

Supreme Theory of Everything: Special Theory of Relativity Waslost from the Beginning

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Abstract:- The biggest theory in the XX century is the Special Theory of Relativity (SR), consequently, the General Theory of Relativity (GR), which has even now millions of followers and was accepted as a revolutionary theory of physics by the physical community. Special Relativity based on Lorentz transformation and Minkovski geometry forms the basis for the disciplines of Cosmology (the structure and origin of the Universe on the largest scales). A key postulate of special relativity is that the vacuum speed of light is the same for all observers. But the research aims to focus on how physics describes SR, which has some flaws from the beginning, and finally, to show its some alternative versions.

Keywords:- Lorentz-factor, Minkovski geometry, the same unit in space-time, the multiverse of the Special Relativity in different speed limits.

I. INTRODUCTION

We use mathematics to understand the Universe. but it is just a way to know the world. But we should not go after the math and expect results, but go ahead and use it. We worship mathematics and end get lost. There is an example. Theory of Relativity – Biggest Mistake of the 20th Century? [1] Maybe. I would like to show that the Theory of Relativity is not only the theory of the speed of light but all kinds of velocities in this paper.

I find that readers take umbrage at the suggestion that anything about relativity is flawed. [2]

“This paper is not an attack on relativity, but the contemplation of possible modifications of the theory that may soon occur due to technological advances as discussed in the paper. Today's scientists have substituted mathematics for experiments, and they wander off through equation after equation and eventually build a structure that has no relation to reality.” [3], [4]

Millennium relativity is a new theory in relativistic physics that replaces Einstein's special and general theories of relativity [5], but it includes always the formals of the Lorentz factor and Minkovski space-time.

The Theory of Relativity contains two important errors [6]:

- It describes reality by means of the wrong coordinate system – made up of spacetime dimensions that are not the actual dimensions that make up this reality, but only the directions in this reality misinterpreted by us as its dimensions. These directions are not constant but change

depending on the type of interactions between the particles and on the currently observed body.

- It accepts too broad an interpretation of the relativity of the motions, including also non-inertial motions.

These errors caused the mathematical description of physical reality to become too complex and resulted in limitations such as singularities. These errors are the source of problems, for example, with the Mach principle, or with the proof of Lorentz's transformation where, with clear evidence of the time dilation in the systems in motion, no equally convincing evidence of the relativistic length contraction was obtained. However, the adoption by the Theory of Relativity of a four-dimensional model of reality and transformational rules (admittedly not quite correct [6,7], but leading to conclusions, the majority of which were repeatedly tested experimentally), as well as the adoption of the principle of the relativity of motion (although in a slightly erroneous, overly extended form), was a significant change in the right direction and had a major impact on the development of science in the early 20th century. These errors, despite the resulting excessive complexity of the mathematical description and certain interpretation issues, did not have a significant impact on the correctness of most of the conclusions resulting from the Theory of Relativity, but they are a source of unnecessary complexity in the mathematical description of phenomena and pose significant limitations on the development of science, which under the model proposed by Einstein and Minkowski cannot be overcome and additionally represent the false shape of physical reality. I believe that at the moment, knowing the wave structure of matter, and the above-described effect on the concept of the perceived time and space, it is necessary to organize the Theory of Relativity and rewrite it in a new form. It is, therefore, difficult to give a clear answer to the question of whether the Theory of Relativity was the biggest mistake of the 20th century [1].

No doubt: Einstein's General Theory of Relativity Was Wrong [8].

In this paper, I would like to show some improprieties in the Theory of Relativity.

I like emphases Karl Popper's quota that there is no questioning their significance [scientists] and contribution to science, but it should always be remembered that even geniuses can be wrong.

II. THE STRUCTURE OF THE SPECIAL THEORY OF RELATIVITY IS MISLEADING

The structure of the Special Theory of Relativity (SR) consists of the Lorentz transformation, Minkovski geometry.

A. Lorentz-Transformation

With the help of LORENTZ transformations, it is possible to bring into alignment the location in space and time of various observers. However, Lorentz’s theory presupposed the existence of an ether. In his theory of relativity, Einstein began with the constancy of the speed of light, which enabled him to explain all the relevant phenomena. He also derived the Lorentz transformation underpinning Albert Einstein’s special theory of relativity, as well as the Lorentz force, which describes the combined electric and magnetic forces acting on a charged particle in an electromagnetic field. [9]

According to the biography published by the Nobel Foundation, "It may well be said that Lorentz was regarded by all theoretical physicists as the world’s leading spirit, who completed what was left unfinished by his predecessors and prepared the ground for the fruitful reception of the new ideas based on the quantum theory." [10].

The Lorentz factor(γ) [11] is the core of the Lorentz transformation as follows:

$$\gamma = \frac{1}{\sqrt{1-v_1^2/v_2^2}} (v_2 > v_1) \quad (1)$$

Where v_1 is the velocity of the moving object in the x-direction, v_2 is the registered highest velocity in relation to v_1 .

The Lorentz factor is a quantity expressing how much the measurements of time, length, and other physical properties change for an object while that object is moving. It gives the measurements related to v_1 that are limited by the higher speed v_2 in SR and GR. See Section 2.

The theories of Relativity as Special, General, and Millennium[5] use the expression of the Lorentz factor.

B. Minkovski Space-Time and The Used Unit

Euclidean geometry uses three axes perpendicular to the description of space and scales all three axes uniformly in meters. But it is not appropriate to use Euclidean geometry to describe nature, as this separates space and time. The coordinate system for special relativity used for his theories is based on the Minkovski geometry, the postulate that space and time have the same unit [12].

He then described his geometrical model of a non-Euclidean four-dimensional space-time, in which points with the coordinates (t; x; y; z) are events (time point t and space coordinates x, y, z), while sequences of points are world lines. The metric in this vector space is determined by the following scalar product of two event vectors: $(ct_1)(ct_2) + x_1x_2 + y_1y_2 + z_1z_2$, where c is the speed of light.

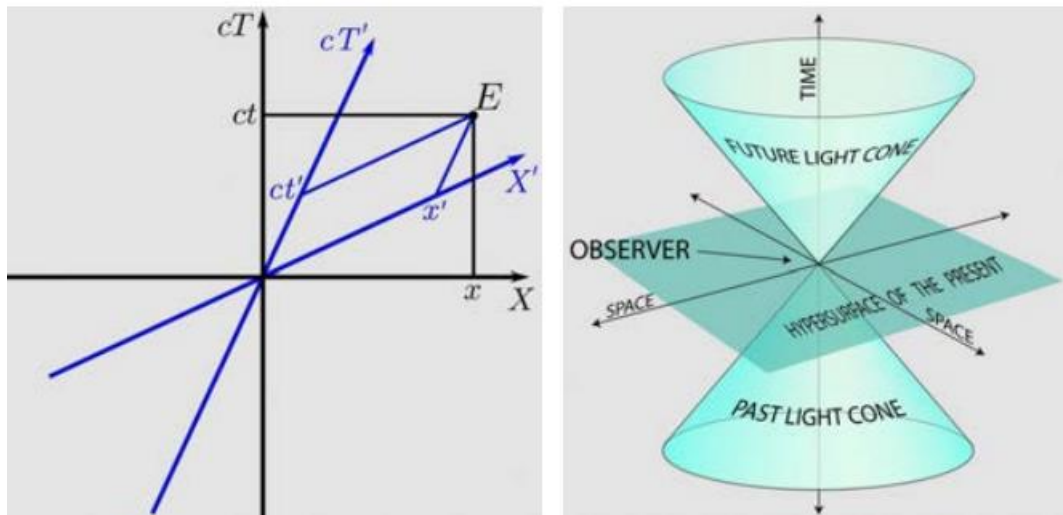


Fig. 1: Light cones for future and past time in Minkovski geometry [12]

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By 1908 Minkowski realized that the special theory of relativity, introduced by his former student Albert Einstein in 1905 and based on the previous work of Lorentz and Poincaré, could best be understood in a four-dimensional space known as the "Minkowski spacetime", in which time and space are not separated entities but intermingled in four-dimensional space-time, and in which the Lorentz geometry of special relativity can be effectively represented using the invariant interval [13,14].

For the sake of visualization, he developed a diagram in which the space coordinates are represented by a single axis (left-hand diagram). With the help of this simplification, it is possible to understand seemingly paradoxical phenomena such as time dilation and length contraction.

With the help of a three-dimensional representation of the light double cone (right-hand figure), he clarified what

past and future mean from the point of view of an observer. [12]

Hermann Minkowski was one of the professors of Albert Einstein. In 1907, he thought that the Special Relativity presented algebraically by Einstein, could also be understood geometrically as a theory of four-dimensional space-time. Einstein himself at first viewed Minkowski's treatment as a mere mathematical trick, before eventually realizing that a geometrical view of space-time would be necessary to complete his later work in general relativity (1915). [13]

The beginning point of any scientific research is the selection of the coordinate system.

In contrast, with a historically false-rooted approach, space and time must be treated and illustrated in a close unit and at the same distance (for example, in meters). Hermann Minkowski showed how to draw spaces in his 1909 article entitled "Space and Time". [14]

It is primarily a reflection of the fact that we humans established our systems of units long before we stumbled upon relativity theory. [15] What does that mean?

Minkovski used 4 mutually perpendicular axes (length, width, height, and time) because space-time is four-dimensional. All 4 axis shall be scaled in the same unit of measure; the measurement and scaling take place in meters. The time was measured in seconds. How to measure time in meters? Very simple. Let's express the time t in question in meters. How long does a beam of light travel at a constant speed during our traditional time t*? The length of the path can be measured in meters. This is because the speed of light in a vacuum is approximately $c = 3 \cdot 10^8$ meters, so the time of conventional measurement can be determined in meters.

$$t = c \cdot t^* (m) [16] \quad (2)$$

Why should space and time be the same unit?

III. SPECIAL RELATIVITY IN DIFFERENT SPEED LIMITS

As a consequence of using Lorentz-Transformation and Minkovski geometry in the description of the Theories of Relativity, there may exist so many alternative versions.

A. Light Propagation in Vacuum

Einstein thought that the speed of light is an ultimate limit of velocity and he used consequently the Lorentz transformation in the platform of Minkovski geometry. For this reason, his theories are flawed. The consequence of SR is GR. So, if SR misleads, the GR has flaws.

In the case of the light, we know the next expressions (2-13):

Mean postulate of the SR is the constant speed of light in a vacuum:

$$c = 299,792,458 \text{ m/s} \approx 3 \cdot 10^8 \text{ m/s}$$

$$\delta = \frac{v}{c} \quad (3)$$

Where δ is the ratio between the velocity (v) of the object and the speed of light.

Based on δ the next expressions have been described for the Special Relativity.

- Time dilation:

$$\Delta t = \frac{\Delta t_0}{\left(1 - \frac{v^2}{c^2}\right)^{1/2}} \quad (4)$$

- Length contraction:

$$L = L_0 \left(1 - \frac{v^2}{c^2}\right)^{1/2} \quad (5)$$

- A mass m moving with speed v has relativistic energy E and momentum p, given by Relativistic energy:

$$E = \frac{mc^2}{\left(1 - \frac{v^2}{c^2}\right)^{1/2}} \quad (6)$$

- Relativistic momentum:

$$p = \frac{mv}{\left(1 - \frac{v^2}{c^2}\right)^{1/2}} \quad (7)$$

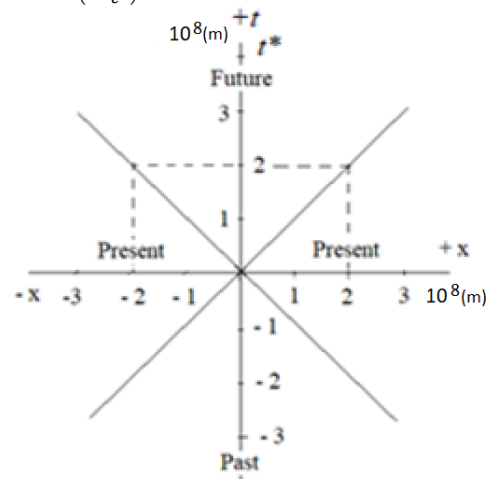


Fig. 2: Lightcones in Minkovski geometry and its space-time causality in the speed of light [16]

The proper time of SR is written in the next Equation (7) and Figure 3:

$$\tau^2 = t^2 - x^2 \quad (8)$$

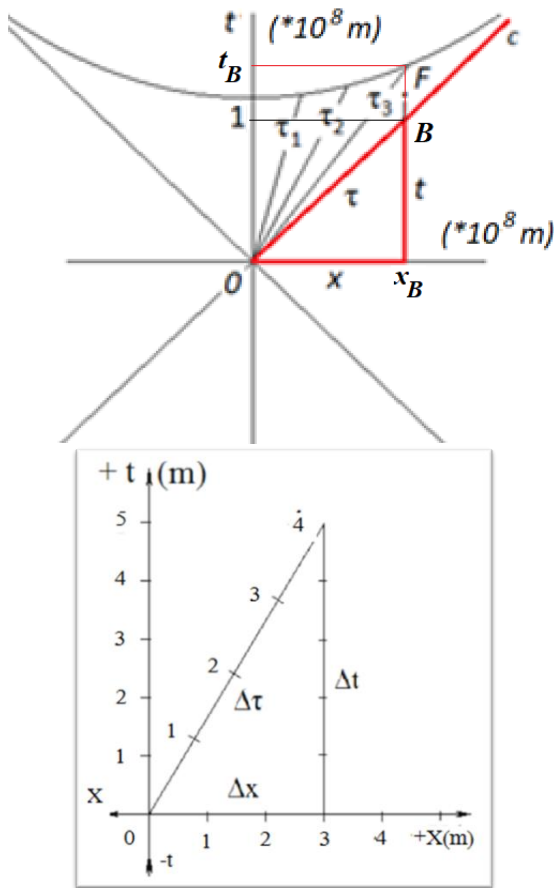


Fig. 3: a) Light cones and worldlines and b) Proper time in spacetime [16]

$$x_B = \Delta\tau \cdot sh(\theta) [m] \quad (9)$$

$$t_B = \Delta\tau \cdot ch(\theta) [m] \quad (10)$$

$$sh(\theta) = \frac{e^\theta - e^{-\theta}}{2} = \frac{\beta}{\sqrt{1-\beta^2}} \quad (11)$$

$$ch(\theta) = \frac{e^\theta + e^{-\theta}}{2} = \frac{1}{\sqrt{1-\beta^2}} \quad (12)$$

$$\delta = th(\theta) = \frac{e^\theta - e^{-\theta}}{e^\theta + e^{-\theta}} \quad (13)$$

B. Special Relativity in Sound Propagation in non-vacuum medium

The speed of sound in the air mainly depends on the temperature of the air. On average, it is about 343 meters per second (1,125 feet per second). We could write the next Figure 4 and Formulas for indication of the Lorentz-factor's influence in case the sound could travel in a vacuum.

The sound can build similar principles to the Special Theory of Relativity as shown in Formulas (14-18). For example, the sound cones are shown in Figure 4.

Speed of sound in air: $v_{sound} = 343 \text{ m/s}$. The length of the path can be measured also in meters, so the time of conventional measurement can be determined in meters.

$$t = v_{sound} \cdot t^* (m) \quad (14)$$

Formula (14) and Figure 4 show the Special Theory of Relativity in the case of sound speed. Consequently, we can derive the General Theory of Relativity in sound speed same as Einstein's theories.

In the case of the sound, we could know the next expressions

- Time dilation:

$$\Delta t = \frac{\Delta t_0}{\left(1 - \frac{v^2}{v_{sound}^2}\right)^{1/2}} \quad (15)$$

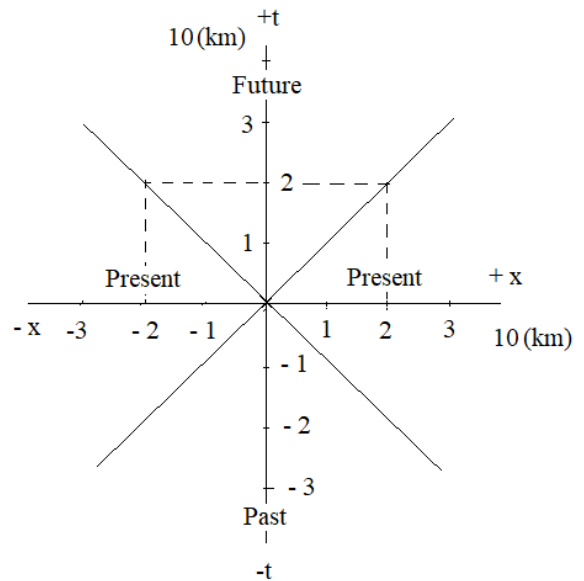


Fig. 4: Sound cones in Minkovski space-time

- Length contraction:

$$L = L_0 \left(1 - \frac{v^2}{v_{sound}^2}\right)^{1/2} \quad (16)$$

A mass m moving with speed v has relativistic energy E and momentum p , given by

- Sound energy:

$$E = \frac{mv_{sound}^2}{\left(1 - \frac{v^2}{v_{sound}^2}\right)^{1/2}} \quad (17)$$

- Sound momentum:

$$p = \frac{mv}{\left(1 - \frac{v^2}{v_{sound}^2}\right)^{1/2}} \quad (18)$$

Over the speed of sound is invalid above formulas. Fortunately, the supersonic missiles have been built already.

C. Special Relativity in Exceedingly High Speed Over Light
Similarly, why do we deny speed faster than the speed of light?

Lorentz-factor can work also at exceedingly high speed over light if it is possible. For example, supposing $v_m = 3,000,000 \text{ km/sec}$.

So, the time of conventional measurement can be determined in meters.

$$t = v_m \cdot t^* (m) \tag{19}$$

Figure 5 is the same in any case of speed. The theories of Special Relativity and General Relativity are based on the speed of light. And we can follow the formula extractions, figures, consequences, and conclusions that wrote in his theories (Equations 19-24). We will see future and past sound cones like light cones.

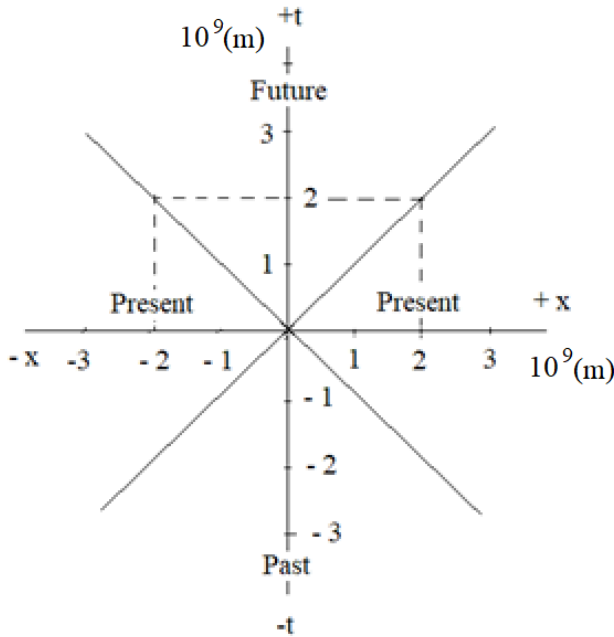


Fig. 5: Light cones at an exceedingly high speed over light

Relativistic Mass:

$$m = m_0 \cdot \frac{1}{\sqrt{1 - \frac{v^2}{v_m^2}}} \tag{20}$$

Where m is the change of mass, m_0 is original mass, v is velocity and v_m is an exceedingly high speed over light.

Relativistic time dilation:

$$t = t_0 \cdot \frac{1}{\sqrt{1 - \frac{v^2}{v_m^2}}} \tag{21}$$

Where t is the change of time, t_0 is rest time.

Relativistic length contraction:

$$L = L_0 \cdot \sqrt{1 - \frac{v^2}{v_m^2}} \tag{22}$$

Where L is the change of length, L_0 is the original length

Relativistic energy:

$$E = \frac{mv_m^2}{\sqrt{1 - \frac{v^2}{v_m^2}}} \tag{23}$$

Relativistic momentum

$$p = \frac{mv}{\sqrt{1 - \frac{v^2}{v_m^2}}} \tag{24}$$

There is some observational evidence of a higher speed than the speed of light. An energy beam that stabs out of galaxy M87 like a toothpick in a cocktail olive is pulling off the ultimate magic trick: seeming to move faster than the speed of light. Almost five times faster as measured by the Hubble Space Telescope. This feat was first observed in 1995 in galaxy M87 and has been seen in many other galaxies since. It might have you questioning your entire reality. Nothing can break the cosmic speed limit, right? You can't just flaunt the laws of physics... can you? [17-19]

July 19, 2000 -- Scientists have apparently broken the universe's speed limit. [20]

D. Relativity of Human Speed

Drawing two perpendicular axes in the same unit results in a singular value at an angle of 45 degrees in the graph. For example, Usain Bolt is the fastest man in the world. If we plot the distance and time it travels in the same units, we get its relativity (Equation (25)). His Lorentz factor seems to be in the following form.

$$\gamma = \frac{1}{\sqrt{1 - v_{civilian}^2/v_{Usain Bolt}^2}} \tag{25}$$

There are many such examples. The world line of Usain Bolt is at 45 degrees, but mine is surrounding the t -axis.

To sum up the considerations so far, we can conclude that Special Relativity is invalid.

The math is the same, either way in the Special Theory of Relativity, consequently General Relativity and Millenium Relativity. According to the Supreme Theory of Everything, the Lorentz-Factor and Expressions of Special Theory of Relativity have also some singularities [24-25].

$$\gamma = \lim_{v_1 \rightarrow v_2} \frac{1}{\sqrt{1 - v_1^2/v_2^2}} = \frac{1}{0} = \left\{ \begin{matrix} 1 \\ \infty \end{matrix} \right. \tag{26}$$

$$t = t_0 \cdot \lim_{v_1 \rightarrow v_2} \frac{1}{\sqrt{1 - v_1^2/v_2^2}} = \left\{ \begin{matrix} t_0 \\ \infty \end{matrix} \right. \tag{27}$$

$$m = m_0 \cdot \lim_{v_1 \rightarrow v_2} \frac{1}{\sqrt{1 - v_1^2/v_2^2}} = \left\{ \begin{matrix} m_0 \\ \infty \end{matrix} \right. \tag{28}$$

$$L = L_0 \cdot \lim_{v_1 \rightarrow v_2} \left(\sqrt{1 - v_1^2/v_2^2} \right)^{1/2} = 0 \tag{29}$$

When $v_1 = v_2$, the Lorentz-factor has two solutions: $\frac{1}{0} = \left\{ \begin{matrix} 1 \\ \infty \end{matrix} \right.$ [25]. There is no time dilation ($\frac{t_0}{0}$) is equal to t_0 , because time doesn't cut (not change). Second, no time dilation ($\frac{t_0}{0} = \infty$), because the motion is infinitely cyclic (periodic). The mass (m) looks like the principle of time (t). Also, there is no length contraction $L = L_0$.

What means that while $v_1 < v_2$, the SR is right, but latest moment $v_1 = v_2$, the SR is wrong?

The speed of light equals itself. The speed of Usain Bolt is 9.58 seconds in 100 meters. It is no relativity. Motion is relative, the vacuum speed of light, however, is absolute. In the other words, the speed of a civilian is relative, but the speed of Usain Bolt is absolute.

The relativity speed is in absolute speed.

IV. CONCLUSION

Lorentz's transformation describes not only the limited speed of light but all kinds of speed. Minkowski geometry is driven by mathematics and detached from reality because it used the same unit for space and time. Euclidean geometry is real.

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