

Mind or Life: The OC Relation

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Abstract

In this article, the author explores the nature of mind and life and proposes that life is the attribute of mind, and mind the attribute of life. Therefore, consciousness, intelligence and language are the properties of all the living systems.

Keywords: Mind, life, consciousness, intelligence, language, Parmenides, Descartes, Kant.

1. Introduction

Typically, we need a particular system to do a particular work. The purpose of this work is try to understand the human brain, in particular, consciousness, intelligence and language. The particular system constructed and used by the author for this purpose is called OC or M_{13} .⁽¹⁾

All that we know about the brain and understand about the mind are two aspects 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 and language, no matter how much we know about the brain.⁽²⁾ An ontological mind may be defined as the universality of all the different brains. And, more precisely, 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⁾

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

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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, and it is even impossible for us to understand our own brains, especially our consciousness, intelligence and languages. 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.

2. The OC Relation: O Change & C Change

Ontologically, to create a life is simply as to create a relation between different categories of changes. ^(6,7) There are two categories of changes in reality. There are O changes, such as return changes or circular changes, and also C change, such as a one-way change or an irreversible 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. And such a relation may be called an OC or O_nC. ^(1,6) The C change of an OC determines its becoming and the O changes are 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”. If only a living creature may reproduce itself or adapt to its environment, then the OC is the ontological principle of such self-reproduction or adaptability.

Since OC means that a life does not only create a “self” but also transcends the “self”, and since the sameness of life and mind means that consciousness or intelligence may be a relation between the O and the C, it is therefore reasonable to hypothesize that intelligence and consciousness might only be different views of one and the same OC. “Intelligence” might mean the relationship in which O is the creation of the C, and “consciousness” the relationship in

which C is the transcendence of the O. This hypothesis will be discussed with more details in the second half of this article

As both changing and being, the O may also be understood as return changes or circular changes between relative energy and relative matter. And, as both changing and becoming, the C may also be understood as a one-way change or an irreversible change from an absolute energy to an absolute matter, or from an absolute matter to an absolute energy. ^(1, 6) Any matter or energy is absolute only because of the C of OC, and relative only because of the O of OC. Therefore, the 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.

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. ^(1, 6) A spring life consumes absolute matter and creates absolute energy, and an autumn life does the opposite. 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 biological lives, such as 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.

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 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. 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.

3. The MEM & EME System Relations

A mind, as a 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 always dominated by autumn lives, and, therefore, the cold death is also our destiny. Since spring life and autumn life are linked up with their death and birth, a mind, as a system of different lives, is always organized with two kinds of system relations: MEM system relation and EME system relation. The absolute energy is the E in a system relation, and the absolute matter the M. 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 life, and vice versa. 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 the absolute matter form changes in a EME system relation, but the contrary in an MEM system relation.

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, all of which are only the form change and/or location change.

No concept or theoretical system that cannot explain life or its creation and transcendence may still explain our consciousness or intelligence or language, or ever get us out of the logical quagmire of dualism.⁽⁸⁾ 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 tell us only special examples of such a relationship.⁽¹⁰⁾ And this relationship also proves that human beings are indeed autumn lives. 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.

A mind is always both hereditary and acquired, so are the past, the present and the future. And there is much more acquired than hereditary in our minds. As a life that transcends the body, as a system that transcends its receptors and effectors, as the EME system that transcends MEM systems, as the acquired that transcends hereditary, as the understanding that transcends knowing or doing, as the indirectness of knowing and doing that transcends their directness, a human mind means not only self-accomplishment but also self-transcendence. Therefore, that AlphaGo beats Lee Sedol in a board game is only an example how the human mind may transcend a human brain. And Nick Bostrom's AI that tries to turn everything into paperclips, no matter how

superb in its self-accomplishment, shows no ability of self-transcendence.

4. The Specific System M_{13}

Since a mind is not the same as a human mind, and a human mind is not the same as a human brain, more and different divisions, at least 12+1 divisions of the O of OC, are necessary if to understand our own consciousness, intelligence and language is the purpose. The specific system based on the 12+1 divisions may be called a M_{13} or the M_{13} explanation. An explanation is always a kind of completeness, either the completeness of a system or the completeness of an entity. The OC is not an entity, and there is no entity in the system of M_{13} .

As a member of the family O_nC , the M_{13} becomes more like the mind if it has less divisions, or more like a human brain if more divisions. More divisions, however, do not mean more completeness. A human brain may never have more completeness than an OC, even than the M_{13} . In other words, a human brain is always more knowable but less understandable than the OC, even than the M_{13} . Both the brain and the rest of a human body are the divisions of one fertilized egg, but neither of them has more completeness than the egg. It is not Occam's razor or principle of parsimony but the C or the directionality of autumn lives that determines that the understanding of them should be much simpler than the known of them. An understanding might simply be the past of the known. The M_{13} is therefore both the understanding of human brains and some known of the OC.

Not only as the EME system relation between our sense organs and motor organs, but also as MEM system relation among our internal organs, a M_{13} may have the relationship shown as in Diagram (1).

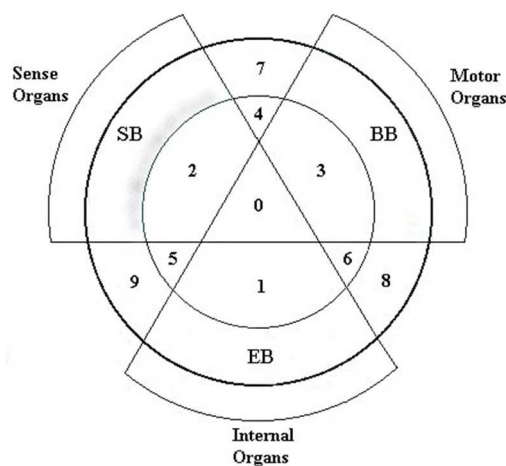


Diagram 1. The general relationship of a M_{13}

The areas between the peripheral circle and the central circle are the mind's hereditary parts, and within the central circle are the mind's acquired parts. The three wedge areas are the three main brains. Area 0 is the CM. And area 4 to 9 are intermediate brains. That is, an M_{13} may be divided into a sense brain (SB), an emotion brain (EB), a behavior brain (BB), and three intermediate brains. SB has more direct connections with the sense organs that compose the surface of the body. BB has more direct connections with the skeletal muscles. EB has more direct connections with internal organs. And intermediate brains have more direct connections with SB, EB and BB.

Each mental brain is composed of a part of hereditary memories and a part of acquired memories. Some acquired memories are shared among all mental brains, and the shared acquired memories may together be called central memory or CM. The 12 parts of mental brains plus the CM are together the 12+1 divisions of the M_{13} .

Ontologically, there is nothing subjective or objective in an OC or a M_{13} , since the OC is not an entity and there is no entity in the M_{13} .⁽¹¹⁾ All that may be found from a M_{13} are memories, languages and lives. If the M_{13} may be the explanation of human brains, it should be able to explain our consciousness and intelligence, and explain the semantic principles of our language, with them, and only with them.

Divisions of the O never change system relations among the lives in an M_{13} . EME is the system relation between SB and BB, and MEM the system relation between EB and other mental brains. And an M_{13} is then a comprehensive explanation of the activities through both the EME and MEM system relations. Since a human mind is also the main EME system relation of a human body, therefore, memories, languages and lives in the EME system relation must be the main explanation. Memory is the M in a EME system relation, language is the E, and lives are neither of them. The M, either hereditary memory or acquired memory, is the structure of a EME system relation. Hereditary memories in a human brain are the structures created by the gene-determined interactions among different cells, and acquired memories the structures created by the environment-determined interactions between the brain and its environment.

The E does not have its own form, and lives are not form changes. The M is the only one that is not only the form of EME system relation but also changes all the time, either as hereditary change or acquired change. The E is universally the same, so are the 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 an M_{13} or any brain. Intelligence is nothing more or less than the structures of a 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 mind or brain.

5. Descartes & Kant

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 the system's 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 by next time. In other words, intelligence is the changes in the space of a system against the change in the time of its environment. 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.

The geometric complexity in the O of OC may be any cell's intelligence, any biological creature's intelligence, and even any biosphere'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? And the only reason why a M_{13} may explain better than an OC hides also in the differences of their complexity. 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⁾ Neither of them is about the differences of our biological complexity!

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. 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 them. The most complex structures of human cerebral cortex, especially the neocortex, 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. 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.

Therefore, a better team is a group of different human minds that may better complete and maintain a life. So is a better society or a better biosphere. And any idea or action that tries to unify all humans, all social behaviors or all political systems is always a threat to human existence. 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 might 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. Energy or matter is only either language or memory, and all phenomena are only qualia. Therefore, life may be understood but never known.

6. Consciousness, Intelligence & Language

There are both an autumn life and a spring life in every EME system relation. Intelligence is brought into play only when language joins memory together in the autumn life, or when language separates from memory in the spring life, both of which are proofs of the sameness of mind and life. There are exchanges of absolute energy or absolute matter among mental brains, between an M_{13} and the rest parts of a body or the body's environment, which may be called communication if conducted through the EME system relation. The E or absolute energy is the only one that may undergo location changes, and is, therefore, the only language used in the communication, which may be called E language.

Only life may exchange or communicate. And any life may exchange or communicate with any other life. The communication with E language is always based on a certain level of waking state and always limited within a certain extent of the state. The alternation of wakefulness and sleep is the most fundamental activities of a living system with intrinsic mind-body relationship.

The alternation of wakefulness and sleep may be understood as a system's thermodynamic changes, as Carnot cycles. Such O changes 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 E language of their communication. Both their communication with E language and their 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 the unity of waking state and communicating processes. Such state changes are the changes of MEM system relation, and such process changes are the changes of EME system relation. And therefore, our consciousness is always a part of the mind-body relation. All the communicating activities in our brains or bodies are carried out through both system relations. Biological communication is always a duet of both state changes and process changes. The process changes of skeletal muscles in our bodies 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.^(17, 18) So is the consciousness of our sense organs.

The completeness of mental communication is not based on E language but on the M language. The state changes fluctuate all the time, both generalized and localized. As brain's overall change, our consciousness may be defined as the unification of both those processes through the EME system relation and the waking state of 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 central 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, especially the CM. Everyone has her or his own world and self, and the world and the self are nothing more or less than the duet used specifically in the communication of this subsystem. So are not only all humans but also all other animals. The rise and fall of attention might be explained with localized state changes based on the overall waking states.⁽¹⁹⁾ And dreaming might be explained with localized state changes based on the overall sleeping state. In both cases, the duet of state changes and process changes 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 or EB may be the real cause of psychiatric consciousness. Our cardiac cells' consciousness and our consciousness are different, but different only in the form of the M, not in the E itself. In other words, the M is the only form of all and every E language. Such relationship between E and M may be called a quale or qualia⁽²⁰⁾.

6. Qualia

All phenomena are qualia, but not all qualia phenomena. Therefore, not only consciousness but also what called by Sigmund Freud "subconscious" or "unconscious" may be understood as qualia. To create a system always means to create certain qualities or qualia. Every system, and even every subsystem, may have its own 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 certain 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.

Qualia in mind or brain are either location changes of the E or form changes of the M in EME system relation, but never life changes. Different qualia in a brain mean only differences in the structures of EME system relations, especially in the structures of its hereditary memories. The so-called collapse of a superposition state may also be understood as a quale emerged when a quantum state tries to communicate with a measuring instrument. But a quantum quale may never be the same as a human brain's quale, otherwise, the brain should have less complexness than the M_{13} has.

As every mind has its own qualia, so does every life. A special quale exists only when a special EME system exists, and is useful only when a special life exists. And our qualia exist only because of the existence of the hereditary memories or hereditary structures in our brains. And, therefore, qualia are always parts of our hereditary intelligence. Through EME system relation, the SB speaks to rest parts of the mind or the brain. And all the different senses, such as sight, hearing, taste, smell and touch, are SB's language. Through MEM system relation, EB speaks to rest parts of the mind or the brain. Both emotion and intuition are EB's language.

Thinking may be understood as the communication through both MEM and EME system relations, in which different mental brains talk to each other, in which the acquired memories in CM and the hereditary memories in SB, EB and BB talk to each other. Descartes said: "I think, therefore I am", but M_{13} may prove to us that thinking does not need the existence of a subjective self. The mind or the brain is never a communication channel. The E never simply passes through a EME system relation. Life changes during the processes of thinking are the

determining links between the changes in M and the exchanges of E.

Thinking may go either within or beyond a brain. Therefore, behaviors may also be understood as explicit self-communication. The same as the implicit communication, all the explicit communication is also a duet of both the process changes originated from BB and the state changes originated from EB. And, therefore, a behavior may be understood as an explicit consciousness, and a consciousness as an implicit behavior.⁽¹⁷⁾ However, neither behavior nor consciousness conveys 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.

Since neither the E alone nor the M alone, not even E and M together, may be either the cause or the effect, the only one left, the life changes, 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 is the only meaning of any absolute matter or energy.

Meaning or information is not what got but given, not what found but created. In other words, language and memory may be realized only by a life or lives. “1+1=2” is only language, so is “A=A” or “E=mc²”. And all concepts are languages of the BB. None of them may carry or deliver any meaning. Their meanings may only be the concrete live changes in certain concrete brains. Even though everyone has her or his own world and self, neither the world nor the self is the meaning. So wrote Wittgenstein, “the sense of the world must lie outside it”.⁽²¹⁾ An analysis of behavior or language is then not to find the meaning but only to create it. So are all the words and sentences in this article. They are nothing more or less than languages. And, therefore, what the author means with them may not be the same as to each of the readers.

As the central meaning of acquired mental language, CM is also a life, either a spring life or an autumn life. As an autumn life, CM is the meaning of both the absolute energy that it consumes and the absolute matter that it creates. And, as a spring life, CM is the opposite. In other words, CM is not only the meaning of what BB says but also the meaning of what SB says. 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. This is another proof of the sameness of mind and life. 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 life or mind or brain or body is neither accidental nor teleological.⁽²²⁾ 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.

7. Summary

The important points in this article are as follows:

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 intelligence, consciousness 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 some 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.

Received November 13, 2022; Revised December 27, 2022; Accepted January 24, 2023

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