

The Existence of Time

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Abstract

The concept of time has been the subject of much debate in philosophy, physics and cognitive science. Some theories hold that time is a fundamental entity in the structure of the universe, while others argue that time is merely a human mental construct. This research examines the existence of time from various perspectives, including the theory of relativity, the philosophies of idealism and materialism, and the theory of causality. The study shows that time cannot be separated from space, as expressed in the concept of space-time. In addition, time also has probabilistic characteristics, where future events are affected by the past and current conditions. The purpose of this research is to find out about the concept and implementation of time. The information is extracted using the desk research method, in accordance with the study with the discussion of three main theories of time: Presentism, Eternalism, and Growing Block Theory. The results show that Causality Time is more in line with the idea that time is already present by the various probabilities of events occurring, where the past and present are real, while the future is real with the chance of events stemming from causality. Thus, time is not just a measure of change, but also a fundamental element that shapes reality and influences causal relationships in the universe.

Keywords: Causality Time, Philosophy, Time

1. Introduction

In the beginning, the reality of the universe was an absolute unity, a single, eternal and immutable existence, motionless, continuous, and an existence beyond the reach of sense perception. As the Greek idealists, particularly Pythagoras, Parmenides, his disciple Zeno, and later Plato, assessed reality to be something that cannot be perceived by the senses. This argument is reinforced by the assertion that whatever is before the senses (as matter) is “impermanent, transitory, and therefore unreal and illusory.” Thus, everything can only be understood through intuition and mental constructs, and represented through idealized mathematical or geometric models. They also reject the possibility of “change” (Ekong, 2022; Malek, 2016). In contrast, contemporary dialectical thinkers Heraclitus and Epicurus claimed that the fundamental characteristic form of the world is change (motion), a state in which everything is subject to change. The materialists represented by Leucippus, Democritus, and Aristotle asserted that only matter, which can be perceived by the senses, is primary.

Democritus stated that, “Nothing exists, except atoms and empty space; everything else is mere opinion.” Materialist thinkers then rejected the concept of an infinite division of matter, but only for space and time, which were regarded as infinite. This materialist view led to modern atomic theory in physics and chemistry; while the idealist view found its revival in Einstein’s theory of relativity and the concept of the space-time ether. In the Middle Ages, the concept of infinite space and time, as well as the universal concept of Parmenides or Platonic idealism were associated with the concept of God in theology, i.e. an omnipresent and omniscient God. In Spinoza’s “What God is?” God is described as an infinitely perfect being, and ‘perfection’ is used in a purely ontological sense, synonymously with ‘reality’



or 'existence'. In this sense, space, time, or the reality of the universe is defined by the perfection of the Divine (Fraenkel, 2006; Omodeo & Wels, 2019). The concept of God was studied more extensively by various philosophers and collected in a book written by Nagasawa (2011). However, the problem of how God's infinity can be reconciled with finite humans arises when Spinoza's concept of "limit" is used to distinguish between the finite and the infinite. So, how can an infinite God have a relationship with finite and mortal humans, which would limit His infinity?

The contradiction between the finite and the infinite in relation to space and time is then resolved by Hegel's dialectic, where the finite is the infinite and vice versa. A dialectical contradiction of the "unity of opposites". This contradiction is constantly resolved through the endless expansion of the universe, both in space and time (Malek, 2016). This debate is still ongoing in the fields of theology, mathematics, physics, and in all anti-dialectical philosophies. In theology, Giordano Bruno claimed that the universe is infinite. In physics, Albert Einstein's theory of General Relativity assumed a finite universe, and in mathematics, Georg Cantor (1845-1914 AD) was the last to try to prove the existence of infinity. However, he faced unsolvable contradictions. This debate about reality and time was carried on until by leading scientists, especially Newton, Leibniz and Einstein (Rynasiewicz, 1996). Immanuel Kant in Ekong (2022) explains that the background of this debate is the question of the elements and nature of the universe.

Despite centuries of inquiry, significant gaps remain in our understanding. Existing studies approach the question of time's existence through divergent methodological lenses: rationalist inquiries by Kant and Spinoza rely on a priori reasoning to establish time as necessary intuition or divine attribute, while empirical investigations in modern physics employ mathematical formalization to treat spacetime as physically measurable dimension. These contrasting approaches yield incompatible results which is a rationalism preserves time's absoluteness or ideality, whereas empiricism relativizes or eliminates its independent existence yet few studies have systematically reconciled these methodological divides or examined their implications for understanding temporal destiny and human agency.

Based upon this unresolved tension, the present study addresses the following interrelated problems: Are space and time forms of mental construction or objective realities? And how does destiny operate within these alternative frameworks? The debate between time as real nature versus time as mental illusion extends to questions regarding time's properties specifically absolutist versus relationalist characteristics (Davies, 2002 in Gruber & Block, 2013; Wang, 2023) and time's spatial characteristics (Smith, 1902). These various perspectives render the concept of time indeterminate or "gray." Furthermore, questions regarding time's origin and terminus remain unanswered: time is supposed to have beginning and end, yet these boundary points resist definitive resolution (Hawking & Penrose, 1970). Ultimately, time exists as an "A Priori Truth" or as a concept knowable through pure reason.

The novelty of this research lies in its integration of dialectical analysis with comparative philosophical methodology to systematically evaluate competing ontological claims about space and time, and to explicate the mechanisms through which destiny functions under contrasting temporal frameworks. By bridging rationalist and empirical traditions that have previously operated in isolation, this study offers original theoretical synthesis regarding the absolutist versus relationalist properties of time and the unresolved questions concerning time's origin and terminus. The research objectives are threefold: (1) to critically assess competing ontological claims about space and time through dialectical synthesis of idealist, materialist, and theological perspectives; (2) to develop a coherent theoretical framework explaining how destiny functions under contrasting conceptions of temporal reality; and (3) to evaluate the implications of these findings for interdisciplinary discourse in metaphysics, physics,

and theology. This study is expected to contribute foundational insights that clarify time's "gray" conceptual status and provide theoretical grounding for subsequent empirical and philosophical investigations into temporal existence and human finitude within infinite frameworks.

2. Literature Review

Platonism and Aristotelianism offer two different views on time. Plato considered time to be a reflection of a higher reality, while Aristotle argued that time is a measure of changes that occur within the physical world. In the modern era, McTaggart (1908) divided time into the A series (past, present and future) and the B series (sequence of events without actual temporal change), which is still the basis of debate today. Ono (1982) in his general theory of relativity changed the paradigm by stating that time is not absolute, but rather part of space-time that can experience dilation due to acceleration or gravity. Hawking & Penrose (1970) supports this concept by explaining that time is a fourth dimension that is intertwined with space, so it cannot be separated in the measurement of change.

In quantum mechanics, time is not considered a fundamental entity like space, but rather as an evolutionary parameter of quantum systems. Rovelli (2018) argues that time emerges as an effect of entropy and interactions in complex systems, further complicating the understanding of the existence of time. Poincaré (1903) in a study of chaos theory showed that small changes in initial conditions can lead to large impacts in the future, indicating that time is dynamic and depends on causality. In this context, Hume (1748) argued that causality is the basis of human understanding of time, while Kant (1781) argued that time is a form of human intuition that allows experience to be organized.

Presentism asserts that only the present is real, while Eternalism assumes that the past, present, and future all exist simultaneously in a static block of time. Le Bihan (2020) asserts that eternalism is compatible with relativity theory, but also poses problems in explaining free will. Alternatively, Growing Block Theory states that the past and present are real, while the future is yet to be formed, which is more in line with the idea that time is evolving and probabilistic. In the study of the philosophy of time, Plato and Aristotle discussed time as part of metaphysical reality (Ekong, 2022). Immanuel Kant, in his Critique of Pure Reason, emphasized that time is an a priori form of human intuition (Schurman, 1899). Meanwhile, Leibniz and Newton debated whether time is absolute or relational (Rynasiewicz, 1996).

From a physics perspective, Newton considered time as absolute and uniformly flowing (Ekong, 2022). However, Einstein in the Theory of Relativity proved that time is relative to speed and gravity (Hawking & Ellis, 2023). Hawking (2009) further stated that time and space form an inseparable space-time. In the concept of causality and chaos theory, David Hume stated that cause-and-effect relationships cannot be observed directly, but are patterns perceived by humans (J. C. Miller, 2009). Henri Poincaré showed that small differences in initial conditions can lead to large differences in final outcomes, which became known as the Butterfly Effect in Chaos Theory (Oestreicher, 2007). In addition, Goodman et al. (2011) discussed how humans learn to understand causal relationships in time based on empirical experience.

Space and time are independent of all objects and relationships, and have no causal relationship. They also cannot be directly perceived, and in the case of space, are infinite. Newtonians regard space as a kind of quasi-object identified with the mystical ether medium, through which light (as well as the force of gravity) propagates. This was based on debates about the ontological and epistemological status of space and time, which became intense when Isaac Newton extended his terrestrial mechanics to the celestial realm in the solar system and after he proposed his theory of gravity (Malek, 2016).

Hume developed an empirical approach to reality, emphasizing that all human knowledge is rooted in sensory experience (Miller, 2009; Aryati, 2018 in Basuki et al., 2023). Immanuel Kant's concept

of space and time is divided into metaphysical and transcendental analysis (Ekong, 2022). Newton in Ekong (2022) defines absolute time, as something independent and mathematical, in itself and by its nature, flowing evenly without connection with any external thing. Absolute space, by its own nature, without any relation to any external thing, remains always identical and motionless. McTaggart (1908) in his view states that time does not actually exist. He explained that the concept of time contains a logical contradiction, so it cannot be part of the fundamental reality.

3. Methods

This research uses desk research method, which is a research approach that relies on secondary data analysis from various scientific journals, books, and existing theories related to the concept of time and reality. Various journals related to time are studied more deeply both in terms of positivity or support as well as rejection and contradiction. This method aims to examine the existence of time from the perspectives of philosophy, physics, and causality theory, as well as comparing various theories of time that have been put forward by experts (Widiyanto et al., 2023). With this approach, this research seeks to integrate various perspectives from philosophy, physics, and causality theory to understand whether time is a fundamental entity in the universe or simply a human mental construct.

4. Results and Discussion

4.1. Research Results

Before answering the question about the reality of time, it is necessary to know how time works, how it continues to correlate with reality and life in the universe. Understanding reality can be a bridge of thought to knowing how time works.

4.1.1. Knowing The Reality

David Hume questioned humanity's ability to understand a reality that lies beyond the limits of experience. According to him, reality only includes observable patterns of repeated experience. In addition, Hume proposed a skeptical view of the concept of causality, stating that humans are only able to recognize correlations between various events, without being able to ascertain the existence of definite cause-and-effect relationships within reality. In his view, the understanding of the physical world is entirely based on sensory observation, where humans can only witness a series of events that occur repeatedly, and then infer a causal relationship based on the repetition. David Hume's statement is also supported by Immanuel Kant, as Kant argues that experienced reality is influenced by the a priori structure of the mind. Because, one only has access to phenomena or experiences that are influenced by the way we process sensory data, so reality in itself (*noumena*) cannot be known directly, without someone experiencing it. This is due to the limited structure of the human mind.

4.1.2. What is Time?

Time comes in many forms, but broadly speaking, the basis of time is the presence of time in the form of Idealism and Existence. Leibniz believed that space and time are not real entities, but rather virtual relationships and mathematical concepts. This is due to the nature of time which is not tangible in the five senses or materialist. Time is not a physical object that can be seen, heard, touched, smelled, or felt directly. However, time is real in an understanding that can be recognized by mathematical calculations, and is involved in life. Because of the existence of time, the calendar system was born, can know the harvest season, activity markers, the rotation of the earth around the sun. Although time cannot be perceived by the five senses, it always coexists with the activities of the five senses. For

example, a person can tell when the earth's rotation turns its back to the sun, or night falls, marked by the darkening horizon and can be known by the eye. When listening to a song, one knows the length of time it takes to finish one song. One smells the unpleasant aroma of fruits, indicating that they have been stored for too long and are rotting and unfit to eat. Because of these circumstances, in a broader sense, time is everywhere and collaborates with space as in Hawking's statement, that time unites with space to become space and time, spacetime.

Because of this, the nature of time can be described as an entity that cannot be designed by the understanding of the five senses. Time cannot be observed directly, but through changes and relationships between events. In this case, time merges with the events and experiences of each individual. Another consideration for understanding time is that time correlates with human experience, so that the future show of the universe is a result of the past, and is connected to the past and present. K. Miller (2013) emphasizes that the concept of time is divided into Presentism, Eternalism, Block Growth Theory. The birth of this theory of time makes the meaning of time even more violent, where these three theories cannot be united on the basis of different meanings. Presentism focuses on the present, eternalism focuses on the past, present and future that run simultaneously, growing block focuses on the past and present.

4.1.3. Time and Space in Physics & Philosophy

Time cannot be defined in absolute terms, and there is an inseparable relationship between time and wave velocity (signal velocity). The nature of time is closely related to the problem of quantum gravity. At the classical level, Einstein's general relativity removes time from its Newtonian absolute rest, but time still plays an unambiguous role; time is a coordinate in four-dimensional space-time, and in another form it measures the space-time interval traveled by objects moving slower than light.

Hawking (2009), states that time unites with space to become space-time. Time should be treated as a fourth dimension intertwined with the three dimensions of space. Without space, there is no way to define changes or events that can be measured in time. Hawking introduced the concept of imaginary time to overcome the singularity. Ultimately, there are 3 principles as follows, Without space, there is no time. Without time, space has no dynamics or change. Both are a unity in the concept of space-time.

In combining the understanding of philosophy and physics, time becomes the fourth dimension along with space to fill the universe. However, the values contained in time are not material, but time is imaginary in the form of mathematical values in the form of the probability of an event occurring that overshadows space. Moments in time continue to grow producing new events, and no moment stands alone, (Crisp, 2004; Ekong, 2022; Evangelidis, 2018; Farin, 2012; Le Bihan, 2020; McTaggart, 1908; K. Miller, 2013; Slavov, 2020).

4.1.4. Presentism, Eternalism, Growing Block Theory, Causality Theory

The concept of time in presentism has a dynamic nature, that is, events cannot stand alone and are always changing, (Le Bihan, 2020; Markosian, 2004). In a series of time, the event called the present is present in the form of an event, which then disappears and the event no longer exists, and is replaced by another event which is the form of the next event. Thus, in the concept of presentism, the moment is no longer the present, in the sense that the past has disappeared and the future does not yet exist. The reality that exists in presentism is the present, no other event is real until it becomes the present (Markosian, 2004). When a person is currently in a relationship with another person, it only applies to the present moment. After, and before, the condition is not real. The only time that "exists" is in the present moment, even if at some point the couple separates, there is no reality that the couple is still together, until it happens again in the present moment. This goes back to the notion that only the present is real.

Imagine a movie on DVD or a streaming service. The entire scene from beginning to end is already in recorded form. When we watch the movie, we only see one scene at a time (the present). However, the previous scene (past) is still there, and the next scene (future) is also already there, even though we haven't watched it yet. Just because we haven't seen a particular scene, it doesn't mean it doesn't exist.

In another analogy, as in the saying in relationships, "If she is yours, then she is always with you in a certain block of time, and if she is not yours, she is never really yours in the whole structure of time" This saying is like submitting the whole of life to a term called "fate" or "determinism", but in the concept of time, this is known as eternalism. This is because the past, present and future already exist, and cannot be changed, one just lives it like reading a book. If in the future one is destined to return, then it has already happened and remains in the fabric of time, even though we have not experienced it. If in the future one is not going to return, then that too is predetermined and unchangeable because the future has the same existence as the past and present. In other words, decisions and events already exist in "blocks of time" humans only "trace" those moments, not change them.

Eternalism states that the past, present, and future exist and are equal, but there is an objective property of "presentness" that moves through blocks of time and progressively "traverses" the various blocks that contain moments of time (Skow, 2009 in Miller, 2013; Le Bihan, 2020; Crisp, 2007; Slavov, 2020). The concept of eternalism rejects that time is fluid or dynamic, instead it suggests that time is static, composed of blocks of time, and fixed. Eternalism limits one to the concept of "free-will", as the future is fixed and equal to the past and present. Le Bihan (2020) asserts that eternalism cannot be separated from the laws of physics, and is the basis for the concept of time in modern physics.

Growing Block Theory or the so-called No-futurists, Button (2006) has dynamic characteristics, moments and events in the past and present exist, but moments, states and events in the future do not exist. Reality in a growing block is like an ever-expanding block, where each event fills the block, and the block continues to grow. As time passes, the present keeps moving as more and more "slices" of reality are added to the totality of existence. As new moments appear, filling the block and becoming part of the objective present, previous moments become part of the objective past.

From considering the concept of time between the past, present and future, the researcher developed a concept called time causality. Time Causality is a concept that makes time a probability of occurrence that comes from the causality between events that occur. Time becomes a series of causes of an event that can occur, as the future is the result of the past and present, and the past, present can cause the future, so that makes time as causality. From the statement of time as a causal value, it can answer the statement about one of the properties of time to answer whether time is a mental construct or not.

4.1.5. Time Contradiction

McTaggart does not believe in the reality of time, because time has many contradictions, as does the way one understands the sequence of events. McTaggart describes events in A-series and B-series. First of all, the A-Series from McTaggart's view asserts that a series of positions running from the distant past, through the near past to the present, then from the present to the near future and the distant future. The B-Series, on the other hand, is a series of positions that run from earlier to later. A position in time is referred to as an event. The contents of a single position can rightly be called a collection of events.

Essentially and fundamentally, one cannot observe time without paying attention to the reality of time in which events must form A-Series and B-Series. McTaggart, (1908) considered that time is subjective, and hence time is just a constant illusion of one's mind. This assertion was supported by Hegel, who regarded the sequence of time series as a reflection, albeit a distorted reflection, of

something in the tangible nature of time-unbound reality. However, from McTaggart's distrust of time, the fundamental question is whether time is real? Even if only if it is non-material.

Hegel states that time is a series of continuous, continuous, sequential, self-differentiating movements of life that continue to develop through endless individuals. Hegel states the characteristics of time as follows. Time as infinity in motion, time as independent and never stopping, time as simple but complex essence, time as simple but complex essence. These theories contradict the knowledge of physics which states that time is real which is united with space, but time has a relative nature, so time is different from each observer. Hegel in Farin (2012) explains the characteristics and essence of time as follows.

1) Time as a Constantly Moving Infinity

This is based on the fact that time has no fixed starting or ending point, so it is in perpetual motion. All differences that arise in life (e.g. changes in history, individual experiences) will eventually be absorbed back into the larger movement of time. Time is also dialectical, meaning that it is always changing and overcoming emerging contradictions. For example, human civilization has always evolved through the conflict and unification of opposing ideas. Humans who continue to learn from their experiences grow, even to the point where the character of humans in modern times is completely different from humans in the past. There is no moment in history that truly "stops" as each change brings the next.

2) Time is Independent and Never Stops

The realization that time does not have a fixed form, but is constantly moving and changing, especially since time cannot be controlled or stopped. It is always restless, always changing. For example, one cannot "stop" time, but can only experience it as it moves. Human life is completely unpredictable because there are always changes that occur over time.

3) Time as a Simple, Yet Complex Essence

No one can fully understand time, it is independent of anything, and exists on its own. All the changes that occur in life are ultimately just part of the greater essence of time. Although one experiences time in various forms (e.g. history, personal experience), time itself still has a simple essence: that of endless movement. For example, in history, the various eras appear very different, yet they are all just part of one continuous flow of time. Although human beings experience time in different ways (such as when time feels fast when one is happy, and slow when one becomes bored), it still essentially runs at the same rhythm. From the essence of time according to Hegel, it is stated that time is full of contradictions, as time is infinite yet in motion, independent, self-sufficient and never stops, and time has a simple yet complex value.

4.2. Discussion

Understanding the time contradictions that have been explored, answering the questions from the problem formulation, the following research results were obtained.

4.2.1. Time is not an illusion and is a mental construct

Knowing the properties of time and reality, it can be explained that time has real properties and is not an illusion. This is in terms of physics, namely time that is relative to each observer and correlates to gravity. In addition, time cannot only be said to be an illusion because of the nature that bridges the human mind with reality. Time is connected to space and mass, past, present and future. The past is formed by human free will manifested through thoughts, choices and actions. The present is formed by the consequences of what happened in the past, all actions and precautions in the present produce the future. The future occurs as a consequence of events in the past and present, which are based on thought patterns, and form an action. For example, from the moment a human being is born, the first

relationship he or she establishes with the world is through his or her caregivers, who are usually parents. From this initial relationship, what is referred to as attachment or emotional bonding is formed. If a baby grows up with a caregiver who is responsive, loving, and able to read and meet his needs consistently, then the baby will develop a secure attachment. He learns that the world is a trustworthy place, and that he is worthy of love.

However, not all children are fortunate to have such experiences. In some cases, caregivers may be busy, unresponsive, or even emotionally reject the child's needs. When a child repeatedly encounters situations where crying or attention-seeking is not responded to with warmth, he begins to learn that showing emotional needs is futile or even dangerous. To protect himself, the child slowly builds a wall: he reduces dependence on others and tries to rely on himself early on. This is the beginning of attachment avoidance, a pattern of attachment where an individual avoids getting too close emotionally because in his childhood experience, closeness does not bring comfort. As they grow up, individuals with an avoidant attachment style tend to feel uncomfortable with emotional closeness, have difficulty trusting others fully, and prefer to keep their distance in relationships. They may appear independent, even cold, not because they don't need relationships, but because their early experiences taught them that dependence on others risks bringing hurt.

From this it is necessary to understand that one's childhood is the present that becomes the past. When the person is brought up with a sense of security. Then the effect on the future is to see the world with love. Suppose if a person in the present is educated harshly, emotionally neglected. So in the future, if not prevented in the present, he will avoid emotional attachment to others. From this simple example, it can be seen that a person's growth comes in three different periods, past, present and future, each of which is interconnected with the other. The past and present cause the future, while the future is caused by the past and present.

It is important to realize that time cannot stand alone and settle. It will keep going, as the present will become the past, and the future will become the present. This is known as how destiny works. That is, the future is created by human efforts in the past and present, both constructive efforts, or also efforts that prevent things that are destructive or destructive. This is what the author calls time as the value of causality. In its depiction, the value of time is not visible to the human senses, but it cannot be said to be an illusion. Without the existence of time, day and night, and harvest time have no value. For this reason, time can be described through mathematical calculations. A simple example, time as a marker of an event, which is calculated through hours, minutes, seconds. Time is also broader than just numbers. What happened in the past has a huge impact on the future, as in Chaos theory. This will answer how destiny works.

4.2.2. How does Destiny Work?

Destiny works inherently with time. Destiny cannot be separated from time, but becomes one with time. A period called destiny can occur as a result of something going with the flow. Events can occur due to the stimulus of previous events, each event is indirectly related to one another. If one main event occurs, it will be followed by the consequences of the previous event in the form of secondary events. Secondary events that occur can also produce consequences of other events. These events are recorded by the duration of time and become opportunities for the future. This is mentioned by Poincaré as a small difference in the initial position can cause a big difference in the final phenomenon, this is seen in the butterfly effect phenomenon developed from chaos theory.

Newton and Laplace considered that the universe is completely predictable from the originating event. The state of the universe occurs as a result of the previous state and as a cause of the future state. The formula of time exists from the occurring events and their effects. However, Poincaré did not agree

with this statement. Poincaré thought that if the initial conditions are not perfectly known, then events become random events, where one small change can produce a large and long-term change, so the future cannot be predicted in the long run. Causality always involves changes in time, as one event occurs after another.

From these two views, it can be said that time is a probability value that occurs due to a cause from an initial event, and produces another event in the future. Time becomes a probability value because small values in the structure of time can produce large changes in time and events. Every event has consequences that develop over time. As in the analogy of two people meeting each other, one smile can change another person's day, as well as one's own. The predictions generated from the original event can be random, thus, the events that occur in the future, are random events from several events that could have happened.

It is these random events that make time into 3 types which are termed "duration". Active event time, potential event time, and passive event time. Active event time makes the resulting event one event out of a series of others that occur in the present, and is a form of effect from the past. Potential events are events that have the potential or chance to occur. This potential event can occur in the future or can be a result that will occur in the future. Passive events become events that will not and never happen.

John Bowlby and Mary Ainsworth in Bretherton, suggest that how attachment with parents affects how children can connect with others in the future. Early relationships can influence an individual's lifelong development. When dissected, how a person responds to their social environment in the future, is a form of consequence of their past journey. This is what makes time an evolving form of human experience, and the reactions of individuals to the present, which are influenced by the past, will create opportunities for potential events that will present as a consequence of individual actions in the present.

One of the potential events that occurs and becomes the present, and is lived by the individual is the active event, and other potential events that do not occur will become passive events. However, it is said to be a potential event, because although it does not happen directly, the consequences or impacts of the same event or moment that should have happened and did not happen have the opportunity to become active and can occur in the future. Ultimately, time is never separated from the events and consequences that result from these events in the space of the universe, or time is always related to the connectedness of events driven by human consciousness.

5. Conclusion

The concept of time has been the subject of philosophical and scientific debate for centuries. Time is also a controversial form of the question of reality. Some theories hold that time is a real and fundamental entity in the structure of the universe, while others argue that time is merely a mental construct that arises from human experience. In this study, it is found that time cannot be separated from space, but rather time is the fourth dimension of the universe. Time is not materialistic, but mathematical, containing the probability that an event will occur. Time exists in the mind, but is present in the external, as for humans to understand the existence of time requires awareness. The existence of time occurs due to a cause-and-effect relationship, where one event affects another event that occurs after it. Small changes in initial conditions can result in large differences in the future, making predictions difficult and random. Therefore, time has a probabilistic nature, where future events contain certainty in a chance structure influenced by past and current conditions. As such, the understanding of time continues to evolve as science, philosophy and physics progress. Time is not just

a measure of change, but also a fundamental element in the structure of reality that affects all aspects of life and existence in the universe.

Thus, it can be concluded that time is a probability value that is caused by the past and causes the future of a series of events that occur in space in the universe. The independent form and infinity of time make the existence of time endless until civilization is finally finished. However, as time as causality represents a novel theoretical framework with significant potential for predicting future progress, several avenues for further development warrant attention. Future research should focus on formalizing this theory through mathematical concepts, specifically modeling how the probability of future events emerges from the relationship between past and present events and actions. Beyond mathematical formalization, theoretical elaboration is essential to refine the conceptual architecture and extend its explanatory scope across disciplinary boundaries.

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