# How to create a life or mind

As the explanation of our consciousness, intelligence and language

Xinyan Zhang

say2xy@gmail.com

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## Abstract

Against the ideas of dualism, logocentrism, anthropocentrism, animism, panpsychism, biocentrism, neurocentrism, foundationalism, computationalism, especially substantialism, reductionism and even physicalism*, the author argues that life may be the only non-reductive concept, even the only ontological concept, with which we may explain our consciousness, intelligence and language.

Life, as defined in this article, explains but not only human brains, and even not only biological organisms. Still, the mind, also as defined in this article, is the only one it explains.

No mind may exist if not be a life or lives, and no life may exist if not be a mind or a part of it. If it is the mind that needs to be explained, it must finally and fundamentally be explained as a life or lives. If the question is about the origin of the mind, a life or lives must be the ultimate answer. In other words, life is the only attribute of mind, and mind also the only attribute of life, and therefore, consciousness, intelligence and language must be the properties of all the living systems, including non-biological living systems.

A model of mind is hypothesized based on the analysis of two kinds of lives and their relationship with matter and energy. It may be deduced from this model: 1. All the memories of a living brain are its intelligence. 2. Both consciousness and nonconscious are only meaningless languages used in the communication among lives in an awakened brain. 3. Life is the only meaning of all those memories and languages.

Ontologically, life may even be the only meaning of all matter and energy.


* Those terms are used here with special emphases: “Dualism” includes both substance and property dualism. “Logocentrism” emphasizes the idea that language and meaning are not separable or dividable. “Anthropocentrism” refers to the belief that consciousness, intelligence and language are only the properties of human brains. “Animism” emphasizes the belief of consciousness’ omnipotence, or as to say that we sense, recognize, think, remember, recall, make decisions, initiate and govern body action all with our consciousness. “Panpsychism” is somehow the same as the idea of the soul’s immortality. “Biocentrism” is the idea that life may only be found from biological beings such as humans, animals, plants and bacteria. “Neurocentrism” is the idea that consciousness, intelligence and language may and may only be explained by neuroscience. “Foundationalism” is the belief that the world we sense is the only world existing right now. “Computationalism” is the idea that the mind or brain is only a computer. “Substantialism” emphasizes either Parmenides’ idea that existence is a one, or Leucippus and Democritus’ idea that existence is ones. And “reductionism” or “physicalism” may sometime mean that the systemic complexity of physics, especially quantum physics, is enough for us to explain everything about our brains. All that I try to emphasize with them is that brain or mind is also a matter of understanding, not only a matter of known.

**Highlight**

1. A unique definition of *life*, valid for all physics, biology, psychology and sociology.
2. The identical explanation of consciousness, intelligence and language.
3. A general understanding of the meaning of languages and memories.
4. The ontological explanation of natural selection.

**Main Text**

Practically, we cannot do all the different things with just one and the same system of language or behavior. [1] **Usually, we need a special system to do a special work**.

Everything is understandable or creatable if done with the right system as its tool.

The purpose of this work is not to know but only to understand the brain, especially to understand our consciousness, intelligence, language and eventually their meanings. And the special system constructed by the author and served as the tool for this purpose is or is called **OC**. [2]

To know and to understand are always two origins of one and the same knowledge. To know is the same as to get, and to understand the same as to give. In other words, to know is to get the specialization of a knowledge, and to understand is to give the generalization of the same knowledge. Einstein's field equations, for example, are such understanding, so is Schrödinger's or Dirac's equation. Even whole mathematics, philosophy, literature and art, are all examples of such understanding.

If there is such a knowledge in which all known may be categorized as "brain", then, all understood must be categorized as "mind". In other words, **all that we know about the brain and understand about the mind are just two components of one and the same knowledge**.

Therefore, if we do not try to understand the mind, we may never have the knowledge that explains our own consciousness, intelligence, language and their meanings, no matter how much we know the brain.

**To create a mind, at least a theoretical one, is the way, may even be the only way to understand it**. Creating and understanding are just two sides of one and the same thing. What for us is not creatable is also not understandable.

To create a theoretical mind is not the same as to create a mind, to create a mind is not the same as to create a human mind, to create a human mind is not the same as to create a human brain, and to create one human brain is not the same as to create another one. The human brain is a complex network composed of

86 billion neurons that communicate through trillions of synapses. For the purpose of this work, it is more useful to create an ontological mind than to create a biological brain.

"Useful" is however never the same as "meaningful".

Ontologically, a mind may be defined as the universality of all the different brains. And, more exactly, it is **the universality of all the different living brains**.

This definition does not identify the mind as a human brain [(3)], and it does not even identify it as any brain. But it may still be a kind of identity theory that means that a mind is always the same as a life or lives, and vice versa. [(4)]

**Mind = Life** (Equation One)

No mind may exist if not be a life or lives, and no life may exist if not be a mind or a part of it. Life is all the mysteries of mind, and mind all the mysteries of life. If it is the mind that needs to be explained, it must finally and fundamentally be explained as a life or lives. If the question is about the origin of the mind, a life or lives must be the ultimate answer. In other words, **life is the only attribute of mind, and mind also the only attribute of life, and therefore, consciousness, intelligence and language must be the properties of all the living systems.**

More than 2500 years ago, the words that Parmenides said in his poem *On Nature*, "the same thing is for thinking and for being", might be the same, might also be a kind of identity theory of mind and life. And Aristotle also said: "what has soul in it differs from what has not, in that the former displays life" (*On the Soul*, Book II, Ch. 2).

The sameness of mind and life may be found not only from all animals and plants but also from all the living cells that compose them. And mental events may be identified as cells' detecting an external stimulus, intermediating its systematic processes and making a reaction to it. The differences between a cell and a brain should not be understood as the differences between a life and a mind.

The sameness of mind and life is certainly a better basis for us to explain why a simple fertilized egg should want to develop into a human brain said as the most complex organization in the universe, and why there should be windows of opportunity or critical periods in a brain's early development. And, it may also be the best explanation of a brain's plasticity and adaptability [5].

And it is provable that a mind also needs nourishment, is also vulnerable, undergoes the way of birth, growth, ageing and death as well, and is governed by Darwin's natural selection too.

Without the sameness, neither the mind nor the life is understandable. Whereas, based on their sameness, life is a way for us to study and understand mind, and mind is also a way for us to study and understand life. And to create a mind is simply the same as to create a life or lives.

Just as to create a mind is not the same as to create a human brain, to create a life or lives is also not the same as to create a biological body, its organs, tissues, cells and biological macromolecules. **Ontologically, to create a life is simply the same as to create a relation between different categories of changes**. [6, 7]

If all we may know are changes, there are two categories of them in our reality. There are O changes, such as return changes or circular changes, and also the C change, such as a one-way change or an irreversible change. C is the open of O change, and O the close of C change. **Ontologically, to create a life is just the same as to create the oneness or the unity or the interdependency of O changes and a C change**, which may be called **OC** or an **OC**. [2, 6]

**Life = OC** (Equation Two)

The C change of an OC determines its becoming, and the O changes its being. In other words, the O changes may be understood as the activities to create a "self", and the C change the activity to transcend the "self". We may even say that, **if the O is the useful language of an OC, the C is then its meaning**.

It is meaningless if only A = A, even it is so useful.

As being, the O may also be understood as return or circular changes between relative energy and relative

matter. And, as becoming, the C may also be understood as a one-way or irreversible change from an absolute energy to an absolute matter, or from an absolute matter to an absolute energy. [2, 6]

Any matter or energy is absolute only because of the C of OC, and relative only because of the O of OC. The OC might mean an ontology against both absolutism and relativism, against absolutism with its O and against relativism with its C. Therefore, **OC is more ontological than energy or matter**. [8] And to create a life is not to create matter or energy but only to create the OC relation between them.

A life as life may be either simple or complex, either longevous or short-lived, and either micro or macro. A life may contain lives or be contained by a life or lives. Anyway, a life is never simply the same as a human, an animal, a plant or a bacterium, since life is not only the O but both the O and the C.

Lives may be divided into two categories according to the contrary directions of their C change. The one with its C towards absolute energy may be called **spring life**, and the one with its C towards absolute matter **autumn life**. [2, 6]

Therefore, a mind may exist either as a spring life or as an autumn life, or changes from one to another.

A spring life consumes absolute matter and creates absolute energy, and an autumn life does the opposite. All life changes are asymmetric or non-conservative changes. The sun is a spring life. There is an autumn life in every quantum mechanical change with entropy's increase as its inevitable result. [9] All plants, animals and humans are autumn lives. And our cosmos, with its directionality from less entropy to more, may also be understood as an autumn life.

Those autumn lives are therefore more ontological for the existence of our cosmos.

**The absolute matter may be the birth of a spring life or the cold death of an autumn life, and the absolute energy the birth of an autumn life or the heat death of a spring life**. All the so-called non-living matters, such as protons, neutrons or atomic nuclei, are such absolute matter, the remains of some dead autumn lives deeply frozen by our environment.

Both birth and death are ontological changes, and also the ontological deficiency in panpsychism. (4)

Though mind and life are the same thing, the same thing may still be called with different names. So, **a life as a system may be called a mind, and a mind as a part of a system may be called a life**.

$$\textbf{Mind} = \textbf{Life}^2 \qquad \text{(Equation Three)}$$

A mind, as a living system, is always composed of both spring and autumn lives, and, as a part of a system, may be either a spring life or an autumn life. A human body or brain is mainly dominated by autumn lives, and, therefore, the cold death is also our destiny.

$$\textbf{Human} = \textbf{Autumn life} \qquad \text{(Equation Four)}$$

Since spring life and autumn life are connected with their death and birth, a body or a mind, as a system of different lives, is always organized with two kinds of system relations together, both **MEM system relation** and **EME system relation**. The absolute energy is the E in a system relation, and the absolute matter the M. And an MEM system relation always begins with a spring life and ends with an autumn life, and a EME system relation the contrary.

A system relation is the irreversible causality between spring lives and autumn lives. And still, system relations may be dominated by either the spring life or the autumn life.

If learning, understanding, organizing and creating are the main works of a mind, autumn life is the main principle of learning and understanding, and spring life the main principle of organizing and creating. All principles of mind are the principles of lives.

In addition to life changes, there are two other changes in system relations, the **form changes** and the **location changes**. The absolute energy may undergo location changes and form changes in a EME system relation, so may the absolute matter in an MEM system relation. Both of them may be called **quale changes**. **Quale changes are symmetric or conservative changes of the absolute matter or the absolute energy**.

The human brain's activities may never be explained only with different neurotransmitters and nerve impulses, since impulses moving along a nerve or neurotransmitter released from a synapse is only the location change, and that nerve impulse converting into neurotransmitter or vice versa is only the form change.

Similarly, a mind or a human mind may never be created with logic, mathematics or computation alone, since all of which are only the form changes and/or location changes.

No concept or theoretical system that cannot explain life's creation and transcendence may still explain our consciousness or intelligence or language, or ever get us out of the logical quagmire of dualism.

Though both are made of both system relations, **a human mind or brain is still the main EME system relation of a human body, and the body the main MEM system relation of the mind or brain**. All the different ideas of embodiment [(10)] tell us only special examples of such a relationship.

**Mind/Body = EME/MEM** (Equation Five)

* This equation is valid only for those living systems dominated by autumn life.

If there is time, it is always a proof of the existence of such a mind-body relationship.

The E in MEM system relation may be understood as the present, and the M in EME system relation as both the past and the future. If a human body may therefore be understood as the present of a human mind or brain, the mind or brain is then both the past and the future of the body. And the mind-body relationship is also the relationship between the present and the past-future, and is the process through which the present interacts with both the past and the future.

Ontologically, there is nothing subjective or objective in system relations or mind-body relationships. **The E, the M and both lives are together the only explanation of intelligence, language, consciousness and their meanings**.

The M in EME system relation may be understood as the structures of a mind. All the structures may also

be understood as either hereditary memories or acquired memories. Hereditary memories in a human mind are its gene-determined structures, and acquired memories its environment-determined structures.

Roughly speaking, the longer the time from its birth to its maturity, the more acquired memories that might be found from the mind of an animal.

The E is universally the same, so are both lives. **All the differences among all the brains or all the living systems are only the differences of their M.** Therefore, the M in EME system relation is the only one that may ever explain the intelligence of a mind or any brain. Intelligence is nothing more or less than the structures of a living system. All the structures of our cosmos are all its intelligence. All the structures of a human body are all its intelligence. So are all the structures of a human brain. In other words, **the O of OC is the essence of intelligence**. (11)

Contrary to what Descartes thought (12), there is no intelligence without structure, or no structure in EME system relation that is not a kind of intelligence. In other words, **intelligence is the complexity in a EME system relation against the uncertainty in system's environment**.

Intelligence may also be understood as the changes in the space of a living system against the change in the time of its environment. All the hereditary structures are therefore the intelligence for a creature to deal with what may occur postnatally, and all the acquired structures the intelligence for a creature to deal with what may occur latterly. That is the reason why there is time, and why time may always be a proof of the existence of mind-body relationship.

**An intrinsic complexity makes all the differences**. If artificial intelligence may be created with simple arithmetic, human intelligence must have been created with complex geometry.

Such geometric complexity in the O of OC may be any cell's intelligence, any biological creature's intelligence, and even any ecosystem's intelligence. **Based on the same complexity may always arise the same species**. (13) Not the E, not the lives, the M alone is the basis of our personal identities or the answer to Kant's question: What is the human being?

It is the M in a human that determines both the existence and the difference of her or his world and self. And the M in us is the only biological basis of our words, grammars, numbers, forms, logics, physical laws and theological concepts, or the only reason why we, but not others, created them.

This is also the reason why quantum mechanics, let alone the theory of relativity, is not the right system for us to explain our brains. [(14)] Even though mind may be studied from the most macroscopic to the most microscopic level of existence, **cosmos, human brains and particles are simply not the same complexity! And none of their own complexity is even based on the others**.

Hereditary memory is hereditary intelligence and acquired memory acquired intelligence. The more intelligent a brain, the more complex its EME system relation. The more complex a EME system, the less possible that there are in its memories the representatives of those entities found in its environment, and the less possible that there is a mirrored world or a self in a brain**.** There is no world or self either inside or outside. **The complexity itself must be everything and nothing as well**.

During the development of our cosmos, during the development of a human body, a special intelligence always emerges when certain structures occur, and fades away when those structures disappear or are changed. This may also be the explanation of what called “infantile amnesia” and “childhood amnesia”.

Every living creature has memories, and therefore has certain intelligence. The only difference is that we have more acquired memories or acquired intelligence than the others. The most complex structures of human cerebral cortex must be the very basis for us to have more acquired intelligence.

The hereditary intelligence as the M in a EME system relation determines the system’s hereditary behaviors, and the acquired intelligence determines the system’s acquired behaviors. One loses his humanity when one loses his acquired behaviors, and one also loses his existence when one loses his hereditary behaviors.

The directionality of autumn lives determines that hereditary behavior is the center of acquired behaviors, and earlier acquired behavior the center of later acquired behaviors. Acquired behaviors always follow the

hereditary behaviors, not the other way around. **There is no basis in an OC or autumn lives for Meno's paradox.**

No hereditary or acquired memories from different persons are exactly the same. And, therefore, no human body is exactly the same, and no human brain is exactly the same in sense, emotion, behavior and language. Such differences play a vital role in the survival of the human race. It is a part of the complexity with which human beings deal with the uncertainty of our environment.

**The relationship between a society and its citizens is the one between a mind and its lives**. There are hereditary memories in a social mind, such what our ancestors created with their lives, and also acquired memories, such as what we have been creating with our lives.

It is said that the size of human brains has decreased over the past three thousand years. (15) If so, it might be acquired changes caused by both the increase in the complexity of our social activities and the decrease in the complexity of our individual activities. And it may be a proof that **mind or life is more ontological than the brain or any biological body, and the OC is more ontological than any individual**.

The intelligence of a social mind or life is the fundamentals of its morality. Plato may also mean it when he drew an analogy between a State and an individual in his *Republic*. As intelligence, morality is always both hereditary and acquired, neither as Socrates thought nor as Kant thought. (16)

There should be only hereditary intelligence if rationalism is the only explanation of the mind or brain. There should be only acquired intelligence if empiricism is the only explanation of the mind or brain.

Kant's categories are all our hereditary intelligence. And his epistemology is only a better explanation of the human mind, but not the mind.

Life, and life alone, is the thing-in-itself. All phenomena are only quale changes. Therefore**, life may only be understood but never known**.

Only life may communicate. And any life may communicate with any other life. And the E is the only

thing communicated through EME system relation, and the M the only thing communicated through MEM system relation. **In mind-body relation, the E is the mind's language and the M the body's language**.

All the changes during the communication between lives are quale changes. In other words, communication is a stream or a sea composed of different qualia [(17)].

**There is no certainty or uncertainty in qualia.**

The world, as a system or systems, is full of qualia. An electron appears as different qualia when it flows through the different structures of a conductor, or when the conductor changes from a non-superconducting state to a superconducting state. So does it when the E passes through different mental structures, and different states of those structures.

As every mind has its own qualia, so does every living system. Special qualia exist only together within a special system. A quale is a system's definition of the E in it. The M of a system defines its E. And our qualia exist only because of the existence of the hereditary memories or hereditary structures in our brains. And our qualia are always parts of our hereditary intelligence.

The M in qualia is the only context of the E, if there is anything that exists as context.

**The M in EME system relation may undergo state changes. Those state changes are conservative changes determined by the E of MEM system relation**. If the M may be understood as the strings of a musical instrument, the state is their tension, and the state change is the change in their tension.

The alternation of wakefulness and sleep is the most fundamental activity of all living systems with intrinsic mind-body relationship, which is another example of such state changes.

The alternation of wakefulness and sleep may also be found from many cells, organs and systems in human bodies, as well as in many animals and plants. For example, the myocardial refractory period may be understood as the period of cardiac cells' sleep, even though it lasts only for 250ms. In other words, the period between two refractory periods may be understood as those cardiac cells' waking state, and the action

potential as the qualia of their communication. Both the communication and the waking state together may be understood as those cardiac cells' consciousness. And there is no ontological difference between cardiac cells' consciousness and our consciousness.

Consciousness is some of those quale changes in the EME system relation based on waking state of the M. And therefore, our consciousness is always a part of the mind-body relationship.

All the communicating activities in our brains or bodies are carried out through both system relations. **Biological communication is always a duet of both conservative changes, the quale changes of the E and the state changes of the M**.

The quale changes of all our skeletal muscles are controlled by the brain through pyramidal tracts, and their state changes through extrapyramidal tracts. Still, there is no ontological difference between skeletal muscles' consciousness and our consciousness. [18, 19] So is the consciousness of our sense organs.

**The completeness of mental communication is not based on quale changes but on state changes**. And so-called "the unity of consciousness" means only different quale changes of the E unified by the M in the same waking state.

The state changes of the M fluctuate all the time, both generalized and localized.

Our consciousness may be defined as the unification of both the quale changes through the EME system relation and the waking state created by the MEM system relation, when the brain is a body's main EME system relation and the body the brain's main MEM system relation.

There are different subsystems on different levels of human nervous system. And, from neocortex down to spinal cord, the one on its lower level has always less acquired memories. Our consciousness is then the activities of the subsystem based on most of its acquired memories. In other words, our consciousness is the conversation between our hereditary intelligence and our acquired intelligence.

**My world and self, as my consciousness, intelligence and language, are only the conservative**

**changes of such a subsystem in my central nervous system, even only within my neocortices**.

The rise and fall of attention might be explained with localized state changes based on the overall waking states. [20] And dreaming might be explained with localized state changes based on the overall sleeping state. In both cases, the duet is the explanation.

The abnormality in the level or the extent of a localized state change, rather than the E language used in communication, might be the real cause of some psychiatric consciousness. In other words, some localized abnormality in MEM system relation may be the real cause of psychiatric consciousness.

To create a system always means to create certain qualities or qualia. Every system, and even every subsystem, may have its own qualia. Our different senses, such as sight, hearing, taste, smell and touch, are all such qualia. They are identical because of the E, and different because of the M.

All phenomena are qualia, but not all qualia phenomena. Not only consciousness but also what called by Sigmund Freud as “unconscious” are the qualia that consist together of the same stream of mental communication. It is the M and its state that determine a quale to be conscious or unconscious.

**M = the particularity of qualia and lives** (Equation Six)

And the M also determines that it is ontologically impossible for us to do all the different things with just one and the same system of language or behavior.

There must be the processes called “thinking” wherever there is the duet of communication among different lives. Descartes said: “I think, therefore I am”, but OC may prove to us that thinking does not need the existence of a subjective self, let alone a human subjective self.

Both consciousness and behaviors are the same as the duet of communication. And **a behavior may be understood as an explicit consciousness, and a consciousness as an implicit behavior**. [18]

An explicit attention is a new behavior, and an implicit attention a new state.

**So are the memories. As autumn lives, all the changes to the earth biosphere that we created with our explicit consciousness are our explicit memories**.

However, neither behavior nor consciousness contains or conveys any semantic meaning. **Semantic meaning is either the cause or the effect of a communication, but never the communication itself, nor the qualia emerged during the communication.**

So are, for example, all the words and sentences in this article. They are nothing more or less than some meaningless languages. And, therefore, what the author means with them may not be the same as they mean to each of the readers.

Since no conservative changes may be either the cause or the effect of communication, the only one left, the life change, must be the meaning, the only semantic meaning of any mental language, and the only semantic meaning of any acquired or hereditary memory. In other words, there is no semantic information in either the E or the M, and **life change is the only meaning of any absolute matter or energy**.

**Life = the significance of all conservative changes** (Equation Seven)

All semantic changes are life changes, and all life changes are semantic changes. [(21)] And therefore, lives are the only meaning of our intelligence, consciousness, language and behavior. In other words, **life change is the only cause and / or the only effect of all other mental changes**.

Autumn lives are the causes and the effects of our existence, even though they are not the difference of humans from other animals, the difference of us from our ancestors and descendants, the difference of one of us from another, and the difference of one from oneself.

Meaning or information is not what got but given, not what found but created. An analysis of behavior or language is then not to find the meaning but only to create it.

Though everyone has her or his own world and self, even though every animal has its own world and self, neither the world is the meaning of the self nor the self the meaning of the world.

No world may be created without the creation of a self, and no self may be created without the creation of a world. **The world and the self are always created as one and the same word but never as one and the same meaning**. Husserl's *intentionality* or Heidegger's *Dasein* may therefore be taken as such a word, and there is no interaction or interrelation within such a word.

A mind is a part of Darwin's world, full of lives, full of birth and death. We may understand our own brains only if we understand that natural selection is also the governor there.

Natural selection is system's selection of its parts. In other words, it is a mind's selection of its lives.

**Ontologically, natural selection is the O changes of OC. Still, the C of OC determines that there is a directionality of the selection**.

The C means that the existence of life or mind or brain or body is neither accidental nor teleological. [(22)] Therefore, the meanings in our universe might be indicated by the increases of its M, especially by the increases of the complexity of autumn lives.

In other words, **the autumn lives in our brains might be more meaningful than all the matter and all the energy in our cosmos**.

Human brain may be difficult for us to know, but is certainly not so difficult for us to understand. The only reason why it is still difficult is that we have not wanted to understand it as it is. We have not wanted to understand it as an OC. We want only the O of the OC, but not the C.

That is also a proof of the sameness of mind and life.

## Important points:

1. Life = OC.
2. A body or mind = a living system that contains both spring life and autumn life.
3. A living system = the E, the M and both lives organized in MEM and EME system relations.
4. A mind is the main EME system relation of a body, the body the main MEM system of the mind.
5. Qualia = Either location changes or form changes of the E in EME system relations.
6. **My consciousness, intelligence and language are only some qualia of the top subsystem in my CNS**. *
7. Memories undergo state changes determined by the MEM system relation.
8. Life changes are the only meaning of all the conservative changes.
9. My world and self are nothing more or less than a sea or a stream of qualia.

* Our consciousness is quale changes since we are dominated by autumn lives, and it may also be life changes if in a living system dominated by spring lives.

## Notes and References


1. Gödel's incompleteness theorem means the same. **A system or a theory of everything may never explain or be the explanation of itself.**

   Raatikainen, Panu, "Gödel's Incompleteness Theorems", *The Stanford Encyclopedia of Philosophy* (Spring 2022 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/spr2022/entries/goedel-incompleteness/>.

2. 心言, *存在或上帝*，PhilPapers, 2020, https://philpapers.org/rec/XIN.

   The O of OC may be understood as Parmenides' *One* or Leucippus and Democritus' Ones, and the C Heraclitus' *Change*. The O may also be understood as Heidegger's being or something, and the C his not-being or nothing or nothingness. OC is the reason why everything must be created and nothing may remain. It might therefore be the final and the only ontological truth for us.

3. Smart, J. J. C., "The Mind/Brain Identity Theory", *The Stanford Encyclopedia of Philosophy* (Spring 2017 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/spr2017/entries/mind-identity/>.

4. Panpsychism never means the sameness of life and mind.

   Goff, Philip, William Seager, and Sean Allen-Hermanson, "Panpsychism", *The Stanford Encyclopedia of Philosophy* (Summer 2020 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/sum2020/entries/panpsychism/>.

5. Voss P, Thomas ME, Cisneros-Franco JM and de Villers-Sidani É (2017) Dynamic Brains and the Changing Rules of Neuroplasticity: Implications for Learning and Recovery. *Front. Psychol.* 8:1657. doi: 10.3389/fpsyg.2017.01657

6. X.Y. Zhang, *The Ontology of Nature or God*, 2020, Amazon kindle book ASIN: B08NC1VBVL

7. X.Y. Zhang, *Be Human in the Paradis*, 2014, Amazon kindle book B00IHE5QS2.

8. Life as life, no known energy or matter should be its ontological limitation. The possibility that life may arise from non-life does not prove that all the known energy and matter may not be created by a life or lives existing before them. OC may be the unification of different understandings in physics, biology, psychology and sociology.

9. A.N. Pearson, Y. Guryanova, P. Erker, E.A. Laird, G.A.D. Briggs, M. Huber, and N. Ares, "Measuring the Thermodynamic Cost of Timekeeping", Physical Review X 11, 021029 (2021)

   The only difference of a life from a quantum is the C of OC. The most macroscopic autumn life may determine the directionality of the most microscopic quantum states.

10. Shapiro, Lawrence and Shannon Spaulding, "Embodied Cognition", *The Stanford Encyclopedia of Philosophy* (Winter 2021 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/win2021/entries/embodied-cognition/>.

11. There is a relationship between “free” and “will”. The O of OC is intelligence and intelligence is the “free”, and the C of OC is the “will”. In other words, the will alone is never free. Free will is not only the O but an OC.
12. More exactly, what Descartes believed is that matter is extended but mind is not. Please refer to:

    Hatfield, Gary, "René Descartes", *The Stanford Encyclopedia of Philosophy* (Summer 2018 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/sum2018/entries/descartes/>.
13. The Synthia created in 2008 by the team from J. Craig Venter Institute is only a creation of certain new complexity, but not a new life.
14. About various quantum theories of consciousness:

    Van Gulick, Robert, "Consciousness", *The Stanford Encyclopedia of Philosophy* (Winter 2021 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/win2021/entries/consciousness/>.
15. Jeremy M. DeSilva, James F.A. Traniello, Alexander G. Claxton and Luke D. Fannin (2021) When and Why Did Human Brains Decrease in Size? A New Change-Point Analysis and Insights From Brain Evolution in Ants. *Front. Ecol. Evol.* 9:742639. doi: 10.3389/fevo.2021.742639
16. Socrates takes knowledge and virtue as the same thing. And Kant bases his moral theory on our intrinsic value.
17. Michael Tye, "Qualia", *The Stanford Encyclopedia of Philosophy* (Fall 2021 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/fall2021/entries/qualia/>.

    It seems to me that both quality and quantity exist only as the existence of a system.
18. X.Y. Zhang, Essence of Consciousness, Quantum Mind 2003, www.quantumbrain.org/Abstract2003.html
19. X.Y. Zhang, From Everything Outside Mind to Those Inside, The XXII World Congress of Philosophy, 2008, https://philpapers.org/rec/ZHAFEO
20. Such localized state changes may be the cause of localized increase in tissue perfusion (cerebral blood flow), another proof of the sameness of mind and lives.
21. In other words, ontology is only about the relationship between language and its meaning, or between life change and conservative change.

    As language or conservative change, neither logic nor mathematics contains or conveys any meaning.
22. Morten L Kringelbach and Gustavo Deco, The turbulent brain, 25.02.2022, URL = <https://aeon.co/essays/what-can-a-thermodynamics-of-mind-say-about-how-to-thrive>.