Internal Inconsistencies of the Theory of Relativity

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Abstract
This study delivers a fatal blow to Einstein's 1905 theory of relativity, excavating irreparable contradictions within its foundational Sections (§6 and §10) as presented in "On the Electrodynamics of Moving Bodies." Section 10's derivation of $E = mc^2$ collapses under scrutiny, revealed as a classical truth hijacked by a flawed relativistic scaffold rooted in Section 6's chaos. 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 constants to variables in an abomination of logic. Dimensional fractures in SI units further disgrace the theory, but the true death knell lies in Section 6's equation systems—claimed by Einstein to be identical, 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 be excised from physics as a fraudulent edifice.

Introduction

Since Einstein's 1905 paper [1], relativity has masqueraded as a pillar of physics, yet its internal rot festers unaddressed. Early critiques—Bergson's meticulous 1922 dissection [2], Nordenson's logical scorn [3]—probed its weaknesses, but none struck the jugular as this study does. Here, Sections 6 and 10 of [1] are flayed open, their contradictions not mere blemishes but the theory's essence. Section 10's $E = mc^2$ is no relativistic triumph—it predates and outlives Einstein's framework, a classical jewel stolen by a crumbling dogma. Section 6, the linchpin, unleashes the Lorentz transformations' treachery, shattering the PoR and birthing equations that clash like oil and water. These are not quibbles; they are the theory's executioners, rendering all wider context—experimental crutches, mathematical shells—irrelevant ash. Relativity dies by its own hand, and physics must cast out the corpse.

The Classical Truth of $E = mc^2$

Einstein's §10 dares to brand the classical derivation of $E = mc^2$ relativistic—a theft shredded by classical physics' unassailable derivation. Section 10 of [1] claims $E = mc^2$ as relativity's crown, but this is a lie exposed by the classical physics' primacy. Consider a body of mass *m* accelerated from rest to velocity v by a force F over distance *s*. Work done, energy E, is $E = F \cdot s$. By Newton's second law, $F = m \cdot a + \frac{mv^2}{2s}$, corrected by this author to express a law of motion (indeed, D'Alembert's principle $\underbrace{(F - ma)s}_{work} = 0$, arriving from $F = ma$, is untenable—non-zero real displacement s cannot be achieved

without doing work, hence, $\underbrace{(F-ma)s}_{work} = \frac{mv^2}{2}$, and $\mathrm{F}\cdot\mathrm{s} = \mathrm{m}\cdot a\cdot\mathrm{s} + \frac{mv^2}{2}$) and with constant acceleration $a = \frac{v}{t}$, we get from the standard kinematic equations in Newtonian physics distance $s = \frac{1}{2}at^2 = \frac{1}{2}\frac{v}{t}t^2 = \frac{1}{2}vt$. The latter comes from the following: for constant acceleration, velocity changes linearly. Starting with initial velocity u, acceleration a over time t increases the velocity to a final value $v = u + a\,t$. Distance s is the product of *Average velocity* and time. With constant acceleration, the *Average velocity* is the mean of initial and final velocities: *Average velocity* $= \frac{u+v}{2}$. Substituting ($v = u + at$): *Average velocity* $= \frac{u+(u+at)}{2} = \frac{2u+at}{2} = u + \frac{1}{2}at$. Thus, distance is $s =$ (*Average velocity*) $\cdot\, t = \left(u + \frac{1}{2}at\right)t = ut + \frac{1}{2}at^2$, which for initial velocity $u = 0$ becomes $s = \frac{1}{2}\frac{v}{t}t^2 = \frac{1}{2}vt$.

Therefore, from the corrected D'Alembert's principle, accounting for real s, we get

$$\underbrace{(F-ma)s}_{work} = \frac{mv^2}{2} \Rightarrow$$

$$\underbrace{\left(F - m\frac{v}{t}\right)\frac{1}{2}vt}_{work} = \frac{mv^2}{2} \Rightarrow$$

$$\underbrace{F\frac{1}{2}vt}_{Energy,E} - m\frac{v}{t}\frac{1}{2}vt = \frac{mv^2}{2} \Rightarrow$$

$$\underbrace{F\frac{1}{2}vt}_{Energy,E} - \frac{mv^2}{2} = \frac{mv^2}{2} \Rightarrow$$

$$E = mv^2.$$

Thus, twice the kinetic energy observed arrives from non-relativistic classical mechanics. Now, having the body under constant force, its velocity v with displacement s will reach a plateau, for physical reasons due to acceleration a vanishing. Extend this to light's speed c: if a body's motion approaches c, energy scales with c^2, not v^2—Newton's domain, not Einstein's. Relativity's tortuous derivation in §10, leaning on Section 6's mire, is a redundant sham; $E = mc^2$ stands apart, untainted by Lorentzian distortion. Einstein's theft of this truth is a footnote to its classical purity.

For those non-relativists curious to see if the mass-energy relation might be present elsewhere in classical physics (physics sans relativity), here's a piece of analysis. Multiply both sides of Ampere's law scalarly by the electric field vector $\boldsymbol{E}$:

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

from which we get in terms of dimensions

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

which after rationalization becomes

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

alternatively expressed as

$$E=mc^2.$$

If we are more ambitious, we can say that this is a step towards the dream of a grand unification of physics—from fields to mass and energy. In this study, however, we will be more modest and be satisfied with the conclusion that classical physics, not relativity, derives $E=mc^2$, not to say that relativity itself is inconsistent and should make itself scarce from physics.

The Lorentz Betrayal and the PoR's Ruin

Observe Fig. 1:

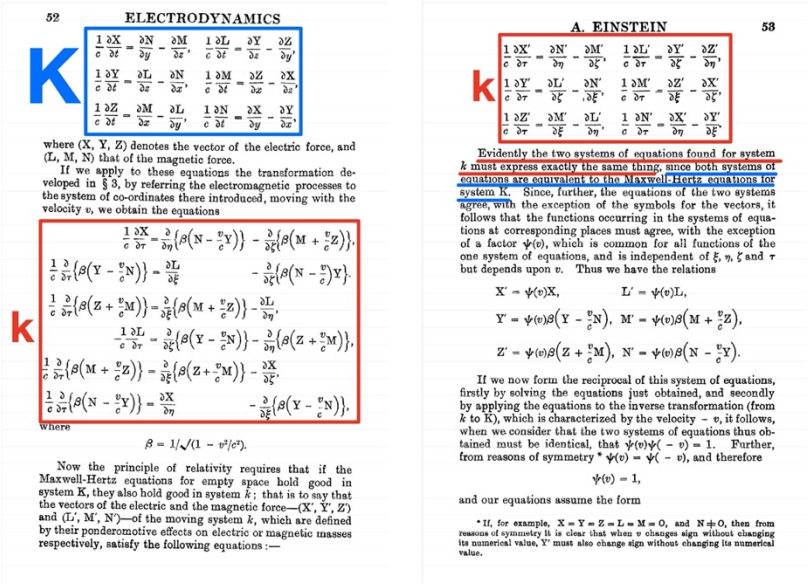

Fig . 1. Pages 52 and 53 of Einstein's paper showing that the second and third systems of equations do not "express exactly the same thing" as [1] assumes and as they should, causing immediate invalidation of relativity.

Fig. 1 shows two pages from §6. Section 6, Einstein's bid to reconcile Maxwell's equations via Lorentz transformations, is the theory's killing field. Equation (1) in frame K, pre-transformation, reads:

$$\frac{1}{c}\frac{\partial Y}{\partial t}=\frac{\partial L}{\partial z}-\frac{\partial N}{\partial x}, \tag{1}$$

where t, z, x are coordinates of K, Y is the electric field's y-component, L and N magnetic components, and c light's speed—all pristine, velocity v-free, as the PoR demands: laws of physics endure unchanged across inertial frames.

Enter the Lorentz transformations, and Equation (2) in frame k erupts:

$$\frac{1}{c}\frac{\partial}{\partial\tau}\beta\left(Y-\frac{v}{c}N\right)=\frac{\partial L}{\partial\xi}-\frac{\partial}{\partial\zeta}\beta\left(N-\frac{v}{c}Y\right), \quad (2)$$

with $\beta=\frac{1}{\sqrt{1-\frac{v^2}{c^2}}}$, v the relative velocity of frames K and k, and τ,ξ,ζ coordinates of frame k. In addition to the unprimed electric and magnetic field components in Eq. (2) written for the primed frame k, this equation reeks of v, a blasphemous stain on the PoR's sanctity. Contrast it with Equation (3) in the same frame k, derived via the PoR from Equation (1):

$$\frac{1}{c}\frac{\partial Y'}{\partial\tau}=\frac{\partial L'}{\partial\zeta}-\frac{\partial N'}{\partial\xi}, \quad (3)$$

unblemished by v, its fields Y', L', N' steadfast across frames.

It's crucial to highlight that when Einstein uses the Principle of Relativity (PoR) to transform Eq.(1) from frame K to frame k, obtaining Eq. (3), his approach is strikingly straightforward. He rewrites the equation to suit the new frame, replacing the coordinates with the Greek letters characteristic of frame k, and primes the fields to match—all while preserving the exact form of the equations. Note that when Einstein uses PoR, he does not in any way, shape or form, implicitly or otherwise, involve the Lorentz transformations (LT).

It may be useful to be reminded that the meaning of the principle of relativity is that uniform translatory motion is akin to rest. Imagine, then, that at time $t = 0$ the origins of frames k and K coincide, frames k and K overlap. Then, according to PoR, it does not matter whether the two frames are at rest or in uniform translatory motion with respect to each other. At the moment $t = 0$, the law of physics must not contain velocity v in either frame. Unfortunately, relativity wrongly introduces velocity v through the LT, which makes this theory internally inconsistent.

Einstein's assertion that Eq. (2) and Eq. (3) "express exactly the same thing" is a grotesque fiction. Equation (2)'s v-laden terms—e.g., $\beta\left(Y-\frac{v}{c}N\right)$—are variables, shifting with frame velocity; Equation (3)'s terms—e.g. Y'—are constants, immutable. This isn't inconsistency—it's annihilation.

The Dimensional Fiasco

Further ignominy strikes when the superior, and that's why universally accepted, SI units are used, rather than cgs (Gauss) units. The transformation

$$Y'=\beta\left(Y-\frac{v}{c}N\right)$$

from §6 falters: Y', electric field on the left side, has dimensions $\left[\frac{\mathrm{V}}{\mathrm{m}}\right]=\left[\frac{\mathrm{kg\cdot m\cdot s^{-2}}}{\mathrm{C}}\right]=\left[\frac{\mathrm{kg}}{\mathrm{C\cdot s}}\cdot\frac{\mathrm{m}}{\mathrm{s}}\right]$; while, on the right side, with βY having dimensions $\left[\frac{\mathrm{kg\cdot m\cdot s^{-2}}}{\mathrm{C}}\right]=\left[\frac{\mathrm{kg\cdot m}}{\mathrm{C\cdot s^2}}\right]=\left[\frac{\mathrm{kg}}{\mathrm{C\cdot s}}\cdot\frac{\mathrm{m}}{\mathrm{s}}\right]$ and $\beta\frac{v}{c}N$, with N having dimensions $\left[\frac{\mathrm{kg}}{\mathrm{C\cdot s}}\right]$, yields a unit mismatch between the left and right side Einstein's cgs veil conceals. The left and right side of equality $Y'=\beta\left(Y-\frac{v}{c}N\right)=\beta Y-\beta\frac{v}{c}N$ will be the same

only if $\beta \frac{v}{c} N = 0$, then we are still left with the incorrect $Y' = \beta Y$, equating a v-independent Y' with v-dependent βY, equating a constant to a variable. This isn't pedantry; it's a crack in the theory's bones, dwarfed only by the PoR's murder. Therefore, electromagnetic field tensor adjustments modern physics gaslights with, such as $E'_y = \gamma\left(E_y - vB_z\right)$, used to conceal the problems in relativity, must be abandoned alongside abandoning relativity itself.

The Equation Rift: Constants vs. Variables

Einstein equates (2) and (3), birthing:

$$Y' = \beta\left(Y - \frac{v}{c} N\right), \tag{4}$$

$$N' = \beta\left(N - \frac{v}{c} Y\right). \tag{5}$$

From Equation (3), Y' and N' are v-independent, constants cooked in the PoR's fire from Equation (1)'s frame K roots. Yet the right-hand sides, drenched in v via β and $\frac{v}{c}$, twist as variables with frame motion. This equating of opposites—constants to variables—is relativity's skull-shattering death knell. No tensor, no experiment, no sleight of math can mend this chasm; it's the theory's self-inflicted end.

Counterarguments Crushed

Defenders bleat that Lorentz transformations embody the PoR, claiming invariance in some esoteric guise (calling it covariance). Rubbish. Equation (2)'s v-dependence spits on Equation (3)'s purity—invariance isn't warped by velocity; it's absolute. Others tout experiments—time dilation, particle energies—as relativity's shield. Irrelevant. A theory self-contradictory at its root spawns no testable truth; its predictions are mirages of a broken mind. Tensors and general relativity? Shell games atop a void, powerless against this primal fracture.

Experimental Reassessment: A Lens on Relativity's Empirical Fragility

The claim that experimental evidence unequivocally buttresses the theory of relativity hinges on a selective reading of results, glossing over foundational inconsistencies that render such tests inconclusive at best. If a theory harbors internal contradictions—such as those we saw embedded in relativity—no amount of experimental scaffolding can validate it, as the framework itself dictates what can and cannot be meaningfully measured. Yet, faced with insistence that relativity's empirical triumphs are beyond reproach, it becomes necessary to spotlight specific experiments often hailed as successes, which, upon scrutiny, reveal cracks in the narrative. These cases do not merely challenge interpretation but expose how the theory's assumptions falter when pressed against empirical reality.

Michelson-Morley Experiment: A Null Result's Misadventure

The Michelson-Morley experiment, frequently cited as a cornerstone of Lorentz invariance, delivers a null result that is hastily framed as proof of

light's universal speed constancy. Yet, this interpretation unravels under closer examination. In a non-ether context, consider two frames: frame k, at rest with the interferometer, and frame K, relative to which the apparatus moves. Michelson's own framework [4] posited that, absent an ether, observers in k would observe no interference patterns—consistent with the experiment's outcome—and thus measure light's speed as constant ($c = const$) in all directions. However, for observers in frame K, where the interferometer moves, the absence of ether implies $c \neq const$, as light's speed should vary with the apparatus's motion. This directly contradicts the second postulate's assertion that c remains constant irrespective of the source or observer's motion. Conversely, if ether were present, $c = const$ could hold in frame K, with light behaving as an ether-bound wave, independent of its source—light would have emancipated itself from the light source and would have become an expression of the undulatory properties of the ether, unaffected by whether or not its light source moves. The experiment [4,5] found no ether, aligning with $c \neq const$ in K—a result at odds with relativity's core tenet. Thus, the null outcome, rather than affirming relativity, underscores a tension: the second postulate fails in the very scenario the experiment probes.

GPS Timekeeping: Synchronization Over Dilation

The Global Positioning System (GPS) is often touted as a practical validation of relativistic time dilation, yet this overlooks a critical detail: clock synchronization occurs within a preferred frame—Earth's rest frame—undermining claims of relative effects. Stationary clocks, spatially coincident or not, maintain synchronicity. A moving clock, traversing this manifold of synchronized stationary clocks, remains tethered to the underlying frame: at any instant, it aligns spatially with a stationary counterpart and, by extension, with all such clocks. This persistent synchronicity suggests that motion does not inherently desynchronize clocks, as relativity predicts. Rather than evidencing time dilation, GPS functionality hinges on a practical synchronization that sidesteps the theory's relativistic pretensions, casting doubt on the phenomenon it purportedly confirms.

Muon Decay: Experimental Inconsistency in Disguise

The comparison of muon decay rates—measured at sea level in Cambridge, MA, versus atop Mount Washington—is often framed as a triumph of relativistic time dilation [6]. Yet, this glosses over complicating factors, such as chemical decay processes [7], which muddy the results. Ad hoc adjustments in analyses [8] hint at confirmation bias, where data are massaged to fit the theory rather than rigorously tested against it. Far from a clear endorsement, the experiment reveals inconsistencies that weaken its status as a definitive proof, suggesting that relativistic interpretations may lean more on narrative than on unassailable evidence.

Cesium Clocks: Acceleration's Overshadowed Role

Tests involving cesium clocks aboard aircraft frequently neglect a prosaic yet pivotal factor: acceleration during takeoff and landing. In studies like [9] this can be identified as one of many sources of error, yet such considerations are sidelined in favor of relativistic conclusions. If mundane physical effects can skew results, the attribution of discrepancies to time dilation becomes tenuous, further eroding confidence in the experimental linkage to relativity's predictions.

A Broader Doubt

These examples—without exhausting the litany of contested experiments—suffice to question relativity's empirical moorings. If the theory's internal logic stumbles, as seen in the second postulate's clash with Michelson-Morley or the synchronization conundrum in GPS, its capacity to anchor experimental outcomes falters. The discrepancies highlighted here suggest not merely interpretive flaws but a deeper disconnect: a theory at odds with itself struggles to claim the clarity of experimental vindication.

Conclusion

Relativity, birthed in 1905 [1], is a stillborn fraud, its Sections 6 and 10 a mausoleum of contradiction. $E = mc^2$ belongs to classical physics, not Einstein's sham. The Lorentz transformations, far from saviors, slay the PoR, rendering Equation (2) a traitor to Equation (3)'s truth. Constants fused to variables, 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 cadaver; internal contradiction is its guillotine. Physics must purge this blight or confess its worship of a lie. The choice is stark: truth or delusion.

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