# The Lorentz transformation fails Special Relativity

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## 1 Abstract

The Special Theory of Relativity falls by the Lorentz transformation, the very foundation on which the theory rests. The application of the Lorentz transformation does not naturally give rise to projections in spacetime where the space coordinates still retain any relevance to the usual physical real length; the dilated time too may have no relevance to real time. The conclusion is that the Special Theory of Relativity is just an abstract mathematical model and not a theory in physics; it has no relevance to our physical world. As such, all empirical and experimental evidence that purportedly validate the theory become void and meaningless.

### 1.1 keywords :

special relativity;special relativity invalid;Lorentz transformation;time dilation; length contraction.

## 2 The Special Theory of Relativity

The incompatibility between special relativity and our real physical world ultimately comes from the incompatibility between relativistic concepts and classical concepts. All relativistic concepts, ultimately, may be derived from the Lorentz transformation. But the Lorentz transformation is based on the concept of relative motion and the inertial reference frames - both pure classical concepts that may only be interpreted in the strictly classical manner. The spacetime of special relativity attempts to do the impossible by trying to superimpose relativistic concepts onto purely classical concepts. It does not work. The physical world does not accommodate the impossible!

# 3 Length contraction, time dilation unreal

## 3.1 Real and unreal spacetime events

Consider any event $E(x, y, z, t)$ in an inertial frame $A$, and event $E'(x', y', z', t')$ in an inertial frame $B$ moving relative to $A$.

Any position in an inertial frame may always be associated with a real physical event - the time moment of a physical proper clock (at rest) at the position. But if an event is only a projection of another event, then it has no association (yet) with any real physical event; it still is only purely a mathematical object. So any event may be real or unreal depending on context, on the frames under the Lorentz transformation.

The scientific method is also based on a philosophy. If there is a disagreement over what is the scientific method, then there cannot be a debate on whether a scientific theory is valid or invalid. There is no common premise to begin any argument. This is actually what has happened to the underlying philosophy of current physics. With Einstein's relativity theories, the past philosophy on what constitutes reality has been rejected. So relativity theory need not conform to the notion of reality that was followed and accepted prior to this new modern physics era.

Classical physics has space and time that are real. They are real only through a covenant - a covenant on reality in physics. Space is real as distances and length may be measured with a physical prototype of length. Time in physics is real; the agreement is to take readings of agreed upon clocks as representing time. Real measurements always have errors. Comparing length of rods depends always on human judgments and equipment. Real time in physics always have errors as no two clocks ever run the same.

***Length contraction and time dilation lead to contradictions***

Length contraction and time dilation are unreal and any attempt to associate them with real physical values leads to contradictions.

Consider the event $E$ that represents a moment of a real clock at rest in an inertial frame $A$. With another inertial frame $B$, we have :

$LT(v) : E(x, y, z, t) -> E'(x', y', z', t')$

$E'$ represents the transformed coordinates of $E$ in frame $B$; or what is conventionally referred to as "what an observer in B observed of the real clock in A". The projection of $E'$ has length contraction (implied) and time dilation. As $t$ is real proper time, $t'$ is dilated time; there is a fictitious clock where time $t'$ runs slower than the real clock. But if $t'$ is to be associated with any real clock, it has to be the one it observes; but there will be a contradiction as the rate of the fictitious clock will run slower than any real clock.

In fact, the event $E'$, a projection from a Lorentz transformation, cannot have any relevance to our real physical world. Performing a mathematical operation on an event or variables that have physical interpretation does not naturally make values of the projection, or any extracted values, to acquire any or corresponding real physical interpretation. The Lorentz transformation is just

a type of abstract mathematical linear transformation; it does not rest on any physical principle that ensures real physical values be mapped onto real physical values. The common relativistic convention of merely calling a real number extracted from a mathematical operation as ***"dilated time"*** does not in any way make the number a time - time as interpreted in physics. The dilated time of special relativity has no physical significance and cannot be used in any way where a real physical time is required.

Length contraction, too, is unreal because it is not proper length. It is only computed from a mathematical projection of physical lengths. So it is only a mathematical quantity that has no association to the real physical world.

Consider the very Lorentz transformation itself, the very basis of the spacetime of special relativity. It exists only when there is an agreement on what length is - it is only the real proper length of classical physics. The relative velocity $v$, (of $\gamma = 1/\sqrt{1 - v^2/c^2}$), between two inertial observers or frames are founded only on real length over real time. The study of motion involving velocity and accelerations are also all only with real length and time; experimenters are capable only of measuring real quantities.

So events (points) which are not proper events are just mathematical objects that do not represent anything in our physical world. The spacetime of special relativity is incompatible with our physical world.

> ***The Special Theory of Relativity is not a valid theory in physics***.

## 3.2 Contradiction in time dilation

A formal argument can easily be made that shows time dilation in special relativity leads to a contradiction. It is best done in a two part argument.

Consider two inertial reference frames, $A$ with spacetime events $E(x, y, x, t)$ and $B$ with $E'(x', y', x', t')$.

### 3.2.1 Part I

The following involves the spacetime of special relativity. The derivation here is straightforward and similar to what is commonly found in textbooks on time dilation.

Consider the Lorentz transformation :
$LT(v) : E(x, y, z, t) -> E'(x', y', z', t')$
With the differentials being partial,
$t' = \gamma(t - vx/c^2)$
$dt' = \gamma dt$
$1/dt' = (1/\gamma)(1/dt)$ - (1),
where $\gamma = 1/\sqrt{1 - v^2/c^2}$). Equation (1) is what establishes time dilation; to an observer in $B$, the time in $A$ runs slower.

### 3.2.2 Part II

But $t$ and $t'$ are both (proper) times of the respective inertial reference frames, therefore:

$1/dt' = 1/dt$ - (2)

The contradiction is that (2) contradicts (1).

There is a need for some elaboration on how (2) is arrived at. It has to be borne in mind that the two parts are two completely independent arguments. Part II involves only time and inertial frame of reference - nothing else. In this part of the argument, nothing about relativity or relativistic effects should be assumed. The argument is to address if special relativity is a valid theory; so it cannot be accompanied by any assumption of things in the world being relativistic.

> ***Definition: An inertial reference frame is one in which Newton's first law is obeyed.***

After a single inertial frame $K$ has been identified, we can construct a theoretical set of equivalent inertial reference frames (with infinite number of members):

$S = \{$the set of all frames moving at a uniform translational velocity with $K\}$

All inertial reference frames are equivalent; the relevant properties of the frames are all the same. Also, there is no identifiable preferred frame of reference. An inertial reference frame is always associated with a time; a time of the frame. It may be visualized as if at every position $(x, y, z)$ there is a clock giving the time. It is convenient to assume that all clocks are synchronized (there is nothing about the manner of clock synchronization of special relativity). There is just a universal time within the frame; an inertial frame is classical and time now is also classical!

Consider any two frames A and B with times $t_a$ and $t_b$. We wish to prove, through refutation, that :

$1/dt_a = 1/dt_b$.

Proof: Assume $1/dt_a \neq 1/dt_b$.

Then it would give rise to a contradiction; it contradicts the equivalence of inertial reference frames. We could find two inertial frames A, B where the times of the frames do not run at the same rate - there is a way to differentiate between frames. This would also lead to a method to determine a preferred reference frame. As the equivalence of all inertial reference is a fundamental principle founded on Newton's first law, proving by refutation, the premise of the assumption is false, thus:

$1/dt_a = 1/dt_b$. QED

Thus (2) above is proven.

### 3.2.3 Summary

Now we examine the significance of the relations (1) and (2) from the arguments of Part I and Part II.

Both involves time in an inertial frame; $t$ of $A$ and $t'$ of $B$. $t$ is, in all manner, good as time in A as $t'$ is good as time in B. We cannot emphasize further. Through two independent arguments Part I and Part II, we arrive at:

$1/dt' = (1/\gamma)(1/dt)$ ***AND*** $1/dt' = 1/dt$***,*** a contradiction.

***Time dilation of special relativity leads to a contradiction.***

For those who are discerning, it would immediately be evident that the time dilation identity: $1/dt' = (1/\gamma)(1/dt)$ could never work! It would give rise to a contradiction. The time $t'$ is forced to take on two properties that are uniquely different - an impossibility :

1. $t'$ has to be relativistic time that would run different for frames with differing relative velocity.
2. $t'$ has to be time in an inertial reference frame - a purely classical concept where $t'$, too, has to be classical time; that of the absolute time of Newton.

# 4 Conclusion

> The Special Theory of relativity is only an abstract mathematical model that has no relevance to our real physical world. It is not a theory of physics.
>
> ***The special theory of relativity is unequivocally repudiated.***

As such, all empirical and experimental evidence that purportedly validate the theory become void and meaningless.