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INTERCISCIPLINARY INSIGHTS INTO THE CONCEPT OF TIME: A SYNTHESIS

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Abstract

Temporality questions concern scholars of all persuasions and fields of human endeavor. Few concepts would be as all-involving as the concept of time. The ancients, the moderns and contemporary thinkers all have stakes in the effort to dive deep and unravel time in its dimensions and substance. Specifically, philosophers have a lengthy history of intellectual quest on temporality problematic. Scientists especially in modern and contemporary times have made more explicit inroads into temporality matters culminating in the constructing of theories around the dynamics of time. Philosophers have in the course of history correlated time with eternity. The historicization of time, the logic and metaphysical contradiction of the ontology of temporality dynamics, and the prognostication of the cessation of time have all been themes that needed to be further developed and appreciated in this research. Again, absolute time as a reality of classical physics and the contradiction of this perspective in the contemporary understanding of Einstein's theory of relativity and allied scientific views, make for deeper exploration of the reality of time. The present effort tended to telescope the ideas of different and diverse schools of thought in one piece with a view to achieving their reconciliation thereof and with a new synthesis and methodological sharp focus on the apprehension of the conception of time as a spatiotemporal reality in need of a new hermeneutics. The method applied is that of historical exposition, critical analysis and synthesis of the diverse concepts. The work finishes off with the attempt at transformation into the co-relational and co-extensive questions of temporality praxiologies.

Keywords: temporalization, essentialization, historicization, spacetime, mathematization

Introduction

The immateriality of *time* does not contradict the capacity of the human mind to conceptualize it. The human mind relates to *time* as a notion that can be thought. As an abstract notion, *time* is a cosmic phenomenon. The cosmic dimension of *time* would rather portray the concept in its objectivity. However, the complexity of the phenomenon would conceptually put *time* on the crossroads of subjectivity and objectivity. Is *time* a mere human psychological process of unit measure? Does *time* have metaphysical undercurrents? Is *time* a reality outside of the human psychological operation to which the human mind can appropriate conceptually as need be? Is the externalization of *time* tenable whereby the concept becomes separable from the psychic state and objectified in the cosmic sense of it?

Human existence is upon *time*. As a matter of fact, the existence of the physical universe is *time* correlated. Without t*ime*, the physical universe would lose its full meaning or rather become to a large extent less meaningful. As a quantity of value, *time* is measured against the timeless. One could argue to some credit that *time* is conceivable because it is comprehended against no-time; that is, beyond time. If this is true, then time is indeed a moment on no-time. The linearity of *time,* if not conceived as an infinite continuum, can only be a chance-happening on no-time, the standard against which *time* is perceived.

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Is the division of *time* part of *time*? Is the division a potentiality that the human psyche found convenient to usefully exploit? In the same manner, it can be asked whether the fragmentation of *time* is a psychic technique. If *time* is regarded as a cosmic notion, then the fragmentation may be seen as a psychological trick; the appropriation of the cosmic phenomenon for utilitarian ends. The discourse on *time,* despite the focus on the universal dimension, must also dovetail on its utility. This too, that is, the utility is both subjective to different human tastes as well as objective since the utility of *time* essentially goes into its definition. From the metaphysical conceptualization to the pragmatics in its utility, the objective dimension of *time* is incontrovertible. Man plans upon *time* and executes projects; things emerge on *time* and exit thereon; thus, temporality is the bedrock and hallmark of physical existence.

The vision of all-physical reality is *time*. *Time* has insight into what was, what is, and what is to come. This vision can only be paired with a corresponding knowledge: the linearity of *time* rakes in a lot of the knowable in wholes and parts as against the herculean task of the human path into the knowledge domain. All human knowledge is in its degrees quantitatively and qualitatively in *time*. Even for realities outside of *time*, their human comprehension is temporalized. This is the sure signification that such knowledge is a continuum on no-time.

The temporalizing of physical reality grossly limits same. The apprehension of human limitation is a picturesque reality in this context. Human limitation is fundamentally understood in the temporality of human existence: this proffers the key to the interpretation of whole lots of constraints put on man by foreseeable scenes of the human presence and absence on the cosmic space. The human consciousness of his existence in relation to temporality acquires heightened value if man understands *time* as defining his existence moment-by-moment and becoming involved in the meaning therein.

It is in the light of the above that philosophers have had opportunities to reflect on *time*. Interest has never waned on the philosophic quest into issues and thematic on *time*. The ancients have not shown more keenness on the investigative object than the moderns or contemporary thinkers. The conceptualizations and perspectives on *time* have remained ageless quests; thus, the questions and explorations on *time* have not only caught the focus of philosophic endeavor, they have as well attracted the attention of researchers from other fields of human inquiry. The cosmologist, theoretical physicist, astronomer, space scientist, mathematician, psychologist, cultural anthropologist and theologian have all been equally enamored of *time* and as such contributed perspectives to the unraveling of ideas of *time*.

This paper delves into the exploration of the concept of *time*, highlights the efforts to complement the understanding from the diverse fields of human knowledge-domains, thus the interdisciplinary methodological approach to the present research efforts.

The concept of Time – a historical development

From the very beginnings in the history of Western thought, the concept of *time* was correlational with the concept of motion. That is to say that *time* is a function of movement and change. To understand *time* is to comprehend the reality of the dynamism inherent in nature. *Time* indeed is a natural phenomenon since motion, change, alterability of positions are all natural phenomena. The eminent philosopher of motion and change is the pre-Socratic intellectual-diver, Heraclitus. For Heraclitus, reality is change (Stumpf & Fieser 2003, p. 15).

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This earlier thinking on *time* appears to have gained credence as the views of some scholars tended to lend weight to Heraclitus' position. Plato defined *time* as 'a moving image of eternity"' (Audi, 2011, p. 803). Of significance to this definition is the introduction of motion and eternity to the concept of *time.* The fact of the observation of the succession of things implies the movement being hinted and this in relation to eternity. Plato's understanding of *time*, takes to beyond *time*. This means that *time* is a moment on eternity as the former pours into the latter in a kind of physical cessation and ontological continuum.

Aristotle in the *Physics* defines *time* as the 'number of changes in respect of before and after', thereby inferring that *time* and change are inseparable; thus, *time*, change, motion are for Aristotle terms that must have to be used together in any temporality discourse (Perkams, 2009, p. 35). If there has to be a 'before and an after' in respect of change, then *time* remains a factor of circumscription, a processor of limits within which accounts can be demanded in relation to the impact of change. It has to be pointed out that with respect to Aristotle, *time* not only entails duration but the demarcation and subdivision of duration in terms of pre- and post-. In other words, *time* may have to do with motion but has also got to do with the propensity and actual halting of motion in unit-instances in order to begin to make sense of the activities, experiences, or operations upon it. *Time* imposes some mathematization on duration without which 'changes in respect of before and after' would be inconceivable.

The neo-Platonist Plotinus conceives of *time* in respect of the soul on transit in the journey of life. *Time* is a phenomenon of the soul as regards the experiences the soul is capable of in the course of its existence (Audi, 2011, p. 803). This view of *time* underscores the fact of Platonic dualism – the soul which really experiences and the body which is a mere reflection of the real. Of significance in this conception is the fact that *time* is a subjective phenomenon. One can only appreciate *time* with reference to the activities of the soul/mind. For St Augustine, another Platonist, *time* as the fact of alterability of states of being does not so much count as *time* as the fact of the alterability of the state of mind. In the *Confessions,* St Augustine posits *time* as 'a distension of the mind' (Perkams, 2009, p. 35). Augustine's emphasis on *time* as a psychological phenomenon is a curious development since this position suggests the subjectivity of the idea of *time*. St Augustine is of the view that *time* did have a beginning; to that extent, it is a creature of God (Springer, 2009, p. 63). St August introduced a lot of insights into the concept of *time*, for instance: *time* is never fixed, implying that motion is to be co-conceived with *time*; *time* is measured in space in that we perceive *time* as an extension of our humanness (Springer, 2009, p. 63). One implication of the multifarious insights is that *time* is not purely a subjective phenomenon; there is the aspect of the spatial dimension of *time* which points to objectivity in the appreciation of the phenomenon of *time*. Augustine's *time* sums up all of conceivable human activities as, 'a present of things past, memory, a present of things present, sight, and a present of things future, expectation"' (Audi, 2011, p. 803). *Time* has the capacity to represent things as if things were all once present, are, and, will be present, with the human memory as the theatre of temporality dynamics and operations.

In his *Logica Ingridentibus,* Peter Abelard, a twelfth century logician, charted an ontological position to the concept of *time* in his assertion that *time* is "a quantity according to the permanence of which we measure the existence of all things, when we show something to be, to have been or to come into being at a certain existing time" (Perkams, 2009, p. 1). The logic of Abelard leaves metaphysical nuance on *time* since *time* acquires meaning in contrast to no-

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time; the undercurrent condition of the possibility of *time.* The ontologism of *time* takes full picture in its relation to a continuum in which there is no temporal quantification even though it is a quantity of measure. When the concept of *time*, in its fractionalization into units of measure, is paralleled against this a priori ontological correlation, the phenomenon stands out for what it is meant to represent. All of physical existence is *time* contingent implying the recognition of their temporalized state of being. Abelard's ontology of *time* denies 'the suggestion that everything has its own time' while affirming the singularity of *time* upon which things are measured (Perkams, 2009, p. 1). The mathematization on *time* entailing its fractioning, from Abelard's ontologic temporality, is excluded from *time*. *Time* of its nature is unmathematized. The implication is that any such mathematization is a human technique on *time*. There is no doubt that here Abelard indirectly points to the objectivity of *time* which can be glaringly distinguished from the psychological accoutrements. Man technicalizes *time* in the psychological constructs into units of succession. As a universal concept, time is devoid of all human constraining factors tangential to its pragmatics and utility.

In his *Summa,* Albert the Great, proffers a specific definition of *time* as, "a passion of the first moment and by that the measure and number of all movements" (Perkams, 2009, p. 7). It is clear that for this theorist, temporality is a function of motion. *Time* in Albert's conceptualization is coterminous with eternity, very much like saying *time* ceases onto eternity. A third form of *time* is introduced by the theory referred to as 'eviternity', the 'duration existing in the middle of between time and eternity' (Perkams, 2009, p. 7). Duration for Albert implies change. *Time* from this theorization has to be co-conceived along with the propensity and possibility of dynamism and alterability of positions. If indeed *time* is interposed in the first motion, then the theory can only be an interpretation of Aristotle's fundamental motion. Albert began with an ontology of *time* but finished off with the metaphysics of motion, which only potentiates the psychological and utilitarian conversion.

The concept of time – a historical denial

Attempts have been made, in the course of history, to capture *time* in concise definitions. These attempts may have achieved some degree of success in the encapsulation of the concept *time* essentially in these efforts. It does not appear that any of the various proffered definitions has succeeded in winning a general consensual and scholarly acclaim. What *time* is and entails seem to have eluded precise capture and as such still constitute important research thematic. Controversies surround scholarly standpoints on the concept of *time*. Among the Pre-Socratics, there was the controversy between Heraclitus and Parmenides in which the former emphasized reality as motion and the latter insisted that motion is an illusion; therefore, change or alterability of positions are not true (Dictionary of Philosophy; Copleston, 2006, p. 48). While the position of Heraclitus would be seen to align with that of Plato and the line of successor-philosophers, that of Parmenides and the sympathetic scholars would be diametrically opposed and as such deny the reality of *time*. The Heraclitism-Platonism-perspectives on *time* though portraying *time* in its different dimensions have an essential characteristic. In all the definitive projections, *time* is seen to be explainable in terms of motion and change. *Time* appears to be a reflection of eternity; quantification of movement and the subdivision of duration to encapsulate a pre- and a post-; the phenomenon of the experience of the soul on transit and of course, the undergirding reality of all of human experiences at any and all times. The above windows into the view of time could be said to have been worked out as criticisms of the earlier Parmenides who contradicted the reality of

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mutability; an ontology that denies that change or motion is possible since being is 'what-is' (Audi, 2011, p. 561). If motion is a contradiction as opined in Parmenides' ontology, then *time* is inconceivable and any attempt at reconciliation of *time* and motion as shown above would be absurd. If the positions above on *time* be historicized, it would be clear that Parmenides' ontological debut was indeed prior to the post-ontological critical stance assumed by Plato and the Platonists. Does *time* then exist; is the concept of *time* as a function of change and motion a conclusive truth of fact even in modern times?

In a preserved statement of his lost work, Anaximander introduced the word, chronos, or *time* in a first recording of such a word occurrence in philosophic discourse. Chronos in contemporary discourse would point to chronological *time* but Anaximander's chronos is no mere cosmic concept but rather reason with the capacity to intervene in human affairs. Anaximander's *time* has moral quality; as personified arbiter, it is that which judges right and restores justice upon *time* (Deretic, 2009, pp. 14 – 15). The capacity for moral judgment stands Anaximander's *time* out as an oddity that could not be reconciled with further developments in temporality conceptualizations. Anaximander never outright denied *time* as a conscious projection but made attributions to the concept that are irreconcilable with the contemporary conceptions of *time*.

Of all interventions on the concept of *time*, the position of J.M.E McTaggart, a British metaphysician, stands out as the most controversial. It is mostly taken for granted that *time* is a concept to be investigated. The gratuitous conformity to the question of the reality of *time* is simply assumed, that is, without need for further critical assessment. McTaggart's radicalization of a different opinion is jolting but works to re-awaken us to the possibility of a different perspective on *time*. Must we just assume that there is *time*? Is there need to begin from a premise as part of the process of proof to the existence of *time*? Is the existence of *time* axiomatic? McTaggart's position calls to consciousness these questions. It is remarked that, 'McTaggart presented an argument meant to show that there is no such thing as time, and he defended the argument in spite of his belief that the argument shows our prephilosophical thinking about time to be through and through mistaken' (Loux, 2006, p. 206). What McTaggart succeeded in doing is first of all to take scholars back to a zero point and force them to begin to rethink the concept of *time*.

A significant aspect of McTaggart's metaphysics of *time* is the effort to offer some sort of scientific basis for his new assumptions. He endeavored to prove that *time* is unreal in a complex if not complicated series of thought-experimental arguments. For him, time-position is a function of 'both events and the individual times at which they occur', this to be characterized by 'earlier than and later than', ordered according to past, present and future (Loux, 2006, p. 206). He also calls the relational ordering of 'concepts of being earlier than and later than' the B-series. This either takes us from earlier events to later events or from later events to earlier events and times. 'The ordering of events in terms of the concepts of past, present, and future McTaggart calls the A-series', this accounting for the transitioning from the distant future into the present and the remote past. The B-series remains constant while the A-series changes. The B-series exists because there is the A-series. In a second argument, McTaggart shows the impossibility of the A-series, which if it exists is a contradiction. But the B-series depends on or is presupposed by the A-series. Since the A-series is a contradiction; the B-series by the same premise becomes impossible or is a contradiction as well. Since all about time is determined by the B-series and the A-series-

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templates, 'McTaggart concludes that it is impossible that there be such a thing as time' (Loux, 2006, p. 207).

It has been argued, in a fair critic of the McTaggart position that his 'argument demonstrates not so much the absurdity of the notion of temporal becoming as the incoherence of his representation of that phenomenon' (Horwich & Lucas, 1995, p. 876). The phenomenon of *time* according to McTaggart is that future events flow into the present and eventually into the distant past; therefore all events are past, present and future at the same time which appears absurd (Horwich & Lucas, 1995, p. 876). The true position is that we need to change our sense of perception: even though the present does not move, this does not make 'becoming' a contradiction (Horwich & Lucas, 1995, p. 876).

If the positions of McTaggart and the like minds are not tenable, then the controversy shifts more in the favor of the Heraclitism-Platonism school. *Time* implies motion and change although the restatement, by the matters arising in McTaggart, does awaken the Platonists to the reconsideration of their earlier stand on the meaning of change and motion. Does *time* really move? Does the *now* move back into the *past* and then forward into the *future*? The Parmenides-McTaggart school challenges us to begin to research into what movement means and what it entails specifically with regard to *time.* This is perhaps the McTaggart relevance: terms need to be properly analyzed so that they convey exactly what is meant in using them.

In Maurice Mearlau-Ponty's, *Visible and Invisible, time* is 'a subject of ontology' (Forster, 2009, p. 854). He argues 'against the idea that time resembles a flowing river' (Forster, 2009, pp. 854). The problematic in this is first, that the concept of motion should be properly analyzed in respect of *time* and secondly, it suggests that *time* has an existence in itself. If the idea of *time* cannot be likened to that of a flowing river, how else should we understand it? Can we distinguish between motion and change as terms in the description of the activities and operations of *time*? Perhaps there is need for a new hermeneutics of *time* that interrogates meaning-specifics when used in relation to *time.* In *Phenomenon of Perception, time* is seen as 'a dynamic structure that constantly evolves from the primordial interaction of subject and world' (Forster, 2009, p. 854). The constitution of *time* is tied to the human body – the condition of possibility of temporality perception which situates the subject in the world and gives it perspective (Forster, 2009, pp. 854). *Time* and the human subject are the same. However, the concept is not wholly subjective since *time* and the subject are not homogenous to each other (Forster, 2009, pp. 854). In Merleau-Ponty, there is at least the partial denial of the reality of *time* since *time* is subjectivised in the human body. What again does Merleau-Ponty mean by affirming the existence of the human body and including *time* in that affirmation if not the subjectivism of temporality perception?

The historical denial of *time* may not have scored all points from scholarly assessment, but the school has contributed to progress in the apprehension of *time*. Should we presuppose *time* without justification? Are the concepts used in the comprehension of *time* justifiable in the way in which they are used? Is there not the need for a proper hermeneutics of the concept of *time*?

The concept of time – scientific view

Besides motion and change, the other concept that is coterminous with *time* is space. Philosophic ideas in the earliest reckonable history in the West has to do with space and its

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contents; the cosmos as it were. It is not surprising that philosophers made adumbrations to spatiotemporal correlation in their ideas. These were later corroborated by scientific statements. Space-time continuum was a notion formally introduced into scientific discourse by the scientist Hermann Minkowski who stated that "no one has ever a time except at a place, nor a place except at a time" (DiSalle, 2006, p. 785). 'In other words, the occurrence of an event is not completely "located" except both the place and time are specified' (DiSalle, 2006, pp. 785 – 786). The presupposition is that *time* is continuous with space and space is continuous with *time*. Every location is space implied. Place as well is spatial in contexts. Kant anticipated this when he stated that, 'if time is represented by a straight line produced to infinity, and simultaneous things at any point of time by lines drawn perpendicular to it, the surface so generated would represent the phenomenal world in respect both of substance and of accidents (DiSalle, 2006, p. 786). Although Kant laid the ground work for this theory as indeed St Augustine in the 4th century A. D., space-time became a formal theory when Minkowski introduced same into the world of science.

In his work, *Space, Time and Deity,* Alexander Samuel 'distinguished between spacetime or motion as the infinite whole of this universe and those finite units of spacetime or motion that fill the endless cosmos' (Birx, 2009, p. 9). *Time* is considered as space event. The events of *time* are space-bound. In Samuel, the tradition of two perspectives to the constitution of *time* resurfaces in a concept of *time* that precludes any human agency intervention in its technicalization/mechanization by any means. This is a holistic view. *Time* is therefore its phenomenon in space. However, the human agency intervention imposes on *time* the functional determination of duration within which there is specific application of interpretation to whatever has transpired. *Time* is here seen undoubtedly as a store of value for all that happen in *time* is contained within it. Samuel further envisions *time* as 'a complex continuum of interrelated events grounded in the psychic point-instants of spatiotemporal motions' (Birx, 2009, p. 9). In this understanding, the conceptual subjectivity of *time* is unmistakable as forming part of the other dimension of the objective conceptualization. Change or motion of the multifarious phenomenalism of cosmic events interrelate into a complexity of sorts in the space-time continuum. It is of interest to underscore the point that Samuel introduces the space-idea as being really related to *time*.

Somewhat the universe is space and space is the universe since material objects are spatial and non-material physical entities are spatial as well. It is in this sense that we describe *time* as spatiotemporal notion. In this regard, Carl Sagan, Professor of Astronomy and Space Science, has this to say, 'Space and time are interwoven. We cannot look out into space without looking back into time' (Sagan, p. 124). Sagan (same page as above) also made us aware that 'space is very empty', implying that although space is interwoven with *time*, it can be considered conceptually apart from whatever else may happen on it.

Further considerations to space and time

In another approach to *time*, 'special relativity theory' distinguishes sharply between time and space; 'it picks out those paths along which it makes sense to speak of an elapsed time, and it determines how much time elapses along them' (Adam, 2006, p. 830). 'Elapsed time' would convey the idea of space-without-time. Special relativity theory 'is a "Newtonian"-type theory with a definite distinction between objects in absolutely uniform and objects in absolutely accelerated motion' (Sklar, 2009, p. 571). It at least concedes that both concepts can be discussed in their own right. Philosophers did speak of *time* apart from space although

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some made references to the substantial relationship between *time* and space thereby according the concepts unqualified and free discourse respectively – these could be seen in the ideas of Kant, Leibniz and Augustine. *Time* it had been shown, could be discussed in an unrelated manner to the notion of space. This it could be argued warranted the introduction at a point the idea of absolute *time* even within the world of Newtonian science.

In modern times, Isaac Newtown, a frontier and ground breaking physicist, postulated the idea of absolute *time* in his *Principia* (1687) based on the assumption that 'time runs at the same rate for all observers in the universe' (Mughal, 2009, p. 1254). The Newtonian idea of absolute *time* gives the impression that *time* is 'independent of events' in the first place and secondly, it implies *time* is 'independent of observer or frame of reference'. According to Newton, *time* was independent of, and prior to, events. Like in the Parmenides-Plato-schools-controversy, the Newtonian-Leibniz-schools-controversy was another in respect of *time*. According to Leibniz, on the other hand, there can be no *time* independent of events: for *time* is formed by events and relations among them, and constitutes the universal order of succession. It was the latter doctrine which eventually gave rise to the doctrine of space-time, in which both space and time are regarded as two systems of relations, distinct from a perceptual standpoint, but inseparably bound together in reality' (Dictionary of Philosophy; Sklar, 2009, pp. 570 – 571).

The paradigmatic understanding of the Newtonian absolute *time* has, via scientific dialogue, given way in the last century to Albert Einstein's theory of relativity wherein spacetime challenged the absolute time receding-paradigm (Mughal, 2009, pp. 1254 – 1255). This was a vindication of Leibniz and philosophers of like minds. It appears, from all indications that the idea of absolute *time* is untenable from the scientific viewpoint suggesting perhaps that *time* might have begun in simultaneity with the universe. This seems to be the standpoint of space-time correlation that became more manifest in the theory of relativity; 'time itself did not exist until the birth of the universe in the big bang' (Flemming, 2009, p. 1258).

The linear procession of time

The trajectory of *time* appears mono-directional and linear. The irreversibility of *time* is part of its spatial comprehension. *Time* procession is an ever forward event. This commonsense observation aligns fairly with a principle of thermodynamics in which compressed air for instance would always rush outside given the chance and not the reverse (Stenger, 2009, p. 1255). As regards reason and cause, the linear progression of *time* could be explained in the context of the 'big bang theory', whereby the expansion of the universe is posited as a continuum, actively seeking in the present new horizons in direct opposition to our geo-locus, a purely cosmological perspective (Stenger, 2009, p. 1256). Although these theories do contribute to resolving some temporality problematic, yet they are not definite answers since the direction of *time* appears to be an 'asymmetry that is not built into the fundamental nature of the universe' (Stenger, 2009, p. 1256). If this is true, then questions can be raised as to the consequences of a thought experiment in which the reversibility of *time* becomes theoretically possible. Can the voices of great leaders be captured in long-distance-reverse-time? Can the voice of Jesus, for instance be captured for the listening pleasure of contemporary humans? Does the linearity of *time* suggest the infinity and endlessness of *time*? *Time* is from the opinion of philosophers, a finite reality. Therefore, the suggestion as to the endlessness of *time* can only be a contradiction in terms. If *time* were to remain endless, it would no longer be *time*. If the character of *time* includes its cessation, what would this

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tremendous winding up event look like? The concept of the 'end of time' has both religious and scientific views whereby in religious discourse, the Biblical account of the end-of-time signals possible pan-cosmic cataclysmic cessation – end-of-time connotes the 'extinction of the earth, the universe, humanity and even the extinction of time itself' (Gard, 2009, pp. 1265 – 1266).

One scientific view on the end of the universe is that of Edwin Hubble's law which supports the idea of an expanding universe whose end would come once it stops expanding whereof it may 'collapse into itself' (Gard,2009, p. 1266). The idea of the universe as a living thing continues to command attention, this being the condition of possibility of its on-going expansion and propulsion of *time* in one apparently irreversible direction. Stephen Hawking, the renowned professor of mathematics and again, a theoretical physicist and author of 'A Brief History of Time', lends weight to 'the big bang theory', proposing that 'though the universe is finite, it has no boundaries in imaginary time, which runs at right angles to ordinary time' (Gard, 2009, p. 1266). As related in Gard, (2009, p. 1266), Hawking points to the possibility of the recollapse of the universe, an event stretching to billions of years. The issue to be noted here is that religion and science are of the position that 'end of time' is conceivable and that the extinction of time in the practical sense is not inconceivable.

Insights into the concept of time – an interdisciplinary reflective synthesis

The challenge to investigate *time,* and come to terms with its substantial comprehension, in so far as is permitted by rational and scientific research, cuts across disciplines and domains of human knowledge. Issues concerning *time* cannot be glossed over since the psychology, phenomenalism and virtualism of *time* are as apparent as the conceptual reality in the background. As a cosmic phenomenon, the concept of *time* is multidimensional in the sense that *time* can be conceived of as an absolute entity, a free object of inquiry quite unrelated to any other conceivable entity; an interrelating and intermingling complexity in events-succession whereby change, motion, dynamism, modifiability and alterability of positions co-exist in the apprehension. One aspect of the multidimensional consideration is the space-time continuum perspective. Humans have wrestled with the idea of *time* as scholarly projects in need of the unraveling of its constitution with great straddle of success in investigative results. The discoveries of philosophers in this regard are no more enthralling than the results of the scientific attempts at the demystification of temporality problematic. It is in the light of the far reaching interests in temporality thematic and problematic that the following distillations would be made in the combined reflective and critical appreciation of the tremendous progress made in temporality conceptualizations and interpretations.

In trying to streamline diverse views on *time* that have been divulged in the course of history from different realms of human intellectual endeavor, emphasis and critical assessment would be directed to the Heraclitism-Platonism-school and its contradiction in the Parmenidism-McTaggartism-school; the critical further development of the insight in St Augustine vis-à-vis Maurice Merleau-Ponty; the controversy of Wilhelm von Leibniz and Isaac Newton and any other or all other miscellaneous issues of significance.

The Heraclitism-Platonism thesis on *time* and the corresponding anti-thesis in Parmenidism-McTaggartism was an epic intellectual controversy in temporality conceptualizations. If especially in Plato and Parmenides, *time* is seen as an ontological concept, why the antimonies in the conclusive features of the nature of *time*? While the Platonist school

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conceives of *time* in terms of movement and change, the Parmenides-camp denies the substantial questions of motion. For the latter school, the real issue is; if movement is inconceivable, how could the reality be portrayed in human existential circumstances and again in the structures and configurations of the non-human cosmic objects whose inner dynamic attributes may seem unreal but substantially true? If motion is non-existent, what big picture would this project on the universe? A cosmological perspective of the adynamic would pose the problematic of not only non-description but also non-operation and non-utility of time; a distance from current temporality representation.

Quite a number of philosophers in the camp of Plato – Plotinus, St Augustine, St Albert –and other such critical thinkers with vast interest in theological inquiries, appear not to be concerned with temporality matters disinterestedly but with invested interest in issues beyond time. Time was an intermediate means to the substantial questions of no-time in the sense of the eternal. In this vision of temporality, if one makes a case for time-vis-à-vis motion and change, one would equally make the same for time-vis-à-vis eternity. For them, the nature of time is fully demonstrated in its relation to eternity, its final destination. The concern with time is substantially the concern for the end to which it tends, where its nature would be fully demonstrated. Viewed in this regard, temporality dynamics are not just tied to the philosophical phenomenon of event succession as instants of psychological perception but are in reality also tied to the demands of ethics and virtues and the limited duration within which these begin to make more sense in the beyond time. The instrumentalization of temporality dynamics towards atemporal substantial matters is germane to all-temporality comprehensions among the philosophers of this camp.

The ontology of temporality in Plotinus and the existentialism of time in Maurice Merleau-Ponty would be of some interest in further thematic development. The thesis-antithesis is not only striking but significant in the epistemological enrichment of temporality dynamics. Plotinus associates time with movement but in the specifics this movement is of the soul in transition. In Plotinus, the dualism of Platonism is most manifest with regard to temporality. The essentialization of the soul in relation to the motion of time is exclusivist of the body in its cosmic interrelationships. The cosmic complexes in the continuum of relations may have been involved in motion but the essentialism of the soul excludes them from significant mention. These are then as shadows to the movement of the soul just as the body is shadow to the soul that substantially informs and projects it. For Merleau-Ponty, the French existentialist, temporality correlation is not of the soul but the human body.In at least one perspective, Merleau-Ponty sees time as constitutive and product of the human body in its constant interaction with other objects in the universe. The corporealization of time is a feature of Merleau-Ponty's theory of time. Time in no way mirrors the attempt at its being singled out for conceptualization as a cosmic phenomenon or the measure of soul-motion but inextricably bound to the human body. Perception remains a psychological function and this ultimately transpires within the micro-world of the human body. Therefore, time and human body are not separable.

The non-Platonic McTaggart radicalization of the concept of *time* took scholars to the zero-dimension in which temporality matters needed fresh apprehension. The dichotomy between scientific theory and conventionalism surfaces in this metaphysics of *time* with the spirited attempt to offer the proof that *time* does not exist. In the continuation of the tradition of the prototypic Parmenides, the logic of *time* conception maintained no accord with the reality of

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the nature of *time* in the ensuing temporality upheaval. If the demarcation of *time* in the historical past, present and future is a contradiction since it is all a matter of tense-usage, then there is no such thing as the tensed historicization of *time*. The significant thing in all of this is the new question for meaning and reflective apprehension of the substantial issues of temporality. If we understand the meanings of motion, movement and change, do we understand these concepts as deployed in the conception of *time*? Does *time* demand a new methodology of approach in conceptual analysis? What the temporality philosophy of McTaggart has succeeded in achieving, perhaps way beyond his goal, is the call for anew hermeneutics of the dynamics of *time*. Definitely, *time* does not flow like a river (motion); does not grow like a child (change); does not move like the human person or even the automobile (movement); so, what does it mean motion, movement and change with regard to *time*? While objects may move in *time*, does *time* itself move? St Augustine did come close to this when he opined that *time* historicization is a psychological function, it is all happening in the theatre of the human memory (Audi, 2011, p. 803). A new methodology of approach to the hermeneutics of *time* is in accord with McTaggart, even if it is unintended from his theory of the absurdity of the existence of *time*.

The last part of this thematic development on the concept of *time* would have to do with the controversy between the disciples of Leibniz and Isaac Newton. Newton's physics allowed for the possibility of absolute *time* independent of further temporality references. *Time* for Newton is independent of events, and *time* frame. Leibniz believes that *time* is co-extensive with events and as such does not permit of absolute attributes. The significance of this controversy lies in the sharp distinctions it makes possible between the views of philosophers both prior and posterior to these scientific debates. In effects, it lies scientifically at the crossroads between absolute *time* and spatiotemporal determinations in the conceptualizations of *time*. Even though the 'special relativity theory' conceives of *time* quite distinct from space, most of the temporality theoreticians, both from the traditional rationalist and modern scientific angles, conceive of *time* as related. Heraclitus, Plato, Aristotle, St Augustine, Plotinus St Albert, Peter Abelard, Leibniz, Kant and Merleau-Ponty from the rationalist, idealist and existentialist traditions and Alexander Samuel, Albert Einstein, Stephen Hawking and Carl Sagan from the scientific world believe that *time* is related although Sagan makes case also for an empty universe suggesting the possibility of considering it apart from *time.* If *time* is conceived of as being associated with motion and change, this can only be possible in the larger picture of all these taking place in the universe; therefore, *time* is a cosmic event and as such co-extensive with space. The existentialist Merleau-Ponty and St Augustine at various points intersect in their location of temporality activities within the human body. For Augustine, the human memory is the center of temporality transmogrification, a clear psychological approach to the understanding of *time*. However, for Merleau-Ponty, the human body as a whole constitutes *time* and its operations in the interactions of the body with the complex objects of the universe, a clear bodily or corporeal approach. The important thing to stress in these conceptualizations is that *time* appears more to be not independent of relations. As an activity of the human body (Merleau-Ponty), or mind (St Augustine), *time* is space-bound because the human body is an object in space. The human person is a spatiotemporal existent along with the multifarious object-interactions with which it shares a complexity of existential interrelationship.

Finally, the deep question of the end-of-time should constitute recipe for deeper reflections both from the rational, theological and scientific fields of epistemological inquiry. Is *time*

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eternal? Is *time* created? Is *time* one of the events happening in relation to the big-bang? Is *time* expanding alongside the living universe? Will *time* contract of itself scientifically? Will the universe be forced to cease existing along with *time*? These are substantial questions that bother philosophers and scientists alike. Two approaches to these questions may be of relevance even if the questions may not have been dealt with exhaustively in this piece of work. One approach is for humans not to contribute to the catalyzing or cataclysmic process through human-related acts and technologies that possess this capacity. The second is the appropriate utility which is conceptualized into the temporality problematic of the full meaning of the nature of *time*.

Conclusion

The discourse on the concept of *time* concentrically involves the discourse on a diversity of matters interacting and co-mingling into operational intricacies in the universe. This is one way to view the temporality question. The other, which accords with pure conceptualization, is the diving into the dimension of *time* without any frames of reference; a clear essentialization of the concept. This makes the assumption that absolute *time* is not inconceivable as an event happening on the cosmic scene though separable from cosmic space. However, the pragmatics of the concept suggest a spatiotemporal relation as a continuum in the apprehension of *time*. Every attempt was made in this work to reconcile this view with the earlier, modern and contemporary ideas in rationalism, idealism and existentialism as well as Einstein's theory of relativity and the views of mathematicians, modern Astronomers and Space Scientists. A *time* that propositionally had simultaneous beginning with the universe is bound to end with the universe. The conceptual implication is 'the desire to be' that ought to have a more tangential drive rather than its anti-thesis, and in this sense, the need for humans to, through their activities contribute in pro-cosmic existential process than otherwise and finally, that objective temporality conceptualizations be determined into appropriateness in utility thereby contributing to the realization of the full nature of *time.*

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