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HOPFIELD-LIKE HOLOGRAPHIC FRAMEWORK FOR HOLISTIC PSYCHOSOMATICS

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Abstract

The subject of this presentation is quantum-informational Hopfield-like holographic framework for holistic psychosomatics (including integrative medicine and transpersonal psychology). This is of special importance, as contemporary research of psychosomatic diseases indicates the necessity of application of holistic methods, oriented to the healing of man as a whole (including its environment), implying their macroscopic quantum origin. In the focus of these holistic methods are acupuncture system and consciousness – which as (open) macroscopic quantum biosystems have (fundamental!) quantum-informational structure of Hopfield-like holographic associative neural networks, within the Feynman propagator version of quantum mechanics. Then, in the context of holistic acupuncture-based and consciousness-based approaches and techniques, their goal would be (external) bioresonant excitation of the target palpatory-painful / psychologically-traumatic attractors of the (open) acupuncture system / consciousness; that enables disordered initial attractors to be one-by-one bioresonantly excited (similar to annealing procedure in artificial neural networks), by becoming shallower and wider (and finally removed) on the account of deepening of (energy-dominating) attractor of the healthy quantum state (acupuncture palpatory painless or psychologically non-traumatic). So, application of psychosomatic therapies naturally decreases quantum entropy (degradation) i.e. increases quantum information (organization) of the (open) psychosomatic system, which might be then altogether quantum-holographically projected on the lower quantum-holographic cellular level, thus changing the expression of genes in morphogenesis (so called downward causation). Therefore, all holistic acupuncture-based and consciousness-based approaches and techniques could be treated as quantum-informational bioresonant therapies, by imposing new healing boundary conditions in the energy-state space of the (open) acupuncture system / consciousness. The outlined macroscopic quantum-informational Hopfield-like holographic framework for holistic psychosomatics might have significant implications for better understanding of quantum-holographic feedback control mechanisms of morphogenesis, and bioresonant applications of healing boundary conditions in acupuncture-based and consciousness-based psychosomatics – shedding new light on the long standing problems of acupuncture system and consciousness too.

Keywords: *Holistic psychosomatics, Acupuncture system, Consciousness, Hopfield-like holographic associative neural networks, Bioresonant healing boundary conditions.*

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1. INTRODUCTION

In past few decades there is increasing interest in macroscopic quantum-informational trends in biology (Engel et al., 2007; Cai & Plenio, 2013, Raković et al., 2014; Asano et al., 2015; Djordjevic, 2015), bioresonant quantum-informational medicine technologies (cf. Raković, Arandjelović & Mićović, 2011; and refs. therein), cognitive science and consciousness studies (Pribram, 1971, 1991; Tart, 1972, 1992; Stapp, 1993, 2001; Peruš 1996, 2001; Peruš & Loo, 2011; Jahn & Dunne, 1988, 2011; Penrose, 1989, 1994; Hameroff & Penrose, 2014; Raković, Dugić & Ćirković, 2004; Raković, 2011), all the way down to quantum-informational roots of the universe (Susskind & Lindesay, 2005; Vedral, 2010), to name some of them.

On these lines it has appeared that stress-induced psychosomatic diseases imply the necessity of application of the acupuncture-based and consciousness-based holistic methods, suggesting their macroscopic quantum origin – giving rise to fast development of integrative medicine (cf. www.imconsortium.org) and transpersonal psychology (cf. www.atpweb.org).

2. OBJECTIVE AND HYPOTHESES

2.1. OBJECTIVE

In the focus of mentioned quantum-holistic methods are acupuncture system and consciousness, the only manifestly (open) macroscopic quantum systems within the body: consciousness because of indeterministic manifestations of free will and holistic manifestations of transitional and altered states of consciousness (cf. Penrose, 1989, 1994; Hameroff & Penrose, 2014; Raković, Dugić & Ćirković, 2004; Raković, 2009, 2011; Tart, 1972, 1992; Stapp, 1993, 2001; Jahn & Dunne, 1988, 2011), and acupuncture system because of demonstrated quantum-coherent characteristics of diagnostics and therapy (cf. Devyatkov & Betskii, 1994; Sit'ko & Mkrtchian, 1994; Raković, Škokljev & Djordjević, 2009).

2.2. HYPOTHESES

As Peruš has shown that any quantum system has formal mathematical structure of Hopfield-like quantum-holographic neural network, HQHNN (cf. Peruš 1996, 2001; Peruš & Loo, 2011), then acupuncture system and consciousness have (fundamental!) informational structure of HQHNN, whose memory attractors could be treated as psychosomatic states (Raković, 2009, 2013, 2014, 2015a,b, 2016a,b; Raković, Škokljev & Djordjević, 2009).

Within this HQHNN framework, it is plausible to consider healthy psychosomatic state (of the (open) acupuncture system/ consciousness), 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 (with additional side memory attractors, cf. Fig. 1).

3. METHOD

3.1. QUANTUM ENTROPY OF PSYCHOSOMATIC STATES

In particular, considering psychosomatic state in generally mixed quantum state of density matrix:

$$\widehat{\rho}_{S_{kv}}^{(k)} = \sum_i |c_{k_i}|^2 |\phi_v^{(k_i)}\rangle_{S_{kv}, S_{kv}} \langle \phi_v^{(k_i)}| \equiv \sum_i p_{k_i} |\phi_v^{(k_i)}\rangle_{S_{kv}, S_{kv}} \langle \phi_v^{(k_i)}|$$

(where p_{k_i} are probabilities of realization of the k_i -th state), then von Neumann's quantum-mechanical entropy $S = -kTr(\widehat{\rho}_{S_{kv}}^{(k)} \ln \widehat{\rho}_{S_{kv}}^{(k)})$ is reduced to classical Shannon's entropy $S = -k \sum_i p_{k_i} \ln p_{k_i}$ (cf. Nielsen and Chuang, 2002; Dugić, 2004; Raković, 2009; Djordjevic, 2015). In the mentioned HQHNN framework, *entropy of pure-healthy state* of the psychosomatic system (described by single k_0 -th term in superposition: $\widehat{\rho}_{S_{kv}}^{(k_0)} = |\phi_v^{(k_0)}\rangle_{S_{kv}, S_{kv}} \langle \phi_v^{(k_0)}|$, of probability $p_{k_0} = 1$), would be equal to $S_{k_0} = 0$ (as pure quantum state $\widehat{\rho}_{S_{kv}}^{(k_0)}$ provides maximal possible information about the quantum psychosomatic system), while *entropy of mixed-disordered state* of the psychosomatic system (described by the full above superposition), would be equal $S_{\widehat{\rho}} > 0$ (as mixed stochastic state $\widehat{\rho}_{S_{kv}}^{(k)}$ provides uncomplete information about the (open) quantum psychosomatic system).

4. RESULTS

4.1. HOLOGRAPHIC FRAMEWORK FOR PSYCHOSOMATICS

So, in the mentioned HQHNN framework, *psychosomatic healthy state* is the state of the *minimal entropy*, while *psychosomatic disordered state* is the state of the *increased entropy*. In the same HQHNN framework, application of some *psychosomatic therapy* naturally *decreases entropy* (degradation) i.e. *increases information* (organization) of the (open) psychosomatic system (Raković, 2016a,b). Then, in the context of holistic acupuncture-based and consciousness-based approaches and techniques (cf. Raković, 2009, 2013; Raković, Arandjelović & Mićović, 2011), their goal would be (external) bioresonant excitation of the target palpatory-painful/ psychologically-traumatic attractors of the (open) acupuncture system/ (individual) consciousness. This enables disordered initial attractors to be one-by-one bioresonantly excited (similar to annealing procedure in artificial neural networks (Hecht-Nielsen, 1990)), thus becoming shallower and wider on the

account of deepening of (energy-dominating) attractor of the healthy quantum state (acupuncture palpatory painless or psychologically non-traumatic), cf. Fig. 1. This information of the healthy quantum state is then altogether quantum-holographically projected on lower quantum-holographic cellular levels, thus changing expression of genes in morphogenesis (so called downward causation!).

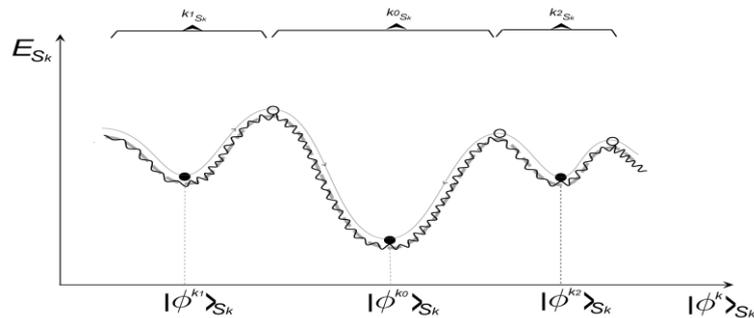


Figure 1. Schematic presentation of the memory attractors in the energy-state hypersurface of *psychosomatic state of open macroscopic quantum-holographic acupuncture system/ consciousness*, as proposed quantum-holographic manifestations of psychosomatic disorders (hundreds of them being in primary psychosomatic 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, cf. (Raković, 2009, 2013, 2014, 2015a,b, 2016a,b; Raković, Škokljek & Djordjević, 2009). 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 and 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* and the 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 and collective consciousnesses in this and future generations). See the text for further explanation.

Hence, all holistic acupuncture-based and consciousness-based approaches and techniques could be treated as quantum-informational therapies, by imposing new healing boundary conditions in the energy-state space of the (open) acupuncture system/ (individual) consciousness. However, when this process is hindered by transpersonal entangled blockages in the energy-state space of EM field of the (open) acupuncture system/ (individual and collective) consciousness – then memory attractors of quantum-holographic network of the 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 (www.atpweb.org; Raković, 2009, 2013, 2014, 2015a,b, 2016a,b; Raković, Škokljek & Djordjević, 2009; and refs. therein)).

4.2. THREE FRONT LINES OF HOLOGRAPHIC PSYCHOSOMATICS

On these lines, the holistic clue for imposing healing boundary conditions in the energy-state space of the (open) acupuncture system/ (individual and collective) consciousness of patients should be taken into account, with significant psychosomatic implications on necessity of including three front lines of psychosomatics in top-down order (cf. Fig. 1, and Raković, 2009, 2013, 2014, 2015a,b, 2016a,b; Raković, Škokljević & Djordjević, 2009): (i) collective consciousness, (ii) acupuncture system/ individual consciousness, and (iii) somatic level. It should be pointed out that necessary activities in the second and third levels, with neglect of the first level, would result in further transpersonal transfer of memory attractors on the level of individual and collective consciousness.

Thus, all psychosomatic problems might have their roots in the energy-information blockages at different levels of consciousness (caused by trans-generationally-predestined stressors such as fear, frustration, anger, hatred) – while healing would begin by their integration with healthy core of personality, through unconditional spiritual and forgiving acceptance of ourselves and our environment. In the context of trans-generational cosmic quantum hologram, although on the level of collective consciousness everything is predestined – as suggested by the experiences of various traditions (cf. Eliade, Wiesner & Couliano, 1991) and contemporary experiences of post-hypnotic regressions (cf. Newton, 1994) too – these experiences also suggest the possibility of optimizing life-programs by spiritual purification. Within our macroscopic HQHNN framework, this is essentially reduced to dis-entanglement/ un-binding from all levels of individual and collective consciousness, and thus to full re-integration of higher Self (of sinless/ un-bound soul) – with reaching conditions for post-mortem re-unification (re-ligare/ yoga) with the spiritual primal source (cf. Eliade, Wiesner & Couliano, 1991; Wilber, 1980; Vlahos, 1998; Vujićin, 1995).

5. APPENDIX

5.1. HOLOGRAPHIC FRAMEWORK AND BIOPHYSICS

Our macroscopic HQHNN framework is indirectly supported by Resonant Recognition Model (RRM) of biomolecular recognition (Cosic, 1994, 1997), with current advances in experimental and computational drug discovery and design (Pirogova et al., 2011; Istivan et al., 2011), and with RRM theoretically predicted (Cosic, Lazar & Cosic, 2015a,b) and experimentally observed in wide frequency ranges (Sahu et al., 2014) – from small portion of ultraviolet, across infrared and microwave, and even MHz and KHz regions. In this RRM context, the same characteristic RRM frequency of the protein(s) and corresponding target(s), presumably characterises not only general biomolecular function of the protein(s)

and target(s), but also their quantum biomolecular recognition interaction on the level of biological cell. The results of the RRM model also imply that on the biomolecular level an information processing is going on in the inverse space of Fourier spectra of the primary sequences of biomolecules, bearing resemblance to quantum-holographic ideas that cognitive information processing is going on in the inverse space of Fourier spectra of the perceptive stimuli (Pribram, 1971, 1991), thus indirectly supporting quantum-holographic/ fractal coupling of various hierarchical levels in biological species, with significant psychosomatic implications.

On these lines, the organism might be considered as quantum-informational hierarchy of the Haken (1991) multi-level synergetic neural network of coupled HQHNNs layers, representing corresponding activities of bioresonantly adjusted memory attractors (cf. Peruš, 2001; Raković, 2014, 2015a,b, 2016a,b; Raković et al., 2014), thus sensitive for corresponding bioresonant diagnostics and therapies (Devyatkov & Betskii, 1994; Sit'ko & Mkrтчian, 1994; Samohin & Gotovski, 2007; Gotovski, Perov & Chernecova, 2010; Potehina et al., 2008; Raković, 2009, 2013; Raković, Arandjelović & Mićović, 2011), and some intriguing field-mediated self-organizing genetic experiments (Montagnier et al., 2010; Gariaev, 2009; Gariaev, Friedman & Leonova-Gariaeva, 2011) – especially having in mind that different cellular enzymatic activities under different external stimuli can behave as Hopfield-like attractor metabolic network in the framework of statistical mechanics (De la Fuente et al., 2013), and that (bio)chemical transformations can be formulated in the framework of fundamental quantum chemistry (Gribov, 2011)).

It should also be added that our macroscopic HQHNN framework is also supported by fundamental holographic principle (Susskind & Lindesay, 2005) according to which any (3D) physical system is isomorphic to holographic information embedded on its (2D) surface, which implies that the full quantum-informational content of our 3D body could be quantum-holographically contained in the corresponding 2D surface layer. This is in line with macroscopic quantum-holographic electromagnetic aspect of psychosomatics and related close relationship of the acupuncture system and consciousness, supported by very effective meridian psycho/ energy therapies with successive setting of new boundary conditions upon the acupuncture energy-informational states during emotionally-involved visualizations of corresponding psychosomatic problems (Callahan and Callahan, 1996; Mihajlović Slavinski, 2000). Within our extended macroscopic HQHNN framework (Raković, 2014, 2015a,b, 2016b), transpersonal exotic aspect of energy-information communications is also suggested by established and stabilized energy-information channels of vital energy (qi, ki, prana...) known in all traditions and widely used in transpersonal energy therapies (Qigong, Reiki, Pranic healing...), pointing to a deeper quantum-entangled/ quantum-gravitational exotic aspect of transpersonal energy-information channels. Finally, quasi-classical ionic aspect of the acupuncture system is suggested by non-threshold 'gap junction' electrical

synapses with an order of magnitude increased concentration at acupuncture points and significantly higher absorption of ions in these points.

5.2. HOLOGRAPHIC FRAMEWORK AND TWO MODES OF KNOWLEDGE

Our macroscopic HQHNN framework also implies that quantum-holographic hierarchical parts carry information about the whole (which resembles the Hindu relationship Brahman/ Atman, as a whole and the part which contains information about the whole (Swami Prabhavananda & Isherwood, 1969; Wilber, 1980; Vujićin, 1995)), allowing subtle quantum-holographic/ fractal coupling of various hierarchical levels in Nature (cf. Bohm, 1980; Pribram, 1971, 1991; Talbot, 1991; Rakočević, 1995). This is supported by acupuncture system and its projection zones (ECIWO holographic concept (Zhang, 1987)) and the discovery of quantum-holographic influence of verbal communication on the expression of the cell genome (by voice-modulation of irradiating-laser beams (Gariaev, 2009)), as well as by the origin of the amazing creativities (Tesla and Mozart as case studies (Raković, 2011; Holmes, 1878)) and predestined life paths and temptations (as indicated by the contemporary experiences of post-hypnotic regressions (Newton, 1994) as well as experiences by various traditions (cf. Eliade, Wiesner & Couliano, 1991), while still emphasizing that it is possible to optimize them by spiritual purification; see also Part 4.2).

Our macroscopic HQHNN framework suggests two modes of knowledge too, according to the coupling strength consciousness-body-environment (Raković, 2009, 2011, 2015a, 2016b): (i) weakly-coupled quantum-coherent direct mode (in the out-of-body spiritual/ creative transitional and altered states of consciousness, like prayer, meditation, daydreams, lucid dreams...) and (ii) strongly-coupled classically-reduced indirect mode (in bodily perceptively/ rationally mediated normal states of consciousness, like sensory perception, logic and scientific reasoning...) – with conditions of mutual transformation. This explains the generally poor informational rationalization of any direct quantum-holographic spiritual/ religious mystical experience (as the problem of quantum theory of measurement, related to the reduction of the implicate order of the quantum-coherent (quantum-holographic) superposition of states into the explicate order of measuring classically-reduced states) – which is close to the experiences of numerous shamanistic tribal traditions, with beliefs that the genuine (quantum-holographic) reality is represented by dreams (cf. e.g. Talbot, 1991), and that (classically-reduced) waking state is a lie/ illusion (maya, as stated in the traditions of East (Swami Prabhavananda & Isherwood, 1969; Wilber, 1980)).

So science is closing the circle, by re-discovering two different modes of knowledge and at the same time setting its own epistemological limitations – as it was preserved for millennia in shamanistic tribal traditions (cf. e.g. Castaneda, 1971; Hadži-Nikolić, 2011; Tomšić, 2011), or as it was concisely described by Patanjali in Yoga Sutras more than two millennia ago, pointing out that mystical

experience (samadhi) is ‘filled with truth’ and that it is ‘above inference and the scriptures’ (Swami Prabhavananda & Isherwood, 1969; Vujićin, 1995), or as this difference between faith and cognition was formulated at the beginning of the last century by Berdyaev in *Philosophy of Freedom* as the difference of two modes of knowledge, prayer-mediated ‘comprehension of the affairs invisible’ and rationally-mediated ‘comprehension of the affairs visible’ (Berdyaev, 1996)!

This is in line with re-awakened interest in fundamental and applied holistic research in past decades, anticipating the occurrence of grand synthesis of two modes of knowledge – where the role of each individual becomes indispensable due to the influence and care for collective mental environment and social well-being. And can help us realize that all our partial rationalizations (classically-reduced mappings!) are still an approximation of fundamentally-holistic reality (quantum-holographic territory!) – and that all divisions are tragic misunderstanding of spiritually immature (historical) epoch of civilization (as map is not the territory!). All this indicates the full significance of holistic education and behavior – demonstrating ultimate necessity of redefining the global educational/ informational/ political goals, with the shift towards holistic gentle actions for global solutions of the world risk society (Raković, 1997, 2015a, 2016b; Beck, 1999; and refs. therein).

6. CONCLUSIONS

The presented Hopfield-like holographic framework for psychosomatics might have significant implications, providing fundamental quantum-informational framework for better understanding of the nature of psychosomatic diseases as well as limitations of healing methods, which might help in developing further strategies for acupuncture-based and consciousness-based holistic psychosomatics.

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