Resolving Relativity's Unresolvable Paradoxes

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Abstract

In a recent viXra posting, David Bower identifies an unresolvable paradox in special relativity involving the Lorentz transformation. Three or more reference frames with different velocities could create multiple rates of time for each. Paradoxes are an inherent problem with special relativity. They occur in all cases. The source of the conflict is the one-dimensional consideration of light and time in linear motion when they're innately three-dimensional constituents. Simply abandoning light's (presumed) constancy and recognizing its (factual) compounding with motion, and variability, completely eliminates all paradoxes. But this practical real-world resolution would undermine relativity's founding premise, which would in turn invalidate nearly all of it, along with all other ancillary theories that are based on light's (untenable) fixed velocity, including the Lorentz transformation.

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Resolution

In his paper, "A new paradox involving the Lorentz transformation," Bower describes an unresolvable conflict in time's rate caused by the way Einstein uses the Lorentz transformation in special relativity [1]. (Use **[Alt][←]** to return.) Paraphrasing, it would occur between three or more reference frames moving in a line but with different relative motion. This would cause at least one to have multiple rates of time simultaneously. Multiple rates of time for a single reference frame is not possible.

Bower notes that this paradox never occurs between two reference frames, which is always how the Lorentz transformation is utilized. Their relative motion is always linear, which is one-dimensional. (The Lorentz transformation is a system of equations Einstein adopted for relativity that translates the space and time coordinates from one reference frame to another [2].)

But special relativity's incongruities are not limited to this specific circumstance. They occur in all cases involving two or the three real dimensions of our real physical world. The root cause is the one-dimensional theoretical analysis of light and time's behavior in linear motion, one dimensionally, that ignores their innate nontheoretical three-dimensionality.

Their other two dimensions are inseparable. So the conditions in those dimensions cannot be disregarded. The contraction that'd be necessary to enforce light's (presumed) constancy in the one dimension of linear motion will always be in conflict with the noncontracted condition in the other two permanently coupled and indivisible dimensions.

The conflict is also directional. The contraction necessary in the forward direction would always be in conflict with the expansion necessary to the rear. Special relativity/Lorentz transformation is also limited to only one occurrence at a time. Two or more is analogous to two or three dimensions.

This unresolvable real-world conflict is essentially the same paradox Bower identifies. Analyzing the effect between one pair of reference frames will always work. It's one-dimensional. But analyzing the effect between two or more interconnected pairs of reference frames will never work. It will always produce the same conflicted result. It's two or three-dimensional.

Bower poses the question, "What controls the rate of flow of time in *any* reference frame?" Einstein would reply that it's light's constancy and motion. (The motion being subjectively decided by each observer [3].)

For light's constancy to be maintained when its source is in motion, light's velocity would slow in the forward direction, the source's reference frame would physically contract correspondingly in the forward direction, and the reference frame's rate of time would "slow/dilate" correspondingly [4]. So according to Einstein, light's velocity or its source's motion is what determines time's rate.

But time's rate has to be consistent in every direction, even as its rate (theoretically) changes with motion. It's intrinsically three-dimensional just like light. It's not possible for it to have one rate in the forward direction and other rates in every other direction. There'd be an endless number of conflicting rates of time. Einstein would agree, "Every reference-body (co-ordinate system) has its own particular time [5];"

With "slowing" time's required uniformity, light's necessary contracted velocity in the forward contracted direction would always be in conflict with its noncontracted velocity in the perpendicular noncontracted direction (or at any angle, including to the rear). It'd always exceed 186,000mi/s by the reference frame's velocity.

So, while special relativity maintains light's constancy in the one dimension of linear motion through the Lorentz transformation, it actually causes light's velocity to vary, diverging in every other direction in two and the three tangible dimensions of our physical environment. This unresolvable real-world conflict occurs for all conditions, any single reference frame or between any number of individual reference frames regardless of their configuration.

When time's changing rate is theoretically consistent in all directions, as it would have to be, light's velocity would vary in all directions. When light's velocity is theoretically fixed in all directions, as it's assumed to be, then time's rate would impossibly be different in all directions. It's either one or the other. It can't be both. And neither work.

At one point, Einstein seems to recognize and acknowledge special relativity's one-dimensional limitation, "we then obtain the equation... which corresponds to the theorem of addition for velocities in one direction [forward one-dimensionally] according to the theory of relativity [6]." But he continues to promote relativity's legitimacy anyway. If that's true, what does that tell you?

This one-dimensional limitation also applies to the specific paradox Bower identifies. The direction of motion doesn't matter. One pair of reference frames always works (theoretically). It's one dimensional. Two interconnected pairs with different motion that share a common reference frame can never work. They define a plane, which is two-dimensional. When light's velocity is fixed, the shared reference frame would have two conflicting rates of time.

Three interconnected pairs with different motion that share a common reference frame would have the same problem, but three-dimensionally. Its shared reference frame would have three conflicting rates of time. Four pairs, the same thing in three dimensions, but with four conflicts, and so on.

The absurdity can be readily perceived by envisioning a "real-world" scenario where our galaxy would be the common shared reference frame simultaneously paired with the reference frame of every other galaxy. Assuming light's fixed velocity and that the universe is actually finite and actually expanding, we'd be subject to 200 billion rates of time simultaneously that'd be different in every direction. (200 billion being the estimated number of visible galaxies. Almost all are thought to be moving away from us at different and increasing velocities.)

Any time light's velocity is theoretically made constant, time's rate in two or three dimensions, which is the same as two or three (or more) paired reference frames, will always produce the same conflict in time's rate. It's an inherent flaw in special relativity, and the Lorentz transformation, that's insurmountable.

The only way to resolve this unresolvable paradox is with the realization that no way exists for light's velocity to remain constant. It's conceptually impossible. In our real nontheoretical three-dimensional universe, it must always compound with the motion of its source and that of other reference frames [7]. And that's in addition to its variability, which Einstein also (contradictorily but correctly) asserts [8]. But light's variability undermines its constancy as well. So its velocity has no chance of ever being fixed [7]. (See **Figure 1.1**, Light's Constancy; **Figure 1.2**, Light's Compounding; **Figure 1.3**, The One-Dimensional Limitation of Special Relativity & Lorentz Transformations - next page)

A STATIONARY

B IN MOTION ➡
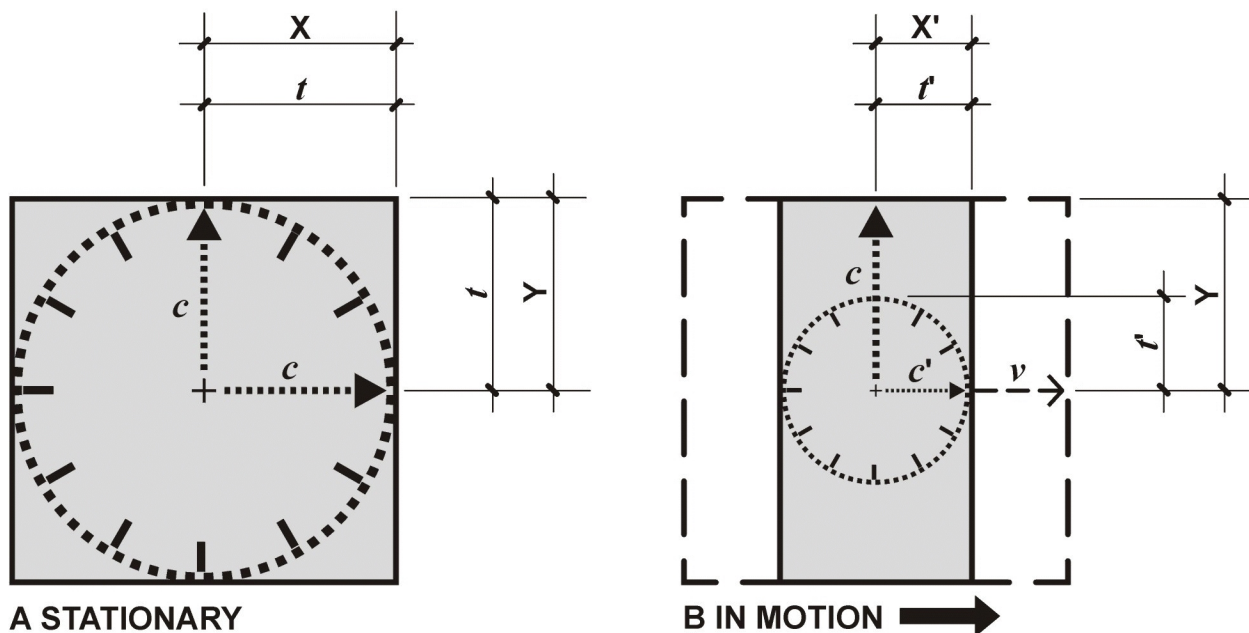
LIGHT'S CONSTANCY

A simple way to illustrate the impossibility of light's fixed velocity (relativity's founding premise) is by establishing a two-dimensional square reference frame that could be of any size, as depicted in diagram **A**. When theoretically stationary, its **X** and **Y** dimensions from its center would correspond to light's constant velocity, indicated by the arrows at c, and time's constant rate, symbolized by the clock-like circle that fills the entire reference frame equally that equates to t.
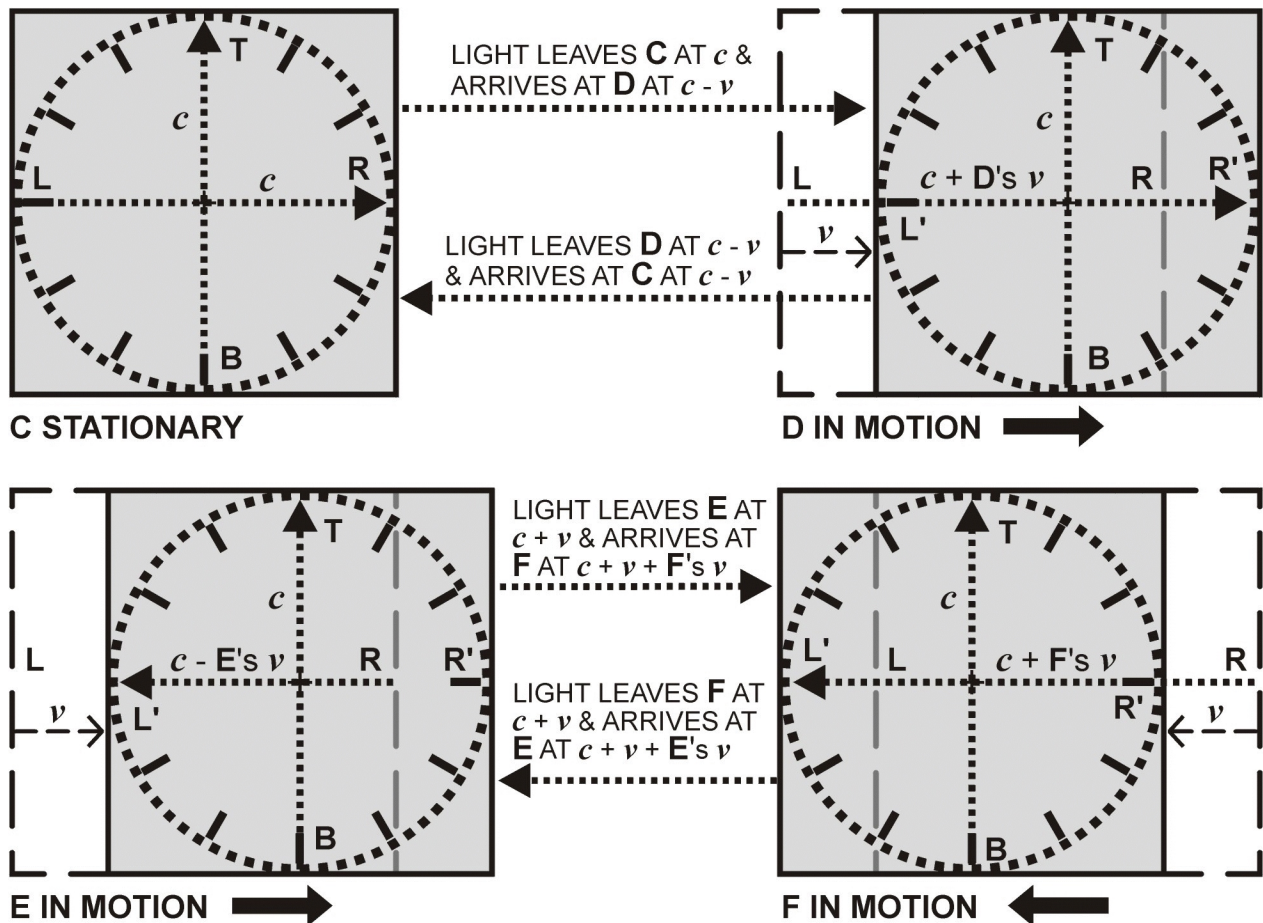
Einstein would contend that when the reference frame is put in motion, let's say moving from left to right at velocity v, as depicted in diagram **B**, for light's velocity to maintain its constancy in the direction of motion, it would have to slow in that direction by the amount of the reference frame's velocity to c'. This would require the reference frame to contract correspondingly in the direction of motion to the distance **X'** while its rate of time also contracted ("slowed/dilated") equivalently to t', as implied by the smaller clock-like circle.

But since there's no motion in the perpendicular direction, the reference frame's **Y** dimension and light's velocity, c, are not required to contract to maintain its constancy. And since time's contracted rate, t', has to apply equally over the entire reference frame, this creates an unresolvable conflict in every other direction, as indicated by the smaller clock-like circle. Its contracted time, t', corresponds to the contracted **X'** dimension and light's contracted velocity, c', in the direction of motion. But in the perpendicular direction, its contracted rate conflicts with the noncontracted dimension at **Y** and light's noncontracted velocity at c, which would cause it to exceed 186,000mi/s by v.

This unresolvable conflict clearly shows how light's velocity can only remain fixed, theoretically, in the one abstract dimension of linear motion. Even if time had a real existence and was a viable constituent of the universe, light's constancy would still be conceptually impossible in two or the three real dimensions of our physical environment. Which means, its velocity has to compound with the motion of its source and that of other reference frames. Left without the possibility of light's velocity ever being fixed, relativity loses its underlying premise and becomes altogether untenable.

Figure 1.1

(3.1 Light's Constancy vi 7a)

C STATIONARY

LIGHT LEAVES **C** AT c & ARRIVES AT **D** AT $c - v$

LIGHT LEAVES **D** AT $c - v$ & ARRIVES AT **C** AT $c - v$

D IN MOTION ➡

LIGHT LEAVES **E** AT $c + v$ & ARRIVES AT **F** AT $c + v + $ **F**'s v

LIGHT LEAVES **F** AT $c + v$ & ARRIVES AT **E** AT $c + v + $ **E**'s v

E IN MOTION ➡

F IN MOTION ⬅

LIGHT'S COMPOUNDING

Light compounds with the motion of its source and that of other reference frames just as we'd naturally infer. The four conditions represent generic reference frames theoretically free of gravity fields to avoid light's variability. The clock-like circle in each symbolizes time's theoretical rate that remains constant throughout the entire reference frame. The dotted arrowed lines denoted with c indicate light's velocity. The dashed grey lines indicate the reference frame's original location prior to motion.

Reference frame **C** is portrayed as theoretically stationary. For its observers, light moves from left to right and from the bottom to the top at c. An outside observer also theoretically stationary would record the same.

For reference frame **D**, it's depicted as moving from left to right with velocity v. For those observers, light moves normally as if it were stationary from **L** to **R** and **B** to **T** at c. This is what all of the Michelson-Morley and Sagnac type experiments show. Light always leaves its source at the same rate in all directions at the same time regardless of motion.

For an outside observer that's theoretically stationary, light begins from its initial position at **L** and arrives at **R'**. Light travels a longer distance in the same amount of time, leaving **L** at $c + $ **D**'s v. This is a compounding of velocities. Light projected between **C** and **D** also indicates its compounding as noted for the different directions.

For **E**, this time light is shown as projected from right to left, opposite the direction of its motion. Its observers again record the light's progress but this time from **R** to **L** as if stationary. But a stationary, outside observer records it traversing a shorter overall distance from **R** to **L'** in the same amount of time. This compounded velocity would be slower than c by **E**'s v because the light leaves **R** opposite the direction of **E**'s motion at $c - $ **E**'s v.
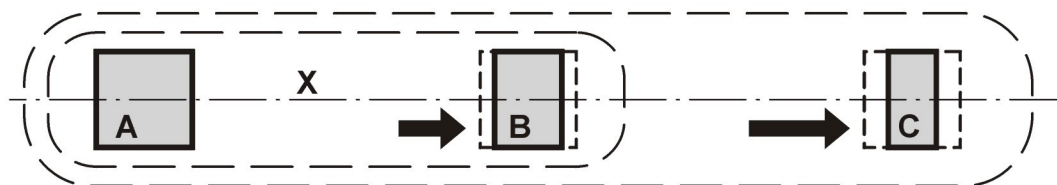
F is the same as **D**, just in the opposite direction. The light projected between **F** and **E** indicates the compounding conditions for the other circumstances of relative motion.

Figure 1.2   (3.2 Light's Compounding vi 4a)

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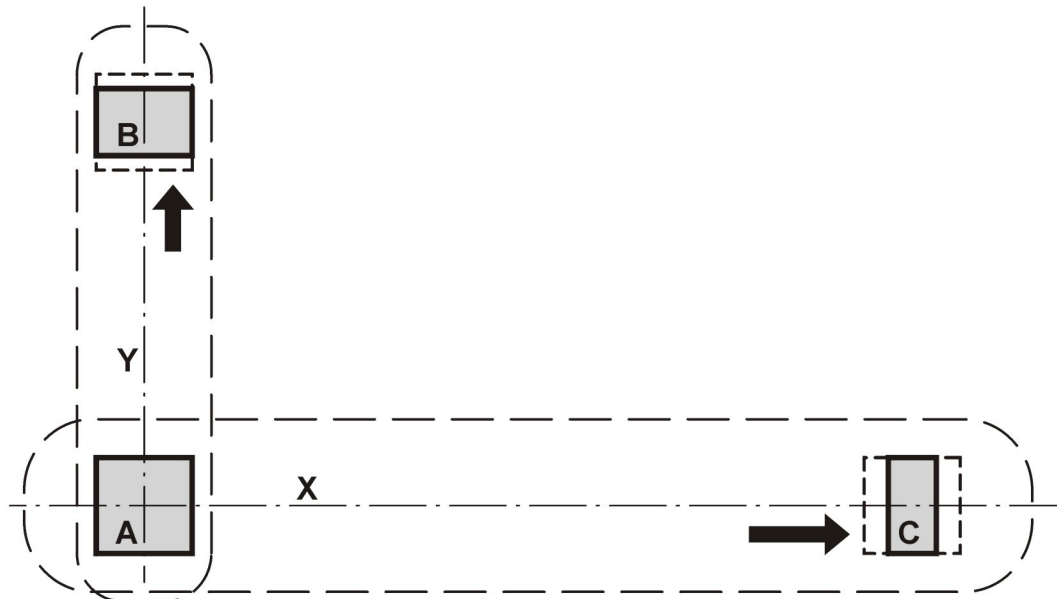
1. TWO INTERCONNECTED PAIRS OF REFERENCE FRAMES IN TWO DIMENSIONS

2. TWO INTERCONNECTED PAIRS OF REFERENCE FRAMES IN ONE DIMENSION

THE ONE-DIMENSIONAL LIMITATION OF SPECIAL RELATIVITY & LORENTZ TRANSFORMATIONS

Diagram **1** shows how special relativity & Lorentz transformations only work in the one dimension of linear motion and only in one direction at a time. In two, or our three real dimensions, they're conceptually impossible.

The direction and rate of motion of reference frames (or objects) **B** & **C** is suggested by the arrows. **A** is assumed to be stationary. When they're arranged two-dimensionally and paired through Lorentz transformations, **A**&**B** and **A**&**C**, as implied by the dashed ovals that share the common reference frame, **A**, special relativity & Lorentz transformations are inherently unworkable. **A** will always have two simultaneously conflicting rates of time.

This is essentially the same invalidating contradiction that's inherent in a single reference frame. It too only works theoretically, one-dimensionally. In two, or our three real dimensions, its necessary metaphysical contraction in the forward direction of linear motion will always be in conflict with its natural noncontracted condition to its sides and its necessary metaphysical expansion to the rear, as implied by reference frames **B**&**C** that are contracted one-dimensionally. The dashed square rectangles represent their original noncontracted size prior to motion. This clearly indicates how it's impossible for light's velocity to ever be fixed in our real nontheoretical three-dimensional environment.

Diagram **2** shows how two pairs of reference frames moving in one direction, one-dimensionally, have the same two-dimensional contradiction. When reference frames **A**&**B** and **A**&**C** are similarly paired through Lorentz transformations that share the common reference frame **A**, it will also always have two simultaneously conflicting rates of time.

This demonstrates how special relativity and Lorentz transformations are not only limited to one direction, one-dimensionally, but also to only one pairing occurrence at a time, which again confirms the impossibility of light's constancy. In reality, light's velocity can only compound with the motion of its source and that of other reference frames.

Figure 1.3   (51 SR&LT 1 Dim Lim vi 5a)

Light's compounding is perfectly consistent with all of the Michelson-Morley and Sagnac type experiments. They show light always leaving its source at the same rate in every direction at the same time despite the motion of the Earth's rotation and orbit, our solar system's motion through our galaxy, and our galaxy's motion through the universe. This plainly indicates light's compounding, which is being mistaken for constancy [7][9].

A person positioned just outside of the Earth's orbit, stationary with respect to the solar system, its reference frame, could theoretically observe a Michelson-Morley experiment being conducted at the equator. Just like for the experimenters, they'd witness no interference pattern.

Both the outside observer and the experimenters would record the velocity of its light at 186,000mi/s both in the longitudinal (vertical) direction and the latitudinal (horizontal) direction. But the outside observer would also record the Earth's orbital and rotational velocities as it raced by at 66,000mph while rotating at 1,000mph.

Compounded together, that'd make light's velocity from Earth for the outside observer 186,000mi/s in the longitudinal (vertical) direction while at the same time it read 186,000mi/s + 66,000mph + 1,000mph in the latitudinal (horizontal) direction. It's perfectly natural and reasonable and eminently practical that light's velocity should diverge and exceed 186,000mi/s. It cannot not compound, as special relativity's untenability decisively demonstrates. (See **Figure 2.1**, **2.2**, Michelson-Morley Experiment 1, 2)

1. EQUATORIAL VIEW   **2. POLAR VIEW**
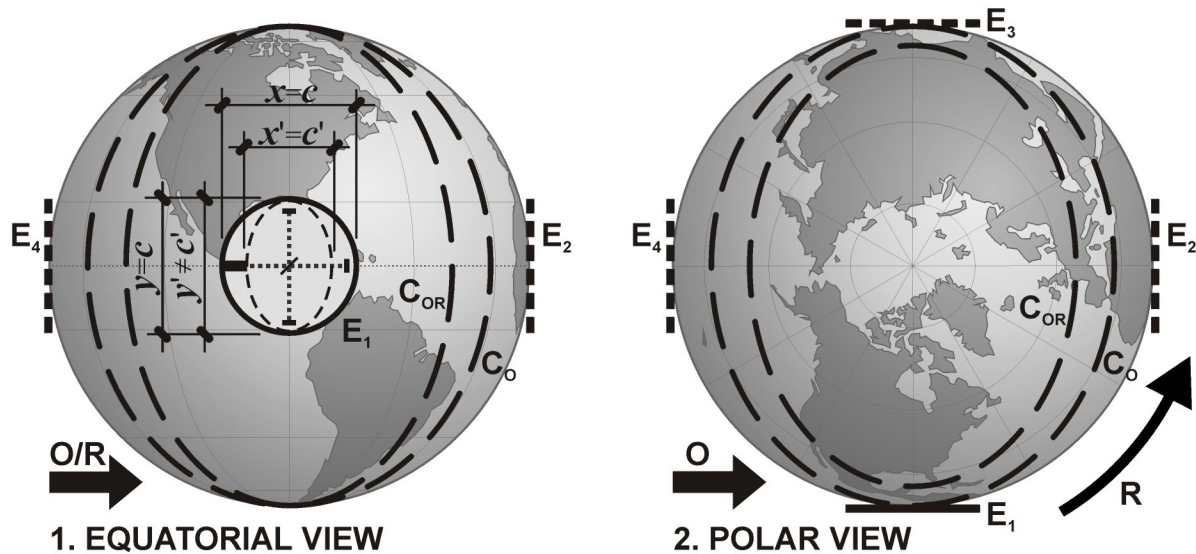
MICHELSON-MORLEY EXPERIMENT - 1

The experiment essentially consists of several mirrors arranged rectilinearly in a cross pattern around a central beamsplitter on a table that can be rotated. For simplicity, ours is at the equator, E_1. It showed that light, c, always radiates at the same rate in all directions at the same time regardless of motion. The arrow at **O/R** indicates the direction of the Earth's orbit & rotation. At **O**, its orbit. The curved arrow at **R** indicates the direction of its rotation. For our purposes, we can ignore the motion of our solar system and galaxy.

Einstein assumes that light's velocity is fixed. It's (special) relativity's basal premise. So objects have to contract in the direction of motion while time's rate slows correspondingly to maintain its constancy. That's how he explains the experiment's result.

So in the direction of its orbital motion, the Earth would have to contract into an ellipsoid shape, indicated by the dashed ovals at C_O. Its rotation would also cause its ellipsoidal contraction. The combination of both is represented by the dashed ovals at C_{OR}.

As the experiment revolves around the Earth, this would cause it to contract in the x direction, as implied by the dashed oval at E_1, which decreases the distance between the mirrors while time's rate slows to maintain light's constancy (assuming "time" is something that actually exists and that it slows with motion). In the y direction, there is no motion. So there's no contraction. The distance between the mirrors remains the same.

Since time's slower rate has to apply equally over the experiment (and over the entire Earth, they're of the same reference frame), it affects light's velocity, c', the same in both the x and y directions. But with contraction only in the x direction, not in the y, this creates different velocities for light. y' will always be faster than x'. This would cause different arrival times, which should have produced a negative interference pattern. But it didn't.
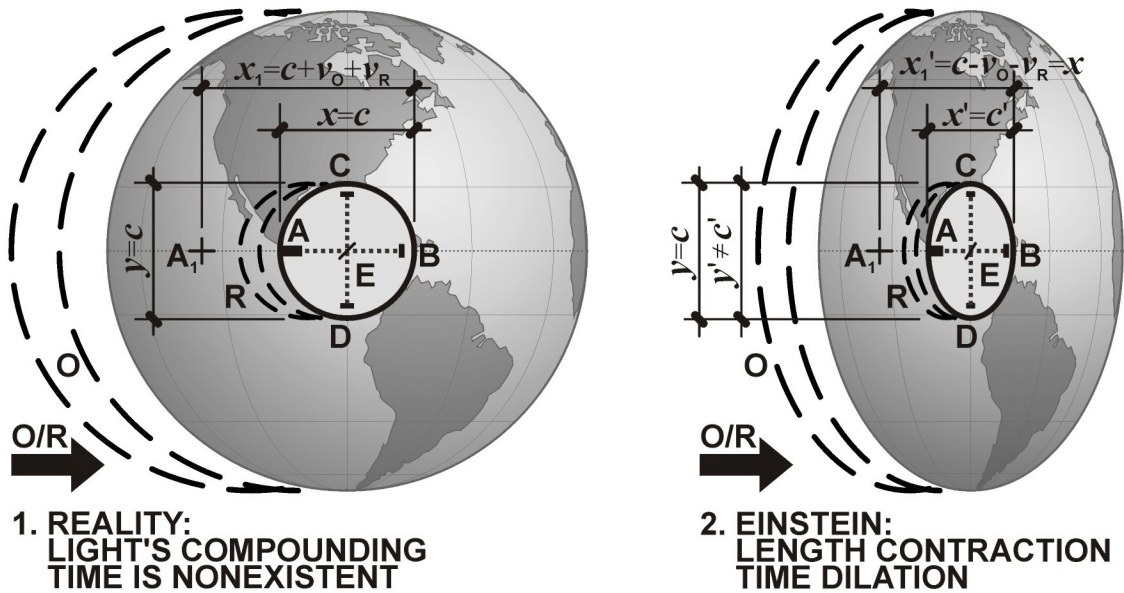
For the Earth's contraction from its orbital motion, the distance between the mirrors in the y direction would also remain unchanged, while the distance in the x direction would be constantly fluctuating. The Earth's rotation would pass the experiment through its orbital tangents, causing maximum contraction at E_1 & E_3 with no contraction at its perpendicular positions, E_2 & E_4, which would compound with its constant contraction from its rotation. The result would be C_{OR}. This should have also produced a negative interference pattern, but one that was expanding and contracting every twelve hours. But this didn't happen either.

Einstein also asserts that special relativity's effects can't occur within gravity fields where light's velocity varies. But the experiment rests in the Earth's gravity field, and all others. They extend indefinitely. So how can it even be considered to explain the results?

The experiment clearly demonstrates that objects do not contract in the direction of motion. Nor does (nonexistent) time slow with motion. So its velocity can't be fixed. It compounds with the motion of its source and that of other reference frames, and that's in addition to its variability. With a founding premise that's untenable, relativity has no viability.

Figure 2.1   (16.1 MM vi 7a)

$x_1 = c + v_O + v_R$

$x = c$

C

$y = c$

A₁ + A E B

R

O

O/R →

$x_1' = c - v_O - v_R = x$

$x' = c'$

C

$y = c$

$y \neq c'$

A₁ + A E B

R

O

O/R →

1. REALITY:
LIGHT'S COMPOUNDING
TIME IS NONEXISTENT

2. EINSTEIN:
LENGTH CONTRACTION
TIME DILATION

MICHELSON-MORLEY EXPERIMENT - 2

Light always radiates at the same rate in all directions at once regardless of the motion of its source. So someone at the experiment, **E** in diagram **1**, measuring light's velocity from **A** to **B**, distance x, and also from **C** to **D**, distance y, would get 186,000mi/s in each direction, $x = c$ and $y = c$, despite their motion. They're of the same reference frame, moving in unison with the Earth's orbit and rotation, implied by the dashed ovals at **O** and **R**.

If we positioned ourselves just outside the Earth's orbit, stationary with respect to the solar system, which is a different reference frame, we'd see that the measurement they made in the x direction actually covered a longer distance from **A₁** to **B**, distance x_1. But for them, they still measured from **A** to **B**, covering the shorter distance x due to their motion.

If we measured light's velocity from **A** to **B** as the Earth sped by, our measurement would also begin at **A₁** and end at **B**. But light would traverse the longer distance, x_1, in the same time it took for it to go from **A** to **B**, distance x, for the person at **E** because we're not moving with the Earth. So for us, light's velocity would have to include the Earth's orbital velocity, v_O (66,000mph), and its rotational velocity, v_R (1,000mph). Their compounded velocities over distance $x_1 = c + v_O + v_R$. That works out to be about 186,020mi/s.

With his underlying assumption that light's velocity is fixed regardless of motion, Einstein reasons that time slows for moving objects while their length contracts to preserve light's constancy. So for the Earth, light's velocity has to decrease by its orbital and rotational velocity, v_O and v_R (excluding our solar system and galaxy's motion), while time's rate has to slow and the Earth has to contract correspondingly, along with everything else in its reference frame, in the direction of those motions, as portrayed in diagram **2**. The distance x_1' has to contract to distance x to maintain light's constancy where $c' = c - v_O - v_R$.

But "time" doesn't actually exist. It's not a property of the universe. So there's nothing there to slow with motion. And even if it did exist, its rate wouldn't slow. It'd increase. A unit of time, like a second, that corresponded to distance x that was theoretically contracted to the shorter distance x' would be a faster second. Compressed "time" is a faster running "time."

Einstein also "ignores" light and time's innate three-dimensionality. Time's changing rate and length's contraction only work in the one abstract dimension of linear motion. In the three actual dimensions of our real environment, they're inherently conflicted. There's no motion in the y direction. So there's no contraction. y' and x' can never be the same length. But time's "slower" rate still has to apply in the y direction. It's the same reference frame. So light's velocity can never be the same. y' 's will always exceed x' 's. This invalidates Einstein's basal premise, which undermines relativity in its entirety, and that's without even considering his contradictory but correct assertion of light's variability that does so as well.

Figure 2.2

(16.2 MM vi 7a)

All those airborne clock experiments that are thought to validate special relativity that are presumed to be recording a change in time's rate due to light's constancy are actually recording a change in the clocks' rate of operation due to a change in the natural frequency of the clocks' cesium atoms. Their motion through the Earth's magnetic field infuses them with a minor charge that slightly increases their mass, which slows their natural frequency that in turn slows their clock's rate of operation, not time's rate [7][10].

Those other experiments that are presumed to demonstrate time's increasing rate with elevation are actually recording a slight increase in the cesium atoms' natural frequency due to their minor condensing in the ever-decreasing density of the Earth's magnetic field. This is what's actually increasing their clock's rate of operation with elevation. It's not time's decreasing rate because of gravitational time dilation due to relativistic effects [7][11][12].

For much higher altitudes/distances, the Earth's very much stronger gravity field begins to govern. As a clock moves farther away, its cesium atoms begin to expand ever so slightly in the ever-increasing density of the Earth's gravity field. They also acquire a charge from their motion through it. So both cause a minor increase in their mass and size that decreases their natural frequency that in turn slows their clock's rate of operation, not its rate of time [7][13].

Conclusion

The paradoxes innate to special relativity through the Lorentz transformation reveal that both are only theoretically viable in the forward direction in the one abstract dimension of linear motion where light's velocity can theoretically remain constant. In two or the three real dimensions of our actual nontheoretical environment, they actually cause light's velocity to diverge in all directions, including opposite the direction of motion. So they're inherently unworkable.

This indicates that light's velocity can never be fixed. In addition to its factual variability, that also undermines its constancy, it can only compound with the motion of its source and that of other reference frames. Adopting this position eliminates all of relativity's inherent conflicts.

But without the possibility of light's velocity ever being fixed, relativity loses its founding premise and becomes altogether untenable. Or as Einstein puts it, "...as a consequence of this [light's ubiquitous variability that'd have to include its compounding], the special theory of relativity and with it the whole theory of relativity would be laid in the dust [14]."

Coda

Beyond the fallacy of light's constancy, "time" is just as nonexistent. It's not an inherent property of the universe. We define time by selecting objects with periodic motion to use as a reference. The Earth's rotation and orbit or the natural frequency of the cesium atoms in atomic clocks are common examples.

Time cannot exist outside of the physical process that we've selected to use as a benchmark. It cannot vary with (subjectively decided) motion. Nor can it change with the variables of an equation. So any hypothesis that employs it has to be permanently relegated to the theoretical realm [15].

If time actually did exist and it could actually change with motion to maintain light's (assumed) constancy, it would not slow or dilate. It'd speed up. A contracted rate of time would be a faster running time, not slower. For the same time period to pass over a condensed interval, it'd have to proceed at a quicker pace.

But space doesn't actually exist either. By definition, it's the nothingness between objects [16]. So there's nothing there to merge with (nonexistent) time into a four-dimensional "spacetime."

But a four-dimensional condition is inconceivable. If it can't be conceived, it can't exist. So spacetime is limited to the theoretical realm as well.

Despite space and time's factual nonexistence, we still have that inconceivable four-dimensional union impossibly expressing as a two-dimensional plane to facilitate spacetime's curvature. It's also impossible for anything that has a tangible physical existence to curve two-dimensionally as a plane. Its surface can. It's two-dimensional. But its three-dimensional interior volume cannot.

Curvature is a property limited to a one-dimensional line or a two-dimensional plane. Any variation in the interior of a physical substance can only express as a variation in density. Conceptually, its curvature is impossible [17].

Moreover, a plane itself also has no existence. Its two-dimensionality can only define a location with a planar expression [18]. Another reason why spacetime will always remain a theoretical contrivance.

Nevertheless, to facilitate gravitation we still have that nonexistent inconceivable four-dimensional spacetime curving two-dimensionally, denting underneath three-dimensional massive bodies as if under the gravitational influence of a much larger but nonexistent body positioned below them. Somehow they're mechanically moved to roll downhill toward one another despite not actually rolling or being uphill [13].

Mechanical reactions essentially act instantaneously. But we contradictorily believe gravitation is also facilitated by a force similar to electromagnetism that acts at the speed of light via waves. While at the same time, we have it mitigated by unobservable massless graviton particles. Which if they actually were particles, would relativistically become infinite at the speed of light.

With the exception of gravitons, all of this contradictory nonsense stems from general relativity. Abandon it altogether and gravity's real solution, including its unification with electromagnetism, quickly becomes apparent [13].

If spacetime doesn't actually exist then there's nothing there to expand or stretch to cause light's cosmological redshifting from our (presumed) finite universe's (presumed) expansion. Besides, it also impossibly expresses like the nonexistent two-dimensional surface of a sphere so that its homogeneous isotropic properties can be maintained. So the big bang can't be real either.

So what we're actually left with is an infinite ageless cosmos that exhibits a Doppler effect redshift at each galaxy due to the runaway infall of their ever-coalescing/condensing gravitating material that's continuously receding from ours and every other galaxy while being perpetually recycled by fusion reactions at their cores [19][20].

With space and time's factual nonexistence and the factual impossibility of light's constancy, what's left of relativity that actually works? Equivalency? No. That's not viable either. It can easily be shown that acceleration/braking and rotation can never be interpreted as creating gravity [12]. So the answer is nothing.

Despite our fervent desire and manic efforts to legitimize it, relativity will always remain just a purely theoretical ideology about purely theoretical conditions that has no possibility of ever physically manifesting in our real nontheoretical world of three actual dimensions.

Declarations

The author certifies that he did not receive any funding, grants, or any type of support from any individual, institution, or organization in the connection with the study or preparation of this work. The author further certifies that he does not have any financial or competing interests in connection with this work or ties of any kind to any individual or organization that might.

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