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Integration and Unification of Knowledge as Acts of Creativity

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Issues for consideration:

- What do we mean by Integration?
- What other examples can you site of integration and unification as creative acts in science or other fields?
- What mental faculty and or process makes it possible?
- How does that process differ from more conventional scientific thinking?
- How can that faculty/process be developed?
- How can we educate youth to develop it?

Some additional recommended references:

- [The Trouble with Physics - American Mathematical Society](#) (Review of Lee Smolin's Book)
- [Vlatko Vedral - "Decoding Reality" - Anthony Peake](#) (Review of Vlatko Vedral's Book)
- http://www.dejanrakovicfund.org/prezentacije/2017_TESLA_W1.3.pdf (D. Raković, *Tesla's Inspired Holistic Questions of Creativity and Education & Tesla's Inspired Holistic Clue for Future Global Education Practices*, Int. Congress Nikola Tesla 2017, Workshops 1 & 3, Belgrade, 02.06.2017, Invited presentation)

Logic of Matter: Wave-Particle Duality, Observer Effect, Non-locality

When we talk about quantum processes, the term *quantum* refers to a discrete element of energy E in a *microsystem*, this energy being related to a fundamental frequency ν of its oscillation, according to Planck's famous formula $E = h\nu$, where h is Planck's constant. This deep relation between discrete energy levels and frequencies of oscillation underlies the *wave / particle duality*, inherent in quantum phenomena. The laws governing these submicroscopic quantum entities differ from those governing our everyday classical world, for example, quantum particles can exist in two or more states or locations simultaneously, where such a multiple coexisting *quantum superpositions* of alternatives (each alternative being weighted by a complex number) would be described mathematically by a *quantum wave function*.

From the very beginning of *quantum mechanics*, the so called *measurement problem* was recognized, as the question of why we do not see quantum superpositions in a *macroworld*, where we see objects and particles as material, classical things in specific locations and states. More precisely, the measurement problem is the *conflict* between the two fundamental procedures of quantum mechanics. The first procedure is referred to continuous *deterministic* evolution of the quantum state, known as *unitary evolution* (described by fundamental *Schrödinger equation*). The second procedure is adopted whenever a *measurement* of the quantum system or *observation of quantum system* is taken place, where the quantum state is *discontinuously and probabilistically* replaced by another quantum state, known as the *reduction of the state* or the *collapse of the wavefunction* (described technically by so called *von Neumann's projection postulate*).

This conflict is denoted as the *measurement problem* (or more accurately the *measurement paradox*), and its problematic nature is made manifest when we consider the *measuring apparatus* itself as a *quantum entity*, which is part of the entire quantum system consisting of the original system under observation together with this measuring apparatus. The apparatus is constructed out of the same type of quantum ingredients (electrons, photons, protons, neutrons etc.) as is the system under observation, and is subject to the same quantum laws and is described in terms of the continuous unitary evolution. How, then, can the discontinuous and probabilistic reduction come about as a result of the interaction (measurement) between two parts of the quantum system? This is the paradox which basically implies that quantum mechanics is still *incomplete theory*. There are many attempts to resolve this paradox, and some include different *objective reductions (OR)* in which a specific objective threshold is proposed to cause quantum state reduction.

According to our extended *biophysical quantum-holographic / quantum-gravitational model of consciousness, including vital energy and transpersonal phenomena*, similar *OR* of the wave function might have quantum-gravitational origin in miniature space-time *wormhole-tunnels of highly non-inertial microparticle interactions* in quantum-measurement-like situations (fully equivalent, according to Einstein's *principle of equivalence*, to strong gravitational fields – where opening of wormhole-tunnels is expected. The question of how it is possible that these highly-noninertial micro-particle processes with inevitable opening of miniature wormhole tunnels were not taken into account within quantum mechanics that is yet extremely accurate theory(?) – could be answered as they possibly were(!) but implicitly within von Neumann's projection postulate in order to get *OR* of the wave function in quantum-measurement-like situations (which would imply that von Neumann' *ad hoc projection postulate is based on quantum-gravitational-phenomena!*).

Also, *their macroscopically accumulated exotic anti-gravitational imprint* might possibly be observable on cosmological scale (or have been already detected(?!) by recent advances in the cosmological tests, that invite again the *Einstein's cosmological constant* and related concept of hypothetical 'dark energy' or 'quintessence', which permeates all of space and tends to accelerate the expansion of the universe. In any case, it is expected that only on the level of future *quantum gravitation* the nature of 'black holes', 'wormhole' tunnels, and 'cosmological singularities' would be fully revealed (when on the Planck-Wheeler's scales of length $\sim 1,62 \cdot 10^{-35}$ m and time $\sim 0,54 \cdot 10^{-43}$ s the concept of space-time ceases to exist and remains only Wheeler's 'quantum foam', out of which not only space-time singularities but also tiny surrounding parts of space-time are made.

On the other hand, *nonlocality of collective consciousness*, as a giant space-time associative neural network with distributed individual consciousnesses (related to bodily acupuncture EM / ionic microwave ultralowfrequently-modulated quantum-holographic neural networks, according to our *biophysical quantum-holographic / quantum-gravitational model of consciousness*, mutually interacting quantum-gravitationally in non-stationary transitional states of individual consciousnesses), might explain (apparently) *instantaneous action on distance* in (nonlinear) quantum-gravitationally induced and (nonlocally) channeled OR by collective consciousness. At the same time, the *analogy between mathematical formalisms of Hopfield associative neural network and Feynman propagator version of quantum mechanics* implies that *collective consciousness* is possible *ontological property of the all-pervading unified physical field* with various micro-quantum and macro-quantum (non-biological and biological, non-structured and structured, virtual and real) excitations, which is widely spread thesis of *Eastern esoteric / religious traditions*.

The relict of the mentioned above microscopic processes seems to remain at the macroplane in *transitional states of individual consciousness* (as *highly-noninertial transitional processes from high-dielectric bodily into low-dielectric out-of-body states*, equivalent-to-strong-gravitation *according to Einstein's principle of equivalence* of inertial and gravitational accelerations!) in *quantum-gravitationally mentally-channeled tunneling* of the out-of-body-displaced part of acupuncture EM-ionic quantum-holographic neural network. This presumably represents biophysical basis for numerous *transpersonal communications* without space-time barriers: precognition and other esoteric phenomena and out-of body experiences – where necessity of *mental addressing* on the target implies univocal *ontological personal aspect of individual human consciousness*, which is also widely spread thesis of *Christian religious tradition*.

Additional recommended reference:

- <http://www.dejanrakovicfund.org/knjige/2009-Integ-Biophys-Quant-Medic.pdf> (D. Raković, *Integrative Biophysics, Quantum Medicine, and Quantum-Holographic Informatics: Psychosomatic-Cognitive Implications*, IASC & IEPSP, Belgrade, 2009, Ch. 5)

Reason & Logic as Instruments of Creativity
Human & Machine Intelligence & Creativity
Chance, Causality and Creativity

Nikola Tesla is undoubtedly the greatest inventor in the history of electrical engineering, and what makes him especially fascinating was his unusual mental control of creative visions. Regarding Tesla's extraordinary creative experiences in his altered states of consciousness (categorized in his time as nonphysical phenomena) – Tesla's conviction "when we start to study nonphysical phenomena, we will progress more in ten years than we have for centuries" then becomes clearer. In this context, it seems that Tesla's legacy for the new millennium is introspective evidence of his transpersonal creative communications, with fascinating possibility of his meditative eidetic control & increase of macro-quantum correlations with the quantum-holographic primal source of collective consciousness (cf. Fig. 1(a)). It could serve as an extraordinary case study for understanding biophysical basis of both transpersonal psychology & control of creative processes, based on subtle interplay of normal & transitional & altered states of consciousness in meditation & sleep, and may help in developing future strategies for education. In wider context, Tesla's whole research & life could also provide an inspiration for reconsideration of global educational / informational / policy goals – with reorientation towards holistic gentle actions for solutions of the global risk society.

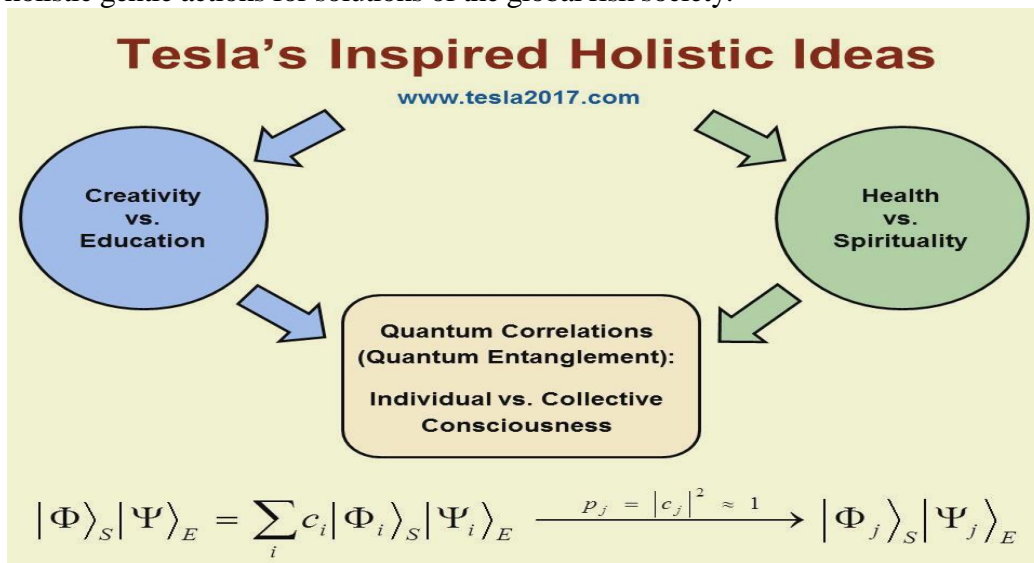


Figure 1. (a) Symbolic representation of the *mentally controlled-directed increasing* of macro-quantum correlations of individual & collective consciousness in *transpersonally-entangling creative phases* (left-hand side of the image & formula above, with previous mental increase of the focused weight contribution c_j & subsequent (practically non-stochastic) classically-reduced selection of this dominant weight contribution c_j), and (b) Symbolic representation of the *mentally controlled-systemic decreasing* of macro-quantum correlations of individual & collective consciousness in *transpersonally-disentangling spiritual phases* (right-hand side of the image & formula above, with previously systemic mental decreasing of all weight contributions c_i & subsequent (stochastic) classically-reduced selection of the weight contribution c_j).

Additional recommended reference:

- http://www.dejanrakovicfund.org/radovi/2017_TESLA_Ple.pdf (D. Raković, *Tesla's Legacy for New Millennium: Path to Quantum-Holographic Primal Source*, Int. Congress Nikola Tesla 2017: Disruptive Innovation, Belgrade, 02.06.2017, Invited lecture).

Logic of Life: Concepts of Health and Disease; the Placebo Effect

As any quantum system in Feynman's propagator version of quantum mechanics has formal mathematical structure of the *quantum-holographic Hopfield-like associative neural network* – then closely related *acupuncture-based & consciousness-based memory attractors* can be treated as psychosomatic states representing individual (quantum) holistic field records (cf. Fig. 2)! Within this quantum-informational framework, it is plausible to consider healthy psychosomatic state as the simplest informational state of the lowest quantum entropy (with single memory attractor), and disordered psychosomatic states as more complex states of the higher quantum entropy. Hence, the goal of *acupuncture-based & consciousness-based holistic procedures and approaches* would be a *bioresonant excitation* of the electromagnetic (EM) microwave (MW) / ultralowfrequency (ULF)-modulated or radiofrequency (RF) / lowfrequency (LF)-modulated psychosomatically disordered state (*acupuncture palpatory-painful / psychologically traumatic*) – thus enabling that its initial memory attractor is bioresonantly excited (similar to annealing procedure in neural networks) becoming shallower and wider on the account of deepening of the (energy-dominating) attractor of healthy (*acupuncture palpatory painless / psychologically traumatic-free*) state – which is then altogether quantum-holographically projected on the lower quantum-holographic cellular level, thus changing expression of genes. [An early example of EM healing effects was *Tesla's EM RF self-healing*.]

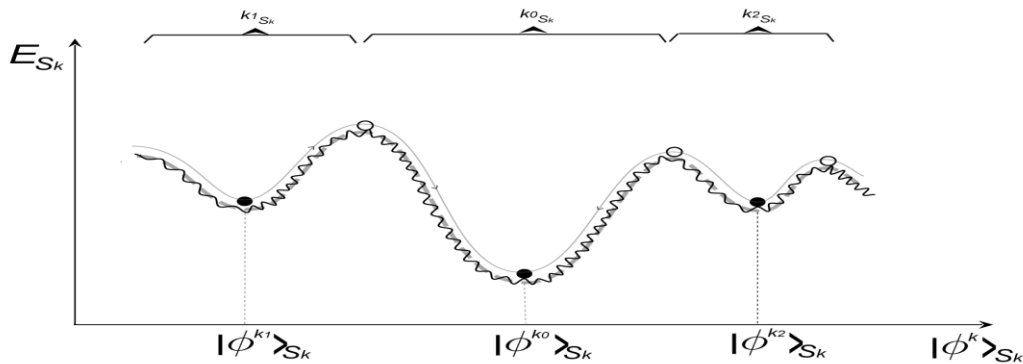


Figure 2. Schematic presentation of the memory attractors in the energy-state hypersurface of *psychosomatic state of open macroscopic quantum-holographic acupuncture system / consciousness*, as proposed quantum-holographic manifestations of psychosomatic disorders (hundreds of them being in primary psychosomatic diseases and thousands of them in their combinations according to acupuncture-based *Tibetan traditional medicine*, with therapeutic goal to balance / remove all unwilling side memory attractors in procedure traditionally recommended half a year). This information might be *quantum-holographically* projected onto *lower open macroscopic quantum-holographic cellular enzyme-gene level* (which also functions on *quantum-holographic-like cellular quantum-conformational* level of the molecular recognition, thus influencing gene expression & possible somatisation of the top-down hierarchically projected non-balanced / non-removed psychosomatic disordered information). On the other hand, *higher open macroscopic hierarchical level of quantum-holographic collective consciousness & related (quantum) holistic global psychosomatics* might also be *quantum-holographically* projected onto *lower levels of quantum-holographic individual acupuncture systems / consciousnesses* (with spiritual / social implications on the necessity of transpersonal quantum-holographic removing of all unwilling side memory attractors on the level of collective consciousness, which unless would result in further transpersonal transfer of memory attractors onto individual & collective consciousnesses in this and future generations). See the text for further explanation.

However, when this process is hindered by *transpersonally entangled blockages* in the EM field-related energy-state space of the (open) acupuncture system / consciousness (cf. Fig. 1(b)) – then memory attractors of quantum-holographic network of EM field-related *collective consciousness* should be removed as well (via prayer or circular psychotherapies from all relevant meta-positions included in the problem, to disentangle energy-informationally all mental addresses included in the problem, with final goal to achieve permanent healing i.e. spiritual integration of personality). In this context, *collective consciousness memory attractors* might be treated as psychosomatic collective disorders *representing generalized (quantum) holistic field records* – including interpersonal hesychastic-prayer finally-reprogrammable loads!

It should be noted that *a number of macro-quantum phenomena in biomolecules & open biological cells* might be accounted within our quantum-holographic / quantum-gravitational theoretical framework – related to mechanisms of quantum-holographic projection of the healing boundary conditions in the energy-state space of the acupuncture system / (individual & collective) consciousness of the patients on the lower *quantum-holographic hierarchy* all the way down to the cellular & biomolecular levels, thus changing the *expression of genes* in morphogenesis – as a very important feedback element of *bioinformatics* (so-called *downward causation*). In particular, *quantum nature of water* (and its fundamental quantum-informational nature as Hopfield-like quantum-holographic neural network), with its numerous memory attractors, might also *mediate in coupling* quantum-informational intra-cellular & extra-cellular biochemical reactions (this being the possible quantum-informational basis of *homeopathy* & some intriguing *field-mediated experiments*).

Additional recommended references:

- <http://www.dejanrakovicfund.org/knjige/2009-Integ-Biophys-Quant-Medic.pdf> (D. Raković, *Integrative Biophysics, Quantum Medicine, and Quantum-Holographic Informatics: Psychosomatic-Cognitive Implications*, IASC & IEPSP, Belgrade, 2009, Ch. 5)
- http://www.dejanrakovicfund.org/radovi/2017_TESLA_Ple.pdf (D. Raković, *Tesla's Legacy for New Millennium: Path to Quantum-Holographic Primal Source*, Int. Congress Nikola Tesla 2017: Disruptive Innovation, Belgrade, 02.06.2017, Invited lecture)
- http://www.dejanrakovicfund.org/prezentacije/2017_TESLA_W2.pdf (D. Raković, *Tesla's Inspired Holistic Questions of Psychosomatics & Spirituality*, Int. Congress Nikola Tesla 2017, Workshop 2, Belgrade, 02.06.2017, Invited presentation)