

On the nature of psychophysical phenomena in the light of Theodore Van Hoven's quantum entropic logic theory.

Approximately in the late 50's of the last century Dutch physicist Theodore Van Hoven started elaboration of his version of "unified field theory". Since during his work on the topic he had to reconsider whole logic structure of the universe existence from different – "entropic" – point of view, he named his work "Quantum entropic logic theory" (QELT). This theory unites all types of known interactions in the nature: strong, weak, electromagnetic and gravitational – considering them as different manifestations of one and the same initial – a terminal field (quantum field of entropy).

A principle of elementary particles formation was discovered on the basis of QELT, which is an important milestone in quantum physics. Calculation formulae discovered within QELT allowed theoretical calculation of mass, charge, spins, magnetic moments, lifetimes and other quantum properties of all elementary particles, both discovered and still unknown. Agreement of theoretical data with experimental data within accuracy of the theory and experiment was absolute. It evidences a colossal explanatory-predictive ability of QELT, confirming its verity.

QELT has opened a unique possibility to calculate all universal physical constants (including dimensionless constants), particularly, known dimensional constants from dimensionless constants discovered in QELT. In addition all constants of QELT are direct consequence of its equations and do not contain adjustable parameters, typical for generally accepted quantum physics.

QELT does not conflict with known conventional physical theories, it only substantiates underlying principles and sets limits of these principles applicability. Therefore QELT is not an alternative to generally accepted theories, but it develops and extends these conceptualizations to a new level of a scientific cognition, eliminating many previously unexplainable paradoxes.

For the first time Quantum entropic logic theory:

- found physic phenomena responsible for quantum and relativistic properties and defined limits of these properties applicability area;
- opened a structure of a terminal field, regarded as a structured fundamental material substance; properties of this field are formulated and calculated;
- found "the main law" for quark structures of elementary particles, allowing theoretical calculation of all their quantum properties;
- offered and studied a string model of particles, which is deeper and much more comprehensive in its consequences than widely studied other string and superstring models;
- opened a physical nature of phormons, virtual temporal states and some other postulated objects of a modern microphysics;
- discovered a unified approach for description of fermions and bosons, which is wider than supersymmetric approach, that was discovered later and being actively studied now;

- explained reasons of space parity conservation laws violation in weak interactions;
- explained why “light” quarks can form heavy elementary particles and “heavy” quarks – light elementary particles;
- gave a possibility to explain experimental data, evidencing saturation of “strong” nuclear forces and a possibility of preferential spatial allocation of electrons in atoms;
- formulated physical and mathematical basis for high-efficiency computed modeling of structural peculiarities, quantum properties and interaction characteristics of all “manifested” and virtual microparticles, and various physical processes and phenomena as well.

QELT is based on an extremely complex and unconventional physico-mathematical model of “multiple vectors of time”. Within it a system of “multiple vectors of time” is regarded as a mathematical construction, where time of an observer is called the “basic” time and tangential vectors are divided into temporal structures, which are the base of fibering and a layer. Surrounding “basic” time, perceived by us as an environment, is the basis of fibering, outside of which there are time vectors in which a hidden structure of elementary particles is manifested and various hidden interactions happen. The basic quantum parameters, observed in our “basic” time (mass, charge, spin, magnetic moment and others) are formed in other vectors of fibered time. That is why we cannot accurately calculate values of quantum parameters in the “basic” time and have to apply probabilistic analysis methods for their identification.

In relation to a certain given time (basic or tangential vector) any other phase temporal state is always in an imaginary area. Only informational connection is possible between temporal layers or between a basis of this time and a temporal layer.

“Temporal metamorphosis” is a condition for functionality of physico-mathematical model of multiple vectors of time. “Temporal metamorphosis” sets various entropy values of one and the same object, which are realized in various time vectors. The main principle of “Temporal metamorphosis” is an adherence to conditions of communicativeness reflection between different time vectors.

In accordance with Quantum entropic logic theory the main equation of Einstein’s General Relativity Theory represents not an equation of some field, but an equation of a fundamental connection: entropy-time-matter. In all time vectors there is a covariant connection of entropy-time and matter.

Special relativity theory describes space-time in a form of pseudo-Riemann variety with one negative proper value of a metric tensor, which corresponds to a “time-like” direction. Metric with several negative proper values will correspondingly mean a presence of several time vectors, i.e. it will be multidimensional. At the present moment studies of many researchers allowed finding a consensus in understanding of a possible connection of these additional “times” with a time in the usual sense.

Theodore Van Hoven together with Itzhak Bars has published a study “Physics of multivector time”, based on SO symmetry of extended structure of M-theory supersymmetry, which is the latest and the most systematized variant of this theory.

If special relativity theory may be generalized in case of k -dimensional time (t_1, t_2, \dots, t_k) and n -dimensional space $(x_{k+1}, x_{k+2}, \dots, x_{k+n})$, then $(k+n)$ -dimensional interval, while being invariable, gives a formula $(ds_{k,n})^2 = (cdt_1)^2 + \dots + (cdt_k)^2 - (dx_{k+1})^2 - \dots - (dx_{k+n})^2$.

Transformations between two inertial reference systems K and K' , which are in a standard configuration (for example a transformation without moving or turning of time axis in a time hyperplane), look as follows:

$$t'_\sigma = \sum_{\theta=1}^k \left(\delta_{\sigma\theta} t_\theta + \frac{c^2}{v_\sigma v_\theta} \beta^2 (\zeta - 1) t_\theta \right) - \frac{1}{v_\sigma} \beta^2 \zeta x_{k+1},$$

$$x'_{k+1} = -c^2 \beta^2 \zeta \sum_{\theta=1}^k \frac{t_\theta}{v_\theta} + \zeta x_{k+1},$$

$$x'_\lambda = x_\lambda,$$

$$\mathbf{v}_1 = (v_1, \underbrace{0, \dots, 0}_{n-1}), \mathbf{v}_2 = (v_2, \underbrace{0, \dots, 0}_{n-1}), \mathbf{v}_k = (v_k, \underbrace{0, \dots, 0}_{n-1})$$

where \mathbf{v}_σ are vectors of speeds K' against K , which may be defined correspondingly depending on time t_1, t_2, \dots, t_k

$$\beta = \frac{1}{\sqrt{\sum_{\mu=1}^k \frac{c^2}{v_\mu^2}}}; \quad \zeta = \frac{1}{\sqrt{1 - \beta^2}}; \quad \sigma=1, 2, \dots, k; \quad \lambda=k+2, k+3, \dots, k+n.$$

sizes;

Here $\delta_{\sigma\theta}$ is a Kronecker symbol.

These transformations are the generalization of Lorentz transformation in a fixed phase direction (x_{k+1}) in a multidimensional time region.

$$\text{Let's denote: } \frac{dx_\eta}{dt_\sigma} = V_{\sigma\eta} \quad \text{and} \quad \frac{dx'_\eta}{dt'_\sigma} = V'_{\sigma\eta}, \quad \text{where } \sigma=1, 2, \dots, k; \quad \eta=k+1, k+2, \dots, k+n.$$

Then composition of velocities gives

$$V'_{\sigma(k+1)} = \frac{V_{\sigma(k+1)} \zeta \left(1 - \beta^2 \sum_{\theta=1}^k \frac{c^2}{v_\theta V_{\theta(k+1)}} \right)}{1 + \frac{V_{\sigma(k+1)}}{v_\sigma} \beta^2 \left((\zeta - 1) \sum_{\theta=1}^k \frac{c^2}{v_\theta V_{\theta(k+1)}} - \zeta \right)},$$

$$V'_{\sigma\lambda} = \frac{V_{\sigma\lambda}}{1 + \frac{V_{\sigma(k+1)}}{v_\sigma} \beta^2 \left((\zeta - 1) \sum_{\theta=1}^k \frac{c^2}{v_\theta V_{\theta(k+1)}} - \zeta \right)},$$

where $\sigma=1, 2, \dots, k; \quad \lambda=k+2, k+3, \dots, k+n$.

On the supposition that in O point, having $x_1=0, x_2=0, x_3=0$ coordinates, an E event took place.

On the further supposition that this time interval $\Delta T = \sqrt{(\Delta t_1)^2 + (\Delta t_2)^2} \geq 0$ has passed since the E event. Causative-consecutive area, related to E event includes a lateral surface of a right

circular cone $\{ (x_1)^2+(x_2)^2-(x_3)^2=0 \}$, a lateral surface of right circular cylinder $\{ (x_1)^2+(x_2)^2=c^2\Delta T^2 \}$ and internal area, limited by these surfaces, so causative-consecutive area includes all (x_1, x_2, x_3) points, for which conditions

$$\{ (x_1)^2+(x_2)^2-(x_3)^2=0 \text{ и } |x_3| \leq c\Delta T \} \text{ or}$$

$$\{ (x_1)^2+(x_2)^2=c^2\Delta T^2 \text{ и } |x_3| \leq c\Delta T \} \text{ or}$$

$$\{ (x_1)^2+(x_2)^2-(x_3)^2 > 0 \text{ и } (x_1)^2+(x_2)^2 < c^2\Delta T^2 \}$$

are fulfilled.

According to Quantum entropy logic theory, a phormon is an elementary particle of pro-matter; this particle has the only natural characteristic – spin (depending on polarization vector it is divided into in-phormones and ex-phormones). It is a “non-manifested” directly in our “basic” time particle, which represents the main (fundamental) element of a terminal field at the deepest level of space. Practically speaking a phormon may be regarded as “Planck particle”. Excited state of a phormon is an oscillation of this frequency. When in our “basic” time we observe an elementary particle (for example quark or electron), we only register excited states of a phormon. Metastable conditions of phormons correspond to short-period elementary particles (including resonances).

According to QELT, various types of an excited state (oscillation) of phormon generate various types of elementary particles in other layers of time. Elementary particles represent common fermions, which, in accordance with QELT, do not manifest themselves in the “basic” time independently, without interaction with a terminal field (without formation of “quark structures” of a fundamentally new type in comparison with previous physical concepts). There is a great amount (more than 600 thousand) of mathematically possible types of elementary particles, but in our world we observe (when they interact with a terminal field) only a minor part of them (including those that are not discovered yet, but foretold by QELT), because other ones have lifetime less than 10^{-13} seconds and it does not allow them to manifest themselves in the “basic” time. All the rest of them are virtual particles.

A structure of a terminal field consists of peculiar non-manifested in the “basic” time sub-quark particles, each of them consists of fermion-antifermion pair.

In case if in a terminal field (outside of the “basic” time) “extra” non-paired particles are present, they unite with phormons to form “quark structures” which are observed in the “basic” time as various elementary particles. “Quark structures”, as stated by QELT, differ from “usual” quarks (as they were understood in physics earlier) in having a specific structure, that defines their properties. Besides, it is QELT allows defining of a “periodic law” for quark structures. In accordance with QELT quark structures are not formed by lepton particles, but they form a certain analogue of quark structure (“pseudoquark structure”) in form of uniting with excited phormons of a terminal field, and that allows lepton to manifest themselves in the “basic” time. For the first time QELT managed to explain completely all observed paradox peculiarities of quarks, which was impossible earlier.

In accordance with QELT non-excited phormons cannot be observed in the “basic” time. When phormons are excited they are polarized, they turn into a pair of close virtual particles which can

unite again. This condition of phormons is regarded as photon. A process of consecutive distribution of excited state from one particle to another (because of alternating temporal field influence) is perceived as a distribution of light and at the same time it defines light speed in a vacuum. During the process of excited state consecutive transfer from one phormon to another, a photon loses an insignificant part of its energy.

Projections of an oscillating phormon to other time vectors represent various versions of a phormon spinning motion along circular trajectories, as well as along spiral geodesic path on a torus surface in various time vectors. Dynamics of phormons movement on a toroidal-shaped shape is determined by fields of phormon's two strings. One string, that goes through torus axis and beyond to "infinity" (closing on a distance equal to universe radius), creates a magnetic field; and when this magnetic field interacts with a magnetic field of another current string that goes along torus axis, it creates resulting field along n-looped line on a surface of a torus. At the same time, the first inclined string spins around "axial" string, forming a "cone of anisotropy" of a corresponding particle. Half angle at the top of this cone is called in QELT "anisotropy angle". For example electron's anisotropy angle is $\sim 22^\circ$, proton's - $\sim 17,5^\circ$. These two main angles define anisotropy of atoms properties. For non-excited phormons anisotropy angle equals zero, but at strong excitation it becomes above zero.

Force interactions between atoms in molecules and crystals have not spherical, but axial symmetry and, because of spinning motion of phormons strings in particles, they alter in time very fast – about 10^{18} Hz. Force interactions of particles alter constantly, but due to very high frequency of these alterations it does not result in appearance of some visible results.

Nearly all material structures "remember" that in their basis there is a phormon string that scans along the surface of a cone. This memory may also manifest in macro-objects, when they are cone- of pyramid-shaped with apex angle close to 35° или 44° . Forming of such geometrical objects may condition a resonance influence to a state of a physical vacuum and substances in an area of these objects. This may cause highly unusual and diverse in their external appearance manifestations of such "shape-interaction".

Gravitation in QELT is regarded as a result of terminal field's power lines ("strings") shielding by elementary particles. Gravitational shield of every elemental particle has not spherical, but axial symmetry. As a result the effective value of this screen depends on a particle's orientation. In the direction of particle's spin vector a screen size is larger than in orthogonal to him projection. (A screen is maximal along rotation axis of elementary particle substructure). Therefore, if spins of elementary particles, composing an atom (nucleons mainly, because they are the main mass), oriented towards one side, then gravitational force will be maximal in this direction, when in normal plane – minimal. Loss of mass of elementary particles with oriented spin structure may be approximately 20-50%. Unfortunately, experimental verification of this is very difficult, because this effect may be registered only at almost complete spin orientation of elementary particles in macro-objects (of portion of a gram and more).

Gravitational forces appear as a result of terminal field tensions shielding, which always influence any elementary particle, however in case of accumulation of large amount of particles in a small space, an "extrusion" of some particles may happen and as a result – weakening of string tension forces. If a concentration of particles in this limited space becomes close to concentration of a

phormon ($\sim 10^{39} \text{cm}^{-3}$), then gravitational interaction forces between them may decrease greatly. Decreasing of gravitational forces causes defect of mass and release of energy. That is why QELT theoretically forecasts a possibility of gravitational-terminal space extension, including stars and planets.

In accordance to QELT there is certain constant level of excited state of real physical vacuum. At this particles of electron-positron vacuum are located at a dipole distance of $\sim 1,79 \text{\AA}$ from each other. Considering that this distance is higher than a distance between atoms of a water molecule ($0,96 \text{\AA}$ between O and H and $1,53 \text{\AA}$ between H and H), this virtual (in the “basic” time) electron-positron pair will tend to break a water molecule into ions. In this situation the strongest force is directed to a link between O and H, that is why a water molecule is broken into H^+ and OH^- ions. But on the instant ions connect to electron and positron which caused this break and thus quasi-molecules H^+e^- and OH^-e^+ appear. A certain amount of these quasi-molecules constantly present in water, but when they are mixed among themselves, they show no special properties. But when electric field is applied these quasi-molecules move to cathode and anode, forming stable fractions of activated water in form of quasi-acid and quasi-alkali.

Activation of substances may happen under the influence of magnetic field as well. In this case the field conditions Larmor precession of electrons, which, in accordance with QELT, have anisotropy of properties along the axis corresponding to a direction of a spin. This may affect condition of substance’s molecular links, stipulating different effects of its physical-chemical activation.

Unfortunately, scientific ideas of Theodore Van Hoven appeared to be too unusual and difficult for understanding (due to extreme complexity of applied mathematical apparatus) by the majority of other theoretical physicists. Besides, QELT point at incorrectness of many concepts actively developed by leading physicists nowadays, which prevents a wide recognition of this original in many ways physical theory by scientific society.

It is easy to see that QELT is a global and all-pervading in its consequences physical theory that can explain a great amount of the accumulated unknown in a modern science. Surely it is not yet completely finished and, as any new theory, may contain hidden errors. However based on its comparison of theoretical calculations and experimental data shows its potential. Further development of this theory must be carried out by combined efforts of many scientists and requires lack of bias and great intellectual endeavors, which, unfortunately, are rare.

It is obvious that T. Van Hoven’s Quantum entropic logic theory is an extremely powerful tool of theoretical physics and can give an explanation, in one way or other, to almost whole amount of gathered by this day scientific paradoxes or unusual phenomena. Physical concept of T. Van Hoven has a fundamental general-physics character and can influence a modern physics like theory of relativity and quantum physics (which in their time were also negatively accepted by physicists with “traditional” point of view).

Taking into account mentioned characteristics of Quantum entropic logic theory by T. Van Hoven it is most probably that the reason of all psychophysical phenomena is an intensive excitation

of a terminal field in a certain vector of time. This excited state of a terminal field conditions an unusual variety of external effects of bioenergetic and psychophysical reactions. In accordance to QELT, specific excited states of a terminal field can change physical parameters of various environments (refraction index and light scatter parameters (which may be stipulated by change of dielectric or magnetic permeability), electroconductibility, etc.), affect molecular and atomic links of substances (including influence to intercrystalline links and metastable conditions), specify electromagnetic radiation, gravitational and many other effects. Probably, degree of polarization of a physical vacuum is also significantly increases at this.

Analysis of psychophysical occurrences phenomenology from the point of view of mentioned physical concepts and corresponding principal functional models of implementation allows complete explaining of many previously existing paradoxes and, moreover, predict principal peculiarities of these events.

It becomes clear why bioenergetic and psychophysic influence to an object are more successful when an operator has a chance to hold an object, touch it or keep in a vicinity of his body. (In this case preliminary intensive excitation of a terminal field in an object happens and it makes it more sensitive to these influences.)

The effect of accumulating and continuous afteraction of bioenergetic influences become clear. It is explained by graduate “saturation” of excited state of a terminal field in an object to a certain critical level when the effect manifests itself, and maintaining of this condition for some time. Besides, such afteraction effects at psychophysical influence are explained by residual trace of information processes, which conditioned these influences.

A possibility and peculiarities of a physical mechanism of deformation and destruction of various materials at psychokinesis become clear. Localized specific excited states of a terminal field in objects condition abnormal low-temperature processes of crystal structures reconstruction (sliding of metal crystal grain relatively to each other, etc.) moving of dislocations, migrations of trace elements, rupture of atomic and molecular links, etc. At the same time the object is not subjected to any to any external force influence – all operators are of an internal character for the object. Also becomes clear why these influences may be fulfilled by psychophysical actions of operators, but they are realized with significantly lesser efforts and more vividly when an operator had contacted with an object or places it near own body and thus “saturates” an object with his “bioenergy” (he excites a terminal field inside the object).

It becomes possible to explain the effect of objects hanging at telekinesis. According to QELT it may be conditioned by appearance of codirectional spin orientation in an object that changes its gravitational characteristics; it appears because of a combined bioenergetic and psychophysical influence. Some peculiarities of telekinetic hanging of small objects may be noted (for example a matchbox and several matches).

A physical mechanism of telekinetic movement of objects becomes clear. It also may be explained on the basis of mentioned mechanism of bioenergetic interactions. As soon as telekinetic movement of objects has a similar physical principle in relation to phenomenon of telekinetic hanging of objects, one may suppose that in both cases a readjustment of spin orientation in an atomic structure of objects happens. This readjustment of spin orientation may somehow change

gravitational interaction of an object with its environment. One may suppose that influence of an operator may change characteristics of gravitational interaction in this area.

It must be noted that Quantum entropic logic theory by T. Van Hoven conforms and complements to a “torsion theory” by Academician A.E. Akimov, because it allows explaining of all “torsion” effects at the higher theoretical level. During elaboration of his physical concepts T. Van Hoven had no data about “torsion theory” and regarded “spinor effects” from the point of view of classic Dirac concepts. But underlying mechanisms of his theory were the physical mechanisms that could explain (and partially have explained already) almost all “torsion” effects. Nevertheless a greater part of scientific experience in “torsionics” had a positive meaning for science, because results of these studies have drawn an attention to multiple very unusual physical and biophysical phenomena, and this, in its turn, promoted achievement of their understanding on the basis of deeper physical concepts. Rethinking of some part of this scientific experience will allow better understanding of physical mechanisms of Quantum entropy logic theory by T. Van Hoven and create devices fulfilling predicted by this concept forms of influence and corresponding effects.

An important aspect of T. Van Hoven’s physical concept is that it opens a perspective for understanding of laser emission’s “nonelectromagnetic component” essence. Probably these effects are explained by a combination of terminal fields’ excited state appearance during a process of generation and spreading of laser emission with peculiarities of this excitation spreading in various physical environments and through borders of these environments, and also, probably, with quantum-correlation effect, similar to one studied by B.B. Kadomtsev. Many effects of “nonelectromagnetic component” influence (for example changing of water’s optical absorption spectrum, graduate accumulation and continuous maintaining of influence) are easily explained by QELT and coincide with similar effects, conditioned by bioenergetic influences or energy-informational mechanisms. It must be noted that in accordance with QELT, these effects are mainly conditioned by processes in another vectors of time in relation to the “basic” time in which we observe only paradoxical end effects of these processes.

QELT also allows to explain some cases of “information transfer”. We can suppose that at distribution of excitation “ray” through a substance in a terminal field (conditioned by electromagnetic emission), it really may be somehow “modulated” in accordance with peculiarities of atomic structure of this substance. The specifically “modulated” excitation in a terminal field may also appear at dissolution of substances, causing “phantom” influence that was discovered in experiments held by U.N. Cherednichenko and L.P. Mikhailova. Some cases of “phantom” effects may be explained by approximately the same mechanism of terminal field’s “modulated” excited state appearance inside an object, which is maintained for some time after removal of an object from this area of space. This, for example, can explain paradoxical observations of phantom effects in spectrometry.

Another important aspect of QELT is that it explains many effects of “form-influences”, which earlier were not recognized by a conventional science due to failure to understand their nature. According to QELT they are mainly explained by anisotropy of elementary particles properties, an interaction maximum vector of which presesses along a surface of cones with apex angles of 35° and

44°. This allows to understand results of experiments, showing, for example, a possibility of “form-influences” to oscillation frequencies of quartz-crystal resonators (which is frequently mistakenly interpreted as a local change of time speed), to a mobility of substances’ molecular links or to a state of water cluster structure.

And the most prominent achievement of Quantum entropic logic theory is the explanation of a possibility of prophetic forecasting of future events (without source data) convincingly shown by Baba Vanga, Edgar Cayce and Wolf Messing.

No existing physical theory can present a rational explanation of this phenomenon nature. QELT has presented an accurate mathematical proof of divergent time flow vectors existence, which from time to time cross the “basic” time.

A terminal field specifically excited by an operator can form an information flow directed to the past and thus to create an information link between the future and the past.

More specific perception about peculiarities of this group of unusual physical phenomena could be achieved only through serious scientific program of theoretical and practical studies, implementation of which has a principal meaning for science.

Conclusion

A possibility to create efficient psychomethods for realization of psychophysical phenomena is an important result of found understanding of their nature and peculiarities. Earlier, using of operators for bioenergetic experiments was quite difficult due to the fact that neither experimentalists, nor operators knew to turn on “working condition” of an operator, how exactly an operator carries out influence and what the efficiency depends on.

Shown in this article prospective scientific perception of a nature of bioenergetic and psychophysical phenomena has radically changed current situation and provided a possibility to create intelligent and efficient devices on the basis of modern methods of psychotronics; these devices help operators to fulfill required target effects and create operators from common people. Thanks to discovery of a physical nature of mentioned phenomena, their implementation by means of engineering is a question to be solved in near future. That is why using of properly trained operators and special equipment (metatrons) allows initiating studies in a new area of physics, indirectly related to bioenergetic and psychophysical phenomena, not in a long term, but even now, and also to accelerate studies and significantly cut expenses for arranging of such studies.

Therefore, at the present moment scientists have formed a basis for intellectual breakthrough in understanding of previously unknown and rather unusual area of physics, which is a hidden reason of many unexplained by modern science phenomena. In particular it helps to understand a nature of bioenergetic and psychophysical phenomena, unexplainable within previous physical concepts. This breakthrough can be achieved by coordinated intellectual efforts of experts from various scientific areas, which requires involvement of universities and serious financing. But just like in case of any scientific breakthrough, its results will cover for the humanity expenses in a form of a great amount

of areas of practical application of these scientific discoveries.

Because of a great importance of psychophysics phenomena scientific studies, works in this area can create a fundamentally new and unique in their properties devices for a broad spectrum of medical goals and biotechnologies.

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