Internal Inconsistencies in the Theory of Relativity

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Abstract

Because the formulae of a theory and its statements are data, every bit as conclusive as any data from experiment, this study is the only possible data-based assessment of Einstein's 1905 *"Zur Elektrodynamik bewegter Körper"* [1], its discovered internal contradiction making every consequent claim for experimental validation defunct. It excavates irreparable contradictions within the foundational Sections (§6 and §10). A further consequence of the discovered inconsistency is the impossibility of Section 10 to derive $E = mc^2$ due to the flawed relativistic scaffold rooted in Section 6's chaos. Instead, it is revealed as a classical truth inherent in absolute truths of physics, prior to relativity. The Lorentz transformations, far from resolving Maxwell's equations, which was the goal of the 1905 paper, sabotage the Principle of Relativity (PoR) by injecting velocity dependence where invariance reigns supreme, equating not only constants to variables, but incurring deeper structural contradictions in a breakdown of logic. Dimensional fractures in SI units further disgrace the theory, but the true quietus lies in Section 6's equation systems—claimed by Einstein to be identical in frame k, yet irreconcilably opposed. These flaws, etched into relativity's 1905 genesis, defy all salvage; no experiment, no tensor, no progeny can resurrect a theory self-destroyed at its core. Relativity must find itself superseded, yielding to the framework of classical physics, as an internally inconsistent theory both in physics and in society at large. This concurrently identifies the alternative when relativity is relinquished: a framework already established in the principles of classical physics.

Introduction

Relativity cannot be validated experimentally because it is internally contradictory. The answer as to why society is left with the impression that there are innumerable experiments proving relativity must be left to those who claim such an impossibility to establish what the reason for their mistaken impression is. A scientific paper devoted to the analysis of relativity must never be required to include even a word about experiments related to relativity, precisely because relativity is internally contradictory and therefore can never produce an experimentally testable result. Nor should an article devoted to the analysis of relativity deal with mathematical constructs such as tensors, which are used to hide its fatal problems. These fatal problems are as valid today as they were 100 years ago.

It does not take much effort to see that the claimed results of relativity contradict physical truths, and that relativity itself is based on an incoherent internal structure.

Time Dilation—A Conflict with Physical Truth

An example of a claimed result of relativity that conflicts with physical truth is relativity's claim of time dilation, which derives from one of its elements, the Lorentz transformations.

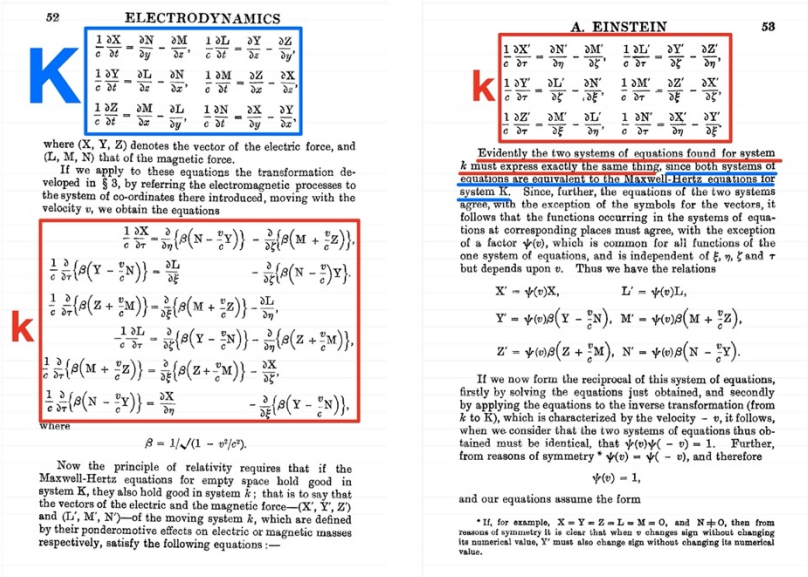
Time dilation is impossible in principle. In §2, Einstein's own clock synchronization, which he promptly forgets, locks moving clocks to world time, defying time dilation's premise. Confer the paragraph beginning with: "We imagine further that at the two ends A and B of the rod …" The clocks at ends A and B of that moving body, both in their own frame k and in frame K (moving clocks retain their construction across frames), are synchronous with underlying spatially coincident stationary clocks in frame K, synchronized, for their part, by light signals (cf. §1 of [1]), showing world time at any instant.

Internal Incoherence of Relativity

Section 6: Lorentz Transformations vs. the Principle of Relativity

In §6 (cf. Fig. 1) the Lorentz transformations (LT) clash with the Principle of Relativity (PoR), PoR's v-free $\frac{1}{c}\frac{\partial Z'}{\partial \tau} = \frac{\partial M'}{\partial \xi} - \frac{\partial L'}{\partial \eta}$ in frame k contradicts Lorentz's v-laden $\frac{1}{c}\frac{\partial}{\partial \tau}\beta\left(Z + \frac{v}{c}M\right) = \frac{\partial}{\partial \xi}\beta\left(M + \frac{v}{c}Z\right) - \frac{\partial L}{\partial \eta}$ also in frame k, equating structurally different expressions. This isn't adjustment—it's absurdity. Equating a constant-form law to a velocity-warped impostor, as if, say, $Z' = \beta\left(Z + \frac{v}{c}M\right)$, i.e., $f'(\tau) = F(t, v)$. This defies logic. No frame reconciliation happens; only contradiction.

Mainstream apologists claim LT 'preserves invariance' by adjusting for v. They're blind—PoR isn't about tweaking outcomes; it's about identical equations. LT's v injects dependence where independence reigns, shattering relativity's premise in frame k itself.



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where (X, Y, Z) denotes the vector of the electric force, and (L, M, N) that of the magnetic force.

If we apply to these equations the transformation developed in § 3, by referring the electromagnetic processes to the system of co-ordinates there introduced, moving with the velocity v, we obtain the equations

Where

$$\beta = 1/\sqrt{(1 - v^2/c^2)}.$$

Now the principle of relativity requires that if the Maxwell-Hertz equations for empty space hold good in system K, they also hold good in system k; that is to say that the vectors of the electric and the magnetic force—(X', Y', Z') and (L', M', N')—of the moving system k, which are defined by their ponderomotive effects on electric or magnetic masses respectively, satisfy the following equations :—

Evidently the two systems of equations found for system k must express exactly the same thing, since both systems of equations are equivalent to the Maxwell-Hertz equations for system K. Since, further, the equations of the two systems agree, with the exception of the symbols for the vectors, it follows that the functions occurring in the systems of equations at corresponding places must agree, with the exception of a factor $\psi(v)$, which is common for all functions of the one system of equations, and is independent of ξ, η, ζ and τ but depends upon v. Thus we have the relations

If we now form the reciprocal of this system of equations, firstly by solving the equations just obtained, and secondly by applying the equations to the inverse transformation (from k to K), which is characterized by the velocity $-v$, it follows, when we consider that the two systems of equations thus obtained must be identical, that $\psi(v)\psi(-v) = 1$. Further, from reasons of symmetry * $\psi(v) = \psi(-v)$, and therefore

$$\psi(v) = 1,$$

and our equations assume the form

* If, for example, $X = Y = Z = L = M = 0$, and $N \neq 0$, then from reasons of symmetry it is clear that when v changes sign without changing its numerical value, Y' must also change sign without changing its numerical value.

Fig . 1. Structural contradiction in §6: PoR's velocity-free form vs. Lorentz' v-dependent transform.
$\frac{1}{c}\frac{\partial Z'}{\partial \tau} = \frac{\partial M'}{\partial \xi} - \frac{\partial L'}{\partial \eta}$ $\Longrightarrow$ *Correct— v-free*
$\frac{1}{c}\frac{\partial}{\partial \tau}\beta\left(Z + \frac{v}{c}M\right) = \frac{\partial}{\partial \xi}\beta\left(M + \frac{v}{c}Z\right) - \frac{\partial L}{\partial \eta}$ $\Longrightarrow$ ***Structural Break—v intrusion through*** $\frac{v}{c}$ ***and*** $\beta = \frac{1}{\sqrt{1-\frac{v^2}{c^2}}}$**, relativity collapses,** $E = mc^2$ **derivation in §10 flops**

The equation in frame K to be transformed into frame k $\frac{1}{c}\frac{\partial Z}{\partial t} = \frac{\partial M}{\partial x} - \frac{\partial L}{\partial y}$	
Result of ***Principle of Relativity*** **(PoR)** *in frame k*	*Result of* ***Lorents transformations*** ***(LT)*** *in frame k*
$\frac{1}{c}\frac{\partial Z'}{\partial \tau} = \frac{\partial M'}{\partial \xi} - \frac{\partial L'}{\partial \eta}$	$\frac{1}{c}\frac{\partial}{\partial \tau}\beta\left(Z + \frac{v}{c}M\right) = \frac{\partial}{\partial \xi}\beta\left(M + \frac{v}{c}Z\right) - \frac{\partial L}{\partial \eta}$
Clean, velocity-free, abiding by PoR	***A structural velocity v-laden mess, collapsing relativity***

Table 1. These are not equal. PoR demands sameness; LT delivers sabotage.

Section 10: Consequence of Relativity's Collapse. The Collapse of $E = mc^2$

Then §10 (Fig. 3): In §10, PoR's $\frac{\epsilon}{m}X$ vs. LT's $\frac{\epsilon}{m\beta^3}X\left(\beta = \frac{1}{\sqrt{1-\frac{v^2}{c^2}}}\right)$ align only at $v = 0$, collapsing $E = mc^2$'s relativistic claim and relativity itself (that has already collapsed in §6). This isn't a derivation; it's a farce.

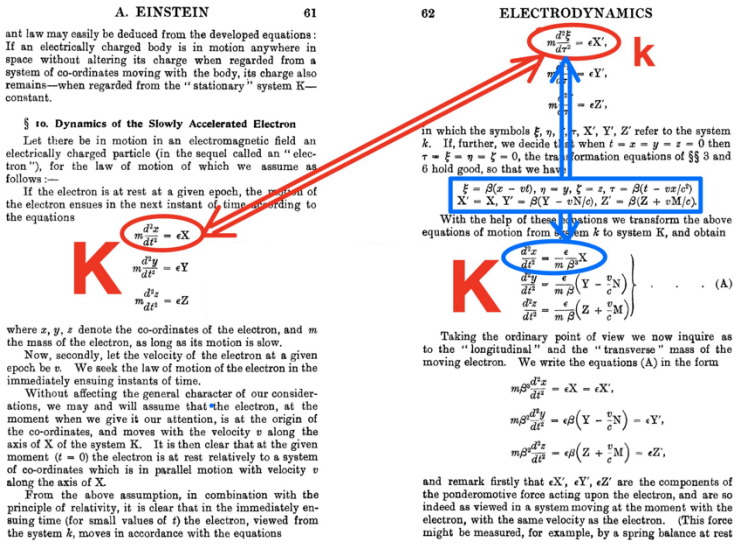

Fig. 3. §10 collapse: PoR vs. Lorentz accelerations align only at $v = 0$.

§6 alone sinks relativity, and §10's another nail. Relativity's not a theory; it's absurdity. Relativity's own formulae betray it.

The equation in frame k to be transformed into frame K $\frac{d^2\xi}{d\tau^2} = \frac{\epsilon}{m}X'$	
*Result of **Principle of Relativity** **(PoR)** in frame K*	*Result of **Lorents transformations** **(LT)** in frame K*
$\frac{d^2x}{dt^2} = \frac{\epsilon}{m}X$	$\frac{d^2x}{dt^2} = \frac{\epsilon}{m\beta^3}X$
Clean, velocity-free, abiding by PoR	***Velocity v-laden mess, collapsing relativity***

Table 2. These are not equal. PoR demands sameness; LT delivers sabotage.

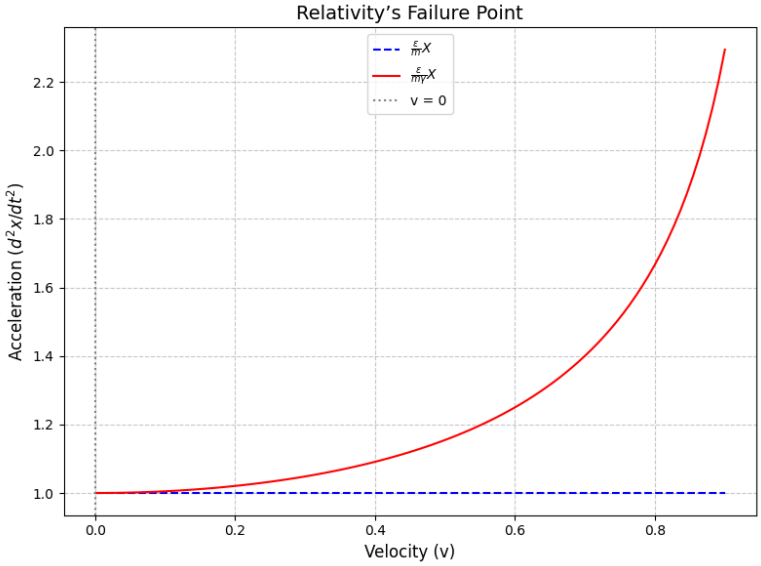

Fig. 2. Illustrative comparison between correct, v-free $\frac{d^2x}{dt^2} = \frac{\epsilon}{m}X$ *(broken line) and incorrect, v-laden* $\frac{d^2x}{dt^2} = \frac{\epsilon}{m}\beta^3 X$ *(solid line). All parameters except for* v *are considered unity. The two expressions align at* $v = 0$*—relativity*

Relativity, built on $v \neq 0$, trivializes to Newton at rest—nonsense birthing nonsense. $E = mc^2$ can't rise from this corpse. $E = mc^2$ has classical (non-relativistic) roots.

Indeed, $E = mc^2$ in §10 is claimed to be derived from by the integral $\int \epsilon X\, dx = \mathrm{m} \int_0^v \beta^3\, \mathrm{vdv}$. From $\int \epsilon X\, dx = m \int_0^v \beta^3\, v dv \rightarrow \int \epsilon \mathrm{Xdx} = m \int_0^v \beta^3 \frac{dx}{dt} dv \rightarrow \int \epsilon X dx = m \int_0^x \beta^3 \frac{dv}{dt} dx \rightarrow \int \epsilon X dx = m \int_0^x \beta^3 \frac{d}{dt}\frac{dx}{dt} dx \rightarrow \int \epsilon X dx = m \int_0^x \beta^3 \frac{d^2x}{dt^2} dx$, LT yield $\epsilon X = m\beta^3 \frac{d^2x}{dt^2}$ in frame K. As seen, the last equation, reordered, $\frac{d^2x}{dt^2} = \frac{\epsilon}{m\beta^3}X$ and v-laden, in K, is in conflict with the correct, PoR-abiding, equation $\frac{d^2x}{dt^2} = \frac{\epsilon}{m}X$ in K (see Table 2). As a consequence of this collapse of the entire relativity, a collapse anticipated by the already seen earlier collapse of relativity in §6, the mass-energy equivalence $E = mc^2$ finds no relativistic grounds.

Mainstream claims $E = mc^2$ is rest energy, scaled by c^2. Rubbish—§10's LT scaffolding crumbles before energy's derived. Contradictory accelerations abort it.

The Dimensional Fiasco

We will use for a dimensional analysis the superior, and that's why universally accepted, SI, rather than cgs (Gauss) unit system. The transformation

$$Z' = \beta\left(Z + \frac{v}{c}M\right)$$

*f*rom §6 teeters: Left: Z', $\left[\frac{\mathrm{kg\cdot m}}{\mathrm{s^2\cdot C}}\right] = \left[\frac{\mathrm{kg}}{\mathrm{C\cdot s}} \cdot \frac{\mathrm{m}}{\mathrm{s}}\right] = \left[\frac{\mathrm{V}}{\mathrm{m}}\right]$. Right, βZ having dimensions $\left[\frac{\mathrm{kg\cdot m}}{\mathrm{s^2\cdot C}}\right] = \left[\frac{\mathrm{kg\cdot m}}{\mathrm{C\cdot s^2}}\right] = \left[\frac{\mathrm{kg}}{\mathrm{C\cdot s}} \cdot \frac{\mathrm{m}}{\mathrm{s}}\right]$, but $\beta \frac{v}{c} M$, with M having dimensions $\left[\frac{\mathrm{kg}}{\mathrm{C\cdot s}}\right] = [\mathrm{T}]$, yields a unit mismatch between the left and right side Einstein's cgs veil conceals. You can't add $\left[\frac{\mathrm{V}}{\mathrm{m}}\right]$ and $[\mathrm{T}]$—structural nonsense.

The left and right side of equality $Z' = \beta\left(Z + \frac{v}{c}M\right) = \beta Z + \beta\frac{v}{c}M$ will be dimensionally the same only if $\beta\frac{v}{c}M = 0$, then we are still left with the incorrect $Z' = \beta Z$, equating a v-independent Z' with v-dependent βZ, ravaging the coherence of relativity by introducing incorrect equalities, such as, $f'(\tau) = F(t, v)$, simulating they are correct. This isn't nitpicking—it's physics. Dimensional chaos proves LT's absurdity, compounding §6's PoR violation. This isn't pedantry; it's a crack in the theory's bones, dwarfed only by the PoR's violation. Therefore, electromagnetic field tensor adjustments modern physics uses to gaslight and conceal the problems in relativity, must be abandoned alongside abandoning relativity itself. Field transformation terms like $E'_z = \gamma\left(E_z + vB_y\right)$, considering that $c = 1$ but forgetting, actually

fudgung, that even so $c = 1$ still has dimensions $\left[\frac{m}{s}\right]$, masquerading as tensor fixes, prop up relativity's flaws and must fall with it. Relativity's cgs crutch sets $c = 1$, faking $Z + vM$ as compatible. SI unmasks this: $\frac{v}{c}$ keeps $[T]$ distinct from $\left[\frac{V}{m}\right]$—no tensor can plaster this over.

Classical (Non-Relativistic) $E = mc^2$

In contrast to the above failure to derive $E = mc^2$ relativistically, consider a free body of mass m accelerated from rest $u = 0$ to velocity v by constant force F_{real} over real distance s. From Newton's second law, $F = m \cdot a \rightarrow F - m \cdot a = 0$. Multiply both sides of the equality by s: $(F - m \cdot a)s = 0$, obtaining an expression resembling D'Alembert's principle. However, real distance s cannot be covered by force applied to the body, compensated by the inertia of the body, i.e., by spending zero work. Therefore, the real force F_{real} applied must overwhelm the inertia of the body and non-zero work must be done by spending non-zero energy for covering the real distance s, at the end of which the body will have velocity v. Thus, the above expression must be $(F_{real} - m \cdot a)s = \frac{mv^2}{2}$.

From classical kinematics, under constant acceleration, $a = \frac{v}{t}$, velocity rises up linearly. Start at u (initial velocity), crank it up with a over time t, and you land at $v = u + a\,t$. Now, distance is just average velocity times time. With a constant, that average is $\frac{u+v}{2}$. Sub in $v = u + a\,t$, and you get $\frac{u+(u+at)}{2} = u + \frac{1}{2}at$. Multiply by t, and you get: $s = \left(u + \frac{1}{2}at\right)t = ut + \frac{1}{2}at^2$. If $u = 0$ (starting from rest), it's $s = \frac{1}{2}\frac{v}{t}t^2 = \frac{1}{2}vt$. So, with s in hand, let's revisit our souped-up D'Alembert. Work (spent Energy) is $\underbrace{(F_{real} - ma)s}_{work} = \frac{mv^2}{2}$. Swap in $a = \frac{v}{t}$ and $s = \frac{1}{2}vt$: $\left(F_{real} - m\frac{v}{t}\right) \cdot \frac{1}{2}vt = \frac{mv^2}{2}$. Expand it: $F_{real} \cdot \frac{1}{2}vt - m\frac{v}{t} \cdot \frac{1}{2}vt = \frac{mv^2}{2}$. Simplify— $m\frac{v}{t} \cdot \frac{1}{2}vt = \frac{mv^2}{2}$ — and you're left with $F_{real} \cdot \frac{1}{2}vt = mv^2$. This is $F_{real} \cdot s$, that is energy E, and there it is: $E = mv^2$. Here, real work overcomes inertia, doubling the classical kinetic term $\frac{1}{2}mv^2$—straight out of Newton's playbook, no relativistic framework required. If F_{real} is constant, velocity v can't climb forever—acceleration vanishes eventually, and v plateaus, fizzling to c. Now stretch this to the body reaching a velocity plateau (light's speed, speed of photon, c, the electromagnetic signal limit, caps v), where the notion of force fades away and motion of the body is characterized only by its energy. If a body flirts with c, energy scales as c^2, not v^2. That's still Newton's turf—force, mass, motion—no Einsteinian detours into spacetime quicksand, non sequitur rather. This corrects Newton, but the absolute proof follows.

Absolute Proof of $F_{real} = ma + \frac{mv^2}{2x}$

It has simple beginnings, stemming from absolute truths of physics—its definitions of velocity, $v = \frac{dx}{dt}$, and acceleration $a = \frac{dv}{dt}$. Expressing dt from both and equating the resulting expressions we get $\frac{1}{2}dv^2 = adx$, which integrated: $\int_0^v \frac{1}{2}dv^2 = \int_0^x adx$, yields $v^2 = 2ax$—the most fundamental absolute relation in mechanics.

From $v^2 = 2ax$, with $a = \frac{1}{2}\left[\frac{m}{s^2}\right]$,

$$v = \sqrt{2\frac{1}{2}\left[\frac{m}{s^2}\right]x[m]} = \sqrt{x}\left[\frac{m}{s}\right]. \quad (1)$$

(Fig. 4, an illustration of Eq.(1), only showing that the change of velocity in time (i.e., the participation of acceleration against the growing velocity) wanes). Yet $v^2 = 2ax$ implies $v = 0$ if $a = 0$, defying physics. So, at high x the description $v^2 = 2ax$ ceases to describe the physical situation and it must be replaced by the steady-state $v = c_{max} = const$—mathematics is only an illustration of physical truth. Under constant F_{real}, any body reaches $c_{\max}$, where F_{real} ceases accelerating, thus force losing meaning, and $E = mc_{\max}^2$ emerges—energy as the only signifier of motion—photon's ($c_{max} = c$) or not; different bodies have their different characteristic c_{max}.

Next, we demonstrate that the absolute, most fundamental law of mechanics $v^2 = 2ax$ naturally leads to the true law of motion,

$$F_{real} = ma + \frac{mv^2}{2x} \quad (2)$$

we derived above via the corrected D'Alembert principle. Not Newtonian—absolute, from $v = \frac{dx}{dt}$, $a = \frac{dv}{dt}$. Unquestionable.

Indeed, multiply both sides of $v^2 = 2ax$ by m^2: $m^2v^2 = m2max \rightarrow mv^2 = 2max$, which, by the way is ($v$ caps at c, light's propagation limit, per classical fields.)

$$\underbrace{2Fx}_{Energy,E} = mv^2 \rightarrow E = mc^2, \quad (3)$$

which is an absolute way of proving that $E = mc^2$ is an intimate part of the classical (non-relativistic) physics, an expression of its absolute truths.

Going further, we get

$$\frac{mv^2}{2} + \frac{mv^2}{2} = 2max \quad (4)$$

$$\frac{mv^2}{2x} + \frac{mv^2}{2x} = 2ma = ma + ma \quad (5)$$

$$\frac{mv^2}{2x} + ma = 2ma = 2F. \quad (6)$$

Denote $2F$ by F_{real} (F_{real} reflects force exceeding inertia, doubling classical force; $F = ma$ is a law of rest, an illustration of Newton's third law; Newton's first law being an expression of Galileo's PoR) and observe that the

true law of motion, $F_{real} = ma + \frac{mv^2}{2x}$, we derived via the corrected D'Alembert principle, comes about based on absolute truths of physics. The equation of motion, Eq.(6), is an absolute law of physics, rooted in its most intimate foundations—the absolute definitions of velocity and acceleration.

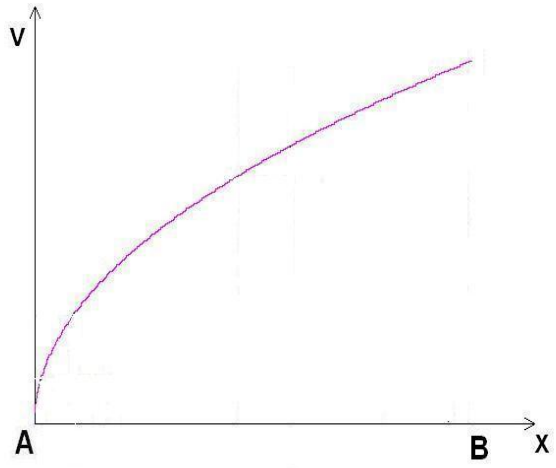

Fig. 4. Graph of the parabola $v = \sqrt{x}$—an illustration of $v^2 = 2ax$ for $a = \frac{1}{2}\left[\frac{m}{s^2}\right]$

Velocity v eventually plateaus at $c_{\max}$—not 'shaky,' but law. Classical mechanics caps v, contra mainstream denial.

Here's another classical illustration of $E = mc^2$. When both sides of Ampere's law are dotted by the electric field vector $\boldsymbol{E}$:

$$c^2\boldsymbol{E} \cdot (\nabla \times \boldsymbol{B}) = \boldsymbol{E} \cdot \frac{\partial \boldsymbol{E}}{\partial t} + \boldsymbol{E} \cdot \frac{1}{\epsilon_0}\boldsymbol{J},$$

a dimensional evaluation yields:

$$c^2\left[\frac{kg^2}{s^5A^2}\right] = \left[\frac{kg^2m^2}{s^7A^2}\right].$$

Canceling $\left[\frac{kg}{s^2A^2}\right]$ from both sides gives

$$c^2[kg] = \left[\frac{kg\,m^2}{s^2}\right],$$

where the right-hand side is energy in joules $[J]$. Thus, $E = mc^2$ emerges as mass times c^2, purely classically. Thus, upon rationalization, this expression resolves to:

$$c^2[kg] = \left[\frac{kg\,m^2}{s^2}\right] = [J].$$

The above constitutes an alternative articulation of $E = mc^2$, again, no relativity needed. Mass-energy, universal—not Einstein's, but classical physics' essence.

Conclusion

Relativity, birthed in 1905 [1], is a specious venture nullified from inception, its Sections 6 and 10 a mausoleum of contradiction. $E = mc^2$ belongs to classical (non-relativistic) physics as part of its framework of absolute truths, not Einstein's errant figment. $E = mc^2$ is mine—relativity's collapse (§6, §10) leaves it to absolute mechanics. The Lorentz transformations, far from saviors, contravene the PoR, rendering the §6's second system of equations in frame k a subversion in the same frame k of the third system of equations' truth. Constants fused to variables, structural discrepancies, dimensions in disarray—these aren't flaws; they're the theory's DNA, fatal from the start. No wider context—empirical crutches, mathematical husks—can prop up this internally inconsistent construct; internal contradiction marks its inevitable end. Most significantly—relativity's contradictions preclude further testable outcomes, other than the exposed data-driven finding of inconsistencies—further experiments are irrelevant. Physics must address this inconsistency, aligning with empirical evidence from this study that reveals conflicts within relativity's own formulations, and restore the framework of classical mechanics, or concede its dependence on a self-contradictory framework. The choice is stark: truth or delusion.

References

[1] A. Einstein, Zur Elektrodynamik bewegter Körper, Ann. Phys. 17, 891 (1905). Translated in The Principle of Relativity, Dover, 1952, pp. 37-65.

***Acknowledgment**

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