

Article

The Physical Basis of Love or Spiritual Union

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Abstract

The physical basis of Love has remained mysterious. The nature of love has typically been left to the muse of poets and inspiration of philosophers. Psychologists usually refer to love as an emotion and biologists as a biochemical condition. Proponents of Artificial Intelligence (AI) suggest love can be described by a computer program even with current computer technology if we only knew the correct algorithm. Cognitive psychologists would profess that love reduces to configurational states in neural networks, microtubules or synapses. These aspects are not denied only that they are the wrapping and not the essence of love itself. Now that the physical cosmology of the mind-body interaction (awareness) has been discovered, it is possible to describe the fundamental basis of love. What is the soul, what is life, what is intelligence, and especially what is love and why it takes a whole cosmology to be adequately described are questions that the noetic science of complex Self-Organized Living Systems (SOLS) begins to formally answer.

Keywords: Basis of love, nature, physical basis, spiritual union, life, intelligence, cosmology.

1. Introduction - Noetic Parameters of Love

The poet Keats cursed Isaac Newton for scientifically describing the prismatic optics of rainbows; but this author, an award winning poet, LDS (Mormon) High Priest and theoretical physicist hopes the reader will agree that the esoteric beauty and ethereal wonder of love is enhanced by a deeper understanding of the complex cosmological basis for the spiritual nature of love. Noetic cosmology claims to have solved the ancient mind-body problem by discovering an empirically testable comprehensive model for the 'life principle' (Descartes *res cogitans*) animating complex Self-Organized Living Systems (SOLS) [1-11]. In terms of noetic science this means that the 'Spirit of God', Chi, ki, or *prāna* is a physically real action of the unified field of physics [3,12]. Descartes is criticized for believing his concept *res cogitans* - 'mind-stuff' is nonphysical. What he actually meant by using the term 'immaterial' from the nomenclature of his time is that mind-stuff is spiritual. Contemporary scientists abandon Cartesian dualism as intractable because they believe such a mind-stuff violates the laws of thermodynamics and energy conservation. However, unified field propagation in SOLS directly overcomes this problem [2,4,5].

To briefly review the tenets of the noetic model of Cartesian interactive dualism; it is sufficient to state that an additional life principle beyond the brain/body not only gives life but supplies the 'light of the mind' (qualia) as a physically based noetic unified field cosmology [2-5]. In simplest

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terms in this context, when two loving people interact over an optimal length of time (varies per couple) letting their guard down, implying a certain element of trust (this opens nonlocal boundaries of the soul) such that various boundary conditions of their souls coherently align. This alignment entrains the natural flow of the spirit from locally separated individual states into an entrained or coupled pair-state producing a nonlocal coherence (soul to soul connection at a level of awareness) causing a 'noetic light-like explosion'. This is how a laser operates - perfectly align mirrors (entrained souls), shine a light (spirit) between them and a light explosion (love) occurs! Nonlocal connections always exist interpersonally; but the coupling loci must move into a position where the flow can be perceptually experienced. This is like the 'Way of Nonattachment' or opening the 'Lotus' in Buddhist meditation; if the spiritual eye is coupled to the stomach one does not 'see'. This higher-level coupling breaks down the so-called 1st person - 3rd person barrier.

In scientific parlance and popular literature love is discussed in terms of

- Biological - genetic, sexual, biochemical and neural
- Sociological - cultural, familial, matrimonial
- Psychological - emotion, dependence, attraction, personality type

Here we completely ignore these commonly discussed aspects and concentrate fully on the spiritual basis of love - not from a theological or philosophical context; but by introducing totally new principles of physical cosmology required to complete the task of understanding love as a physically real aspect of the noetic unified field. Now that the cosmology of mind (awareness), which includes an associated physically real 'life principle', has been discovered it has become possible to define love fundamentally within the soul of a living system. Think of this as how modulated configurations of the electromagnetic field produce images on a TV or movie theater screen or more pertinently like evanescence or superradiance.

Our task would seem so much easier if consciousness was merely a brain property as cognitive scientists believe. If this were so then mere programming structures in a neural network configuration or biochemistry would suffice to explain a particular thought, emotion or experience such as love. But this is not the case; cognitive and AI scientists fail to prove their case for mechanism, a universe populated by programmed minds devoid of spirituality. Is it any wonder they classify mind as a 'hard problem' too difficult to research [13]. In order to describe awareness, a whole new cosmology is required; not a Darwinian naturalistic or atheistic Big Bang cosmology, but an anthropic multiverse cosmology that includes the spirit of God. Evolution still exists but it is not random. Evolution is 'guided' by this anthropic principle or spirit of God synonymous with the unified field of physics. This anthropic reasoning is in opposition to biological mechanism. Biological Mechanism states: The laws of chemistry and physics are sufficient to describe all life; no additional life principle is required. Noetic theory by introducing an anthropic life principle is able to definitively describe awareness and related properties such as love, intelligence and transcendence.

We have claimed that it is easy, meaning we can do it; but it is still not so simple a task. The cosmology of awareness cannot be described in the usual 3D or 4D spacetime dynamics of quantum theory and Big Bang cosmology. To describe awareness requires a minimum twelve dimensional (12D) space with a duality between our limited 3D temporal existence and the higher

dimensional (HD) holographic reality of eternity of which we are a subspace. Our purpose is to delineate love in this new context. Although we are now able to define the anthropic cosmology of living systems, thought, emotions and feelings; describing love at this early stage (without telecerebroscope or noetic holography technology) is in a sense like putting a cart before the horse because love is a more special (higher) configuration requiring something extraordinary in order to fully describe it. To be perfectly clear we are not claiming to know the essence of the spirit of God which is said to be love; only that noetic science has found empirical methods to access and observe the pathways and geometry of that structure in the living matter of SOLS [2-5,7,14].

Defining love requires an additional feedback loop causing lasing between interpersonal unified field boundaries. Let's clarify. The stream of thought or awareness (technically called qualia) entails an alignment of spacetime mirrors (boundary conditions gating spirit into living systems) producing the flow of mental content within SOLS; but it is a lesser form of evanescent coherence. The configuration of love requires a duality of 'superradiance' interpersonally breaking the 1st person - 3rd person barrier. These added coherence parameters are required for transpersonal effects - especially love. Whereas love is a form of 'constructive interference (wave summation); it should be noted that there is an obverse telergic 'noetic effect' affecting the health of others - a form of destructive interference. This will lead to a new field of noetic medicine relating especially to the hundreds of heretofore incurable autoimmune disorders as [14].

2. Anthropic Multiverse Cosmology - Noetic Context for Love

Noetic Science is based on an alternative to Big Bang cosmology called the Holographic Anthropic Multiverse [1,3]. This alternative cosmology is required because the Big Bang has no life principle able to describe consciousness beyond chemistry or an erroneously theorized computer program in the brain (Mind = Brain). Scientifically Hubble discovered a cosmological redshift, not an expansion of the universe as mistakenly concluded by Big Bang cosmologists. A cosmological redshift is however observed. But in multiverse cosmology if one assumes that the photon of light has a tiny mass, 10^{-65} g, then redshift occurs instead by a "tired-light" mechanism [1]. Imagine skipping a flat stone across water. Each time the stone hits the water and skips, it loses a little energy and the skips and velocity of the stone get shorter and smaller until the stone stops and sinks into the water. In terms of astrophysics this means light still gets redder and redder with distance but eventually it loses all its energy and disappears from view in our telescopes. This is the limit of observation in cosmology. In physics minute photon mass is created by the periodic internal rotation of the photon's energy that creates a gravitational field (periodic mass) causing the photon to couple to spacetime once per wave cycle and lose energy just like the skipping stone [1]. If the photon had no mass, why wouldn't the speed of light be infinite instead of merely 300 k/s?

In Big Bang cosmology the observational limit in cosmology (as far as telescopes can see) is to the postulated origin of time or initial moment or singularity when the grand explosion called the Big Bang occurred. In multiverse cosmology if one traveled to that limit ~ 14.7 billion light years away, one could see out again for another 14.7 billion light years. This as we mentioned is a result of the so-called tired-light phenomena caused by a tiny periodic photon mass [1]. See [1,3] for details on other alternative cosmological parameters required for cosmology containing a life principle.

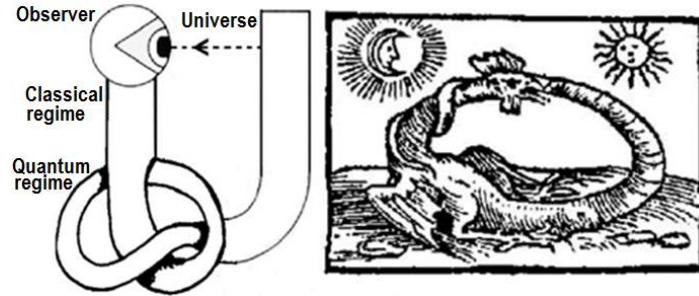


Figure 1. a) Modified model of L.H. Kauffman's adaptation of J. Wheeler's Uroboros cosmology based on an ancient archetypal universe related to topological surfaces like the Mobius strip or Klein bottle, especially the topology of holographic universe models. In multiverse cosmology the observer is embedded in and made out of the anthropic substance of creation where the 'knot' (quantum uncertainty principle) limits observation to a limited temporal 3D virtual reality. b) The Uroboros, among the ancient Gnostics a symbol of the *aeon*, or eternity of life. The image is from Horapollo, *Selecta Hieroglyphica*, 1597.

Another major property of multiverse cosmology is the anthropic principle equated with the unified field of physics [2-5]. In the philosophy of science the unified field is the same as the spirit of God that supplies the gravitational force, guides the evolution of complex living systems (SOLS) mentally and physiologically [2,12]. As illustrated in Fig. 2b reality is perceived as a hologram; the anthropic principle or spirit of God acts as the laser creating the holographic 3D image of the reality of our world as the cube in Fig. 2a.

This can also be thought of as an observer sitting in a movie theater. The light at the projector bulb is the unified field or laser, the discrete frames of film are segments of spacetime and the smooth image on the movie screen is our observed 3D virtual reality. While the film in the projector moves at a few centimeters per second, in reality the surface of matter is made of electrons moving at a velocity near the speed of light. Imagine being embedded in the Uroboros cosmology of Fig. 1. We only see reality based on the discrete segments of 4D spacetime, not the complete 12D eternal reality of the multiverse. This subtraction by being embedded in the Uroboros, and the propagation of the spacetime segments gives us the perceived arrow of time [3]. There are many other amazing properties of multiverse cosmology [1-9].

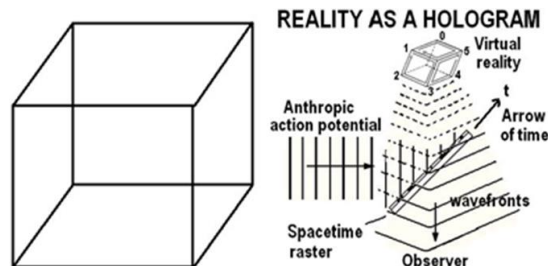


Figure 2. a) Observed reality depicted as a virtual 3D Euclidean spacetime cube. b) Actual reality is more like a hyperdimensional hologram in a 12D background of infinite quantum potentia (Schrödinger's dead and alive cat). The 'laser' is the teleological unified field anthropic action principle (Fig. 3) 'piloting' the continuous evolution of observed reality.

3. Noetic Consciousness – A Cartesian Interactive Dualism

Current thinking in the field of consciousness studies or cognitive science asks, “*What processes in the brain give rise to awareness?*” [13]. We know this cognitive model is incorrect because it is an atheistic model with no allowance for an anthropic action principle or spirit of God giving life to the soul or animating the mind. We are not programmed robots. Evolution still exists but it is not random / Darwinian; it is guided by the spirit of God - like a super quantum potential in de Broglie-Bohm causal interpretation of quantum theory [15,23]. Cartesian interactive dualism says mind and body are distinct entities, allowing life of the soul after death and the spirit of God to be the light of SOLS and the mind.

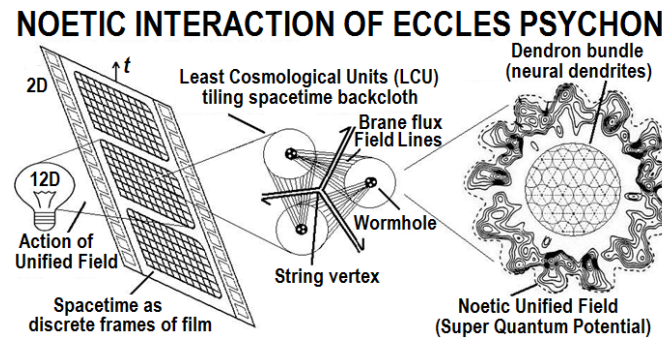


Figure 3. Conceptualization of Interactionist Cosmology embedding a modulated locus of thought (qualia) into the inherent life principle structure of Fig. 2. a) Showing injection of the noetic field (bulb) or *élan vital* into spacetime points (film), b) Planck scale array of least-units mediating the noetic unified field. Spacetime is virtual in multiverse cosmology and the least cosmological units (LCUs) tiling its backcloth are driven by a teleological anthropic action principle. Each ‘point’ is a continuous-discrete wave-particle duality. c) An Eccles Psychon field coupled to a brain dendron where positive functioning leads to health and transcendence or negative actions deplete the corona of the noetic field in the soul and create deleterious autoimmune interactions that may interrupt normal homeostasis and health.

The important understanding to take from Figs. 2 and 3 is that in an anthropic cosmology the unified field or spirit of God enters each spacetime point and every atom and molecule after passing through the cosmological least-unit gating mechanism separating the domains of temporal and eternal reality [1,3]. This is how the life principle enters living systems to give life and also be the light of the mind or awareness. If the ‘gate’ was always open, we would not be able to live in time where a form of subtractive interferometry removes the additional dimensionality from our sensory apparatus. In the multiverse cosmology model of living systems, the spirit (life principle) and the body comprise the soul [2,12]; so that there are no disembodied souls. When a person dies his eternal spirit (mind or intelligence) is eventually reunited with a body (resurrection). This is the Cartesian dualist-interactionist model of mind-body. We call the boundary of the soul the psychosphere because there is more to SOLS than the brain and body chemistry; the soul also includes a surrounding spacetime region like the solar corona and additional eternal boundary conditions comprising the limits of individual intelligence.

4. Psychons and Qualia: The Noetic Effect

The mind-body interaction process between the 12D eternal realm of God and the temporal 3D/4D realm of mankind is defined as the Noetic Effect [2,9] because it entails a force of coherence with inertial tension related to the quantum uncertainty principle as a barrier between the two domains. We will now begin to illustrate how this Noetic Effect mediates the production of qualia. Qualia, the plural of quale, is short for the ‘qualitative feel’ of subjective awareness of a thought or feeling like the experience of the color redness for example [2,13]. Sir John Eccles, Nobel Prize for discovery of the synapse, postulated that a concept he called the ‘psychon’ coupled the spirit or unified field to brain dendrons. A dendron is a bundle of ~ 100 of the dendrites of nerve cells [4]. This is the basis of the dualist-interactionist model of the mind-body first proposed by Descartes. Eccles left the concept of the psychon as an empty philosophical construct because at the time he did not know how to develop the model further. Although Eccles was severely criticized for not defining the psychon, we cannot fault him because during his day no way to define this interaction properly had yet been invented [2,4]. As the reader may have surmised, before we define love, the consciousness that houses it must be described.

With the advent of Noetic Theory, we are now in position to define the physical basis for the psychon-dendron interaction, a necessity before defining the physical cosmology of love. We first suggest that psychon energy should be quantified in a similar manner to that of the quantity called the Einstein, the physical unit defined as a mole or Avogadro’s number of photons (10^{23}) used to measure photosynthesis [3]. But instead of photons the tenets of NFT postulates one psychon to be tantamount to a mole of “noeons”, the exchange unit of the unified field (recall that the photon is the exchange unit of the electromagnetic field). Furthermore, this noeon exchange mechanism is not confined only to the neural synaptic sites of dendron bundles as Eccles surmised. In addition, it applies to microtubules, sensory receptors, DNA oligomers and any other pertinent biochemical molecules. This occurs not just in the brain, but anywhere throughout the whole body that plays a role in the bioenergetics of the soul or mind-body psychosphere, which as we stated includes the boundary conditions of the whole physical and spiritual body in both the usual 4D temporal spacetime and associated 12D nonlocal space up to the ‘footstool of God’.

We don’t know too much yet about the noeon that is the ‘light of the spirit’ or unified field. Imagine balloon animals that are made by twisting off segments of the main balloon to make a head or limbs. Double twists would be like a nose, eyes or fingers. The photon quanta of the electromagnetic field is like this. The photon is a dipole, like a little nose for example. It would untwist to a quadrupole, the graviton which is like the head or body of the animal. When the head is untwisted the energy returns to the whole balloon which is like the ubiquitous ocean of light of the unified field in the eternal 12D domain. These twists (providing some inertia in the continuous gating cycle) are part of the Noetic Effect we referred to earlier. Now we have a basic model where these noeon twists of the unified field become all the atoms, forces and fields of our reality.

5. Self-Organized Physical Cosmology of Qualia

In the cognitive theory qualia is only a philosophical construct defined simply as the sensation of thought or awareness. In Noetic Theory in order to make qualia physically real we must define

three types of qualia. In a paper called ‘What’s it like to be a bat?’ T. Nagel states that current reductionist attempts to define qualia fail by filtering out any basis for consciousness; thus becoming meaningless since they are logically compatible with its absence [16]. He assumes that if an organism has conscious experience, “*there is something it is like to be that organism*”. This is the subjective character of experience for any conscious entity whether bat or Martian. Every experience has a specific subjective nature or configuration of qualia.

The flow of qualia provide the so-called ‘stream of consciousness’. Not all qualia are coupled to emotion. We can configure qualia with additional emotive content as ‘states of mind’. Love is a third degree. Love adds ‘shared’ emotive content beyond the boundaries of the self that we will define below as a form of lasing or superradiant evanescence between the internal (nonlocal) ‘mirrors’ of SOLS.

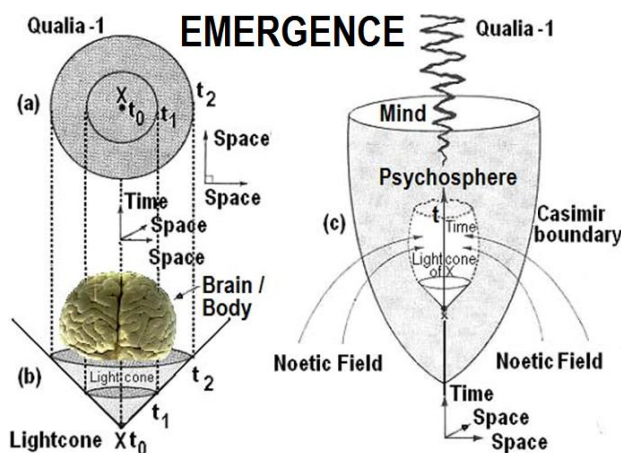


Figure 4. The emergence of Qualia into living systems. a) From the 4D spacetime lightcone point $x_{t_0} \dots x_{t_n}$ noone light enters every atom and thus the brain/body cyclically in time, $t_0, t_1, t_2 \dots$ b) Broader 12D context where qualia emerges into the mind or seat of awareness by a form of ‘evanescence’. Note: These same Cassimir (Casimir) boundaries bringing life and thought into the individual soul, when aligned (entrained between people in love) between two SOLS create the laser-like ‘light explosion’ or joyous expansion of the soul we experience as love.

To Nagel, “*There are facts which could not ever be represented or comprehended by human beings, simply because our structure does not permit us to operate with concepts of the requisite type*”; because “*to even form a conception of what it is like to be a bat one must take up the bat’s point of view*”. If one removed the viewpoint of the subjective observer; what would be left? Nagel suggests the remaining properties might be those detectable by other beings, the physical processes themselves or states intrinsic to the experience of awareness. This changes the perspective of qualia to the form “*there is something it is like to undergo certain physical processes*”. “*If our idea of the physical ever expands to include mental phenomena, it will have to assign them an objective character*”. Nagel recognizes that: Very little work has been done on the basic question (from which mention of the brain can be entirely omitted) whether any sense can be made of experiences having an objective character at all. Does it make sense ... to ask what our experiences are really like, as opposed to how they appear to me?...This question also lies at the heart of the problem of other minds ... If one understood how subjective experience could have an

objective nature, one would understand the existence of subjects other than oneself [16].

These are questions an integrative Noetic Science can now answer. Standard definitions of qualia are an inadequate philosophical construct describing only subjective awareness. In the physical sense of Noetic Field Theory (NFT) components describing qualia from the objective sense are introduced - i.e. distinguishing the phenomenology of qualia from the noumenon (separated from the apparition or superficial aspects of the phenomenon) or physical existence of the thing in itself beyond experience.

A comprehensive definition of qualia includes three forms considered physically real by NFT because the noetic fields of multiverse cosmology on which the noetic model is based are all physically real:

Type I. The Subjective - The what it feels like basis of awareness. Phenomenological states of the qualia experience. (The current philosophical definition of qualia we term Q-I)

Type IIA. The Objective - Physical basis of qualia independent of the subjective feel that could be stored or transferred to another entity breaking the 1st person 3rd person barrier. These are the noumenal elements of qualia upon which the phenomenology of experience is based.

Type IIB. As in Fig. 2b in terms of unified field noeon flux passing through the microscopic LCU raster of spacetime like a laser light producing a macroscopic holographic image; we define the discrete singular LCU points as 'quanemes' or qualia-nemes derived from the term phonemes as the particulate components summing into a specific sound in phonology.

Type III. The Universal - By being alive living systems, SOLS represent a Qualia substrate of the anthropic multiverse, acting as a 'blank slate' as carrier from within which Q-II are modulated into the Q-I of experience by a form of superradiance or hyper-holographic evanescence [2]. See Figs. 5 and 6.

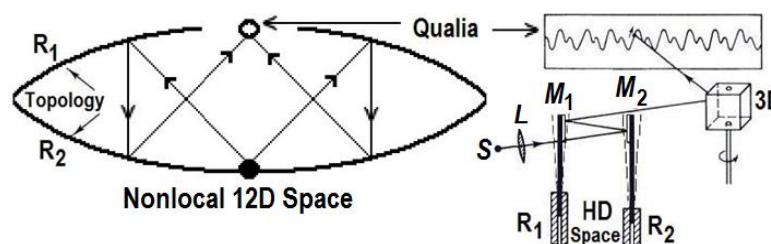


Figure 5. a) If two parabolic mirrors (Casimir mirrors of the soul) are placed as shown (like the configuration of automobile headlight mirrors), an object put in the bottom (black dot) produces a virtual image of the object at the top (white sphere). b) If the mirrors (topological spacetime boundary conditions) are made to resonate in a certain manner coupled to sensory input, memory archetypes or thought, an encoded mental qualia emerges into the mind as in combining Figs. 2-4 with 5. *S* is the noeon source. $R_1 - M_1 : R_2 - M_2$ Casimir mirrors oscillate and reflect noeons into qualia.

This triune basis of qualia is only comprehensible in terms of the noetic definition of SOLS, Complex Self-Organized Living Systems in the anthropic holographic multiverse cosmology

[2,4]:

- There is an Elemental Intelligence co-eternal with God. We know little about this parameter at present other than it constitutes the boundary conditions of individuality, without which individuality ‘could not abide’ [12].
- The 3D physical body living in spacetime and made of matter.
- The soul or ‘spirit and the body’ [12] given life by the unified field noeon flux or spirit of God. The spirit of God somehow couples the domain of nonlocal elemental intelligence to the body and animates it by its action as the life principle. The difference between the spirit of God and the qualia of awareness may be like the twists making a balloon animal as described above.

Thus in summary these six elements comprise SOLS and the qualia system embedded and flowing within.

A standard image requires a screen or other reflective surface to be resolved; but if the foci of two parabolic mirrors (Casimir-like plates in our model) are made to coincide, the two images superpose into a real 3D image that does not need a screen. A science toy called the ‘magic mirage’ is used to demonstrate this effect of parabolic mirrors. Objects placed in the bottom appear like solid objects at the top of the device. Figure 5.

The lighthouse beacon action of *élan vital* energetics arises from the harmonic oscillation gating mechanism of least unit boundary conditions that tiles or tessellates the spacetime backcloth and pervades all SOLS. The inherent beat frequency of this continuous action produces the Q-III carrier wave that is an empty slate modulating cognitive data of Q-II physical parameters into Q-I awareness states as a superposition of the two (Q-III and Q-II). Figure 6. This modulation of qualia occurs in the 12D cavities of the cognitive domain of the psychosphere. The 12D cavities are a close-packed tiling of least unit noetic hyperspheres; the Casimir surfaces of which are able to reflect quaneme subelements. While the best reflectors of EM waves are polished metal mirrors, charged boundary conditions also reflect EM waves in the same way radio signals bounce off the ionized gases of the Kennelly-Heaviside layers in the Earth’s ionosphere. This reflective ‘sheath’ enclosing the cognitive domain is charged by the Noeon radiation (exchange particle of the noetic field) of the *élan vital*, the phases of which are ‘regulated’ in the complex HD space of the least unit multiverse cosmology [1-3].

How does noetic theory describe more complex qualia than the simple qualia of a light pencil? (The qualia-II of a light pencil is assumed to be the pencil (short ray) of light itself. Light quanta are microscopic in contrast to the macroscopic sphere of awareness. It is reasonable to assume that scale invariant properties of the multiverse least-unit of awareness would apply. Like phonemes as fundamental sound elements for audible language qualia-nemes or quanemes are proposed for awareness based on the physical modulation of Q-II states by the geometric structural-phenomenology of the Q-III carrier base of living systems.

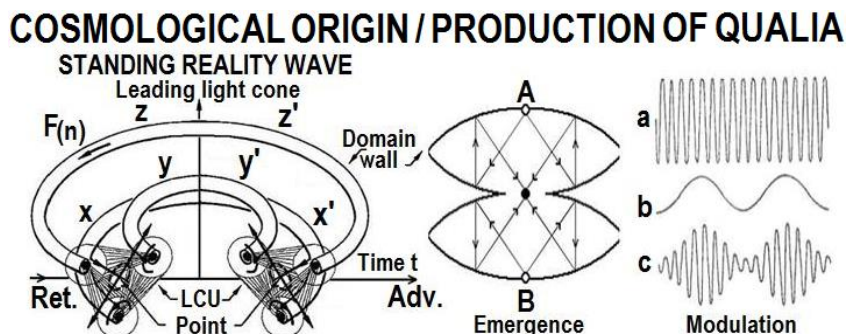


Figure 6. Metaphor for the emergence of qualia from the continuous action of the noetic least unit, LCU. a) A microcosm of multiverse cosmology where past oriented compactification periodically produces a classical spacetime point, x, y, z . The standing-wave domain walls represent the lightcone singularities of Q-III propagation, the surfaces of which act structurally as Casimir-like plates, and phenomenologically as a carrier wave base for Q-I qualia evanescence by Q-II modulation. b) represents two pairs of parabolic mirrors (the Q-III Casimir domain walls) whose foci overlap; this is the high frequency wave in c) denoted as (a) (top). The longer wave (b) (middle) represents Q-II qualia as modulated by the Q-III wave into the usual Q-I qualia at the bottom, (c). Thus a, b, and c in c) represents the three forms of qualia and how they work together to form mental Q-I by superradiance of the noetic field.

6. The Physical Basis of Love

In the last section we gave an elementary description of the physical cosmology of qualia. It was dramatically different from the cognitive science approach which remains philosophical. As the reader noticed qualia are very complex. It is said ‘the problem of qualia is tantamount to the problem of consciousness itself’. The major difference between qualia of emotion and qualia of thought might be that the mental state of an emotion does not necessarily have any visual content, whereas a sensory based thought is more likely to contain visual qualia components.

Probably we will find out when experimental ‘telecerebroscope’ platforms are developed that much of qualia is stored in a planetary database in what C.G. Jung called the collective unconsciousness of the Earth. We don’t know this for sure yet, but we have discovered that qualia for all life on Earth is universal. While higher level languages like Portuguese or English for example are quite different. The language of consciousness which is encoded as qualia is universal as is DNA for all eukaryote SOLS. It seems simple to say the qualia for a pencil of light (segment) is the actual pencil of light. This may be true because the mind exists outside the body (psychosphere) and the spiritual body is like a photonic quantum computer that processes by ‘light’ (Unified Field noeton light). Figures 2-6 suggest this is like the waves of electrons that impinge the phosphor of a television tube screen. The unified noetic field pervades the triune structure of qualia and cosmological components of SOLS evanescing into the flow of consciousness.

If we accept this model, then there is still something different and more special for the qualia of love. This relates to the 1st person 3rd person barrier. Generally, qualia are individual and private

(1st person). It is commonly known that when two mirrors are perfectly aligned in parallel, a light explosion called lasing occurs between the two mirrors. Love appears to be like this. Love is like a lasing of 12D psychosphere Casimir spacetime topological boundary conditions [2,24]. This telergic property is like the Einstein Podolsky Rosen (EPR) experiment of quantum theory. Some atoms like mercury emit photon pairs simultaneously. When one photon is touched by a polarization filter for example, the other photon no matter how far away resonates with the same effect. This proven nonlocal connection allows an actual lasing of love qualia between people in love. The quantum entanglement of their souls allows resonance of the spirit between them, See Figs. 5 and 7. The EPR experiment is the main empirical proof of nonlocality - that the 12D arena hidden behind our 3D virtual world is like a hologram where any piece torn out (like an individual) contains all the information of the whole image. If qualia are like Jung's archetypes it would be this holographic property that allows storage in a 'collective unconscious'.

The physical nature of Love is a whole cosmology that cannot be described adequately in terms of narrower discourse of cognitive psychology, philosophy or theology, but needs context of both an anthropic multiverse and a full understanding of nature of awareness. From this noetic point of view love is a substantive cosmological personal/interpersonal state having aspects of a physical 'noetic field' of light (noeons projected into an image much like the creation of a rainbow) produced by laser-like super-radiance such that an EPR type coherence between people occurs. Details and actions of this neon field for self-organization in autopoietic living systems (life itself) apply in addition to the light of consciousness and lased state of romantic and altruistic love.

Whys does it take a cosmological point of view to describe the nature of Love? The crux of this relates to what is called "Biological Mechanism". Biological mechanism states that: 'The laws of chemistry and physics are sufficient to describe all life; no additional life principle is required'. If you believe in the mechanistic point of view, you believe people are just programmed machines and love is just a biochemical reaction; this is not the point of view implemented here.

The common definition of Love is: a strong positive emotion of regard and affection. Emotion is defined as: A mental state that arises spontaneously rather than through conscious effort and is often accompanied by physiological changes; a feeling: the emotions of joy, sorrow, reverence, hate, and love. Emotions are the affective aspect of consciousness, a feeling or conscious mental reaction (as anger or fear) subjectively experienced as strong feeling usually directed toward a specific object and typically accompanied by physiological and behavioral changes in the body.

Love is developed through trust, a condition allowing openness. Trust is defined as the assured reliance on the character, ability, strength, or truth of someone or something in which confidence or dependence is placed; hope and trust are the foundation of a healthy, happy relationship. When two people want to create a deeper more meaningful relationship vulnerability is also added. If you enhance a trusting relationship with vulnerability the feeling of being anxious, fearful, and apprehensive may be experienced before exposing themselves. Trust accompanied by vulnerability leads after the exposure to feelings of love or pure joy.



Figure 7. When SOLS align a coupling of the noetic field occurs resonating between the two souls allowing them to share the mutual entangled qualia of love. While the hypertori images are illustrative here; the actual psychosphere structure and topology has similarities, i.e. wheels within wheels with gating mechanisms that may align or misalign.

Vulnerability is defined as capable of being physically or emotionally wounded; open to attack or damage. If the people in the relationship choose to be vulnerable with each other the result of working through an issue, allowing the couple to feel and have empathy with and for each other creates a strong, deep bond of loyalty that does not happen without being vulnerable [25]. Stronger relationships can be created in the work place, within the community, with extended families and in especially in romantic relationships which we consider here. We will try to show that these emotional states of mind allowing love to occur have an actual physical basis in the structure of the soul.

Traditionally love has been the domain of romantic poets and philosophers. Psychologists and theologians have addressed some of its operational properties like how love relates to happiness, temporal well-being or how to prepare for eternal joy in heaven. But until now it has not been possible to describe its physical basis and how it mediates the physiological nature of complex self-organized living systems SOLS, its relationship to interpersonal properties of transpersonal psychology, and thought processes through the processes of mind-body interactions called the "Noetic Effect" as a force of coherence.

Most might argue that the phenomenon of love isn't a process that is physically real. Rather it is believed to be an abstract ineffable or immaterial quality, that at most might be considered spiritual, that could or never should be elucidated. Something reminiscent of the feelings portrayed by the philosopher/poet Keats who once drank confusion to scientists like Isaac Newton for explaining rainbows; suggesting it would be a desecration to formally describe life's only real treasure. On the other hand, such an elucidation would ultimately have such a profound effect on so many aspects of our existence that if such a task can be accomplished, it should be given urgent consideration.

Recently fundamental principles drawn from modeling a continuous-state holographic anthropic multiverse [1] lead to a framework for describing the physical cosmology of love as dynamic hyperdimensional coherent interactions of the noetic unified field. Firstly, it is postulated that life is a dynamic multidimensional recursive self-organized autopoietic complex system; itself a complete microcosmology that is a continuous transform of phenomenon and noumenon, mediated by the noetic unified field. Within this framework the domain of individuality is defined

as a psychosphere; a further complementarity between unity with the wholeness of the universe and the separation of the fundamental state of nonlocal individual elemental intelligence.

7. EPR Entanglement Precursor to Understanding Physical Cosmology of Love - Qualia - IV

We know that nonlocal connections exist between atoms. Since people are made of atoms it is reasonable that nonlocal connectivity exists between SOLS. This has been proven in quantum physics by what is called the Einstein-Podolsky-Rosen experiment (EPR). If a pair of photons is simultaneously emitted in opposite directions and one of the photons polarized; a simultaneous change in polarization occurs in the other photon. This has been tested to 30 kilometers; and preparations are being made for an Earth-Moon test. Thus our noetic theory suggests that when lovers entangle in an adequate manner love may evanesce.

In Sec. 5 we have defined the three components of qualia. It appears now that an additional form that includes the EPR mechanism is required to describe the process of breaking down the 1st person - 3rd person barrier. Qualia Type IV has all the properties of the Qualia - I, II, III triad with an additional duality and gating mechanism to mediate interpersonal boundaries [2].

A coupled noetic field configuration exists for each qualia state with dynamic evanescent standing wave-like properties within the raster of consciousness (see Figs.) cycling from Classical to Quantum to Unitary. It is assumed that there is a coupling of the noetic field mediated by agency of both individuals and objects if a subject looks at, thinks of, talks to, or interacts in any way. There is a continuous general set point or homeostasis to the 'normal' bandwidth of an individual's noetic field interactions that one is generally habituated to (Fig. 8) with little noticeable sensation beyond the general introspective mode we sense and call awareness. This habituated bandwidth depends individually on our mood, stress level, health interactions and environment and has a set point of intelligence also.

There is additionally a law of hierarchies associated with this multistate bandwidth. One's position in the hierarchy relates to personal intelligence, ethics, control position, status, and group dynamics etc. Within any interaction or noetic field connection free energy can be increased or decreased to either noticeable or subconscious degrees by subjective manipulation such as meditation or love, or nonlocal collective unconscious 'karmic' effects. Some control and therefore a change of loci related to the flow of noetic flux energy can be given up by agency or controlling factors to superiors, jailors, subordinates or equals. In certain of these scenarios the 'give and take' is not equitably balanced and cultural mores do not always necessitate such. This collapses some spacetime flux loci structures and may open others. Noetic theory suggests chronic deficits in this interpersonal energy balance are probably a major cause in autoimmune disorders. Part of the law of hierarchies denotes an actual physical flux boundary and part is necessary to maintain our individuality and maintain those boundary conditions. This relates of course to psychological issues in addition to the cosmology of consciousness.

8. The Physical Nature of Love

In terms of these postulates we now ask what is love? Simplistically love is a hyperdimensional 12D dynamic configuration of noetic field interactions along coupled loci where superradiance and evanescence takes place interpersonally. This description can be physicalized in terms of quantum teleportation maintained in EPR-like entangled psychosphere states. Every action has an opposite and equal reaction in terms of conservation of energy or state. When ‘moments’ of love begin to take place a coherent entanglement starts to occur; the coherence lengths of the superposition increases until more and more noeons (mental photons) are ‘free’ in the interaction. Boundary conditions change. More and more ‘separation space’ is converted to shared nonlocal ‘unity space’.

At a certain threshold there is sufficient shared space and noeon coherence that a laser-like avalanche of superradiance begins to occur. The threshold can remain small and local, but with sufficient trust, openness, and ‘generosity’ love (phenomenology of) this small pocket of superradiance can increase and become pervasive until it becomes like an internal fountain expanding every particle of ones being in an evanescence that begins to be within the fringes of awareness.

To put in other terms noeons are constantly flowing in the psychosphere like production of a rainbow. Much of the commerce of exchange does not occur within the evanescent boundaries compatible with sensory awareness, firstly. (The locus of awareness is typically maintained at a level on the hierarchy below the threshold of spiritual awareness) Fig. 8. Secondly there are no interpersonal coherence or superposition effects that would be associated with superradiance. The ‘mirror dynamics’ leap frog so to speak but not initially in a ‘standing wave’ synchronicity modality. Feedback is not required or expected along a recursive path; and the return path is not maintained here. So in a sense the propagation initiator mirror or cavity ‘dissolves’ or translates before the receptor mirror appears or aligns in a form that would lead to an open feedback loop in this ‘pre-love’ locus of interaction where there is little or no entanglement of boundary conditions leading to noeon light cone superposition. The individuals maintain a separation and send out external ‘comets of interaction’.

Good friends, trusted companions, naturally open individuals, or lovers begin to entangle and integrate light cone boundaries; through an additional causality associated with consciousness. In terms of the biological use of nonlocality the feedback takes on a whole new character of a much higher complexity. Permanent or maintained noumenal mirrors whose coherence lengths, entanglements and superpositions may grow; lead to the coherent configurations of psychosphere dynamics that is love. Several thresholds of phenomenology are crossed; and this tier is quantized with several arbitrarily defined markers in coherence lengths that lead to various levels of subjective love awareness.

Summarizing the mutuality of conditions of a threshold hierarchy to experience love there is:

- A maximum separation with no noeon interaction of world lines other than those in the universal collective unconscious as part of being human and being associated with the Earth.

- Basic interactions of conscious commerce. Parallelization of world lines, but no psychosphere integration in lowest order interactions, no neon 'comets' are sent out in exchange of energy that through agency or control develops set points following which a conservation of energy within the set points is generally maintained even though the commerce may not be equitable. (No parallel mirrors)
- Coupling begins with entanglement of psychospheres and a developing coherence length. Mirror alignment begins. And sensory feedback threshold appears at the pleasant or 'like you level'. This is more a corona effect with the double mirrors appearing during volleys of interaction, or draws from reservoirs and inner boundaries are not crossed or left open.
- Modification of internal light cone boundaries, channels are opened and maintained. Generation of EPR like mutuality created. Maximization of internal channeling through all of the 3-fold hyperdimensional transform. Condition of pervasive love, but still more localized.
- Global maximization of superradiance effects, like a superradiance of the superradiance creating an all pervading love of the whole psychosphere and consciousness. The full extent of this is not commonly achieved even by lovers, as it includes a maximization of the spiritual neon channels as well as the more physical mind and body.

Love in the literature has not been described in any real detail other than briefly or superficially in terms of psychology, biochemistry, sexuality and altruism. Love then in its essence must be is a whole cosmology.

9. The Next Evolutionary Step for Homo Sapiens - Lucis Sapiens

A complete understanding and implementation of Noetic Love on Earth could cause an evolutionary step in humanity and lead to a new race of humans that might be called Lucis Sapiens or intelligent humans of light (spiritual). Lucis Sapiens could eventually replace Homo Sapiens (intelligent apes) on Earth. This may be said to occur on all planets in the multiverse when they come of age - when discovery of the conscious universe and the physical nature of awareness causes the hominid society to become fully evolved.

Part I: The evolution of Human consciousness has come full circle to the time of Galileo when we begin another paradigm shift in the progression from myth and superstition, to an age of reason to a Galilean age of empiricism. But with the discovery of mind the paradigm shift completes human epistemology. Thousands of years ago Plato said noetic insight was highest form of knowing because it came from beyond human reason from the teleology of the anthropic multiverse. No matter how great one's intelligence or deep one's wisdom noetic insight came from beyond the self. This is now being realized in completing epistemology as the union of philosophy, science and theology which are not mutually exclusive but opposite ends of a long continuum of human understanding. This integration entails development of an 'empirical metaphysics' where noetic insight is received subjectively in transcendent states and then empirically verified [3].

Part II: Discovery and Nature of Conscious Universe. Post Big Bang Cosmology, Extending quantum theory, Gravitational theory and electromagnetic theory, introduction of teleology of anthropic multiverse.

Part III: Coming Age of Transcendence: Used as hypothetical metaphor for teaching societal ethics or as real millennial transformation - The birth and evolution of Lucis Sapiens, 'Intelligent Humans of the Light (Lucis)' evolved by the completion of human epistemology and the greater spirituality and love required to utilize transcendence in a global manner as a tool of science, psychology etc.

Part IV: Nature of Love: Love cannot be described adequately in terms of narrower discourse, but needs context of an anthropic multiverse and understanding of nature of awareness. From the noetic point of view love is real and love has aspects of a physical field of light and by laser like superradiance an EPR type coherence between SOLS occurs.

10. Searching for Ecstasy

What brings joy to human beings? Principles and phenomena inherent in 'expansion' of the soul? Not as the Bible proverb says: "Folly is joy to him that is destitute of wisdom". Ecstasy seems the extreme of happiness, a joyous state arresting motion of the whole mind. Once experienced just the thought makes us long for it. Closeness to God facilitates the state of ecstasy. Once achieved amazing joy spills into all aspects of one's being. We become trees, feet planted in the Earth, standing transfixed in the ecstasy of sunlight.

Man is designed a social animal. Another avenue is through profound love shared with another. Limited by cultural constraints it is rare even for close friends and family. With the opposite sex one can intimately share intense feeling. With a close friend with an optimal level of spirituality it is possible to reach a state of heightened awareness independent of the sex act that can culminate in a state resembling ecstasy. If what is called 'the afterglow' were magnified manifold times, this would qualify as ecstasy. This refreshing altered state that can be beckoned at will once learned. I see little difference in the nature of ecstasy achieved romantically and the state shared with God. The difference being to know God as well as one's lover so that one could plan ecstasy by practicing a prayerful worship.

Reaching such state of joy spills over into all aspects of our being with equal ease whether originating with God or a special friend. Pure love is Love apparently. Meditatively maintaining the state of ecstasy allows one to stay awake all night and arise as refreshed as if one slumbered. Ecstasy is mentioned in the scriptures: "*He fell upon his knees, and began to pour out his soul in prayer and thanksgiving to God for what he had done to his brethren; and he was also overpowered with joy, and thus they all three had sunk to the earth*".

Another incident occurs when King David dances before the Lord into a state of ecstasy. Could ecstasy be considered an excess like intoxication? As a feeling of delight that arrests the whole mind perhaps this is so. However, I do not believe that in order to be close to God or have a high degree of earthly happiness it is necessary to live a Spartan life or undergo self-punishment to the degree the ascetics did. St. John of the Cross says: "*The appetite blinds and darkens the soul because the appetite as such is blind. It is blind because of itself it has no intellect. Reason always acts as a blind person's guide for the appetite*" [17].

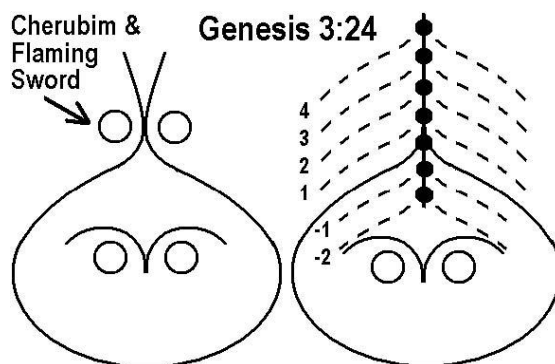


Figure 8. Hierarchy of telergic interpersonal connectivity related to love, intelligence, health and transcendence. In terms of a) the ‘Cherubim and Flaming Sword’ ‘Guarding the way to the Tree of Life’ act as a set point of one’s intelligence and spirituality. b) Shows an inherent hierarchy of the souls’ structure. In terms of Noetic Tantra set points below the ‘corona’ (0 to -2 etc) keep spiritual awareness subconscious. As the interpersonal ‘wormhole’ opens wider and wider with sufficient pure love (1 to 4 etc.) a threshold is reached such that the Noetic method allows profound interpersonal effects to occur.

Consequently, as often as people are led by their appetites they are blinded, just as we might say that when a blind person guides someone who has good eyesight both are blind. This is the folly of human nature, but with reasonable effort one can be master of one’s self without resorting to a hermitage. St. John of the Cross also says: *“The elevation and mind in god in which the soul is as though carried away and absorbed in love, entirely transformed in god, does not allow attention to any worldly thing.”* This seems an important point. The state of ecstasy should be learned by all people, not just those in a ‘hermitage’. One does not require monastic asceticism to achieve this love; it is available to anyone who seeks it diligently. As seen in *The Sayings of the Desert Fathers* and evidenced in the monastic experience or similar secluded settings, asceticism historically seems to be the typical or most commonly chosen path to mysticism. Psychic implications of penance, seclusion, fasting and contemplation are profoundly interesting theologically and from the point of view of understanding the processes of human consciousness. However there are modern paths to this form of enlightenment achieved by following the Golden Rule as perfectly as possible. The Judeo-Christian scriptures state: *“Upon these two great commandments rest all the Law and all the Prophets.”* [18]. These commandments being Love of course.

Achieving transcendent abilities is not necessarily limited to one theology or philosophy. James states: *“He who bridles the tongue...”* [19]. This is part of the law of hierarchies [2]. The base of the pyramid leading to the all seeing eye as on the back of the US dollar bill is based on sins or karmic debt of actions like murder, adultery, violence, theft. The midlevel is as James stated crimes of word. The worst words could produce suicide, the least like ‘where did you get that stupid shirt’ can be easily ignored. When one lives one’s life at the top, managing one’s karma at the level of thought, this is all the universe can expect of a human being and transcendent abilities occur spontaneously in that person. This author chose Mormonism because its doctrine and principles were strict enough to work for him; but any adequate discipline can lead to a sufficient

level of spirituality with adequate effort.

11. Primacy of love Fundamental to Existence

The commandment to love was the primary guide for the Desert Fathers lives, and informed most of the stories and accounts in Sayings of the Desert Fathers [20]. Their practice included not only the command to love all, but to be transformed by God's love. For those who lived the monastic community life it was especially prominent. Their efforts to live by that commandment were not seen as being easy—many of the stories from that time recount their struggles to overcome negative emotions such as anger and judgment of others. Helping a brother monk who was ill or struggling was seen as taking priority over any other consideration. Hermits were frequently seen to break a long fast when hosting visitors, as hospitality and kindness were more important than keeping the ascetic practices that were so dominant in the Desert Fathers' lives.

Two interpretations of the Song of Songs are of interest. Firstly, is the song merely a proclamation of the delights of marital bliss; which for the virginal bride and celibate groom can be considered a mystical experience. Rabbis state that the phallus acts as a beacon of light shining enlightenment on the bride. It is Jewish doctrine that marriage is the vehicle for perfecting the soul. A parallel metaphor is that King Solomon's Song of Songs is sung to the glory of god and the great joy this brings [21]. A case exists for both interpretations; but the latter is more intellectually appealing than holding the Song merely as a description to glorify passions of the flesh. The song is truly a beautiful piece of love poetry - "*Ani lo dodee lo dodee nee* - Hebrew for - I am my beloved's and my beloved is mine". But our interest here is in the metaphor for praising God. Can sexual bliss, ecstasy in general, or love be an additional path to the mystical experience of knowing God? Matthew 12:18 states: "*Behold my Servant, whom I have chosen, my beloved, in whom I am well pleased: I will put my spirit upon him*" The servant, either Jesus Christ or a chosen disciple, is beloved by an ecstasy bringing spirit. Again in Romans 11:28 "*As touching the election, they are beloved for the father's sakes.*" In this case the Beloved is the people of Israel.

Scriptural references give evidence for the song to be a metaphor for the deep joy embracing the gospel of Christ can bring. Apophthegms of the desert fathers give subtle hints of obtaining joy. Abba Elias for example said in terms of the ascetic life "What can sin do where there is penance?" and "If the spirit does not sing with the body, labor is in vain. Whoever loves tribulation will obtain joy and peace later on." There has to be a balance in life and while it would be hard to fault someone wanting to become an esthetic to commune with God; it seems that one may dedicate one's life to god in whatever one does being in the world without being part of it. Developing the self-mastery for mystical enlightenment enables one in any of life's stations.

It is wonderful that we can bring joy to each other. All must learn if this planet is going to be a place worth living on. Human beings have an innate need for love; both to give and receive it. We assume we are created by God. He organized bodies into souls; if we were intelligent plant men, with green skin for photosynthesis, or our hair leaf-like, had asexual reproduction, budding incorporated into our genetics; we could curl up our roots when we wanted to walk and have the same locomotion Homo Sapiens now have. But God didn't make us this way; everything about our nature seems designed so that we need other people both physically and mentally. For ecstasy

asexual tree people might get by without community. But we have soft skins, sensitive personalities, and face a hostile environment conducive to working together. We are designed for love. Love is at the core of our being and needs. The greater our ability to love becomes; the more experience becomes mystical experience. Ecstasy as a tonic for the soul would go a long way to making this world a better place to live in. Should it be taught in elementary schools? From Thomas Merton's selections from *Day of a Stranger*: "*What I wear is pants. What I do is live. How I pray is breathe.*" "*I see no reason why a man can't love god and a woman at the same time. If god was going to regard woman with a jealous eye, why did he make them in the first place?*" "*Sermon to the birds: Esteemed friends, birds of noble lineage, ... be birds.*" Be mystically ecstatic...

On a more technical note this process is governed or described by the cosmology of the Noetic Field equation, $F_{(N)} = E/R$ where the Noetic Force, $F_{(N)}$ is a topological force governed by coherence, E is the energy in Einstein's and R the coherence length or continuous-state rotational radius. One could say a form of wave-particle duality combined. The Noetic Force, $F_{(N)}$ is not a usual phenomenological interaction mediated by an exchange such as the photon of the electromagnetic field. The noeon mediator of the noetic field is an energyless topological interaction where information is exchanged ontologically. This is called topological switching. Imagine the vertices of a Necker Cube as the region where information is stored [1].

Noeon: The photon is an electromagnetic dipole and the postulated graviton a quadrupole that turns out to be a dual photon. The photon has been defined as a Euclidian space quantum, but in the photon-graviton complex one of the component dipoles is confined or embedded in the nonlocal spacetime metric in a manner similar to quark confinement. Following this reasoning the noeon is an octuplet and has a form of Calabi-Yau mirror symmetry allowing it to govern or pilot the evolution of cosmology, quantum systems (matter) and complex self-organized structural-phenomenology of living systems. As the exchange element of the unified field, the noeon is synonymous with the spirit of God. From this underlying simple symmetry all of the complex self-organized structure of the cosmos arises. Technically the photon is spin 1, the graviton spin 2 and probably the noeon is spin 4. (Fermions like the electron are spin $1/2$).

12. Anecdotal Insight Related Entrained Science

As a lead in to the Noetic meditation procedure for 'soul entrainment we relate some correlative material:

- Studies have been performed that show correlations in autonomic and electroencephalographic (EEG) brain states of Tantric Yoga meditation. Unlike most previously reported meditation studies, proficient meditators demonstrated increased autonomic activation during meditation while inexperienced meditators demonstrated relaxation.
- Contemporary scientists consider the nature of love from various psychological, sociological, genetic, sexual, and biological-biochemical perspectives that include neurotransmitters like the so-called 'love chemical' oxytocin best known for its roles in sexual reproduction, in particular during and after childbirth. Recent studies have begun to investigate oxytocin's role in sexual arousal [26-28].

- f-MRI imaging technics showing what regions of the brain 'light up' or are activated for lovers.
- Quantum fields may influence neurological and immune function at the cellular level. Rein and McCraty tested this premise by demonstrating conformational changes in DNA molecules by the focusing of deep feelings of love on a sample of DNA [22].

Our Noetic model is different based on a cosmology of mind related to a form of Cartesian Interactive Dualism [2]. The spiritual nature of this model is nicely stated by Aristotle:

"Love is composed of a single soul inhabiting two bodies." -Aristotle.

"There is no fear in love; but perfect love casteth out fear: because fear hath torment (guilt). He that feareth is not made perfect in love." [29].

14. In Conclusion - What is Love?

Obviously we have only partially met our goal. But hopefully the reader has a new appreciation for what love is. It is not Philosophy, Sociology or Psychology. It is not Chemistry, a neural configuration or an AI program.

We have outlined a new fundamental basis for SOLS as comprised of eternal Elemental Intelligence - Body stuff - Psychosphere - Mind animated by a life principle or Spirit of God. The most difficult aspect is defining Qualia - tantamount to defining awareness itself for which we have outlined four forms and the required new anthropic multiverse cosmology which provides a context much like the complete structure of a movie theater housing the seated observer experiencing the flow of consciousness projected on the screen [30]. We also compared that process of awareness to the production of a holographic image created by a laser. Lasing occurs in an enclosed cavity in this case the psychosphere of SOLS. All that's the hard part. After that defining the fundamental physical basis of Love is easy. The lasing cavity is expanded to include two SOLS where the intertwined evanescent superradiant unified field 'light explosion' is Love; but only because the noone light of the Unified Field is synonymous with the Spirit of God. And in that sense Love still remains the greatest of mysteries; but we have moved our understanding to a vastly more interesting arena!

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