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Once More on the Meaning of Special Relativity Theory (SRT)

Yuri Keilman
AltSci@basicisp.net

First: I do not want to discuss the General Relativity Theory in this article.

Second: I have to explain the terminology of SRT that has evolved since the beginning of 20th century. Back then, the term "invariant/invariance" had only one meaning: "does not change". The term "covariant" had a double meaning: one, it is opposite to the term "contravariant", another (together with the term "covariance") in a sense that it is opposite to the term "invariant", saying that something changes but according to the definite transformation laws (like covariant objects change according to the transformation law of covariant objects and contravariant objects change according to the transformation law of contravariant objects). Today, the combination of words "relativistic invariance" is widely used. That does not mean actual invariance but it replaces the second meaning of the terms "covariant/covariance". The term "relativistic invariance" also can be understood as "using a 4-dimentional mathematical representation with the Lorentz metric (Minkowski space).

Let us turn our attention to the "practical" side of SRT. Today in theoretical physics, SRT precipitated to the requirement of "relativistic invariance". Any new theory is judged by whether it satisfies the requirements of "relativistic invariance" or not. In the second case, you are at odds with SRT. This is the real practical outcome of SRT. This looks like a requirement for mathematics, which should be used by any physical theory. Is this "the biggest discovery of the 20^{th} century"? In my opinion, it is (I'll explain further).

Of course, the meaning of SRT is neither the one that comes from Einstein's presentation, nor the one that comes from the interpretation of the establishment. The key here is Einstein's presentation. The establishment follows the copyright law. Einstein knew that he came across a big discovery. The most important thing for him was to make it look like something wonderful and to make certain that it was he and not somebody else that was the author of this discovery. He disguised it so perfectly that up to now, nobody (except may be some people in establishment that have to keep quiet about it) understands it. The large contemporary opposition to SRT is caused by the fact that people feel that something is not right with SRT but they are not able to uncover the truth.

The real meaning of SRT is improving the way we use mathematics to describe physical reality (which is partly a philosophical question and of course, one of great importance to theoretical physics). So, SRT is not a physical theory as Einstein presented it. All "the experimental predictions of SRT" are the consequences of improving "our mathematical attitude towards physical reality". There was something really wrong in our use of mathematics before SRT. Again, Einstein did not reveal that. If he did, he would had gotten an army of old physicists against him.

Now, I'll try to explain what was really wrong in our use of mathematics before SRT. It is very likely that I will turn this army of physicists against me. But we have to face the truth some day.

Theoretical physics is an application of mathematics for the description of physical reality. If it is so, then any physical theory should allow us to extract the mathematical apparatus, which is used in pure mathematical form. This mathematics should be formulated using only mathematical terms without any reference to physical reality. In this form, the mathematics should be sound. This requirement can be called "The Possibility of Separation Requirement". This requirement was not honored in the past (and even today). The physical theory motionless physical objects 3 dimensional geometry was developed as a single theory and was called mathematics by itself, therefore suggesting that there is no need for separation. There were no problems because pure mathematical theory "n-dimensional geometry" does exist and in particular, n can be equal 3. When it came to time dependence, the first idea was to make time "absolute" and introduce it as a parameter in familiar 3-dimensional objects. This is wrong because if we try to find a coordinate system with a parameter in mathematics we will not find one. If we try to create one according to mathematical logic we will fail. So, it is impossible. If we want to include time in our calculations we have to use the 4-dimensional mathematical geometry (Minkowski space).

But it is exactly to where SRT precipitated!