type of suffering, personal ownership can be transferred to a Trust, i.e., assets can be secured in the form of Trust, where the principal assets can live forever and its interest or income can be used for a good purpose for the family. For example, the net income could be donated to a non-profit research organization controlled by the family. Thus, the assets still remain in the family, but your suffering and the suffering among family members will reduce significantly; in addition, people at large can benefit from its products, such as published scientific articles. This becomes a family legacy and is useful for the grantor, trustee, family, society, nation, and whole world, in addition to the reduction in

suffering induced by division of property. Moreover, in some special cases, one could also get a tax-break if one's income is donated to a non-profit tax-exempt organization. In some Trust systems, the hard-earned money can remain in the bank or in some secured investments (such as real estate) for an unlimited time, like a family treasure, which can increase with time if handled properly. This is also consistent with immortalizing concept of soul (ideas and concepts), as an extra benefit.

⁵⁸ See also Bruzzo & Vimal, 2007.

⁵⁹ Vimal, 200x-f; see also Bruzzo & Vimal, 2007; Vimal, 2008a, 2008b, 2009b.

⁶⁰ Northoff & Bermpohl, 2004.

⁶¹ For detail see Vimal, 200x-a.

⁶² Vimal, 2009a, 200x-d.

⁶³ Some of the information is extracted or adapted (*shown in italics*) from http://en.wikipedia.org/wiki/Alfred_North_Whitehead and http://en.wikipedia.org/wiki/Process_philosophy.

⁶⁴ Weber, 2004; Whitehead, 1926; Whitehead, 1933; Whitehead, 1978.

⁶⁵ Cobb & Griffin, 1977; <http://www2.citytel.net/~gmnixon/pubs/deQuincey.html>; From <https://en.wikipedia.org/wiki/Panpsychism#Panexperientialism>: “‘**Panexperientialism**’ (or ‘panprotopsychism’), and ‘panprotoexperientialism’ are related concepts. Panexperientialism is associated with the philosophies of [Charles Hartshorne](#) and [Alfred North Whitehead](#), although the term itself was invented by [David Ray Griffin](#) in order to distinguish the [process philosophical](#) view from other varieties of panpsychism. Whitehead's metaphysics incorporated a scientific worldview similar to [Einstein's theory of relativity](#) into the development of his philosophical system. His [process philosophy](#) argues that the fundamental elements of the universe are "occasions of experience," which can together create something as complex as a human being. This experience is not consciousness; there is no mind-body duality under this system, since mind is seen as a particularly developed kind of experience. Whitehead was not a subjective idealist, and while his occasions of experience (or "actual occasions") resemble [Leibniz's monads](#), they are described as constitutively interrelated. He embraced [panentheism](#), with God encompassing all occasions of experience and yet still transcending them. Whitehead believed that these occasions of experience are the smallest element in the universe—even smaller than [subatomic particles](#). Panprotoexperientialism is a theory found in the works of [Gregg Rosenberg](#). For his part, [Michel Weber](#) argues for a pancreativism.”

⁶⁶ See assignment problem in Vimal, 2008a.

⁶⁷ See information related to emotion in Vimal, 2008b.

⁶⁸ <http://www.pranajournal.com/kriya.htm>.

⁶⁹ <http://www.tm.org/>.

⁷⁰ <http://www.astangyog.com/astangyog.html>.