CHAPTER TWO

TIME AND PHILOSOPHY
Long before Aristotle and Plato the concept of time is found in the writing of Archimedes. Archimedes is the prototype of those whose philosophy pre-supposes the elimination of time, i.e. of those who believe that temporal flux is not an intrinsic future of the ultimate basis of things. Aristotle, on the other hand, is the forerunner of those who consider time as fundamental, since he stressed up on that there are real coming-into-being and that the world a basic temporal structure.

Parmanides and Heraclitus were the earliest among the thinkers who dealt about this difficult concept in philosophy. As per Parminides the ultimate physical reality is timeless, another which is considered as the central doctrine Heraclitus is that events in totality constitute the world and not of things. All the events occur in time.

The statement for us is to find the relationship between time and logic. If we describe of any event e.g. an event ‘A’ that it is present. We can see that the propositions given will be generally false and will be true only at one moment. Here we can further think as if the truth of the proposition altered with time, any other preposition asserting the occurrence of an event e.g. a lady is dead-seems to be equally at the mercy of time. Then again
there seems to be other prepositions that are totally independent of time e.g. $2 \times 2 = 4$, these are sometimes referred as eternal truths; they do state relations between universals always. Lastly these are prepositions which essentially involve time but claim to apply any time. When the rain falls and I am out, I naturally get wet, thus, on the face of it, there seems to be three kinds of preposition as regards relation to time.

I. Eternal truths, which are independent of time because they deal with timeless relations of timeless objects.

II. Hypothetical asserting temporal relations between classes of events. These contain an essential reference to time, but not in any particular time.

III. Prepositions which assert the occurrence of particular events and which seem to be true at certain times and false at all others, there are two points to notice about the last class of prepositions

a. All the events and prepositions about them contain a reference to time, and when we take particular events and all prepositions. Regarding these events, essentially contain a
reference to particular time at which the event happens. This reference is not always made explicit but until has been done we can not say that the verbal form stands for any definite prepositions.

b. We have to differentiate between time at which a judgment is made and the time involved in the preposition ie judged. When the later is not made explicit in the verbal expression of the judgment, it is a convention of language to assume that the time in the preposition intended to be that at which the judgment is asserted. Thus, if I say 'it is raining this verbal expression, since it clearly intends to refer to a particular event, is incomplete and stands for no definite preposition; for it says nothing about the time at which it rains. It therefore seems to be sometimes true and sometimes false but, as actually asserted the words would be taken to express any judgment of the preposition, 'it is raining at time at which I say' "it is raining" and this preposition is timelessly true or false, subject a further correction which we shall add.
in a moment. In fact, whenever we are told that the preposition is dealing with an incomplete statement about an event and that the real state of affairs is that a prepositional function of form ‘E’ happens at time ‘T’ gives true prepositions for some values ‘t’ and false prepositions for other values but preposition themselves are timelessly true or false.

Many of the philosophers have also dealt about the reality of time and some great philosophers have been augmenting for denial of reality of time. There arguments fall in to two groups

1. Those that depend on the supposed infinity and continuity of time and are therefore equally applicable to space

2. Those that depend on the supposed propositions of time e.g. on the distinction of past, present and future.

It is matter of direct inspection that immediate objects of some of our states of mind have temporal characteristics. It is as certain that one note in a
heard melody is after another in the same specious present and that each have some duration.

In the history of philosophy we come across diverse philosophies on the single point by different philosophers, this suggests that philosophies differ and will exact at this point to deal about the controversy between absolutist and relativists. The absolute theory strictly means that temporal relations between events are regarded as compounded out of two relations

1. That of an event to the moment of time which it occupies.
2. The relation of before and after and between moment of time, the relative directs that moments are not there, but the temporal relations hold directly between events. It is most important philosophical uphold is Lebniez and we can say that in modern philosophy the man who have most concern themselves with time are Lebniez and Kant.

The question of whether the universe had beginning in Time and whether it is limited in Space were later extensively examined by the philosopher Immanuel Kant in his monumental and very obscure work 'Critique of pure Reason' he called these questions antinomies (i.e., contradictions) of pure Reason because he felt that these were equally compelling arguments for believing the thesis, that the universe had a beginning and the antithesis, that it had existed for ever. His argument for the thesis was that if the universe did not have a beginning there would be
an infinite period of time before any event, which he considered absurd. The argument for the antithesis was that if the universe had a beginning, there would be an infinite time before.¹

Leibniz argued strongly for the relative view of time in his letters to Clarke who represented the Newton and the absolute theory. His arguments turn mainly on the identity of indiscernible and principal of sufficient reason. Leibniz carefully distinguished duration from the relation of before and after and he compared duration to the extension of matter, Leibniz view is that Time is a system of possible positions possible events related by, before, after and simultaneous with. He holds that all possible worlds must be in time, though, off course, the particular temporal relations of the actual world are contingent. To make Leibniz coherent, it would be necessary to be much clearer than he is as to the relation between the time series of each Monad and the time series of the Universe. He attempted to explain the relation between successive states of same Monad by saying that the earlier ones have the quality of being desirous for the lateral ones as an attempt to replace relations by qualities, this clearly false, since desire for anything is clearly disguised relation.
It is also held, with a good deal of misunderstanding and confusion by many modern physicists of philosophical bent. We may say that the relative theory stands at one remove and the absolute theory at two removes, from what we find in the objects of experience. Here we find, as we have even, event of finite duration and relations of partial precedence. The relative theory replaces these objects by series of momentary events of no duration, and the relations by those of total precedence and simultaneity. The absolute theory takes the further step of introducing new act of entities viz moments which have no duration and stand in relations of total precedence but never of simultaneity and a new relation, viz that between a momentary event and the moment which it occupies.

Leibniz apply this principal to time in a famous passage of this 3rd letter. Suppose someone asks why God did not create every thing a year sooner; and that the same person wants to infer from that, that God did something for which He can not possibly have had reason why He did it rather than otherwise, we should reply that his influence would be true if time were something apart from temporal things for it would be impossible that there should be reasons why things should have been applied to certain
instants rather than to others, when there succession remained the same, but
this itself prove that instants apart from things are nothing, and that they
only consist in the successive order of things and if this remains the same.
The one of the two states (for instances that in which the creation was
imagined to have occurred a year earlier) would be nowise different and
could not be distinguished from the other which now exists. Essentially the
same view was held by Lucretious, time by itself does not exist but from
things themselves there results a sense of what has already taken place,
what is now going on and what to ensure. It must not be claimed that any
one can sense time by itself apart from the movement of things or there
restful immovability.

We will now see the explanations regarding absolute theory of time
which has never had much philosophical support; there can be little doubt
that Lebniez had the better Clarke, perhaps the best arguments for absolute
time and space are to be found in Bertrand Russell’s *Principals of
Mathematics*, they do not seen to the present writer to be conclusive and
their author has latterly taken a much more relativistic view. Some other
philosophers like Locke, Berkeley and Hume insisted that the notion of
time comes from the succession of our ideas but they never made it clear how their temporal relations are convicted with the time i.e is used in physics.

A philosopher who believed that all material objects and Space and Time are an illusion. When the famous Dr. Johnson was told a Berkeley's opinion, he cried, "I refuted thus!" and stubbed his toe on a large stone.

Berkeley and Hume in particular fail to give a reasonable account of the distinction that we certainly make between the temporal order of our ideas and the temporal order of the objects which we claim to know by them. It is a great merit of Kant to have seized on the importance of this point in his analogies of experience, though the distinction will certainly not bear the super structure which he built on it. He attempted to prove that the distinction involves the permanence of substance which he seems to identify with the chemical law of conservation of mass and the law of causation among experienced objects but his arguments are entirely in conclusive even to prove that in order to make the distinction, we must believe in these principles; much less to prove, what the transcendental method always tends to confuse with this, that principles are true.
Immanuel Kant who discusses thesis and anti thesis, he in his work *Critique of Pure Reason* referred some queries which are contradictions or antinomies of pure reason because for believing the thesis there were equally compelling arguments that the universe had a beginning and the anti thesis that it had existed for ever. His argument for thesis was that if the universe did have a beginning, and the antithesis was that if the universe did not have beginning, there would be an infinite period of time before any event, which he considered absurd. The argument for the antithesis was that if the universe had a beginning there would be an infinite period of time before it, so why should the universe begin at anyone particular time, infact, his cases for the both the thesis and antithesis are really the same argument. They are both based on his unspoken assumption that time continues back for ever, whether or not the universe had existed forever. As we shall see, the concept of time has no meaning before the beginning of the universe and this was first pointed by St. Augustine. When asked what did God do before he created the universe? Augustine did not reply, instead he said, Time was property of universe that God created and that time did not exist before the beginning of universe.
St. Augustine in his book ‘The City of God’ pointed out that civilization in progressing and we remember who performed this deed or developed that technique, thus man, and so also perhaps the universe, could not have been around all that long. St. Augustine accepted a date of about 5000 BC as a date of the creation of universe (as per the records of Genesis). It is interesting that this is not so far from the end of the last Ice age, about 10,000 BC which is when archeologists tell us that civilizations really began.

As we shall see, the concept of Time has no meaning before the beginning of the universe this was first pointed out by Augustine when asked what did God do before he created the universe? Augustine did not reply. He was preparing Hell for people who asked such questions instead he said that Time was a property of the universe that God created and that time did not exist before the beginning of the universe.3

Time plays perhaps more, and more important, parts in Kant’s philosophy than in any other. In the aesthetics he tries to prove that it is a form of intuition, the form appropriate to the internal sense. This seems to mean that, just as we can only perceive ourselves and our mental states in introspection as being in time, though there is no reason to think that we really are in time. This certainly seems to raise the special difficulty that unless we know ourselves as we are and not merely as we appear, we cannot know what our forms of intuition are, but only what they appear to be, whilst Kant’s argument certainly assumes that know what they are.

1. In the dialectic, as we have seen Kant has an antinomy about
Time. This apparently would, if valid, over through not merely Absolute Time but also the temporal character of events and the temporal relations between them. We have already seen how grave are the difficulties in the way of any such condition, and how entirely powerless Kant's arguments are to prove it.

2. Analytic Time plays an important part in the difficult doctrine of the categories. The position seems to be that the categories as pure conceptions of the understanding cannot be applied immediately to the manifold given in sense, even after, that has been synthesized by imagination. They have to be mediated through Time; Thus the category of ground and consequent, which is purely logical can be applied to the world of sensible experience only after it has been acclimatized into the temporal form of cause and effect. The whole argument here is confused and weak to a remarkable degree; The principle appears to be that the manifold of sense is provided with temporal characteristics by intuition; That
these remain and are elaborated by the senses of imagination;
And that the categories can be applied if they be first
schematized so that they and the synthesized-manifold share
the temporal relation in common.

3. Kant's critical solution of his own antinomy is that the
infinity involved in Time is not an actual infinite, as it would
have to be if Time applied to things in themselves; But this is
only the power that we have been always synthesizing farther
than we have yet gone in constructing a temporal series. To
this Lotz makes the very pertinent criticism that it surely
depends in the nature of tings in themselves whether we shall
be indefinitely supplied with material to synthesize.

About the beginning of universe and its relation with Time was also defined
by a great philosopher Hubble. His observations suggested that there was a
Time called the Big Bang when the universe was infinitely small and
infinitely dense under such conditions all the laws of science, and therefore
all ability to predict the future, would break down if there were events
earlier than this time. Their existence can be ignored because it would have
no observational consequences. One may say that Time had a beginning at
the Big Bang, in the sense that earlier times simply would not be defined.

Now we can go further in deducing the development of our
knowledge about Time, is due to mainly because of two sets of people:

1. Philosophical Mathematicians like Dedekind and Cantor, who have
given a very simple satisfactory analysis of infinity and continuity, and
thus finally refuted all antinomies based on these;

It is important to be that the spatial and temporal intervals (Continua) of
Modern Kinematics are actually infinite sets of parallel elements in the
George Cantor, not merely potentially infinite aggregates in Aristotle’s sense.
The latter are infinite merely in the sense of being infinitely divisible. Hence
in Modern Kinematics the members of an infinite set of non overlapping
subintervals of an interval of Time or Space cannot be regarded as first
having to be generated by hypothetical division operations on the total
interval.

For the relevant citations from the writings of Bergson and James
Whitehead and in Relativity and the atomicity of becoming.

2. Mathematical Physicists who had been led by their studies in the optics
of moving systems to elaborate the theory of relativity. The pioneer in
this work is Lorentz; The theory itself was first formulated by Einstein;
And the mathematical and philosophical consequences have been drawn and elaborated by Einstein, Minkowski*, Robb, Whitehead and others.

*A space-time diagram is a graph showing the position of objects as a function of time. Reference frames are frequently pictured with a Minkowski diagram using a rectangular coordinate system on a spacetime obeying Einstein's Special Theory of Relativity. Here is an example with space having just one dimension.

The time axis is customarily chosen to be vertical:

The above diagram shows Einstein standing still midway between the two places at which there is a flash of light. The directed arrows represent the path of light rays from the flash. In a Minkowski diagram, a physical object, such as an electron or a person's body, is not represented as occupying a point but as occupying a line containing all the spacetime points at which it exists. The line is called the "worldline" of the object. In the above diagram, Einstein's worldline is a vertical line. If an object's worldline intersects or meets another object's worldline, then the two objects have collided. The units along the vertical time axis are customarily chosen to be the product of time and the speed of light so that "worldlines" of light rays make a forty-five degree angles with each axis. The set of all light speed world lines going through an event defines the light cones of that event: the past light cone and the future light cone.

Inertial motion produces a straight worldline, and accelerated motion produces a curved worldline. If at some time Einstein were to jump on a train moving by at constant speed, then his worldline would, from that time upward, tilt away from the vertical and form some angle less than 45 degrees with the time axis. Events on the same horizontal line of the Minkowski diagram are simultaneous in that reference frame. A moving observer is added to this diagram to produce the diagram below in the discussion about the relativity of simultaneity. In a coordinate system attached to the Sun, the worldline of the Earth's orbit would be a helix.

Not all spacetimes can be given Minkowski diagrams, but any spacetime satisfying Einstein's Special Theory of Relativity can. Minkowski diagrams are diagrams of a Minkowski space, which is a spacetime satisfying the Special Theory, and therefore it is falsely presupposed that physical processes such as gravitational processes have no effect on the structure of spacetime. When attention needs to be given to the real effect of these processes on the structure of spacetime, that is, when general relativity is to be used, then Minkowski diagrams become inappropriate for spacetime, and a single coordinate system no longer covers the entire spacetime.
It is also necessary to mention among recent philosophers like Bergson in whose works Time, nominally at any rate plays very important part. He upholds that the attempt to treat Time as similar to Space is a pervasive one philosophically. It may work well in dealing with dead matter, but it shows its falsity in Biology, Psychology and Philosophy. He also falls foul of the mathematical theory of the continuum as applied to Time; Bergson admits that it is internally consistent, but denies that it describes what any body really meant by change and motion. Bergson’s arguments seem to rest partly on comparison between change as a sense datum e.g. (the peculiar characteristic of what we are when we look at the second hand of a watch as distinct from the hour hand). And physical change and partly on the erroneous view that a whole of related states cannot be a change unless each of its term be a change again, in some of his remarks about memory he seems to suppose that, because a memory act is a later awareness of an earlier event, the earlier event and the later awareness must somehow be contemporary. Finally, he seems to think that ordinary view of Time is refuted by the facts, of which he is strongly convinced, that no two total states of mind at different times can be exactly alike, that there are not, not
strictly speaking, distinct elements which can occur as parts of different material states and that no amount of knowledge about earlier states will enable us to foretell later ones completely and we can also say that Bergson’s most characteristic doctrine besides Time belongs to the subject of change.

*Time in Mulla Sadra’s Philosophy:

In his philosophical system based on the concept of wujudlesse, Mulla Sadra gives a definition of time, which is related to wujudlesse by virtue of which it can be conceived. His conceptualization of time is fundamentally different from that of Avicenna. Among the Muslim philosophers, the relationship and transition of Aristotelian conceptualization of time ought to be sought in Avicenna’s philosophy. Like Aristotle, Avicenna asserts that time is the measure for motion, expounding it as a natural concept in natural philosophy. Time, Avicenna believes, is an essential concept, which finds a place in the categories of Aristotle and that, which is inflicted on objects through motion. In many of his words, Mulla Sadra

* Source: Akbarian Reza’s research paper entitled, “The Existential Explication of Time In Mulla Sadra’s Philosophical System”
gives the same explanation. After facing vague and debatable points concerning time and after a final analysis on the question of motion, he, however, postulates a new theory, which solves the problem of time and the trans-substantial motion

Mulla Sadra does not put away with Aristotelian conceptualization of natural time nor does he believe it is original. He believes that natural time is a derivative of the existential time, which he expounds as a metaphysical issue in his ontology. Mulla Sadra’s thought concerning wujudlesse culminates in the theory which as an innovational one was first propounded in his philosophy. This theory is the concept of the essentially time-bound fluid wujudlesse. In this theory, time is not a container for physical objects but an existential attribute for them. This attribute emanates from their manner of being and concerns with their identity.

On the same basis, time, Mulla Sadra claims, is the truth of the fluid wujud and the time-boundness of physical objects serves as the continuity in their existence. His words concerning the four dimensions of physical objects have total certitude. This consideration concerning the ontological
state of time leads us to the notion that time in its continuous identity is a unique stage of the stages of primal causes and an inferior stage of the inferior stages. Of course, he asserts that the stages of the truth of existence are like the truth of existence. Such a conceptualization of time may be found neither in Greek philosophy nor in Aristotelian philosophical system. To accept such a statement, Mulla Sadra is led to the trans-substantial motion and offers it as a new fundamental for his philosophical system.

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This endeavour attempts to present a general picture of time in Mulla Sadra's ontology and explain his theories on the reality of time in relation with the trans-substantial motion in order to clarify how and why the concept of time has found another imprint in the light of Sadrian wujudlesse and why it differs from what Aristotle and Avicenna have proposed in this regard.

The Importance and the Status of Time in Mulla Sadra's Ontology

Mulla Sadra's struggle to define time defies the views of those who believe that time emanates from the mind.
Mulla Sadra uses Aristotle's concept of time as his point of departure. Aristotle states that time is so intimately associated with motion that in defining them one cannot be possibly separated from the other. Time is the measure for motion regarding priority and posteriority. Aristotle has sought to define time based on the natural philosophy and associate it with motion; however, Mulla Sadra has proposed the necessity of an existential view for the understanding of the reality of time in his discussions on time. He places stress on this point that the understanding of the reality of time relies on the abandoning of the general model which natural philosophy has provided within the framework of Aristotelian philosophy for understanding nature.

In Mulla Sadra's philosophy, Aristotelian natural motion gives place to the existential trans-substantial motion emanating from the perpetual source of Divine grace. It must be noted that the source of grace does not create motion, but interrelated perpetual forms the product of which is motion. This thought does not correspond with Aristotelian thought in content or in the relation among the four causes. All motion, which
Aristotle sees in nature and from nature, Mulla Sadra sees in existence and associates it to the Diving creative power.

It is through this point that Mulla Sadra’s philosophy finds a deep disparity with Aristotle’s philosophy because Aristotle proposes his theory on nature in physics and through it, it leads to the metaphysical disparity between palpable and impalpable existences whereas Mulla Sadra holds that motion is related to metaphysics and propounds it under one of his philosophical divisions entitled the stable and fluid being. What he means here is the reality of existence, not the concept of existence. The distinction between the reality of existence and the concept of being is of such great significance that one cannot properly understand his metaphysics unless one first understands this distinction.

Mulla Sadra’s thought on time relies on this distinction. Time, he holds, is the reality of the fluid being and the fluid being is one of the stages of the objective reality of esse. This idea is properly understood when we consider the exact meaning of the existent, namely what is and the esse that is being and existing as an all-important point in the transcendent philosophy. Mulla Sadra lays his philosophical system on the basis of the
primacy of esse over quiddity and based on that, he travels from the common conceptual matters in the past philosophy to the existential discussions, constantly placing stress on the necessity of distinguishing between the two meanings of esse, that is, the existent which is the second philosophical intellect and the external objective reality of being which may be perceived by immediate knowledge. Instead of distinguishing between the mobile object and the immobile object which refer to the two beings, he proposes the idea of distinction between analogical stages of the reality of esse through transition from the existent to the existence. He asserts that the reality of esse has two stages: the stage of stable being and the stage of the fluid being which time and the reality of the fluid being are the indispensable necessity.

The important point that assists us in explicating the issue of time is that the analogical gradations of the reality of esse are but the manners and manifestations of the reality of esse and that all the universe from the sublime beings to the physical objects is metaphysically one and the same. Concerning unity and diversity, Mulla Sadra propounds that the esse is one and manifold at the same time, adopting it as one of the most important
principles in his metaphysical system. He affirms that the existent exist through their illuminationist relation with the physical objects. Thus, they should not be imagined as independent beings, related to their source.

This contemplation upon the ontological state of particular beings leads us to the idea that the esse is a unique reality with different and diversifying stages based on the weakness, perfection or imperfection, priority or posteriority and so on. Time is a continual state of the prime causes and one of the inferior stages of the esse.

This idea gives a total spin to the question of time and a newer and deeper outlook to the philosophers. According to this idea, time is the manifestation of the wujudlesse. One cannot consider any distinction between it as one of the stages of esse and the variable being as another stage as in earlier philosophical systems between the nature and metaphysics. In this world vision, the superior degree, the principle of inferior degree and the inferior degree are but the continual manifestation of the superior degree.

In explicating this view, Mulla Sadra sees the origin of this universe and the beings in existence and seeks its source in wujudlesse. He holds
that the esse is a pervasive affair, encompassing everything and that everything gains its existence from it. Time, which is a transient identity and existentially dependent on its own cause is no exception to this rule, and is encompassed by the reality of esse.

The quality of universality of the reality of esse in its different stages including time does not in the least correspond with the quality of the whole over the parts or the quality of the general referential concepts over small ones. Mulla Sadra asserts that it is impossible to conceive the universality of the reality of esse in different stages. In his eyes, the esse or the ultimate reality is something with brightness and understood not by reason but by some inward illumination. Thus, he postulates that such a reality cannot be conceived by the mind and grasped unless through immediate knowledge.

Sadrian Realization of the Reality of Time Concerning the reality of time, there are diverse ideas according to which time is a concerted measure and quantity. In many of his words, Mulla Sadra accepts this definition. However, after proving the trans-substantial motion and explaining the time boundness of the existence of physical objects, he offers a new definition of
time hitherto unprecedented. And it can be regarded as a fundamental change in the history of philosophical thought. He opposes this Avicenna’s idea that motion in substance is impossible and propounds the trans-substantial motion within the critique of his worldview. Thus, he criticizes the views of the Aristotelians concerning time, space and space.

He agrees with earlier philosophers that time is a restless reality inflicted on objects through motion. He first accepts these two characteristics for motion that time is a divisible matter and of the quantitative categories and indivisibly related to motion; however, he, finally, postulates that this can be a fundamental difference shared by his predecessors on the reality of time. In his eyes, time, motion and the physical existent enjoy a unified existence. He rejects the duality between motion and time as he claims that motion and time are no external accidents for the material beings.

Mulla Sadra has an exact statement on this case arising from his view on substance and accident. His conceptualization of the relation between substance and accident differ from those of Aristotle and Avicenna. He states that the attribute of any object arises from the stages of
the existence of substance. The general consensus is that objects are in need of their own attributes in their distinction; however, according to the primacy of esse in the transcendent philosophy, these diverse attributes are no distinctive qualities but the signs of distinction.

All beings are a priori things-in-themselves and distinctive from each other; and due to this distinction in identity, their attributes differ, but not otherwise. Thus, each being is but an identity, which appears in different forms. According to this statement, distinction is not imposed on the beings from the outward but spring from the inward of the beings. As such, any attribute of any object is exactly the attribute of the particular existence of the object; thus, the motion of the object is exactly like the identity of the object.

This conceptualization of time by Mulla Sadra must be regarded as one of his innovations. On this basis, the source of priority or posteriority of objects has to be drawn from the accidents. There is a time and space for every motion and coming out of that space or that time is coming out of the existence of oneself. It is impossible that a thing, which is not contained within a space, should be contained within a space and the thing, which
essentially knows stability, cannot accept time. Time is the sign of the thing which can essentially accept time and its identity is internally associated with time; hence, it cannot be conceived that the physical objects be emancipated from the bond of time or space and find a being indifferent to time and space. Thus, the material beings cannot be held to be essentially quiet and at unrest due to time.

In such an existence, time becomes a sign of priority or posteriority, but not its cause. Mulla Sadra extends the essential priority or posteriority to an identity, which is essentially endowed with innovative and different manners, and this difference roots itself in the essential priority or posteriority and the priority and posteriority are not capable of being collected within it.

The exact meaning of essential priority or posteriority in physical objects is that the time-boundness of accidents and their sequence of events emanate from them, not from the external factors. Based on such analysis, time is not like a container in which accidents are placed. Each accident is so bound to its time that one cannot be possibly separated from the other. These are all due to the fact that the time of each object is, ipso facto, a
facet of that object, not an object outside of it; in other words, the container and the contained are one and the same.

Thus, in Sadrian concept, time does not fall into the category of accidental quiddities nor is it like a container independent of the physical objects contained by matter, but time is the essential strengthener of physical substance; hence, all physical objects and phenomena have a time of their own, for time is a quality of their qualities.

Time, Mulla Sadra states, is an invisible continuity or a fourth dimension of the physical being. According to him, the time-boundness of objects is the sign of continuity in their being. His words on the four dimensions of objects are have manifest certitude; in his exact analysis, objects have two continuities: temporal and spatial. Spatial quality generates three geometrical dimensions and temporal quality springs from the inward overflow of physical beings.

The statement quoted above best reveals Sadrian concept of time. That the time is the fourth dimension of matter and has no other entity other than this in the outside, is a grave step in discussing the reality of the existence of time. The reason of reiterating this point is due to the quality of
its novelty in the transcendent philosophy. The Sadrian concept of the fourth dimension is not to be associated with Einstein’s general theory of relativity. The four dimensionality of physical objects in Sadrian concept is metaphysical and non-empirical. This dimension is not a quantitative dimension but an existential one, which emanates from the manner of the being of the physical objects and concerns itself with its identity. Time is, in fact, a fluid identity and an innovated being of which the mind is capable of abstracting a rational consideration, that is, the time. According to this statement, motion is not to be accounted as an essential concept, but a fluid being which, in the outside, is like the motion and the fluid being and only through the analysis of reason can the mind distinguish between them.

On this basis, many predicates on the question of time find answers different from what was proposed in earlier philosophical systems. Thus, it can be safely asserted that it is impossible to offer an essential definition for the nature of time in the transcendent philosophy, for such a definition falls into the category of essential concepts and that is why Mulla Sadra is held to have stated that time and motion are rational considerations for the physical beings and the fluid being.
The Perception of the Existence of Time And its Rational Consideration:

This concept of time is best perceived when we differentiate between the reality of the being of time in the outside and the concept of time. What has been so far proposed is the reality of the being of time but not its concept. The reality of the being of time, which is, indeed, the reality of the being of time, is exactly the thing, which has, nor is identity. Thus, one must go to it to understand it.

Instead of the sensual experience proposed by Aristotle, Mulla Sadra propounds the immediate perception of the existence of time. According to him, the realization of the reality of fluid existence is other than the realization of time and the conceptualization of time is other than its rational consideration. The conceptualization of time adumbrates the reality of the existence of time, but within the limit of a conceptual opening, just like when we make of our souls a concept like ipseity, which we understand and use it as an acquired mode for the immediate reality.

The conceptualization of time is evident, that is primal and precedent. What is grasped at by our minds without the intermediary of any
factor is exactly the conceptualization of time; however, the reality of the existence of time is hidden and veiled as the reality of the fluid existence. Mulla Sadra asserts that the evidentness of the conceptualization of time does not commonly mean that it is metaphysically evident as well. Thus, he seeks to elucidate this concept of time in his philosophy and set forth its necessary principles.

In his analysis of reason, Mulla Sadra concerns himself with time. Unlike Aristotle, he proves time in the outside through analysis of reason but not through sensual receptions and inward experiences. He believes that time is a philosophical intellectual consideration, but not an essential sensual concept and discussing it is a hundred percent philosophical and metaphysical, not a discussion within the realm of natural sciences and empirical receptions. Because he believes that the concept of time is not achieved at through abstraction or the generalization of sensual perceptions but is reached at through mental analysis of immediate percepts like other metaphysical categories.

This fact, considering the point which we shall mention by Mulla Sadra, can be explained differently: since time belongs to the rational
considerations of esse, the status of time is not manifestly separate from the status of esse, but what lies in the outside is only a restless essence and these two are only separate from each other in analysis of reason as is the case with all metaphysical concepts which imply different kinds of esse. As stability is not an attribute inflicted upon the object from the outside, time is not an attribute to be inflicted from the outside on the fluid being but the two concepts imply two kinds of esse.

Prior to the transcendent philosophy, time was counted to be the prime categories and essential concepts; however, based on the principles of the transcendent philosophy, time does not exist outside of the esse, but abstracted from the manner of the being of time. Thus, as Mulla Sadra believes in the primacy of esse, one cannot accept time and motion as abstracted from the manner of the fluid being as an external accident for the mobile being. Generally speaking, he introduces quantities and measures as analytical accidents, not the external accidents. However, the important thing which in Mulla Sadra’s philosophy is regarded an innovation is that in his eyes, time and motion are both abstracted from the manner of the fluid being. This is the thing, which cannot be found in earlier philosophies. The
issue of the analytic accidentality of time for motion can be found in Avicenna’s corpus. Mulla Sadra’s innovation is the second intellectuality of time and motion for the fluid being.

Mulla Sadra explains the rational consideration of time differently and offers a new theory on each. The following statement is the most lucid one:

The rational consideration as Mulla Sadra puts it, is self-acting consideration and we know that all second intellects are used in this sense. It cannot be debated that he does not mean imaginary or illusionary but intellectual consideration. This is what has taken the name of analytic accident concerning the accidents of time on motion and is called second intellect in the case of time and motion in relation to the fluid being. Although Mulla Sadra regards time as the analytic accident for motion and time and regards motion as the second intellect for the fluid being, he explicates in many cases the outward unity of time, motion and the fluid nature. These three affairs are different in the mind, but in the outside, they exist in one existence. It is obvious that time is what we interpret as the
So far, we have talked on the perception of the reality of the existence of time and the rational consideration as viewed by Mulla Sadra in comparison with Avicenna. Now let us consider what Aristotle states about this.

Time, Aristotle asserts, is an essential concept. He has treated this issue in physics. He has striven to offer a picture of time to be conceived by the ordinary mind and this contrasts with that of Kant who claims that time is not an empirical concept derived from experience.

According to Aristotle, time is an empirical-sensual concept. Yahya Ibn adi and Abulhasan Ibn Samah, the two expounders of Aristotelian philosophy, stated: as Aristotle has informed us of the wonder of the rejecters of time, he does not need to provide probative evidence for the existence of time, for the sense is more powerful than any probative evidence; the evidence for the truth of this statement can be sought in this Aristotle's statement that: we sense time and motion simultaneously, for when something affects our bodies in the dark, if some sort of motion is
implanted within our minds, we perceive time at that very instant and when it crosses our minds, we perceive that there has been a motion with it.

Aristotle recognizes the fundamental role of time in our minds and is aware of the truth of the subjectivity of nature of time; he has made reference to the close relationship between intellect and time.

It can be questioned in this matter whether time can exist without the presence of intellect and spirit. Because when one does not count, there is surely no number. Aristotle does not tend to reject time in the outside nor does he tend to regard as an illusionary matter. He wants to show that there is a relationship between intellect and time, because according to Ross, he has accepted the existence of motion in the absence of self and has refuted the measure, that is time. Counting does not create parts but it affirms the already extant things. Copleston quotes this point by Ross. According to Copleston, this corresponds with Aristotle’s belief about the unity. Parts are potentially united and the mind is created by the mind.

The Perception of Reality through Moment

The distinction between moment and time and also the relationship between the two in the history of philosophy is of great importance. By resorting to
the conceptualization of moment, man can find the feeling of being in
eternity. In Aristotelian philosophy, and the philosophy of the
illuminationists such as Al-Suhrawardi and Mulla Sadra, moment has a
special place. In their views, moment does not mean religious moment in
which the divine grace is extended to all beings and the finite has become
infinite.

To understand the reality of time and also the reality of the fluid
being, one must accord more attention to the fluid moment. As we said,
Mulla Sadra regards time as fluid identity and innovative being from which
the mind is capable of abstracting a rational consideration known as time.
Concerning the reality of time and its rational consideration, we have
talked. Now let us see what sort of relationship exists between time and
moment.

By moment, we mean potential moment, from which time is derived
and known as the fluid moment of time. Mulla Sadra believes that it is a
real affair, which time is actualized with its overflow and one can regard it
as the maker of time. As long as reality is not reached at, and does not cross
it, neither the motion in the outside nor time is actualized. Those who have
rejected moment in this sense, believe that the proponents of moment have sought to regard a being independent of the reality of time and the fluid being while it is not so. Moment, in this sense, is held to be a philosophical concept and has the origin of abstraction in the outside.

In philosophy, moment has a different meaning, which is usually interpreted as the active moment. The active moment which is the side and the measure of time and the common limit between the past and the future is derived from time. It is true that moment in this sense a non-existential affair and abstracted from the lack of the continuity of time to the infinite, but, it is extant and one cannot regard it as an illusionary affair.

The issue of time and moment and the relationship between the two is closely associated with the two meanings of the traversed motion and the mediated motion. Mulla Sadra does not hold motion within the category, but he regards it as the manner of fluid being. Unlike the ostensible meaning of the Sheik's words, he believes in the external existence of traversed motion. Rejecting the negation of the external being of the mediated motion, he seeks to justify the Sheik's words in this regard. He
believes in the existence of traversed motion and the external existence of mediated motion.

According to Mulla Sadra there are two distinctive philosophical stages for the trans-substantial motion and the fluid being. On the one hand, it has a continuous existential unity and on the other hand, it has a being dependent on the originator. Mulla Sadra holds that there is a continuity for the trans-substantial motion and interprets it as time, he regards separation necessary for the trans-substantial motion, calling it the potential limit contained by the fluid moment. The bond and the separation offer a richer image of Mulla Sadra's reality of the fluid being.

According to Mulla Sadra, the past, present and the future are a real affair in time and as long as it is not actualized and destroyed within the limits of time, the actualization of the next limit does not become possible but the important point is that the priority and posteriority in the parts of time do not contrast their togetherness in the esse but are like their togetherness in their esse. What is necessary is that the proponents of the correlative be together because of their correlative and the manner of the continual innovative time is their innovative union and not conceived
because of their weakness. In fact, Mulla Sadra regards for time a similar existence with non-existentiality in the sense that each part of its existence necessitates the negation of another part and the esse of such a being is like restlessness and overflow.

Hence, there are, according to Mulla Sadra, two stable and unstable beings for the fluid being; in other words, it is something constant and continual and on the other hand, innovated. The first part is the traversed motion but according to the second one, time is not constant and the presupposition of survival in time is implausible, for its origination is like destruction and its survival like annihilation. Mulla Sadra holds that we can regard reality for both. The innovative side which is the origination and destruction is real and the motion as a continued fluid unit is a real affair; in other words, time is constant and transient; however, considering the identity of time, the obvious inference is that its origination is like its destruction.

Based on such a view, Mulla Sadra regards the union as the necessity of the manners of the continual being. He holds that the presupposition of the absence of union between the points of motion
destroys the mobile unity, rendering the motion meaningless. The existential union, namely the presence of all past beings in the present beings of objects is a unique reality which contains within it all the existential perfections of past beings and the existential perfections of a supreme being by virtue of intermediary. Although this being is accidental, it contains all its part within its identity. This contrasts with those who say that there is an existential distinction between the past and the future. It is evident that this unique identity is not potentially absolute because of its present and past and future, but the more the existential activity of an object increases, the more its powers decreases in the future. On the same basis, the past, future and the present are instrumental in giving shape to future.

That which one of the three phases of time is to be the origin, one has to accept that time is a united reality whose actualization relies on the past, present and future. When there is no past, the present is not actualized and as long as the present is not actualized, there will be no future. According to him, outpacing is the attribute of time. It is the present without which the priority and posteriority hold no meaning and it is the past which is regarded for time as a necessary thing.
Concerning time and moment, he accepts that the moments do not strengthen the reality of time but are elements in which time can be analyzed. For time and motion, Mulla Sadra regards moments and the potential limits actualized by a fluid being and it is interpreted that the giver of life emanates a prototypal form differing from its priority and posteriority.

**Time and the Trans-substantial Motion**

The trans-substantial motion and moment are so closely interrelated that one cannot ignore one to understand the other. Mulla Sadra offers a proof for proving the trans-substantial motion one of whose prerequisites is related to the understanding of the reality of time. Time, he believes, is both the analytic accident for the motion and for the fluid being. After he demonstrates that the priority and posteriority root themselves in the accidents and that the time is not an independent container for the physical objects and the priority or posteriority are inherent in the beings, he encounters this question what kind of being this nature is which is mingled with priority or posteriority. By providing answer to this question, he is led to infer that the being, which is mingled with it and embodies it, is a self
that is accompanied by priority and posteriority. The important point is that
the priority and posteriority that Mulla Sadra encounters at the beginning of
his journey is other than the priority and posteriority that he is led to at the
end of the way. The first one is an evident affair whereas the second one is
the existential priority or posteriority and that which is not perceived by the
senses.

Thus, Mulla Sadra offers a proof for the motion of objects through
the recognition of the reality of time as a fluid dimension of the dimensions
of physical beings. He asserts that each physical being is time bound and
has temporal dimension and as any being which has such a continuity in its
being, it will have a gradually acquired being and will have extensive parts
in the span of time. The inference is that the existence of the physical
essence is a gradual, transient and innovative existence and when it is
involved in the time bound objects, it is the time of the trans-substantial
motion and the interception of the trans-substantial motion is the
interception of time. This view indoctrinates us that the matter and the
essence are prone to fundamental motion and as the personal identity is not
actualized without geometrical dimensions, it is not actualized without
temporal dimensions and one cannot imagine any physical objects which is constant in time and equal compared to other objects.

According to this view, the entire universe is a continual motion and this motion is like the existence and its identity. In fact, the entire universe is a mobile with a single motion and each motion is part of the corpus of this unique motion, which gains a new identity. The sign of this eternal motion is time, which is eternal in flow and implicative of a fundamental motion in the universe which never leaves the universe to itself and creates a new world in any moment. Thus, the exact meaning of trans-substantial motion is that all particles are in a constant state of destruction and origination. This continual destruction or origination embraces not only all states of objects but their entire identity as well. That man's soul is a time-bound being, and that time has a dimension of being and not a gradual attribute, is a sublime understanding for Mulla Sadra. This sounds like what Heidegger says. In his Magnus Opus "Being and Time", Heidegger states that man's soul is bound to time and offers a similar picture to what Mulla Sadra gives of trans-substantial motion though there are fundamental differences between the two philosophical systems.
One of the most important differences is that in Mulla Sadra's philosophy, time is closely associated with continual origination like the esse. The meaning of continual origination is one of the most important concepts in Islamic thought. This idea has been differently interpreted by different Muslim scholars. Besides the Asharite philosophy, we have before us the innovation of the mystics best depicted by Ibn Arabi. After Ibn Arabi and his nexus with mystical thought, one can interpret the trans-substantial motion as one of the most original interpretations of the continual origination.

Considering what Mulla Sadra has stated on this score, each physical phenomenon is susceptible to change in its essence and its existence in any presupposed moment is other than its existence in that particular moment and the act of continual origination by the Most High is constantly going on.

According to the trans-substantial motion, no self remains extant and in two successive moments, no two similar selves can be found. Even in cases when scientifically speaking some change occurs, there is a lural identity in the trans-substantial motion. The trans-substantial motion
implies that all changes, which occur in a way, whether quantitative, qualitative, physical or chemical emanates from the essence of objects. Another point is that not only in this turning point, the physical and the chemical changes, there is a trans-substantial motion but a new phenomenon is originated in the universe and gains a new identity as no two particles are equal in two moments whether the apparent motion is observed or not.

Now, it can be better understood why one cannot say that the universe is and that the time passes over it; however it must be said that the world of the next moment does not exist, and must be originated. In fact, the passage of time is the passage of the universe, not the remaining of the universe and the passage of time over it. The passage of time means the motion of the universe and the motion of the universe means its gradual origination, and the gradual origination means its origination in the each moment. In this regard, Mulla Sadra uses the term the renovation of identity. The universe is a series of renovated identity, an identity that is constantly being renovated.
In certain cases, Mulla Sadra generalizes this term to all other than God and agrees with the philosophers who believe in the renovation of objects. As a result, he accepts the notion that the will of God is in the work of creation. Mulla Sadra generalizes this statement to man’s soul as well. In his eyes, the truth of man’s soul is the truth of a gradual and fluid existence originated from the first stages and leading to the divine truth. In this universe, each being is, in essence, existentially poor and this has no other meaning than this that everything in this universe is but non-existent; hence, if it is left to itself, it runs in the course of its destruction because of his existential poverty. Thus, every object can have a momentary existence because in that moment when it is brought to the world of existence, the soul of that object draws it to the realm of non-existentiality. That every being is prone to negate itself due to its existential poverty, is exactly the same meaning, which is extracted from the meaning of flow and innovation. Here it is that the concept of the new origination or continual origination is actualized from the common part of these two factors, namely the existential poverty of all objects and the emanation of divine grace from the metaphysical source.
Deeper than this, no one can speak of the dependence of the creatures on the Creator and the constant necessity of the universe. The momentary character of the universe elucidates its necessary appearance and shows that the universe is in state of flowing and passing in state, appearance, essence, identity and the dependence and the necessity has penetrated to the very core, overwhelming its entirety. Mulla Sadra uses the glorious verse to prove his point, "On this Mulla Sadra states:
There is nothing more speculative and deeper than the trans-substantial motion in the work of God. This is the meaning of the philosophical meaning of new origination stated in the Holy Qur’an.

From the viewpoint of the mystics, the meaning of creation guarantees the common meaning of time. They do not extend time to this meaning of the beings. According to them, all beings are time bound in this sense. The other meaning of time is what they interpret as innovation, and origination in the natural world. Mulla Sadra places great stress on this point and explicates it in relation to the trans-substantial motion.
Time and the Zurvan*:
The specific concept of time in both Iran and India is described as being composed of three successive or connecting phases: the succession of events (infinite time); the wearing away or erosion of beings, their transformation and death; and their greater or lesser renewal according to the prevailing concept of time as cyclic or linear (finite time). Such a concept, although philosophic, harmoniously connects two types of myth: first is the myth of the creation of the world in three phrases, the universal creation of good and evil; the intermingling of the two forces; and the separation and the final triumph of good. The second type of myth, proceeding Zoroastrianism, is divided into epochs, where each epoch is corrupted but is turned back by one of the three sons of Zoroaster born of a virgin who bathed in a lake where the father's seed was preserved.
The first myth stems more from a moral concept; whereas the second from the physical concepts of erosion and degeneration, and the fusion of the two

*Sources:
is natural. In India, the second dominated, while in Iran, it was the first minus much explanation for the existence of evil since it existed before the creation of the world (Grimal 195).

Perhaps the myth of Zurvan (Time) can help to explain Zoroaster's basic concept of his religion, Zoroastrianism. The concept is of good constantly in combat with evil; Ahiru Mazda and Angra Mainya in a continual struggle. In the myth, Zurvan, through the supreme god, has been offering sacrifices for a thousand years in order to obtain a son. In the end, when he doubts the efficacy of his actions Angr Mainya is conceived as a result of the father's doubt while Ahiru Mazda comes from the merits of the sacrifices. While still in Time's androgynous womb Angra Mainya realizes the first to be born enjoys the privileges of kingship, so he hastens to enter the world first before his twin brother. Zurvan, with his plans thwarted, can only wait with the assurance that in the end good would prevail (Grimal).

The myth of Zurvan appears to answer previously purposed questions: in the initial paragraph it was stated that Iran held to the first myth accounting for the creation of the world without much explanation of the existence of evil that existed before the world's creation. This raises the
first question, why did Iran, particularly Zoroaster, hold so steadfastly to this myth. The second question which the Zurvan myth seems to answer is how or why Zoroaster was so certain the twins would be constant combatants; Zoroaster confirms his certainty of this in his teaching that Ahiru Mazda, through his wisdom, knew if he became Creator and fashioned the world, then the Hostile Spirit would attack it because it was good, and it would become a battleground for the two forces, but in the end he, God, would win the great struggle there and be able to destroy evil, and establish a universe which would be wholly good forever.

The answers to both questions seem to rest upon the Zurvan myth itself and both answers seem to merge into one: Zoroaster, knowing the myth, believed evil did exist before the creation of the world since he gives no description of the origin of the two forces; for him, they always seemed to exist, and this was the way he explained evil in the world. This can be observed both from the myth and his teaching. In the myth the Hostile Spirit, Angra Mainya, conceived from doubt was hostile by nature before birth. Zoroaster's teaching only emphasizes this "Ahiru Mazda, through his wisdom, knew if he became Creator and fashioned the world, then the
Hostile Spirit would attack it because it was good, and it would become a battleground for the two forces...” Ahiru Mazda knew, from this statement, that if he became Creator and fashioned the world, meaning this was prior to the creation of the world, that the Hostile Spite, evil by nature, would attack it, the world, because it was good, and it would become the battleground for the two forces. Simply, Zoroaster believed and taught that the two combatant forces of good and evil which existed before the creation of the world would continue their battle within the world, which also aided his explanation of the evil that existed in the world. His further teaching was that good would finally conquer evil.

The Hindu View of Time:

Most of us are accustomed to living life according to linear beliefs and patterns of existence. We believe everything has a beginning, middle and an end. But Hinduism has little to do with the linear nature of history, the linear concept of time or the linear pattern of life.

Cyclical Time: The passage of 'linear' time has brought us where we are today - at the dawn of a new century and a new millennium. But Hinduism
views the concept of time in a much different manner, and there is a cosmic perspective to it. Hindus believe the process of creation moves in cycles and that each cycle has four great epochs of time, namely Satya Yug, Treta Yug, Dwapar Yug and Kali Yug. And because the process of creation is cyclical and never ending, it "begins to end and ends to begin".

**Time is God:** According to the Hindu theory of creation, time (Sanskrit 'kal') is a manifestation of God. Creation begins when God makes his energies active and ends when he withdraws all his energies into a state of inactivity. God is timeless, for time is relative and ceases to exist in the Absolute. The past, the present and the future coexist in him simultaneously.

**Kalchakra:** God creates the cycle of time, called Kalchakra, in order to create divisions and movements of life and sustain the worlds in periodic timeframes. God also uses time to create the 'illusions' of life and death. It is time, which is accountable for old age, death and dying of his creations. When we overcome time, we become immortal. Death is not the end of the line, but a gateway to the next cycle, to birth. This is also true of the universe itself and akin to the cyclic patterns in the rhythms of nature.
Those people who know the day of Brahma, which is of duration
Of a thousand (mahA-)yugas and the night
Which is also of a thousand (mahA-)yugas
They know day and night

In Hindu cosmology and metaphysics it is not accepted that the universe was created from out of nothing at a particular point of time. For if something is created or born, it has to be dissolved, has to die. Strictly the conservation principle applies here. The universe was created according to Hinduism only by transformation of something which was latent before that. Creation is just a manifestation of what was unmanifest before. srsti and samhara, creation and dissolution, are only two events in a long cyclic succession of events. There is no beginning or end. This alternation between manifestation and non-manifestation is what appears as the passage of time. Manifestation is when the universe of names and forms appears and non-manifestation is when it disappears. The only Ultimate Reality is brahman. Even Brahma, the Creator (mark the distinction between this word in the masculine gender and the word brahman, in the neuter gender) is only a manifestation of brahman at one point of time. He is the womb from which the entire universe becomes manifest and He is the One into which the entire universe dissolves. Each period of this
manifestation of this Universe is a day of Brahma. From one day of Brahma to another day, that is, from one period of manifestation to another such, many things survive in their latent forms. Among these are the vedas - it is in this sense that the vedas are eternal - and the complex of prints of individual minds with their store of impressions called vAsanAs. These survive the nights of Brahma, the period of non-manifestation. The lengths of these cosmic days and nights in this long cycle of events have been elaborately described in the scriptures. The units mentioned therein are fantastically large and a modern mind may be tempted to dismiss them as a concoction. But the consistency with which different scriptures written by different people at different times in the past reveal these magnitudes of the yugas, is remarkable.

As detailed in the bhagavata purana - as well as in various other puranas, though with slight variations - the eternal flow of Time goes through cyclical periods of manifestation of the universe and equivalent periods of non-manifestation. Each such period of manifestation (or non-manifestation) is called a kalpa of Brahma the Creator and is equivalent to 4.32 billion human years. This is subdivided into 14 manvantaras. Each
manvantara has a manu ruling over the Earth and an indra ruling over the heavens. We are now in the seventh manvantara of this kalpa. The previous six manus are listed on the ensuing page. The present manvantara is called Vaivasvata manvantara because Vaivasvata Manu is the Lord of the Earth now. Each manvantara is divided into 71 mahA-yugas of 4,320,000 years each. We are in the 28th mahA-yuga of this manvantara. Each mahA-yuga is made up of four yugas of which the last one is the smallest, known as kaliyuga, of 432,000 human years. We shall use the letter symbol □ to denote this number 432,000 in the rest of this description. The other three yugas are, respectively in the backward chronological order, two times, three times and four times this duration. In the present mahA-yuga we are in kaliyuga in which we are in the 5102nd year (corresponding to 2000-2001 A.D.). How do we know all this? Well, we know that today is Tuesday, say, because yesterday was Monday. Yesterday was Monday because the previous day was Sunday. There is no other reason. The year is, say, 2000 A.D. because the previous year was 1999 A.D. There is no other reason. It is an age-old practice of Hindus to keep track of each year (and each yuga, mahA-yuga and manvantara) in
their calendar of religious observances and that is how they claim to know. Though India has been criticized for its lack of historical sense, Indians have been doing a good job in terms of keeping track of their calendar (irrespective of the life-history of any individual). The rituals which every Hindu goes through, if not on auspicious occasions like marriage, certainly on inauspicious occasions like death, always start with the fixation of time and date in the age-old calendar. In fact those who perform ritual worship daily cannot but be aware of the calendar. In this way the exact date in the eternal cycle of the yugas has been passed on to us from generation to generation.

**Time in Jewish Thought***:

In Jewish thought we shall look at two aspects of the rich Torah-based literature on the subject:

1) The connection between time and Creation, including the concept of absolute time measured from the initial moment of Genesis;

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2) The two types of time: local time measured by clocks, and the time flow that makes our universe evolve.

In Midrash Rabba Genesis there is a hermeneutic exchange of opinions among the Talmudic Sages Rabbi Yehuda ben Shimon, Rabbi Abbahu, and Rabbi Pinhas on the meaning of the first appearance of the statement "And it was evening" in Genesis 1:5.

In other words, according to the above midrash, time had existed previous to the Creation of our world, and moreover, other worlds had been created before the Creation of our universe.

It is interesting to compare Rabbi Abbahu's interpretation that other worlds had been created before our present world was created with the Anthropic Principle of present-day cosmology. According to the Anthropic Principle, if any of the basic physical constants of our universe, such as light velocity, Planck's constant, or the gravitational constant was changed in the slightest -- say, by a hundredth of a percent -- then all the properties of the universe would change to such an extent that it would contain no life forms (human or otherwise).
Thus, the Anthropic Principle asserts that human existence in this world means that it was created for humans to live here. Strong and weak anthropic principles are discussed in works on physics and cosmology -- not in religious literature.

Did Time exist before the creation of the universe?

In the talmudic tradition of debate, in the twelfth century (about 900 years after Rabbis Yehuda, Abbahu, and Pinhas handed down the Midrash quoted above) Maimonides -- the ultimate authority in Jewish law and tradition for all generations -- criticized them.

In his fascinating philosophical work "The Guide to the Perplexed", Maimonides maintains that it is absolutely incorrect to think that time had already existed before Creation. The existence of time before the Creation would have required a motion of spheres to determine this time interval. The spheres themselves, however, Maimonides says could have been created only in the process of Creation.

Maimonides identifies Rabbi Yehuda ben Shimon's opinion with Aristotle's concept of the eternity of matter. According to Aristotle, the universe was not created but evolved from eternal matter.
Creation is the second most important postulate of the Torah after the postulate of G-d's unity, Maimonides teaches us. We find complete agreement between Maimonides and the idea of the Big Bang as the initial moment in a standard cosmological model. According to both Maimonides and the Big Bang Theory, time appeared simultaneously with the appearance of our universe.

The two kinds of Time: Local and Flowing

Regarding the concept of two kinds of time, there are precise indications of this in Torah-based literature. In particular, Hasidic philosophy states that there are two kinds of time -- 'absolute, permanently flowing' (etsem hemshekh ha'zman) and 'measurable and estimable' (zman ha'nimdad veha'meshuar). These two kinds of time should be differentiated.

The reference system of lasting, permanently flowing time is related to the Absolute: This is the one in which G-d, the Creator, exists. In this system His independent existence is absolute. But there exists also another reference system that is just connected with each individual human being.

In this system human temporal existence takes place, along with one's perception of the world. In such a system the Creator is perceived as
'Nothing'-consonant with the universe having been created from Nothing. 'Nothing' is the Absolute that is not humanly perceived; it is absent from the human proper coordinate system, and not involved in the humanly perceived world.

There is a special cycle in this system comprised of the dual-process of 'escape and return,' (ratso and shov). In physics this corresponds with the periodically recurrent process needed to measure time, i.e., with a finite 'to-and-fro' cycle which occurs by means of some restoring force. The process of escaping implies the aspiration to reach the Absolute, to comprehend the Almighty, and to merge with Him.

In the final limit, it implies the departure of the soul from the body, i.e., transformation back into Nothing in the material sense. The opposite process to escaping is that of returning to the physical world in which we live. According to a Hasidic concept, each individual as well as the Absolute possess the proper, permanently recurrent ratso-shov cycle. It is the ratso-shov cycle inherent to the Absolute that creates a certain scale, a world-wide pulse determining the flow of absolute, universal time.
In conclusion, we present an opinion which the Lubavitcher Rebbe expressed to Herman Branover on the well-known 'twin paradox' of Special Relativity Theory, concerning how human biological age is determined.

The paradox goes as follows: The clock of a twin traveling in a rocket is slower than the clock of his twin brother remaining on Earth. After 25 years have passed on his clock and the twin-traveler finally returns to Earth, 50 years might have passed on the clock of his twin brother who remained on the Earth. (The difference in the two clocks depends on the relative velocity of the rocket). Thus, the twin brother who stayed on the Earth will be about 25 years older than his returning sibling!

This paradox formally corresponds to the equations of Special Relativity Theory. Basing his opinion on his vast study of Torah, the Lubavitcher Rebbe, however, concludes that human biological age is determined by permanently flowing time, and not by local measurable time. The reference system of the former is related to the Absolute, and it is on this basis that the solution to the paradox should be sought.