Relative or Absolute?

Theory of the Absolute, supplemental

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1. Introduction

Does the relativity of motion represent the most defining feature of our Universe? Or is it only a facet, a partial interpretation of a reality that hides different rules and a totally new fundamental mechanism?

Wherever we would gaze into the vastness of space, a lot of cosmic bodies (stars, galaxies, planets) can be seen moving continuously, each one relative to all the others. We cannot pinpoint one of these bodies and say that we found a truly fixed point in space; therefore, it is easy to state that the relativity of motion must be a given of our universe. Consequently, the Theory of Relativity (special) should be able to decipher all the mysteries of motion and to formalize all the laws of physics related to this subject.

However, based on the current model of our universe's birth, the Theory of the Absolute has identified an absolute "point" within this vast expanse of space and tries to harmonize the two interpretations of the cosmic symphony. It starts from the same simple premise, namely the speed of light is a universal constant. As it was previously stated in my Prime Theory series, the intergalactic space (the regions of space that are far away from any cosmic object) provides an ideal, uniform framework in which the movement of a body or of a simpler granular structure can have any absolute speed - up to the maximum value **c**. This limitation also applies to fields and photons of any kind, being determined by the intrinsic characteristics of the spatial granular fluid.

But things are more complex than that, check out Chapter 11 of [3] - "A unique reality". The presence of a body with significant mass (planet, moon, star) produces an important perturbation (sub-quantum fluctuations) to all the gravitational fluxes in the neighborhood and changes the characteristics of space within a large radius around. Practically, this creates a new granularization (on a larger scale) of the spatial fluid from the big sphere circumscribed to the cosmic object, imprinting this whole region with a special feature of *local absolute*. If a certain cosmic area is populated by several cosmic bodies, there will be the same number of regions (separate or overlapping) with absolute features and each region will follow the trajectory of its source and will inherit its rotational movements.

Once we come very close to a cosmic object and a certain limit is passed, the absolute feature of its surrounding space becomes dominant and will determine all the movements inside this region. The photons, for example, will move at the speed limit **c** relative to this absolute framework. Consequently, a laboratory placed on the Earth's surface is lying inside its region of absolute space (for now, we will ignore the direct effects of gravitation and of planetary rotation). It will rotate in sync with the planet - therefore, with the local absolute - and, for any experience made with light, it may be considered a perfect Absolute Frame of Reference (AFR). This also represents the minimal frame in which we can study the relative motion, considering that one or several Inertial Frames of Reference (IFR) are moving uniformly in regard to it.

In all my previous articles it was clearly assumed that photons are the only granular structures that can constitute a global indicator of the absolute in our universe and which can help us reveal the relative movement of any cosmic body against this spatial "background". Now, once we have theoretically identified the regions of absolute space around any object with significant mass, photons will be included in some experiments designed to confirm my new idea and to make a few necessary additions to the initial version of the "Theory of the absolute".

2. The General Postulates of TA

First of all, we must say that the major theoretical support is provided by the Fundamental Laws of the Universe (TP) and by their consequences. All the features of the spatial granular fluid are currently known, also the way in which it facilitates the movement of any granular structure, simple or complex.

The Theory of Relativity (TR), as it was shown in The Universe [2], is contradictory in several respects and does not provide a complete framework for our analysis on motion, neither at quantum nor at macroscopic level. As the relative motion is present all over the universe, TR should provide a complete descriptive mechanism of the moving frames in the absence of an absolute point. The whole foundation of TR consists of two simple postulates whose apparent correctness is, however, based on numerous experimental results (invariance and equivalence):

- The speed of light is a universal physical constant, a maximum speed of propagation of interactions; it is invariant with respect to any IFR (the direction of its motion does not matter).
- The laws of physics are identical in different inertial frames, all the IFRs are equivalent (Lorentz symmetry).

At the first sight, these two postulates seem to be perfectly logical, also intuitive, depicting in a coherent and complete manner an "elegant" and uniform universe; in this type of universe, all the movements have an upper limit of speed and the uniform motion does not change the laws of physics. Moreover, the Lorentz transformations can connect the space-time coordinates from various IFRs and the famous formulae of TR will come up immediately; they show the dependence of some fundamental physical quantities, like time and space, on the relative speed. However, the PT's perspective on these things differs significantly; the movement of a material structure through space automatically produces some changes at the quantum level, and these state changes are depending only on its absolute speed. Therefore, the two postulates above must be rephrased in order to correctly reflect the new paradigm, to add them *realism*. Thus, we may start from the original TA premises:

- The speed of light is invariant in relation to any absolute frame of reference (local or universal) and, at the same time, it represents an upper limit for the speed of any granular structures;
- The laws of physics are identical in all frames of reference, but their parameters depend on the value and direction of the IFR's absolute velocity (relative to its *parent** AFR).

A series of observations and classifications can be made at this time:

- The speed of light in vacuum, as a maximum value, is characteristic to the local absolute (it only depends on the local granular density). There are different maxima in different absolute regions; however, at the scale of our universe, all of these values are lower than the well-known speed threshold ***C*** (***C* > 1.4c**, as it was previously shown in TP).
- The trajectory of all photons follows the local absolute, they are copying its global movement (and its eventual curvature, but this aspect will not be considered here).
- The speed of light (observed from the AFR) gets now an **apparent** character; its value is no longer the same in the *child* IFRs, as it now depends on the absolute velocity's magnitude and direction. Therefore, we must evaluate the **directionality** of physics in a certain IFR, the potential asymmetry that might exist in its direction of travel.
- Various child IFRs of a certain AFR are **equivalent** if they have identical absolute velocities (direction and value); we may apply the Lorentz transformations to these frames, and their rates of time are all identical. The child IFRs can be called **twins** if only their absolute speeds are identical.
- As time is in fact a reflection and a consequence of the quantum level movements, its rate in an IFR must be lower than the *background* value of the parent AFR. But all the uniform movements we see in mobile frames are having a directional character; therefore, their rate of time might also depend on direction.

* The attribute *parent* for an AFR means it has one or more attached *child* IFRs.

3. Famous experiments and their new interpretations

The outcome of some trials may confirm a theory or a specific formula, may reject it or may be inconclusive. Let's take a look at a few famous experiments and at their conclusions, then check if some different explanations can be found for those results in the new context given by the model of absolute space (which is somehow similar to the concept of aether from the 1900s).

3.1. Michelson-Morley experiment

Essentially, the MM experiment has tried to confirm the existence of some kind of ether, in fact an ether wind that would change its direction as the Earth is moving through space. They used a simple device named interferometer; it contains a light source **L**, two mirrors **M1** and **M2**, a beam-splitting mirror **M3** and a screen **S** on which the interference pattern can be seen (as shown in Figure 1).

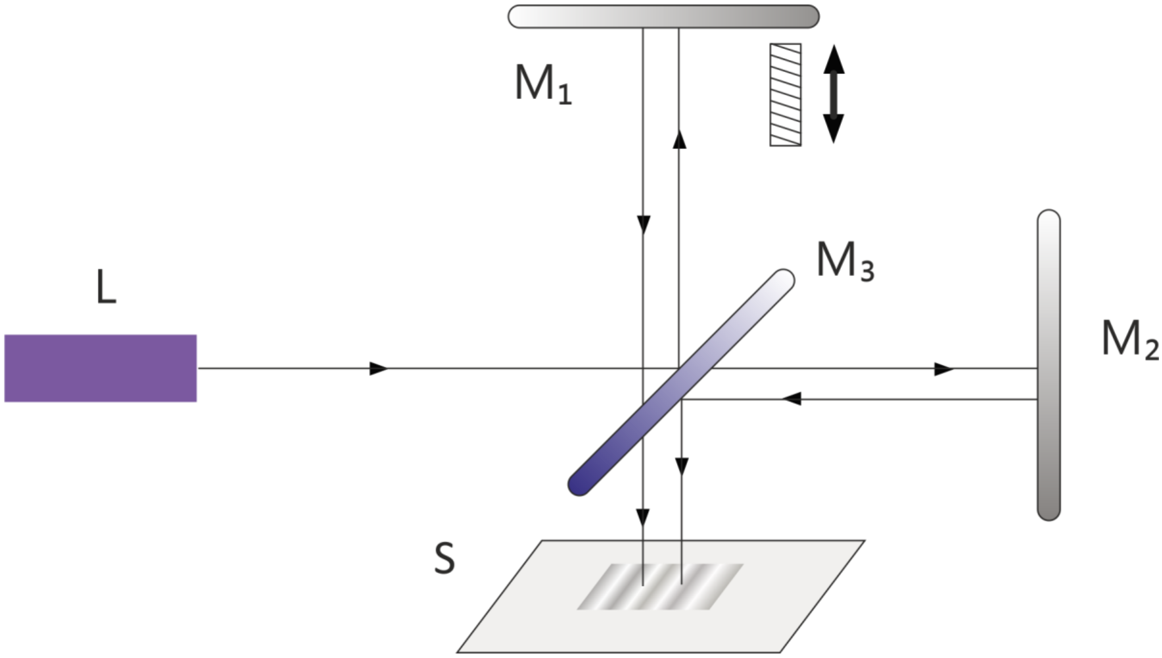

Figure 1 - *The Michelson-Morley interferometer*

The mirror **M1** is precisely adjusted to set the same distance **D** between the normal mirrors and beam splitter. The half-silvered mirror splits the light beam into two perpendicular beams which are reflected back by the two mirrors and finally interfere on the screen. The interference pattern displayed on screen **S** will depend on the path difference between the two beams, and this difference can be easily calculated. If we assume that the ether moves from left to right with the speed **u**, the total time it takes light to cover the horizontal and vertical distances would be:

$$t_{12} = t_1 + t_2 = \frac{D}{c-u} + \frac{D}{c+u} = \frac{2D}{c}\frac{1}{1-u^2/c^2}$$

$$t_{34} = t_3 + t_4 = \frac{D}{\sqrt{c^2-v^2}} + \frac{D}{\sqrt{c^2-v^2}} = \frac{2D}{c}\frac{1}{\sqrt{1-u^2/c^2}}$$

The interference pattern shows a fringe shift equal to one fringe when the time difference is equal to the period of the wave, i.e. an interval **T = λ / c**. Moreover, the difference between these time intervals will double if the apparatus is rotated by 90 degrees. Therefore, the total fringe shift **N** of the interference pattern will be:

$$N = \frac{4D}{\lambda}\left(\frac{1}{1-\frac{u^2}{c^2}} - \frac{1}{\sqrt{1-\frac{u^2}{c^2}}}\right)$$

This concrete result, the number of fringes, was virtually zero; no fringe shift was noticed during one or more days. Therefore, this implies that a normal addition of velocities (Galilean transformations) is not applicable in this case. Moreover, the general conclusion of the experiment was: the ether is undetectable and the speed of light is independent of the inertial frame of reference. Consequently, Einstein abandoned the concept of ether and, implicitly, the notion of absolute universal time [4][5].

But let's take one more look at the MM experiment, as the logical conclusion we can draw from its results seems to be more nuanced. Namely, if the ether really exists, it does not flow relative to the device - it moves with the same speed as the device moves (dragging effect). Ignoring the low accuracy of the instrument, the phase shift of reflected light and other experimental errors, a fringe shift **N = 0.44** was expected for equal-length arms of **D = 11m** and a wavelength of **λ = 500 nm**.

The idea of an ether that is "fixed" in the reference frame of the laboratory (of the Earth) now makes perfect sense. A beam of light would then have an absolute path and a constant speed, independent of direction. However, we cannot conclude yet that the speed of light does not depend on the speed of the source. Other experiments and other devices, as the one imagined in Chapter 3.3 of "Universe" [2] (which would detect any deviation in the trajectory of light), or a simpler version of the MM interferometer (as the *mobile* one shown in Figure 2, oriented along its velocity vector) would be able to detect the movement in regard to the "fixed" frame of the Earth.

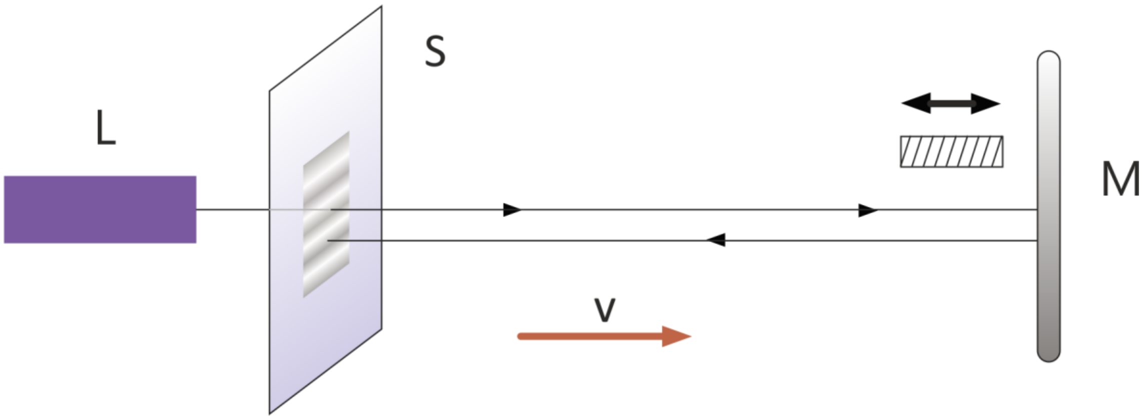

Figure 2 - *The mobile interferometer*

Simplified calculations, for a **3m** arm length and red light (**λ = 600Nm**), would give us the results from Table 1 (similar to those of a *fixed, normal MM interferometer*):

v	N
1 m/s	10^{-10}
10 m/s	10^{-8}
100 m/s	10^{-6}
1000 m/s	10^{-4}
10 km/s	0.01
20 km/s	0.04
30 km/s	0.1
50 km/s	0.3
70 km/s	0.5
100 km/s	1.1
1000 km/s	110

Table 1

Significant variations in the fringe shift practically occur after 30km/s and the fringes become countable after 100km/s. If such mobile device would revolve on a high orbit around the planet, having a tangential speed in this range, it might permanently elucidate the mystery of the ether - or of a local absolute, as in the TA perspective.

Note 1. We have presumed that the movement of the ether relative to our laboratory and the movement of an apparatus through a fixed ether are equivalent things, both theoretically and practically. Therefore, the null result given by the fixed interferometer and a positive result from the mobile one do not exclude each other, even more, this would represent the proof for the existence of the local absolute.

Note 2. It is hard to discriminate between a source-related speed of photons and an absolute one, given by the local absolute - as long as the results of the experiments are identical or inconclusive in this respect. It seems that any experiment you would perform using something "fixed" and something "mobile", a possible point of absolute and its absolute reference frame cannot be revealed (due to the intrinsic relativism). Anyway, when speeds are very low in comparison with **c**. A variable light speed means a variable propagation speed of all fields, implying that the entire "mechanics" of interactions in an IFR must have a "relative" character. In this case, we may not detect easily in which frame (at source or receptor) the speed changes in fact, or where the Doppler effect of visible light is actually produced, for example.

3.2. The stellar aberration

Stellar aberration is an astronomical phenomenon that produces an apparent change in direction to the light coming from the stars; this is due to the relative movement of the observer about the source of light and due to the finite speed of light. Aberration causes sources of light to appear to be displaced towards the direction of motion (see Figure 3). Thus, if **S** is a star and **E** is the Earth which revolves with the speed **v** around the Sun, the direction of the stellar light should form the angle $\boldsymbol{\theta}$ with the horizontal axis; instead, the star is observed at the angle $\boldsymbol{\varphi}$, $\boldsymbol{\varphi < \theta}$.

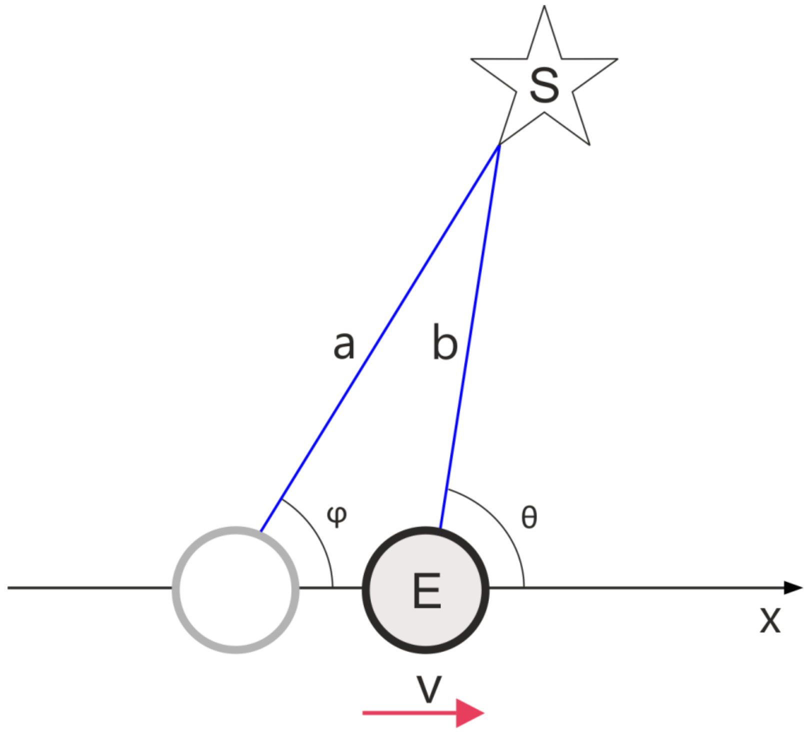

Figure 3 - *The aberration of light coming from stars*

In a classical approach, by adding the axial components of the light coming from a fixed star and of velocity **v**, we can easily find the angle of the light beam in Earth's frame of reference:

$$\tan\varphi = \frac{\sin\theta}{{}^{v}/_{c} + \cos\theta}$$

In relativistic terms, considering that light has the same speed **c** in the observer's frame (i.e. on the path **(b)**), the previous formula becomes (using the relativistic addition of velocities):

$$\tan\varphi = \frac{\sin\theta}{\gamma\,({}^{v}/_{c} + \cos\theta)}$$

Where $\boldsymbol{\gamma = 1/\sqrt{1 - v^2/c^2}}$. For **v << c** and $\boldsymbol{\theta = 90°}$, we find that $\boldsymbol{\theta - \varphi = v/c}$ in both cases.

In absolute terms, starting from the main principles of TA, we identify at first the Earth and its surrounding space as a spherical region of absolute. At a given moment, the light from star **S** reaches this zone, as shown in Figure 4.

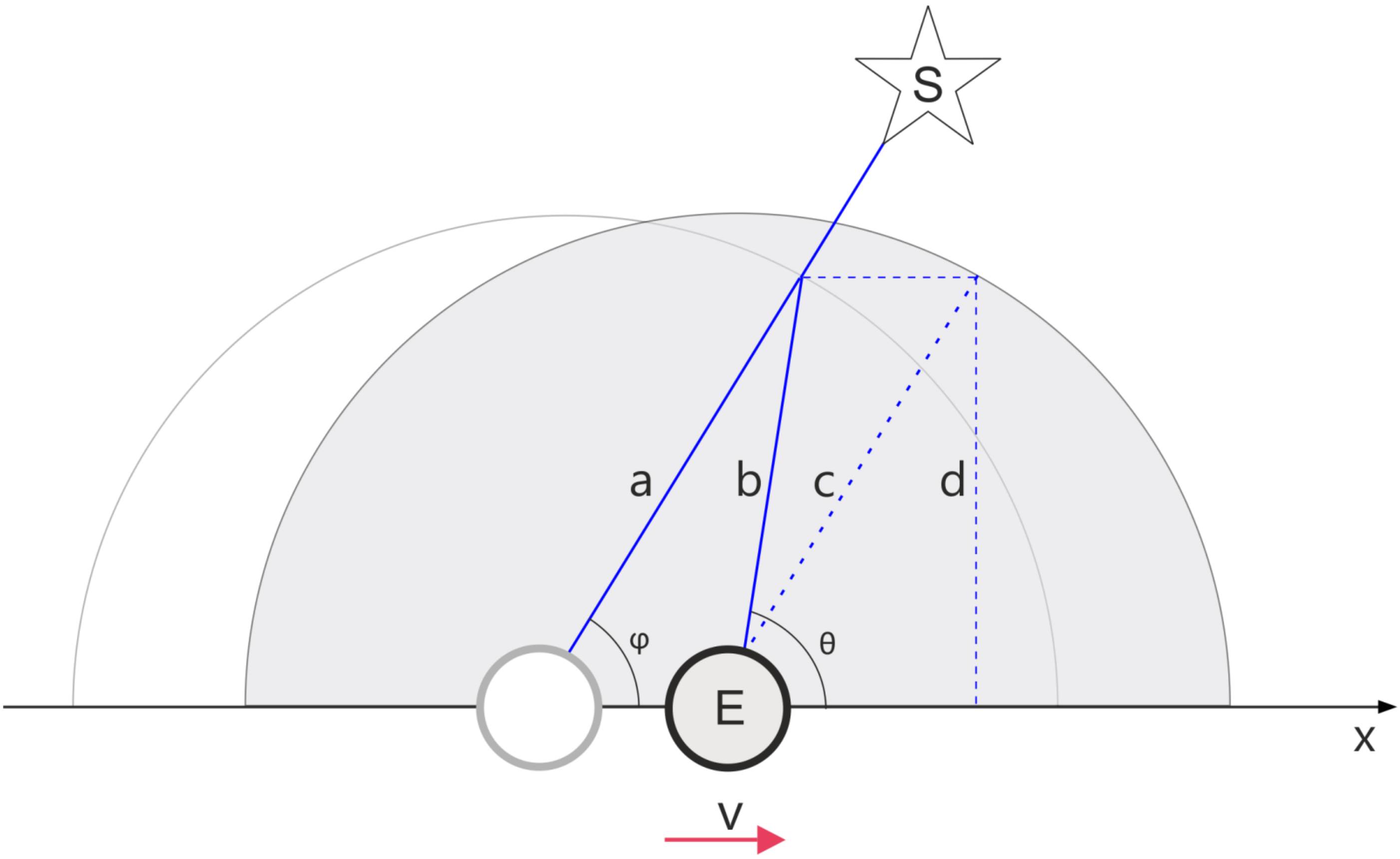

Figure 4 - *The aberration of light in absolute terms*

If our planet wouldn't move through space, the light beam would normally follow the path **(a)** toward the Earth-based observer, having the inclination angle **φ** to the horizontal axis. But the planet moves with speed **v** along the horizontal axis and reaches a new position while the beam of light travels at speed **c** toward the observer on the absolute path **(a)**. As the planet moves, the whole adjacent region of absolute moves too, and the star will be seen in a different direction, **(c)**, which is parallel to **(a)**. Light is practically "dragged" by the absolute frame of the Earth, and its apparent trajectory **(b)** will form a greater angle to the horizontal axis, **θ**.

There are two right triangles formed by the paths **(a,b)**, the horizontal axis and the perpendicular direction **(d)**; we can write the cotangent of the angles **φ** and **θ** and then eliminate the distance **d**, getting to this equation:

$$\cot\varphi = \cot\theta + \frac{v}{c}\frac{1}{\sqrt{1 - v^2/c^2}} = \cot\theta + \gamma\,\frac{v}{c}$$

The formula above is similar to the relativistic formula, rewritten using cotangents:

$$\cot\varphi = \gamma\left(\cot\theta + \frac{v}{c}\frac{1}{\sin\theta}\right)$$

Taking into account that the average speed of Earth on its solar orbit is only 29.28 km/s, all three cases (considering **θ = 90°**) lead to the same result, namely a deviation of 20.489 arcseconds.

Remark. This deviation does not depend on the diameter of the absolute sphere.

The analysis made under the TA terms holds for all collateral experiments (the observation of stellar aberration using a telescope immersed in water, for example, in which case the speed of light is lower).

3.3. Interpretations

The experiments described above (Chapters 3.1 and 3.2) and their different variants proved to be *inconclusive* in regard to the presumed existence of the ether and to the constancy of the speed of light in any inertial frame. However, they were used to formulate the postulates of special relativity and the final form of the theory was based on them, leading to a wrong approach and to a partial understanding of the nature of reality. With all that, TR has a great success in physics, as it does provide accurate results in most cases. Why this paradox? In general, the absolute speed of the inertial frames of reference involved was small and the final results were not significantly influenced. All experiments have been performed on the planet's surface and in the vicinity at relative speeds under 10 km/s.

Normally, we should regard our planet and its surrounding region as an absolute system, which, along with other equivalent systems, moves throughout the Universe and bears the same laws of physics. These distinct or overlapped systems have dynamic configurations, moving and rotating together with the stars and galaxies about the global absolute that is a characteristic of our universe. When photons (or other particles) cross these regions, their motion and their trajectories are changed by the local absolute, being "imprinted" in this way by the respective region. As the relative speeds of these regions are small, the deviations will be also small (compared with the values from Chapter 3.2), but measurable. If a cosmic-level analysis is performed, we must identify first all the absolute systems (stars, planets, galaxies) crossed by the beam of light, their topology and their speed, and then we may calculate the deviations. If a planetary-level analysis is performed, we must identify first the child IFRs and then find their parameters relative to the local absolute.

If we apply TA to all inertial frames of reference, the analysis becomes uniform and all phenomena have a clear meaning. Moreover, if the time would be absolute, we would observe that all processes and interactions will slow down when the absolute speed increases; this will imply more difficult calculations, but in this way, the nature of reality will be correctly represented.

4. Models and calculations

4.1. Observers and processes

As reality and its physical laws might depend on the concrete FR, we have to make a clear distinction between the observers of the various processes and movements that take place in nature. Now we can define several types of observers (they may be humans or apparatuses, but this separation will not be made here):

- *Absolute observer*. This observer is at rest in AFR and the time reference he uses is the absolute time - which has the maximum rate in this frame. His observations are *real, uniform, absolute,* and they correctly reflect the laws of physics of this AFR. At the same time, this observer has a virtual character: he can turn into a mobile observer and all the observations he makes in an IFR will have the *apparent* attribute.

- *Local observer*. This observer is at rest in an IFR, being an integral part of that inertial frame; the time reference he uses is the local time (its rate of passage is specific to this frame). His observations, based on his own temporal reference, may depend on the absolute velocity of its frame (both magnitude and direction).

Note 1. The association between time and a certain reference frame is kind of artificial, serving only theoretical purposes. Time is in fact a reflection of some concrete processes that undergo in concrete material objects.

Note 2. The local observer is potentially affected by movement in the same way the observed processes are. If the local physics changes, the internal mechanisms by which he quantifies the observations will also change. We can infer from this a *relative* character of all his observations, an intrinsic limitation they have in the local "universe" of an IFR.

Note 3. The internal clock (reference time) of an observer is based on a process that normally has the maximum possible rate; anyway, the fastest process in that frame has the speed of light in that context.

Uniform processes or bodies in uniform motion can be categorized, depending on their absolute speed, as follows:

- *Luminal processes*, running at the speed of light.

- *Subluminal processes*, running at a speed less than light.

For that the absolute speed of light cannot be exceeded by any particle, field or body, the behavior of these two types of processes differs when the absolute speed of their IFRs increases. The respective differences are related to the manner in which they are slowing down, and the analysis must be made considering the distinction between the observational and the real nature of these changes.

4.2. Parent AFR and child IFR

Let be the absolute frame of reference **XOY**, as shown in Figure 5. At time zero, omnidirectional light is emitted from the origin **O**; at time **t,** the wavefront will have the circular distribution **C** (in a two-dimensional projection). The trajectory of a certain photon emitted from point **O** forms the angle **α** to the horizontal axis; this photon reaches point **A** after the time interval **t**, traveling the distance **ct**.

Let be the child IFR **X'O'Y'**, which overlaps the parent AFR at time zero (their origins coincide); if it moves along the OX-axis with speed **v**, the wavefront of light will appear different to an absolute observer from this frame (Figure 6). The shape of this wavefront is still circular, but the entire front is shifted to the left by distance **vt**, that exact distance traveled by the IFR in the time interval **t**.

That observer will see a shorter distance traveled by the photon to point **A**, and this new trajectory **(d)** forms a different angle, **α'**, to the horizontal axis. From his absolute perspective, our photon has traveled the distance **ct** in **t** seconds; from his local perspective, our photon has traveled a shorter distance in the same interval. Therefore, we might say that the apparent speed of light in an IFR is lower than **c** in the frame's direction of travel.

Note. If we consider that the source of omnidirectional light is in the origin **O'** of the mobile frame **X'O'Y'**, the final distribution of the wavefront at time **t** will be no different from the current one (first postulate of the TA).

It is easy to observe that the distribution of light in an IFR is no longer uniform, and therefore we can say that light has different speeds in there. A local observer (we can call him a mobile observer), whose time reference has a constant rate, still cannot measure and calculate a constant speed of light (no matter where its source is located).

Be the apparent velocity of light in **X'O'Y'** denoted by **u**; we now can simply write the formulae for the value of this vector and its angle to the horizontal axis:

$$u = \sqrt{c^2 - 2cv\cos\alpha + v^2}$$

$$\sin\alpha' = \frac{c\sin\alpha}{\sqrt{c^2 - 2cv\cos\alpha + v^2}}$$

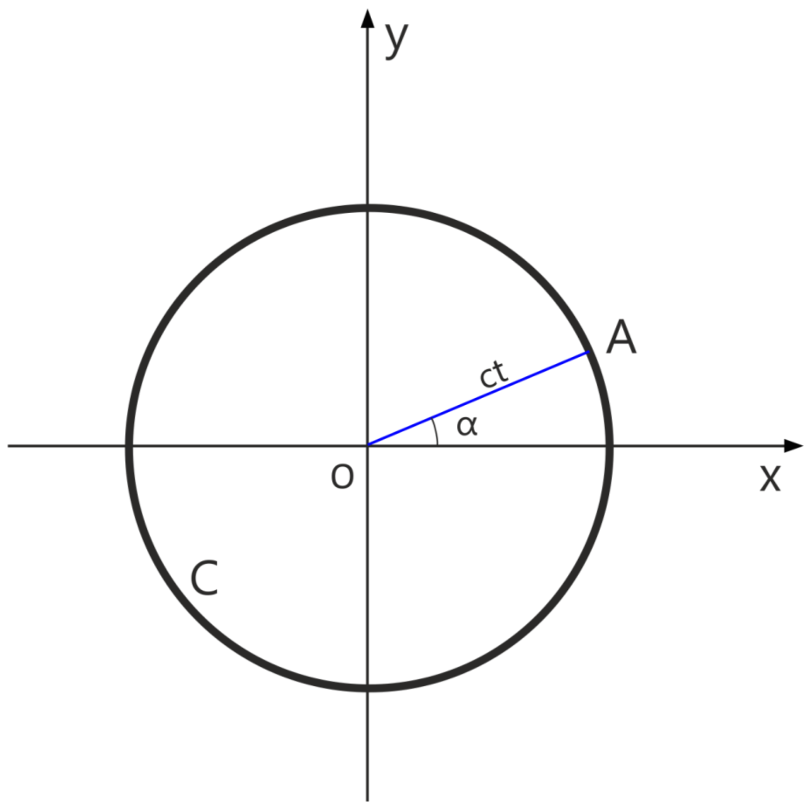

Figure 5 - *The absolute distribution of light*

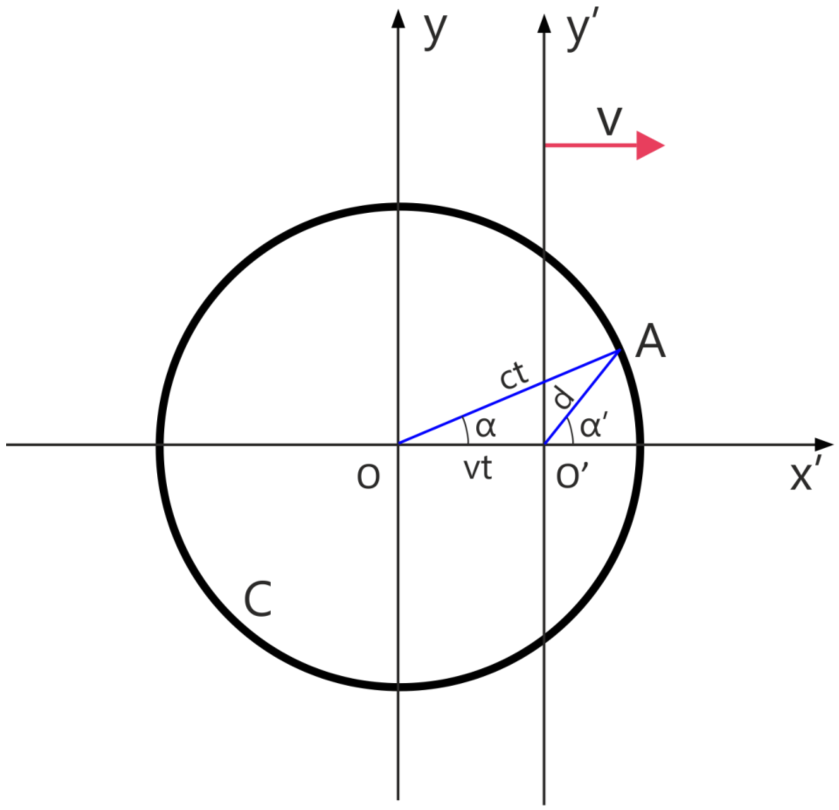

Figure 6 - *The distribution of light in an IFR*

Here are a few special values of this speed and angles (negative angles are also accepted due to symmetry):

α	u	α'
0°	c - v	0°
arccos (v/c)	$\sqrt{c^2 - v^2}$	90°
90°	$\sqrt{c^2 + v^2}$	90°+arctan (v/c)
180°	c + v	180°

Table 2

Note 1: Speed **u** is an apparent speed, a relative speed of light in regard to certain IFR. Therefore, its value can exceed the absolute limit **c** (may be up to **2c**). In general, regardless of their concrete FR, two objects may have relative speeds in this range: **0..2c** (when they are seen by an absolute observer).

Note 2: If the local observer (of absolute type) would be able to measure this speed, he would get different values, depending on the orientation: minimum speed in the direction of **v** and maximum in the opposite direction. Therefore, this observer would know at least the direction on which its own IFR moves, i.e. the direction of velocity **v**. Could he find out the exact value of **v**? The answer is yes, and the reason for this hides in Table 2 - the ratio between the maximum and minimum speed does not depend on the rate of local time.

Parenthesis: The single-arm MM interferometer (Figure 2) could be used for this purpose, by analyzing the fringe shift when it is mounted in a certain direction and then along the perpendicular one.

Note 3: Can this local observer synchronize his local clock with a clock ticking in the AFR? But to calibrate it? Theoretically speaking, the answer is yes to each question. Both clocks may start at the same moment, when the origins of the two frames, **O** and **O'**, coincide. For calibration, let us consider that short pulses of light are emitted from point **O** at the time interval **τ = 1** (one second). The observer knows this thing, but he perceives a longer pause between pulses, namely the absolute interval **τ' = c τ /(c-v)**. As he knows the value of velocity **v**, the calibration of its "local" second is perfectly possible.

Note 4: This local observer of absolute type will perceive the things around him slightly deformed, all of them being "pulled" back along the direction of velocity **v** (due to the finite speed of light and due to the motion of the IFR). Also, the color of things will change due to the different apparent values of the speed of light.

4.3. Time in AFR and IFRs

What is the rate of local time in the above IFR, or the rate of the observer's reference time? And are they local constants, depending only on the absolute speed of the reference frame?

TA stated that the rate of time in a parent AFR has a maximum value and all processes are slowing down in any child IFR. Moreover, we have already seen that the apparent speed of light is not uniform in an IFR, it depends on the frame's absolute velocity. If we were to see these things in a relativistic manner, we could establish that the speed of light is constant in any IFR (TR postulate) and, consequently, their local time will have different rates. If we were to see these things in an absolute manner, we have two alternatives:

1. We keep the AFR's rate of time in all child IFRs. All processes and local movements will change with the absolute velocity **v**, and these changes should be described by new equations of motion.

2. We try to set a certain local time in each IFR that its rate does not change the equations of motion. However, Chapter 4.1 shows us how the apparent speed of light depends on direction in an IFR, and we could infer from it that time - as a reflection of things' velocity - also depends on direction!

Obviously, the second alternative seems more natural, closer to the well-known relativistic style; anyway, is this alternative really possible, and moreover, does it reflect properly the reality?

In order to find the answers to these questions and to choose the best approach, we should now remember the definition of time (Chapters 8 and 12 of [3]); also, we need to know if all types of clocks (especially the light clock and the atomic clock) are measuring correctly the flowing of time and how exactly this special quantity is connected to different observers.

In absolute terms, time is a derived physical quantity that is linked to the movement of concrete material bodies. It reflects the speed at which they move, vibrate, oscillate, it shows how the rate of these processes is limited due to the material nature of the structures involved, due to their intrinsic characteristics at quantum and granular levels. The maximum rate of time can only be found in the luminal processes that run in absolute frames (being at rest relative to an AFR). Once an object from this frame starts to move with a certain absolute speed, a part of its internal energy is "reallocated" for this and, consequently, it can no longer move or oscillate at the same speed in its proper (comoving) IFR - therefore, we can assume that its local time slows down. This phenomenon must be used in conjunction with the observational changes that happen in an IFR, which means we have to take into consideration the new apparent speed of things and light.

Let us identify the exact time in an AFR, see how much it slows down in a certain IFR and if this new rate is correctly reflected by the local clocks. According to TA, this slowdown may be quantified by applying TR in IFR relative to AFR - and the constant value that resulted could be seen in the context as an averaged value over all directions. But is this relativistic approach compatible with the normal equations of motion in IFRs?

4.3.1. Time measurement

In order to identify the source of absolute time at the quantum level, our analysis must start from the granular time. The quantum time (Chapter 12 of [3]) is in fact a reflection of how the speed of all movements is limited by the fundamental constants at the granular level - in principle, it is about the absolute granular speed ***C***, which limits the speed of all granular structures to **c**. If a particle undergoes a repetitive process in which the absolute speed **c** is reached, it can be used as a good example in our quest to find the rate of quantum time. The period of that process may be considered as a proportional constant, as a base for quantum time - and, implicitly, for the passage of time at a macroscopic level.

For this purpose, let us imagine now a system that consists of two hypothetical particles **A** and **B**, firmly joined together, which are rotating with the speed of light **c** in plane **YOZ**, as shown in Figure 7. As long as their AFR is an isotropic space, the trajectories of these particles are perfect circles of radius **r**. Consequently, the rotation period **T** is given by this simple formula:

$$T = \frac{2\pi\, r}{c}$$

This system, in the given circumstances, can be characterized as *maximal* if we consider the speed of its internal process. If an external force pushes on the x-axis, the system will accelerate, reaching the speed **v** after a while. The internal process (the rotational motion of particles) will slow down in the system's comoving frame - as shown in Figure 8. As the value of each particle's absolute velocity is still **c** and its direction changes (this vector's plane is no longer YOZ), the tangential speed of both particles will automatically decrease.

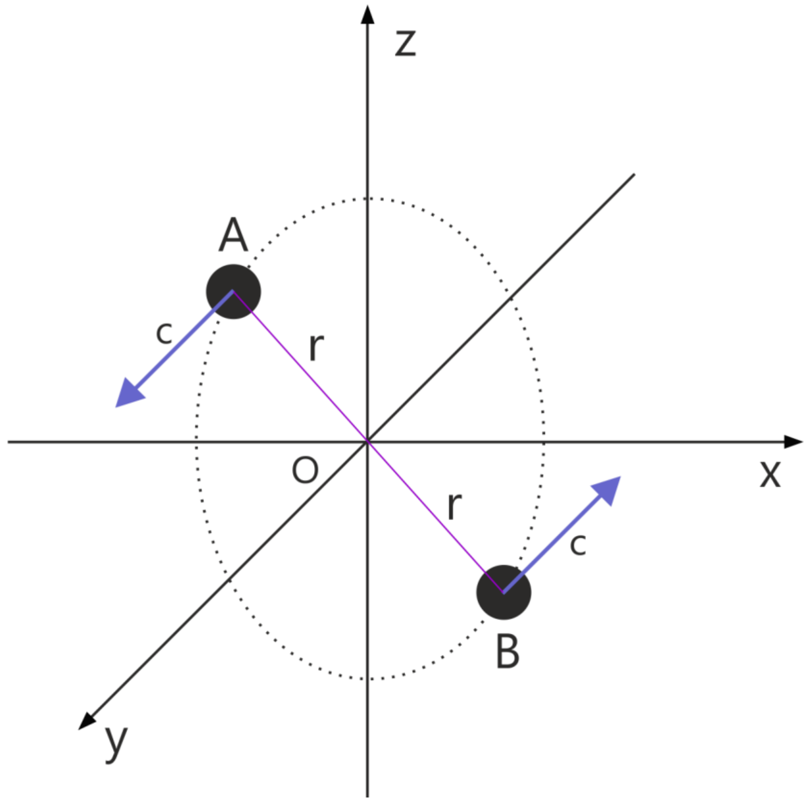

Figure 7 - *A system of two particles in AFR*

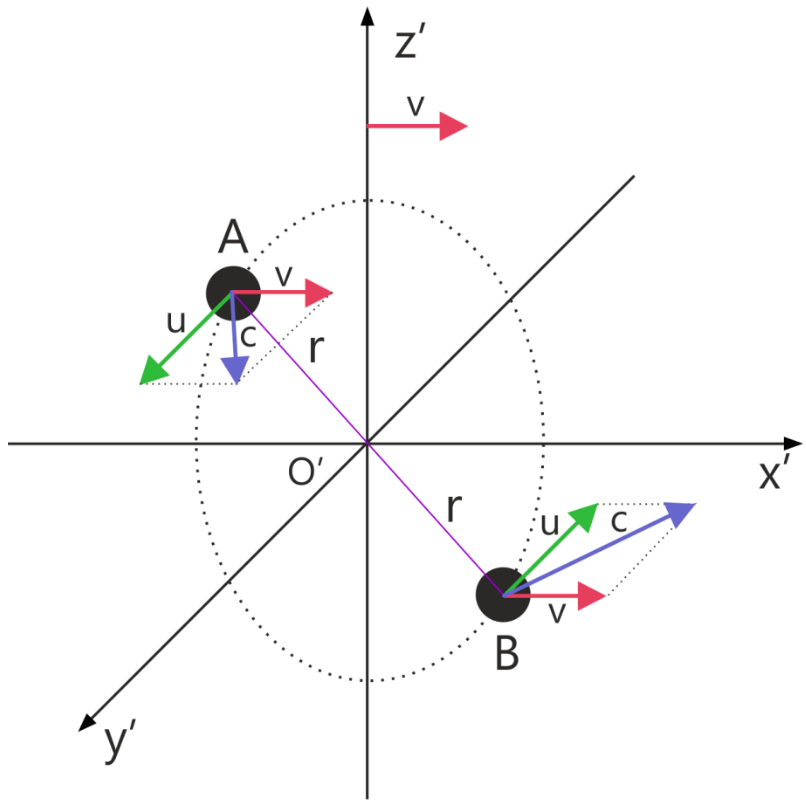

Figure 8 - *A system of two particles in IFR*

The new rotation period can be written as:

$$T' = \frac{2\pi\, r}{u} \qquad\qquad T' = \frac{2\pi\, r}{\sqrt{c^2 - v^2}}$$

and the ratio of the two periods results immediately:

$$\frac{T'}{T} = \frac{1}{\sqrt{1 - {v^2}/{c^2}}}$$

We may say that the local time of our IFR, time shown by a local clock based on this type of mechanism, is given by the well-known formula of the relativistic time dilation applied with regard to AFR. The rate of time is related to the maximum possible speed, but it is also characteristic to a concrete structure or object that has a certain absolute speed. In AFR, we may use the absolute time for a moving object and observe how its internal processes are slowing down with the speed. From the proper frame of reference, a local observer sees in a slow manner those slowed down processes. Therefore, if the rates of these things are identical (and do not depend on direction), our observer would not perceive any change in the speed of those processes or in the local physics.

4.3.2. The light clock

As shown in Chapter 8 of [3], the light clock can be used to establish a certain period of time, a period that is potentially proportional to the rate of local time in an IFR, based on the duration it takes a beam of light to travel a fixed distance (uni or bidirectionally). Let us consider the light clock **B** that lies inside an AFR (Figure 9) and which will later move along with the IFR **X'O'Y'** (Figure 10); it uses a beam of light emitted by the laser source **L** toward a reflective mirror **M** that is located at the fixed distance **s**. The time it takes for light to reach the mirror, to reflect and return to the source can be used as a base unit for the local time. As shown above, the relative speed of light in an IFR is apparent and depends on the angle between the beam direction and the absolute direction of travel (even the mean value of speeds on the two opposite directions varies with the angle **α**). However, there is a special range of directions, namely those that are perpendicular to the velocity vector **v**. If the line **s** lies in this plane, the beam of light will travel that distance with an apparent speed $\mathbf{u} = \sqrt{\mathbf{c^2} - \mathbf{v^2}}$, $\mathbf{u} < \mathbf{c}$, within the period $\mathbf{t'}$ of local time. We may therefore write $\mathbf{s} = \mathbf{u\, t'}$, and we also know that this local time *corresponds* to time **t** which flows in the AFR (where the same distance is traveled at speed **c** and $\mathbf{s} = \mathbf{c\, t}$). From these equations we can find the relationship between the two periods of time:

$$t' = \frac{t}{\sqrt{1 - {v^2}/{c^2}}}$$

This formula can also be found by applying TR/TA in these frames, which could imply that the apparent time has slowed down as much as the local time.

Note 1: The light clock shows accurate data only if it is oriented perpendicularly to the velocity vector **v**. Along the parallel direction, for example, the ratio of those time intervals would be different, namely:

$$t' = \frac{t}{1 - {v^2}/{c^2}}$$

Note 2: The beam of light should form the angle **α = arccos (v/c)** to the horizontal axis in order to reflect and return in the same direction. Similarly, the mirror must be tilted at a certain angle.

Note 3: The apparent wavelength of photons differs from the absolute one due to the transverse Doppler Effect. However, this effect is compensated on reception as the receiver is a part of the mobile frame.

Note 4: Once the speed **v** gets closer to the limit **c**, the movements in a material system tend to take place in a plane perpendicular to the IFR's velocity vector, which means that the measurement of time is pretty accurate.

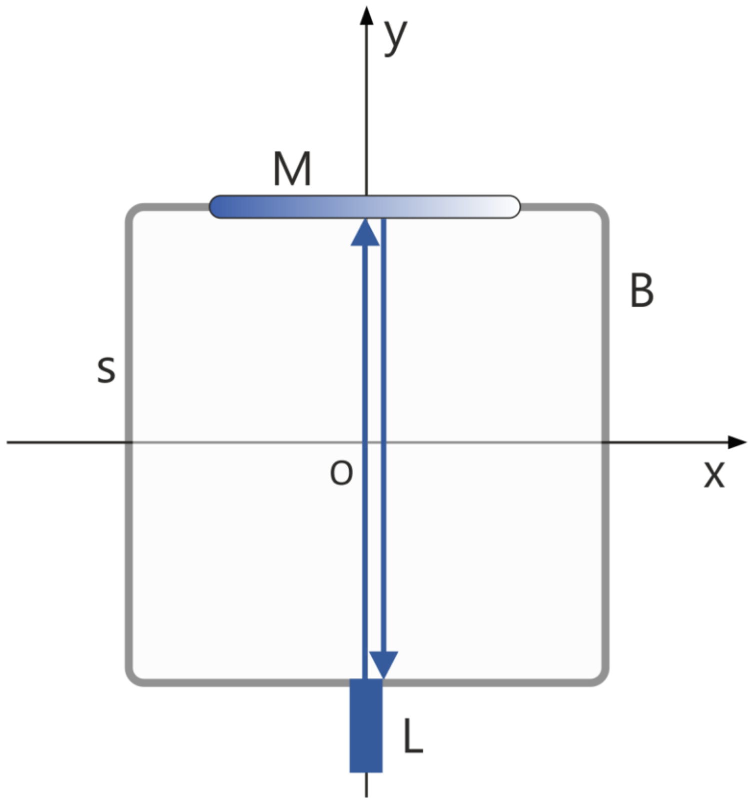

Figure 9 - *The light clock in AFR*

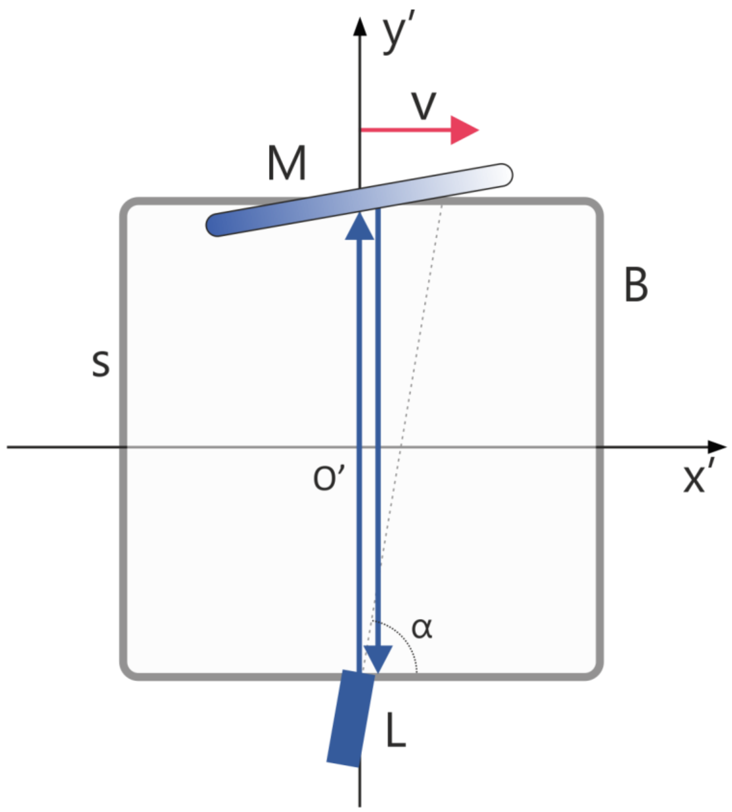

Figure 10 - *The light clock in IFR*

4.3.3. The atomic clock

As we already know (Chapter 8 of [3]), the atomic clock uses as a reference the electron transition frequency from certain atoms (Hydrogen, Caesium, Rubidium); this frequency can be in the microwave, optical or UV region of the electromagnetic spectrum. The second was defined by SI as the duration of 9,192,631,770 oscillations produced by the Caesium-133 atom, which thus becomes the standard in time measurement. Another standard rate may be obtained from the Hydrogen atom (the 21 cm line, given by the spin of its electron), of about 1420 GHz, using masers. The frequency of these oscillations is very stable, but it changes with the absolute speed of the light source. All tests performed to verify the TR's time dilation by the Lorentz factor (Hafele-Keating experiment, for example - 10% precision, and the newer, more accurate ones, about 1.6%) were consistent with the theoretical predictions. We have to mention that the speed of the airplanes was about 500 km/h (140m/s), being much smaller than the speed of light. This means that the electron transitions are becoming slower when the respective atoms also move at a certain absolute speed.

TP has shown that these electron transitions in which photons are emitted have two stages: acceleration (the speed threshold $\mathbf{v_p}$ is passed) until the speed of light **c** is reached, and deceleration (the threshold value is crossed in the opposite direction). However, can this kind of transition happen in any conditions, at any absolute speed **v** of the atoms? Those photons, whose frequency is changed anyway due to the Doppler Effect, can be emitted in any direction? Or there is a certain range of directions that depends on the absolute velocity's direction?

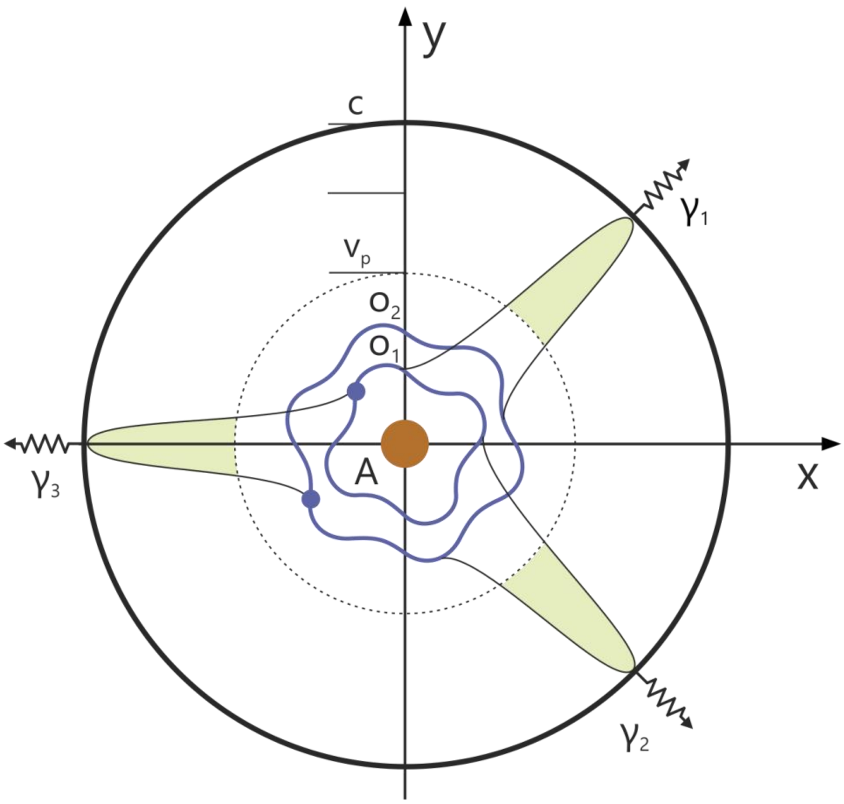

Figure 11 - *The velocity circle for an atom in AFR*

Figure 11 shows a coordinate/velocity circle of all possible speeds in AFR, where the big circle represents the speed limit **c** and the dashed one represents the speed threshold $\mathbf{v_p}$ (from which the emission of photons starts). The atomic electron (blue dot) may occupy one of the two atomic orbitals $\mathbf{o_1}$ or $\mathbf{o_2}$ (atom A is at rest in AFR) and its transition between these levels will generate a photon in any direction (photons $\boldsymbol{\gamma_1}$, $\boldsymbol{\gamma_2}$ and $\boldsymbol{\gamma_3}$, for example). Therefore, we may characterize the emission of photons in AFR as *omnidirectional*.

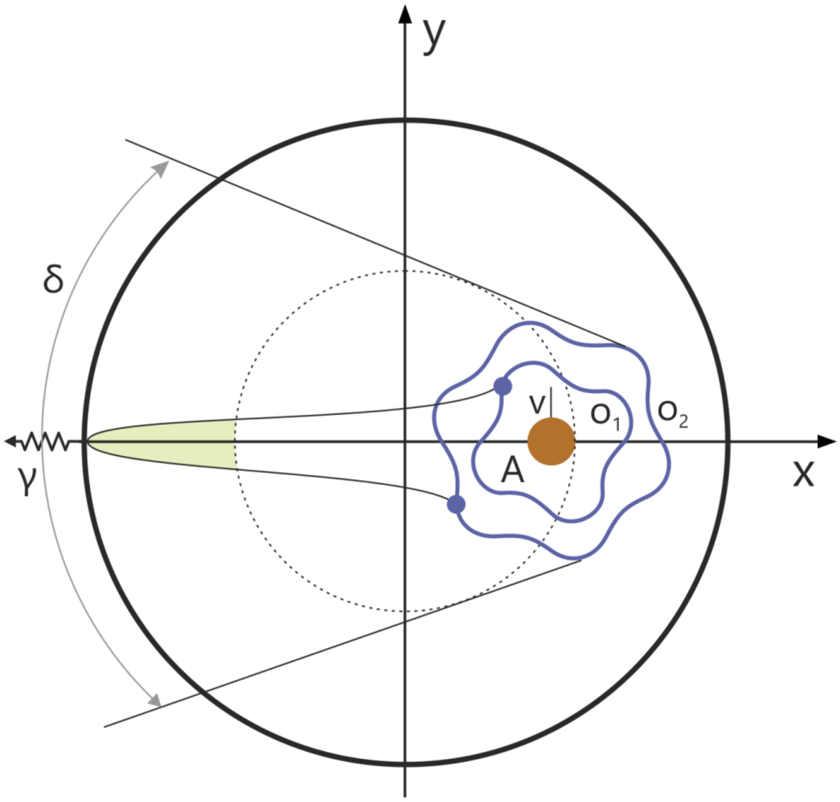

Figure 12 - *The velocity circle for an atom in IFR*

Let us consider now the case of a moving atom (at the absolute speed **v)**, as shown in Figure 12. We easily observe that the complete electron transition can only be made in a limited range of directions, within the angle denoted by **δ** (which is a solid angle in fact due to the implicit symmetry about the Z-axis). Therefore, the emission of photons is no longer omnidirectional and incomplete photons may be generated.

Note 1: A few aspects of the quantum mechanics were not taken into account in our analysis; once the absolute speed increases, we should check if the electric and magnetic fields are undergoing some changes and also consider the increase in mass of electrons and nucleons.

Note 2: In certain materials and objects (those in a fluid state for example), the angle **δ** may considerably increase due to the dispersion of instantaneous absolute speeds (their atoms can move or vibrate with significant speeds).

Note 3: If this phenomenon of directional limitation is real and can be proved experimentally, it will confirm that the TA reflects correctly our reality and, therefore, the state of all objects and the symmetry of quantum physics are changing with the absolute speed.

4.4. Interactions in IFRs

Some vector fields, such as electric or magnetic ones, are caused by the charged particles and by their motion. For instance, the electric field is produced by an electrically charged particle and consists of successive layers of electrophotons which are continuously emitted from that particle's surface. And, like all photons, the electrophotons are moving with the absolute speed **c**. Therefore, the electric field is emitted around the particle in all directions with the absolute speed of AFR, and consequently, its speed relative to that particle will no longer be **c** (and this contradicts the TR postulate). How exactly the interactions between charged particles (and the fields which are causing them) are influenced by this thing? Practically, these interactions will not change, the forces exerted on particles are identical. Why these interactions do not change, while the distribution of electric and magnetic fields are certainly varying?

Let us consider two electrically charged particles at rest in AFR, as shown in Figure 13. In my PT model, the electric field is assimilated with a continuous series of omnidirectional electrophotons that are emitted at the absolute speed **c** by the charged particle (the distance between successive layers is denoted by **λ**, a sort of wavelength). Figure 14 shows the same particles, now being at rest in an IFR that has the absolute speed **v**. We may notice the new structure of the fields, the compression along the direction of travel and the expansion in the opposite direction (this differs from the relativistic compression, which is presumed to be the same in both directions); the wavelengths on the horizontal direction are now $\boldsymbol{\lambda_1} > \boldsymbol{\lambda} > \boldsymbol{\lambda_2}$. Practically, the amplitude of these fields now changes with direction; however, the effect of one field on the other particle is the same, the particle will "sense" the old field intensity from AFR. This phenomenon is similar to the non-relativistic Doppler Effect for light, at both source and receiver, and its direct consequence is the same level of interactions between particles - hence the same electric field equations - in IFR and AFR.

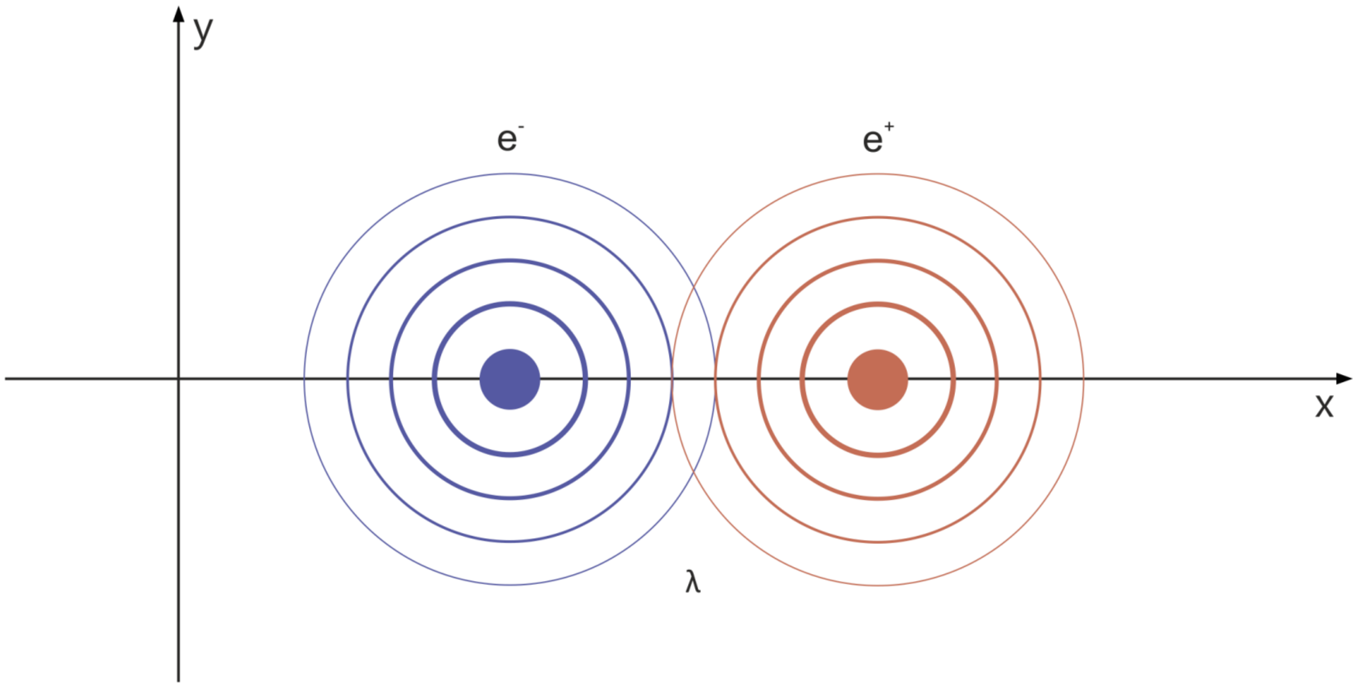

Figure 13 - *Two electrically charged particles in AFR*

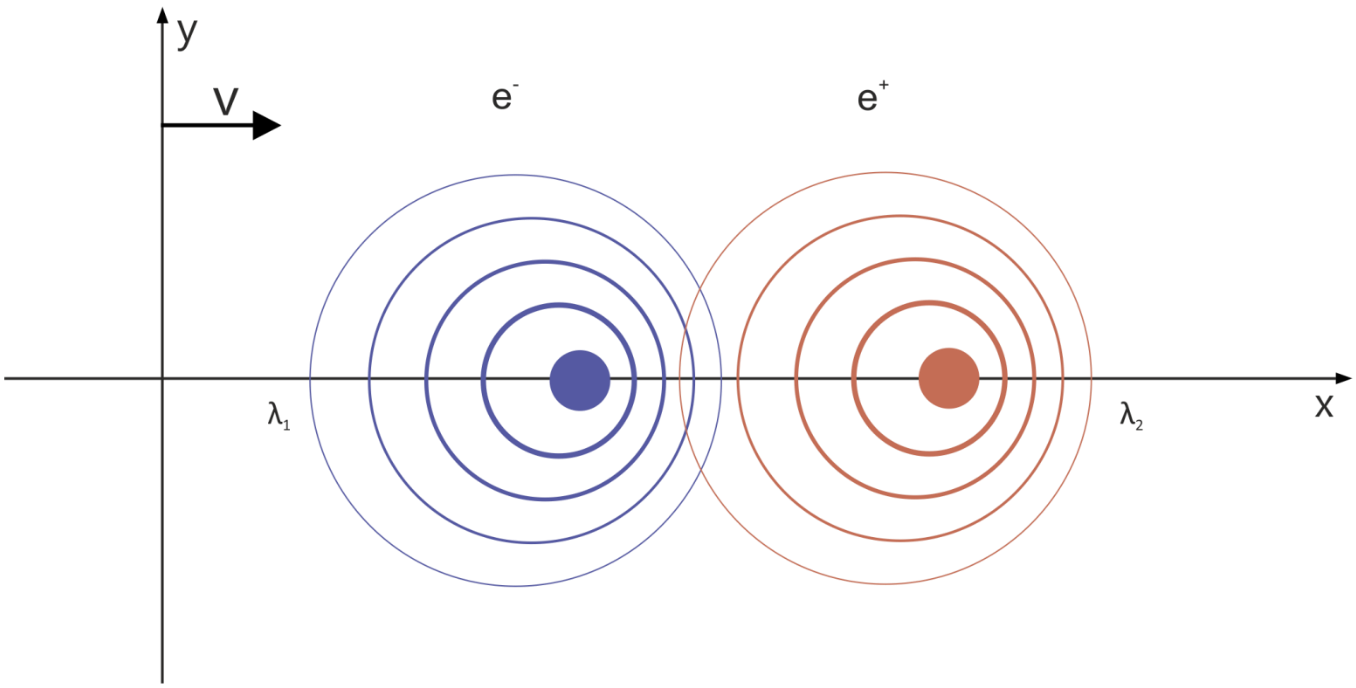

Figure 14 - *Two electrically charged particles in IFR*

4.5. The generalized Doppler Effect

Let us take one more look at the atomic clock, that clock in which the photons are undergoing a certain change of wavelength (redshift or blueshift, depending on the direction) when the entire device moves with an absolute speed. As the speed of light is constant, those photons will have a different frequency in AFR, higher or lower. This change in frequency is the manifestation of the non-relativistic Doppler Effect. Moreover, we have to add to this phenomenon the slowdown of all processes in IFR, which is the so-called relativistic component of the change in frequency (determined by a lower rate of time IFR). In the concrete case of the atomic clock, both the light source and the receiver are at rest in the same frame; therefore, when this clock returns to the parent AFR, the time difference it shows will result only from the relativistic component of the change in frequency.

What happened inside the atom that emits photons in IFR, why their frequency (and energy) is lower? We can infer from the previous analysis that:

- The effects of electric and magnetic fields on particles (electrons - nucleus) did not change

- The mass of all particles undergoes a relativistic increase

If Newton's second law of motion is still valid, we may simply say that a constant force applied to higher masses will produce a lower acceleration; this means a longer duration of transition for electrons between the two orbitals, which may explain logically the relativistic decrease in photon's frequency.

A photon takes a certain period of time to be built, and each of its granular layers is emitted in the same direction within an *infinitesimal fraction* of that interval. Over this fraction of time, we can assume that the electron is at rest and the granular layer flies off with the absolute speed **c**; thus, no law or postulate related to the maximum speed was broken during the emission process. The next granular layer is generated when the electron takes a new position, at a distance that depends on its absolute speed. The entire granular structure of a photon (more or less compressed) is built in this way, and its physical length (reflected in wavelength) will depend on the electron's absolute velocity. In a global manner, the relative speed of photons to the source can exceed the value **c**.

4.6. Absolute transformations

We have already seen (Chapter 4.2) that light has an apparent speed below the limit **c** on a broad range of directions in an IFR (the angles of about -90°..+90° to the velocity vector **v**); therefore, certain distances will be traveled by light in a longer period of time. A light clock is able to measure this dilated time (according to TR applied in that IFR) only if it is oriented perpendicularly to the direction of movement. Considering all these things, we may formulate now a few reasonable assumptions, closer to the mechanisms of reality, regarding the transformations between the two coordinate systems (the postulates of TA will be included).

First of all, we need some *initial transformations* to correctly reflect the perception of an absolute observer in both frames, AFR and IFR. Considering the hypothetical situation from Chapter 4.2, the addition of velocities in these frames is shown below (both pictures of Figure 15). The absolute velocity **u** of a body named **A** (left drawing) in AFR is perceived as **u'** in IFR; similarly, the angle **α** of its trajectory in AFR is perceived as **α'** in IFR. In case we talk about photon **B** (right drawing), the velocities will be denoted by **c** and respectively **c'**. The relationships between their values may be deduced from the two right triangles formed by the velocity vectors. In order to simplify the final formulae, we will use:

$$\varepsilon = v/u\,,\ \ \varepsilon' = v/u'$$

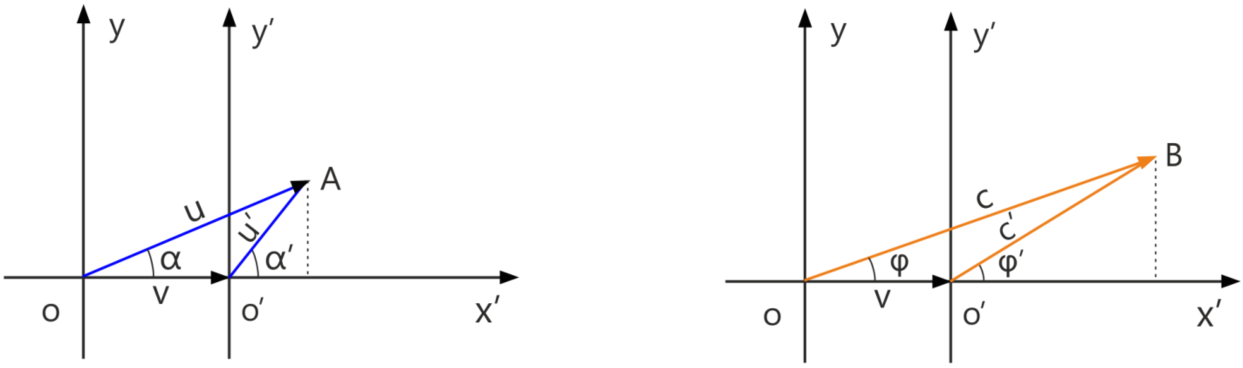

Figure 15 - *The absolute velocities in absolute perception*

AFR	**IFR** (absolute mode)
$u' = u\sqrt{1 - 2\varepsilon\cos\alpha + \varepsilon^2}$	$u = u'\sqrt{1 + 2\varepsilon'\cos\alpha' + \varepsilon'^2}$
$\sin\alpha' = \sin\alpha/\sqrt{1 - 2\varepsilon\cos\alpha + \varepsilon^2}$	$\sin\alpha = \sin\alpha'/\sqrt{1 + 2\varepsilon'\cos\alpha' + \varepsilon'^2}$

Table 3

For the photon **B** we will use:

$$\beta = v/c\,, \;\; \beta' = v/c'$$

AFR	**IFR** (absolute mode)
$c' = c\sqrt{1 - 2\beta\cos\varphi + \beta^2}$	$c = c'\sqrt{1 + 2\beta'\cos\varphi' + \beta'^2}$
$\sin\varphi' = \sin\varphi\,/\sqrt{1 - 2\beta\cos\varphi + \beta^2}$	$\sin\varphi = \sin\varphi'/\sqrt{1 + 2\beta'\cos\varphi' + \beta'^2}$

Table 4

Let us use one more special notation for photons:

$$\gamma^- = 1/\sqrt{1 - 2\beta\cos\varphi + \beta^2}, \;\; \gamma^+ = 1/\sqrt{1 + 2\beta'\cos\varphi' + \beta'^2}$$

AFR	**IFR** (absolute mode)
$c' = c\,/\,\gamma^-$	$c = c'\,/\,\gamma^+$
$\sin\varphi' = \gamma^-\sin\varphi$	$\sin\varphi = \gamma^+\sin\varphi'$

Table 5

We can draw a single conclusion from these formulae: the apparent velocity in an IFR depends (as magnitude and direction) on the absolute speed and on its direction (and vice versa) in a non-linear manner. This statement is true for any subluminal speed and even for the speed of light.

Now, let us go back to the *local observer*, to its time reference and to the general principles of observation. What are the main features of observation, knowing that any measuring equipment would be used for this purpose, it would be equally affected if the IFR's local physics would change? At this moment, we can assume that:

- The observation is neutral, the observer does not interact with the observed system
- Any change in the local physics affects the system and the observer in the same manner
- The time reference of all observers is based on maximal processes (their speed is **c**)
- A single direction can be observed at a time
- Several directions can be simultaneously observed by several independent observers

Let us assume now that the time reference of a local observer is based on a unidirectional light clock (the unit of time is given by the interval in which light travels in one direction); moreover, the clock is oriented along the exact direction of the uniform motion observed in IFR. The apparent speed of light, in any place inside and outside the clock, will have identical values. Therefore, the eventual variation of this speed *cannot be perceived by the observer*, and, from his point of view, light travels at a *constant speed* throughout the IFR. As this speed does not depend on the absolute velocity of the IFR (value and direction), we can infer that its value may be found in a stationary IFR, i.e. *the speed of light has the same value **c** for both types of observers, local and absolute*.

As the local time measurement is based on the apparent speed of light and this speed has proved to be constant, we can infer that the local time and the apparent time are changing in the same way (we have already estimated this, see Chapter 4.3.2).

Furthermore, if we have a maximal process (as of the two-particle system, Chapter 4.3.1) in an IFR, it will be slowed down in the same proportion as the local time slows down; consequently, a local observer will not perceive the change, he will see that process running at the same speed.

These hypotheses lead us to a simple conclusion: "the universe" perceived by the local observer (the one having all the properties above) of an IFR is perfectly similar to the universe of the AFR and the absolute transformations may be formulated considering two things:

- The speed of light has the constant value **c** in both frames
- The local time is given by the apparent time (whose unit is based on the apparent speed of light)

Consequently, my new proposal regarding the *directional local time* is this:

In any child IFR, for any entity in uniform motion, the local time changes in regard to the parent AFR's time in the same proportion as the apparent speed of light on that direction changes in regard to its absolute value.

Now we turn on the *local mode* in IFRs ('') and the local time on a trajectory that has the direction angle $\boldsymbol{\varphi}'$ may be written as a function of the absolute time **t**:

$$t'' = t / \sqrt{1 - 2\beta\cos\varphi + \beta^2} = t\,\gamma^-$$

Due to this new rate of the local time, a local observer from IFR will perceive in a different way the journey of our photon - the same distance will be traveled, but with the "local speed" **c**.

If an object moves with the apparent speed $\mathbf{u}'$ and its trajectory has the same direction angle $\boldsymbol{\varphi}' = \boldsymbol{\alpha}'$, its speed will seem different to a local observer due to the new rate of local time ($\mathbf{t}''$, given by the previous formula). The local observer perceives the speed $\mathbf{u}''$, as follows:

IFR (local mode)
$u'' = u' / \sqrt{1 - 2\beta\cos\varphi + \beta^2} = u\,\frac{\sqrt{1-2\varepsilon\cos\alpha+\varepsilon^2}}{\sqrt{1-2\beta\cos\varphi+\beta^2}}$
$u = u' \sqrt{1 + 2\varepsilon'\cos\alpha' + \varepsilon'^2} = u''\,\frac{\sqrt{1+2\varepsilon'\cos\alpha'+\varepsilon'^2}}{\sqrt{1+2\beta'\cos\alpha'+\beta'^2}}$

Table 6

We may conclude that local observers will see a movement at the speed of light in the same way as the absolute observer, while the movements at subluminal speeds will be seen in a distorted way - the non-linear changes are depending on the angle between trajectory and the IFR's direction of travel, also on the IFR's absolute speed (Figure 16 shows only the velocity $\mathbf{u}''$ at the new scale of the local time).

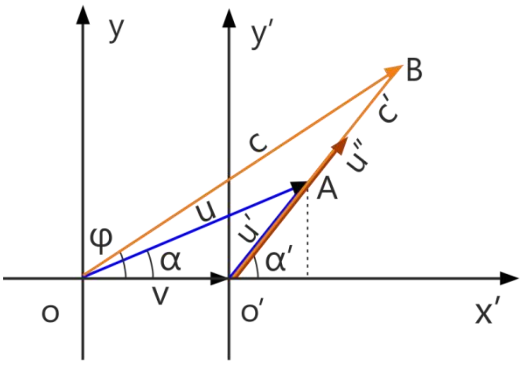

Figure 16 - *Velocity u in IFR*

Note 1: The absolute transformations AFR - IFR are actually the Galilean transformations in which:

- The IFR's absolute speed **v** is limited to the value **c**.
- The local time is directional, see its formula above.
- The Z-axis has not been included due to symmetry; an IFR rotated about the X-axis is equivalent.

Note 2: This variable (directional) time of an IFR can flow faster or slower than the time of the AFR, depending on the direction in which photons are moving in regard to velocity **v** (the relative speeds may be higher than **c** in any FR). For omnidirectional processes running in IFR, we may continue to apply TA (i.e. TR in regard to IFR); for unidirectional processes, the new formula adds more precision and correctly describes how the physical phenomena are seen in fact.

Note 3: The new transformations and the new direction-dependent formula of $\boldsymbol{\gamma}^{-}$ are valid for unidirectional movements and processes. For a material object that is at rest in IFR, time has an *averaged value* resulted from the proper time of all its particles, atoms or molecules (depending on their rotations and vibrations in all directions). Consequently, the rate of this concrete time decreases continuously when the speed **v** increases and *tends* to the value given by TR:

$$\gamma^{-} = 1/\sqrt{1 - \beta^2}$$

Therefore, we may also apply the general formula, but considering that the movements are taking place in a perpendicular plane - where the apparent angles are $\boldsymbol{\alpha}' = \pm \mathbf{90}°$ (like in the case of a light clock).

Note 4: The apparent speed of light in the world of an IFR is variable, being less or greater than **c** (but no greater than **2c**), and depends on the direction of travel:

$$c' = c/\gamma^{-}$$

Numerically, $\boldsymbol{\gamma}^{-}$ is about 1 (at low speeds, when $\boldsymbol{\beta}$ it is very small) and, if β = 0.99 for example, it varies in the range 0.5 ... 100 when $\boldsymbol{\alpha}$ varies between 180° and 0°. This value reflects in fact the new formula of time dilation.

Note 5: As the apparent speed of light can be zero in an IFR, Maxwell's equations are not longer invariant under the absolute transformations (which is normal, considering the fixed granular structure of photons and of the groups of photons in electromagnetic waves - Chapter 13 of [3] - in their comoving frame).

Note 6: If the local observer would use a bidirectional process as reference (the bidirectional light clock), the local time of its IFR will still be direction-dependent; however, that variation would be smaller.

Note 7: If the local observer would use a relativistic time reference (the TR's dilated time), its IFR would still not become uniform, now in regard to the variable speed of light he would perceive.

4.7. The light cone

In relativistic mechanics, an event that occurs in an IFR is described by its geometric position and by an additional coordinate on the time axis. Thus, the three-dimensional description of an **event** may be replaced by a four-dimensional one in a pseudo-Euclidian space (Minkowski space): **(x, y, x, ict)**.

The distance between two such events in spacetime may now be written:

$$\Delta s^2 = \Delta x^2 + \Delta y^2 + \Delta z^2 - c^2 \Delta t^2$$

and this new space is characterized by *relativistic invariance* (it does not change under the Lorentz transformations). We may see the light cone in a three-dimensional representation (x,y,ct), as it is depicted in Figure 17. Relativistically speaking, the related events from a certain IFR are located inside this cone, as follows:

- The origin means an event that happens *now*; the events from the upper half of the cone will happen in the future, while those from the lower half occurred in the past.
- A body in uniform motion is represented by a series of events that form a straight line located inside the cone; thus, the vertical axis represents a body at rest, while a line embedded in the cone's surface (inclined at 45°, having a uniform slope) represents a light-speed motion.
- The events located inside the cone are separated from the origin by a distance $\Delta s^2 < 0$; they may be *causally related* to the origin.
- The events located on the cone's surface are separated from the origin by a distance $\Delta s^2 = 0$ (a light signal, for example).
- The events located outside the cone are separated from the origin by a distance $\Delta s^2 > 0$; they *cannot be causally related* to the origin, as nothing can travel faster than light.
- Two space-like separated events can occur simultaneously in a certain IFR, but they may no longer be simultaneous in other frames (the relativity of simultaneity).

These features of the Minkowski spacetime are also valid in an AFR named **A** (as shown in Figure 17), but not in its child IFRs for absolute observers.

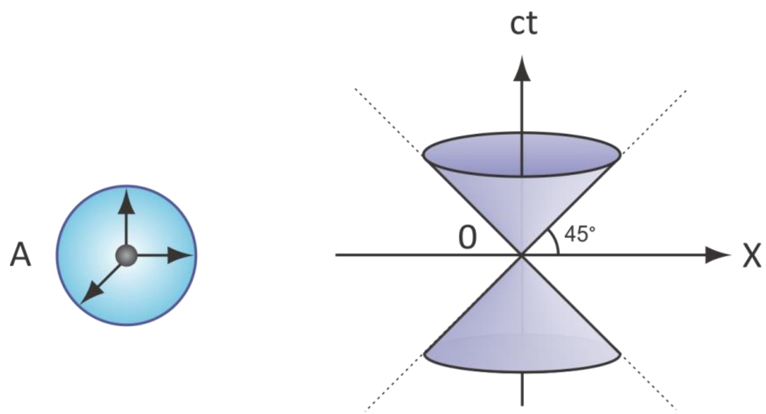

Figure 17 - *The light cone in relativistic perspective*

Let us try to describe the space-time relation in absolute terms. As we have already seen, the apparent speed of light is no longer a constant (of value **c**) in IFRs; therefore, the moving objects will have a different speed limit, and this new maximum of their apparent speed will depend on direction. Time has also a directional variation when we talk about simple movements and processes. The usual spacetime intervals are no longer seen as equal in various IFRs. Consequently, we may infer that this distance remains *invariant* only in equivalent child IFRs.

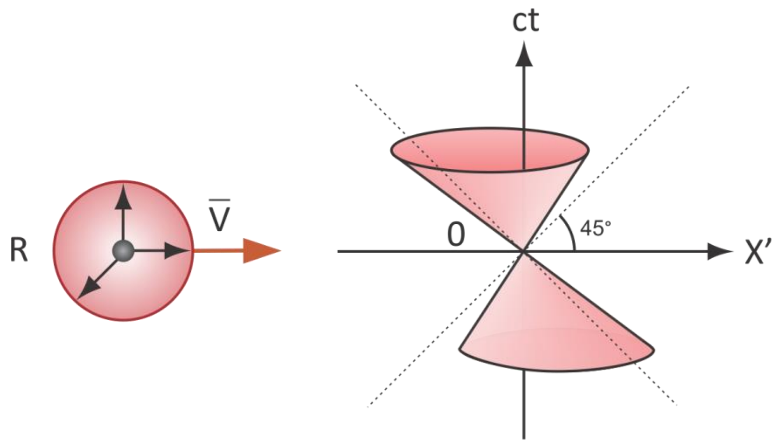

Figure 18 - *The light cone in absolute perspective*

The light cone (drawn about a uniform time axis) will no longer be the same, it will be skewed in the opposite direction relative to the absolute velocity of the inertial frame denoted by **R** (Figure 18). How this aspect can be interpreted using absolute mechanics?

- First, the side surface is no longer inclined at 45°, as in AFR, because the apparent speed of light will be greater or lower than the limit **c**, depending on direction.

- The events located inside the cone are separated from the origin by a distance $\Delta s^2 < 0$; they may be *causally related* to the origin, as in the case of an AFR.

- The other things are similar to those described in relativistic terms.

Practically, time has a rate of passage that cannot be directly assigned to an IFR; as it was mentioned before, its rate is correlated to the absolute speed of a material object. For this reason, we have already made the differentiation:

- Abstract, directional time, useful to describe the simple movements and processes that take place at a constant speed in IFR.
- Averaged, concrete time, which is specific to a material object being at rest in IFR.

The formalism of a unique time used throughout an IFR, valid for any process, does not correspond to reality. As we have stated in the previous chapter, an observer of local type keeps seeing the photons moving at the absolute speed **c**, and this happens due to the change of local time in a directional manner. Thus, the light cone of an IFR returns to its initial symmetrical shape when it is observed by a local observer, but its interior spacetime is no longer uniform for the subluminal processes.

5. Conclusion

This article tried to solve one of the most important incompatibilities or inconsistencies found in current physics: on one hand, the absolute space and its special mechanics (see [1] and [2]), and, on the other hand, the special theory of relativity. At first, the results of a few famous experiments have been reinterpreted in this new perspective and some guiding lines have been drawn to help define the absolute regions of the Universe. Then, the parent/child frames have been introduced, along with a proposal for their new spacetime formalism - based on a particular vision on the time concept. In this context, *The special theory of relativity* proved to offer good results in many circumstances, but only if the absolute frame can be identified. The artificial postulates of relativity regarding the isotropic spacetime for subluminal processes do not correspond to the reality of perception. In case we need more precision or a realistic interpretation of the observed physical phenomena, the *Theory of the absolute* must be applied instead (updated according to this article). It has to be noted that the laws of physics are the same in all inertial frames, but the non-linear and the directional change of the reference time used by the local observers modifies and distorts differently the subluminal processes running in the parent frame. Our universe proves to be anisotropic in the perspective of local observers (unlike what TR has postulated for inertial frames); the absolute speed of a system slows down its processes and changes the state of its components unevenly, altering in this way the spacetime uniformity and the laws of physics perceived by a local observer. Simply said, the relative speed of an inertial frame about another frame is not directly responsible for the state of their objects and for the distorted perception of the observers; the absolute speed of each object and observer about the parent frame is the quantity that really determines those phenomena.

6. Abbreviations and Acronyms

FR - Frame of Reference

AFR - Absolute Frame of Reference

IFR - Inertial Frame of Reference

TR - Theory of Relativity

GTR - General Theory of Relativity

PT - Prime Theory

TA - Theory of the Absolute

MM - Michelson-Morley

SI - International System of units

"Abc" - figurative sense

7. References

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