International Journal of Scientific Advances
ISSN: 2708-7972
Volume: 5 | Issue: 1 | Jan – Feb 2024 Available Online: www.ijscia.com
DOI: 10.51542/ijscia.v5i1.18

Can We Measure Time or Do We Live in Virtual Time?

József Ferencz

Bolzano Utica 35/a, Budapest 10. Ker., Budapest, Hungary, 1104

*Corresponding author details: József Ferencz; ferenczj@outlook.hu

ABSTRACT

If we study the units of time and the structure of clocks, we realize that time cannot be measured by any clock. Watches do not have a single component that is affected by time. Clocks only produce a series of signals and count and show this. Time has no properties or effects that clocks can perceive. Clocks do not sense that time is passing slower or faster. With a watch, you can only create virtual time for us. We live and count in this virtual time. Therefore, time cannot be considered a fourth dimension either. What we count on and what we live in is just an imagined virtual time. Our time calculation is a measure of the number of events that have happened.

Keywords: time; real-time; virtual time; mechanical clock; sundial; atomic clock; gravity; theory of relativity; speed; events; clock manufacturing; time calculation.

INTRODUCTION

Quite a strange question. Especially in the 21st century, when space travel is slowly becoming a practice. In fact, even time travel is increasingly preoccupying some people. Einstein's theory of relativity describes that time can either slow down or speed up. The clocks run slower or faster accordingly. In other words, the passage of time affects the clocks. The question is how the watch detects this. Time is so natural to us that the question of whether we can measure it at all does not even arise. You can read many articles about the history of timekeeping and clocks. But none of them deals with how time affects the time-measuring device. How these devices perceive the passage of time or its change. In principle, we measure and calculate the passage of time with a clock, but we don't really know much more than that. However, we use it as a basic physical quantity during our calculations. However, as a physical quantity, we do not know its structure, creation, or other properties. In fact, we only know its units of measurement and time-measuring devices. Therefore, we can only examine these two things. First, let's examine its units.

WHAT DO TIME UNITS MEAN? WHAT UNITS DO YOU HAVE?

Year, month, week, day, hour, minute, second. These are the most useful in everyday life. First, let's examine the two most basic ones, the year and the day because this is the basis of our time calculation.

Let's see what a year means? In today's terms, the Earth orbits the Sun in this amount of time. But we can also say that a year is nothing more than when the Earth started from a certain point during its orbit around the Sun and returned to the same place. And this is nothing but an event that happened again. The Earth is at the same point relative to the Sun during its orbit around the Sun. But we can also compare it to a star.

Let's see what a day means? The same can be said here. The Earth rotates on its axis in this amount of time. But we can also say that a given point on the Earth is in the same place during its rotation around its axis. Relative to the Sun or a star. From Earth's point of view, this is also an event.

If we look at it from this point of view, the unit of time is nothing but the measure of the events that have happened. The two most fundamental events were the solar system, the year, and the day. So, these provided the starting point. All other metrics are multiples or ratios of these. In this way, a year becomes a decade or a century, a day becomes a week, a month or a year, a second becomes a minute, etc. During the time measurement, we do nothing but count the events that have taken place. Let's count how many events we are at. We add days, months, years, and centuries from these. So, the elapsed time is given by the number of events that have occurred. This is what we call timekeeping today.

It follows from the above that we know the measure of time, but we still know nothing about time as a physical quantity. Let's examine the measuring devices with which we measure time. First, let's examine how we measure different physical quantities. Let's look at the most basic ones. The mass, the electric current, the temperature. The measurement of mass can be traced back to force measurement, if the mass changes, the force acting on the scale also changes. The change in electric current can be measured by the change in force, but it can also be measured by choosing a material. Changes in temperature can be measured by volume changes, pressure changes, and even color changes. In other words, we can say that the measurement of a physical quantity or its change can always be measured by some other physical quantity caused by it, or by its change. Which affects some measuring device.

However, the passage of time, or perhaps a change in the speed of its passage, cannot be linked to any physically perceptible changes in our environment. It has no such known feature.

Let's examine our timing devices.
The sundial, the pendulum clock, mechanical clocks, and the atomic clock.

Let's start with the oldest and simplest device, the sundial. The shadow of the sundial hand moves. Is it because time is running out? Or because the Earth rotates? A clear answer can be given. This is because of the rotation of the Earth. The passage of time does not affect the Sundial. There is already a contradiction between the current state of science and the sundial. If the Earth's rotation speed were to increase, the sun's shadow would move faster. His time would be faster. According to Einstein's theory, time slows down when moving at high speed. The sundial doesn't behave that way.

Let's look at the pendulum clock and the mathematical pendulum as this is the basis of the pendulum clock. The swing period of the mathematical pendulum.

$T = \sqrt{\frac{L}{g}}$ Let's look at the formula! We see that when the length of the pendulum /L/ changes, or the gravity /g/ changes, the swing time of the pendulum changes. We know that time has no effect on the length of the pendulum. The change in gravity remains, which also changes in our environment. The change in gravity modifies the time of the pendulum swing based on the formula. This means that time must have an influence on gravity if we want to measure time this way. Today there is no evidence that time has any influence on gravity. Or it would have a property that could affect gravity in any way. If the passage of time were to affect gravity, it would have to be constantly changing. It's not like this. This means that we cannot measure time with the pendulum clock. In this way, we can measure the intensity of gravity and produce rhythm signals proportional to gravity, or a series of events.

Then we look at the opposite, that gravity has an influence on time. There is a scientific point of view on this. The current position of science is that time slows down in a strong gravitational force field. Based on the formula, the pendulum clock says exactly the opposite. If the gravitational field strength /g/ increases, the swing time of the pendulum decreases based on the formula. So, the clock runs faster. The clock should run slower in a stronger gravitational force field, this is what the theory of relativity says. So, this also does not correspond to the position accepted today. But then what do we measure? Certainly not real time, because it has no influence on the pendulum or gravity. The swing time of the pendulum is not determined by time. It just depends on gravity and the length of the pendulum. We can also examine clocks with a spiral spring, traditionally known as alarm clocks or wristwatches. The springs in these are sized for energy storage during production.

Time has no influence on the wound spring and the energy stored in it, these hours are not even affected by gravity. After that, we have to assume that what we invented to measure time is actually a virtual or personal time created by us. It has nothing to do with real-time. You either have real-time or you don't. The most important thing is that the time-measuring devices we examine are not affected by real-time or its changes. Our time measurement is only an aid for our calculations, for our lives. Thus, these clocks or time-measuring devices cannot detect the passage, acceleration, or deceleration of time. These devices certainly do not detect real-time changes. After that, let's look at the high-precision atomic clock. Today it is said to be the most accurate time-measuring device. Currently, we can only produce an atomic clock on Earth and in terrestrial environments. The atomic clock does not have a single component that is affected by time, and this should be taken into account in the design. The size of the cavity resonator is not affected by time. The frequency of the cesium atom does not depend on time either. We expect an atomic clock manufactured and put into operation in the earth's gravitational force field to behave exactly as if nothing had changed in its environment, even under other physically changed conditions. It is enough to operate it at different heights on Earth. If the atomic clock is operated at a higher place in the gravitational force field, it can already be shown on the ground that the clock is starting to speed up. The question here is also how time can affect this high-precision measuring device. Because we still don't know about the change of any physical quantity that would be caused by the acceleration or deceleration of time, the passage of time on Earth. And we could measure this or influence the atomic clock. In the present case as well, what changes in the circumstances is none other than the magnitude of the gravitational force field.

We do not yet know of any shielding against this. According to our current knowledge, gravity and its changes do not depend on the passage of time. In summary, our time-measuring devices are nothing more than beacons. Whatever clock we examine, the clocks count and show the signals they produce themselves, and we call this time measurement. Time does not give any signal or change that our watches can detect. Whether we are talking about mechanical or atomic clocks.

With these, we do not measure time but create a virtual time for ourselves. So talking about our timing devices sensing the passage of time, or slowing down and speeding up, is highly doubtful. We do not know of any component in either the mechanical clock or the atomic clock on which time has any influence. Place a pendulum clock and an atomic clock next to each other. I wonder how time can influence the two-time measuring devices so that they measure in contradiction to each other. One should speed up when the gravitational force field increases, while the other should slow down, close to each other. Real-time, if it exists, is not a real, physical quantity that cannot be measured by us.

SUMMARY

So, we have to say it no matter how unpleasant it is.

(1) Real-time is not a real physical quantity.

(2) With our watches, we can only produce virtual time, not real-time.

(3) We use this in our calculations, and in our lives.

(4) Clocks count only the signals they produce themselves.

(5) Real-time does not provide any signal that watches can detect.

(6) Clocks cannot indicate real time, because time is not a real physical quantity.

(7) It follows that it cannot be considered as a fourth dimension.

(8) The change and passage of real time cannot be measured with a clock.

(9) When the speed changes, the passage of virtual time does not change.

(10) The results of the theory of relativity, where the Lorentz transformation was used, are a dead end. The change in time cannot be measured with a clock. Time is not a measurable real physical quantity.

(11) What we call real-time today is nothing more than the number of events that have happened.

Therefore, the following questions are very relevant.

i. Can we measure time, or do we live in a virtual time?

ii. Does time exist or is it just a computational aid?

iii. What does it mean in physics if our time measurement does not measure time, but only gives signals or produces a series of events?

REFERENCE

Károly Simonyi. The cultural history of physics.