

## A Review of the Ultron-Logotron Theory: Consciousness and Quantum Physics

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### Abstract

*A scientific relationship between mind and matter or self's consciousness and quantum physics is still not clearly known in science because of lack of concrete human data that would enable us to objectively explain them. Consequently, physicists, neuroscientists, philosophers, psychologists, psychiatrists and medical scientists have been investigating to find experimental and/or objective proofs for the relationships between mind and matter, consciousness and quantum physics in the mind-brain system. This paper reviewed the hypothesis of the ultron-logotron theory related to relationships between mind and matter or self and consciousness that proposed the primary dynamics in the mind-brain interaction and attempted physical quantitative estimation of mental force and suggested that the range of the reduced Planck constant energy may be a minimum unit of mental force-energy on the basis of the spin-mediated consciousness theory of Hu and Wu, and the Orch-OR theory of Penrose and Hameroff. In addition, relationships among self, mind and body, and those among self, society and nation in the human evolution are presented. In this review paper, the author summarized major studies of the ultron-logotron theory that is essentially based on Confucian philosophy and quantum physics.*

**Keywords:** Consciousness; Quantum Physics; Confucianism; I Ching; Jeong Yeok; Ultron-Logotron Theory; Spin-Mediated Consciousness Theory; Orch-OR Theory; Theory of Everything; Human Evolution; Precognitive Dreams; Probacent model.

### 1. Introduction

A scientific relationship between mind and matter or self's consciousness and quantum physics is still not clearly known in science because of lack of concrete human data that would enable us to objectively explain them (Penrose, 2007; Penrose, Hameroff & Kak, 2011; Hawking, 2001; Bohm, 2006; Laszlo, 2008; Gusnard, 2007; Hands, 2015). Consequently, experimental and theoretical physicists, neuroscientists, philosophers, psychologists, psychiatrists and medical scientists have been investigating to find experimental and/or objective proofs for the relationship between mind and matter, consciousness and quantum physics in the mind-brain system. The self is the agent being the source of consciousness, and responsible for the thoughts of mind and actions of an individual, enduring through time.

### 2. The Science of Self, Mind and Body

The author had unusual personal experiences that difficult mathematical problems were not solved in his manifest consciousness but could be unexpectedly clearly solved in his subconscious mind (Chung 2009). The author published the solution of the math problem in the International Journal of Biomedical Computing (Chung 1995). The math problem was regarding a general mathematical model of "probacent"-probability equation that expresses a relationship among intensity of stimulus, duration of exposure and occurrence of response in biological phenomena (Chung 1960; 2007, 2013b). The mathematical model might possibly calculate the probability of safe survival in humans and other living organisms exposed to any harmful or adverse circumstances or conditions, overcoming the risk. The author proposed a theory that there are in human individuals two selves, one, the inner self (the true self, spirit) and one, the physical self (the false self) that coexist in one individual person (Chung 2009; 2012). Kelly McGonigal (2012) describes that one individual has two minds or two selves, naming "I WILL" and "I WANT" selves.

More recent researches in neuroscience using functional magnetic resonance imaging (fMRI) discovered that the prefrontal cortex (PFC) of the human brain performs cognitive control, emotion regulation, moral self-control, control of impulsive behavior and guiding brain activities with future goals and rules (Miller and Cohen 2001; Greene et al. 2001; Ochsner et al. 2002; Schwartz, 1999, Joseph, 2001).

The author (Chung 2012) published a theory regarding the scientific relationship among self, mind and body based on the above described findings that a human individual, the self is composed of the inner true self (spirit) and the physical false self that would fade and disappear at death of the body. The inner self has free will, will power, cognition, reason, morality, conscience, creative power, mathematical computation, future plan and high goals, behavior control, emotion regulation, and memory retrieval, supervising the physical self/body that senses through sensory organ systems and responds to the external world. The inner true self is the independent and indestructible spirit in an individual. The physical self is dependent upon and associated with the brain and body, and is impulsive, behaving for pleasure-desire and instinct for living (Joseph, 2011c, 2011d). The inner self controls the physical self/body by interacting with the prefrontal cortex of human brain (Rilling and Insel, 1999).

The physical self has consciousness associated with the brain and conscious stimuli coming from the external world. However, it lacks mind, and has neither free will nor free choice. In contrast, the inner self has perception and cognition of stimuli coming from the external world and conscious mind with free will and free choice.

Animals have consciousness but lack mind (Nani et al, 2011; Chung, 2012, 2014a, 2014b).

Human actions are done by conscious minds occupied by the physical self and /or the inner self. It seems to the author that freedom of will is indispensable to self-control by the inner self. The physical self/body seems to carry out bodily reactions determined by physical and chemical laws and so impulsive in its behavior; the physical self seems to have no free will from the view point of scientific monism (determinism) so that states of mind are produced by material processes in the brain. Darwin's evolutionism seems to be applicable to the realm of the physical self/body and the creationism to the realm of the inner self (soul). The perspective of the inner versus physical self seems to provide a possible resolution to the evolutionism and creationism regarding the human history (Chung, 2010, 2015a).

On the basis of review of findings and discoveries in anthropology related to the evolution of humanity (Joseph, 2001, 2011a, 2011b; Darwin, 1859, 1874; Wolpoff, 2011; Nelson, 2011; Lockley, 2011; Nani et al., 2011; Sonder, 1999; Wells, 2007; Zhang et al., 2002; Enard et al., 2002; MacAndrew, 2014; Gross, 1992; Hands, 2015), the following hypothesis regarding the human evolution is proposed (Chung, 2015a) as shown in Table 1:

- (1) There seem to be four stages in the evolution of humanity: Homo (appeared 2.3-1.5 million BP), Homo sapiens (appeared 200,000 BP), Homo sapiens sapiens (appeared 120,000 BP), and Homo divina (began 5,000 BP).
- (2) Genus Homo, predecessors to Homo sapiens (species) evolved to Homo sapiens that developed large frontal and temporal lobes, further the prefrontal cortex as well as the language gene, FOXP2, 200,000 years ago, providing the status of brain that would be ready for human spirit entities to incarnate.
- (3) The earliest transmigration, bodily incarnation of human spirit: appearance of Homo sapiens sapiens (subspecies), modern man, seems to have taken place in Africa 120,000 years ago.

“The reflective consciousness” described by John Hands (2015) is “the property of an organism by which it is conscious of its own consciousness. Humans may thus be defined as Homo sapiens that is the only species known to possess reflective consciousness.” The reflective consciousness seems to be analogous to mind of the self (the true self, spirit) of Homo sapiens sapiens, modern man.

- (4) Since 5,000 BP when early civilization had been developing on Earth (Janson, 1971, National Geography, 1985; Haywood, 1995), Bhagavan Krishna, Fu Hsi, Buddha, Confucius, Jesus Christ, and other enlightened saints came and taught the humanity (Yogananda, 2004;
- (5) Mascaro, 2013, Chung, 2010). The author infers that Homo divina began 5,000 BP and will continue in the future evolution of humanity.

The deepest and the highest part of the self is postulated to be the super self that corresponds to the Holy Spirit in Christianity, the Buddha-Nature in Buddhism, and the Great Ultimate in Confucianism, and that is truly the divinity and the Creator God (Haemin, 2012). The saints are inferred to have enlightened and been united with the Creator God through their super self, becoming “divine man” (Homo divina).

Current theories in the human evolution hold that the modern human, *Homo sapiens sapiens*, migrated from East Africa to the Middle East about 120,000 years ago (The National Geography Society, 2007; Hands, 2015; Chung, 2015a). According to the Book of Right Change (正易) written by Kim Hang (Kim, 1885; Yi, 1992; Chung, 2010) who was a Korean scholar and a master of Confucianism, Buddhism and Taoism, the year 1884 AD was the year 118,643 of the human history (Chung, 2014b, 2015a, 2016, Joseph, 2001, 2011b).

## 2. Quantum Physics

All particles of matter are in essence composed of energy and also can be created from energy. Matter and energy are interchangeable. According to quantum mechanics (Planck, Einstein, Bohr, de Broglie, Heisenberg, Pauli, Schrödinger, and Dirac & Feynman) that describes the physical world on very small atomic and subatomic scales in terms of the laws of quantum physics, a physical change in energy does not occur smoothly and continuously but in discrete steps of minimum unit amount of energy, called quantum. All particles exist in special quantum states.

In string theory of quantum physics, the different types of observed elementary particles are from the different quantum states, string dynamics of strings (Chung, 2015b). Roger Penrose and Stuart Hameroff (2011) proposed the theory of the orchestrated objective reduction model (Orch-OR) with microtubule quantum computations within neurons to explain interactions between consciousness and quantum mechanics (quantum wave function) in the mind-brain system (Stapp, 2013, Vimal, 2010).

In John von Neumann's theory of emergent dualism, some conscious agent intervenes upon the state of the brain and does conscious choice, controlling the mind-body connection in the brain (Stapp, 1999, 2013, Sorli, 2014). The von Neumann and Heisenberg orthodox quantum theory supports the philosophical dualism in quantum physics. The agent seems to be the inner self of human being (Chung, 2012, 2014a).

### 2. 1. Planck Constant

Planck-Einstein relation is expressed by Equation (1)

$$E = h \cdot f \quad (1)$$

Where  $E$  is quantum energy,  $f$  is a wave frequency, and  $h$  is Planck constant ( $h = 6.626070040(81) \times 10^{-34}$  J·s).

### 2. 2. Reduced Planck Constant

The reduced Planck constant,  $\hbar$ , is Planck constant divided by  $2\pi$  and expressed by Equation (2).

$$E = \hbar \cdot \omega \quad (2)$$

Where  $E$  is quantum energy,  $\omega$  is an angular frequency, and  $\hbar$  is the reduced Planck constant or Dirac constant ( $\hbar = 1.054571800(13) \times 10^{-34}$  J·s).

### 2. 3. Schrödinger Equation

In quantum mechanics, Schrödinger equation (general) is a partial differential equation that describes how the quantum system changes with time.  $\psi$  in the equation is a wave function ( $x, t$ ) of the particle (Griffiths, 2005).

$$i\hbar \frac{\partial \psi}{\partial t} = -\frac{\hbar^2}{2m} \frac{\partial^2 \psi}{\partial x^2} + V\psi \quad (3)$$

## 3. Quantum Entanglement

Alain Aspect and his collaborators in 1980s (Gisin, 2014), Nicholas Gisin in 1997 (Gisin, 2014), and Andrew Watson (1997) found in their experiments that the speed of transmission of mutual effect between two entangled particles (e. g., electrons and photons) was faster than the speed of light (Laszlo, 2007; Watson, 1997; Aczel, 2003, Gisin, 2014). The instantaneous influence between two electron twins violates the speed of light according to Einstein's theory of relativity. Entanglement phenomena are experimentally observed (Gisin, 2014, Aczel, 2003; Penrose, 2007; Penrose, Hameroff & Kak, 2011; Laszlo, 2007). Entanglement seems to be explainable by a process of instantaneous influence between two entangled virtual quantum logotrons in consciousness as one of triple properties of the two particles with same quantum states. A change in one particle immediately causes a change in the other particle in nonlocal faster than light communication (Chung, 2014a).

#### 4. The Ultron-Logotron Theory

Interactions between self and consciousness: mind and matter are not clearly understood in science. There seem to be, to my knowledge, no articles in the literature that clearly explain the relationship between self and consciousness: mind and matter. In the author's study, the relationship is investigated and an attempt is made to explain it.

(1) Findings and discoveries in modern science, quantum physics, string theory, especially entanglement in the arena of mind and matter are reviewed (Penrose, 2007; Penrose, Hameroff & Kak, 2011; Griffiths, 2005; Stapp, 1999; 2011; 2013; Tong, 2009; Ochsner et al., 2002; Schwartz et al., 2005; Mitchell & Staretz, 2011; Close, 2011; Laszlo, 2007, 2008; Suplee, 1999; Capra, 1999; Hands, 2015).

(2) Philosophical teachings of major religions, especially the Eastern Confucian philosophy are reviewed and compared with quantum physics. Confucian philosophy is described in the I Ching, the Book of Changes (William, 1967) and Jeong Yeok, the Book of Right Change (Kim, 1885; Yi, 1992; Chung, 2009, 2010).

(3) Review of some of relevant personal experiences of precognitive dreams of the author is included in the study (Chung, 2014a).

Comparison of characteristic aspects of the author's proposed theory of ultron- logotron and quantum physics is done. Interpretation, theoretical reasoning and imagination are carried out to reasonably explain observed findings, precognitive dreams, entanglement, and proposed theories regarding the scientific relationship between self and consciousness: mind and matter (Chung, 2014a, 2015b).

##### 4.1. "Ultron", 極子

In Confucian philosophy, all things are created by power of the Creator, the Non-Ultimate, the Great Ultimate. The Great Ultimate created Two Forms, 兩儀, Yin and Yang, the two primary fundamental elementary particles that are represented by a solid line (—) and a broken line (- -). The author names Yin and Yang "yin-ultron", 陰極子(U) and "yang-ultron", 陽極子(U<sup>+</sup>), respectively. All things of the universe are generated by movements of "ultrons", 極子 (Capra, 1999; Chung, 2009, 2014a, 2014b).

**Table 2** shows comparison of characteristic aspects of the ultron-logotron theory and quantum physics. Basic elementary particles, ultrons, 極子 would be analogous to strings of string theory. The ultrons are the building blocks of matter of the physical world. The yang- and yin-ultrons are positively and negatively charged, respectively.

<b>Table 2. Comparison of characteristic aspects of the "ultron"- "logotron" theory and quantum physics.</b>		
Characteristic aspects	The "ultron"- "logotron" theory	Quantum physics
Basic elementary particle	Yin- and yang-ultrons	Quarks and electrons
Form	A solid (—) and a broken (- -) line	An open (~) and a closed (O) string
Movement	Join, movement, stillness, advance, retreat, expansion and contraction	Split, fission, break, pinch, join, spin and oscillation
Property	Triple: particle, wave and consciousness	Triple: particle, wave and consciousness
Energy	Yes	Yes
Force	Yes	Yes

If external force comes to a region of space, the regional space will be excited and pulsate, and then a hidden vertical pair of particle-antiparticle emerges in it, causing material actualization of real particle and antiparticle, creating matter. The author infers that when a matter and antimatter collide and disappear, becoming virtual matter and antimatter, consciousness in the excited state super positioning to each of the pair will disappear and become a virtual consciousness in the ground state. If the above is true, then it would imply that particles of matter would have a triple property of particle, wave and consciousness (Bohm, 2006). If a mental force is presumably created by the self, it will strike the regional space that could excite virtual consciousness in the ground state to become consciousness in the excited state, creating conscious mind (Chung, 2009, 2014a). Mind and matter are interrelated and interconnected (Capra, 1999; Chung, 2009, 2012, 2014a, 2015b).

#### 4. 2. “Logotron”, 言子

Characteristic aspects	Ultrons	Logotrons
Element of Nature	Physical matter Physical	Conscious mind Conscious (spiritual)
Creation	Created by the Creator	Created by the Creator and co-creator
Property	Triple: particle, wave and consciousness	Triple: particle, wave and consciousness
State	Real and virtual	Virtual
Interaction between themselves	Graviton, electromagnetic force, weak and strong nuclear forces	Mental-force-carrying mentalon
(Speed of transmission)	(Maximum speed of light)	(Instant)

**Table 3** shows comparison of characteristic aspects of “ultrons” and “logotrons”. The author names “information” that is described by David Bohm in his quantum theory “logotron”, 言子. Logotrons in the study represent contents of consciousness of mind in humans such as thoughts, feelings, colors, sounds, concepts of all things of the universe that may be expressed by words (Greek: logos).

All particles, electrons, atoms and molecules are in facts waves (Hawking, 1996, 2001; Laszlo, 2008; Suplee, 1999). Quarks and electrons are currently regarded as basic elementary particles. All physical processes in the physical world are based on particles and forces (Hawking, 1996). The force-carrying particle, graviton and photon of bosons are virtual particles. The deeper structure of quarks and electrons is not experimentally observed.

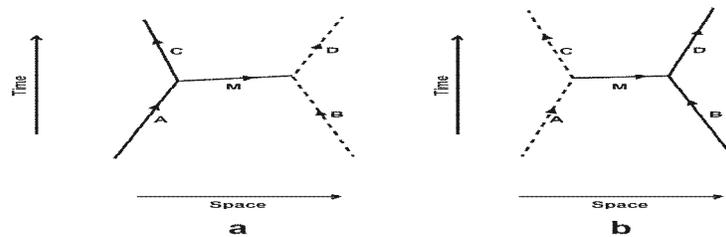
A wave-particle duality of electron proved by Thomas Young and Richard Feynman’s double-slit experiment has not been explained (Nichol, 2006). According to David Bohm (2006), this phenomenon suggests that an electron seems to have consciousness, interacting with the environmental background field of space. This is a transformation for a wave to a particle, and vice versa like an organism than interacting parts of an inanimate machine (Nichol, 2006).

Matter, energy and mind are different aspects of the unknown, unbroken flowing movement of totality, the wholeness. Consciousness may be the essential nature of the universe and a more subtle form than matter of the universe (Bohm, 2006). The totality, the wholeness is nonlocal and timeless; it seems to represent the Creator, the Cosmic Consciousness and his activities. Contents of consciousness are called by Bohm “information”. The author names “information” “logotron”, 言子 in this study. The quantum theory of David Bohm seems to be analogous to the teachings in Buddhism that all things of the universe are created by mind and the universe is in a dust and aeon is in a moment (Dalai Lama, 2005); all is in one; one is in all. Logotrons are virtual particles, massless and have probably a triple property of particle, wave and consciousness, and have possessing inherent force, and having a property of spreading in space as well as remaining at an original, regional point in the holographic space. The wave propagation, if emitted from the logotron is postulated instantaneous in the non-local holographic space.

#### 4.3. Interactions between Ultron and Logotron

**Figure 1** illustrates Feynman’s space-time diagram of interactions between ultron and logotron. Mental-force-carrying “mentalon” exchanges between ultron and logotron, creating resonance-like effects, and perhaps exchanges between logotrons as graviton exchanges between ultrons of matter. The conscious mind of the inner self of an individual person has power to generate mentalon as well as logotrons with free will and free choice. Mentalon is virtual force like graviton; it has two states: the ground and excited states. The author infers that the quantum states result from the incoming neural stimulus in the neurons of human brain, then OR occurs (the quantum wave function collapses) when the physical self and the inner self have conscious perception through quantum computations in the microtubule automata (Penrose & Hameroff 2011). In the quantum state of the prefrontal cortex of human brain, the quantum wave function collapses when the inner self who is an observer and does conscious cognitive action with free will and free choice, and with attention, efforts, thoughts and planning in the inner self’s mind; then logotrons in the excited state are generated from the ground state, generating conscious cognition in the inner self’s consciousness (**Fig. 1a**) ((Stapp, 1999; 2013; Kafatos, Tanzi & Chopra, 2011; Schwartz et al., 2005; Ochsner et al., 2002).

The self (the true inner self) has power in the conscious mind to choose logotron in the excited state from its ground state, changing the quantum state of the logotron with free will, free choice, attention and intention, guiding actions (Stapp, 1999; Chung, 2012). Ultrons in the excited state are generated by mentalon originated from the inner self's conscious mind (**Fig. 1b**) (Schwartz et al. 2005; Ochsner et al. 2002). **Figure 1b** illustrates processes at the interface between mind/consciousness and brain. Existence of mentalons can be empirically recognized by their effects in the external world resulting from interactions between mind and matter in the PFC of human brain. In this matter-mind process, mentalons participate in generation of conscious mind (**Fig. 1a**) and vice versa (**Fig. 1b**). M line shows its origin on the left side with an apparent slightly upward right direction but is actually horizontal and parallel to the space axis, indicating instantaneous speed in space-time (**Fig. 1a** and **1b**) (Penrose, Hameroff & Kak, 2011).



The author reviewed modern quantum physics and the Eastern Confucian philosophy. On the basis of the review and authors' personal experiences of valid precognitive dreams, the following theory is proposed (Chung, 2014a):

(1) The “ultrons” are the building blocks of matter of the universe. The “logotrons” are the building blocks of consciousness of human mind and the spiritual world. The “logotrons” are virtual particles. The “ultrons” and “logotrons” interact each other with mental-force-carrying “mentalon” in neurons of human brain. Mentalon exchanges between logotron and logotron or logotron of self's consciousness and logotron of consciousness super positioned to particles of matter.

(2) Entanglement could be explained by mental-force-carrying mentalon that exchanges between two entangled virtual quantum logotrons in particles or logotron in conscious mind and logotron in particles of matter at quantum levels.

(3) There seem to be parallels between the “ultron”-“logotron” theory and quantum physics from the ontological perspectives, and a close agreement between the “ultron”-“logotron” theory and the Penrose-Hameroff 's Orch OR theory or the von Neumann-Heisenberg's orthodox quantum mechanics that seem to be correct descriptions and applicable to both the inner self and the physical self/body of humanity, respectively on the basis of the human individual self composed of two selves, one, the inner self and one, the physical self.

The physical world, the consciousness world and the spiritual world of our universe coexist in superposition and represent the macro-cosmos of the Creator God. The super positioned worlds, the macro-cosmos of the Creator of our universe, the Self, seem to be analogous to the physical body, the conscious mind and the inner spiritual selfin superposition that represent the micro-cosmos of the co-creator, the self of the humanity. The spiritual world is invisible but real. The spiritual world and the human world would unite in the coming kingdom of heaven on Earth where goodness will be boundless according to Jeong Yeok, the Book of Right Change of Confucius philosophy as the Bible predicts it. Virtual particles are in essence virtual logotrons (information) that are the archetype of real particles.

Anihilation and creation of ultrons (matter) are secondary to action of underlying virtual logotrons in the Cosmic Consciousness (mind). This seems to suggest that the ultron-logotron theory possibly leads to the Theory of Everything (ToE). The ultron-logotron-associated mental force, mentalon, is postulated to act on space in four different, undetermined ways, resulting in and generating four physical forces, gravitational force, electromagnetic force, and strong and weak nuclear forces. Cao, Cao & Qiang (2015) proposed a theory of everything (ToE). It describes twisted space caused by stretching and contraction as modeled by the Torque Grid as the fundamental unit of universe generates four physical forces. The four physical forces could be similarly four different manifestations of the ultron-logotron-associated mental on that would result in four differently distorted or shaped spaces of undetermined patterns.

Kak (2009) presented in his article the case of the existence of a separate principle of consciousness to complement physical law. Information of consciousness of the self, the observer, in cognition described by Kak seems to be analogous to logotrons of the ultron-logotron theory, and there appears to be a virtual agreement between the Kak's propositions and the author's hypothesis of the ultron-logotron theory.

On the basis of modern quantum physics and the ultron-logotron theory, the possible deeper structure of leptons and quarks is proposed (Chung, 2015b). A neutrino is composed of an equal number of yin-ultron and yang-ultron, and is postulated to be composed of one yin-ultron and one yang-ultron. Yin- and yang-ultron mass is 0.16 eV. Electric charge of yin-ultron is  $-1.602176565 \times 10^{-19} \text{ C}/(3.19 \times 10^6 - 2k)$ ; that of yang-ultron is  $1.602176565 \times 10^{-19} \text{ C}/(3.19 \times 10^6 - 2k)$ . C denotes coulomb and k a number of neutrinos in a lepton. An electron is composed of two parts: one neutral part consisting of yin- and yang-ultrons and one electrical part of negative charge consisting of yin-ultrons.

Lehman & Persinger (2015) described in their recent article that the author integrated aspects of quantum physics with Confucian philosophy (Chung, 2015b). It has been recently discovered that electrons split into two separate parts: a spinon carrying its spin (a neutral magnet on behaving as a tiny compass needle) and an orbiton carrying its electron motion (negative electrical charge) around the nucleus (Palus, 2017; Piazza, 2014; Paul Scherrer Institute, 2012). The spinon and orbiton seem to correspond to the neutral part of yin- and yang-ultrons composite and the negative part of yin-ultron predicted in the ultron-logotron theory, respectively (Chung, 2015b). Yin- and yang-ultrons in a spinon are postulated to line up in a tiny series magnet arrangement with a south and a north pole in one direction that can generate spin (Chung, 2017). This substructure of electron suggests that a quark is likewise composed of two separable particles, a magnetic neutral (of yin- and yang-ultrons composite) and an electrical particle (of yin- or yang-ultrons), further that a proton made of three quarks would have its spin potentially from the quark spins and its electrical charge of the sum of the quark electrical charges (Shee, 2107; Chung, 2015b, 2017).

#### **4. Valid Precognitive Dreams of the Author**

The author had unusual but valid precognitive dreams during the World War II and the Korean War that saved not only the author but also other people (Chung 2009; 2012, 2014a). The author's personal experiences could have important scientific and philosophical implications.

##### **4. 1. A Precognitive Dream in Prison during the World War II**

In 1944 during the World War II, Korea was under the suppressive colonial Japanese government when I was a medical student. I joined an underground organization, the Hyeopdong Party for Korea's independence movement. The movement was detected by the police in December 1944. I was imprisoned after interrogation and inhumane torture in the Seodaemun Prison in Seoul in January 1945.

There was a typhus epidemic, infecting many prisoners. I heard that quite a number of patients died of typhus. I was one of the patients and placed in an isolation room without any treatment. I suffered high fever, headache, and loss of hearing and vague consciousness. I eventually recovered from typhus fever and was transferred to a general prison cell.

One night in June 1945, I had an unusual dream. An old man wearing a gray Korean coat suddenly appeared in front of me. I fell to the ground face down and asked him, "When shall I be released from prison?" He answered instantly, "**The date is the thirty first**". Then, the old man disappeared, and at the same time I woke up from the dream. I believed that I had experienced a precognitive dream of a revelation from heaven. I began to wait for the thirty-first day of next month July.

I whispered my dream to my Korean roommate who was a member of the Hyeopdong Party. After this event, days passed, and there were no special events or news with regard to my legal case. Eventually the thirty-first day of July came. I was suddenly ordered to appear in the court. I met the Japanese prosecutor, Ei Kurokawa, who handled the Hyeopdong Party case.

He said to me, “For the last month, when I came home after finishing my daily work, your name suddenly came across my mind. I have kept thinking of you. I have been led to reconsider your case of the independence movement. I do not understand why I kept thinking about you every evening.” He continued, “I have made up my mind today. There have been no cases in the past in which the accused detainees involved in any underground independence movement with suspected offenses against the security laws like you students who joined the student organization of the independence movement, were all released. I have taken legal action so that all the other students except you have already been released from prison on probation. I had intended that only you among the students involved in the illegal independence movement should be continuously incarcerated and prosecuted in the upcoming trial.”

He said, “However, although there have been no similar cases in the history of the prosecutor’s office, I have made up my mind today, after one month of unusually difficult deliberation. I’m going to release you from prison today.” It was incredible that I was actually released from the Seodemun Prison the night of July 31, 1945.

Was it a coincidence? It was an experience beyond my comprehension. Since then, I have come to absolutely believe that the dream in June 1945 was a revelation from heaven. Two weeks later on August 15, 1945, Korea was liberated from the thirty-six-years Japanese colonial rule forever, following Japanese surrender to the Allied Forces (Chung 2009).

## **4. 2. Precognitive Dream in North Korea during the Korean War**

### **4. 2. 1. Outbreak of the Korean War**

On June 25, 1950, the Republic of Korea (ROK) was suddenly invaded by North Korean enemy forces. ROK forces and the government were forced to retreat south by the advancing, ruthless North Korean forces (Gruenberg 1959). Many Seoul citizens lost opportunities to flee Seoul.

After the UN Security Council unanimously passed a resolution to denounce the lawless aggression of North Korea and to provide military aid to South Korea, the US-led United Nations forces came to South Korea to block the advance of the North Korean forces and to save the Republic of Korea.

### **4. 2. 2. Forced Transportation to the North and Experiences in the Early Part of the Korean War in North Korea**

I lost a good chance to take refuge to the south. I was one of hundreds of South Korean physicians forcefully transported from South Korea to North Korea. My group of six South Korean physicians was sent to Hamhung, North Korea and ordered to treat patients at the Hamhung Provincial Hospital. Air raids involving machine-gun strafing by US fighter planes and by scores of US B-29 bombers were daily getting severe. Each time siren signals of air raid ceased, hospital relief teams were dispatched to the bombed areas to rescue wounded civilians.

### **4. 2. 3. Revelation in a Dream, Escape from North Korea, and Return to South Korea**

One night in September 1950, I had an unusual dream. I saw a wall calendar with a black printed number of the date in the middle of white paper. The number was a crystal-clear **13**. That seemed to indicate that the date of the coming thirteenth day of October would be an especially important and critical day. The calendar disappeared, and I saw a night scene. In the darkness of night, I was walking in one direction with other people in a line.

I looked around both sides of the road. There was a flowing river on the left side, and a mountain on the right side. While walking, I told a nearby nurse, “If we pass the thirteenth day tonight, we will survive and have good days ahead. Let’s be patient. We have hope”.

The nurse who walked beside me appeared glad to hear me say it. After talking to the nurse, I woke up. I felt that the thirteenth day would be the coming October 13. I awaited especially the thirteenth day of the next month, October. I believed that if I pass October 13 without any difficult events, I would have good days thereafter. Next morning, I actually told my dream to my South Korean physician colleagues.

The great historical battle at Inchon Harbor involving landing by UN and South Korean forces on September 15, 1950, recapture of the capital, Seoul, crossing the 38<sup>th</sup> parallel on October 9, and the northward advance of UN and South Korean forces, totally changed the situation of the war in the Korean peninsula (Gruenberg 1959).

One day a North Korean nurse confided me that she was listening to South Korean radio news secretly every night. She said, “According to the radio news, UN and ROK forces have advanced to Wonsan. They will be near Hamhung in a few days.” What she said was startling news to me. The day she confided this to me was probably October 11, 1950. The community was lacquer-black dark with the complete control of lighting at night. I opened a window of the classroom (in daytime it was used as an outpatient clinic) to see the night scene of nature outside. I could see black-looking mountains under the starlit sky. As I recognized daily changes in situation on the battlefield on the basis of the secret information, I began to feel strongly a strange wonder and joy because my dream appeared to be becoming a reality in terms of the date and the war situation. The thought crossed my mind that we might see a true phase of the universe that would transcend the specific time phases of the past, present and future when the great mind behind the far, dark-appearing mountains of nature would fuse into one mind with the little, clear minds residing within our human small bodies. On the night of October 12, I opened the window of the classroom as before. I saw the dark night scene of nature outside. I felt especially that night a very close and dear feeling for the far, black mountains. I realized that the special dream was transforming into a reality. I felt my heart beating strongly. Immeasurable joy mixed with wonder was springing in my bosom. I began to believe strongly in heaven’s grace and help.

The next day was finally October 13, the day I had been waiting for. An unexpected event took place. The entire staff of the Hamhung Provincial Hospital gathered at the hospital campus that evening to prepare to retreat north, following the order of the communist agent. Scores of North and South Korean doctors, nurses and non-medical staff members then started to retreat north on foot in a formation of lines, leaving the hospital and Hamhung City in the darkness of night.

I got out of Hamhung City for the first time. All of the hospital personnel were walking in lines on a dark road leading north. I looked around at the surrounding natural scene while I walked. The Sungchun River was on my left side, and mountains were on my right side. It was an amazing event. The night scene and the date exactly matched the landscape and the number thirteen on the wall calendar in my dream a few weeks earlier. The coincidence of the dream and the reality was unbelievably extraordinary, and it convinced me that the special dream was a precognitive dream and a revelation from heaven.

I spoke to a nurse who was walking beside me, as I had done in my dream, I said, “Hello. If we pass the thirteenth day tonight, we will be free. Let’s be patient. We will have good days from tomorrow.” The nurse was glad to hear me say it. I did not tell her about my dream. I just talked similarly in reality as I had done in my dream. I felt inexpressible joy and hope while I was walking.

We reached the playground of an elementary school in a village in the north around midnight, after walking scores of miles. We were told to take a temporary rest there. At that time we six South Korean physicians determined to take advantage of this opportunity to flee toward the south. We promised that each person would go back to Hamhung and gather at Dr. Myung Hak Kim’s hospital in the city. We left separately in groups of two. My partner and I began to walk toward the south along ridges between rice fields in the dark night. We had to avoid any villages. We found another group of two South Korean physicians. They joined us, and we continued our forced march. The sun rose in the morning. We were able to pass uneventfully a police branch office in a village. We encountered apparent refugees heading south. Getting close to them, they turned out to be two South Korean physicians, one North Korean physician, several North Korean nurses of the Hamhung Provincial Hospital, and one North Korean army officer wearing hospital inpatient clothes who was a patient at the same hospital. They joined us, making a total of eleven or twelve people. We all continued to walk south. Littering both sides of the road were numerous dead bodies of North Korean soldiers and civilians killed in the war. The scene of carnage was terrible on October 14, 1950.

Countless retreating North Korean foot soldiers in formation, straggling soldiers, and civilian refugees were on the road, heading north. Among the crowd of people, ours was the only one group — making its way to the south, in the opposite direction.

We saw North Korean troops stationed at a location far ahead of us. A guard with a bayonet-fixed rifle was standing on the road in front of the troops. The area that we had to pass looked fierce and brutal. We moved toward the last front line of the Korean War that our group had to pass through.

I asked my senior physician to go in front of our group. He declined and advised me to go ahead of us. No one wanted to go in front, leading us.

I thought to myself about this difficult situation. When I recalled the special dream of revelation that I had dreamed in the previous month, and the fact that I had acted in reality similarly to my actions in the dream, joy, faith, and courage spontaneously arose and filled my heart. I would not die here because heaven was helping me. There would surely some job that I would be obliged to perform in the future. I had unshakable faith and peace of mind to go ahead of us for the sake of our group.

Alone, I went close to the North Korean rifleman. The guard questioned me as expected. “Comrade, where are you going?”

The following words came out smoothly and uninterrupted from my mouth, without my thinking in advance, “Yes, I am a physician working at the Hamhung Provincial Hospital. Those people over there are physicians and nurses working together at the same hospital. Here is my I.D. card.”

After showing my I.D. card, I continued to speak. “As a matter of fact, all of the hospital staff members evacuated the hospital yesterday and retreated north. There is some medical equipment and supplies left at the hospital. We are going back and will bring them with us.”

I answered with a calm attitude. The guard stared at my face. He appeared to trust my answer and attitude. He allowed me and my entire group to pass the guard line uneventfully. I had no doubt of heaven’s help when I got the guard’s permission. We all safely passed the most dangerous front line.

On October 15, we visited Dr. Myung Hak Kim’s hospital in the city and spent several days. We went to Wonsan Harbor by a ROK army truck where our group of South Korean physician refugees boarded the US Navy LST ship. We finally arrived at Pusan Harbor of South Korea. Our six Korean physicians followed the dream with faith and could safely return from North Korea, an autocratic communist country to South Korea, a free democratic country, passing the frontline of the war. The dream helped not only me but also other people in the war (Chung 2009, 2014a).

The above special predictive dreams that are verified as true seem to strongly suggest the work of the author’s inner self and further to reveal a possible glimpse into an unknown, timeless and nonlocal consciousness world of reality, i.e. the invisible spiritual world (Chung 2009; 2012, 2014a).

In the history of the United States, one of the great presidents, Abraham Lincoln had dreams of his death 13 days before he was assassinated (Joseph, 2001, 2011a). According to Joseph, certain cognitive capacities are well developed in just a few people.

There are numerous reports of individuals who claim to have cognitive dreams of future events that took place (Joseph, 2011a). Cindi Welch (2003) describes in her book that time frames in precognitive dreams, at least for her had been rather unreliable. There seem to be no articles of cases of precognitive dreams in the literature that the author has read and researched that have a clear description of a prediction of an exact date when future actual events would take place in the near future beyond twenty-four hours of the dream.

Subhash Kak, Regents Professor at Oklahoma State University, wrote in his letter to the author (June 2, 2014) after reading the author’s article, “Self and Consciousness: Mind and Matter” (Chung, 2014a) that the author’s personal accounts constitute a compelling story.

### ***5. Spin-Mediated Consciousness Theory of Hu and Wu***

The author infers that the primordial spin-mediated consciousness theory of Hu and Wu is applicable to mind-brain interactions in the prefrontal cortex (PFC) of human brain with which the self interacts. Self’s conscious mind is postulated to have inherent power to generate mental force and energy, “mentalons”, as well as logotrons with free will and free choice, changing logotrons from ground state to excited state (Chung, 2014a).

Logotron-associated mentalon (“quantum information” called by Hu and Wu) is assumed to cause spin in an electron within protein molecules of neuronal structures at quantum levels in the quantum entanglement domain of pre-spacetime (the consciousness world) as described by Hu and Wu. Electron spin is also associated with the emission of photon (Emery, 2007). Both electron spin and emission of photon are involved in the mind-brain interaction. The author postulates that the electron with spin becomes a spinning charged magnetic dipole (Griffiths, 2005). The magnetic dipole acts on electron clouds in atoms of protein molecules of the neuronal structure, and this effect softens, temporarily cancels out electric repulsion between two protein molecules. Then, London force, weak van der Waals’ force emerges and begins to act and attract the two protein molecules, resulting in superposition and collapse of wave function (decoherence from coherence) at quantum levels (Penrose and Hameroff, 2011). This process is associated with consciousness of conscious cognition of the inner self in PFC as well as conscious perception of the physical self in PFC because of interconnections between PFC and other cerebral cortex regions and basal ganglia.

The energy,  $E_m$ , of mentalon creating the electron spin in the prefrontal cortex with which the self interacts is assumed to be expressed by Equation (3).

$$E_m = n \cdot \hbar \quad (3)$$

Where  $\hbar$  is the reduced Planck constant energy,  $n$  is integers. The reduced Planck constant energy  $\hbar$  is postulated to be a minimum unit amount of mentalon energy in mind-matter interactions.

## 6. Penrose-Hameroff Orch-OR Theory

Penrose and Hameroff (2011) proposed the orchestrated objective reduction, Orch-OR theory. The theory describes that a form of quantum computation occurs in microtubules – cylindrical protein lattices within the brain’s neurons in information transmission (Monroe, Schoelkopf & Lukin, 2016; Sorli, 2014; Vimal, 2010). In the Orch-OR theory, reduction of microtubule superposition (OR) occurs due to quantum gravity (London force) with instability in Planck-scale separation. When OR occurs, actual consciousness of subjective experiences, SE, occurs. Taking a modern panpsychist view, protoconscious experiences, PE, are embedded in Planck-scale spin networks.

PE and SE are embedded in Planck-scale spin network described by Penrose and Hameroff (2011) seem to be analogous to logotrons in ground state and excited state in consciousness in the mind-brain system of the ultran-logotron theory.

The author infers that the Penrose-Hameroff Orch-OR theory is applicable to conscious perceptions occurring in the cerebral cortex and the basal ganglia that includes the PFC. Electron spin and photon emission seem to be involved in the quantum computation. The threshold for the Orch-OR is given by his indeterminacy principle of Equation (4),  $T = \hbar/E$ , where  $T$  is the coherence time until OR self-collapse.  $E$  is the gravitational self-energy or degree of spacetime separation given by the super positioned mass;  $\hbar$  is the reduced Planck constant.  $E$  may be expressed as  $N_t$ , the number of microtubule tubulins that will collapse for time  $T$ . For  $T=25$  ms (e.g. 40 Hz oscillation),  $N_t = 2 \times 10^{10}$  tubulins (Penrose-Hameroff, 2011).

$$T = \hbar/E \quad (4)$$

Thus, the greater the mass energy of the object, the faster it will undergo OR, and vice versa. When collapse of wave function occurs, conscious perceptions occur in the self’s consciousness.

## 7. Von Neumann-Heisenberg Orthodox Quantum Theory

The author infers that both the Penrose-Hameroff Orch-OR theory and the von Neumann-Heisenberg orthodox quantum theory are applicable to mind-brain interactions in the prefrontal cortex of human brain.

Consciousness of both physical and inner selves coexists in superposition in quantum states of neurons of the PFC. When Orch-OR (the wave function collapses and decoherence from coherence quantum state takes place) occurs at the moment of interaction between consciousness and brain at quantum levels, then conscious perception in the physical self, and conscious perception and cognition occur in the inner self in the neurons of the PFC. In the PFC where the conscious mind of the physical self is controlled by the inner self, the physical self would perceive the object, for example, an apple in a possibly genetically determined way or for pleasure and instinct for living without free choice (a fruit and appetite) at quantum levels.

In contrast to the above, the inner self independently intervenes and probes in the way of probably limitless concepts (logotrons) in scientific, biological or philosophical meanings etc. (a fruit, nutritional, good diet and even Newton's discovery of gravity etc.) and chooses a conscious mind (logotrons) with free choice at quantum levels and controls the physical self's consciousness.

The author infers that both the Penrose-Hameroff Orch-OR theory and the von Neumann-Heisenberg orthodox quantum theory are correct descriptions regarding relationships between self and consciousness: mind and matter because the human self is inferred to be composed of two selves, i.e. the inner self and the physical self/body (Chung 2012). Therefore, relationships and interactions between self and consciousness in the brain seem to be non-dualistic with Orch-OR theory in the human brain in general and also dualistic with the von Neumann-Heisenberg quantum theory in the prefrontal cortex. If Orch-OR dysfunction occurs, then the perceptive and cognitive impairments and apparent loss of consciousness would occur (Penrose & Hameroff, 2011; Stapp, 1999; 2011; 2013).

This seemingly dualistic reality in the prefrontal cortex of human brain is analogous to driving a car in which the driver is the inner self and the car (the steering wheel, engine and body) is the physical self/body. The driver drives and guides the car with free will and free choice, and the car corresponding to the brain-body that was made operates, obeying physical laws of classic physics corresponding to the physical self's consciousness without freedom but under the control of the driver. The inner self that knows the physical laws and has power of making a car controls the physical self/body at the quantum level.

### ***8. Lehman and Persinger's Physical Support for Teilhard de Chardin's Philosophy Concerning the Human Species and Evolutionary Consciousness***

Generation of photons from human brains by cognition, particularly visual imagination of white light (thought) coupled with photon emissions is experimentally confirmed by Dotta and Persinger (Dotta & Persinger, 2011a; Dotta et al., 2012b; Hu & Wu, 2011). The energy of photon emission caused by imagination of white light (conscious concept) is within the range of about  $10^{-12}$  Watts (Joules per second) per meter squared. This study seems to support the electron- spin-mediated hypothesis of Hu and Wu for the origin of consciousness. Dotta and Persinger include detailed physical and mathematical analysis at quantum levels in their study (Dotta et al., 2011b, 2012a). Mentalon is qualitatively different from photon but once converted into photon in quantum entanglement, it becomes qualitatively same as the physical photon that would be created in the body with the mentalon. Both photons are qualitatively same but may be quantitatively different.

Mentalon is conjectured to have inherent power to act on and react to the geomagnetic field. It seems to have been experimentally proven that all things of Earth are interconnected with the geomagnetic field (Lehman and Persinger, 2015; Persinger, 2013; Dotta and Persinger, 2012a; Karbowski et al., 2015). With their conscious mental thinking activities and power of creating energy, and with the expansion of consciousness into space, all the human beings on Earth seem to globally act on the galaxy (Lehman and Persinger, 2015). It may mean that the humanity participates in the changing universe that is expanding at an accelerating rate.

A minimum unit of mental force-energy, mentalon, is postulated to be the range of the reduced Planck constant energy,  $\hbar = 1.05457 \times 10^{-34}$  J·s in this study. The energy associated with an idea, thought of white light is a range of  $10^{-12}$  watt·s (Lehman & Persinger, 2015; Dotta, Saroka & Persinger, 2012b). It is suggested from a calculation that there seems to be an enormous amplification in the processes from an initial primordial spin-mediated consciousness to a final photon emission in the human brain. The amplification seems to be a close range of Avogadro's number ( $6.02 \times 10^{23}$  mole<sup>-1</sup>):

Range of  $10^{-12} / (1.05457 \times 10^{-34}) \approx$  close range of  $10^{23}$

The above calculation also suggests involvement of enormous number of qubits in quantum computation as well as multiple physical, electrical and chemical processes.

The power of the almighty Creator God's mind could have created a singularity in a Big Bang with infinite energy expressed by  $\hbar \times \square$ .

Planck, Einstein, Bohr, de Broglie, Heisenberg, Pauli, Schrödinger, Dirac and Feynman as well as Newton, Einstein, Edison and other outstanding scientists (the physical world), and Buddha, Jesus Christ, Confucius, Moses, Muhamad, Kim Hang, Yogananda and other saints in religions and philosophy (the spiritual world) were great teachers and benefactors of mankind who lived at different times of the history of humanity.

The Bible and Jeong Yeok predict the coming kingdom of heaven on Earth (the Dragon Flower Age in the Buddhist scripture) in which the humanity will be united with the Creator God (Teilhard de Chardin, 1959; Yogananda, 2004; Chung, 2009, 2010, 2015a). Science will be unimaginably advanced. A desirable economic and political society of the communal freedom democracy is presented in the ultron-logotron theory (Chung, 2013a, 2013c). The mankind of the East and West will become a family under the heaven. "Goodness will be boundless" (Kim, 1885; Chung, 2010, 2013a, 2013c). If one thing related to the universe, Nature or the humanity is really true in science that would be also true in philosophy or religions and vice versa.

The Creator God is called by different names of God, the Lord or Jehovah (Judaism), God, Father or Heavenly Father (Christianity), Allah (Islam), Hwa Ong, Hwa Moo Sang Jye or the Supreme Lord (Confucianism), Brahman (Hinduism) and Brahmā (Buddhism, Dhammapada: 230). It is truly suggested that the Holy Spirit (Christianity), the Buddha-Nature (Buddhism) and the Great Ultimate (Confucianism) are one and the same divinity and the Creator God, and that the kingdom of God (Christianity), the world of the Supreme Lord (Confucianism) and the Dragon Flower Age (Buddhism) represent the same kingdom of heaven to come as the Creator's plan, and further that Jesus Christ (Christianity) and Maitreya Buddha (Buddhism and Confucianism) are one and the same Great Teacher and Savior of the humanity who will come as the Supreme Sonto the kingdom of the Creator God. The words of Jesus Christ in the Bible, the words of Buddha in the Buddhist scripture, and the words in Jeong Yeok (Confucianism) as well as teachings of other major world religions likewise represent the truth and the Words of the Creator God. There is a remarkable and compelling agreement among Christianity, Buddhism and Confucianism.

In the studies related to the ultron-logotron theory that is primarily based on quantum physics and Confucian philosophy, the author attempted to elucidate one's own true self, Nature, relationships between mind and matter, consciousness and quantum physics or self and the universe. The nature of our inner true self (spirit), the observer in the mind-brain system is unknown except self-awareness (Seung Sahn, 1997). Further research would be needed for verification of the hypothesis of the ultron-logotron theory.

### **Conclusion**

Findings and discoveries in modern quantum physics, neuroscience and arenas of scientific researches related to consciousness are reviewed in this study. The following hypothesis concerning relationships between mind and matter in the mind-brain system, consciousness and quantum physics, self and universe is proposed on the basis of reported data and the ultron-logotron theory. In this review of the author's hypothesis of the ultron-logotron theory, the following conclusions are proposed:

- 1) A human individual is composed of the inner true self (spirit) and the physical self/body. The inner self with free will, conscience, reason, morality and creative power supervises and controls the physical self/body that is impulsive and behaves for pleasure and instinct, and would fade and disappear at death. The inner self controls the physical self/body by interacting with the prefrontal cortex of the human brain.
- 2) The beginning, current and future evolutions of modern man, *Homo sapiens sapiens* are presented as shown in Table 1.
- 3) The ultrons are the building blocks of the physical world and the logotrons are the building blocks of consciousness of mind and the spiritual world. Ultrons are constituents of leptons and quarks as described in their possible deeper structures. Electrons are composed of two particles: one electric particle composed of yin-ultron and one neutral particle composed of yin- and yang-ultrons.
- 4) Self's mind of the humanity has a power to create physical force and energy, "mentalon" at quantum levels of quantum entanglement domain in the brain. A minimum unit amount of "mentalon" energy is postulated to be the range of the reduced Planck constant-scale energy,  $\hbar$ .
- 5) The primary dynamics in mind-brain interactions seems to be the quantum spin-mediated mechanism proposed by Hu and Wu that operates in protein structures in neurons. The fundamental process in the mind-brain system seems to be quantum computation of microtubules proposed by Penrose and Hameroff Orch-OR theory.
- 6) In the mind-brain system, the self is the observer, independent from the system, consciousness and physical processes at the quantum levels. Self's conscious mind in cognition, intention and attention is associated with collapse of wave function as described by von Neumann-Heisenberg orthodox quantum theory.

- 7) There seem to be a considerable agreement between the ultron-logotron theory and Teilhard de Chardin's philosophy concerning the human species and evolutionary consciousness as well as Persinger group's theory.
- 8) There is a remarkable and compelling agreement among Christianity, Buddhism and Confucianism.
- 9) Electrons split into two particles, a neutral particle (spinon) and a particle with a negative electrical charge (orbiton) (Palus, 2017; Piazza, 2014; Paul Scherrer Institute, 2012) as predicted in the author's ultron-logotron theory (Chung, 2015b, 2017). This substructure of electron suggests that a quark is likewise composed of two separable particles, a magnetic neutral (of yin- and yang-ultrons composite) and an electrical particle (of yin- or yang-ultrons) (Shee; 2017; Chung, 2015b, 2017).

Further research would be needed for verification of the hypothesis of the ultron-logotron theory and the relationship between mind and matter, consciousness and quantum physics.

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### Legend for Figure 1

Figure 1. Feynman's spacetime diagram of interactions between "ultron" and "logotron".

a: A – Real ultron in the excited state in the neuron of the prefrontal cortex caused by incoming stimulus. C – Real ultron in the ground state after collapse of the quantum wave function when the self controls (observes). B – Virtual logotron in the ground state in the neuron of the prefrontal cortex. D – Virtual logotron in the excited state when the self observes and cognizes. M – mental-force-carrying "mentalon" exchanging between ultron and logotron.

b: A – Virtual logotron in the excited state in the self's conscious mind in the neuron of the prefrontal cortex. C – Virtual logotron in the ground state after exchanging mentalon between the logotron and ultron in the neuron. B – Real ultron in the ground state in the neuron of the prefrontal cortex. D – Real ultron in the excited state in the neuron after exchanging mentalon between logotron and ultron. M – mentalon. (see text).