

# Simple Logic why Time Dilation and Solution of Twin Paradox must be Wrong

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**Abstract:** *In classical Newtonian physics, the concept of time is absolute. With his theory of relativity, Einstein proved that time is not absolute, through time dilation. According to time dilation formula, a clock that is moving relative to an observer will be measured to tick slower than a clock that is at rest in the observer's own frame of reference. Through some thought experiments, Einstein proved the time dilation. Twin paradox is also a thought experiment in special relativity. But if we think deeply about these thought experiments, we will understand why these thought experiments must be wrong. Here in this article, I just want to highlight the point why these thought experiments are very much wrong.*

**Keywords:** *Time dilation, twin paradox, inertial frames, thought experiment, Einstein, special relativity, speed of light.*

## 1. INTRODUCTION

In 1905, Einstein gave his special theory of relativity. In his theory, through time dilation Einstein proved that there is no standard time, every time is local time. He said that time is an illusion. So time will be different for different observer. If any observer moves faster his time will be slow. Einstein proved the time dilation based on some thought experiments. All the thought experiments in special relativity are based on two postulates. The first postulate of special relativity is the principle of relativity: the laws of physics must be the same in all inertial frames and the second postulate is the constancy of the speed of light: the speed of light in vacuum has the same value,  $c$ , in all inertial frames, regardless of the velocity of the observer or the velocity of the source emitting the light. But if we think logically about twin paradox and time dilation, we will get the point why time dilation and the solution of twin paradox are wrong.

## 2. GENERAL EXPLANATION ABOUT TIME DILATION AND TWIN PARADOX

According to the special theory of relativity, time dilation is a difference in the elapsed time measured by two observers, either due to a velocity different relative to each other. To understand time dilation, we have to do a thought experiment. Here I am giving a short explanation of that thought experiment. We have to imagine that an observer is standing on the platform and another observer is sitting on a moving train. The moving observer has a light clock. So the stationary observer on the platform will see that the observer who is on the moving train will move with his light clock. But the observer on the moving train will see that he and his clock are stationary and the platform is moving. So the stationary observer will observe that the clock is moving and the moving observer will observe that the clock is stationary. Thus they will observe the same event differently. That's why the moving observer's time will be slow and it is proven mathematically. In physics, the twin paradox is a thought experiment in special relativity involving identical twins, one of whom makes a journey into space in a high-speed rocket and returns home to find that the twin who remained on Earth has aged more.

## 3. GENERAL AND SIMPLE EXPLANATION WHY TIME DILATION AND SOLUTION OF TWIN PARADOX ARE WRONG

To prove time dilation, we keep a light clock on a moving train. So the observer who is on the moving train will see that the clock is stationary and the another observer who is on the platform will see that the clock is moving. So they will observe this same event differently. Thus the moving observer's time

will be slow relative to the stationary observer. Now if we keep the light clock on the station, the observer on the station will see that the clock is stationary but the another observer who is on the moving train will see that the observer on the platform and his clock are moving. This time they will observe the same event differently but the moving observe will observe this event like the first observation of the stationary observer. So the stationary observer will think that the moving observer's time is slow. Again the moving observe will think that the stationary observer's time is slow. Now who is right?

In this case scientist say that the observer who is on the platform is right because he is not moving and the another observer who is on the moving train is wrong because he is moving he is not stationary. Scientists say that the observer who will really move his time will be slow. But I want to mention that Einstein didn't prove that when an observer will really move his time will be slow. He just proved that when an observer will observe that another observer is moving his (moving observer) time will be slow. So the observer who is on the platform will see that the another observer who is on the moving train is moving. Similarly, the observer who is on the moving train will observe that he is stationary and the another observer who is on the platform and the platform are moving. So both observers should observe the same time. If you look at the first postulate of special relativity, we will understand this matter properly because the laws of physics must be the same in all inertial frames.

The twin paradox is a thought experiment in special relativity involving identical twins, one of whom makes a journey into space in a high-speed rocket and returns home to find that the twin who remained on Earth has aged more. This result appears puzzling because each twin sees the other twin as moving, and so, according to an incorrect and naive application of time dilation and the principle of relativity, each should paradoxically find the other to have aged less. Now which twin is right?

Here both twins are right. In case of giving a solution of twin paradox scientists prove that who is really moving. But if an observer really moves, why his time will be slow? I want to mention it again that Einstein didn't prove that when an observer will really move his time will be slow. We have to understand it.

#### 4. CONCLUSION

I want to mention the point that I want to highlight and the point is Einstein didn't prove that when an observer will really move his time will be slow. He just prove that when and observer will see that another object is moving his time will be slow. So time dilation is very much wrong. Without time dilation twin paradox is nothing. We need to think logically.

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