On the Evolution of Humanity: View from the "Ultron"-"Logotron" Theory

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Abstract

The history of the evolution of humanity is still not clearly known in anthropology and science because of lack of concrete human data that would enable us to objectively explain it. The creationism-evolutionism debate is controversial. The evolution of humanity involves man (the self), the physical world and the universe. Findings in anthropology and modern quantum physics, and human history are reviewed in this study. On the basis of the above review, a new hypothesis concerning the beginning and future of modern man, Homo sapiens is proposed from the perspective of the author's ultron-logotron theory of self and consciousness: mind and matter.

Keywords: Evolution of Humanity, Darwin's Evolutionism Creationism, Homo Divina, Mind, Consciousness, Confucianism, I Ching, Jeong Yeok, Ultron-Logotron Theory, Probacent Model

1. Introduction

The history of the evolution of humanity is still not clearly known in anthropology and science because of lack of concrete human data that would enable us to explain it objectively (Darwin, 1859, 1874; Joseph, 2011a, 2011b; Wolpoff, 1980, 2011; Nelson, 2011; Lockley, 2011; Nani et al., 2011; Wells, 2007; Gross, 1992; Wikipedia, 2014a, 2014b). The creationism –evolutionism debate is controversial (Sonder, 1999; Joseph, 2001, 2011a; Foster, 2009).

The evolution of humanity involves man (the self), the physical world of the universe. The human self is the agent being the source of consciousness, and responsible for the thoughts of mind and actions of body of an individual, enduring through the time. It is taught in religions that the self (spirit, soul) leaves the body at death (transmigrate) in the physical world and would be born and continue to live on the Other Side, the spiritual world, implicating ontologically existence of the self (spirit entity) and non-self (the world and the universe). Consequently, scientists and philosophers have been investigating to find objective proofs related to this relationship.

1. 1. 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 "probacent"-probability equation that expresses a relationship among intensity of stimulus, duration of exposure and occurrence of response in biological phenomena (Chung, 1960, 2013a).

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 selves, naming "I Will" and "I Want" selves. The author uses the terms "inner self", "true self", "inner/super self", soul or spirit with the same meaning: counterparts of the physical self in the two selves indwelling in human individuals in his studies.

The super self is the deepest and highest part of the inner self that is divinity, the Holy Spirit (Christianity) and Buddha nature (Buddhism).

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 activities with future goals and rules (Miller and Cohen, 2001; Greene et al. 2001; Ochsner et al. 2002; Nir et al. 2013).

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 self (spirit) and the physical false self that would fade and disappear at death of the body. The inner self has free will power, cognition, reason, morality, creative power, mathematical computation, future plan and high goals, behavior control, emotion control, and memory retrieval, supervising the physical self/body that senses through sensory organ systems and responds to the external world. The inner 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. The inner self controls the physicals self/body by interacting with the prefrontal cortex of human brain.

The physical self has consciousness associated with the brain and conscious perception of stimuli originating from the external world. However, it lacks mind, no free will nor free choice. In contrast, the inner self has perception and cognition of stimuli from the external world and conscious mind with free will and free choice.

Animals have consciousness but lack mind (Nina et al. 2013; Chung, 2012, 2014a, 2014b).

Distinction in EEGs of consciousness during wakefulness and unconsciousness during sleep observed in humans that are low-level and irregular waves (20-70 Hz) vs regular, slow and high amplitude waves (less than 4 Hz), are demonstrated in all mammalians, insects and birds studied (Nani, 2011). This finding suggests that animals have consciousness without mind.

One case of the most famous patient in the history of neuropsychology, Phineas Gage who was a railroad constructor, damaged his prefrontal cortices in an explosive accident made neuroscientists find enormous valuable information on the prefrontal cortices for human knowledge (Sapolsky, 2004; Gusnard, 2009). The selective destruction of the Gage's prefrontal cortex transformed Gage from a taciturn reliable foreman in railroad construction crew to a coarse, disinhibited, unstable individual who was never able to work (McMillan, 2000; Sapolsky, 2004).

In Alzheimer's disease, if advanced and severe, the inner self cannot interact with and/or control the physical self because of pathologic changes in the brain (Richards & Sweet, 2009). This suggests independent existence of the inner self being away from the physical self/body.

Scientific relationships and interactions between self and consciousness: mind and matter in the neurons of the prefrontal cortex are not clearly understood (Penrose, 2007; Penrose, Hameroff & Kak, 2011; Gusnard, 2007; Bohm, 2006).

1. 2. Quantum Physics

All physical processes in the physical world are based on particles and forces (Hawking, 1996). All particles are in fact waves (Hawking, 1996; 2001).

A wave-particle duality of electron proved by Tomas Young and Richard Feynman's double-split experiments has not been explained (Aczel, 2003; 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. Contents of consciousness are called by Bohm "information". The author names "information" "logotron" in this study (Greek: logos).

1. 3. Precognitive Dreams

The author had unusual precognitive dreams during the World War II and the Korean War that saved not only the author but also other people. Information received in the precognitive dreams of future events that took place in reality was verified as true (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 2011c). Precognitions of future events are well described in religions (the Bible, the Buddhist scripture).

The author's personal experience could have important scientific and philosophical implications, suggesting the work of the author's inner self and further to reveal a possible glimpse into an unknown, timeless and nonlocal consciousness world, i.e. the spiritual world (Chung, 2009, 2012, 2014a).

1. 4. Quantum Entanglement

Alain Aspect and his coworkers in 1980s, Nicholas Gisin in1997, and Andrew Watson 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). The instantaneous influence between two electron twins violates the speed of light according to Einstein's theory of relativity. The phenomenon of entanglement proves that the EPR paradox theory of locality is incorrect and quantum theory of non-locality is correct (John Bell's theorem; Aczel, 2003). The EPR paradox theory of Einstein, Podolsky and Rosen holds the principle of locality that what happens in one local place does not immediately affects what happens in another local place in space. The EPR theory objects to instantaneous faster-than-light transmission of physical effects between two objects such as photons and electrons at a distance ("spooky action at a distance") that can be observed in entanglement and non-locality in quantum physics,

Entanglement phenomena are experimentally observed (Aczel, 20003; Penrose, 2007; Penrose, Hameroff & Kak, 2011; Laszlo, 2007). In the ultron-logotron theory of the author (Chung, 2014a, 2014b), entanglement seems to be explainable by a process of instantaneous influence between two entangled virtual 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.

Interactions between self and consciousness: mind and matter are not clearly understood in science and philosophy. There seem to be, to my knowledge, no articles in the literature that clearly explain the relationship between self and consciousness: mind and matter.

1. 5. Self and Consciousness: Mind and Matter (The Ultron-Logotron Theory)

The author reviewed modern quantum physics and the Eastern Confucian philosophy.

"1. 5.1."Ultron", 極子

Table 1 shows comparison of characteristic aspects of the ultor-logotron theory and quantum physics. Basic elementary particles, ultrons, $\overline{\text{W}}$? would be analogous to strings of string theory. The ultrons are the building blocks of matter of the physical world. It is postulated that the yin- and yang-ultrons were created in the Big Bang like basic elementary particles, quarks and electrons were created (Hawking, 1996). The yang- and yin-particles are positively and negatively charged, respectively. Movements of ultrons in Confucian philosophy are join, movement, stillness, advance, retreat, expansion and contraction. Movements of strings in quantum physics are split, fusion, break, pinch, join, spin and oscillation.

Findings in quantum physics are postulated to be applicable to the ultron. 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 and antiparticle emerges in it., causing materialization of real particle and antiparticle, creating matter. The author infers that when a matter and antimatter collide and disappear, becoming a virtual matter and antimatter, consciousness in the excited state in each of the pair would become a virtual consciousness in the ground state. Consequently, particles of matter seem to have a triple property of particle, wave and consciousness (David Bohm, 2006).

If a mental force is presumably created by the self, it will strike the regional space that could trigger and excite virtual consciousness in the ground state to become consciousness in the excited state, creating conscious mind (Chung, 2014a, 2014b).

Mind and matter are interrelated and interconnected (Capra, 1999; Chung, 2009, 2014a, 2014b). The space is a common working place for the inner/super self and the physical self of human individuals whose self is composed of the inner/super self and the physical self/body (Chung, 2009, 2014a, 2014b)

The deeper structure of quarks and electrons is not experimentally observed (Hawking, 1996). They might be composed of yin- and yang-ultrons.

1.5.2. "Logotron", 言子

Table 2 shows comparison of characteristic aspects of "ultrons" and "logotrons" that is described by David Bohm in his quantum theory as information ("logotron", earrow = 7). Logotrons in this 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.

Logotrons are virtual particles, massless, of a triple property of particle, wave and consciousness, possessing force, and having property of spreading as quantum virtual particle (LM) waves as well as remaining at an original regional point in the nonlocal, holographic space-time with infinite capacities of storage. Virtual quantum logotron-mentalon (LM) wave transmission, if emitted from the logotron, is postulated to be instantaneous in the nonlocal holographic space. Mentalon is mental-force-carrying virtual wave and postulated to be inherent to logotrons.

Extrasensory perception (ESP) of telepathy, clairvoyance, remote viewing (RV), and out-of-body experience (OBE) are explainable by quantum holographic (QH) model (Mitchell and Staretz, 2011; Aczel, 2003; Radin, 1997; Chung, 2014b).

In the ultron-logotron theory, ultrons are created from logotrons (information). Virtual particles produced by annihilation of matter are in essence virtual logotrons that are primary creation of the Cosmic Mind of the Cosmic Consciousness occurring in the timeless and nonlocal space-time. Consequently, all things of the universe, ultrons of matter are secondary creation from logotrons of Cosmic Mind. The four known forces, gravitational force, electromagnetic force, and weak and strong nuclear forces are postulated to be different manifestations (contact forces) of mental force, mentalon that is inherent to logotrons, suggesting that particles and forces in the physical world are in essence products of logotrons. The inference in the ultron-logotron theory seems to possibly lead to the Theory of Everything (ToE) that has been long sought by physicists, scientists and philosophers. All things are created by mind (Buddha's teaching) and the Word (the Bible, John 1:1-3).

The empty space is postulated to be not void but filled with invisible and intangible energy and force, virtual ultrons and logotrons (virtual matter and consciousness), further infinite power and love of the Creator God. Virtual logotrons are expressed as Words in religions. It is said in the Bible (John 1:1-3), "In the beginning was the Word, and the Word was with God, and the Word was God. The same was in the beginning with God. All things were made by him; and without him was not anything made that was made." There seems to be an agreement between the Bible and the ultron-logotron theory. Vedral's view (2010) describes that "the universe starts empty but potentially with a huge amount of information"; "everything in reality is composed of information" (the author's note: information is logotron in the current study). The ultron and logotron coexist in particles in superposition state so that particles have a triple property of particle, wave and consciousness (Table 1 and 2).

The beginning subject of the Jeong Yeok, the Book of Right Change (Kim, 1885) is "10 and 5 and 1 Word". In Confucian philosophy, 10 represents the Non-Ultimate, the Creator God, 5 the Emperor Ultimate (the author's note: the Son of God) and 1 the Great Ultimate (the author's note: the Holy Spirit, the power of God). There seems to be an agreement between the Confucian philosophy and the ultron-logotron theory as well as Christianity in terms of the Word, "logotron".

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 (0) 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

Table 1: Comparison of Characteristic Aspects of the "Ultron"-"Logotron" Theory and Quantum Physics

Table 2: Comparison of Postulated Characteristic Aspects of "Ultron" and "Logotron"

Characteristic	Ultron	Logotron aspects	
			Element of
Physical matter	Conscious mind		
Nature	Physical	Conscious (spiritual)	
Creation	Created by the Creator	Created by the Creator and co-creator (man)	
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)	(Instantaneous)	

On the basis of the above review and author's personal experiences of valid precognitive dreams, a hypothesis of the following "ultron"-'logotron" theory is proposed (Chung, 2014a, 2014b):

- 1) Valid and undeniable precognitive dreams of the author's personal experiences and quantum entanglement strongly suggest the inner self's potential power transcending the time phases of the past, present and future, and existence of a timeless, nonlocal and holographic consciousness world of reality.
- 2) The "ultrons" are building blocks of matter of the universe. The "logotrons" are the building blocks of consciousness of human mind. 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 superpositioned to particles of matter.

- 3) Entanglement could be explained by mental-force-carrying mentalon that exchanges between two entangled virtual quantum logotrons in particles or in conscious mind and logotron in particles of matter at quantum levels.
- 4) Valid and undeniable precognitive dreams and experimentally accepted entanglement in quantum physics seem to provide concrete human data that might possibly explain a scientific relationship between self and consciousness: mind and matter.
- 5) There seem to be parallels between the "ultron"-"logotron" theory and quantum physics from ontological perspective, 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.

Bruce Greyson (2011) describes near-death-experiences (NDE) occurring under conditions of general anesthesia and/or cardiac arrest resulting in loss of vital function, absence of cardiac output, absence of respiration and absence of brainstem reflexes of three major clinical signs of death. NDE includes a sense of being out of one's physical body, watching events in the operating room, encountering other deceased people etc. NDE indicates continuation of mental function under extreme conditions of non-functioning heart and brain, strongly suggesting the human inner self existing independently from the brain-body.

It has been found in psychiatry and neuroscience studies that the cognitive therapy (CT) and the cognitive behavioral therapy (CBT) are effective in patients with depression, anxiety and insomnia resulting from the abnormal hyperactive limbic system (amygdala and hippocampus) and hypoactive prefrontal cortex (PFC) as the cause of these psychiatric disorders. In CT and CBT, the inner self of patients willfully redirect their thoughts that result in changes and normalization of the abnormal states of the limbic system and the PFC, suggesting that the inner self of patients controls the physical self/brain (Beck, 1967, 2008; Disner et al., 2011; Nir et al., 2013; Yoon et al., 2008). CT and CBT seem to strongly suggest conscious mind of the inner self, and consciousness without mind of the physical self/brain proposed by the ultron-logotron theory as a hypothesis.

1. 6. Cloning

About two dozens of different animal species such as carp, cat, cow, horse, mice, Rhesus Monkey etc. have been cloned since the first lamb, Dolly, had been created in Scotland from an adult somatic cell of sheep in 1996 (Harris, 2005; Klotzke, 2011; McGee, 2011). Hwang (2005) cloned the first dog; since many dogs have been cloned in South Korea.

In cloning, copies of DNA are created. It seems to the author that cloned and uncloned animals have consciousness of the physical self/brain without mind. They do not think nor speak as humans do with inner self abiding within the brain (Nelson, 2011).

1.7. Anthropology

Homo erectus, predecessor to Homo sapiens appeared 1.9 million to 500,000 years ago (Joseph, 2011a; Wikipedia, 2014d). Homo predecessor to Homo sapiens is estimated to have emerged 2.3 million to 1.5 million BP based on archeological evidence. Genus Homo includes Homo habilis, Homo ergaster, Homo erectus, Homo hedelbergensis, Homo denisova, Homo neanderthalensis and Homo sapiens.

On the basis of archaeological specimens of fossilized skull and other parts of body and mitochondrial (mt) DNA, Homo sapiens emerged in Africa 200,000 years ago and in Middle East over 90,000 - 85,000 years ago, and then spread throughout the world (Joseph, 2011a; Nani, 2011; Wikipedia, 2014a, 2014b, 2014g; Freeman, 2008; Wells, 2007; Gross, 1992). DNA sequences suggest that the population split of Neanderthal and modern human ancestors occurred 270,000-440,000 years ago (Reich et al., 2010).

Rhawn Joseph (2011a) describes that "complex mortuary rituals and belief in the transmigration of the soul, of a world beyond the grave (spiritual consciousness) have been a human character for at least 100,000 years."

Neanderthals are found first in Germany. They did not have language nor symbolic expressions (Joseph 2011b; Nelson, 2011b) which only emerged with the evolution of modern Homo sapiens. Neanderthals died out 41,000-39,000 BP (Wikipedia, 2014a).

The Cro-Magnon, anatomically modern Upper Paleolithic Homo sapiens had its greater skull than Neanderthals with the evolution of the frontal lobe and appeared in Middle East 100,000 years ago.

Homo sapiens developed large prefrontal cortex (PFC) and the language gene, FOXP2 (Joseph 2011b; Wikipedia, 2014b, 2014e; Zhang et al, 2002; Enard et al., 2002; Bolles, 2011).

Interbreeding between Neanderthals and Homo sapiens is controversial among investigators (Wikipedia 2014b).

Human evolution is from unicellular life, fish-like life, vertebrates, mammals to human species. Human ontogeny recapitulates phylogeny of human evolution (Lockley, 2011)

The history of the evolution of humanity is still not clearly known in anthropology and science. The creationismevolutionism debate is still controversial. There seem to be, to my knowledge, no articles in the literature that clearly explain the history of evolution of humanity.

In this study, the evolution of humanity is investigated and an attempt is made to explain it.

- (1) Findings and discoveries in anthropology are reviewed (Joseph, 2001, 2011a, 2011b; Darwin, 1859, 1874; Wolpoff, 1980, 2011; Nelson, 2011; Lockley, 2011; Nani et al. 2011; Sonder, 1999; Wells, 2007; Wikipedia 2014a, 2014b, 2014c, 2014d; Zhang et al., 2002; Enard et al., 2002; MacAndrew, 2014, Freeman, 2008; Gross, 1992).
- (2) Findings and discoveries in modern quantum physics and other relevant science in arena of mind and matter are reviewed (Hawking, 1996, 2001; Nichol, 2006; Bohm, 2006; Penrose, Hameroff & Kak, 2011).
- (3) Major religions and human history are reviewed.

The evolution of humanity is investigated from the perspective of the author's hypothesis of the "ultron"-"logotron" theory (Chung, 2014a, 2014b).

2. Results

Table 3 shows four stages of the evolution of humanity, Homo, Homo sapiens, Homo sapiens sapiens and Homo divina. Genus Homo is postulated to have appeared 2.3 million to 1.5 million years ago. Homo includes Homo habilis, Homo ergaster, Homo erectus, Homo heidelbergensis, Homo denisova, Homo neanderthalensis and Homo sapiens (Wikipedia, 2014g). The predicessors to Homo sapiens were brute man and presumably had the physical self/body with consciousness associated with their brain but no mind as not seen in cloned and uncloned animals, and belong to animals but not to modern human, Homo sapiens (subspecies).

Homo sapiens is postulated to split from Homo neanderthalensis 200,000 years ago. They had enlarged frontal and temporal lobes, further the prefrontal cortex (as suggested by the vertical forehead and slight brow ridge of the skull of Homo sapiens) as well as the language gene, FOXP2 that other animals lack (Zhang et al., 2002; Enard et al., 2002; MacAndrew, 2014, Bolles, 2011; Wikipedia, 2014e). Homo sapiens appeared in different parts of continents of Earth, Africa, Europe, Asia and Australia (Joseph, 2011a; Haywood, 1995; Wells, 2007; Wikipedia, 2014a, 2014b).

Recent research results on DNA extracted from bone samples indicate that Neanderthals [Krause et el., 2007] and a hominin group from Denisova Cave in Siberia [Reich et al., 2010] had the same FOXP2 gene as modern humans. These research findings indicate that the language gene, FOXP2 evolved in a hominin group before divergence between Neanderthals and Homo sapiens, and thereafter transmitted to present-day modern humans, Homo sapiens sapiens. [Krause et al., 2007; Reich et al., 2010; Wikipedia, 2014e, 2014f].

The author postulates that the human soul (the inner/super self, the human spirit entity) transmigrated to Homo sapiens from the spiritual world to the physical world and abided in the body of Homo sapiens. The earliest bodily incarnation of individual spirit(s) is postulated to have taken place 120,000 years ago. It is inferred that human spirit entities (sons of God) were sent by the Creator God to Homo sapiens on Earth when Homo sapiens sufficiently evolved and became ready for human spirit entities to incarnate and be born as humans. Soul-incarnated modern man, Homo sapiens sapiens with the inner/super self (true self) and the physical self/body (false self) is inferred that they had capabilities of thinking and speaking; Homo sapiens sapiens most likely appeared in Africa 120,000 years ago, and thereafter spread to Europe, Asia, Australia and Americas throughout the world

(Joseph, 2011b; Krajenke, 2012; Chung, 2014a, 2014b; National Geography Society, 2008; Wells, 2007; Haywood, 1995; Gross, 1992).

Homo sapiens is postulated to be the human ancestor. Neanderthals, the brute man is not the human ancestor.

Since 5,000 BP when early civilizations had been developing on Earth (Janson, 1971; National Geographic Society, 1985; Haywood, 1995), Bhagavan Krishna, Fu Hsi, Buddha, Confucius, Jesus Christ and other enlightened saints came and taught the humanity (Yogananda, 2004; Mascaro, 2003; Chung, 2010). The author infers that Homo divina began 5,000 BP and will continue in the future evolution of humanity.

 Table 3: The Evolution of Humanity: Comparison of Stage, Time of Emergence in Evolution and Corresponding Human (Self) Based on the Ultron-Logotron Theory (Chung, 2014a, 2014b)

Stage	Humanity	Time ^a	Self
1	Homo ^b (genus)	2.3 - 1.5 million BP	The physical self/body
2	Homo sapiens (species)	200,000 BP	The physical self/body
3	Homo sapiens sapiens ^c (subspecies)	120,000BP	The physical self/body and the inner self
4	Homo divina ^d	5,000 BP	The physical self/body and the super self

a: Time is estimated based on reports in anthropology (Joseph, 2011a, 2011b, Wikipedia, 2014a-g)

b: Homo habilis, Homo ergaster, Homo erectus, , Homo heidelbergensis, Homo denisova and Homo neanderthalensis, predecessor to Homo sapiens are included (Wikipedia, 2014g).

c: The earliest transmigration (incarnation) of human spirit entities (the inner/super self) in Homo sapiens and then modern humans, Homo sapiens sapiens emerged. This evolution is postulated to have taken place 120,000 years ago (see text).

d: Divine man will continue to come to Earth in the future evolution (see text).

Table 4 shows postulated analogous comparison of man, the universe and the Creator. Individual man is composed of the super/inner self (true self, soul) and the physical self (false self)/body (Chung, 2009, 2012, 2014a). The universe is postulated to have the physical world and the consciousness world that is the Cosmic Consciousness (mind).

The Creator, the Self is omniscient, omnipotent and omnipresent. He is inferred to have the Cosmic Consciousness (mind) that is analogous to the conscious mind of man, the co-creator of the Creator God. The Creator is the source of the human inner/super self. The deepest and highest part of the inner self is called the "super self". The super self represents the Great Ultimate in Confucianism, the Holy Spirit in Christianity and Buddha nature in Buddhism (Chung, 2009, 2012).

The inner/super self is the true self of an individualized spirit entity and possesses conscious mind and inferred to be immortal as a son of Creator God. The physical self is the false self and possesses consciousness but lacks mind (Chung, 2012, 2014a). The physical world is analogous to the physical body of man (Chung, 2014a).

Table 4: Postulated Analogous Comparison of Man, the Universe and the Creator Based on the Ultron-
Logotron Theory (Chung, 2014a, 2014b)

Man ^a		The universe	The Creator
The ultron-logotron theory	Hinduism (Buddhism)		
Super self ^b	Causal body (True body)		The Creator (The Self)
Inner self ^c	Astral body (Bliss body)	Cosmic Consciousness	Cosmic Consciousness
Physical self/body ^d	Physical body (Physical body)	Physical world	Physical world

a: Man is individualized spirit entity, co-creator.

b: Divinity, the Holy Spirit, Buddha nature.

- c: Inner self has conscious mind and is true self (see text)
- d: Physical self has consciousness but no mind.

3. Discussion

Table 3 reveals four stages of the evolution of humanity based on review of recent findings in anthropology and human history.

Kim Hang (1885) wrote the Book of Right Change, Jeong Yeok 正易 (Kim, 1885; Chung, 2010). He was a great Korean scholar and an enlightened master of Confucianism, Buddhism and Taoism. He saw extraordinary symbols of the coming new world in his vision after eighteen years of hard study and meditation. He is said to complete Confucianism teachings, the I Ching, the oldest Chinese philosophy book (Chung, 2009, 2010, 2014b; Yi, 1992). According to Jeong Yeok, the year, 1884 A.D. is Bango 盤古 118,643 year, suggesting the human history (Chung, 20010, 2014b). Bango 盤古 is the human ancestor in mythology (Yuan Ke, 1950).

Current theory in the human evolution holds that the modern human, Homo sapiens sapiens migrated from Africa to the Middle East about 120,000 years ago [National Geography Society, 2008; Wikipedia, 2014b).

Archeological evidence of anatomically Homo sapiens suggests that early modern humans, Homo sapiens sapiens appeared approximately 135,000 years ago [Haywood]; common modern rituals and belief in the transmigration of the soul after death characteristic to a human suggest that the human ancestor lived at least 100,000 years ago [Joseph, 2011a].

If an approximate middle year between 135,000 and 100,000 years of the two above estimates is taken, surprisingly, there seems to be a close agreement between the estimated year, 118,000 years ago of first appearance of the Homo sapiens sapiens, modern man, and the beginning year, 118,643 year before 1884. A. D. of the human ancestral history that is described in Jeong Yeok (Kim. 1884).

Table 4 shows analogous comparison of man, the universe and the Creator from the perspective of the ultronlogotron theory. Man, the self seems to be a micro-cosmos corresponding to the Macro-Cosmos of the Creator, the Self.

It is postulated that each of different animal species, fish, amphibians, birds, mammalians, apes and human species have evolved along different evolutional lineages (Sonder, 1999). Human ancestors seem to have evolved from Homo sapiens that emerged from the Hominid-Homo evolutionary linage.

Transmigration of human spirit entity (the inner/super self) from the spiritual world to the human body of the physical world would correspond to birth of a human and called incarnation. A human spirit would leave the body at death. If a same spirit entity incarnates again in a human body will be called reincarnation.

Reincarnation is well described in Buddhism and Hinduism. In Christianity, life after death is much taught compared to incarnation or reincarnation.

Speed of light in the physical world is maximum 186,000 miles/second according to Einstein's theory of relativity. In contrast, speed of transmission of logotron in entanglement, in the Cosmic Consciousness, the spiritual world is instantaneous (∞ miles/sec) according to the ultron-logotron theory.

Time in the physical world is limited and measurable. However, time in the spiritual world is timeless, unlimited and instantaneous. It seems to the author that the above relationship might be symbolically and mathematically imaginable as follows:

A logarithm with a base of 1 is used.

 $Log_{1} 1^{0} = 0$ $Log_{1} 1^{1} = 1$ $Log_{1} 1^{2} = 2$ $Log_{1} 1^{3} = 3$ $Log_{1} 1^{n} = n$ $Log_{1} 1^{\infty} = \infty$

Therefore, $0 = 1 = \infty$. As David Bohm said, "All is in one; one is in all". The Creator is immanent and transcendent (Chung, 2010, 2014b). The universe is in a dust; the eon is in a moment (Dalai Lama, 2005).

The author would like to call the above mathematics "mononary" system that seems to be valid and applicable in the spiritual world as the binary system used in computer science is applicable in the physical world.

If this is true, the following might be possible in the spiritual world.

1 day = 1 year = 1 million years = 1 billion years

6 days = 13.8 billon years (age of the universe in creation in the Bible and quantum physics).

The 6-days creation of the universe in the Bible (Genesis 1:1-31) could not be literally interpreted but be understandable with the "mononary" system. The Bible should be interpreted in a way that it does not contradict modern science (Pope John Paul II, 1992, 1996; Firestone, 2014). Pope Francis (2014) said that the Darwinian evolution is real, and so is the Big Bang.

It seems to possibly state that the creationism based on the Bible might be applicable in the realm of the inner/super self (spirit, the true self) of man and the Creator. Darwin's evolutionism is applicable in the realm of the physical self/body of man and the physical world (Chung, 2010). Both the creationism and evolutionism seem to be correct descriptions, each explaining specific different aspects of the universe.

Virtual particles of matter of the physical world are postulated to be in essence virtual logotrons (information) that are archetype of real particles of matter. All things of the universe are created by the Word of the Creator God (the Bible), the Cosmic Consciousness (mind). The universe is created from "nothing" i.e. by mind (Buddhism, Hinduism), suggesting validity of the creationism (Chung, 2014b; Vedral, 2010).

It is inferred that the Creator knows solutions of probabilities of exact movements (or developments) of all things of the universe. And he has his plan and goals for the humanity as well as all other things of the universe. He guides the evolution of the universe as well as the humanity since its creation (from a Big Bang) that appears to be controlled by natural selection adapting to the environmental changes, and by genetic mutation. The guide is invisible and changes in the evolution appear random to mortal humans. Consequently, the theory regarding the evolution of the humanity and the universe is controversial. Natural laws in the physical world seem to ultimately lead to realization of the Creator's plan and goals.

If the omniscient and omnipotent Creator God and miracles performed by Jesus Christ and other saints in the human history as well as the ultron-logotron theory are accepted as true, the guidance of the Creator in the evolution of humanity would be likewise acceptable as true by understanding in a way, for example, that in case of a language gene, FOXP2 present only in humans, not in nonhumans, the Creator could introduce mutation by changing DNA in a gene of nonhumans that would produce a 2-amino-acid (Asn and Ser)-codons-substituted FOXP2 gene to be inherited to modern human, Homo sapiens sapiens (Zhang et al., 2002; Bolles, 2011; Adam, 2006).

The purpose of human life on Earth, the human incarnation and reincarnation is inferred to be to have education, experience, service in loving God and neighbors, practice of prayer and meditation for spiritual advancement to enlightenment and becoming united with our Creator God (John 14:10-14) as shown in their exemplary lives and teachings of Jesus Christ, Buddha, Confucius, Kim Hang, Muhammad, Moses and other enlightened saints in the human history (Yogananda, 2004; John 10:34). Major world religions teach virtually same things as above described. In this way, Homo sapiens sapiens would become Homo divina.

According to Rhawn Joseph (2011b), "more than 90% of human DNA is dormant and silent and as tens of thousands of silent genes have yet to be expressed. Human evolutionary metamorphosis will likely continue into future. Psychic abilities like ESP and highly increased sensitivities of sense organs would be expectable." "The humans of the future have the evolutionary and genetic potential to be as "gods"." (Joseph, 2011b; John 10:34, 14:10-14).

Science and technology would advance and accomplish unimaginable discoveries for human needs and convenience (Kaku, 2008; Franklin, 2012). Confucius whom Kim Hang admired and respected, calling him an eternal teacher of ten-thousand generations. Both Confucius (the I Ching) and Kim Hang (Jeong Yeok) predicted the coming kingdom of heaven and then a year of 360 days without leap years, and with mild climate throughout the year. It is suggested that the East and the West would unite and there would be boundless goodness.

Kim Hang wrote that right human relationships of three thousand proprieties 禮 (li) and one righteousness 義 (yi); and beautiful music 樂 (yuè) will prevail in the coming world and bring peace and harmony (Chung, 2010, 2013b; Yi, 1992). Kim Hang said that he wrote the Word of the Creator God that was told him, in his book, Jeong Yeok 正易, and it was time and order (Chung, 2010, 2014b).

Jesus Christ and Kim Hang predicted the coming of the kingdom of heaven in Earth. The human society would become an unimaginable heavenly society (Chung, 2009, 2012; 2013b; Yi, 1992).

The ultron-logotron theory of self and consciousness: mind and matter is based on quantum physics and Confucian philosophy. Confucianism represented by Confucius and Kim Hang upholds moral and religious values as the supreme goal in human lives as other major religions, Christianity, Buddhism, Islam, Judaism and Hinduism teach. It may be inferred that the universe (matter) was created in the Big Bang 13.8 billion years ago, and modern man, Homo sapiens sapiens appeared on Earth with the transmigration of human spirit entity (mind) in the physical self/body of Homo sapiens 120,000 years ago, and that the kingdom of heaven of our Creator God will come to Earth, the world of Homo divina in the future.

Further research would be needed for the verification of the evolution of humanity described in this study.

4. Conclusion

Findings and discoveries in anthropology and modern quantum physics related to the evolution of humanity are reviewed in this study. The following hypothesis regarding the evolution of humanity is proposed on the basis of findings in anthropology, human history, and the author's hypothesis of the "ultron"-"logotron" theory (Chung, 2014a, 2014b):

- (1) There seem to be four stages in the evolution of humanity: Homo, Homo sapiens, Homo sapiens sapiens and Homo divina.
- (2) In Genus Homo, predecessors to Homo sapiens 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, modern man seems to have taken place in Africa 120,000 years ago.
- (4) Homo sapiens seems to be the human ancestor in the evolution.
- (5) According to Jeong Yeok 正易, the year 1884, A.D. is Bango 盤古 118,643 year, suggesting the dating of the beginning history of humanity.
- (6) The evolutionism and creationism seem to be correct descriptions of the evolution of humanity and the universe for each theory describes different aspects of the humanity and the universe in their evolutions.

Further research would be needed for verification of the above hypothesis regarding the evolution of humanity proposed from the perspective of the author's ultron-logotron theory.

References

Aczel, A. D. (2003). Entanglement. New York: Plume..

Adam, (2006). The Path of the Dream Healer. New York: Dutton.

- Beck, A. T. (2008). The Evolution of Cognitive Model of Depression and its Neurologic Correlations. American Journal of Psychiatry, 165, 969-977.
- Bohm, D. (2006). Wholeness and the Implicate Order. New York: Routledge.
- Bolles, E. B. (2011). Babel's Dawn: A Natural History of the Origins of Speech. Berkley, CA: Counterpoint.
- Capra, F. (1999). The Tao of Physics. Boston, MA: Shambhala.
- Chung, S. J. (1960). Studies on a Mathematical Relationship between Stress and Response in Biological Phenomena. Journal of the National Academy of Sciences, Republic of Korea, 2, 115-162.
- Chung, S. J. (1995). Formulas Expressing Life Expectancy, Survival Probability and Death Rate in Life Table at Various Ages in US Adults. International Journal of Biomedical Computing, 39, 209-217. 111
- Chung, S. J. (2009). Seeking a New World: A New Philosophy of Confucius and Kim Hang. Bloomington, IN: iUniverse.
- Chung, S. J. (2010). The Book of Right Change, Jeong Yeok 正易: A New Philosophy of Asia. Bloomington, IN: iUniverse.

- Chung, S. J. (2012). The Science of Self, Mind and Body. Open Journal of Philosophy, 2, 171-178. http://www.scirp.org/journal/ojpp
- Chung, S. J. (2013a). Mathematical Relationship of "Probacent"-Probability among Exogenous Stressor, Stress and Response in biological Phenomena. International Journal of Education and Research, 1. 1-32. http://www.ijern.com/journal/September-2013/01.pdf
- Chung, S. J. (2013b). Economic Relationship among Self, Society and Nation. International Journal of Asian Social Science, 3, 622-644. [Online Available]. http://www.aessweb.com/pdf-files/622-644.pdf
- Chung, S. J. (2014a). Self and Consciousness: Mind and Matter. International Journal of Education and Research, 2, 1-28. [Online Available]. http://www.ijern.com/journal/March-2014/35.pdf
- Chung, S. J. (2014b). Parallels between Confucian philosophy and quantum physics. Open Journal of Philosophy, 4, 192-206. [Online Available]. http://www.scirp.org/journal/ojpp
- Darwin, C. (1859). On the Origin of Species. The Illustrated Edition, D. Quammen (2008). New York: Sterling Publishing Company.
- Darwin, C. (1874). The Descent of Man. New York: Prometheus Books.
- Disner, S. G.; Beeves, C. G.; Haigh, E. A. P. & Beck, A. T. (2011). Neural Mechanics of Cognitive Model of Depression. National Review of Neuroscience, 12, 467-477.
- Enard, W.; Prveworski, M.; Fishe, S. E.; Lai, C. S. Wiebe, V.; Kitano, T.; Monaco, B. P. & Pääbo, S. (2002). Molecular Evolution of FOXP2, a Gene Involved in Speech and Language. Nature, 418, 869-872.
- Foster, C. (2009). The Selfless Gene: Living with God and Darwin. Nashville, TN: Thmas Nelson.
- Franklin, D. (2012). Megachange: The World in 2050. Hoboken, NJ: John Wiley & Sons.
- Freeman, S. (2008). Biological Science. (3rd ed.). New York: Pearson.
- Greyson, B. (2011). Cosmological Implications of Near-Death Experiences. InConsciousness and the Universe (pp. 389-402). Cambridge, MA: Cosmology Science Publishers.
- Gross, D. R. (1992). Discovering Anthropology. Mountain View, CA: Mayfield Publishing Company.
- Gusnard, D. A. (2009). Basic science of self. In B. J. Sadock, V. G. Sadock & P. Ruiz (Eds.) Kaplan and Sadock's Comprehensive Textbook of Psychiatry (pp. 353-363). New York: Lippincott Williams & Wilkins.
- Harris, N. (2005). Cloning. Farmington, MI: Greenhaven Press.
- Hawking, S. (1996). A Brief History of Time. New York: Bantum Books.
- Hawking, S. (2001). The Illustrated a Brief History of Time, New York: Bantum Books.
- Haywood, J. (1995). The Illustrated History of Early Man. Ne York: SMITMARK Publishers Inc.
- Hwang, W. S. (2005). List of Animals that have been cloned. [Online Available].
- Janson, H. W. (1971). A Basic History of Art. New York: Harry N. Abrahams Inc.
- Joseph, R. (2001). The Limbic System and the Soul: Evolution and the Neuroanatomy of the Religious Experience. Zygon: The Journal of Religion and Science, 36, 105-136.
- Joseph, R. (2011a). Evolution of Paleolithic Cosmology and Spiritual Consciousness, and the Temporal and Frontal Lobes. In R. Penrose, S. Hameroff & S. Kak (Eds.), Consciousness and the Universe (pp. 631-682). Cambridge, MA: Cosmology Science Publishers.
- Joseph, R. (2011b). Evolution of Consciousness in the corners of the Corner of the Cosmos. In R. Penrose, S. Hameroff & S. Kak (Eds.), Consciousness and the Universe (pp. 1026-1060). Cambridge, MA: Cosmology Science Publishers.
- Joseph, R. (2011c). Dreams and Hallucinations: Lifting Veil to Multiple Perceptual Realities. In Consciousness and the Universe (pp. 516-550). Cambridge, MA: Cosmology Science Publishers.
- Kim, H. (1885). Jeong Yeok. 金恒, 正易, 정역. The original Chinese text with Text Translated in Korean by Jeong Ho Yi (1990). Seoul: The Asian Culture Press.
- Klotzko, A. J. (2001). The Cloning Sourcebook. New York: Oxford University Press.
- Krajenke, R. W. (2012). Edgar Cayce's Story of the Bible.. Virginia Beach, VA: A. R. E. Press.
- Krause, J., Fox, C., Lalueza-Fox, C., Orlando, L., Enard, W., Green, R. E., Burbano, H. A., Hublin, J. J., Hänni, C., Fortea, J., de la Rasilla, M., Bertranpetit, J., Rosa, A., Pääbo, S. (2007). The derived FOXP2 variant of modern humnas was shared with Neanderthals. Current Biology, 17, 1908-1912.
- Laszlo, E. (2007). Science and the Akashic Field. Rochester, VT: Inner Traditions.
- Lockley, M. (2011). The evolution of human consciousness: Reflections on the discovery of mind and the implications for the materialist Darwinism Paradigm. In R. Penrose, S. Hameroff & S. Kak (Eds.) (pp.713-721). Cambridge, MA: Cosmology Science Publishers.

MacAndrew, A. (2004). FOXP2 and the Evolution of Language.

- http://www.pnas.org/cgi/reprint/0503739102v1.pdf
- MacMillan, M. (2000). An old kind of fame: Stories of Phineas Gage. Cambridge MA: MIT Press.
- Mascaro, J. (2003). The Bhagavad Gita. New York: Penguin Books.
- McGee, G. (2000). The Human Cloning Debate. (2nd ed.). Berkeley, CA: Berkeley Hills Books.

McGonigal, K. (2012). The Willpower Instinct. New York: Avery.

- Miller, E. K. & Cohen, J. D. (2001). The Integrative Theory of Prefrontal Cortex Function. Annual Review of Neuroscience, 24, 167-202.
- Mitchell, E. D. & Staretz, R. (2011). The Quantum Hologram and the Nature of Consciousness. In R. Penrose, S. Hameroff & S. Kak (Eds.), Consciousness and the Universe (pp. 933-965). Cambridge, MA: Cosmology Science Publishers.
- Nani, A.; Eddy, C. M. & Cavanna, A. E.(2011). The Quest for Animal Consciousness. In R. Penrose, S. Hameroff & S. Kak (Eds.), Consciousness and the Universe (pp.759-772). Cambridge, MA: Cosmology Science Publishers.
- National Geographic Society (1985). Mysteries of The Ancient World. Washington, D. C.: National Geographic Society.
- National Geography Society (2008). 1000 Events that Shaped the World (pp. 18-19). Washington DC: National Geography Society.
- Nelson, K. R. (2011). Do other species express spirituality. In R. Penrose, S. Hameroff & S. Kak (Eds.), Consciousness and the Universe (pp. 682-686). Cambridge, MA: Cosmology Publishers.
- Nichol, I. (2006). The Essential David Bohm, New York: Routledge.
- Nir, Y.; Massini, M.; Boly, M. & Tononi, G. (2013). In A. E. Covanna et at. (Eds.) Neuroimaging of Consciousness. (pp. 133-182). Berlin: Springer-Verlag.
- Penrose, R. (2007). The Road to Reality: A Complete Guide to the Laws of the Universe. New York: Vintage Books.
- Penrose, R. & Hameroff, S. (2011). Consciousness in the Universe: Neuroscience, Quantum Space-Time Geometry and Orch OR Theory. In Cosmology and the Universe (pp. 3-42). Cambridge, MA: Cosmology Science Publishers.
- Penrose, S. Hameroff & S. Kak (2011). Consciousness and the Universe Cambridge, MA: Cosmology Science Publishers. Pope Francis (2014). [Online Available]

http://www.smithsonianmag.com/smart-news/pope-wolud-you-accept-evolution

http://www.independent.co.uk/news/world/europe/pope-francis-declares

- Pope John Pau; II (1992, 1996). L'obsservatore Romano. Weekly edition in English. In M. Rea & L. Pojman (Eds). Philosophy of Religion: An Anthology 7th ed., (pp. 502-507). Stamford: Cenge Learning .
- Radin, D. (1997). The Conscious Universe: The Scientific Truth of Psychic Phenomena. San Francisco, CA: Harper.
- Reich, D., Green, R. E., Kircher, M., Krause, J., Patterson, M., Durand, E. Y., Viola, B., Briggs, A. W., Stenzel, U., Johnson, P. L, Maricic, T., Good, J. M., Marques-Bonet, T., Alkan, C., Fu, Q., Mallick, S., Li, H., Meyer, M., Eichler, E. E., Stoneking, M., Richards, M., Talamo, S., Shunkov, M. V., Derevianko, A. P., Hublin, J. J., Kelso, J., Slatkin, M., Pääso, S. (2010). Genetic history of an archaic hominin group from Denisova Cave in Siberia. Nature, 468, 1053-1060.
- Richards, S. S. & Sweet, R. A. (2009). Alzheimer's Disease. In B. J. Sadock, V. G. Sadock & P. Ruiz (Eds.) Kaplan & Sadock's Comprehensive Textbook of Psychiatry (pp. 1176-1185). New York: Lippincott Williams & Wilkins.
- Sapolsky, R. M. (2004). The frontal cortex and the criminal justice system. Philosophical Transactions of Royal Society of London, Series B. Biological Sciences, 359, 1787-1796.
- Sonder, B. (1999). Evolutionism and Creationism. New York: Golier Publishing.
- Vedral, V. (2010). Decoding Reality. New York: Oxford University Press..
- Watson, A. (1997). Quantum Spookiness Wins, Einstein Loses in Photon Test. Science, 277, 481.
- Wells, S. (2007). Deep Ancestry. Washington, D.C.: National Geography Society.
- Wikipedia (2014a). Neanderthal. [Online Available]. http://en.wikipedia.org/wiki/Neanderthal
- Wikipedia (2014b). Early Modern Homo sapiens. [Online Available].

http://anthro.palomar.edu/homo2/mod_homo_4.htm

Wikipedia (2014c). Paleolithic. [Online Available]. http://en.wikipedia.org/wiki/Paleolithic

- Wikipedia (2014d). Peking Man. [Online Available]. http://en.wikipedia.org/wiki/Peking_Man
- Wikipedia (2014e). Origin of language. [Online Available]. http://en.wikipedia.org/wiki/Origin_of_language Wikipedia (2014f). FOXP2. [Online Available].

http://en.wikipwdia.org/w/index.php?title=FOXP2&oldid=609012424

Wikipedia (2014g). Homo. [Online Available]. http://en.wikipedia.org/wiki/Homo

- Wolpoff, H. H. (2011). Evolution of Extinction of Neanderthal: A brief history. In R. Penrose, S. Hameroff & S. Kak (Eds) (pp. 759-712). Cambridge, MA: Cosmology Publishers.
- Yi, J. H. (1992). The Third Yeok Hak, 第三의易學 (The author's note: Jeong Yeok as the Third Yeok) (Text in Korean). Soul: The Asian Culture Press.
- Yogananda, P. (2004). The Second Coming of Christ: The Resurrection of the Christ with in You. Los Angeles: Self-Realization Fellowship.
- Yook, K.; Lee, S. H.' Ryu, M. R.; Kim, K. H.; Choi, T. K.; Suh, S. Y.; Kim, Y. W.; Kim, B.;
- Kim, M. Y. & Kim, M. J. (2008). Usefulness of Mindfulness-Based Cognitive Therapy for Treating Insomnia in Patients with Anxiety Disorders: A Pilot Study. Journal of Nervous and Mental Disease, 196, 501-503.
- Yuan Ke (1950). Chinese Ancient Mythology. Translated by Hee Yung Kim in Korean. Seoul: Yook Mun Company.
- Zhang, J.; Webb, D. M. & Podlaha, O (2002). Accelerated Protein Evolution and Originof Human Specific Features: Foxp2 as an Example. Genetics, 162, 1825-1835.