Behind Civilization

The fundamental rules in the universe

Third Edition (English edition)

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To the people who provided me with an education

https://www.youtube.com/watch?v=PqMnwpiY-0w

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Introduction

Today, while we are taking the modern lifestyle provided by civilization for granted, how many of us ever wonder what civilization is? Do we really understand its nature?
https://www.youtube.com/watch?v=FfmpQXI3kV8

To understand the nature of civilization, we need to look into its beginning. First, civilization is a product of human behaviour which is the outcome of our neural activities. Thus, the study of civilization needs to look into human behavior from the perspective of neural activities. As neural activities→behavior→civilization is a dynamic physical process, those concepts of Newtonian mechanics such as driving force, resistance, direction and speed are borrowed to interpret and analyze the dynamic process of civilization. This approach is termed social mechanics, a part of the physical sociology. In this sense, civilization also "follows" the laws of Newtonian mechanics.

Behind this parallel analysis, lies a deeper mechanism. You might notice that civilization bears some fundamental similarities to cosmic events such as the expansion of the universe and an empire, the hierarchical formation of structures in the universe and the hierarchical structure of society, the collision of galaxies and conflict of civilizations. Behind these phenomena, lies a fundamental mechanism that governs everything in the universe. This mechanism consists of a set of fundamental interrelationships and can be represented by a model. As the evolution of life is a part of the evolution of the universe, thus, they both share this common mechanism and follow those fundamental interrelationships. Hence, the evolution of life is fundamentally similar to the descriptions of the evolution of the universe in the Big Bang theory.

As evolution of life continues, some unicellular organisms aggregate to form multicellular organisms, upon which individuals of some multicellular organisms aggregate at a higher level to form society. As both multicellular organism and society are a part of the evolution of life, they follow the common rules that all organisms follow. Therefore, a human body and a society express many similar biological features.

For this reason, the evolution-development of a human body is used in parallel to analyze the evolution-development of a society. As a human body is a product experienced a much longer period and is at the top of the evolutionary tree, it is much better developed than a human society. Upon this, medical sciences including anatomy, histology, embryology, physiology and pathophysiology are used to analyze social evolution - civilization. Based on this parallel approach, a larger scale of applying evolutionary biology to analyze social evolution has been made in this new edition. That means social phenomena are interpreted from the perspective of biology (medical sciences and evolutionary biology).

As these two events are a part of the evolution of life, thus, they are a part of the evolution of the universe. Hence, the evolution of the universe, the evolution of life, the evolution-development of a human body and evolution-development of a society all express similarities at a fundamental level. Thus, those social phenomena and biological features are further analyzed with those fundamental interrelationships at a deeper level as all phenomena are the specific expressions of those fundamental interrelationships.

Through this in-depth and diverse analysis, many puzzling yet important questions are brought to the surface. The seemingly uncertain development of society can be predicted to a much greater extent; the mystery of how the Greeks achieved a brilliant civilization has been deciphered; the question of why scientific revolution originated from the West has been solved; the mechanism behind the rise of the Western civilization has been unearthed; the reason behind the fall and rapid re-rise of the Chinese civilization has been brought to light; the enigma of elusive beauty has been unequivocally unlocked.

With this approach, social science is unified with natural science, and further, science is unified with philosophy. This is an attempt to address the issue of “a theory of everything” in philosophy, an attempt that the ancient Greeks started.

Finally, comes the conclusion: human civilization is a natural part of the evolution of the universe. The laws governing the universe also govern human civilization.

Chapter One: What is human civilization?

Surrounded by the enchantment of nature, its magnificent powers never cease to amaze us. We gaze, confused, at its forever dynamics, puzzled by the paradox of its display, astonished by its split second transformations. Out of the yearning to understand the environment upon which our survival depends, and dreaming of arriving at the utopia, mankind searches for the ultimate answers: what is human civilization? How does it journey along the path of time? Where is it headed? All these puzzling issues lead to the ultimate question: What are the fundamental rules governing human civilization? Urged by nature's quest, we begin our journey to explore this philosophical kingdom.

To begin our journey, let's compare various aspects of living between human beings and other animals. As civilization is generally considered something that is "exclusively" associated with the human race, we can compare "civilized" human beings with any "uncivilized" group of animals, for instance, other primates, who also happen to be our closest relatives from an evolutionary perspective. This approach employs the same principles as comparative anatomy, where inferences are proposed based on the outcomes of direct comparisons. Humans can be compared to other primates, such as chimpanzees, in terms of how we dress, what we eat, where we live and how we travel.

The most obvious difference between human beings and other primates is that we wear clothes and they don't. To most humans, the purpose of wearing clothes is no longer just to obtain warmth. Through the active pursuit of fashion, the clothing we wear also becomes an expression of social status. Just think about all the different styles of apparel that are available to us: formal dresses, casual outfits, swimwear, school uniforms and many more. Ever noticed the sheer abundance and diversity of clothing stores there are in the local shopping mall? In some cases, clothing has now become more or less an ornamental luxury and an embellishment of beauty. Fashion shows are one such example. Every year, these shows are held in places such as Paris, Milan and Tokyo where gorgeous models strut and pose on the catwalk flaunting the latest designer outfits with their beauty. In contrast, clothing does not exist in the "uncivilized" Chimpanzees.

The broad range of food and styles of cooking available to humans seem endless, ranging from exotic delicacies such as oysters, caviar, snails and truffles, to international cuisines such as Chinese, French, Japanese, Thai, Italian, Mexican, and more. We also have a vast array of fast food, snacks, microwave dinners, health food, vegetarian meals and low fat diets to meet our individual demand for convenience or nutritional requirements. Even a simple family dinner may consist of an entrée, the main course and dessert. In contrast, no other animals have such an assortment of food to choose from, nor can they afford to have such elaborate eating habits. In the wild, chimpanzees rely mainly on fruit and nuts as staple food, while many animals must simply be content with whatever food is available.

Humans have many choices regarding where they live, including houses, apartments or even luxurious mansions, with access to electricity and drinking water. Most forms of housing are also adequately equipped with lighting, bathroom facilities, air-conditioning, and burglar alarms, all of which offer additional comfort and greater security. Wealthy individuals are able to purchase their own homes, and even most people with financial difficulties are still able to find affordable housing subsidized by government Housing Commission. In comparison, chimpanzees, along with all other wild animals, can only seek shelter amongst trees, caves or burrows for limited protection from

the harsh elements and stalking predators. Even a desolate shack in the middle of a ruinous urban slum would be considered a five-star hotel to chimpanzees.

To travel from one place to another, humans have at their disposal various forms of transportation such as bicycles, automobiles, trains, ferries, aircrafts and even space shuttles. These forms of transportation offer greater efficiency, swiftness, comfort and reliability than travelling on foot. Our primate relatives do not have so many modes of transportation to choose from, having only their legs to rely on for travel, although swinging from branch to branch may be considered their equivalent to air travel.

We can clearly see that there are enormous lifestyle differences between human beings and other primates. This leads to the very question of why such differences exist, particularly considering that humans and other primates are so closely related from an evolutionary perspective. The answer lies in the simple fact that human beings are able to invent and utilize various tools to compensate for the insufficiencies of the human body. These tools allow humans to enhance their capacity to satisfy more desires. Just think about the number of kitchen utensils we routinely use to prepare a meal; the variety of instruments used to tailor an outfit; and the diverse range of equipment associated with agricultural practices. In fact, the extent to which humans use vast quantities of tools to satisfy their every desire is unmatched by any other known life form on earth. From this we can propose the notion that civilization is essentially the invention and utilization of tools as an external aid to supplement the human body's insufficiency to satisfy desires. Looking back at the history, human civilization has progressed from using bare hands to stone tools, from stone tools to metal tools, from metal tools to the invention of the steam engine, and then from steam engines to the emergence of computers. Therefore it is clear that the tools created by humans have become more and more sophisticated over time. More importantly, the availability of these tools continues to improve the productivity and efficiency of all human activities, which consequently improves our capacity to satisfy our desires. Such improvements are attributed to breakthroughs in technology that provide the impetus for the advancement of civilization. When our ancestors first learned to make and use stone tools, human civilization entered the period that is commonly known as the Stone Age. When people learned to manufacture and use metal objects, human civilization progressed to the Bronze Age, and subsequently the Iron Age. The invention of the steam engine triggered the industrial revolution. Finally, the invention and proliferation of computers moved our civilization into the age of information technology. Now, revolutionary breakthroughs in genetic engineering are set to thrust human civilization into an age of biotechnological manipulation.

At this point, it is worth contemplating the reasons why civilization is arguably exclusive to human beings but not any other life forms on earth. Why is it that only the human race is capable of making and using sophisticated tools to such a large extent that is unrivalled by any other animals?

This is because only human beings possess the higher level of intelligence required to invent and use tools. No other animals are known to possess comparable levels of intelligence. Such disparity in intelligence can be attributed to the histological, physiological and biochemical differences between human beings and all other animals. These differences are due to variations in the DNA sequences between all animals. Therefore, it is DNA that ultimately determines the levels of

intelligence which subsequently determines the dominance of various organisms within the biological world.

Chapter Two: What is the driving force behind human civilization?

The first question that needs to be answered is whether there is evidence of the existence of any force responsible for driving human civilization. Or perhaps this notion of driving force is nothing more than an unsubstantiated speculation. Human civilization has undoubtedly achieved incredible progress over thousands of years, particularly in terms of technology. This verifies that the advancement of civilization is clearly a valid and realistic phenomenon. Therefore it is logical to assume that there is a driving force responsible for such advancement. In our daily life, we can notice that an object does not change its status, such as position, without external force acting on it. This phenomenon has been described in Newton's first law. If an object is changing its status, then there must be a driving force acting on it. Applying this concept to the progression of human civilization, we can conclude that there must be a force that is actively prompting its advancement. Therefore, we are faced with the challenge of determining the driving force behind human civilization.

The inherent desire is the primary driving force behind human civilization. In order to confirm this, we must examine how desire acts as the underlying driving force. Whenever desire arises, the individual with the desire will attempt to satisfy it. Satisfying any desire typically requires undertaking a series of actions. For example, hunger induces the desire to eat. So in order to satisfy this desire, an individual is required to perform the act of finding and preparing a meal. However, when a particular desire demands actions that are beyond the natural physical capability of the individual, it is often necessary to resort to some extrinsic means, typically in the form of tools. Carving up the flesh of a killed animal was once an arduous task for prehistoric hunters, as humans did not possess sharp claws and teeth like most other predators. Consequently, sharpened stone cutting tools were invented to compensate for the hunter's apparent physical inadequacies. This initial utilization of stone tools marked the beginning of the so-called Stone Ages. The very process through which unprocessed materials are for the first time transformed into practical tools typifies the process of invention.

It is quite a common custom to prepare elaborate feasts and banquets during times of festivities and celebrations. Over the years, people have perfected the art of cooking and developed various methods to enhance the flavors of food in order to maximize the gustatory sensation (taste). The meals we now enjoy in restaurants are undoubtedly more palatable and more appetizing than anything our prehistoric ancestors once had. Obviously, the art of cooking is driven by our inherent

desire to eat. It is this desire to eat and achieve the maximum gustatory sensation that encourages humans to enhance their cooking skills and this is a part of human civilization.

As humans have a very limited visual range, telescopes and binoculars were invented to enhance our ability to see further away. As humans do not have acute night-vision like owls, oil lamps, gas lamps, electric lights and even night-vision goggles were invented to enhance our ability to see better in the dark. These examples demonstrate how inherent desire acts as the primary driving force behind the advancement of civilization.

Upon further examination, we can see that the development of agriculture, animal husbandry, food processing and other related industries and trades were all triggered, either directly or indirectly, by our desire to eat. Our desire to learn prompted the start of educational institutions, the spreading of information and the growth of communication. Similarly, our desire to listen to pleasurable auditory sensations generated a great deal of musical culture. Singers, composers, conductors, musical instruments and symphony orchestras emerged. This was followed by the development of devices able to record and play back music, such as gramophones, record players, and tape and CD players. Ultimately, this leads to the birth of the music industry. Our pursuit for visual entertainment stimulated the flourish of visual arts and the acknowledgment of talented artists. Moreover, driven by our relentless demand for visual indulgence, visual arts have expanded from two-dimensional paintings to three-dimensional sculptures, and from inanimate portraits to motion pictures.

Inherent human desires have not only stimulated the invention of new technologies, but also the discovery of new hypotheses and theories. Beyond this, desires, once put into action, actually stimulate commercialism and mass production, where discoveries and inventions are transformed from abstract concepts into marketable products. It is desire that triggered the institutionalization of commercial exchange of goods and services; investors' irrational behavior on the stock market; and the fierce competition on the sports ground accompanied by the cheering, shouting and screaming from the fanatic supporters. Driven by desires, humans not only build up the glamorous physical environment that we live in but also set up invisible rules to run the society. It is our desire for health and longevity that instigate the invention of various life-saving technologies, even the creation of life to some extent, which brings joyful happiness to mankind. However, it is also our desire for power and dominance that instigates the development of life-exterminating technologies, which inflict horrible suffering on the victims. Just imagine: In a wild desolate terrain covered with lush vegetation painted in rich shades of green and tinted with a dozen beautiful hues, you may be overwhelmed by the infusion of fragrance that fill the sweet clean air amongst the overgrowth of thousands of swaying daffodils, poppies and hollyhocks that have taken root here. Within the peaceful tranquility, a wandering lost soul breaks the silence, asking us to reflect through history: Can you imagine that this was once a scorched field where brutal slaughter once took place? Can you hear the agonizing shrieks from despaired souls when lives were on the verge of the end? And in the eerie calm of the aftermath, take a peek: Can you see the corpses and the trickling blood when the gun smoke clears? Can you smell the stench stretch forth and strangle the air from the dead bodies that transpired after the tempestuous violence was over? Among the drumming of the triumphant march of Napoleon's army, can you hear the sobbing of grief and loss from widows and orphans overshadowed by the rapture of the conquerors?

The above scenario, in all its tragedy, illustrates how humans' instinctive desires are the driving force behind human behaviors; and the consequence of human behaviors is the birth of human civilization. The phenomenon of the civilization of the human race gives rise to a confusing conglomeration of joy and suffering; it creates a paradox of happiness and sadness; and it provides a complex combination of hope and despair.

Chapter Three: What is the direction of human civilization?

In the previous chapter, the concept of "driving force" was applied to examine the advancement of civilization. According to physics, force is a vector that not only has a size but a direction as well. Then it is logical to raise a question: What is the direction of human civilization? We will examine it in the following discussion.

When an individual desires something, he is likely to take some sort of action in order to satisfy that particular desire. Whether or not the desire can be satisfied depends largely on two types of determining factors: natural factors and human factors.

Natural factors refer to influences exerted by the forces of nature. For example, humans have always had the desire to be able to fly. However, prior to the invention of the airplane in 1903,[1] human civilization did not have the technological capability to successfully overcome the gravitational pull of the earth. This is a perfect example of how nature can impose certain boundaries upon the scope of human desire depending on the level of civilization, particularly in terms of the available technology.

Human factors refer to influences exerted by humans themselves, generally in the form of social restraints. For example, people are free to cross the equator or travel across time zones at will, but for a citizen of one country to legally cross political boundaries and stay in another country, he or she must first acquire a visa. A visa represents the official authorization for entry into another country yet physically it is nothing more than an ordinary piece of paper covered with writings and stamps. Nevertheless, any individual caught living in a foreign country without a visa is considered an illegal immigrant and faces possible detention and deportation. This is an example of a restriction imposed upon individuals by their fellow human beings.

From here we can see that the human's capacity to satisfy desire is not unlimited. This capacity falls within the confinement of natural and social restraints. This is the concept of "degree of freedom" that is frequently referred to in physics. The freedom of activity within the confinement of natural restraints is in the form of technological innovation as well as humans' natural power,

while the freedom of activity within the confinement of human restraints is in the form of social tolerance.

We have all heard the story of the remarkable abdication of the throne by King Edward VIII to fulfil his desire to marry Lady Wallis Warfield Simpson in 1936. Considering that civilization had already developed into a stage where even an ordinary citizen had the complete freedom to choose his or her spouse, it was quite unfortunate that as the Monarch of Great Britain, Edward VIII was denied such privilege. In response to many rigorous objections, he was forced to give up the throne in order to marry the woman he loved.[2] Although history has proven the genuine love between this couple, this historical event proves that not even an authoritative and much respected figure such as the King of Great Britain was exempt from the grasp of social restraints. In fact, as a king, in order to fulfill his responsibilities, he was actually subjected to even greater and more stringent social restraints than others in the society due to his inherited prominence.

As we browse through the pages of history, we can see that with the continuous advancement of civilization, human beings come to even greater degree of freedom. It wasn't all that long ago that people were still dreaming about being able to fly, and now we have actually made space exploration a practical reality. In the past, matrimonial decisions typically required parental consent and approval, but today such decisions are made on the basis of love and mutual understanding. The scope of desires and the degree of freedom are undoubtedly increasing synchronously with the advancement of civilization. The future holds enormous promise for the human race, as strict restraints imposed by nature and society upon human being are steadily reduced with the advancement of civilization. The journey undertaken by human civilization closely resembles the course of a small boat drifting along a torrential river. It suffers enormous hardships as it struggles between the urge to live and the adversity of death. It courageously defies formidable obstacles obstructing its path, risking the collision with an unpleasant fate, challenging the dangers it encounters and remaining determined to carry on until it arrives at its destination. After enduring a long and difficult ordeal, it finally approaches peaceful waters where the confinement of the riverbanks is left behind, and it is free to sail the vast exciting waters of the ocean. This is a rather simple portrayal of the course of human civilization. Nevertheless, both the course of human civilization and the boat have to endure the relentless test of time. Furthermore, such a portrayal highlights the symbolic importance of the riverbanks and levees (depicting the natural and social restraints for human civilization) in preventing the rampaging flow of water from flooding, as well as maintaining the course of the river**.**

It is true that modern civilization now provides us with greater degrees of freedom, so that we can choose not to dwell in unfurnished caverns; or unwillingly endure the scorching heat of the unforgiving sun; or brave the bitter chill of the icy winter winds. Unlike our prehistoric ancestors, we no longer need to live in constant fear of unexpected attacks from predators. Today, we are blessed with the kind of material wealth and spiritual fulfillments that people in the past could barely dream of. However, human civilization is yet to reach its absolute pinnacle. Judging by its potential, human civilization is now only at a relatively infantile stage. The human race is still trying to consolidate a presence amidst the endless episodes of catastrophes that remain well beyond our control. Our lives are still at the mercy of the destructive forces of nature, and plagued by deadly diseases and illnesses. We are still unable to escape from the grasp of petty crimes; still unable to prevent human-induced mishaps; still burdened by the fear of unemployment; and we

still cannot avoid death. Humans must endure some form of physical and/or spiritual hardship in order to acquire the various necessities for survival**.**

At its present level, modern human civilization is still only capable of granting us with very limited capacity to satisfy our desires, thus restricting the degree of freedom of the human race to a relatively low level. Humans tend to have seemingly insatiable and at times, seemingly unrealistic desires. This is because the scope of human desires far exceeds our actual capacity to satisfy these desires. By reflecting upon past accomplishments, taking notice of our current achievements, and persisting with our objectives for the future, we can confidently arrive at the following conclusion: when human civilization reaches its absolute peak, it will allow us to satisfy all our desires without any apparent difficulties. Or conversely, when we have the ability to effortlessly satisfy all of our desires, this will indicate that human civilization has reached its maturity and realized its full potential. All of our present day achievements are the fulfilled aspirations of the past. Similarly, today's dreams will be tomorrow's reality. After walking through the agonizing long journey and suffering enormous hardship there will come a day that humans will finally arrive to this utopia. This relates back to the notion that our inherent desires constitute the primary driving force of human civilization, and that civilization develops towards the direction that maximizes our capacity to satisfy our desires, ultimately for survival.

Chapter Four: How does civilization disseminate and proceed?

Is the dissemination of civilization an objective existence or is it merely a speculative concept? The dissemination of civilization is a substantiated process. Chinese civilization originated in the fertile central valley of Huang He (the Yellow River) several thousands of years ago. However it is clearly no longer confined to that particular region of China. It has dispersed throughout the whole of China. In fact, it has dispersed far beyond the political boundaries of China and reached other regions of the world. The extent of the influence of this Chinese culture is clearly evident in many Asian nations today. Similarly, the ancient Greek civilization that provided the blueprint for modern western civilization has had a profound influence on nearly every nation on Earth. These are the two most obvious examples demonstrating that dissemination of civilization is not just a speculative concept.

The dissemination of civilization can also be viewed from a technological perspective. Discoveries and inventions are usually only achieved by very few individuals amongst communities of people, as not everyone is capable of making the same discoveries or inventions at the same time. For example, the first electric light was invented by an individual named Thomas Edison. Today, electric lights have become such an integral part of everyday life for almost every family and society, yet the majority of the people that benefit from the use of electric lights never actually

took part in the original inventing process. This shows how the utilization of a product of technology, such as the electric light, disseminated from one individual to the whole of human society. Similarly, the direction in which civilization tends to disseminate is from a minority of individuals towards large groups of individuals.

In order to determine the process through which civilization is disseminated, we need to look firstly at the process of invention. This generally involves two stages: firstly, the establishment of a theoretical concept, followed by the construction of an experimental model; or prototype.

The theoretical phase is the most vital stage, as the construction of a functional prototype is not possible without a sound and pragmatic theoretical basis. New concepts are actually the integration of existing concepts, or conversely, all concepts can be further dissected into a number of simpler concepts. For example, the functional principle behind both the flashlight and the spotlight is based on combining the basic concepts of the electric light with the light-bending properties of concave lenses.

Integrating existing concepts to develop a new concept is a logical thinking process that requires creativity. The development of every scientific theory or engineering design is somewhat comparable to the task of assembling items of furniture using processed raw materials. The only difference is that furniture is a definite object whereas a scientific theory is amorphous. A design is also amorphous until an experimental prototype is produced. Therefore, experimental prototypes and any subsequent final products are the end products and vindication of the concepts that exist in the minds of the designers. It is essential that a practicable concept precisely matches the corresponding objective reality.

Let's examine the process by which desires are fulfilled and lead to satisfaction in society. Driven by desire, Thomas Edison, one of the individuals in the society, invented the first electric light. Then came the large scale commercialized production, followed by the distribution of electric lights into every family through market exchange. Finally, the desire of the large number of individuals in society is satisfied. From this example, the process through which civilization disseminates is illustrated in the following flow chart:

Desire→Logical thinking by a few individuals→New concept established→Experimental prototype constructed→Invention is acknowledged→Mass production of the newly invented product→Trading of product on the markets→Product becomes available to entire community→ Desire of entire community is satisfied

This is the serial form of dissemination of civilization. The other form of dissemination is through the dissemination of concepts. As a concept is passed from one individual to another, it is likely to trigger another similar but totally independent serial dissemination pathway of desire to desire satisfaction. Within a community, a concept can be simultaneously transferred from any one individual to many other individuals, thus initiating a multitude of independent but parallel pathways. This parallel form of dissemination is even more significant in terms of the dissemination of civilization as this essentially leads to an exponential expansion, thus resulting in a more rapid and more expansive mode of dissemination. Furthermore, as a concept is passed from

one individual to the next, it can be further modified and perfected into a more sophisticated concept that often leads to the discovery of new theories and new inventions.

The introduction of personal computers in the eighties is an example of parallel dissemination process. At the time, IBM's PC and Apple's Macintosh were the two types of personal computers on the market, and Macintosh computers were relatively more user friendly. In order to strengthen its position on the PC market, IBM adopted a more direct and aggressive marketing strategy to promote and encourage other computer manufacturers to base the design and manufacture of new computers on existing IBM architecture. As more and more IBM compatible computers were produced based on the IBM design, it resulted in the eventual domination of IBM architecture on the PC market in terms of conceptual design. This is a perfect example demonstrating the extent of the repercussion from the dissemination of just one simple concept.[3]

Every step along the dissemination pathway for both serial and parallel dissemination is driven by desire. The inventive process may be initiated by a simple but specific desire. For example, the invention of the electric light was primarily a direct response to the desire to see in the dark. However, the individuals participating in the subsequent commercialization and mass production are typically driven by various desires such as the maximization of profits, publicity, philanthropism, making a living, etc.

By its nature, the exchange of products is actually the exchange of desires. There are inherent physical and mental limitations imposed on all human beings. Therefore, any given individual is usually only capable of satisfying a limited amount of personal desires independently. For instance, Thomas Edison may have the brilliant mind to invent the electric light and many other useful gadgets, but he probably didn't have the right attributes and ability to be a farmer or a builder. Just like the rest of us, he also needed to find good food to eat and a place to live. In order to satisfy those desires, he needed to offer something that would satisfy the desires of other individuals in return. Therefore, trading becomes an effective and mutual means of satisfying the various desires of individuals within a community, where all kinds of commodities can be exchanged legitimately on the open market. Goods to be traded exist in the form of definite objects, such as food, clothes, and cars or alternatively, exist in a more abstract or conceptual form, such as knowledge and music. Irrespective of the form in which they exist, these commodities are traded because they can satisfy the desires of other individuals that are willingly and purposely participating in the exchange. The local butcher, the music industry, and even fortune-telling exist simply because there are persistent demands for the products they provide. Therefore, the nature of trading is essentially an exchange of desires.

Economists often use the term "market force" to describe the driving force behind economic development. However, desire is the actual driving force responsible for the day-to-day functioning of the society, the growth of economy, and consequently, the continuous advancement of civilization. In fact, every human activity is somehow intimately associated with some form of exchange. Furthermore, exchanges are not solely limited to trading on the market. Exchanges can happen in any form and can take place at any given time, at any given place and between any given individuals of the society. Think about the exchange of vows between a bride and groom at their wedding; the exchange of physical and emotional fondness between lovers which is glorified by poets and romantic novelists; the exchange between two opposite sexes indulged in adultery which

is condemned by moral and ethical principles; the exchange of trust between friends; and the exchange of ideas between intellectuals. Behind all of these exchanges lie desire.

Equal exchange is the undoubtedly the most important principle in any form of exchange. To ensure the equality of many exchanges, the use of currency offers a simple standardized medium for exchange. Since all exchange is essentially the exchange of desires, it follows that currency represents the universal unit of measurement for all human desires.

Chapter Five: How can civilization advance at the fastest possible pace?

Looking at the history, the rise and fall of any civilization as well as the success and failure of any business have their reasons. The mechanism behind them governs the pace at which civilization develops. When we contemplate this puzzle, it prompts the following question: How can the development of society advance at the fastest possible pace?

The pace at which civilization develops depends on whether all individuals in society can collectively deliver the maximum output. We can understand this issue as a serial process. This serial process, firstly depends on the extent to which individuals can have their input. Secondly, it depends on whether individuals have the capability to process and its functioning state. Thirdly, it depends on to what extent the environment allows individuals to deliver their output. For example, if an individual wants to build a house, firstly, he needs to have the input of building materials. Secondly, he should have the capability to use the building materials to build the house. Thirdly, the environment must permit him to build the house. During this serial process, disruption at any step can obstruct the final output.

Furthermore, we can understand this issue from a parallel perspective. Theoretically, if each of the individuals is able to function at the highest level to deliver the maximum output, society may produce the maximum output. However, even if every individual delivers the maximum output, it does not guarantee a maximum collective social output because some individuals may deliver negative output. Consider the following analogy: if an individual builds a one-story house and another individual builds a second story on top of it, then the two of them have, in aggregate, provided their community with a two-story house. The combined output is positive. However, if these two parallel individuals have a conflict of interest and the second individual works around the clock to deliver his maximum output to demolish the existing house, then not only does he destroy the existing asset, but wastes other resource as well. His social output is certainly negative. Conflicts between individuals constitute part of the resistance to the advancement of civilization and result in social disorder. This will be further discussed in the following chapters.

We can further understand the pace of civilization using another mechanism from physics. It is a common phenomenon that for an object to move faster the driving force must be increased and the resistance reduced. On the same principle, if a society increases the civilization driving force and reduces the resistance, it will be able to deliver the maximum output to achieve the goal of advancing civilization at the fastest possible pace.

The following chapters will further discuss the mechanism behind human behaviors and the driving force and resistance of civilization. The discussion will focus on several issues: the importance of the orderly functioning of society in regards to social output, the forces controlling the output of individual and society, and how society manipulates the social output.

Chapter Six: The importance of the orderly functioning of society in regards to social output

An orderly functioning state provides the necessary environment for society to deliver maximum output and ultimately survive. Since we live in a physical environment, physical collision may occur if there is no set of artificial rules imposed on our daily activities to guide our behaviors. Let's take a look at the transport system. Transport is an important component of the day to day functioning of any society as it facilitates the transfer and flow of material goods, information and people within society. The fluency of traffic relies on the availability of a comprehensive set of rules as well as a systematic means of enforcing them. Confusion and chaos are inevitable in the absence of such rules and the effective enforcement of these rules, resulting in prolonged traffic congestion, or even total paralysis of the transportation system. Blatant disregard for the traffic signals will result in collisions between pedestrians and vehicles, causing fatality, damages to vehicles, properties and other resources. If traffic incidents occur on the major roads, then they are certain to severely disrupt the routine functioning of the society, which will subsequently have extensive negative financial impacts. In order to avoid such occurrences, rules are a necessary device within a society to guide appropriate behaviors of the individuals. This in turn results in a society that functions in an orderly manner.

In fluid dynamics, the motion of fluid basically has two forms, laminar flow or turbulent flow. Laminar flow describes regular fluid motion in which different layers of the fluid body flow at different velocities but in the same direction. Turbulent flow refers to the irregular motion resulting from increased fluid velocity that disrupts the streamlined flow and forms small eddies. These eddies flow in different directions, colliding with each other and therefore causing enormous loss of kinetic energy.[4]

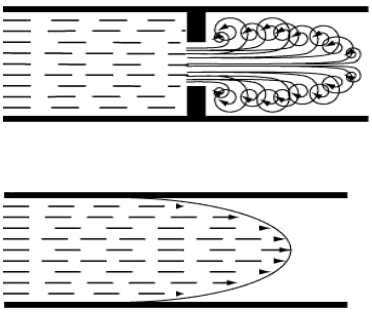

Fig-0

Similarly, a society consists of various groups and individuals with vastly different and sometimes highly conflicting interests. Therefore, excessive discordance between individuals or groups that emerges during the "flow" of society (i.e. the day to day social activities) can cause massive dissipation or loss of social energy. This is likely to decrease or interfere with the streamlined flow of society and may disrupt the absolute integrity of society, subsequently impeding the progressive advancement of civilization. In relation to the group as a whole, some form of order must be maintained to minimize internal conflict, reduce loss of energy and prevent the collapse of the society's internal structure. If order is maintained, the civilization of the group advances at a faster pace, ensuring its survival within a highly competitive environment. A society typically consists of many different individuals and sub-groups. The functioning of the society is essentially based on the exchanges of interests between individuals and sub-groups. These mutual exchanges (or "flows") operate on the principle of fair exchange. Conflicts within the society will often arise if an exchange is inequitable. Although it is possible for one party (whether it is an individual or a sub-group) to gain a temporary benefit or advantage at the early stages of an unfair exchange, it will ultimately jeopardize potential long-term benefits that may emerge from the exchange. For example, the extremely low pricing of a particular product may initially benefit the purchasers. However, as the price continues to plummet over a long period of time, the producer may be forced to cease production. The decrease in supply will inevitably cause an increase in the market value of the product, leading to buyers actually spending more in the long run. Interactions between individuals within a group are reciprocated and mutually complementary, so that a breakdown in one aspect will induce other breakdowns in other aspects. Furthermore, this breakdown in interactions between individuals and subgroups, and even between groups, may be long lasting or even permanent. Therefore, order in the functioning of a society is not only important to the group as a whole, but also to each individual within that group.

In real life, there are many situations where extreme measures are taken to maintain social order. For example, when an economy loses control of inflation, the government will implement tough measures such as price freezes. Likewise, when there is turmoil in society, martial law may be implemented. These measures prevent society from slipping into chaos.

When understanding the nature of order, one cannot simply regard it as a static, motionless system, but a dynamic one. For example, in the middle of the night, people are asleep, pedestrians are sparse, the shops are closed and factories have shut down production. At this time, the whole community is obviously in an orderly form, but the output is significantly smaller than the

productivity of the daytime. This type of order is comparatively static, without vitality. A society should be dynamic, orderly and harmonious, with ample vitality, in order to achieve maximum output.

In summary, orderly functioning ensures that the internal structure of society will not be compromised, thereby preventing unnecessary dissipation of energy and allowing society to achieve its maximum output. Ultimately, this ensures the faster advancement of civilization, which guarantees the long-term survival of the group as a whole, as well as the individuals within the group.

In real life, we can see that order is a vital component to ensure the successful functioning of any groups of individuals, from a small group such as a family, to a large aggregation of people such as a nation. A harmonious family environment is known to have a significant impact on the mental and emotional wellbeing of an individual. However, it is impossible to have harmony at home if members of the family are always in conflict. Another example is that when people go shopping, they are often required to form a queue to obtain particular goods or services. The act of queuing up is intrinsically a functional expression of order in terms of priority and subsequently, a fair system for the sequence of operation. In this instance, the order of operation is on the basis of "first come, first served". However, if order is disrupted, in this case, when people start pushing in to get to the front of the queue, some form of conflict is inevitable, and can often result in violent verbal and/or physical confrontations. When this occurs, the ordered operational practice of trading degenerates to total chaos.

Chapter Seven: What are the forces controlling individuals' behaviors to ensure an orderly society?

In the previous chapter, the importance of an orderly society has been discussed. The next question that arises is: what are the forces controlling individuals' behaviors to ensure an orderly society and ultimately for survival? In order for a society to function in an orderly fashion, individuals must follow a set of rules to control their social behaviors. The objective of these rules is to protect the interest of the whole society and further guarantee its survival. However, humans' self-centered nature still influences individuals' behaviors. If every individual's social behaviors were wholly based on self-interest, which is similar to the direction of small eddies in turbulent flow circulating around its own center, then internal conflict within society would be inevitable. To minimize this internal conflict and maintain the orderly functioning of a society, it is important to control individuals' social behaviors. At this point, questions logically arise: what are the forces controlling human behaviors, and how do these forces control each individual's social behaviors?

Chapter Eight: How does society manipulate the social output?

We have discussed in previous chapters that inherent desire is the primary driving force behind an individual's behaviors. On top of this, "Internal Controlling Forces" modify the influence of these desires on human behaviors at a decision making level and subsequently result in social behaviors. An individual's behaviors originate from a decision made by the individual's brain, which comes from the logical thinking process. Logical thinking is neural activity in which electrical signals are processed in the brain. During this process, an individual's inherent desire interacts with their acquired knowledge. The final result of this logical thinking process is arriving at a conclusion or making a decision. Putting this decision into practice then leads to social behaviors. The following diagram illustrates this process:

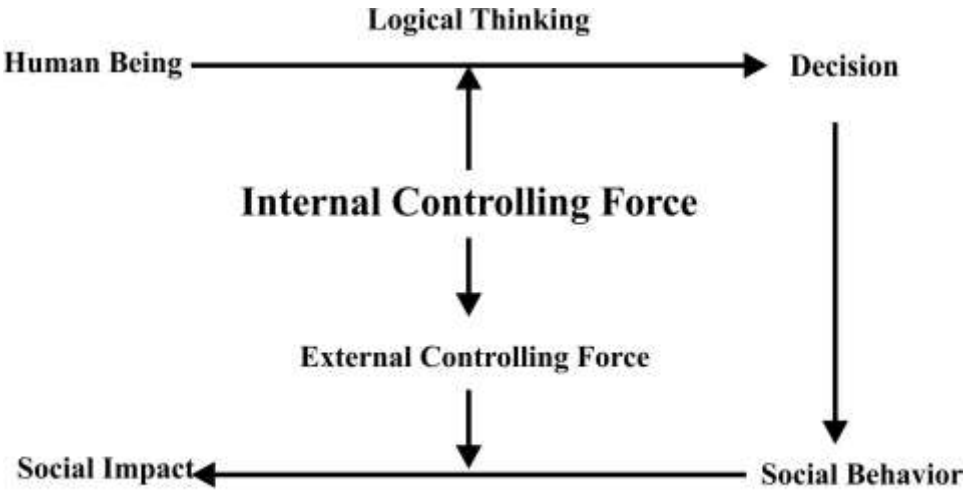

Fig - 1

During this process, any elements that accelerate constructive social output are the driving force of human civilization, and any elements that slow down constructive social output are the resistance of human civilization. The elements involved in this process are:

Chapter Nine: How do various “Internal and External Controlling Forces” maintain social order?

This chapter will further discuss various “Internal and External Controlling Forces” in maintaining social order.

The role of “Internal Controlling Forces” in the maintenance of social order can be expressed in the following forms: customs, moral and ethical principles, religious doctrines, philosophy and scientific knowledge. “External Controlling Forces” come from outside of an individual and some of them are enforcing. These forces mainly consist of various legislative and administrative institutions that operate in society such as the legislative body in parliament and administrative departments, which play a part execution. Others include a board of directors in a company or an executive committee in an organization. Even within a family, the behavioral restrictions placed on children by their parents can also be considered a form of “External Controlling Forces”.

Chapter Ten: Logical thinking

We have discussed the role of inherent desires, “Internal and External Controlling Forces”, human behavior, and further, in relation to individual and group output. But how can we guarantee that we make correct decisions to achieve maximum output? In this chapter, we will make a simple analysis on logical thinking. The nature of thinking will be further discussed in other chapters.

Why is it necessary to analyze logical thinking? From previous discussion, a conclusion can be drawn: civilization is a product of human behavior, which is determined by decisions. Decisions are made through logical thinking, in which multiple determining factors including desires and various concepts are processed according to a set of rules. In other words, this process involves human instinct – intrinsic electrical activities – interacting with concepts, which are also electrical activities in the neural network. Decision is the outcome of this interaction and is electrical activity in itself, directing human behavior to create civilization. In this process, inherent desire is the fundamental driving force but logical thinking is the most critical driving force of civilization, particularly rational thinking. It plays a decisive role in civilization.

Chapter Eleven: Concepts and the objective existences

It has been known that the Fifteenth Century's scientific revolution was due to the introduction of experimentation. But why does experimentation allow us to achieve breakthroughs in exploring nature? Can accurate concepts only be achieved through experiments? The theory and concept of Copernicus' heliocentric model was correct even though he had never conducted any experiments. Why is that so? These questions lead to the question of what concepts are and what logic is. Fundamentally, it is the question of what the so-called "inside world" and "outside world" is.

What are concepts?

Concepts are the representation of objective existences in the human brain…

Chapter Twelve: The fundamental interrelationships of nature

You may think that human civilization is the product of our intelligence and controlled by our own hand. However, upon further observation, you might notice that our civilization bears amazing similarities to cosmic phenomena: the birth and death of any celestial body and the rise and fall of any civilization; the collision of galaxies and conflict of civilizations. It always seems confusing. In the universe, things often seem complicated, magical and incomprehensible. However, when observing the very nature of seemingly complicated phenomena, it is, in fact, strikingly simple. Through the mirror of illusion, objects magically display their order – as if every object's fate is controlled by a mysterious power. The destiny of all existence has been preordained. Besieged by confusion and uncertainty, human beings have been longing to understand the environment upon which our survival depends and the universe that cultivates every existence. Mankind asks an ultimate question: are our civilization and all other existences in the universe governed by a FUNDAMENTAL mechanism? Are social structure, technological developments, the human body, marriage and even beauty all governed by this common mechanism? If yes, can we use a simple model to represent and unify the concepts of all fundamental interrelationships? Can this

model be used as the foundation to unify social science and natural science and further bridge the gap between science and philosophy?

In the chapter on logical thinking, the example of whether or not to eat the leftover food is used to diagrammatically analyze the process of thinking. In this thinking process, several parallel thoughts converge to a conclusion – the food is edible. What would happen if the food were eaten? It would be broken down into nutrients, water and other substances – a divergent process. By using lines to represent these processes, a mathematical model is deducted to represent thinking. From the previous discussion about concepts, we realize that concepts are representations of objective existences in the brain. The accurate concept in the brain must logically match the objective existence that the concept represents. If this is so, the logical thinking model, which represents the interrelationships between concepts in the process of logical thinking, is also in fact the representation of the interrelationships of objective existence. The diagram below is a model that represents the fundamental interrelationships between objective existences and their interconnections, also known as the ***Interrelationships Model***. The details of objective interrelationships will be dealt with in this chapter.

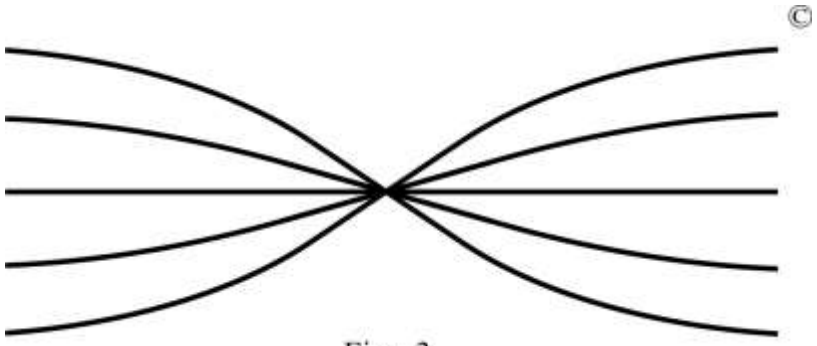

Fig - 3

Chapter Thirteen: Evolution of the universe

Ever since civilization, humans have been trying to understand the surrounding environment upon which our survival depends. On this journey, the Mesopotamian, Babylonian, Greeks and others proposed various speculative ideas in the past.[300] This activity has been continuing to the present-

day with many hypotheses, of which *"The Big Bang theory is the prevailing cosmological description of the development of the universe".* [301]

This theory *"is a cosmological model of the observable universe from the earliest known periods through its subsequent large-scale evolution. The model describes how the universe expanded from an initial state of extremely high density and high temperature, and offers a comprehensive explanation of a broad range of observed phenomena…" "… the theory describes a high density state preceded by a singularity in which space and time lose meaning. Detailed measurements of the expansion rate of the universe place the big bang at around 13.8 billion years ago."*
- Big Bang, Wikipedia

> *"The Big Bang theory is the prevailing cosmological model explaining the existence of the observable universe from the earliest known periods through its subsequent large-scale evolution. The model describes how the universe expanded from an initial state of high density and temperature, an offers a comprehensive explanation for a broad range of observed phenomena, including the abundance of light elements, the cosmic microwave background (CMB) radiation, and large-scale structure.*
>
> *Crucially, the theory is compatible with Hubble-Lemaitre law –the observation that the farther away a galaxy is, the faster it is moving away from Earth. Extrapolating this cosmic expansion backwards in time using the known laws of physics, the theory describes and increasingly concentrated cosmos preceded by a singularity in which space and time lose meaning (typically named 'the Big Bang singularity'). detailed measurement of the expansion rate of the universe place the Big Bang singularity at around 13.8 billion years ago, which is thus considered the age of the universe.*
>
> *After its initial expansion, an event that is by itself often called 'the Big Bang', the universe cooled sufficiently to allow the formation of subatomic particles, and later atoms. Giant clouds of these primordial elements – mostly hydrogen, with some helium and lithium – later coalesced through gravity, forming early stars and galaxies, the descendants of which are visible today. Besides these primordial building materials, astronomers observe the gravitational effects of an unknown dark mater surrounding galaxies, most of the gravitational potential in the universe seems to be in this form, and the Big Band theory and various observations indicate that this excess gravitational potential is nor created by baryonic mater, such a normal atoms. Measurements of the redshifts of supernovae indicate that the expansion of the universe is accelerating, an observation attributed to dark energy's existence.*
>
> *Georges Lemaitre first noted in 1927 that an expanding universe could be traced back in time to an originating single point, which he called the 'primeval atom'. Edwin Hubble confirmed through analysis of galactic redshifts in 1929 that galaxies are indeed drifting apart; this is important observational evidence for an expanding universe. For several decades, the scientific community was divided between supporters of the Big Bang and the rival steady-state model which both offered explanations for the observed expansion, but the steady-state model stipulated an eternal universe in contrast to the Big Band's finite age. In 1964, the CMB was discovered, which convinced many cosmologists that the*

steady-state theory was falsified, since, unlike the steady-state theory, the hot Big Band predicted a uniform background radiation throughout the universe caused by the high temperatures and densities in the distant past. A wide range of empirical evidence strongly favors the Big Bang, which is now essentially universally accepted.

Timeline

According to the Big Bang theory the universe at the beginning was very hot and very compact, and since then it has been expanding and cooling down.

Singularity

Extrapolation of the expansion of the universe backwards in time using general relativity yields an infinite density and temperature at a finite time in the past. This irregular behavior, known as the gravitational singularity, indicates that general relativity is not an adequate description of the laws of physics in his regime. Models based on general relativity alone cannot extrapolate toward the singularity – before the end of the so-called Planck epoch.

This primordial singularity is itself sometimes called 'the Big Bang', but the term can also refer to a more generic early hot, dense phase of the universe. In either case, 'the Big Bang' as an event is also colloquially referred to as the 'birth' of our universe since it represents the point in history where the universe can be verified to have entered into a regime where the laws of physics as we understand them (specifically general relativity and the Standard Model of particle physics) work. Based on measurement of the expansion using Type la supernovae and measurements of temperature fluctuations in the cosmic microwave background, the time that has passed since that event – known as the 'age of the universe' – is 13.8 billion years.

Despite being extremely dense at this time – far denser than is usually required to form a black hole – the universe did not re-collapsed into a singularity. Commonly used calculations and limits for explaining gravitational collapse are usually based upon objects of relatively constant size, such as stars, and do not apply to rapidly expanding space such as the Big Bang,. Since the early universe did not immediately collapse into a multitude of black holes, matter at the time must have been very evenly distributed with a negligible density gradient.

Inflation and baryogenesis

The earliest phases of the Big Bang are subject to much speculation, since astronomical data about them are not available. In the most common models the universe was filled homogeneously and isotropically with a very high energy density and huge temperatures and pressures, and was very rapidly expanding and cooling. The period from 0 to 10^{-43} seconds into the expansion, the Planck epoch, was a phase in which the four fundamental forces – the electromagnetic force, the strong nuclear force, the weak nuclear force, and the gravitational force, were unified as one. In this stage, the characteristic scale length of

the universe was the Planck length, 1.6 x 10^{-35} m, and consequently had a temperature of approximately 10^{32} degrees Celsius. Even the very concept of a particle breaks down in these conditions a proper understanding of this period awaits the development of a theory of quantum gravity. The Planck epoch was succeeded by the grand unification epoch beginning at 10^{-43} seconds, where gravitation separated from the other forces as the universe's temperature fell.

At approximately 10^{-37} seconds into the expansion, a phase transition caused a cosmic inflation, during which he universe grew exponentially, unconstrained by the light speed invariance and temperatures dropped by a factor of 100,000. Microscopic quantum fluctuations that occurred because of Heisenberg's uncertainty principle were amplified into the seeds that would later form the large-scale structure of the universe, at a time around 10^{-36} seconds, the electroweak epoch begins when the strong nuclear force separates from the other forces, with only the electromagnetic force and weak nuclear force remaining unified.

Inflation stopped at around the 10^{-33} to 10^{-32} seconds mark, with the universe's volume having increased by a factor of at least 10^{78}.Reheating occurred until the universe obtained the temperatures required for the production of a quark-gluon plasma as well as all other elementary particles. Temperatures were so high that the random motions of particles were at relativistic speeds, and particle-antiparticle pairs of all kinds were being continuously created and destroyed in collision. At some point, an unknown reaction called baryogenesis violated the conservation of baryon number, leading to a very small excess of quarks and leptons over antiquarks and antileptons – of the order of one part in 30 million. This resulted in the predominance of matter over antimatter in the present universe.

Cooling

The universe continued to decrease e in density and fall in temperature, hence the typical energy of each particle was decreasing. Symmetry-breaking phase transitions put the fundamental forces of physics and the parameters of elementary particles into their present form, with the electromagnetic force and weak nuclear force separating at about 10^{-12} seconds. After about 10^{-11} seconds, the picture becomes less speculative, since particle energies drop to values that can be attained in particle accelerators. At about 10^{-6} seconds, quarks and gluons combined to form baryons such a protons and neutrons. The small excess of quarks over antiquarks led to a small excess of baryons over antibaryons. The temperature was now no longer high enough to create new proton-antiproton pairs (similarly for neutrons-antineutrons), so a mass annihilation immediately followed, leaving just one in $10^{8}$of the original matter particles and none of their antiparticles. A similar process happened at about 1 second for electrons and positrons. After these annihilations, the remaining protons, neutrons and electrons were no longer moving relativistically and the energy density of the universe was dominated by photons (with a minor contribution from neutrinos).

A few minutes into the expansion, when the temperature was about a billion kelvin and the density of matter in the universe was comparable to the current density of earth's atmosphere, neutrons combined with protons to form the universe's deuterium and helium nuclei in a process called Big Bang nucleosynthesis (BBN). Most protons remained uncombined as hydrogen nuclei.

As the universe cooled, the rest energy density of matter came to gravitationally dominate that of the photon radiation. After about 379,000 years, the electrons and nuclei combined into atoms (mostly hydrogen), which were able to emit radiation. This relic radiation, which continued through space largely unimpeded, is known as the cosmic microwave background.

Structure formation

Over a long period of time, the slightly denser regions of the uniformly distributed matter gravitationally attracted nearby matter and thus grew even denser, forming gas clouds, stars, galaxies, and the other astronomical structures observable today. The details of this process depend on the amount and type of matter in the universe. The four possible types of matter are known as cold dark matter, warm dark matter, hot dark matte and baryonic mater. The best measurements available, from the Wilkinson Microwave Anisotropy Probe (WMAP), show that the data is well-fit by a Lambda-CDM model in which dark matter is assumed to be cold (warm dark matter is ruled out by early reionization), and is estimated to make up about 23% of the matter/energy of the universe, while baryonic matter makes up about 4.6%..."

- Big Bang, Wikipedia

Based on the aforementioned descriptions, an interpretation is hereby drawn:

The Big Bang theory describes a *dynamic* process from a *singularity* to *plurality* through a *divergent expansion* in which a *series of transition of state, critical point, divergence-convergence, expansion-contraction, symmetry-asymmetry, order-disorder* and *hierarchical* developments *cohesively* occurred.

Singularity expresses as "*the gravitational singularity*". Plurality expresses as the multifarious diversity of the present-day's universe. Serial relationship expresses as a series of transition of state from Planck epoch → grand unification epoch → electroweak epoch… Expansion is expressed as the spatial expansion of the universe. Divergence expresses as the separation of four forces (assuming the concept of separation still falls under the general definition of separation). Convergence expresses as quarks combining into baryons, baryons combining into nuclei, nuclei combining electrons into atoms (assuming the concept of combining still falls under the general definition of combining)… Hierarchy expresses in the structural formation of the universe. All these processes can be cohesively represented with the Interrelationships Model.

Chapter Fourteen: evolution of life - a part of the evolution of the universe

Following the fundamental interrelationships, the universe evolved from a homogeneous singularity to the present-day's diverse plurality. Among these dynamic transitions, a specific branch, the evolution of life emerged on one of the planets, the Earth…

Chapter Fifteen: Body system and social system – two parallel expressions of energy in the universe

In organic substances, atoms form molecules such as proteins, nucleic acids, lipids, and other carbohydrates. These basic molecules make up cells and interstitial substances in living organisms. Cells and interstitial substances form tissues, such as muscle cells in muscular tissue; Tissues form organs; Organs form functional systems such as the endocrine system which consists primarily of the thyroid gland, adrenal glands and pituitary gland. Functional systems form an individual living organism. Multiple individuals form society. Organisms are grouped according to kingdom, phylum, class, order, family and genus and further divided into different species, which means that whenever energy exists in the form of living organisms, it can exist in the forms of many species. Humans are only a branch among the entire system of living organisms. From this discussion, we can see that this process is consistent with the principle of hierarchical structure…

Chapter Sixteen: multicellular development and social development

After unicellular organisms evolutionarily reach a critical point, transition to multicellular organisms is achieved. As evolution continues, some multicellular organisms converge to form a higher level bio-system - social group. Being a part of the evolution of the universe, the development of social groups also follows all fundamental interrelationships in a cohesive fashion. Upon the fundamental interrelationships of singularity, plurality, divergence, convergence, serial, parallel, hierarchy, and etc., features similar to the transition to multicellular organism appear in the development of social groups, such as social differentiation, specialised profession, division of labor, coordination, cooperation, hierarchical structure and increasing social complexity. Thus, we can see the similarities between a cell, a multicellular organism and a social group:

Chapter Seventeen: Coordination-cooperation in multicellular organism and society

The coordinating systems in human body and society

1 Neural control

The neural system is the coordinating system to maintain the ordered state of a human body. In a society, the administration system greatly resembles the neural system structurally and functionally. They are the top level of their respective hierarchical systems. Also, both neural and administration systems are hierarchically organized in which serial orders proceed from the highest to the lowest levels. In both systems, the higher level controls the lower levels' activities. The brain, particularly the prefrontal cortex, is at the top of the system.[49] From the top to the bottom,

each level extends nerve fibers to connect others, and peripheral nerves connect to various organs. [50] In the social administration system, a similar pattern exists. Apart from the serial level, parallel branches exist in which specific functions are performed.

Chapter Eighteen: The mechanism behind social evolution

Chapter Nineteen: The nature and rules of technological development

Driven by the asymmetrical imbalance between the desired mind-state and reality, technological development starts with the invention of tools. It has progressed from stone and metal tools to the sophisticated tools that we use today. In this discussion, we will only focus on the technological developments of the modern time.

I: What is the nature of the Industrial Revolution with regard to human body?

Chapter Twenty: The impacts of power increase on social evolution

Technological development's impacts on society follows the same set of fundamental interrelationships that the Big Bang, evolution of life and development of a multicellular organisms follow. Thus, it has similarities to those events.

To read the complete chapter, please download the book from Amazon.com. It is currently free.

Chapter Twenty-one: The nature of beauty and the fundamental Interrelationships

Throughout human history, the enchantment of beauty constantly wields its power to bewitch us. Driven by its irresistible temptation, we have been drawn to the endless pursuit for its forever phantom illusion, giving rise to the inspiration of various spectacular phenomena in our civilization: the resonance of Beethoven symphony in conservatorium, the graceful ballet of Swan Lake performed in theatres, the emotive arias echoing in opera house and the splendid art exhibited in national galleries. These are testimonies to the pursuit of beauty which enriches humans' mundane lives…

To read the complete chapter, please download the book from Amazon.com. It is currently free.

Chapter Twenty-two: The mechanism behind the rise of Western Civilization

In human history, Western civilization made a series of important advancements, exceeding others to enter the modern age. Many important theoretical and practical advancements were achieved. Regarding theoretical achievement, the Scientific Revolution gave birth to modern physics, chemistry, astronomy, mathematics, biology, medical sciences and so on. The invention and application of new technologies, symbolized by the steam engine, have acted as a revolutionary force, bringing civilization into a new era. This chapter attempts to examine the mechanism behind

the rise of Western civilization: why “modern” civilization arose in Europe but not elsewhere? Conversely, why couldn’t other civilizations make a similar transition from “ancient” to “modern” at that time…

To read the complete chapter, please download the book from Amazon.com. It is currently free.

Chapter Twenty-three: The Development of Chinese Civilization

On the eastern side of the Eurasian continent, the water of the Yellow River flows through the mountains and plains, providing the resources to enrich the soil and cultivate another civilization. This land was transformed into the cradle of Chinese civilization. For thousands of years, the Chinese nation has written her proud history on this land, developing the most prominent civilization in the East. Take a look, riding on the ridges of mountains and stretching thousands of kilometers, the Great Wall of China silently gives its testimony of the glory that the Chinese people achieved in the past. On the sea, the mighty fleet led by General Zheng He sailed to the southern Pacific and the Indian Ocean. To the west, the Silk Road exchanging with the West spread the Chinese civilization to other parts of the world. In intellectual achievements, many technological inventions and theoretical works were made. Perhaps, music, the common language for all people, can deliver a better description of the origin of Chinese civilization:
https://www.youtube.com/watch?v=D-vE5c0nZwE

To read the complete chapter, please download the book from Amazon.com. It is currently free.

Special Chapter: Additional Discussion of the Interrelationships Model

This special chapter is added after the bibliography for readers who have a background in physics to further evaluate the Interrelationships Model. Other readers may find it trite, therefore, please

ignore this chapter. However, if you are interested, please skip the bibliography to read this chapter.

Final Review

In this edition, new discussions suggest that the evolution of the universe described by the Big Bang theory follows the fundamental interrelationships. Furthermore, the evolution of life also follows those fundamental interrelationships in which the fundamental interrelationships express themselves as those biological features. Thus, the evolution of the universe and the evolution of life express similarities at a fundamental level.

As social evolution is a part of the evolution of life and ultimately a part of the evolution of the universe, therefore, civilization not only follows the rules of social development but the rules of the evolution of life and ultimately the fundamental interrelationships. Thus, the Big Bang theory, the evolution of life particularly the transition from unicellular organisms to multicellular organisms, a human body and a society (including its evolution) all express amazing similarities. Upon these interrelationships, the knowledge of medical sciences which are the rules governing the human body are used to study society. At a deeper level, the rules of evolutionary biology that govern the evolution of life are used to study the evolution of society too. Ultimately, at the fundamental level, the knowledge of physics particularly the fundamental interrelationships are used to study civilization. It is at this fundamental level that the Big Bang theory, the evolution of life including transition from unicellular organisms to multicellular organisms, a human body, technological developments, social developments, Western civilization, and Chinese civilization all follow the fundamental interrelationships. All these events are the specific expressions of those fundamental interrelationships. Through exploring these fundamental interrelationships, one will realize how orderly nature organizes itself, as if it were a piece of beautifully composed music, in which every beat is arranged orderly, following a set of basic rules, into melodies, harmonies and symphonies, delivering the audial beauty. In a similar way, nature organizes every particle into various specific arrangements, upon a set of fundamental rules, into atoms, molecules, unicellular organisms, multicellular organism, society, stars, galaxies and the universe, orchestrating the magnificent "symphony of the universe" and displaying the utmost beauty. It is at the fundamental level that everything is cohesively linked together and at this level social science, natural science, and further, science and philosophy are unified. The breakthrough in this new edition has made a significant step in attempting to address the philosophical issue of the *Theory of Everything* (TOE).

At last, a conclusion is drawn: in the evolution of the universe, a part of the energy is transformed and expressed as the evolution of life. As a part of this transformation, we as human beings, as well as other forms of existence in the universe, are inescapably subject to the constraints of those

fundamental laws of physics. Before we start, the journey has been set – our degree of freedom lies in the power that we possess, at the mercy of the constraints that nature imposes upon us.

At the end of this book, I would like to take this opportunity to thank you for allowing me to share my understanding of nature with you. It is a great pleasure to share these discoveries with fellow like-minded human beings. It is pure luck that I have the opportunity to look into these intriguing issues. However, it is beyond one person's capability to explore so many topics. Thus, I would really **appreciate it** if you could take this exploration further or spread the message of this book through social media to others. So that other people with backgrounds in various disciplines can further advance this exploration into a new world: one in which a breakthrough in our understanding of the fundamental nature will open up and eventually lead to a utopia where every desire in your dream will come true. I hereby sincerely thank you in advance. At last, let's end our intellectual conversation with Dvorak Symphony No.9, *"From the New World"*.
https://www.youtube.com/watch?v=Yj06uN0Xov8

Acknowledgement

There is nothing that will continue forever, be it from seasons on Earth to cosmic phenomena in the space, because nothing can escape from the grip of one of the fundamental laws – limitation. That includes the writing of this book, which consumed more than 20 years of strenuous mental and physical labor. Now it is coming to an end, a rough journey trigged by the yearning to understand the confusing environment and curiosity about nature. It was an experience of joy and pain, happiness and sadness, excitement and frustration. At the end, a work looking into the nature of civilization and beyond is completed.

On this uneasy journey, many people offered their helping hands to me, some whom I know and some I don't. All these efforts contributed to my accomplishment of the writing and publishing this work. No matter whether their help was critical or trivial, I honestly feel obliged to acknowledge them.

The idea of putting those discoveries on paper came from Mr. Martin Feng after I shared part of the ideas with him nearly 20 years ago. Being a research scientist, it was his professional sensitivity that gave me the suggestion which led to the start of my writing. Throughout this long lasting process, I have received his positive encouragement and shared my excitement of discovering the rules of nature as well as the pain of frustration. So once again, I would like to take this opportunity to share my excitement with him in the way of appreciation.

This intellectual research project is actually a work of extensive integration of many different concepts. Of all these concepts, many of them are the legacy of those historical pioneers. It was their endeavors in the field of sciences and philosophy that created so many fundamental concepts

and approaches and laid down the foundation for followers to explore nature, and I benefited from their pioneering ground work. For example, in the discussion of using the Interrelationships Model to represent the evolution of life, many important concepts from Darwin's Evolutionary theory, and concepts from Prof. Maynard Smith, Prof. Szathmary, Prof. A. West and Prof. R. Michod provide important intellectual input. For those ground laying pioneers, their fundamental works should absolutely be acknowledged even though some of them may no longer hear it.

The input of a large number of modern science concepts was crucial to the output of my work. Some of the contributors of the intellectual works are known, but some still remain unknown. They contributed their work to various encyclopaedias and to the websites from which I learnt a lot and quote their works in my work. Therefore, they certainly deserve to be credited no matter whether their names are known or not.

There are several authors' works that are critical to my understanding the development of western education. One of them was Professor James Bowen. His book, *A History of Western Education*, provided crucial knowledge for me to understand ancient education in the Greek civilization and I thank him for providing such valuable knowledge and his generosity of allowing me to quote part of his writing. There are many more of the works that I learnt from those unknown authors. Their works are included in the encyclopaedias. I appreciate their selfless contribution.

To tackle the subject of Chinese civilization, I benefited a lot from works of those Chinese authors. They devoted their intelligence and hard work to dig into the Chinese history and unravel the causes, from which I benefit a lot. Therefore, they deserve my respect and I thank them for their intellectual output.

Right at this moment, the memories are bringing me back to the time when I was luckily receiving my free education. I deeply appreciate, from the bottom of my heart, those people who gave me such an invaluable opportunity, from kindergarten to university. Although it was long time ago, the images are still so vivid that it is as if time were reversed and I could directly talk to those teachers: In school, it was you who helped us to learn the basics in the classroom; in the lecture theatres on campus, you opened up the door to the scientific kingdom and displayed the fascinating nature to us; the things that you gave us were not only the treasure of knowledge but the power of science to understand the world, which guided me to follow the pioneers' footsteps and finally tumble into the intriguing philosophical realm. When I think of all of these, I cannot hold back my emotion that I humbly bow to you in expressing my deepest gratefulness from the bottom of my heart, and I will never forget those people who work hard to allow those lucky few to receive the free education. It was the free education that I was lucky enough to receive allow me to have the opportunity to look into the nature of civilization. I deeply feel that I owe them too much. Their hard work turned me from an illiterate when I was born into someone who managed to complete this work. https://www.youtube.com/watch?v=9bxc9hbwkkw

I also would like to take this opportunity to express my appreciation to Professor Chu, the former president of the Chinese Australian Academic Association, for his evaluation. Although he was extremely busy all the time and never met me, he still took the time to review a previous version of my book, and voluntarily wrote a book review on The Australian Chinese Daily, portraying it in a positive light. For this, I sincerely thank Professor Chu for his encouragement.

To write this book was certainly a painstaking task, however, it was even more frustrating to translate it from Chinese into English, because breaking the language barrier is not an easy job. Fortunately, with the help of several people, Serene Ho, Mary Zhang, Wendy Loo, Wayne Kuo, Jenny Chu, Sam Sherry and Janine Hsu, this difficult task has been achieved. I also thank those people who edited the texts and contributed to the enrichment of the writing of the book, Francesca Colli, Jenny Su, Heidi Liu, Erin Patten, Will Noonan, Kenneth Chong, Kyla Bremer, Samuel Yap, Andrea Barr, Nicky Tan, Brian Lei, Alycia Rankine, Marleyna Palin, Eric Chen, Amanda Feng and Helen Wang. I would like to especially thank Andrea Barr for the back cover text. This English edition is embedded with their hard work, which enables people from different cultures to share in our common interest. I would like to take this opportunity to thank these people for helping me to complete the job.

While the writing of this book is an expression of the rules of civilization in the form of text, the book cover is another expression in the form of visual art. First, several images were chosen[286] to represent the following interrelationships: atoms form molecules; a special form of molecules, DNA, dictates the development of organisms; a special organism, human being, creates civilization; All of these objects are a part of the universe and fundamentally governed by a common mechanism. Of these images, the natural human body represents: 1) that the human body is an inseparable part of the universe; 2) the parallel interrelationship between a human body and society, upon which civilization is extensively examined in this book; 3) human nature, which is the primary driving force of civilization; 4) beauty, an important part of discussion in the book. This image has nothing to do with nudism. Finally, these ideas were translated into a visual art by Mr. Mark Heron, a graphic designer with excellent artistic expertise. This book cover is not only beautifully designed and eye-catching but well presenting the meaning of those texts. I thank him for adding such beauty to my work. This artwork was further edited by Mrs. Gissane.

Looking beyond writing this book, there are so many people in my life to whom I would like to express my sincere gratitude – for the best of human nature that you displayed to me. Your sincerity, your kindness, your valuable help and your beautiful gesture that expressed the most valuable part of life from the heart let me experience the gifts that God gives to mankind. Those special episodes in my life will not be forgotten. Although I am not able to talk to you directly, I still and will always cherish those valuable memories from the bottom of my heart.

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By Gavin Huang

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Additional Discussion of the Interrelationships Model

The *Interrelationships Model* has been discussed in chapter 12 and chapters thereafter, demonstrating its consistency with many fundamental interrelationships and its suitability for representing various phenomena. After publishing this book in 2015, further investigation has yielded new insight into this model. Therefore, on 1st of November 2018, additional discussion was added to this book outside the 2015 edition for readers who have a background in physics to further evaluate this model. Other readers may find this discussion trite, therefore, please ignore this additional discussion.

Representing and unifying three laws of Newtonian mechanics

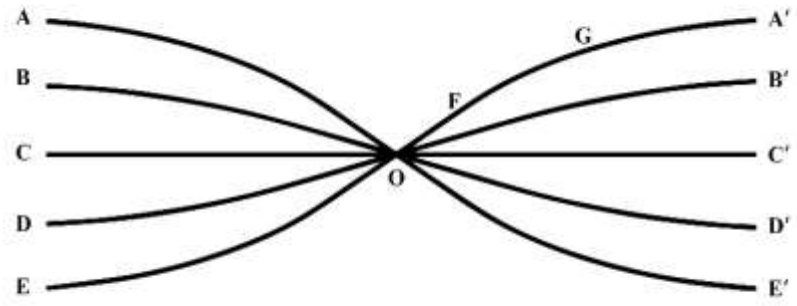


Fig - Ex2

In our everyday life, many phenomena are the expression of Newtonian laws. These laws can be united and described with the interrelationships Model:

https://www.youtube.com/watch?v=v3RpzOXEYXQ

1) The first law: *"An object at rest remains at rest, and an object in motion remains in motion at constant speed and in a straight line unless acted on by an unbalanced force."* [1]

On the left side of the Interrelationships Model, all the curved lines represent forces. The symmetry between the upper lines and the lower lines represents two opposite forces which are not unbalanced. The horizontal straight line on the right side of the model represents the outcome of balanced force on the left side. In a Cartesian coordinates, this straight line's value on the Y-axis does not change at any given point on the X-axis which represents time. This is consistent with Newton's first law of motion.

2) The second law: *"In an inertial reference frame, the vector sum of the forces F on an object is equal to the mass m of that object multiplied by the acceleration a of the object: F=ma* [1]

From the perspective of the Interrelationships Model, the upper curved lines can be interpreted as the driving force and the lower curved lines as the resistance. If these two forces are equal (symmetrical), such as A = E, the object remains in its current state – a straight line. If the driving force is greater than the resistance, such as A > D, the symmetry between the upper lines and lower lines is broken and the horizontal straight line discontinues, changing to ascending and accelerating. This can be interpreted as: at a critical point O, The line from point O to point F is an ascending straight line, which is mathematically consistent with the equation of the second law, F

= ma. Thus, the first and second laws are the specific expressions of the fundamental interrelationship, symmetry-asymmetry.

Over time, any moving object will cease acceleration and reach its speed limit, such as a runner or an aircraft. This can be represented as the line from point G to point A' turning into a plateau in the Interrelationships Model. Eventually, an object will run out of energy and return to its baseline. This whole process is consistent with the curved lines ascending from one critical point and then descending to the next critical point on the baseline.

3) The third law states: *"when one body exerts a force on a second body, the second body simultaneously exerts a force equal in magnitude and opposite in direction on the first body".* [1]

This law actually is the expression of the fundamental interrelationship of symmetry. The symmetrical lines above and below the straight horizontal line C represent the force and counterforce respectively, such as line A representing the force and line E representing the counter force.

Representing and unifying the four laws of thermodynamics:

1) Zeroth law of thermodynamics: *"if two systems are in thermal equilibrium with a third system, they are in thermal equilibrium with each other".* [2]

This law can be represented with the Interrelationships Model: line A is symmetrical to line A' which is in turn symmetrical to line E'. Thus, line A is symmetrical to line E'.

2) First law of thermodynamics: *"known as law of conservation of energy, states that energy can neither be created nor destroyed; energy can only be transferred or changed from one form to another".*[3]

The sub-model in Fig-4 represents the law of conservation of energy. Thus, it also represents the first law of thermodynamics.

3) Second law of thermodynamics: *"the entropy of any isolated system always increases".*[3]

The sub-model in Fig-9 represents the transition from order to disorder. It also represents the second law of thermodynamics.

4) Third law of thermodynamics: *"the entropy of a system approaches a constant value as the temperature approaches absolute zero".*[3]

Line D' and E' respectively represent temperature approaching absolute zero and entropy of a system approaching a constant value.

At atomic and subatomic particle level:
These fundamental laws of physics are not only expressed at the level of our everyday lives but at atomic and subatomic levels.

1) Atomic electron transition:
"Atomic electron transition is a change of an electron from one energy level to another within an atom or artificial atom. It appears discontinuous as the electron "jumps" from one energy level to another in a few nanoseconds or less. It is also known as atomic transition, quantum jump, or quantum leap".[4]

When an electron's energy level reaches a critical point, which is represented as the C point in the IRM, an electron *"jumps" from one energy level to another"*. This can be represented by the concept of transition of state of the IRM. The multiple parallel curved lines of the IRM can represent the multiple orbits of an electron in an atom. "*It (an electron) appears discontinuous as the electron "jumps" from one energy level to another."* This can be represented by the concept of continuation-discontinuation of the IRM.

2) Nuclear force:
"The nuclear force is powerfully attractive between nucleons at distances of about 1 femtometre (fm, or 1.0 x 10^{-15} metres), but it rapidly decreases to insignificance at distances beyond about 2.5 fm. At distances less than 0.7 fm, the nuclear force becomes repulsive".[5]

These changes can be represented by the IRM as the transition of state.

3) Quantum:
"In physics, a quantum (plural: quanta) is the minimum amount of any physical entity (physical property) involved in an interaction. The fundamental notion that a physical property may be "quantized" is referred to as "the hypothesis of quantization". This means that the magnitude of the physical property can take on only discrete values consisting of integer multiples of one quantum". [1]

The concept of a quantum can be represented by the concept of limitation of the IRM. The distance between two adjacent critical points in the IRM is representative of the idea "*that the magnitude of the physical property can take on only discrete values consisting of integer multiples of one quantum".*

4) Nuclear fission, nuclear fusion, and particle decay:
Nuclear fission, nuclear fusion, particle decay [7] and radioactive decay [8] (such as alpha decay and beta decay) can be represented by the concepts of transition of state, critical point and convergence-divergence of the IRM.

5) The similarities between particles:

For example, protons and neutrons share similarities. Their properties have commonalities and differences [9]. These can be represented by the concept of similarity of the IRM which states that parallel existences based on a common mechanism express similarity.

6) Particle-antiparticle, baryon asymmetry and positive-negative charges in an atomic system can be represented by the concept of symmetry-asymmetry of the IRM.

Spacetime symmetry in Special Relativity
Spacetime symmetry can be represented by the concept of symmetry of the IRM. Space expands and time contracts, and vice versa.

Uncertainty principle in quantum mechanics
"According to quantum mechanics, the more precisely the position (momentum) of a particle is given, the less precisely can one say what its momentum (position) is. This is (a simplistic and preliminary formulation of) the quantum mechanical uncertainty principle for position and momentum". - The Uncertainty Principle, Stanford Encyclopedia of philosophy

This Heisenberg Uncertainty principle can be represented by the concept of symmetry of the IRM.

Grand Unified Theory
In the Grand Unified Theory[10], the separation of electromagnetic, weak and strong forces can be represented by the concept of divergence of the IRM. The moment separation occurs can be represented by the concepts of critical point and transition of state of the IRM.

Noether's Theorem
"All fine technical point aside, Noether's theorem can be stated informally:
If a system has a continuous symmetry property, then there are corresponding quantities whose values are conserved in time". [11]

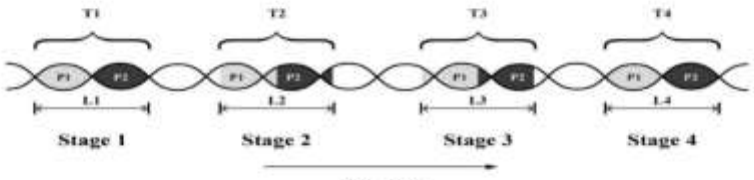


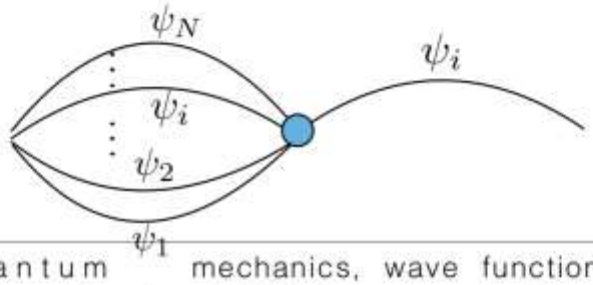
Fig - Ex1

In the above diagram, P1 is continuously symmetrical to P2 and the volume of P1 is always equal to P2 at all stages. T1, T2, T3 and T4 represent the volume of the system remaining invariant at different stages as the system shifts from left to right.

Wave function collapse

Wave function collapse can be represented by the concept of plurality-singularity of the IRM. When asked whether the model can be used to represent Wave Function collapse, a theoretical physicist replied and further developed the model as following:

Yes, it can. A quantum state can be represented mathematical as a superposition (i.e. sum or/and integration) of all possible measurement outcomes for the measurement of a given observable (for example its position, its energy and so on), each one with an associated probability density amplitude for that outcome to occur. One issue is that this superposition can be continuous or/and discrete, so that you will need to allow the possibility of infinite pluralities (which you can obtain as a limit of the discrete representation, just as integrals can be defined as limit cases of discrete sums).



c) "In quantum mechanics, wave function collapse occurs when a wave function—initially in a superposition of several eigenstates—reduces to a single eigenstate due to interaction with the external world. This interaction is called an 'observation' " -Wave function collapse, Wikipedia

Can the concept of "wave function collapse" be interpreted as the transition from plurality to singularity? If it can, and since plurality-singularity is one of the fundamental interrelationships represented by the model, can the model (plurality-singularity/convergence-divergence) be used to describe wave function collapse?

Yes, it can. Mathematically, we have

$$\psi = \sum_{n=1}^{N} c_n \psi_n \longrightarrow \psi_i$$

where ψ is the state wavefunction, ψ_n is a generic outcome out of the possible N ones, c_n is the amplitude associated to it while ψ_i is a specific outcome resulting from the wave function collapse. Your model would represent it as

Chaos theory

1 *"Self-similarity"*. This can be represented with the sub-model of hierarchical structure (Fig-12). Each sub-system is similar to the whole system. It is expressed as how a cell is similar to a human body and further an individual body is similar to a society.

2 *"Constant feedback loops, repetition"* can be represented with Fig-14. It can also be represented by line b in Fig-10.

3 *"The main idea of chaos theory is that a minor difference at the start of a process can make a major change in it as time progress".*

This can be represented with the sub-model of expansion where the difference at the beginning is small but increases over time.

4 The butterfly effect:
"The butterfly effect, an underlying principle of chaos, describes how a small change in one state of a deterministic nonlinear system can result in large differences in a later state (meaning that there is sensitive dependence on initial conditions). A metaphor for this behavior is that a butterfly flapping its wings in China can cause a hurricane in Texas."

To describe the chaos theory, several sub-models that represent different interrelationships are used here:

a) Using the sub-model representing serial relationship/causality. This is essentially the relationship of causality in a serial relationship.

b) *"How a small change in one state of a deterministic nonlinear system can result in large differences in a later state".*

Fig-12 A represents an exponential change. In this sub-model, it is to the power of 2. From this sub-model, one can see *"how a small change in one state of a deterministic system can result in large differences in a later state"* and how this change is nonlinear.

c) *"Within the apparent randomness of chaotic complex systems, there are underlying patterns, interconnectedness".*

Although the sub-model, a hierarchical system, is used to describe the exponential change in the chaos theory in the aforementioned discussion, the hierarchical system represented by the sub-model is unrealistic because it is based on absolute symmetry. It is impossible in reality. When asymmetry happens, the system turns into disorder (Fig-9). When you look into such a system,

you will find all fundamental interrelationships, serial, parallel, transition of state, critical point, convergence, divergence, and so on. These interrelationships are the so-called *"underlying patterns, interconnectedness"*. All these interrelationships existing in a system create an impression of a lack of rules, disorder, or as you could call it, chaos.

This model not only represents natural science but can also be used to represent concepts of social science such as justice and humor. For instance, in the case of civil disputes, the judicial system makes decisions by considering the contributions of the two parties in dispute. If two parties have equal contributions, as represented in the model by line A and E, then a just decision should be impartial to both parties. The justice of this decision is represented by the straight line C' on the right side which is not biased to line A and line E. However, if one party's contribution is greater than the other, such as if A is greater than D, then the decision should be favourable towards A, which can be represented by the initial section of line A' (line OF) which moves toward side A and away from D. This demonstrates that the model can also represent concepts of social science. This social process shares the common mechanism with Newton's first and second laws of motion. Also, this model can represent humor. For example, in cartoons the drawn image and the figure in reality are similar; they are in parallel, which is the mechanism that evokes comedy.

From all these discussions, a true Theory of Everything should not only cover things without life but things with life as well, particularly various social phenomena because they are an inseparable part of the universe.

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