The Relativistic Space-Time Perspective

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Abstract

This paper formulates additional relativistic equations examining Einstein's deductions from a Relativistically Distorted Perspective. The equations derived from a theoretic ideal "non-Relativistic" velocity distorted in the same manner as length, time, and mass – into an apparent "Relativistic" velocity. Absolute velocity is a necessary logic component for all Relativity equations – its actual determination is unimportant. Relativity physics equations presume ideals. The equations that are formulated here examine the absolute/real (no Special Relativistic Perspective Distortion, noSRPD) velocity and use it to determine the distorted (Special Relativistic Perspective Distortion, or SRPD) velocity. For an observer moving at a Relativistic Speed, some aspects of everything outside that traveller's immediate environment would appear sped up. That would include the traveller's movement through space: meaning an apparently higher Relativistic velocity.

Velocity |v| is one of the valid, theoretic ideals that Classic relativity (all of Physics) relies upon. Two equations developed in this paper show this relationship. Independent variables have no relativistic deformation [VnoSRPD||Time], the dependent variable is |Time'| because of relativistic deformation. Existence/non-existence of ideal values for absolute non-relativistic velocity values are not contested, they are indeterminate real ideals. Two examples of Relativistic Perspective equations are:

$$\text{Time}' = \text{Time} \,/\, \left(1 - v_{\text{noSRPD}}^{2}/c^{2}\right)^{.5}$$

This paper reasons an inverse relationship: when an independent variable is the observed velocity from the Relativistically Distorted viewpoints. The parallel equation from that Relativistic Perspective is:

$$\text{Time} = \text{Time}' \,/\, \left(1 + v_{\text{SRPD}}^{2}/c^{2}\right)^{.5}$$

Time' is the increase in Time units passing on an undistorted Clock, but observed from the distorted viewpoint. |Time| is what the value would be were there no distortion. The above relationship allows for the additional development of eight formulae/equations for the velocity, mass, time, and linear deformations.

Relativistic Perspective equations have been confirmed to be consistent with the Classic equations to 2000 significant digits for 37 velocity values ranging from 1.0E-500m/s to (c – (1.0E-500))m/s.

Keywords: Perspective, Physical Values, Relativistic Distortion, distorted Velocity, parallel relativistic equations, Time, Mass, Length, distortion, equation confirmation table

1.0 Introduction

Two equations developed in this paper show the relationship between the Time distortion in Special Relativity, and the velocity distortion that would bring about, from the Perspective of the distorted object. Independent variables have no Special Relativistic Perspective Deformation [v_{noSRPD} ||Time], the dependent variable is |Time'| because of relativistic deformation. Existence/non-existence of ideal values for absolute non-relativistic velocity values are not contested, they are indeterminate real ideals. Velocity is one of the valid, theoretic ideals that Classic relativity (all of Physics) relies upon. Two examples of Relativistic Perspective equations are, measuring velocity from a Special Relativistic Perspective with no Distortion [noSRPD].

$$\text{Time}' = \text{Time} \;/\; \left(1 - v_{noSRPD}{}^{2}/c^{2}\right)^{.5}$$

This paper reasons an parallel inverse relationship: an independent velocity variable observed from a viewpoint with Special Relativistic Perspective Distorted [SRPD]. The equation is:

$$\text{Time} = \text{Time}' \;/\; \left(1 - v_{SRPD}{}^{2}/c^{2}\right)^{.5}$$

Time' is the increase in Time units passing on an undistorted Clock, but observed from the distorted viewpoint. |Time| is what the value would be were there no distortion. The above relationship allows for the additional development of eight formulae/equations for the velocity, mass, time, and linear deformations.

Relativistic Perspective equations have been confirmed to be consistent with the Classic equations to 2000 significant digits for 37 velocity values ranging from 1.0E-500m/s to (c – 1.0E-500)m/s.

2.0 Relativistically Distorted vs. Non-Relativistically Distorted Velocities

Special Relativistic Perspective Distortion (SRPD) determines the dependent velocity variable from the perspective of the moving object and how it compares to the outside, undistorted environment.

This relationship is derived from the time equation. A |Real| label for any event is always are based on approximations. Because all observable objects in the universe are in motion, determining an exact or zero velocity from outside observations is impossible; an exact relativistic effect is indeterminate. |Real| labels are theoretical concepts, not confirmable data. But the relationship between relativistic||non-relativistic values is deducible. In the Classic time distortion equation,

$$\text{Time}' = \text{Time} \;/\; \left(1 - v_{\text{noSRPD}}^{2} / c^{2}\right)^{.5}$$

|Time| seconds are the number of real seconds passing in which neither the viewer or viewed were distorted. |Time'| seconds are the greater number of real seconds observed from the distorted viewpoint for a known action on a Relativistically distorted object. If the object were moving, from an outside perspective, exchange of gluons and their propagation velocity would slow down, but the velocity of said object would not change. Current thinking is that from moving object's perspective time would not slow down for a viewpoint within the distorted object – that slowdown would mean that objects/actions outside the distorted object would speed up – including its passage through space.

An alternative would be to relate the number of seconds/time units passing on the distorted object. Assuming any numerically defined speed means you assume a zero velocity; |Real| velocity is defined with respect to an immobile point – a theoretic ideal velocity measured from a point with no Relativistic distortion. As far as is known now, that would be an "impossible deal to close": it cannot be attained. But it is what all such ideals require: it is conceivable and a methodology developed for achieving that ideal. It also should be noted that the "Time" values are not the units measured by a macro, multi-particle device. Relativistic distortions would change how that macro-object functioned. Time would not simply slow and proceed exactly it did in a non-relativistic state. The matter particles would gain mass, and the Boson particles would slow and weaken. Time passage would be fundamentally different than it was in a non-Relativistic state. So we are simply reasoning from the degree of state changes in matter & energy and how those state changes would be related to the velocity of the object.

So let us define two new variables, recognizing the relativistic second as the inverse of a real second. As well, be more specific about the velocity |*v*| (velocity) variable, defining it not as |Real| but as velocity undistorted by Relativistic effects. It is a reuse of a time-honored strategy in Physics mathematic reasoning – presumption of an ideal. Denial of that premise would lead to the discard of many motion, gravity and even Chemical reactions (relying on moles). Fewer relativistic seconds pass for any given number of real/non-relativistic seconds once distortion has begun. Defining the inverse equation would use the Special Relativistic Perspective's Distortions; the SRPD Time perspective, the independent velocity variable would use the non-Relativistically distorted SRPD time values. It is legitimate to have both relativistic, distorted values (SRPD); and non-relativistic undistorted (noSRPD) - | Time_{noSRPD} | & | Time_{SRPD} |. But they would require that they be the same on both sides: only relativistic seconds and only real/noSRPD metres are measured. | v_{noSRPD} | would be parallel to the value of | v_{Real} | – the velocity perceived from a relativistic viewpoint under no distortion. The | Time_{noSRPD} || Time_{SRPD} | equation would be the inverse of the Classic one. It is not an additional equation, but an inversion of the Classic S.R.:

$$\text{Time}_{SRPD} = \text{Time}_{noSRPD} * \left(1 - v_{noSRPD} / c^2\right)^{.5} \qquad (0)$$

Velocity is inversely related to the passage of time. So dividing both sides by 1 real/noSRPD metre would mean the equation could determine relativistic vs. non-relativistic velocity instead of time distortion.

$$\text{Time}_{SRPD} / \left(1\text{m}_{noSRPD}\right) = (\text{Time}_{noSRPD} / \left(1\text{m}_{noSRPD}\right) * \left(1 - v_{noSRPD}{}^2 / c^2\right)^{.5}$$

So define the Time_{noSRPD} Time variable:

$$\text{Time}_{noSRPD} = 1\text{m}_{noSRPD} / v_{noSRPD}$$

So,

$$v_{noSRPD} = 1\text{m}_{noSRPD} / \text{Time}_{noSRPD}$$

Then another expression of the equation would be:

$$1\text{m} / \text{Time}_{SRPD} = v_{noSRPD} / \left(1 - v_{noSRPD}{}^2 / \text{c}^2\right)^{.5}$$

Define v_{SRPD} in parallel to v_{noSRPD} : One undistorted metre divided by the SRPD time to travel the metre.

Thus, Equation 1, the founding principle of Relativistic Perspective:

$$v_{SRPD} = v_{noSRPD} / \left(1 - v_{noSRPD}{}^2 / \text{c}^2\right)^{.5} \qquad \textbf{(1)}$$

Everything in the universe has a velocity. Defining a point at rest is impossible, so determining the speed of light is done from a viewpoint assumed to have Planck level/zero relativistic distortion – a valid scientific presumption.
So examine relativistic distortion from a theoretical perspective under no/zero special relativistic distortion (noSRPD). Zero velocity may be indeterminate, but it is not mathematically indefinable. 'F=ma' is an idealized proposition, as all the forces acting upon a body cannot be determined perfectly. However, these forces can be estimated with some inaccuracy. Even more crucially, when Newton wrote the 'F=ma' law, he presumed there was a single acceleration vector. Two equal forces moving against a single object with opposite vectors would mean the body would not accelerate – but force would be acting on object.

The SRPD equations are derived from the time equation, using an Absolute/|Real| velocity with no Relativistic distortion. Classic Special Relativity presumes real values are values observed from a theoretic zero velocity. All observable objects in the universe are in motion. The maximum real velocity for matter objects||particles our reality is c (299,792,458 m/s). A velocity that is also defined by moving 1 Planck length $\left[l_P\right]$ in a single Planck time $\left[t_P\right]$; a Planck velocity $[v_P]$:

$$v_P = l_P / t_P$$

$$v_P = (\hbar G / c^3)^{.5} / (\hbar G / c^5)^{.5}$$

$$v_P{}^2 = \left(1/c^3\right) / \left(1/c^5\right)$$

$$v_P{}^2 = c^2$$

$$v_P = c$$

If Planck Constants are a determinant of maximum velocity, a reasonable postulate would be that the inverse was the minimum $\left[\mathrm{Min\_v_p}\right]$

$$\mathrm{Min\_}v_p = 1/c = 3.3355338153\mathrm{E}-9$$

An investigative Planck accurate timing device could measure its movement by a three-dimensional rotation, surveying all observable objects. Objects perpendicular to the motion of the moving point would display a linear distortion. The observing device [O.D.] would then exert a thrust parallel to that distortion. The O.D. would then measure increased linear distortion, the opposite happening with a decrease in the velocity. A careful measurement of all visible objects for any change in their distortion – and eventually a point would be reached where any movement in any direction would increase the distortion.

The described experiment is impossible methodologically, but it is a valid ideal. Measurement of velocity from that point would give a |Real| velocity. Though the O.D.'s zero velocity point would only be for the moment it was marked. Movement of objects around the O.D. would change General relativistic distortions, twisting the shape of space-time. It would be a very theoretical but a valid ideal zero velocity. Newton's | $F = GMm/r^2$ | equation is a parallel ideal: presuming exact formulaic measurements of only two bodies with no outside intrusions. That condition does not exist anywhere in our reality. But those inaccuracies do not invalidate either equation.

There are only two variables in Equation 1. So the equation can be inverted, making v_{noSRPD} the dependent variable.

Square the equation:

$$v_{\text{SRPD}}^2 = v_{\text{noSRPD}}^2 / \left(1 - v_{\text{noSRPD}}^2 / c^2\right)$$

Multiply both sides with | $\left(1 - v_{\text{noSRPD}}^2 / c^2\right)$ |

$$v_{\text{SRPD}}^2 * \left(1 - v_{\text{noSRPD}}^2 / c^2\right) = \left(1 - v_{\text{noSRPD}}^2 / c^2\right) * \left(v_{\text{noSRPD}}^2 / \left(1 - v_{\text{noSRPD}}^2 / c^2\right)\right)$$

On the left side expand the | $v_{\text{SRPD}}^2 * \left(1 - v_{\text{noSRPD}}^2 / c^2\right)$ | expression, on the right they cancel out

$$v_{\text{SRPD}}^2 - v_{\text{SRPD}}^2 * v_{\text{noSRPD}}^2 / c^2 = v_{\text{noSRPD}}^2$$

Add | $\left(v_{\text{SRPD}}^2 * v_{\text{noSRPD}}^2 / c^2\right)$ | to both sides:

$$\left(v_{\text{SRPD}}^2 - v_{\text{SRPD}}^2 * v_{\text{noSRPD}}^2 / c^2\right) + \left(v_{\text{SRPD}}^2 * v_{\text{noSRPD}}^2 / c^2\right) = v_{\text{SRPD}}^2 + v_{\text{SRPD}}^2 * v_{\text{noSRPD}}^2 / c^2$$

Simplify the | $v_{\text{noSRPD}}^2 + v_{\text{SRPD}}^2 * v_{\text{noSRPD}}^2 / c^2$ | expression

$$v_{\text{SRPD}}^2 = v_{\text{noSRPD}}^2 * \left(1 + v_{\text{SRPD}}^2 / c^2\right)$$

Divide with | $\left(1 + v_{\text{SRPD}}^2 / c^2\right)$ | on both sides,

$$v_{\text{SRPD}}^2 / \left(1 + v_{\text{SRPD}}^2 / c^2\right) = \left(v_{\text{noSRPD}}^2 * \left(1 + v_{\text{SRPD}}^2 / c^2\right)\right) / \left(1 + v_{\text{SRPD}}^2 / c^2\right)$$

So

$$v_{\text{noSRPD}}^2 = v_{\text{SRPD}}^2 / \left(1 + v_{\text{SRPD}}^2 / c^2\right)$$

Take the square roots:

$$\left(v_{\text{noSRPD}}^2\right)^{.5} = \left(v_{\text{SRPD}}^2\right)^{.5} / \left(1 + v_{\text{SRPD}}^2 / c^2\right)^{.5}$$

And

$$v_{\text{noSRPD}} = v_{\text{SRPD}} / \left(1 + v_{\text{SRPD}}^2 / c^2\right)^{.5} \qquad \textbf{(2)}$$

The above was confirmed using the equation | $\text{Time}_{\text{SRPD}} = \text{Time}_{\text{noSRPD}} * \left(1 - v_{\text{noSRPD}} / c^2\right)^{.5}$ | to calculate the relativistic velocity by multiplying the |noSRPD| velocity by the proportion Time/Time'. The range of real |noSRPD|

velocities was from |1.0E-500m/s| to |c – (1.0E-500) m/s.| The table of those 2000 decimal place conversion is on the Internet at http://vixra.org/abs/1410.0032. The apparent | SRPD | velocity is immediately observable. Equation 2 is the logical inverse to Equation 1: | v_{SRPD} | is the independent variable and | v_{noSRPD} | is the dependent one.

The velocity equations have another form by dividing both sides of Equation 1 with | v_{noSRPD} |

$$v_{SRPD} / v_{noSRPD} = \left(v_{noSRPD} / \left(1 - v_{noSRPD}^2 / c^2 \right)^{.5} \right) / v_{noSRPD}$$

Then inverting:

$$v_{noSRPD} / v_{SRPD} = \left(1 - v_{noSRPD}^2 / c^2 \right)^{.5}$$

And for equation (2): $v_{noSRPD} = v_{SRPD} / \left(1 + v_{SRPD}^2 / c^2 \right)^{.5}$

$$v_{noSRPD} / v_{SRPD} = \left(v_{SRPD} / \left(1 + v_{noSRPD}^2 / c^2 \right)^{.5} \right) / v_{SRPD}$$

$$v_{noSRPD} / v_{SRPD} = 1 / \left(1 + v_{noSRPD}^2 / c^2 \right)^{.5}$$

$$v_{SRPD} / v_{noSRPD} = \left(1 + v_{noSRPD}^2 / c^2 \right)^{.5}$$

These proportions means that the expressions | $\left(1 - v_{noSRPD}^2 / c^2 \right)^{.5}$ | and | $\left(1 + v_{SRPD}^2 / c^2 \right)^{.5}$ | can be interchanged.

Gravitational and Special Relativistic distortion form part of all reality. v_{Real} values used in any relativistic equation are approximate. Terms should not be relativistic and real, but relativistic and non-relativistic. Any observed velocity is as valid as a relativistic velocity. The sole issue is the precision of the value. For lower velocities, employ |noSRPD|, higher velocities, and the value of |SRPD| for conversion to non-relativistic values. Though neither measurement will ever be precise.

The above thought experiment presumes undistorted measurements, presumed ideals. A valid zero velocity will always be an unreachable ideal. Impossibly precise observations would be necessary to survey objects to determine their special relativistic distortion in relation to ours. Gravitational distortions complicate the situation further. Sufficient data may be a theoretically reachable goal, but gathering such data would require multiple observation points in distinct and separate (on an intra-galactic scale) locations. There is also the difficulty of moving a sophisticated observation device at a relativistic velocity for observations of distortions from the relativistic viewpoint. This velocity would distort different variables in different ways. The most obvious examples are the mass of the matter and the velocity of boson particles. The matter would increase in mass, but bosons would decrease in velocity and mass. The relationship between the two quantities would become dysfunctional. The elements would dissemble to their component protons, neutrons and electrons, because the gluons could be weakened to an infinitesimal degree. The repulsive force of the positive charge would weaken to the same degree, but mass of the nucleons together would increase accordingly. Thus, any passengers aboard a vessel moving at a relativistic velocity would find themselves both gaining weight and losing muscular force.

2.1 Additional Relativistic Equations

The Relativistic Perspective velocity formulae can be used to deduce the conditions for bodies in terms of time, length, and mass. All Relativistic and non-relativistic ratios are the same, so the velocity distortion equation allows development of additional relativistic equations. The (VelocitySRPD/ vnoSRPD) ratio is identical to the relativistic |(1-vnoSRPD2/c2)½| expression.

The Classic time distortion equation, in Relativistic Perspective form:

$$\text{Time}_{\text{SRPD}} = \text{Time}_{\text{noSRPD}} * \left(1 - v_{\text{noSRPD}} / c^2\right)^{.5}$$

Replace $\left(1 - v_{\text{noSRPD}}{}^2 / c^2\right)^{.5}$

$$\text{Time}' = \text{Time} / \left(v_{\text{SRPD}} / v_{\text{noSRPD}}\right)$$

$$\text{Time} = \text{Time}' / \left(v_{\text{noSRPD}} / v_{\text{SRPD}}\right)$$

Because

$$v_{\text{SRPD}} / v_{\text{noSRPD}} = \left(1 + v_{\text{SRPD}}{}^2 / c^2\right)^{.5}$$

Then

$$\text{Time} = \text{Time}' / \left(1 + v_{\text{SRPD}}{}^2 / c^2\right)^{.5} \qquad (3)$$

Or

$$\text{Time}_{\text{noSRPD}} = \text{Time}_{\text{SRPD}} * \left(1 + \text{Velocity}_{\text{SRPD}}{}^2 / c^2\right)^{.5}$$

The other equations have the same logical structure. From an SRPD viewpoint $\text{Mass}_{\text{noSRPD}}$ would be the value when there was no distortion, and $\text{Mass}_{\text{SRPD}}$ would be when there was.

$$\text{Mass}_{\text{SRPD}} = \text{Mass}_{\text{noSRPD}} / \left(1 - v_{\text{noSRPD}}{}^2 / c^2\right)^{.5} \quad (4)$$

$$\text{Mass}_{\text{SRPD}} = \text{Mass}_{\text{noSRPD}} / \left(\text{v}_{\text{noSRPD}} / \text{v}_{\text{SRPD}}\right)$$

$$\text{Mass}_{\text{noSRPD}} = \text{Mass}_{\text{SRPD}} * \left(\text{v}_{\text{noSRPD}} / \text{v}_{\text{SRPD}}\right)$$

Invert the equation

$$\text{Mass}_{\text{noSRPD}} = \text{Mass}_{\text{SRPD}} / \left(\text{v}_{\text{SRPD}} / \text{v}_{\text{noSRPD}}\right)$$

And replace $|\, \text{v}_{\text{SRPD}} / \text{v}_{\text{noSRPD}} \,|$

$$\text{Mass}_{\text{noSRPD}} = \text{Mass}_{\text{SRPD}} / \left(1 + \text{v}_{\text{SRPD}}{}^2 / \text{c}^2\right)^{.5} \quad (5)$$

And the Length equations: from an SRPD viewpoint $\text{Length}_{\text{noSRPD}}$ would be the value when there was no distortion, and $\text{Length}_{\text{SRPD}}$ would be when there was.

$$\text{Length}_{\text{SRPD}} = \text{Length}_{\text{noSRPD}} * \left(1 - v_{\text{noSRPD}}{}^2 / \text{c}^2\right)^{.5} \quad (6)$$

$$\text{Length}_{\text{SRPD}} = \text{Length}_{\text{noSRPD}} * \left(v_{\text{noSRPD}} / v_{\text{SRPD}}\right)$$

$$\text{Length}_{\text{noSRPD}} = \text{Length}_{\text{SRPD}} / \left(v_{\text{noSRPD}} / v_{\text{SRPD}}\right)$$

$$\text{Length}_{\text{noSRPD}} = \text{Length}_{\text{SRPD}} * \left(v_{\text{SRPD}} / v_{\text{noSRPD}}\right)$$

Replace $|\, v_{\text{SRPD}} / v_{\text{noSRPD}} \,|$

$$\text{Length}_{\text{noSRPD}} = \text{Length}_{\text{SRPD}} * \left(1 + \text{v}_{\text{SRPD}}{}^2 / c^2\right)^{.5} \quad (7)$$

Velocity can appear to reach or exceed the speed of light from the moving body's viewpoint because of relativistic distortions. Distortions in observed bodies would be calculated with:

$$\left(1 + \text{v}_{\text{SRPD}}{}^2 / c^2\right)^{.5}$$

Relativistic Perspective equations determine the relativistic distortions from moving observation points.

The Einsteinian equations are more appropriate for low speeds. Motion is relative for any observation point; determining an exact 'velocity' is impossible. Alternately, if all observed objects exhibit a large blue shift (including a point where that shift was the greatest) that would indicate a need for Relativistic Perspective Equations. Relativistic perspective equations determine the appropriate relativistic values (for the velocity, time, mass, and length) from the corresponding non-relativistic values.

2.2 Other Consequences of Relativistic Distortion

The above equations suggest additional relativistic effects not currently recognized by science. Relativistic velocity would:

a) It is known that Relativistic effects slow transmissions of all bosons: photons (light), gravitons (gravity), gluons (strong nuclear force) and the W/Z bosons (weak nuclear force). Bosons emitted by any moving object will be slowed down by those distortions, which would also have the effect of reducing the frequency. This slowdown would reduce the bosons' mass as well.

b) Relativistic effects increase the mass of matter particles; the mass transferred from the bosons is defined by the Classic Relativity Mass equation. If the acceleration is done from outside the moving object, because that energy is coming from out side the object it will increase the mass of the Bosons in the same proportion. So it can be reasoned that would mean that more and more of the input energy would go to the structural Bosons (Gluons, x/y Bosons), so whatever was being accelerated the kinetic energy would input would go to those Bosons. But in a macro level object, particles/atoms/molecules would increase in mass, and the velocity of Bosons generated by those would reduce by exactly the same proportion. But because they were generated by the mass increased matter particles, the overall energy of those Bosons would increase and so the structural energy for any quantum||particulate||atomic||molecular particulates would remain the same. But the kinetic energy of those particulate objects would increase by the same proportion, and so those particles would impact at that increased level. A good parallel for that would be an increase in temperature - the greater the speed of the object, the greater the kinetic energy of the particulates. The velocity of all the structural Bosons would slow, but the matter they maintained they would also increase in temperature.

c) The principle Hydrogen isotope – ^{1}H – has an atomic mass of 1.007825. That is a very fundamental different nucleic structure from the principle Iron isotope – ^{56}Fe – with an atomic mass of 55.934939. A velocity of approximately 2.59627884E8m/s means a distortion factor of 2.0. Accelerated to that velocity would mean the mass of individual nucleons would be doubled while the mass of Bosons is halved. Would the interactions of ^{1}H with an atomic mass of 2.015650 (or ^{56}Fe with an atomic mass of 111.8699) be exactly the same, only slower? Doubling the nucleon mass and halving Gluon velocities to 149,896,229m/s? The increase in the matter mass would mean the number of Gluon interactions would be doubled but the would be slowed by exactly the same proportion. The net energy mass in those Gluons collectively would be exactly the same mass what it was at rest. But they would be generated by and acting on particles that massed twice what they did at rest.

The combination of the three points above would mean that any quantum-level interaction would be dealing with heavier particles with slower Boson forces. Time would not "slow down", the interactions that maintain the Quantum structure of any macro-level device would slow down. All Bosons would slow down. The object would not function as it did at rest, only slower. There would be a fundamental difference in the way Bosons and matter particles interacted. Is it reasonable to say that such a distortion would be a simple slowdown in time? Or would it change the fundamentals of the forces that maintain the reality we observe? It would change how that reality progresses.

The above assertion does not contest the fundamental distortions of Einstein. It reasons how those distortions would affect our reality. As for the great "Time" debate about Relativity it aggressively does not take either side: in some respects it is as though time were slowing down. And in other respects, it is as though time proceeds as it does at rest, but the quantum values of everything to change.

Alterations occurring at a low distortion level would change fundamental quantum interactions but only to a marginal degree. An observed relativistic scale recession velocity could alternately indicate relativistic scale distance and boson decay through matter interactions, not a universal expansion: EM frequency decay over cosmological distances through the passage of extremely disperse matter clouds that are reasoned to exist throughout our reality. The frequency-decay supposition does not conflict with any conservation principles that are currently under consideration in science. Through the acceleration of the objects, a very fundamental fact of our observations has already been quantified: the Hubble Constant. That would mean an increase in the energy level of the Universe, with no limit or source for that increase. While the universe's expansion principle contradicts the one of the most fundamental principles in modern Science, matter/energy conservation, frequency decay does not. The EM decay through disperse matter would not be an absolute reduction of the energy in any EM signal; it would be its partial transformation into kinetic energy.

The two lines of reasoning that would be with the alternate proposals.:

1. The energy of the universe is increasing at an absolute (though un-harvestable) rate. Because this supposition sets absolutely no limit to the expansion, it is producing an infinite increase in energy/matter production. Relativistic effects also increase the mass of the matter particles; the principle of matter/energy conservation would mean the mass from the bosons would have to be transferred somewhere. The increase is defined by the Classic Relativity Mass equation.

2. Alternately, the energy we observe undergoes the inevitable frequency decay that would happen in passage through disperse inter-Galactic matter clouds. A "decay" over great distances in a fashion that we directly observe and are able to quantify with what is known in current science as the Hubble Constant. The fact that we observe (or more accurately, reason) the change in Inter-Galactic structure throughout the Universe would have to mean that there is matter between all Universe structures. The matter could not transmit directly from one existing interstellar/intergalactic structure to contribute to changes or the actual genesis of new interstellar/intergalactic structure. It would be minimally observable throughout that transmission in the form of an extremely low intensity radiation. That radiation level would vary from location to location and from time to time, but surely it is reasonable to postulate that the overall differences average one another out. The Hubble shift is absorption of a portion of the

Universal EM by extremely disperse matter, absorbing some of that energy, radiating a slightly red-shifted copy of that EM. Over the course of Billions of years, the level of radiation produced through that action would stabilize in any area or time period. The changes that would inevitably come about in either of those would not vary over decades or centuries, but over millennia.

There are other arguments for the latter supposition. Consider that the most recent value is for the Hubble Constant [H_0] is 6.78E5 (m/s)/Mpc. A Parsec is 3.085678E16 m, and hence, a Mega-Parsec is 3.085678E22 m. A reduction in frequency is brought about by a velocity of 6.78E5 (m/s)/Mpc. The RATE [$H_0\mathrm{m}$] of that velocity decay [$\Delta\mathrm{v}$] in m/s over a distance measure in metres [$\Delta\mathrm{d}_\mathrm{m}$]:

$$H_0\mathrm{m} = (\Delta\mathrm{v}/c) \,/\, \Delta\mathrm{d}_\mathrm{m}$$

$$H_0\mathrm{m} = (6.78\mathrm{E}5/2.99792458\mathrm{E}8) \,/ 3.085678\mathrm{E}22\mathrm{m}$$

$$H_0\mathrm{m} = 7.32923061\mathrm{E}{-26}$$

By the above calculations, the frequency decay would approach a Planck level. So it is reasonable to assign such an infinitesimal level of frequency decays as the result of a dispersion of matter at a comparably infinitesimal density. There is also an argument against the proposal that the expansion is space expansion and not |Real| velocity. That expansion would still have the effect of slowing the transmission of bosons. At any point in that expansion (presuming no relativistic distortion), the bosons would be measured as moving at the speed of light. However, during the time of that measurement, the space ahead of the bosons would have expanded. As a result, the signal would have farther to travel. Because of this expansion, the wavelength would increase, which completely matches our current observations. Nevertheless, this increase would mean that it would take considerably more than 13 billion years for light to reach us from the edge of Reality. We would be seeing the same image (though it would be red-shifted), just as it is today. Then by current theoretical assumptions: how much longer than 13.8 billion years ago did the Big Bang event take place?

3.0 An Uncertain Speculation

In our reality, Science reasons that the maximum possible velocity from an undistorted Perspective is c – light velocity. The reader may feel compelled to debate other assertions in this paper. But surely the above can be taken as incontestable because so many physics principals rely on that maximum. Another argument for that limit can be made with the uncertainty principle.

As all Planck constants are reasoned to from the Planck-Einstein relation, an exercise can be taken to determine a relationship between those values. If as was proposed before, the inverse of the speed of light is a Quantum minimum, it is reasonable to propose that it is absolute slowest that energy Bosons could move before they displayed matter like uncertainty. Remember that the principle of matter/energy conservation would mean that the low energy Bosons could be reasoned to have increased to the maximum number there could be for any defined amount of energy. All of those would be Bosons moving at the slowest possible speed. So the individual said Bosons would be approaching zero rest mass.

General Relativity argues the same Boson slowdown, so the above will be of use in reasoning parallel events in gravitational distortion. By current theory, Special Relativistic effect could produce the above state. A |Real|, non-Relativistic velocity could produce a distortion that would lower Boson velocity from c to $1/c$ – a distortion of $1/c^2$. The formula determining that distortion would be

$$1/c^2 = \left(1 - v_{noSRPD}{}^2/c^2\right)^{.5}$$

$$1/c^4 = (1 - v_{noSRPD}{}^2/c^2)^{.5}$$

$$1/c^4 - 1 = -v_{noSRPD}{}^2/c^2$$

$$v_{noSRPD}{}^2 = c^2 * \left(1 - 1/c^4\right)$$

$$v_{noSRPD} = (c^2 - c^2/c^4)$$

$$v_{noSRPD}{}^2 = c^2 - 1/c^2$$

$$v_{noSRPD} = \left(c^2 - 1/c^2\right)^{.5}$$

The v_{noSRPD} needed to produce that distortion would be (to 100 decimal places) would be:

$$v_{noSRPD} = (299{,}792{,}458^2 - 1/299{,}792{,}458^2)^{.5}$$

So at the above velocity, individual Bosons would move at 1/299,792,4582m/s (or approximately 1.1126500560E-17m/s) what they were at rest. The mass of individual energy Bosons would decrease to the same degree. The mass of fundamental matter particles (Electrons, Protons, Neutrons) would increase by a factor of $299{,}792{,}458^2$ or

8.987551787E16. Matter, to Planck level certainty, would absorb the Energy of all Bosons in the distorted environment. Because of the inevitable transformation, it is reasonable to say that the Bosons would reach their greatest similarity in the Planck time length of the event. A question then arises: would matter particles with a mass increase factor of 8.987551787E16 being manipulated by Bosons with an energy decrease factor of 1.2379901472E-34 from what it was when emanating from bodies at rest mean a simple slow down in time? Or would matter/energy interactions behave in a very fundamentally different way than the ones that take place in a body with a Relativistic ideal zero motion? Whatever the answer to that question, the above equations do show a link between Relativity and Quantum Physics.

And the answer to that question is indisputable: the relatively infinitesimal differences in the actual atom mass of varying flavours elements Atoms/Isotopes and the even more infinitesimal differences in the mass of nucleic particles within those atoms mean very significant differences in the properties of those elements. At the simple speed of 295,000,000m/s, the degree of distortion [$\text{Degree}_{\text{Dist}}$] would be

$$\text{Degree}_{\text{Dist}} = 1/\left(1 - \left(2.950\text{E}8\right)^2/c^2\right)^{.5}$$

$$\text{Degree}_{\text{Dist}} = 5.615$$

The paired forces that maintain the structure of the nucleus of any Element, the outward pressure of the matching proton charges and the inward pressure of the Strong Nuclear Force Gluons would both reduce by approximately the above factor of 5.615. The same distortion factor would apply to mass of the particles generating Bosons. The most stable element in our Science, the Iron_{56} isotope has a rest mass of approximately 55.846. At the above velocity it would have a mass of more 313.576 Atomic mass units. An element with a nuclear mass of more than 313 atomic units while the Photon and the Gluon forces that maintained its structure was the same as the Fe_{56} isotope would not have the same chemical or nuclear properties it had at rest.

There can be no assertions made as to the rate at which energy particles are transformed into matter – that issue would not be resolved without further experimental investigation and theoretical postulates. But the above reasons aspects as to the energy to matter process on a Quantum level.

4.0 Summary

This paper has formulated additional relativistic equations that do not contradict Special Relativity. They are the same equations from a relativistic viewpoint. The equations presented examine special relativistic distortions from the perspective of the distorted object, and they determine the non-relativistic velocity from the observed velocity in the moving object. The values of the non-relativistic velocity and the apparent relativistic velocity it engenders share exactly the same validity. The equations relating these two perspectives are documented in this paper, the most crucial equation being:

$$\text{Time} = \text{Time'} / \left(1 + v_{\text{SRPD}}^{2} / c^{2}\right)^{.5}$$

The distortion in Time||Time'||Velocity (and in all other Relativistic quantities) can be distorted to a theoretically infinite degree. An equation for the antithesis of the |Real| Time distortion must be logically structured to allow for that. Those Relativistic effects would distort Quantum values for both matter and energy particles to a degree that they became indistinguishable.

5.1 Equation Appendix

(0) $$\text{Time}_{\text{SRPD}} = \text{Time}_{\text{noSRPD}} * \left(1 - v_{\text{noSRPD}} / c^2\right)^{.5}$$

(1) $$v_{\text{SRPD}} = v_{\text{noSRPD}} / \left(1 - v_{\text{noSRPD}}{}^2 / \text{c}^2\right)^{.5}$$

(2) $$\text{v}_{\text{noSRPD}} = \text{v}_{\text{SRPD}} / \left(1 + \text{v}_{\text{SRPD}}{}^2 / \text{c}^2\right)^{.5}$$

(3) $$\text{Time} = \text{Time'} / \left(1 + \text{v}_{\text{SRPD}}{}^2 / \text{c}^2\right)^{.5}$$

(4) $$\text{Mass}_{\text{SRPD}} = \text{Mass}_{\text{noSRPD}} / \left(1 - v_{\text{noSRPD}}{}^2 / c^2\right)^{.5}$$

(5) $$\text{Mass}_{\text{noSRPD}} = \text{Mass}_{\text{SRPD}} / \left(1 + \text{v}_{\text{SRPD}}{}^2 / \text{c}^2\right)^{.5}$$

(6) $$\text{Length}_{\text{SRPD}} = \text{Length}_{\text{noSRPD}} * \left(1 - v_{\text{noSRPD}} 2 / \text{c}\, 2\right)^{.5}$$

(7) $$\text{Length}_{\text{noSRPD}} = \text{Length}_{\text{SRPD}} * \left(1 + \text{v}_{\text{SRPD}}{}^2 / c^2\right)^{.5}$$

5.2 Variable Appendix

c – the speed of light [299,792,458 m/s]

Time – |Real| seconds passing for any defined event under with zero distortion

Time' – |Real| seconds that pass for an event on a body under Special Relativistic distortion.

v_{Real} – An observed velocity measured from a real-time/no-Special-Relativistic-distortion viewpoint.

v_{noSRPD} – An undistorted velocity measured from a SRPD viewpoint with a zero distortion factor

$v_{\text{P}} = l_{\text{P}} / t_{\text{P}}$ – a proposal as to relation ships between the Planck Constants and a maximum Planck Velocity

$\text{Time}_{\text{noSRPD}}$ – Relativistic/SRPD seconds passing from an SRPD viewpoint when that viewpoint is under no other distortion – the inverse parallel to the |Time| variable.

$\text{Time}_{\text{SRPD}}$ – Relativistic||SRPD seconds dependant on the velocity and the distortion it creates from an SRPD viewpoint.

$\text{Mass}_{\text{noSRPD}}$ – Mass under no Special Relativistic distortion from an SRPD viewpoint.

$\text{Mass}_{\text{noSRPD}}$ – Mass with Special Relativistic distortion from an SRPD viewpoint.

$\text{Length}_{\text{SRPD}}$ – Length of a body under special relativistic distortion from an SRPD viewpoint.

$\text{Length}_{\text{noSRPD}}$ – Length of a body under no relativistic distortion from an SRPD viewpoint.

H_0m – the Hubble Cosmic decay in EM signals, per metre distance rather than Parsecs

$\text{Degree}_{\text{Dist}}$ – An absolute value as to the amount of distortion be it Length, Time or Mass.