Carezani Frame Reduction

(2008)

By David de Hilster

With excerpts from Dr. Ricardo Carezani with permission

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Abstract

In the early 1940s, Ricardo Carezani, an Argentinean engineering student who later received his doctoral in physics, found that more than one frame in the Lorentz Systems in Relative Motion's derivation was, one of them, mathematically, and physically redundant. The removing the redundant frame and using a single one resulted in a new set of equations that are, conceptually in motion, Newtonian, have a logical explanation, even does not blow up at the velocity "c", and presents no paradoxes. The new "Autodynamics" equations have been subsequently used to improve current mainstream equations such as the Compton Effect, to derive Bohr's Atom without the need for wave equations, and to describe subatomic interactions without the need for the neutrino, etc. The math behind the redundant frame will be shown, the derivation of the new Autodynamics equations, as well as the mismatching exponent form Einstein's attempt to generate the Lorentz equations from special relativity.

History

Dr. Ricardo Carezani holds a PHD in physics and is currently 87 years old. His body of work is quite remarkable yet still mostly unrecognized.

Argentina

Born Monday, April 11th, 1921, Ricardo Libertario Carezani in the city of Cordoba, Argentina to an Italian political activist and a quiet mother, Ricardo was a bright student and moved about the country to better schools.

In 1939 at the age of 19, he entered Tucuman University to become an Electro-Mechanical Engineer. His interest in physics started when he first questioned Einstein's special relativity as it relates to decay cases during his engineering physics class. His specific question to his physics professor was how could one apply the special relativity kinetic energy equations to decay cases given decay does not involve kinetic energy. No one in the world at the time had such an answer and out of frustration, Carezani continued to work on this problem on his own time.

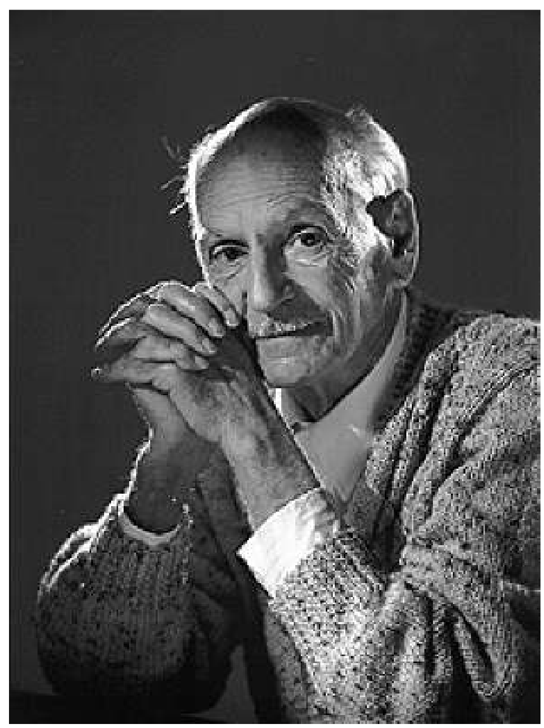


Figure 1 - Portrait of Dr. Ricardo Carezani taken by the world famous photographer Herman Leonard

From 1939 to 1945, on his own without the support of his professors, the student Carezani developed elementary equations for new relativity theory he called Autodynamics based on his findings that special relativity's requirement of more than one three-dimensional space of "frame" was both mathematically and physically superfluous. He was 24 years at the time.

In 1947, Carezani graduated with a PHD in physics and by 1951 with the help of some intellectual friends, publishes 300 copies of a book on Autodynamics in Spanish and English.

By 1953, he succeeded in publishing his theory in an important newspaper in Buenos Aires. The paper was contacted by the Peron government and threatened with a shut down the entire paper if anything more was published of Carezani's work showing Einstein wrong.

For the most part Carezani shut down his research production for many years fearing reprisals. There was some political intrigue when the Peron mafia came calling and took Carezani to a room to sign his theory away to the government offering his one fourth of anything earned from the theory. Carezani refused and nothing ever more came of it and Carezani again kept quiet living through the repressive regime of Peron where leaving the country was a practical impossibility.

Carezani worked on an off with his theory, making a living as a mechanical engineer and running some of his own small businesses.

In 1978 when Person died and Carezani was finally free to travel and express his theory, his friends encouraged him to move away from the country to either Europe or the United States.

Stanford Linear Accelerator

Carezani moved to San Francisco, relocating his family including his wife and daughter to the United States, befriending a Scientist at the Stanford Linear Accelerator, Dr. Noyes. Carezani succeeded in getting the professor to perform an experiment to try and prove the Autodynamic equations correct over Special Relativity. It turned out that the experiment did not do that because it was designed incorrectly. Numbers of years later, Carezani figured out the flaw but by that time, Noyes was no longer interested in Carezani's work.

Long Beach

Carezani moved to Long Beach and continued his work. He met David de Hilster in 1992 who in 1994 started the Society for the Advancement of Autodynamics (SAA). Since its inception, the SAA has maintained and developed a website dedicated to Carezani's work (http://www.autodynamics.org) that has been online for over 10 years and was instrumental in publishing a collection of Carezani's works.

Carezani's Body of Work

Carezani's work spans almost seventy years and is quite remarkable. Besides his preliminary work on the frame reduction of special relativity, the 1990s – 2000s have been very productive for Carezani writing two books, and dozens of technical papers.

Major Implications from Carezani's Work

Here are some of the major implications that have come from Dr. Carezani's work:

- There is only one frame of reference or one three dimensional space and we can only move the origin. This nullifies special relativity that requires more than one frame.
- Frames are mathematical, not physical and having no physical reality, cannot be part of any physical theory including special relativity.

- The equations that result from removing the superfluous frames reveal that motion is not for free and requires energy.
- The universe is "autodynamic" where mass and energy or mass and mass in motion transform from one to another.
- Atomic reactions are more plastic than billiard ball like where particles come together, fuse, and can break apart and become completely different particles. Once example has been observed in particle accelerators where protons have collided and perhaps have produced oxygen.
- There is no such thing as kinematics.
- Gravity is a quantum force.
- Mass increase is part of a universal graviton and accounts for lunar distancing, perihelion advance for all orbiting bodies, the apparent pioneer slowdown, and the Allias Anomoly of pendulums moving erratically during full eclipses.
- Neutrinos are an invention to conserve energy because of the superfluous mass that introduced by special relativity.
- The speed of light is a number but is not a speed limit.

Atomic Level

Here are the major points from the atomic world that result from Carezani's work:

Bohr's Atom - Dr. Ricardo Carezani derives Bohr's Atom without wave equations. The explanation and math are divided into four sections: The Hydrogen Atomic Spectrum, Wilson and Sommerfeld elliptic orbits, The Sommerfeld fine structure, AD's Approach.

Cherenkov Effect - There exists a large and impressive literature related to the Cherenkov Effect from the Theoretical and Experimental point of view. This approach only tries to show that Cherenkov's basic equations can be found starting from the AD's equations.

Muon Decay - The Autodynamics equations are explained, and their application to Muon decay is analyzed. Autodynamics can explain the results obtained at SLAC and CERN. (Published in Physics Essays)

Pion Decay – Pion decays on the fly to a Muon, which decays to Electrons in the Pion's direction of motion, conserving energy and momentum when the AD concept of particle propellant is applied.

Nucleus-Nucleus Collision - Part of the smaller Linear Momentum Transfer (LMT) found in Nucleus-Nucleus collision is explained by the application of Autodynamics equations.(To be published in Physics Essays)

Proton-Proton Annihilation - The huge energy loss from proton-proton annihilation that Special Relativity cannot explain with the neutrino is explained by Autodynamics. (To be written and published in Physics Essays)

Energy Loss by Electrons in an Absorber - A group of experiments in the 1930s, 40s, and 50s involving energy loss were never explained satisfactorily. The neutrino was proved not to be involved (also see Beuchner &Van de Graaff Paper). (Unpublished)

Compton Effect – Carezani using Autodynamics has come up with an equation that is more accurate than the current Compton Effect equations.

Cosmological Implications

Here are some of the implications of Carezani's Autodynamics at the cosmological level:

- The Universe is eternal in time, finite in mass, and is in constant flux in a born, die, and born again cycle
- There is no big bang
- Black holes don't suck (gravitational energy is finite)
- There are no infinite points with infinite mass but there are super dense objects
- Mass increase is a part of universal gravitation.
- Mass increase is necessary to keep bodies in orbit.

Other Papers and Works

Other Carezani works include the following:

- Time Dilation
- Light Speed
- Particle Propellant
- Missing Momentum
- Decay Energy and Absorption
- Neutrino Spectrum
- Lagrange Function
- Lorentz Invariance
- Limit Velocity
- FTL Cesium Experiment
- Two Observers

The Autodynamic Equations

Carezani's equations are almost universally misunderstood by the establishment because they are judged according to the characteristics of Special Relativity. One such judgment is that the Autodynamic equations don't match classical mechanics at low velocities. This is characteristic of special relativity that is by no means a principle in itself. Carezani's equations are Newtonian in nature describing a world where.

The second criticism of the Autodynamic equations is that they clash with classical mechanics. This could not be further from the truth. One such criticism points out that in the velocity sum, Autodynamics does not agree with classical mechanics. There is a simple reason for this. Both Newton and Einstein assumed in their equations that velocity appears instantaneously and that when adding two velocities, the mass is constant at low speeds. Autodynamics says that velocity does not come for free and that mass must be used to move itself to a velocity. Thus, the velocity sum ends up with mass decreasing.

This leads us to the correct interpretation of the Autodynamic equations. Let's compare them side by side with Special Relativity:

The basic different is that Carezani, unlike Newton and Einstein says that velocity requires mass to decrease. That is, mass as it accelerates decreases. This is easiest to understanding using the rocket analogy. Mass moves when quanta from that mass is expelled in the opposite direction of the path of acceleration. Carezani calls this particle propellant. Particle propellant is the basis for

SR equations	Description	AD equations	Description
$E = m_o c^2$	Energy-Mass equivalence	$E = m_o c^2$	Energy-Mass equivalence
$m = \frac{m_o}{\sqrt{1-\beta^2}}$	Mass increases with velocity	$m = m_o \sqrt{1-\beta^2}$	Mass decreases as it is used to move an object forward
$KE = m_o c^2 \left(\frac{1}{\sqrt{1-\beta^2}} - 1 \right)$	Kinetic Energy increases with velocity	$KE = m_o c^2 \left(1 - \sqrt{1-\beta^2}\right)$	Kinetic Energy increases to a maximum equal to mo c^2
$p = \frac{m_o}{\sqrt{1-\beta^2}} \beta$	Momentum increases with velocity	$p = m_o \sqrt{1-\beta^2}\, \beta$	Momentum increases then decreases as mass is used to move an object
$e = e_o\ (constant)$	Electric charge is constant	$e = e_o \sqrt{1-\beta^2}$	If a charged particle decays, its charge gets smaller

all movement in the universe.

Thus, a mass will eventually turn into smaller particles and disappear as a mass when all the mass is expelled in creating velocity.

Einstein's Two Derivational Mistakes

Dr. Carezani found two mistakes in the early 1940s with two of Einstein's derivations. Reconstruction of the derivations was and is still quite difficult because they are rarely published and when published, they lack crucial steps that contain the mistakes.

1. There is a spontaneous and unjustified appearance of velocity during a derivative that is then set equal to a different velocity.
2. Einstein's derivation of the Lorentz equations has a flaw in that the exponent derived by Einstein is 2/3 instead of 1/3.

Carezani not only found the mistakes in Einstein's derivations, but he recognized that the mistake was to treat mathematical frames as real. He then removed all frames except one and regenerated the equations thus producing the Autodynamic equations. You can see this demonstrated in Carezani's original derivation works found in the appendices of this paper.

Conclusion

Carezani's findings some 10 years before the death of Einstein, describes the flaw in special relativity and when corrected, reveal new equations that describe an autodynamic universe. These equations are Newtonian in nature, but require all velocity to be accounted for and not simply appear spontaneously.

The Society for the Advancement of Autodynamics has been looking to prove Carezani's equations over special relativity. There are cases where members have found Autodynamic equations in mainstream work but a definitive experiment has designed but yet to be performed.

References

- Society for the Advancement of Autodynamics Website, http://www.autodyanmics.org

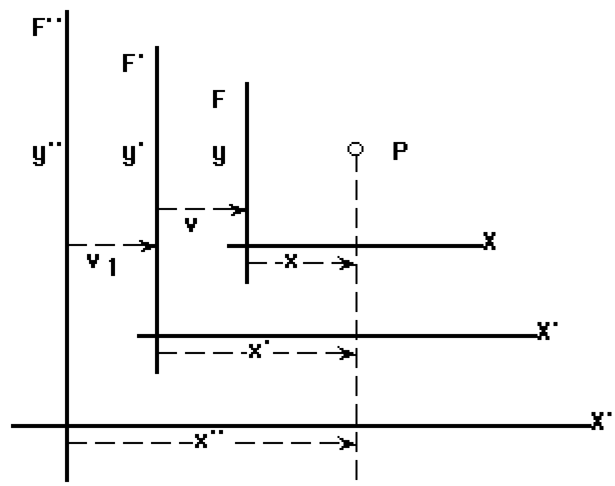
- Carezani, Ricardo (1999), Autodynamics: Fundamental Basis for a New Relativistic Mechanics, ISBN 978-0966553307

- Carezani, Ricardo (2005), Storm in Physics (Autodynamics), ISBN 978-0966553345

Appendix

Frames in Relative Movement

by Ricardo L. Carezani



Let us examine two parallel frames of coordinates x, y, z, t and x', y', z', t'. Frame F is moving with relative velocity v with respect to frame F '. Using the Galilean transformation, the abscissa x of point P in F is given in the above figure by

x' = x + vt
y' = y
z' = z
t' = t (1)

The velocity of P observed by frame F' is

v' = v (2)

Introducing a third frame of reference F '' with respect to which frame F is moving with relative velocity v1, the abscissa of P in F '' is

x'' = x' + vt
x'' = x + v t + v1 t = x + (v + v1) t (3)

We are using three coordinate reference frames, F, F ', and F '', and we shall try to demonstrate that two of them are useless, inoperative, and superfluous by doing the following analysis.

First: It is impossible to measure the abscissa of P in F from F' independently of the relative velocity v, supposing that P is moving with velocity -v with respect to F, because P will be at rest with respect to F', and, in this particular case, F' is useless because it cannot observe a phenomenon at P.

Second: We can also suppose that P is moving within F with relative velocity vx, or with a relative velocity u with respect to F', because no one in F ' could distinguish the velocity vx from v, even though F' receives signals from P and they are transmitted to F', the observer in F' will measure the relative velocity u, because if the frame F first transmits v and then v+vx, the observer in F ' will only think that the relative velocity v increases until u. It would be easier for the observer in F ' to receive directly the signals from P. So, the reference frame F is unnecessary.

It is formally possible to demonstrate that either the frame F " or F is useless and inoperative, as follows.

The velocity of the point P moving in F with velocity vx, measured from F' is

$v' = vx + v$ (4)

x being the coordinate of P in F when t=0, its coordinate at a later time t will be

$x1 = x + vx\ t$ (5)

Its coordinate in F' is

$x' = x1 + v\ t$
$x' = x + vx\ t + v\ t = x + (vx + v)\ t$ (6)

The equations (6) and (3) are totally equivalent. Is it not the same to say that P moves with respect to F with relative velocity vx, giving equation (6), as to say that P moves with respect to F' with relative velocity v, giving equation (3)?

But equation (6) results only in applying "two systems of reference", F and F'; F" then is not operative, and is useless. Equation (3) is obtained by applying "three systems of reference" but the point P is at rest in F, v' = v, and consequently frame F is useless, and inoperative.

If point P is moving together with F, and observer in F will never observe a phenomenon at P; that is to say, it is impossible to make the auto-observation of point P.

Even so, we may insist upon the following: Can velocity vx and v be distinguished from each other while we are observing the physical phenomenon. No. In each phenomenon there exists the phenomenon itself and the observer. The relativity of space and time is given by light speed, which is constant or, at least, has a finite value. Can we divide space in such a manner as to have an arbitrary quantity of reference frames?. A physical phenomenon naturally presupposes two objects: the observer and the object under observation. If the process is relative - and really it is - it should be to both, always due to their mutual interaction.

Consequently we shall define as a "physical; system" one that consists of a moving point P (the observed) and a "reference frame of coordinates" (the observer). A brief, formal and complete exposition is the following (1).

Let us consider three parallel frames F, F' F", their origins coincident at instant t=0, and point P of abscissa x on F. If F moves relative to F' with velocity v and F' in respect to F" with velocity v1, the coordinate of P on F" is

x" = x' + v1 t
x" = x + (v1 + v) t (7)

During this exposition we have presumed a relation of P with F even though P is at rest with respect to F. This, in our point of view, is not logical due to the fact that self observation of a point is absolutely impossible. In other words, with point P and a geometrical system F linked to it, we have no physics whatsoever. We need another system, one not linked to P, (and which we may individualize by its origin) in which we place an observer describing the physical alternatives which P is undergoing. In this case, frame F is superfluous.

Equation (7) maintains its value if we suppose that at time t=0, the point passes the origin of F". To make it easier, we shall run up the primed values in the following manner: F' shall be F, and F" will be F', v is the velocity of P with respect to F, v1 the velocity of F with respect to F' therefore (7) shall read"

x' = x + v1 t
x' = (v1 + v) t (8)

which is equal to (7) when we only consider two systems. The preceding analysis of the systems in relative movement leads to the following definition: a physical system consists of two points in relative movement, P and F or the origin of F. Up until now this has been known as a system F on one side, and point P at rest on the other. This new concept or conclusion will be used to analyze what happens in special relativity.

Frames Derivation

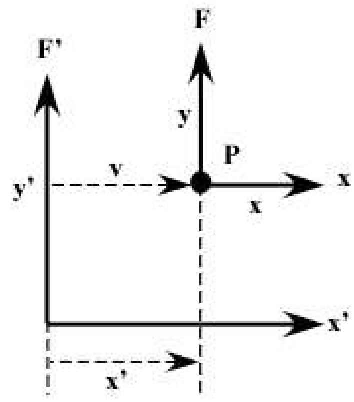
by Ricardo Carezani

As with many powerful yet elegant theories, the derivation is often the most powerful argument for the theory itself. Such is the case with Autodynamics. Although it is impossible to discuss the background necessary to adequately set up the AD derivation in this small article, the math is quite simple and elegant.

Discussing in detail the Galilean coordinate transformation principle and comparing it with the Lorentz-Einstein transformation of frames in relative motion, the author of AD demonstrated that it is possible to simplify the Lorentz equations by recognizing that one of the two coordinate systems used by Lorentz and Einstein were superfluous. Not only was one coordinate system superfluous, but the relationship between the Lorentz coordinate systems (one for the object and one for the observer) was arbitrarily fixed by Einstein by setting their relative velocities equal in the acceleration derivation and introducing a problem in the velocity sum equation.

SR: 2 coordinate systems

Below is the universal system of frames for relative movement.



We will first find the velocity v' of an object with respect to the observer using the Lorentz equations. But it is important to note that the object is at rest with respect to its coordinate system F, and in motion with respect to the observer in F ' (this becomes very important further on).

The Lorentz equations are:

$$x' = \frac{x + vt}{\sqrt{1-\beta^2}} \quad t' = \frac{t + \left(v\frac{x}{c^2}\right)}{\sqrt{1-\beta^2}} \quad (1)$$

(where $\beta = \frac{v}{c}$, v = particle velocity, and c = light velocity)

SR Velocity

The Lorentz equations in differential form, are

$$\frac{dx'}{dt} = \frac{\frac{dx}{dt} - v}{\sqrt{1-\beta^2}} \quad \frac{dt'}{dt} = \frac{1 - \left(v\frac{dx}{c^2 dt}\right)}{\sqrt{1-\beta^2}} \quad (2)$$

In order to find the velocity v' we need to divide $\frac{dx'}{dt}$ by $\frac{dt'}{dt}$:

$$\frac{dx'}{dt'} = v' = \frac{\frac{dx}{dt} - v}{1 - \left(v\frac{dx}{c^2 dt}\right)} = \frac{v_x - v}{1 - \left(v\frac{v_x}{c^2}\right)} \quad (3)$$

This equation was obtained working with two frames in relative motion and with a point P at rest in frame F (see above figure). Yet equation (3) has 3 velocities even though it must only have 2.

What is remarkable is that the velocity vx appears spontaneously through the mathematical operation of the derivative from the coordinate x in equation (1) to the derivative dx/dt in equation (2). This innocent operation has no physical meaning. There is no energy to move point P (originally at rest in frame F) with respect to the F coordinate system. This is the reason why the SR sum velocities equation fails to maintain momentum and energy conservation when the equation is applied to a dynamic physical phenomenon observed by observers in two relative frames in motion.

SR Force

Now that we have the velocity v' for the object with respect to the observer, we now can derive the SR equation for force.

In frame F, force is

$$m_0 \frac{d^2x}{dt^2} = F_x \quad (4)$$

In frame F ', force is

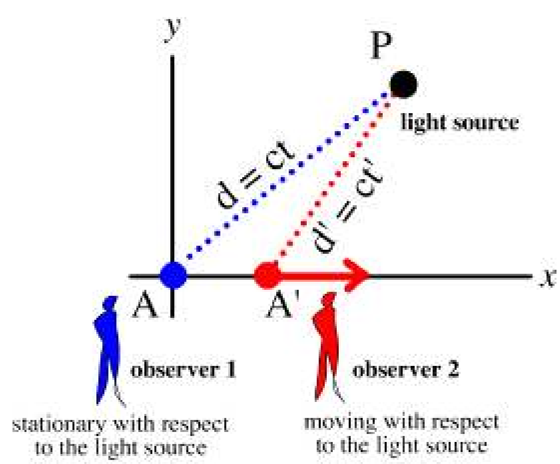
$$m_0 \frac{d^2x'}{dt'^2} = F'_x \quad (5)$$

We need to find the acceleration $\frac{d^2x'}{dt'^2}$. Using the chain derivative, we now need to take the derivative of v' to get acceleration using equation (3).

$$\frac{d^2x'}{dt'^2} = \frac{d}{dt}\left(\frac{\frac{dx}{dt} - v}{1 - v\frac{dx}{c^2dt}}\right)\frac{dt}{dt'} = \frac{d^2x}{dt^2}\frac{\left(1-\beta^2\right)^{\frac{3}{2}}}{\left(1 - v\frac{dx}{c^2dt}\right)^3} \quad (6)$$

and given $\frac{dx}{dt}$ = vx, we obtain the acceleration:

$$\frac{d^2x'}{dt'^2} = \frac{d^2x}{dt^2}\frac{\left(1-\beta^2\right)^{\frac{3}{2}}}{\left(1 - v\frac{v_x}{c^2}\right)^3} \quad (7)$$



But in order to obtain the well known SR formula

$$\frac{d^2x'}{dt'^2} = \frac{1}{\left(1-\beta^2\right)^{\frac{3}{2}}}\frac{d^2x}{dt^2} \quad (8)$$

it is necessary to set vx = v.

Once again, this simplification has no physical sense. There is no reason for setting these two velocities equal. To confound the matter, the exponent 3/2 in equation (8) does not end up matching the 1/2 in target Lorentz's equation. In other words, even with the strange assumption that vx must equal v, it still does not match the desired Lorentz exponent.

An even more strange a phenomenon in Einstein's derivation is the question of why he didn't set the velocities equal to each other back in equation (3). The problem is if he did, the result would be very strange indeed: either 0, or $\frac{2v}{\left(1-\frac{v^2}{c^2}\right)}$. This emphasizes again the utter irrelevance of setting the two velocities equal. In reality, there are an infinite number of choices for v and vx (either taking on any value between 0 and c).

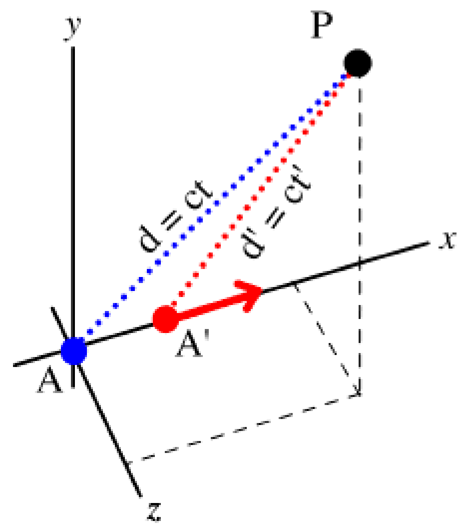
AD: 1 coordinate system

These problems never arise in Autodynamics because there is only one frame of reference.

There are two ways to derive the AD equations for a system in relative motion. One involves using Galilean transformations without using calculus thus avoiding any spontaneous generation of velocity requiring physical energy. The result leads to a simplification of the Lorentz time dilation equation and the observers coordinate position. This however, is too long and involved for this type of article.

The second way to derive the AD equations is shorter and more classical.

Returning to the figure for frames of reference, we see below that AD "collapses" the two SR coordinate systems into one.



In SR, position and time in one coordinate system are a function of position and time with respect to another coordinate system:

(x',y',z',t') = f(x,y,z,t) (9)

Without the extra coordinate system, AD describes position and time for one frame of reference as only a function of time:

(x',y',z',t') = f(t) (10)

To remain consistent with the simultaneity problem of the relationship of two observers viewing the same object, let us describe the coordinates of both observers for AD:

$$x^2 + y^2 + z^2 - c^2t^2 = 0 \quad (11)$$
$$x'^2 + y'^2 + z'^2 - c^2t'^2 = 0 \quad (12)$$

Because Einstein's equations had four variables x, y, z, & t, he had to solve four equations simultaneously. AD on the other hand has only one variable t, and thus has to solve only one equation.

Both AD and SR assume y & z and y' & z' are parallel respectively for both observers and therefore equal:

y' = y

z' = z (13)

But unlike SR, the AD function is dependent on only one variable t, and thus x' and t' must be related by one coefficient a:

x' = avt

t' = at (14)

Substituting (13) and (14) into (12) and solving for a:

$$a^2v^2t^2 + y^2 + z^2 - a^2c^2t^2 = 0 \quad (15)$$

$$y^2 + z^2 = \left(a^2c^2 - a^2v^2\right)t^2 \quad (16)$$

Given that the coefficient for t2 in (11) is c2, and the coefficient for t2 in (16) is a2c2 -a2v2, then we set those coefficients equal:

$$a^2c^2 - a^2v^2 = c^2 \quad (17)$$

$$a = \frac{1}{\sqrt{1-\beta^2}} \quad (18)$$

Substituting a in equation (14), we get the AD equations:

$$x' = \frac{vt}{\sqrt{1-\beta^2}} \qquad t' = \frac{t}{\sqrt{1-\beta^2}} \quad (19)$$

In AD, these are called the "Simplified Lorentz Equations".

AD Velocity

Continuing, we find the velocity of the observer in frame F' by taking the derivative of equation (19),

$$\frac{dx'}{dt} = \frac{v}{\sqrt{1-\beta^2}} \qquad \frac{dt'}{dt} = \frac{1}{\sqrt{1-\beta^2}} \quad (20)$$

and calculating v' by dividing the above two equations:

$$\frac{dx'}{dt'} = v' = \frac{\sqrt{1-\beta^2}}{\sqrt{1-\beta^2}}v = v \quad (21)$$

The result is that v' = v: the observer velocity IS the object velocity. This is not surprising given that in AD, frame F is collapsed onto F' and therefore the velocity of the object is equal to the velocity of frame F with respect to F' before collapsing.

AD Force

Taking the derivative of equation (21) yields the acceleration:

$$\frac{d^2x'}{dt'^2} = \left(\frac{d}{dt}\right)v\left(\frac{dt}{dt'}\right) = \frac{d^2x}{dt^2}\sqrt{1-\beta^2} \quad (22)$$

Given the classical definition of force

$$F'x = m_0 \frac{d^2x}{dt^2} \quad (23)$$

we substitute the result of (22) into (23) and get

$$F'x = m_0 \sqrt{1-\beta^2} \frac{d^2x}{dt^2} \quad (24)$$

Thus, the mass in motion must be

$$m = m_0 \sqrt{1-\beta^2} \quad (25)$$

This makes complete physical sense: when energy is expended, mass is expended! This is one of the elegant mathematical descriptions of the AD theory.

AD Kinetic Energy

First we start out with rest mass energy:

$$E = m_0 c^2 \quad (26)$$

Next, we describe energy of a particle that begins to move from a decay process:

$$E = mc^2 + KE \quad (27)$$

Substituting equation (25) for mass and (26) for energy, we get

$$KE = m_0 c^2 - m_0 c^2 \sqrt{1-\beta^2} \quad (28)$$
$$KE = m_0 c^2 \left(1 - \sqrt{1-\beta^2}\right) \quad (29)$$

The equations for kinetic energy (29) and mass (25) are coherent: when the mass decreases, the kinetic energy increases and there is energy conservation.

Lorentz' Superfluous Frame

By Dr. Lucy Haye

Edited by David de Hilster

Even though we have previously explained Systems in Relative Motion and the derivation of the AD equations in many ways, it seems to us that the layman and probably many professionals are saturated with the Lorentz transformation and therefore the best explanation may be the following (see footnote

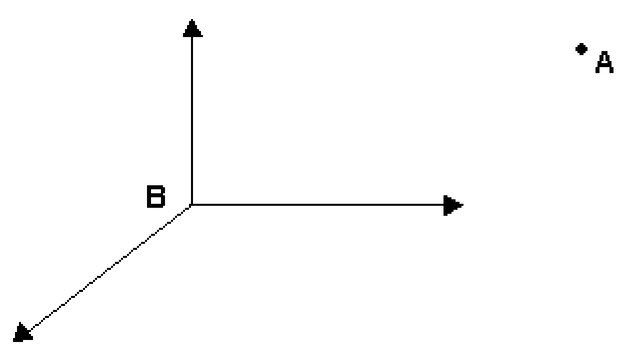


Fig. 1

1):

A phenomenon happens at position A and an Observer at position B receives a signal from A (figure 1).

Let us say that B has a System of Coordinates centered on it.
Whether the phenomenon A is moving with respect to B, or B with respect to A, or both are moving simultaneously with respect to each other, is totally irrelevant to the Principle of Relativity. Light velocity is always constant, independent of both the Observer's and the Phenomenon's states of motion.

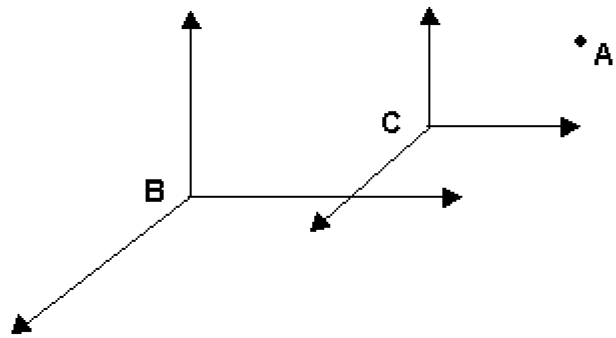


Fig. 2

A simple question arises:

Is there relativity to an Observer at B?

Whoever is not saturated with the Lorentz transformation will answer the question with what makes sense: YES.

Of course there is relativity between A and B, because the two fundamental rules of relativity are satisfied: inertial systems in relative motion and constant light velocity.

Those saturated with the Lorentz transformation will think in terms of two Observers, as if transmitting information between "two observers" is different from transmitting a signal between the Observer and the Phenomenon.

Two Observers in inertial systems in relative motion will measure the constancy of the light velocity and will accomplish with the Principle of Relativity exactly the same as is accomplished between an Observer at B and the Phenomenon at A.

The information between the Phenomenon and the Observer yields relativity.

What does the Lorentz transformation do?

Lorentz introduced a new System C in relative motion with respect to B but without motion with respect to A, that is, A is at rest in this new system that is artificially introduced. (Figure 2).

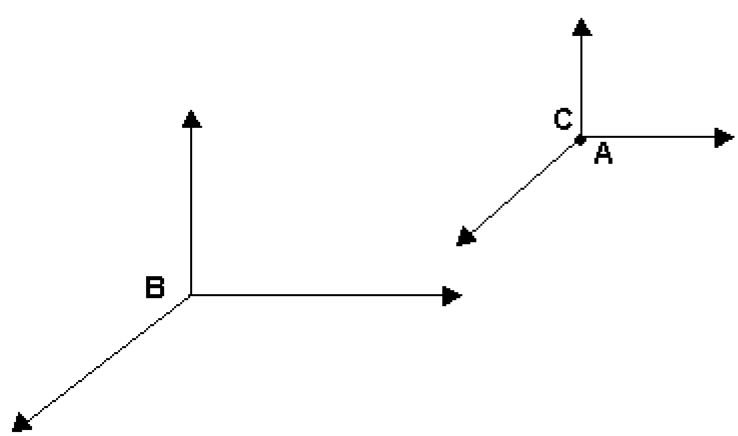


Fig. 3

Now it is very easy to show that this System of Coordinates (C) has no physical meaning, because when we move it to point A we do not lose the "relativity" between System B and System C or "System A." (Figure 3)

But now, System C is totally irrelevant to the phenomenon at A - that is to say, it doesn't have any physical meaning. System C also doesn't have any meaning to System B, because an Observer at B will see the phenomenon directly, and System C is totally superfluous.

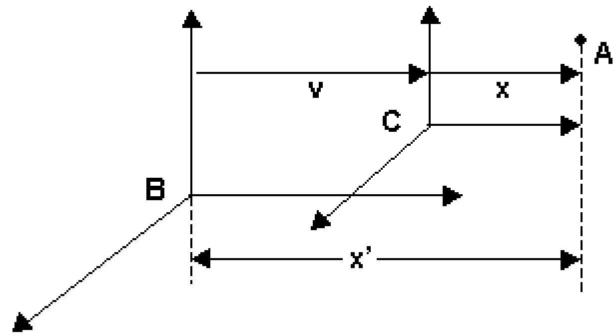


Fig 4.

Using this clear explanation, we will show why the Lorentz transformation is physically wrong even though it is mathematically right.

In figure 4, x is a "constant distance" because A is at rest with respect to C. This means that the velocity that A has with respect to B is v - that is, the velocity of C with respect to B.

Now let us write the Lorentz equations:

$$x' = \frac{x + v\,t}{\sqrt{1-\beta^2}} \quad (1) \qquad t' = \frac{t + \frac{v\,x}{c^2}}{\sqrt{1-\beta^2}} \quad (2)$$

We will write these equations as follows, where it is simple to see the variable separation

$$x' = \frac{x}{\sqrt{1-\beta^2}} + \frac{v\,t}{\sqrt{1-\beta^2}} \quad (3)$$

$$t' = \frac{t}{\sqrt{1-\beta^2}} + \frac{\frac{v\,x}{c^2}}{\sqrt{1-\beta^2}} \quad (4)$$

It is very easy to see in equation (3) that x is divided by $\sqrt{1-\beta^2}$ and this root decreases with the increasing velocity and consequently $\frac{x}{\sqrt{1-\beta^2}}$ is larger than x. Yet this is not true: x is a constant distance because A is at rest in System C.

This increasing distance represents a velocity and this creates an artificial energy that later needs to be subtracted artificially using the Neutrino, postulated by Pauli to save SR's failure to explain decay.

The same happens with time t in equation (4). The 'local" time t in System B will not change because another System C is artificially introduced between A and B. t' will change when measuring the phenomenon at A, but as a consequence, this will not introduce any change in the initial local time t.

SR is wrong because Einstein utilized the Lorentz transformation without any critical analysis. SR is physically wrong because the Lorentz transformation is also physically wrong.

What happens in Autodynamics?

In AD everything is flows nicely, makes sense, and represents the real physical world.

The AD equations are:

$$x' = \frac{v\,t}{\sqrt{1-\beta^2}} \quad (5)$$

$$t' = \frac{t}{\sqrt{1-\beta^2}} \quad (6)$$

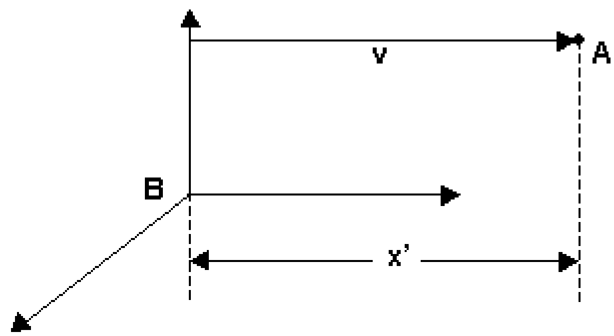


Fig. 5

This is represented by Figure 5, which is equivalent to Figure 1.

But the "Two Systems in Relative Motion" constantly reverberate in the minds of people "saturated" with the Lorentz transformation.
OK. Let us go back to Fig.4, completing the picture in Fig. 6.

In Autodynamics

x' = x + x1 (7)

Now x1 in AD is

$$x_1 = \frac{v\,t}{\sqrt{1-\beta^2}} \quad (8)$$

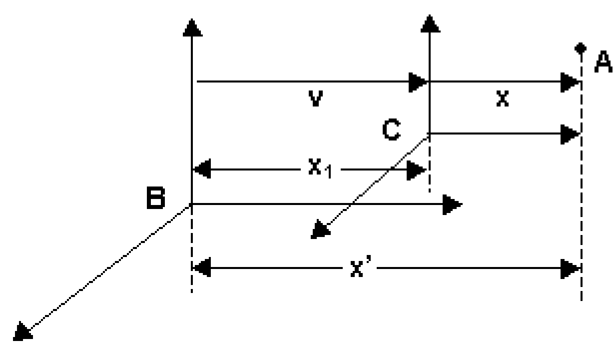


Fig 6.

applying equation (5) to x1 because only System C is moving with respect to System B, but A is at rest with respect to C and we cannot apply equation (5).

Now

$$x' = x + \frac{v\,t}{\sqrt{1-\beta^2}} \quad (9)$$

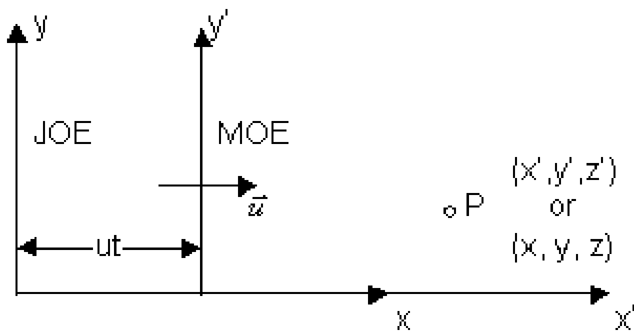
Autodynamics equation (9) is totally different from the Lorentz equations (1) or (3)

Autodynamics doesn't increase the coordinate x, a constant distance, that must always stay constant and consequently does not introduce an ad hoc energy. No Neutrino is needed.

The following example is given using figure 15-1 and the equation 15.3 given by the Nobel Laureate Richard Feynman in his textbook on pages 15-2 and 15-3 respectively, in Volume 1 on "The Feynman Lectures on Physics" Addison-Wesley Publishing Company, Fifth Edition, July 1975.

Fig. 15-1 Two coordinates systems in uniform relative motion along x-axes.

$$x' = \frac{x - ut}{\sqrt{1 - \frac{u^2}{c^2}}} \quad (15.3)$$



We will calculate with the following values

x = 100 meter, u = 0.8 c meter/second, t = 10^-7 second
u = 0.8 * 300 000 000 = 240 000 000 meter/second
u t = 240 000 000 * 10^-7 = 24 meter

$$x' = \frac{100 - 24}{\sqrt{1 - 0.8^2}} = \frac{76}{0.6} = 126.666\, meter$$

MOE starts traveling from JOE's position at 0.8 of c for 10^-7 seconds. He will reach a distance of 126.666 meter which IS LARGER than the original distance x equal to 100 meters!
We can see this clearly by looking at equation (3) where

$$\frac{x}{\sqrt{1 - u^2}} = \frac{100}{0.6} = 166.666\, meter$$

The constant distance x = 100 meters increase automatically to 166.666 meters.

MOE is traveling in the P direction but its distance from P increases!
MOE is traveling in the P direction and simultaneously he is away from it!

The Lorentz Transformation is amazing!
What happens in AD?.

$$x' = x - \frac{u\, t}{\sqrt{1 - \frac{u^2}{c^2}}} = 100 - \frac{24}{0.6} = 100 - 40 = 60 \quad m$$

This makes sense!

It is evident that Lorentz failure is given by the fact that the coordinate of the point P is also divided by the root. This is false and absurd because it introduces variation on what is physically a constant.

Footnote 1 - This form was used for the first time by Carezani to explain this problem to Herman

Leonard and was inspired by the latter through his questions prior to a photo session. Herman Leonard is a leading photographer in the USA, with collections at the Smithsonian Institution's permanent collection on musical history. He is known for helping Yousuf Karsh photograph Einstein. Herman Leonard's work can be found at:

http://www.hermanleonard.com and http://www.lpb.org/program/frame