No Sense of Einstein's Principles of Relativity and the Origin of a New Relativity

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ABSTRACT

Based on the analysis "The change of time under the action of a gravitational field, with different heights reference frames at rest", it is indicated that space does not contract. We are then obliged to analyze the founding principles of Einstein's theory of relativity, time dilation and space contraction in the direction of displacement, two structural pillars of the theory of relativity.

We found problems in the model that studies the contraction of space in the direction of displacement. A space contraction K in the displacement/movement direction is entered to calculate time in the stationary frame, after it is accepted that the K is in the moving reference frame. Making the model rational, we conclude the opposite, that there is an expansion of space in the direction of displacement. We also verified that in the Michelson-Morley experiment the same error mentioned above is made and we conclude that it does not respect the principle of time dilation. In turn, as when calculating the time, we verify that this is dependent on the speed at which the object is moving, so the interference spectrum should undergo oscillations, which has never been registered. Finally, we decided to take a closer look at the meaning of the expression of time dilation, concluding once again that space does not contract, that the measured values for velocities are inversely proportional to the frame's time, thus creating the principle that space traversed by "light" in the equivalent times of all reference frames is constant. We have a new way of looking at physics, which will give rise to a new theory of relativity.

(Keywords: relativity, space, time, universe, potential, gravitational, velocity, energy, mass)

INTRODUCTION

Time is under the action of a gravitational field, in different reference frames at rest. In this analysis we will respect the current theory.

The Model

Schwarzschild came to propose the relativity of time between two reference frames stopped at different heights. We propose the relativity of time between the frame A located on the surface, of the mass M, with a radius R_A and another frame C on the limit of the gravitational field, $R_C = \infty$.

This expression is part of the calculation of time on satellites. The relativity of time between points A and C, will be given by:

$$t_A = \sqrt{1 - \frac{2GM}{R\,C^2}}\; t_C \qquad \textbf{(1.1)}$$

The same of:

$$t_A = \sqrt{\frac{C^2 - \frac{2GM}{R_A}}{C^2}}\; t_C \qquad \textbf{(2.1)}$$

Where:
G- Universal gravitational constant.
R_A – Distance between the reference frame A and the center of the mass M, its radius.
M - Mass.
C^2 – Potential energy of "light" in reference frame A.
t_A – Time in reference frame A.
t_C – Time in reference frame C.

$$U_A = C^2 \qquad \textbf{(3.1)}$$

A "light" signal emitted in A will reach C with a potential:

$$U_C = C^2 - \frac{2GM}{R_A} \quad \textbf{(4.1)}$$

From Equation (3.1) considering Equation (2.1) and Equation (4.1), we have:

$$t_A = \sqrt{\frac{U_C}{U_A}}\ t_C \quad \textbf{(5.1)}$$

$$\frac{t_C}{t_A} = \sqrt{\frac{U_A}{U_C}} \quad \textbf{(6.1)}$$

From Equation (6.1), the time in two different stationary frames is inversely proportional to the square root of the "light" energy in these frames, so it will also be inversely proportional to the square root of the square of the "light" speed.

Since the times t_A and t_C are different, then U_A and U_C will also have to be different.

$$U_A = {C_A}^2 \quad \textbf{(7.1)}$$

$$U_C = {C_C}^2 \quad \textbf{(8.1)}$$

$$\frac{t_A}{t_C} = \sqrt{\frac{{C_C}^2}{{C_A}^2}} \quad \textbf{(9.1)}$$

$$\frac{t_A}{t_C} = \frac{C_C}{C_A} \quad \textbf{(10.1)}$$

$$C_A\ t_A = C_C\ t_C \quad \textbf{(11.1)}$$

This is the space traveled by the "light" in the reference frame C, L_C and in reference frame A, L_A.

$$L_A = L_C \quad \textbf{(12.1)}$$

Once again, it turns out that space does not contract.

From Eq. (10.1):

$$C_C = C_A \frac{t_A}{t_C} \quad \textbf{(13.1)}$$

The speed of "light" will then be inversely proportional to the equivalent times of each referential frame.

From Equation (12.1), during the equivalent time of all the references, the space covered by the "light"

<u>Given these values obtained, we are obliged to revisit Einstein.</u>

THE DILATION OF THE TIME, AND SPACE CONTRACTION.

<u>Time Dilation</u>

Einstein's proposed "Mirror Method".

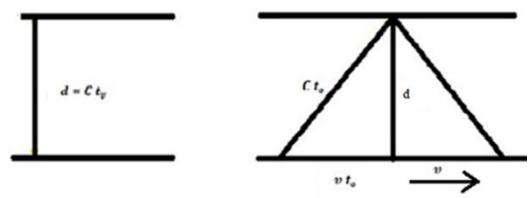

Figure 1: Mirrors - Vertical Emission.

$$\frac{t_v}{t_o} = \sqrt{\frac{C^2 - v^2}{C^2}} \quad \textbf{(1.2)}$$

The expression that gives us the dilation of time is found in a moving reference v relative to time in the stopped reference frame. This value has already been confirmed in particle accelerators.

<u>Space/Object Contraction</u>

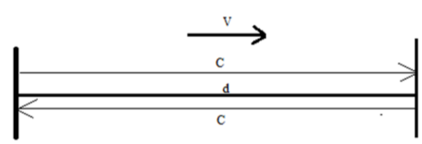

Figure 2: Mirrors – Horizontal Displacement.

Reference frame A ; v

We are within the moving reference frame. The conscience we have is that we are stopped.

$$t_v = \frac{2d}{C} \quad \textbf{(2.2)}$$

$$2d = t_v\ C \quad \textbf{(3.2)}$$

Reference frame B; v=0

We are now in the stopped reference frame, looking at the moving reference frame.

$$t_{o1} = \frac{d}{C+V} \quad \textbf{(4.2)}$$

$$t_{o2} = \frac{d}{C-V} \quad \textbf{(5.2)}$$

$$t_o = t_{o1} + t_{o2} \quad \textbf{(6.2)}$$

$$t_o = \frac{d}{C+V} + \frac{d}{C-V} \quad \textbf{(7.2)}$$

$$t_o = \frac{2dC}{C^2-v^2} \quad \textbf{(8.2)}$$

The relativity of time will come from:

$$\frac{t_v}{t_o} = \frac{\frac{2d}{C}}{\frac{2dC}{C^2-v^2}} \quad \textbf{(9.2)}$$

$$\frac{t_v}{t_o} = \frac{C^2-v^2}{C^2} \quad \textbf{(10.2)}$$

This value is different from the value found in Equation (1.2).

It was this difference found that caused Einstein to introduce a correction factor K in order to achieve equality.

Changing the Length of the Object when Calculating Time in a Stopped Reference Frame

If we consider that in this stopped reference frame we observe in motion the lengths change, we will have, from Equation (8.2):

$$t_o = \frac{2dKC}{C^2-v^2} \quad \textbf{(11.2)}$$

From Equation (3.2):

$$t_o = \frac{(t_v C)\, KC}{C^2-v^2} \quad \textbf{(12.2)}$$

$$k = \frac{C^2-v^2}{C^2}\,\frac{t_o}{t_v} \quad \textbf{(13.2)}$$

$$k = \frac{C^2-v^2}{C^2}\sqrt{\frac{C^2}{C^2-v^2}} \quad \textbf{(14.2)}$$

$$k = \sqrt{\frac{C^2-v^2}{C^2}} \quad \textbf{(15.2)}$$

When we are in B and observe the moving object, we conclude that the length of the object is reduced by the coefficient K in relation to the measured length when we are in the frame in motion in the direction of displacement.

As far as is known, this phenomenon has never been observed. There is no news that, when we look at a moving object, from a stopped frame, it shrinks.

On the other hand, if the moving object shrinks for those who look at it from a stopped frame, this indicates that it shrinks in relation to the length measured in the moving frame. Since k is introduced as a factor in the second term of the equation, it indicates that the length in the moving frame is constant, since no factor is introduced in the first member of the equation.

Not introducing the K factor in the first member is assuming that the length in the moving frame is always constant. This conclusion drawn from the model proposed by Einstein is contrary to what he proposes. Einstein proposes exactly the opposite, that in the referential in motion, the space / object contracts in the direction of the displacement of the referential in movement.

We cannot obtain the time t_0 of the stopped frame with the coefficient and $\mathrm{K(v)}$ of the length contraction in the direction of the displacement of the moving frame. We are not in a moving reference frame we are observing the moving frame of a stopped reference frame.

The Experience of Time Dilation Based on a Platform.

Einstein's proposed "Mirror Method": Imagine two "light" signals emitted and reflected on the ceiling vertically, simultaneously at the two opposite ends of the moving platform. If the contraction of the platform were based on the midpoint of the platform, both signals would go to the ceiling and fall off the platform. If the contraction occurred at the edge of the platform, the “light” signal emitted on the opposite side would fall off the platform. This is one more reason why the contraction of objects does not make sense.

Changing the Length of the Object when Calculating Time in a Moving Reference Frame

We should consider that K in the moving frame.

$2dK = t_v$ C **(16.2)**

$2d = \frac{t_v C}{k}$ **(17.2)**

$t_o = \frac{2dC}{C^2-v^2}$ **(18.2)**

$t_o = \frac{\frac{t_v C}{k}C}{C^2-v^2}$ **(19.2)**

$\frac{t_v}{t_o} = k\,\frac{C^2-v^2}{C^2}$ **(20.2)**

$k\,\frac{C^2-v^2}{C^2} = \sqrt{\frac{C^2-v^2}{C^2}}$ **(21.2)**

$k = \sqrt{\frac{C^2}{C^2-v^2}}$ **(22.2)**

To make sense, the expansion of objects in the reference frame in motion in the direction of this displacement should be considered.

SUMMARY

The basic principle of Einstein's theory of relativity tells us that in the direction of displacement it concludes by a contraction of length.

An impossibility was proposed to us, simultaneously the time t_o for the stopped frame and the K(v) coefficient of contraction of the lengths in the direction of displacement for the moving frame. The frame cannot be stopped and moving at the same time. This observation doesn't make any sense. The careful analysis made in this document contradicts this principle of Einstein's relativity.

Through the models proposed by Einstein, we could only conclude that the objects expand in the direction of displacement of the mobile reference frame.

MICHELSON-MORLEY EXPERIENCE.

We will simplify the equation to facilitate the calculation.

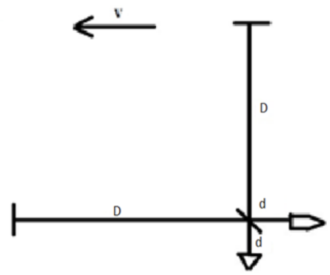

Figure 3: Michelson-Morley – Orthogonal.

We have:

In the direction of displacement.

$t_1 = \frac{kd}{C-V}$ **(1.3)**

$t_2 = \frac{kD}{C-V}$ **(2.3)**

$t_3 = \frac{kD}{C+V}$ **(3.3)**

$t_4 = \frac{d}{\sqrt{C^2-v^2}}$ **(4.3)**

$t_h = \frac{kd}{C-V} + \frac{kD}{C-V} + \frac{kD}{C+V} + \frac{d}{\sqrt{C^2-v^2}}$ **(5.3)**

$t_h = \frac{2D+2d+d\frac{V}{C}}{\sqrt{C^2-v^2}}$ **(6.3)**

in the direction perpendicular to the displacement.

We will make the same type of error as the model proposed by Einstein, or vice versa, if the value of K referring to the contraction of the object in the direction of displacement in the calculation of the time of the stopped frame.

$t_1 = \frac{kd}{C-V}$ **(7.3)**

$t_2 = \frac{D}{\sqrt{C^2-v^2}}$ **(8.3)**

$t_3 = \frac{D}{\sqrt{C^2-v^2}}$ **(9.3)**

$t_4 = \frac{d}{\sqrt{C^2-v^2}}$ **(10.3)**

$t_{vt} = t_h = \frac{kd}{C-V} + \frac{2D}{\sqrt{C^2-v^2}} + \frac{d}{\sqrt{C^2-v^2}}$ **(11.3)**

$t_{vt} = \frac{2D+2d+d\frac{V}{C}}{\sqrt{C^2-v^2}}$ **(12.3)**

$t_{vt} = t_h = t_0$ **(13.3)**

The time it takes for the light to travel the orthogonal paths is the same. The times, although the same, depend on V. This dependence would cause a change in the spectrum of interference in the arrival sensor. This was never suggested.
For V=0:

$$t_v = \frac{2(D+d)}{c} \quad \textbf{(14.3)}$$

The relativity of the times:

$$\frac{t_v}{t_0} = \frac{\frac{2(D+d)}{c}}{\frac{2D+2d+d\frac{V}{C}}{=\sqrt{c^2-v^2}}} \quad \textbf{(15.3)}$$

$$\frac{t_v}{t_0} = \frac{2D+2d}{2D+2d+d\frac{V}{C})}\sqrt{\frac{c^2-v^2}{c^2}} \quad \textbf{(16.3)}$$

$$\sqrt{\frac{c^2-v^2}{c^2}} = \text{K} \quad \textbf{(17.3)}$$

$$\frac{t_v}{t_0} = \frac{D+d}{D+d+d\frac{V}{2C}}\sqrt{\frac{c^2-v^2}{c^2}} < \text{k} \quad \textbf{(18.3)}$$

$$\frac{t_v}{t_0} = \frac{1}{1+\frac{V}{4C}}\sqrt{\frac{c^2-v^2}{c^2}} < \text{k} \quad \textbf{(19.3)}$$

Michelson Morley's experiment does not respect the relativity of times calculated in the expression of time dilation in a moving body, v> 0. The higher V, the lower the value obtained for the relativity of time $\frac{t_v}{t_0}$.

We get the time, t_o , in the stopped reference and the K, coefficient of object contraction, L_v , of a moving reference.

We cannot simultaneously obtain the time in a stopped frame by introducing a K for a moving frame.

WHAT IS THE MEANING OF THE EXPRESSION OF TIME DILATION

The expression is known and already verified in reality in experiments on particle accelerators. Since our reference frame 0 is at rest and V is the reference frame in motion relative to 0, will we have:

$$\frac{t_V}{t_0} = \sqrt{\frac{C^2-V^2}{C^2}}$$

Where:
t_0 – The time in our reference frame 0.
C – The speed of "light" in our reference frame, which here we now characterize as C_0.
V- Velocity measured in our reference frame, which we characterize by V_0.
t_V – The time in the reference frame in motion.

$$\frac{t_V}{t_0} = \sqrt{\frac{{C_0}^2-{V_0}^2}{{C_0}^2}} \quad \textbf{(1.4)}$$

The values we know in our reference are time, the speed of displacement of the object and the speed of "light". We can calculate the space covered by "light" in our reference frame. L_0, obtained by:

$$L_0 = t_0 C_0 \quad \textbf{(2.4)}$$

From Equation (1.4), we have:

$$t_0 = t_V \sqrt{\frac{{C_0}^2}{{C_0}^2-{V_0}^2}} \quad \textbf{(3.4)}$$

$$t_0 C_0 = t_V\, C_0\sqrt{\frac{{C_0}^2}{{C_0}^2-{V_0}^2}} \quad \textbf{(4.4)}$$

If in the first member we have the space covered by "light" in our stopped reference frame, in the second member we can only have the space covered by "light" in the reference frame in motion.

The factor in the second member cannot affect the time in the mobile frame, which would not make sense as this is the unit of your time. Therefore, the dimensionless factor can only be related with the speed of "light" in the moving reference frame. In the second member we have the product of time by the velocity which is expressed by:

$$(C_0\sqrt{\frac{{C_0}^2}{{C_0}^2-{V_0}^2}}).$$

As $\frac{{C_0}^2}{{C_0}^2-{V_0}^2} > 1$ for v>0, then the velocity

$C_0\sqrt{\frac{C_0{}^2}{C_0{}^2-V_0{}^2}} > C_0$, the speed measured in the moving frame is greater than the speed of "light" measured in our frame. This speed can only be the speed of "light" measured in the moving reference frame.

If in the first member we have the space traveled by the "light" in our reference frame L_0, then in the second member we can only have the space traveled by the "light" in the moving reference frame L_V.

$$t_0 C_0 = t_V C_V \qquad \textbf{(5.4)}$$

$$L_0 = L_V C_0\sqrt{\frac{C_0{}^2}{C_0{}^2-V_0{}^2}} \qquad \textbf{(6.4)}$$

It indicates that the space does not contract and the speed of "light" in the moving reference frame C_V, is given by:

$$C_V = C_0\sqrt{\frac{C_0{}^2}{C_0{}^2-V_0{}^2}} \qquad \textbf{(7.4)}$$

$$C_V = C_0\frac{t_0}{t_V} \qquad \textbf{(8.4)}$$

$$C_V\, t_V = C_0 t_0 \qquad \textbf{(9.4)}$$

The same of Equation (5.4). Space cannot contract.

CONCLUSION

From what, has been analyzed, the principle that the speed of "light" is constant in all references does not seem right. The principle to keep in mind is:

The space traveled by "light", in the equivalent times of all reference frames, is always constant.

On the other side, it is concluded that the measurement of the speed of "light", as well as any velocity, is inversely proportional to the respective equivalent times of the reference frames.

$$C_V = C_0\frac{t_0}{t_V}$$

$$V_V = V_0\frac{t_0}{t_V}$$

There is no contraction of space in the direction of displacement. We have a different relativity than we've had so far.

$$L_v = L_0$$

INTRODUCTION TO NEW RELATIVITY

Energy Quantum Mechanics

E – Unit energy
h - Planck's constant
$\sqrt{}_0$ – Frequency
T – Period (time).

$$E_0 = h\sqrt{}_0 \qquad \textbf{(1.6)}$$

$$E_0 = \frac{h}{T_0} \qquad \textbf{(2.6)}$$

$$w\, t_0 = T_0 \qquad \textbf{(3.6)}$$

$$E_0 w\, t_0 = h \text{ (Planck's const.)} \qquad \textbf{(4.6)}$$

$$E_0\, t_0 = K \qquad \textbf{(5.6)}$$

$$E_{v,t}\, t_{v,t} = K \qquad \textbf{(6.6)}$$

$$E_{v,t}\, t_{v,t} = E_0\, t_0 \qquad \textbf{(7.6)}$$

$$E_{v,t} = E_0\frac{t_0}{t_{v,t}} \qquad \textbf{(8.6)}$$

Which confirms the relativity of energy from the theory of traditional relativity.

$$m_{v,t} C_{v,t}{}^2\, t_v, t = m_0 C_0{}^2\, t_0 \qquad \textbf{(9.6)}$$

From Equation (9.4), $C_v\, t_v = C_0\, t_0$, because the space traversed by light is always the same at all equivalent times of all reference frames.

$$m_v C_v = m_0 C_0 \qquad \textbf{(10.6)}$$

The linear moment is always the same in all reference frames.

$$m_{v,t} = m_0\frac{C_0}{C_{v,t}} \qquad \textbf{(11.6)}$$

$$m_{v,t} = m_0\frac{t_{v,t}}{t_0} \qquad \textbf{(12.6)}$$

When the velocity tends to C then the mass tends to 0, i.e., it turns into energy, which makes perfect sense.

In addition to the above, it is verified that atoms/objects contract in inverse proportion to the expansion of the universe, look at Ref. [1. Point 2.1]

Over time t

In the future, time will shrink in inverse proportion to the square root of the universal expansion and the standard meter will shrink in inverse proportion to the expansion.

Metric Unit

If we consider our material metric unit it will happen that it will shrink as described here.

ρ – Universal Density of potential energy.
$_0$ – Current value
$_t$ – Value, in time
I – Age of the Universe, , look at Ref. [1. Point 6].

$$L_t = L_0 \frac{\rho_t}{\rho_0}$$

If we adopt the meter taking into account the speed of light, such as:

The relativity of time, from Ref. [1. Point 2.2.]

$$\frac{t_t}{t_0} = \sqrt{\frac{\rho_0}{\rho_t}}$$

Speed of Light

$$C_t = C_0 \frac{t_0}{t_t}$$

$$C_t = C_0 \sqrt{\frac{\rho_t}{\rho_0}}$$

Length

$$L_t = L_0 \frac{C_t}{C_0}$$

$$L_t = L_0 \frac{C_0\sqrt{\frac{\rho_t}{\rho_0}}}{C_0}$$

$$L_t = L_0 \sqrt{\frac{\rho_t}{\rho_0}}$$

The meter over time will be smaller.

To avoid this continuous variation in the value of the meter unit, we are of the opinion that it should be maintained for a significant period of years equal to the initial value, both physical and spatial, in order to ensure that at least the spatial distances are always evaluated with the same magnitude of length and lessening the impact of the calculation of expressions in which the meter intervenes.

After the pre-defined period, the meter unit is increased.

Constants

Planck's constant
$h_t = h_0$

Fine structure constant

$$\alpha_t = \frac{U_{0o}\frac{t_0}{t_t}e_o{}^2(\frac{t_t}{t_o})^2 C_0 \frac{t_0}{t_t}}{2h_0} = \frac{U_{0o}e_o{}^2 C_0}{2h_0} = \alpha_0$$

Rydberg constant

$$R_{\infty t} = \frac{\alpha_0{}^2 m_0 (\frac{t_t}{t_o})^2 C_0 \frac{t_0}{t_t}}{2h_0} = = \frac{\alpha_0{}^2 m_0 C_0}{2h_0} = R_{\infty o}$$

Variables

Mass

$$m_t = m_0 \frac{t_t}{t_0}$$

Gravitational Variable

$$G_t = G_0 \frac{t_0}{t_t}$$

Acceleration

$$a_t = a_0 (\frac{t_0}{t_t})^2$$

Gravity

$$g_t = g_0 (\frac{t_t}{t_o})^4$$

Force

$$F_t = F_0 \frac{t_0}{t_t}$$

Weight

$$P_t = P_0 (\frac{t_t}{t_o})^5$$

Magnetic Permeability

$$U_{0t} = U_{0o} \frac{t_0}{t_t}$$

Magnetic Permittivity

$$\varepsilon_{0t} = \varepsilon_{0o} (\frac{t_t}{t_o})^3$$

Coulomb Force Constant

$$\frac{1}{4\pi\varepsilon_0} = \frac{1}{4\pi\varepsilon_0} (\frac{t_0}{t_t})^3$$

Boltzmann Constant

$$k_t = k_o \frac{t_0}{t_t}$$

Energy of Hartree

$$E_{ht} = 2R_{\infty o} h_0 C_0 \frac{t_0}{t_t} = = E_{ho} \frac{t_0}{t_t}$$

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