The Need for Absolute Time
- The World of Special Theory of Relativity -

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Abstract

Since the beginning of human history, the way of thinking about time has changed with the times. Various concepts of time existed for a time according to religions and philosophies, but in the late 17th century, Sir Isaac Newton's (1643-1727) concept of "absolute space and time" spread. Later, special relativity proposed by Albert Einstein (1879-1955) at the beginning of the 20th century made it clear that this was not the case. However, if one process is added after the paradox that is emerging in special relativity, we get a result that indicates the existence of absolute time. Therefore, I present the need to rethink the concept of "time" again.

Keywords: Twin paradox, Special relativity, Time dilation

1 Introduction

Special relativity allows us to explain the principle of constancy of light velocity by flexibly accommodating the connection between motion in space and time dilation. When looking at a moving object from an observer in an inertial system, the clock of the object in motion relative to the observer is observed to advance in time more slowly than the observer's clock. Furthermore, the faster the relative velocity of an object in motion, the greater the time dilation. And as the object approaches the speed of light ($299,792.458\,{}^{\text{km}}/_{\text{s}}$), the time dilation approaches zero. One of the most famous paradoxes generated by this phenomenon is the "twin paradox" [1]. However, Adding a continuation to this "twin paradox" creates a new problem for "time". Therefore this paper analyzes this problem.

2 Verification

2.1 Twin paradox

If a person travels from the Earth to space in a spacecraft that is close to the speed of light and returns to the Earth a few years later, the person who was on the Earth will age and the person who was in the spacecraft will not age. Therefore, the spaceship acts as the equivalent of a time machine in the future direction. If you look at the geostationary object from the spacecraft, the geostationary object is in relative motion, but the time dilation occurs on the spacecraft side.

2.2 Definition of time dilation

If the time of a stationary observer is T, the speed of light is c, and the speed of a moving object is v, then the time dilation T_0 [2] of a moving object is Eq. (1).

$$T_0 = \sqrt{1 - \left(\frac{v}{c}\right)^2}\,T \tag{1}$$

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2.3 Continued from twin paradox

We shall observe two people after this paradox has occurred. Assume that A is the person who remains on the Earth, B is the person who has completed space travel, and the time difference between A and B is 30 years.

Suppose that on the night of the day that A and B meet after B's space trip is over, A and B simultaneously observe Betelgeuse [1] with the same telescope. Using time as defined by special relativity, A would see Betelgeuse's state 642.5 years ago and B would see Betelgeuse's state 612.5 years ago. In other words, it is possible that Betelgeuse, seen at the same time, is in the state after the supernova explosion in A and before the supernova explosion in B. If this is correct, then the speed of light of a star as seen from the Earth would be different for each person.

If we assume that B's view of Betelgeuse is the same 642.5 years ago as A's, then B's current time is A's current time, and B's time in space travel will have passed the same amount of time as A. Then the speed of light from B's point of view during space travel cannot be determined as in Eq. (2).

$$\sqrt{1-\left(\frac{v}{c}\right)^2} = 1$$

$$\lim_{c\to\infty} \frac{v}{c} = 0 \tag{2}$$

3 Discussion

This "Continued from twin paradox" problem arises because there is no definition of "current time" in special relativity. Therefore, to correct this, we need to either create a new definition of "current time" based on special relativity, including the time delation in B, or revisit the relationship between absolute time [2] (A's time) and the speed of light. Moreover, when special relativity is used as it is, both patterns of "A's current time and B's current time remain misaligned" and "B's current time is changed to A's current time" contradict each other. Therefore, it is difficult to define the "current time" based on special relativity.

4 Conclusion

When the existence of absolute time is returns, the next issue is the definition of space. At the moment, I'm in the process of building a theory of the relationship between absolute time, space and the speed of light using astrophysics, atomic physics and theoretical physics. If these relationships are clarified, it will be possible to understand the phenomena of things as three dimensions rather than the concept of four dimensions.

References

[1] Koichi Shimoda. Experimental verification of twin paradox. Journal of the Physics Education Society of Japan , 21(2):73, 1973.

[2] Morio Yamada. An analysis of the michelson-morley experiment by the special theory of relativity. Journal of the Physics Education Society of Japan , 40(3):213, 1992.

[1] A star on the shoulder of the constellation Orion, about 642.5 light years away from the Earth and on the verge of explosion.

[2] The current time of all things is the same, The speed of time of all things is the same.