

Time and the Multi-Universe

A philosophy of time and time travel

E. Hughes

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Time and the Multi-Universe: A philosophy of time and time travel is not only about humanity's philosophical relationship with time, but rather a fundamental understanding of how time functions in our society as a mental construct and as phenomenon occurring in our universe.

To time infinitum.

- E. Hughes

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Chapter 1



What is time?

What is time? Time is not merely a succession of events in terms of past, present, or future. In lay terms, and for the purpose of this book, it is a measurement. Time is the byproduct of a universe that is always in motion. Before time, before the Big Bang, there was nothing until something happened, setting the Universe—and time, in motion. Much of these events are theoretically already known to science. This book is a brief philosophy of time and the construct of time in our universe and daily lives.

So what exactly *is* time and does it really exist?

Short answer—yes, time does exist. Many believe that time is a construct (it can be) or an illusion (it isn't). The notion that time does not exist is as unsettling as the notion that numbers don't exist. Numbers are immaterial but can represent material or immaterial phenomena occurring in the universe, whereas time certainly has both in its connection to gravity and space-time. While time and numbers are not macroscopic, both abstractions have a firm (or perhaps a metaphysical) place in the universe. It's not so much what numbers are as to what they represent. Time and numbers are similar because they represent knowledge...information about something, somewhere, in the universe. Both represent a harmonious balance of metaphysical and material concepts with numbers as a mental construct and time as an

observable and naturally occurring phenomenon of space, gravity, and motion. The two concepts must also work together because we need numbers to calculate time. They are very much part of the same family.

If life did not exist in the universe, would numbers exist? Would time exist?

“If an apple falls from a tree in a forest and no one is around to hear it, does it make a sound?” (George Berkeley, 1600s).

(Answer: No. The apple’s impact on the ground produces vibrating particles [sound waves] but doesn’t make a sound until the waves are interpreted by the brain.)

While numbers are metaphysically floating around in our minds to help us make sense of the world around us, the existence of numbers are also dependent upon our mental constructs to perceive them. For time to exist, time must also be observed or perceived by something or someone in the universe. Not only must time have an observer, but its duration must be experienced in some capacity. Imagine if the observer and the universe were both frozen in place... motionless, the natural environment unchanging. Erosion, decay, and the process of “aging” would not exist. Time would stop and the duration of “time” passing by would not be experienced by the observer because time does not exist in the universe without motion or gravity. The state of the universe would remain the same, like a photograph. Consequently, the observer would not exist at all in a universe without motion. Motion and heat in the universe causes all things to exist.

Imagine if the universe was in motion but the observer was *not* in motion...acts of nature caused by motions (terrestrial or otherwise) in the universe would act upon the observer. Over time, the duration of the observer’s lifespan

would undergo various stages of change and eventually come to an end. If, instead of an observer there was a rock or a mountain, the effects of time and change would eventually lead to erosion as the forces of nature is exerted on the rock or mountain. Time is duration and measurable change.

Where time and numbers differ is that numbers help us to observe consistent and reliable patterns demonstrated by material and metaphysical entities in the universe, while time can represent a dimension (Einstein), change, or the *duration* of a pattern or cycle in the universe. For Einstein, time as a 4th dimension is an intersection of where and when space and time meet. He wrote of gravity's effect on time, such as time dilation. The stronger the gravity, the slower time moves. Conversely, he wrote that time is relative to motion: the faster you move, the slower time moves. In a more relatable context, if I were to travel from California to New York by plane I would reach New York in a little over five hours. If I were to drive unimpeded from California to New York, it would take about 40 hours. The plane travels faster than the car, so time passes more slowly as I travel by air. Time is relative (Einstein). Earth's rotation (which is how we measure time on this planet) hasn't changed, of course. In this scenario time is moving slower in relationship to the velocity of the traveler. Time is the constant in this scenario while the velocity of the traveler flying, walking, or driving from California to New York is the variable.

Other scientists expounded on the nature of time along the lines of the Second Law of Thermodynamics and entropy, with the arrow of time pointing forward (Eddington, 1927). This means as a general rule that disorder increases with the passage of time and that systems will transition from order to disorder. I can agree

with this notion. Time does have some constancy. Everything in the universe (apart from electromagnetic waves like light) unravels, erodes, decays, or inevitably comes to some sort of end or transformation. Stars explode, implode, or eventually burn out, sometimes taking the nearest planet with them. Does eternity exist? If we follow the arrow of time even the universe is subject to entropy. At some point in the history of the universe there was order until the Big Bang, which resulted in the disorder that gave us an expanding universe. The universe likely went from uniformity and order to disorder and will continue to sort itself until equilibrium is achieved.

Like stars and other matter in the universe, humans and organisms also die. Our bodies are subject to the arrow of time. From the moment we are born our bodies and even the life forms around us are constantly changing in cycles we can mostly predict by monitoring the sky. We know that the sky is changing, moving us in a consistent and forward direction (even if those changes and patterns appear cyclical), a cycle that takes us from night into day and from day to night. We know the sun will appear in the sky around a certain time each morning and if it doesn't appear, then something has come to an end—namely all of us. Where time becomes unpredictable, is that none of us can predict exactly *when* the universe will die. Or when *we* will die. Time can be vague, mysterious and unpredictable, but also inevitable.

If everything, including the universe as we know it, will eventually come to an end, what is the point of anything in life? Do *we* have a purpose?

What was the spark that created life from a molecule? How did chains of molecules evolve from a nonliving system into a system that developed the ability to replicate, into something primordial, into something that developed an innate instinct to survive, evolving over time until it

developed mobility, the ability to consume, communicate, and even acquired a consciousness? 17th century philosopher Thomas Hobbes would say that human beings are matter and that metaphysical part of us (like thoughts, choice, or free will) doesn't exist and that our actions are governed by chemicals in our bodies reacting with a very physical brain. To Hobbes, our lives, thoughts and personalities are merely atoms, reacting.

As human beings reproduced, evolved, and spread across the planet, our numbers and actions became more destructive and chaotic towards each other and the planet. With the invention of nuclear weapons humans are capable of destroying life on Earth. As we become more disordered and chaotic we alter the planet in ways that will lead to the cycle of life ending for most of the species that live here. On Earth, the arrow of time marches us forward from order to disorder and chaos.

To demonstrate the Second Law of Thermodynamics, a scientist might put gas into a glass bottle and heat it until the gas was under so much pressure that it would erupt into disorder (at the molecular level), compelling motion. This is much like the buildup of carbon in our atmosphere where carbon gases continue to build until it traps heat coming in from the sun, creating a greenhouse effect. This is a direct cause of climate change as a result of activities by humankind. Are people evidence of disorder occurring on a planet that evolved to support life? If systems on Earth evolved to sustain life, is the evolution of human beings, the development of destructive forms of technology, and the eventual build-up of carbon in our atmosphere the arrow of time at work?

The biggest misconception about time is that time is an illusion. While time relies on our awareness of it, it still exists without our perceptions. However, we need

consciousness to perceive time and our reality. In philosophy, time, perception, and reality are sometimes believed to be an illusion. But time is very real, very much part of a physical event in space between celestial bodies. *Time* describes what is taking place as well as when it is taking place and how these events intersect with the planet and ultimately, our lives. I don't have to see time at the macroscopic level to know it exists. I feel it as I age and my physical body undergoes various degrees of change. My body isn't time anymore than the sun, Earth, or space itself is time. Time is the measurement of phenomena.

Time is happening all around us, all over the universe, in the same moment, relative to events taking place in the cosmos. We share the same sun in our solar system, but time on Earth is different from "time" on other planets. Each planet is trapped in an orbit caused by the same distortion of space caused by the mass of the sun, the gears of time shifting very differently among them with distance resulting in lengthier revolutions. For example, a minute, hour, or even a day is different on Jupiter. A year on Jupiter is 11 Earth years.

Chapter 2



When we die, the universe dies with us.

Time Travel

We know that time does not move backwards. Time is directional—always flowing forward (Arrow of Time, Eddington, A).

Thus, time travel into the past is physically impossible because the past is a fixed point. The past as a state of physical reality doesn't exist. The past is metaphysical, existing only through the awareness of conscious beings. The past is a mental recollection or record of events that took place in the present. Therefore, only two states of reality exists, and that is the present and the future. What "is" and what will "be." The past is *not* a fixed or objective *reality*. It is fluid and can be changed by our perceptions. The "past" cannot be visited in a physical sense, but can be altered in a realm I call our meta-space, which is in the metaphysical space that houses our thoughts, memories, and perceptions. We all collectively exist in this meta-space as we are bound by the same threads of reality. Aspects of our reality is shared and then there are separate aspects of our reality that is unique to our individual perceptions. Some animals and insects exist in a different metaphysical space and perhaps, cannot even see us but experience us as natural phenomenon. They are bound by a different thread of reality. Single-celled organisms and other microorganisms share a different universe and reality. We have many universes, a multi-universe that we all live in together, but also separately. We can't read each other's thoughts or see through each other's eyes, but we have a collective and rational understanding about what is in nature