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## **A new theory of Time connecting differentiated cum undifferentiated universe**

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Time, the most mysterious and misunderstood truth of the universe has been paralyzed by modern science and philosophy. Time has not found any active role in the sustenance of universe other than to measure the space. Universe is differentiated internally who's existence shows undifferentiated uniformity as a whole. The democracy in the nature is so evident that existing notion and concept of time and space is unable to explain that bizarre nature. At first, this lack of understanding will be disseminated and established by considering the Newtonian, relativist and quantum world view of the time and space that demonstrate their inability to narrate causal explanation of the natural world. This vacuum will motivate philosophical enquiry on the question rather than depending only on scientific data. Existence has two unavoidable questions to be known about, first, 'what it is' and second 'what it is for'. Both ancient and modern progress on the discussion of time only exposed the second part that is 'what it is for'. The first question 'what it is' has not been even defined as the question to be pondered on. Keeping these two questions in context, a new theory of time has been proposed which is dynamic and active in every existence of this universe. The theory is able to give a fresh look of the universe while justifying all the paradoxes posed by the vacuum created due to existing notion of Time and its relation to universe. This paper will tackle the second question 'what it is for', while the second part of this research that will follow shall reveal the mystery of ontology of time that is 'what it is'.

**Keywords:** time, God and attributes, philosophy of science, theology, space-time, quantum theory, classical theory, relativity

### **1. Introduction**

Universe internally shows so much differentiated characteristics of individual existences. These individual existences being externally separate from each other create a universe which is outwardly uniform. There is uniformity as all the existences came into being from the same source and the known structure of universe whether metaphysical or scientific has relation by cause and effect [Al-Ghazali, 2000, pp. 13–27; Hume, 2000]. Justification of events starting with probabilistic nature and ending as deterministic causality creates a paradox in which the cause does not support the

effect. Two distinct responses exist in every existence in the form of quantum and classical world view of the events [Hawkings, Mlodinow, 2010]. The paradox comes into existence when the philosophy of space-time is taken for granted.

An event could be defined based on true belief or true knowledge. Belief is not knowledge until it is achieved by all the possible ways to a single conclusion. Belief can be based on wrong premises but not the knowledge [Fine, 1979]. Premises of knowledge must be in any case based on sound methodology. It is this premise, where the problem arises which concludes from the starting, whether the conclusion is going to be true belief of individual or a universal knowledge. For example:

'If I Say 317 is a prime number because I believe that every odd number is a prime number' then surely, the knowledge of 317 as a prime number is correct but the premises of odd number is wrong and that will be called my true belief which fall down when someone shows me that every odd number is not prime. On the contrary knowledge is truth based on true premises that cannot be challenged at all'.

In understanding Time, same case applies that whatever one knows about the time is only true belief not the knowledge of the time itself. The existing methodologies are neither deductive nor inductive; on the contrary the very premises of modern proposal to define time are problematic. Existing theories as part of true belief adopted Time only as a part of space which defined a framework not consistent with the true nature of Time. So, existing theories have not, in fact, focused on time but rather on space. There are no existing frameworks of any theory that can be applied for further reflection on this matter. By rejecting the time as only a paralyzed part of space, a new theoretical framework will be developed deductively whose propositions can be actualized physically, if not experimentally proven at the higher level.

To develop the theoretical framework for Time, first premise will define the very question to be looked for time and this will be a paradigm shift in understating nature. Following the first, second premise will establish the problem posed by existing notion of Time to explain the bizarre natural world, necessitating new explanation of time. Finally, that new proposition in the form of *Existential* and *Essential* time will proceed from the preceding premises which have more capacity to unveil the events from quantum to relativist view of the universe. Than this new understanding of time will reduce the mechanical causal explanation to an end that cannot be reduced further, the ontological part of time. However, based on modern science it is still a philosophical framework which can be seen everywhere physically without much effort but will it be experimentally proved ever, is open to explore.

## 2. The wrong premise

There are two things; one is time itself that is, 'what it is' and second; 'what it is for'<sup>1</sup>. 'What it is' define the very nature of time independent of any second cause. This independent identity of time itself is not variable<sup>2</sup> [Lucas, 2002] as change produces effect and if effect is there it is not absolute. Change describes 'what it is

<sup>1</sup> It can be understood in terms of subject and predicate.

<sup>2</sup> Some scholars argues that there is no need of absolute time that must be changeless which ultimately goes to the very nature of God in philosophy who is supposed to be out of time.

for' in general sense. This general sense has two possible natural inclinations; one is to create events and second to contribute in sustaining the universe. At this junction the wrong premise of time comes into existence.

Philosophers and scientists are not struggling over the ontological issue of time, which is 'what it is' rather on the second part that is 'what it is for'<sup>3</sup> [Aristotle, 1985b (Cate.), 1a24-25]. Time has been theorized keeping second part as the ultimate goal of understanding. The definition of time is given as:

Time is the indefinite continued progress of existence and events that occur in apparently irreversible succession from the past through present to the future. Time is a component quantity of various measurements used to sequence events, to compare the duration of events or the intervals between them, and to quantify rates of change of quantities in material reality or in the conscious experience.<sup>4</sup>

However, if time is a progress of existence and events, then progress must precedes with some prior action. It cannot be argued for infinite which makes no sense. There must be initiator of time to go side by side with events. It is for a 'matter' living in the material universe within domain of time and space to define Time as a measurement of events. This definition of time based on measurement was invented by humans and clocks were made. Clocks are not creating moments but just counting the changes of celestial clocks the sun, the moon, motion of particles. Clocks are still obsessed with changes of day and night which humans have developed by observation. If not, then why does clock only count 24 hours? Why does not just continuous numbering? One can say, it will be very difficult to deal with events if one does not categorize the time. Indeed, so are we counting the events or time? It cannot be said what is the difference between two on preoccupied notion of time. There is a major difference between measuring events and time. *Events occupy space but time is not in the space, it is other than space.* If time occupy space than what differentiation remains to be known between space and time? This is reasons inability to always join time and space whose contrary cannot be think of. At the end, one is measuring only space and for the sake of convenience attaching it with a new attribute 'Time'. This is not a new concept but goes back to Aristotle when he talked about time in the same sense:

But we apprehend time only when we have marked motion, marking it by 'before' and 'after'; and it is only when we have perceived 'before' and 'after' in motion that we say that time has elapsed. Now we mark them by judging that A and B are different, and that some third thing is intermediate to them. When we think of the extremes as different from the middle and the mind pronounces that the 'nows' are two, one before and one after, it is then that we say that there is time, and this that we say is time. For what is bounded by the 'now' is thought to be time – we may assume this [Aristotle, 1985a (Phy.), 219a22-25-219b2]

For Aristotle, time is by motion which he described in terms of before and after. Motion is nothing but change and that is shifting from one place to another place. Place belongs to space which shows event at different locations separate from each other. This is event one measures by saying event A is prior to event

<sup>3</sup> 'What it is for' describes how something is participating in active universe. Obviously that is not the reality of substance itself.

<sup>4</sup> This definition is taken from Wikipedia. URL: <https://en.wikipedia.org/wiki/Time>. Related by other well-known dictionary and philosophy references.

B or vice versa. As per Aristotle 'Now' is the key to differentiate between events using words before and after but this 'now' cannot be a symbol of time because at the end it is measuring before and after within space. It is something for the sake of convenience one invented to make sense in the communication about events. It can be seen below:

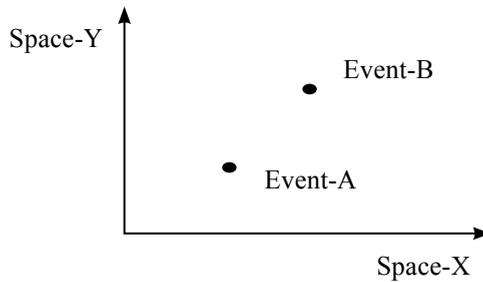


Fig. 1

In 2-D frame, events A and B are happening at two different locations (Different coordinates). One has two options to describe this incident. First, event B happened exactly 1km from event A in X-direction. That represents the measurement of space. Second, event B happened 1 hr after event A. This claim too is subjected to space measurements as per human classification of time. One can also say 2 hr, if clock systems are taken to be exactly half e.g a 1 minute=30 seconds but that modification will not make any change in the events happening. Whether one bases system of second on transition of caesium atoms between two states<sup>5</sup> or microwave signal due to movement of electron within energy levels [McCarthy, Seidemann, & Wiley InterScience (Online service), 2009], all are measuring only the movement within space.

With same fashion, all the laws of physics are working on events within space keeping time only as an attribute to call upon to make sense in communication. Due to knowing of space, our mathematical calculation predicts the behavior of events. Let's there be a car moving on with constant speed  $V$  and traveled distance  $D$ , so how much time it has taken to reach that distance  $D$ ? It is very simple to calculate that  $T=D/V$ . Now, distance is a property of space and velocity too is a property of space. When, two out of three are caused by space then third must be related to same space. This analogy can be stretched to the far field of universe. From the simple calculation of train journey till putting satellite in the orbit of planets or landing to some new planets; one is only calculating the movement within space either in terms of velocity or distance. At earth or beyond the reach of human eyes, science is only predicting things which it has created, managed and acted upon by its own self-created terminology. Here, mover is the same which is moved and when both mover and moved are from same origin how can one differentiate between them? Subject must be other than the predicate that is not in the subject. Time must be other than

<sup>5</sup> Base unit definitions: Second. URL: <http://physics.nist.gov/cuu/Units/second.html>. Retrieved September 9, 2016.

it predicate which has been taken as space, because time is not space (predicate) but the subject itself. This is what the first premise concludes about the paradigm shift to define the very question of understanding the Time.

### **3. Incoherence of Classical and Relativistic approach of Time**

Classical and relativistic physics are based on above underlying concept of time. In classical physics time is linear and flows only in one direction. Meaning, for all frames of reference the reality of event will be same with reference to time. Events can be predicted with certainty by specifying all the necessary conditions at present state. Previously, it was believed that Newton proposed specific concept of absolute space, absolute motion and absolute time but recent revisionist scholars argued it was not the case. He simply defined what absolute space, motion and time are [Stein, 1967]. Indeed, Newton believed in a stationary universe hence finite space that means finite motion. For any event to take place four coordinates ( $x, y, z, t$ ) are necessary [Robert, 2006]. However, for Newton each one of them is an independent identity separate from other. Events are based on relative to some reference but that is not at all for Newton the essence of those identities. He clearly explained his conception of absolute and relational views:

Although time, space, place, and motion are very familiar to everyone, it must be noted that these quantities are popularly conceived solely with reference to the objects of sense perception. And this is the source of certain preconceptions; to eliminate them it is useful to distinguish these quantities into absolute and relative, true and apparent, mathematical and common [Newton, 1726(1999), p. 408].

Newton was curious to distinguish between what is absolute and relative, which is still a mess in science. For Newton, absolute time flows without reference [Newton, 1726 (1999)]. This definition anyhow challenges the concept of time that is 'measurement' of events. Absolute time without reference is not possible in material world which we believe to be. For Newton and before the advent of expanding universe theory; universe was supposed to be static and eternal. Hence, there is basically two times, one is when universe did not exist and second one corresponds to orderly universe. It was once stated by Plato:

[The Demiurge] began to think of making a moving image of eternity: at the same time as he brought order to the universe, he would make an eternal image, moving according to number, of eternity remaining in unity. This, of course, is what we call "time" [Plato, 1997 (Timaeus), 37d].

There was in the background, a time flowing continuously from the beginning which does not depend on events to make sense of its own existence. However, this supposition of time broke down with the advent of relativistic view of universe.

Relativity theory combined both space and time removing their independent identity. In relativity two events A and B may be simultaneous for observer X or events A is prior to events B for observer Y or events B is prior to event A for observer Z. It means that past, present and a future depends on observer [Connes et al., 2008]. This trend gave the idea of a time that is already fixed; that whole cosmic history exists now. This idea is known as block universe. It made time only a paralyzed dimension

in four dimensional blocks having no special position at all [Chen, 2003]. Einstein wrote a letter to his friend's wife whose husband died, stating her husband is alive in some part of the space-time continuum that contained his life span [Connes et al., 2008]. Two possible explanations could be given for this statement inspired by block universe. *First, events move with respect to time for specific human and he lives his world line. Second, events are fixed in space-time and human lives all the events of his world line through something other than space-time if time is not an independent identity.* From Einstein's statement it can be sensed that, according to him man does not die in real sense but repeats life span again and again. If someone reaches his life span in space-time continuum, he can meet him alive. The question is, what forces any event to occupy special part in space-time continuum? It can be argued that from the beginning what will happen is predestined in space-time continuum. This will raise serious issues to human free will. Physically, if events already exist than human has no choice. He is bound by the so called 'natural laws' (Self describe) to follow what has already been determined for him by initial explosion. It is a disaster in another sense; this concept of space-time has made human a rational machine which knows presently that he or she is only passing through predetermined events but does not know it 'locally' in present cycle. For example in four dimensional space-time continuums event of 1914 world war is different than the event of world war in 1939. But they will be same if it is happening in 3-dimesnional space [Markosian, Sullivan, Emery, 2016]<sup>6</sup>, will be hypothesis without any rational argument because world is passing through same events. If one can attain that space-time zone, than why they will be different at all? Classical relativity has joined Newtonian world view of time when it comes to events measurement. Whether one accepts space and time independent or join them space-time (4-dimensional), the concept of time remains the same and that is 'measurement of event'.

Opposing to block universe, presentism theory [Bourne, 2006] states that only present exist. Hence, there is no real existence of past and future. It is to say 'I exist' is correct but it is wrong to say, 'I existed' or my article 'will exist' tomorrow. It has two different versions with events and that is *endurantism* and *perdurantism*. *Endurantism* purposes, event exists in three dimensional as a whole every moment. Nothing is incomplete from that moment when something said to be exist. On the contrary, *perdurantsim* says, event exits in four dimensions as a temporal existence. All previous moment and upcoming moments are part of present moment of that existence [Hales, Johnson, 2003]. Considering the cases, one may ask in what perspective one can attribute *enduranstim* and *perturantism*? If one says physical existence of events, than both the theory on the basis of observation are incoherent. Suppose a 'man exists' at this moment A, so he is present with his whole physics and for sure that is not in part. But from second perspective changes which will happen in upcoming moment B is not presently part of man but not separate too because at the end he is both the cause and effect of his existence at present and future. Cause and effect are said to be simultaneous [Al-Ghazali, 2000, pp. 13–27]. So at every moment change in physical reality is both being and becoming [Isham, Savvidou, 2002]. Being and becoming are not same but not different too. To say the sun is shining means the sun and shine are different individuality but not separate in terms of essence and existence. The essence of the sun is to give heat so heat cannot

<sup>6</sup> See section on: The Presentism, Eternalism, and The Growing Universe Theory.

cool something but what it got from its cause the sun. In same sense man's physical existence at present is cause of upcoming moment but that cannot be said in any case temporal or separate from it. In second sense, it is known that at every moment man's experience of moments is complete and incomplete. Complete in the sense that till present moment A he knows about his preceding experience of events but not complete what is going to become part of his own experience in upcoming moment B. The selection between one of these theories depends on one's personal perception of persistence meaning and what one thinks more logical than the underlying truth of time. The inconsistency even to assume space-time continuum has already been raised when one works below the radius of  $10^{-33}$  at quantum level and that will change the concept of space-time [Connes et al., 2008].

#### **4. Incoherence of Quantum world view of Time**

With the advent of quantum physics, description of events and existence totally changed. It is all about quantum world where determinism has no place. A particle in quantum world has no specific location rather it can be said in terms of probability that either it can be at location A or B, the conclusion is both are correct. That is not the case with classical physics where for one to be true second has to be false. The most bizarre claim of this theory is; at a moment a particle can participate in two different events and the only way to know where actually that particle is to direct measure it. This has been shown by famous thought experiment of Schrödinger known as cat experiment. He with same line of argument showed that at the same time cat can be said to both alive and dead [Schrödinger, 1980]. Now, the concept of time reduced to direct measurement of events but it is not deterministic in essence. The first paradox of time is:

'It is known fact that everything of this material universe is composed of electrons, then how it is possible that deterministic nature of event at macroscopic level is preceded by the in-deterministic nature of event at quantum level with same particle in both the cases?'

If the possibility of single electron to be at two different locations is correct than it must be correct for all the participating electron of any given event. As per the principle of superposition the nature of probability including all electrons should be higher than the single electron<sup>7</sup> [Greene, 2010]. A composed material has no identity if one excludes the basic substance from which it is made of and substance cannot be made when composed differently than its very basic essence. Indeed quality and form can be changed not the intrinsic nature [Aristotle, 1985b (De anima), 416a9–13]. When by nature something is hot than obviously its existence will show hotness. By same analogy, if by very nature, substance has not determined event (so time) then when joined together, how can it become determined? From second perspective, the cause is not supporting its effect. Cause is based on probability of events (so time) but its effect has precise deterministic quality at macro level and this

<sup>7</sup> Feynman has tried resolved this issue by asserting that before taking the final path an electron can take so many path but at the end they cancel out each other resulting in one. However, this contention has no proof but is a philosophical proposal which in no case deny the possibility of no superposition.

is impossible. If events are quality of any existence to show by necessity then it must be consistence in that quality throughout the process regardless of forms and shape. What is underlying within these unconscious electrons to change their quality?

However, this problem has been overlooked from the base by philosophizing many-world theories. One can explain in the case of cat experiment that there is no need to measure whether cat is alive or dead. On the contrary it is alive in one universe and dead in another universe [Rae, 1986]. Based on double-slit experiment it was concluded that events can be many and what one sees now (any event) is only one of the various possibilities particles has taken. So there is no certain past and future. Moreover, there can be as much as  $10^{500}$  different universes [Hawkings, Mlodinow, 2010]. That simple measurement problem resulted in multi-universe. However, concern here is not many world theories *but how one is going to describe time, if events have been described by path to universe?* If nothing can be said about events than nothing about the time also which differentiate the space-time of relativity from quantum. Once space-time is different than geometry of space and events will also be different. When such fundamentals are different than how come, different space-times are consistence with each other? Similarly, this view is supported by growing block universe theory which claims only past and present exist not the future [Tooley, 2000]. It is in the sense that future has not yet come into being opposed to eternalism. Future is caused by present which is not deterministic from quantum physics point of view. So which event should one relates from various possible events is not possible, hence both theories are supporting each other in a deep sense.

Time has not been accepted as an independent identity. It is only a supporting quality of space which for the sake of measurements of events had been invented. Whether one considers all of three distinct branches of physics, Newtonian world view, relativistic and quantum world view, each one is dealing with same fashion with the time. They made time a paralyzed attribute of space. Even philosophers like Aristotle and Plato have proposed the same view for time. Time itself cannot do anything to the function of universe but only help space to locate events.

*The question is, in absence of events will there be any time or not?* For modern science the answer must be 'No' due to its foundation on the Big bang theory, the sole premise for both space and time. There is no concept of time without events if one follows this approach. It does not matter what type of universe one considers flat, open or closed with many universe [Krauss, 2012]. Scholars have defined time considering experience which characterize time with a 'Now' separating past and future, this theory is called A-theory. Similarly B-theory only recognizes temporal relation between earlier and later events without moving 'Now' [McTaggart, 1921]. Then in terms of cyclic and linear from historical events perspective [Romila, 2002]. In all the hypothesis, underlying assumption is that time is what one defined with or without 'Now', has no real contribution in sustaining the universe. Philosophers and scientist agree on the dynamic role of the Time but that is not at all dynamic. They admit dynamism because time flows not because it has any role in shaping space-time continuum of the universe.

Interestingly, even the basic idea of time is yet not clear and people are delving into the discussion of time travel. What is time travel? Suppose a spaceship leaves earth in 2017 at the speed of light and return in 2020. So as per Einstein's special

theory of relativity the age of spaceship with its contents and pilots will be less compared to same duration spent on the earth [Mellor, 2002]. One may ask with reference to what that age is measured? If it is clock then again it is measuring events. Suppose there was difference of 1 hour between the clocks, so it will be called time travel of 1 hour. Isn't it too simplifying the nature of time which has been claimed by observing clocks? If that is taken for granted than either one takes biological clocks or human made machine clocks, one has to explain what is there in space which makes the material arrows inside the clock to slow down without affecting the overall mechanism of clock? The same is true for biological clock as well. There must be some cause to slow the clocks even if it does not represent the time itself and surely it cannot be gravity in any case. Technically speaking, measurement of events depends on the world line (a curve) in Minkowski spacetime considered for events. Different world lines have different values of  $\int ds$  calculated for different process to reach the same two events. Which means for same two events time will be different as per considered process. The case of spaceship mentioned above has to do with said calculation. As per Minkowski spacetime longest distance is realized by the straight line and earth follows the straight line in Minkowski spacetime. That is why the time of spaceship at earth is less than the space traveler [Dennis, 2012]. Is this time travel? Obviously not, these are simply different ways in the space itself to measure events considering curved and straight world line.

There are only two ways in exact condition for time travel to take place. In first case, whole natural world shifts from one time to another. Suppose that, one wants to go from 2017 to 2000 in one hour. If man is sitting inside the time machine the clock will show only one hour but for time travel outer world should rotate like a revers mode video from 2017 to 2000 in one hour. When we say 2000 it means all the condition of 2000 must come in front of time travelers in its original form. The second way is that outer world remains stationary but time machine moves in one hour 17 years before, to the same location it was supposed to land. First situation where whole outside world is changing is impossible because it is against the immutable laws of nature to break her rule and rotate in past or future for the sake of a time machine.

Remains the second option for that one needs to accept the independent identity of time which can change the whole scenario of natural world. The second premise claims to de-link the obvious confusion rooted if we take modern world view as they are. Removing the barrier demands no less than a new worldview specially to understand Time, on the framework developed above. To meet this obvious requirement, new propositions are being proposed to totally change our course of direction in understanding time.

## **5. The new theory of time**

Time is not a paralyzed dimension of space-time. Time is dynamic, able to shrink, extend and twist the space. In lieu of any existing theoretical framework, two types of time still can be extracted from the above discussion on premises in abstract form. Considering the case of Newton and Plato with static universe and then universe after expanding theory. If universe is eternal without coming into being in past, there

is only one time flowing constantly. But, due to big bang we know a time of creation, which demands demarcation of the identity of time as Time before the creation of universe and time with the universe. Now, why it must be considered as such will be explained. Hence, there are only two independent real times. First we call Existential time and second we call Essential time<sup>8</sup>. Existential time belongs to the creation both observable and non-observable.<sup>9</sup> No one can change what established relation they have with their own set pattern of laws. Essential time is independent of any existence so whether events exist or not this essential time will always be there. They will be tackled from now.

### 5.1. Existential time

Existential time directly corresponds to relation between various existences within universe. It provides set patterns of events for each existence. Celestial clocks are only a symbol having no real contribution in those set patterns. On the contrary that is time which is sole responsible for those activities. The companion of Alexander, *Androsrhens* noted that plants raises and lowers their leaves with a set pattern of night and day. Same thing was reported by *De Mairan's* 18<sup>th</sup> century [Klarsfeld, 2013] French philosopher but he analyzed leaf movements in dark room. He noted that even in dark, leafs will rise as they rise in day and fall as they fall in night. Similarly, Swedish botanist *Carolus Linnaeus*, reported that different species have different set pattern and they do not deviate from that pattern based on a pre-determined time. He noted that different species opened their flowers at different time of day and he can tell the time by observing the flowers in his own gardens, now this is called circadian rhythm [Kyriacou, 2002]. Same set pattern were noted in insects also, majorly in terms of hormone production. Certain important hormone responsible for insect moult, hormones like *prothoracicotropic*, *ecdysteroids* and *juvenile*, are the foundation of circadian system and centre to timekeeping of insects pattern [Saunders, 2002]. The moment any white dwarf reaches 1.4 times the mass of the sun it explodes giving birth to supernova, and that limit is called Chandrasekhar limit [Chandrasekhar, 1931]. All the planets are working according to set pattern of time, which no one can deviate from. These planets are all different, ultimately resulting in different velocities and mass in space. There are different span of life for different creatures living in the same so called space-time continuum. The life span of common house mouse is 4 years, cats 38 years, polar bear 42, horses 62 years and Asian elephants 86 years<sup>10</sup>. Similarly for particles like W boson's mean life span is  $10^{-25}$  seconds but Muon/ant muon's mean life span is  $2.2 \times 10^{-6}$  seconds<sup>11</sup>. In 1961 Robert Dick, a physicist, proposed that our universe must be at least 10

<sup>8</sup> Relational time and time inspired by human clocks are subject to measurement, so does not come under this classification of real time.

<sup>9</sup> Science accepts unobservable entities no one knows their form. The point is whether observable or non-observable their condition is existence and where there is existence, existential time will be there according to their own set of laws for space and time. In the present proposed theory of time only observable universe has been considered as an explanation which is equally valid for all existences known or unknown.

<sup>10</sup> This data has been taken from: URL: [https://en.wikipedia.org/wiki/Maximum\\_life\\_span](https://en.wikipedia.org/wiki/Maximum_life_span)

<sup>11</sup> Data has been taken from Particle data group: URL: [https://en.wikipedia.org/wiki/Particle\\_Data\\_Group](https://en.wikipedia.org/wiki/Particle_Data_Group)

billion years old, hence humans are at least that much old but it cannot be older than 10 billion years otherwise in near future the fuel of stars would have been used and one requires hot stars for sustenance of humans. Even that is not as close to the real predicted value of 13.7 billion years as per big bang but the point is they classify it with exact time [Hawkings, Mlodinow, 2010].

All such extraordinary phenomena are happening around us and if that is true than what is there which is making so much difference in the life span of different beings? When one says life span; it means each and every event when compared to other similar category species takes place but with different time believing by both species that they are living their full phase of events in life. Such bizarre nature that differentiates events, the experience of time of individual species, cannot be due to space-time whether flat or curved. Because all are living according to modern view in a space-time common to all then, how come same space-time can classify events of individual existences? Such phenomena are far from the prediction of space-time. In space-time only space is playing the role, flat where less mass and curved where high mass is present but time is only following one path (vertical) inside the light cone [Halliday, Rensick, Walker, 2013]. If only space defined the world line of individual existence than man has control over space, why does not he make uniformity within existences?<sup>12</sup> The limit is set by nature, human can play with self-made existence and for that they can set both space and time as per their will but that is not possible with natural individual existences even for space.

It seems we are on the wrong track to understand time. What we saw above is a time which is active and dynamic. Lets us draw it:

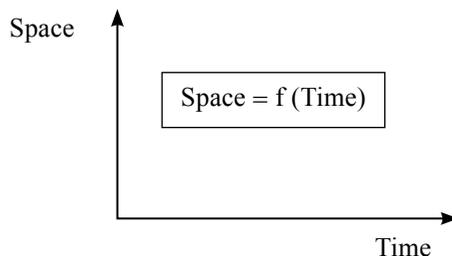


Fig. 2

One can conclude from discussion that space is a function of time. The moment time changes accordingly space will also change. If we follow this active and dynamic time which is ultimate underlying principle of each individual existence one can easily explain the reason of that bizarre nature of existence:

It is to say, within a large domain of space; each individual existence has got its own timeline, which further created local space and time<sup>13</sup> according to that timeline. This local space is adjusted by the local time, which describe each event of individual existence life span (world line) so that existence can experience that event

<sup>12</sup> It means to standardize the world line common to all creatures.

<sup>13</sup> It does not matter, whether one call space and time or space-time, ultimately time is going to decide the space.

as complete in its space and time that makes separate world for each individual existence. The time which provide timeline to each existence is called Essential time which does not depend on space.'

Existential time is connected to essential time for active participation in governing the universe. After getting specific timeline each individual adjusts all the connecting events within its own framework that can be called a universe of the same space and time. Each universe has its own laws for meeting their end from the beginning which includes everything that existence needs to do like matter, energy and natural forces. For example, the way of communication used by ant is understood only by ants because their evolution selected only those specific frameworks of communication which suits them. Humans cannot understand that language because their existence has selected the right environment for communication different from ants. So, even after contemplating on ant, observing her movement and analyzing her life style in detail, human cannot live ant's life at all neither can ant live the life of humans. It means for ant her each perspective of events is totally different including her experience of local time even her habit to distinguish between right and wrong, black and white or existence and non-existence. The question is why does such bizarre law at all can be true and what is the barrier which stops the integration between these different frameworks? The answer is; Time is the barrier between unknown different universes of individual existence.

This existential time can be sensed from historical change in the nature of space and history. There were lot of changes occurred everywhere including earth for example. As per *Milankovitch theory* there were several ice and warm ages which repeated their pattern of 41000 year [Berger, 1988; Weart, 2008]. This huge pattern resulted in drastic shift in earth's ecology and ecosystem replacing green places to dry land and rivers to deserts. Its proof is the ongoing research on Arabian Peninsula which is supposed to be green before [Petraglia et al., 2015]. Apart from scientific proofs on the green Arabia it is interesting to find such prophecy in the teachings of Prophet Muhammad (sal'lallahualihiwasallam) that Arabia will become green again [Al-Hajjaj (Book of zakat, 2208), 2000]. Similarly, from historical point of view, civilizations came into existence in a certain point of the time, developed and met their end. Amazingly, for making it happen there were changes in every domain of the earth and nature. People discovered from earth things which existed since the beginning but did not touch them as things were waiting for their true owner to work on. From perspective to see the world to the action towards fellow human being and nature, all changed. Such changes were not accidental but came into existence through a process of change in the nature and society [Guenon, 1996]. All domains of human life and nature adjusted themselves to make it happen. One can find plenty of evidence like Babylonian civilization, Greek civilization, roman civilization, Islamic empire, British Empire and the list goes on till now. One can ask now, were all such changes initiated by space? Can such thinking be a rational argument to satisfy another rational being? Space has nothing in its own nature to initiate something without another cause, than what is there which is responsible for such strange modification everywhere in the universe? There is no other option except Time itself which is creating, changing and relating new existences.

Each and everything has got its destination fixed initially, now it can be debated how it happened but not the issue whether it happened or not because birth, growth and death are the most beautiful truth of this universe. Death is not ascribed to space

or speed or mass, it has only one cause – Time. One can ask, whether quantum or classical physics can determine the precise time for individuals death? In reply it can be said, science knows with certainty some of particles life expectancy (decay). This is the sole junction of wrong premise, because if science knows the decay rate or particles life expectancy than why does not science predicts the life expectancy of humans which are composition of same particles? Or can predict some of natural occurrences without analyzing the timeline of those occurrences?<sup>14</sup> This is extended version of the paradox of time explained earlier. This junction demands another time which can justifies paradox, The Essential Time.

## 5.2. Essential Time

Existential time can be experienced relatively which differentiates individual's timeline but that is not the case with essential time. Essential time is not related to any reference or experience. It does not need any reference means, it is not created from the so called theory of Big Bang, that propagates time and space are created from singularity and prior to that there was no space and time. For the time being assume that space and time came into existence from the Big Bang. There is a major question need to be answered for this initial event. What made that singularity to explode according to latest findings 13.7 billion years ago? Why not before and after that specific moment? It can be argued that when the desired condition achieved by singularity which it cannot resist, it exploded or expanded. This argument is based on observation of natural phenomena. That means one is attributing the quality of form and matter to that initial singularity also. Form and matter cannot exist separately, where there is matter there will be form attributing to its own nature. As per Aristotle form is the ultimate principle behind any process in 'things' inspired by the very soul of that thing composed of. He defines matter as nature and nature as internal principle of change [Aristotle, 1984b]. Hence, in trying to prove creation of space and time, one will attribute form and matter and that is space. If space is there according to science; time must be there and this denies science own assumption that creation came into existence out of nothing [Krauss, 2012]. Now, it is another question how people define the nothingness. Whatsoever one maintains it is impossible to say from science itself, what it is? However, as there was something in the form of space and time or form and matter, than what was exploded or expanded is nothing but the space itself. The question still remains to be answered is that why singularity started on that specific moment?

It is known fact of physical universe that each process has certain limit it can resist and after that what nature has set for them will happen in unexpected way. Almost all the solid material can be compressed until a lower limit and stretched till upper limit. Stress-strain curve of steel shows that there is a limit called elastic limit that specifies how much it can deform without breaking, it is called Hooks law. Electromagnetic waves have specific limits in the form of wavelengths distinguishing their very nature from rest [Jearl et al., 2013]. For fluid they have limits of boiling, freezing, changing the flow from laminar to turbulent and drag related to them, that is what in aerodynamics

<sup>14</sup> For example, can one predict the death of star? Indeed there are theories which explain why star die but no one can say at what time.

people are trying to manage [Anderson, 2001]. Earth has its own limit of various layers including escaping from its gravity (escape velocity) [Fix, 2010]. All planets, stars, galaxies have their own limit of speed, mass with apogee & perigee (if they have). Now, science propagates that nature's law are immutable than why the things in hand can be changed, like by controlling the atmospheric pressure one can change the boiling temperature of water (True for other cases of physical world). Similarly zero gravity can be created in lab. Moreover this flexibility has been put by the so called immutable laws of nature. It could have been possible for nature to avoid such flexibility and set those values independent of any variable. It can be seen in the form of celestial objects, they do not deviate from their prescribed limit avoiding any flexibility whatsoever one can imagine. It seems paradox within natural laws somewhere mutable and somewhere not. The only thing which can justify such paradox is the dynamic role of Time, a single property common to both mutable and immutable laws of nature. By setting any physical process as a function of time one can change its process. For example, deciding the duration of travel one can reach its destiny by increasing the speed. Similarly, by increasing the stress force on material, elastic limit can be reached within prescribed time. The Chandrashker limit can be reached before or after the known limit by specifying time, that can accelerate or decelerate the process inside dwarf planets. Reference to planets, they can be judged from the satellite orbital time. Time can be set prior to design the target. Biologically, creatures living with us have same immutable laws but they live different life span. Here is another paradox:

'Suppose if twins are born at one location within so called immutable natural laws living same circumstances all the time of their life. What is the possibility of both to die at the same time, if natural laws are immutable?'

It can be assumed within 'circumstances' both inward and outward conditions<sup>15</sup>. However, if the so called universal immutable laws can be based by observing few natural process than, there are billions cases of death, why does not the limit of death also be formulated as a fundamental law or mathematical equation? It can be said, while biological differences no one can predict the death. At this point, all domains of physical branches met their inability to solve such well known truth. The final paradox summarizing all previous is:

'Is it Time which changes the biological and all space-time continuum of individual to match the timeline or timeline depends on the process of biological and all space-time continuum?'

If one says that, timeline depends on the biological and space-time continuum than it will be sheer contradiction as stated earlier. It is known that based on space-time continuum lot of theories and fundamental laws have been established in every field of science and they predict events very well in real world but at macroscopic level. So why does those same laws inspired by space-time continuum are unable to predict timeline for some events but able to predict for some?<sup>16</sup> After all death is a part of physical world not an abstract idea. Death is a limit set by nature for every events and it is all over. It is interesting that such important event of physical world; nature has leaved without any footsteps to predict. It seems, the most bizarre nature of physical world is in front of human eyes not in the black hole.

<sup>15</sup> Biological and environmental conditions.

<sup>16</sup> The decay rates of particles are known with their life span.

Now, the only option left is to consider the dynamic role of Time in universe. Time is the factor able to change whole space-time continuum to meet the deadline. With this same analogy and argument, It is proposed that: *at the beginning when space related to existential time were unity inside the singularity without any dynamic nature, that was the Essential time that set the limit for singularity as when to reveal itself and when to meet its dead line – the time line of creation.* Otherwise what second factor one will propose about the dynamics going on inside the singularity other than Essential time? It means essential time does not need any reference to show its existence because it is omnipresent. Omnipresent in the sense that one says fire burns; but in reality it is fuel which is producing fire. It is not the composite material taking shapes but internal particles. It is not the country taking decision but the people. Similarly, when Essential time prescribed the timeline of creation, it is present in existential time form hence omnipresence. Omnipresence thing cannot be referenced to anything, so essential time exists without any change or motion. Due to this specific relation whatever attribute essential time has exists with existential time also. It is worth to restate some earlier points of physics with one more perspective. After all, what one sees today is the effect of that initial prescribed limit that can only be remembered in terms of starting of creation. Prior to that starting, creation would have been possible or impossible<sup>17</sup> [Al-Ghazali, 2000, pp. 13–27]. This is supported by *Richard Feynman's* thought that the universe that we see today is one of the various possible universes; that could have been formed due to quantum behaviors of particles. He proposed this situation in his theory of positron in exciting way [Feynman, 1949]. Based on Feynman's suggestion it was thought that universe came into existence from nothingness because those positron now called Virtual particles came into existence accidentally out of nothing and become non-existence at speed of light [Krauss, 2012]. There is much controversy and confusion about the term nothingness, as to what does actually nothingness is all about. However, it has been argued based on double-slit experiment related to quantum physics where particles decide every time which path they have to take [Hawkings, Mlodinow, 2010]. Due to such bizarre prediction Einstein with his colleagues objected with famous EPR paradox creating a conflict between Copenhagen interpretations of quantum world with classical world view [Einstein, Podolsky, Rosen, 1935]. Moreover, as per latest model of theory of everything the so called M-theory, a combination of other physical theories predicts that there could be  $10^{500}$  possible universes exist out there in space [Katrin et al., 2007]. Due to similarity of attributes between existential and essential time, such possibilities can also be attributed to essential time. In this case only two possibilities can exist before creation either it was possible or impossible.

For the first case where creation is possible, it does not require or force prior existence of matter to prescribe timeline. Rather it can be opposite that; essential time by very nature knows beforehand when to create that initial singularity<sup>18</sup> in future and prescribe timeline. This possibility negates the idea of pre-eternal world forcing to conclude temporal creation. With possible temporal creation comes a

<sup>17</sup> Even though in philosophy creation has been categorized as possible, impossible and necessary. This distinction is purely based on metaphysical premises where for necessary creation attributed to necessity of God to create without exemption.

<sup>18</sup> Here, by singularity it is not intended the so called singularity of the Big Bang rather a starting point. It could be out of nothing to direct creation or from explosion. It does not matter how it happened rather indeed it happened.

question that, whether limit prescribed by essential time to initiate creation was static or dynamic. Static defines a temporal creation in which accidentally everything came into existence from singularity leaving nothing left. On the contrary, in dynamic creation initial process of 'generation' is still going on. It has been said that the attributes of essential and existential are same. The question can be asked how the time line of individual works. The only answer is through 'growth' and that is self-evident truth of nature. Every being lives a line of growth from beginning to end. Growth is a process continuously annihilating the necessary constituents. Biological process in human, ecology, ecosystem, solar system and galaxies all are constantly in growth and that is the nature of every being that's why nature is called principle of change. This process of growth governed by the timeline decides till when constituents be accepted. Growth does not progress by following the initial condition only but it should be fed continuously what is necessary. It can be said as a third most beautiful truth of nature. With same analogy, it is true for the initial singularity also. Creation came into existence at one time in past does not mean that it is static, rather it is dynamic proposing continuous growth as per its very nature. Growth here means creation is being continuously fed by the existential time and space (one can say matter and form) to maintain the process of growth. This will progress till its timeline reaches end in some point of future. In second case where creation is impossible, it negates the temporal creation of existential space and time but essential time still persist even for no creation at all. As per the very nature of essential time, it knows there is no possibility of any creation.

At this junction, the propositions claimed by the theoretical construction of Time have been explained sufficiently from Philosophical, scientific and metaphysical grounds. Considering known methodology of science at least of saving the phenomena justify the philosophical framework of theory developed so far [Duhem, 1985]. Indeed there is no mathematics involved but mere absence of mathematical elegance cannot discard any physical truth that has been advocated and shown. However, the inconsistencies of scientific methods lies in depart from the causal narration of events [Athearn, 1994]. As claimed, we want to reduce causal explanation to a final cause which cannot be reduced further. Assuming such line of thought obviously demands one major question:

'What is the cause of essential time and how it is there before creation?'

With certainty, there exists a narrative explanation that physics cannot reach in its current form. In the domain of methodological gap, vacuum of mere explanation avoiding causal narration and pull of empirical evidence has simply avoided the whole ocean of philosophical reasoning that is capable to answer this startling concept of Essential Time. The following part of this research will reveal the mysteries that lie in ontology of Essential time through causal narration. However, that is a separate issue linked with developed framework which in no case halts the completeness of theory proposed in the paper. Present paper only tackled the second part of reality and that is 'what it is for' not the ontology of Essential time itself which is 'what it is'.

## 6. Conclusion

Maintaining the methodology of modern science it is proposed that current understanding of space and time is incapable to explain the working of universe. Existing hypothesis of time extracted from the observational data and philosophy of modern science does not represent the unity this universe shows. The internal differentiation of the universe is covered by undifferentiated uniformity all around. The modern concept of time and space does not reveal this uniformity and internal differentiation. To explain this bizarre nature of universe the new theory of Time has been proposed which contains two times – Existential time and Essential time. Existential space-time continuum cannot explain its own creation or the cause, which by theory and logic demands some other entity to explain that gap. Hence, that entity is essential time that exists in reality without any reference. Based on nature's observation, proposed hypothesis explained all the possible question of universe including start and end. However, next part of this research will deal with the ontological nature of Essential Time that is 'what it is' following the present explanation of 'what it is for'.

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To be continued in the next issue of “Philosophy of Science and Technology”

### **Новая теория времени, соединяющая дифференцированную и недифференцированную Вселенную**

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Время, самая загадочная и самая неправильно понятая истина во Вселенной, ставит в ступор современную науку и философию. Время никогда не рассматривали в качестве активной действующей силы в существовании Вселенной кроме как в связке с пространственным измерением. Вселенная внутренне дифференцирована, но в то же время ее целостное существование демонстрирует недифференцированную однородность. Существующие представления о времени и пространстве неспособны объяснить это противоречие, которое пытается снять предлагаемая новая теория времени. В статье рассматриваются существующие теории времени – ньютоновское понимание времени, понимание времени в теории относительности и взгляд квантовой физики на время и пространство. Демонстрируется их неспособность создать успешные объяснения природы времени. Показывается, что опора только на данные науки в понимании времени оказывается недостаточной и требуется философское исследование данного вопроса. Говоря о сущности времени, можно поставить два вопроса, первый – «что это?» и второй «зачем это»? И ранние, и современные дискуссии о времени были сосредоточены только вокруг второго вопроса «зачем это?». Первый вопрос «что это?» даже не был явственно поставлен как отдельный вопрос, требующий размышления. В представленной статье дается первая часть предлагаемой новой теории времени, сосредоточенная вокруг попытки ответить на второй вопрос «зачем это?». Данная теория представляет время как динамичную силу, активно принимающую участие в поддержании существования Вселенной. Данная теория позволяет дать свежий взгляд на Вселенную, одновременно объясняя существующие в текущем понимании времени парадоксы. В рамках данной теории предлагаются и развиваются понятия экзистенциального и эссенциального времени.

**Ключевые слова:** время, Бог и его атрибуты, философия науки, теология, время-пространство, квантовая теория, классическая теория, относительность