

**Why No Einstein's Laws? Part II**  
**A Proposal for Empirical Laws of High Velocity Physics**  
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### **1.0 Introduction**

This paper continues the discussion introduced by the first paper under this title. The main topic to be addressed here is a discussion of the correct laws of relativity. The claim is advanced that the correct laws of relativity are not the ones advanced by Richard Kadel, but that different laws are needed to correctly interpret the phenomenon of physics at high velocities.

### **2.0 Background**

In the first part of this paper it was argued that laws of physics are empirically derived scientific facts from which theories are derived. Hence the laws are fundamentally empirical scientific facts and not theoretical hypotheses. Kadel's proposed laws are theoretical hypotheses which he claims are scientific facts, although the laws he proposes are not empirical or actual proven scientific facts. The main flaw in Kadel's proposal is that he mixes up theory and evidence and proposes that theory should be elevated to fact, although the theory, which he proposes to become scientific fact, has been under continuous dispute for 100 years, and the controversy has not abated, but increased, during this period. Hence there is no actual "consensus" that relativity is a proven theory, because there is a very vocal and persistent minority which rejects it. Kadel's proposal tries to suppress the minority opinion by elevating the theory to scientific law, bypassing the objections of the minority who reject this conclusion.

### **3.0 The Empirical Facts Of Relativity**

One of the main difficulties in discussing relativity is that the discussion always becomes mired in the confusion of the historical background of relativity. This problem will not be corrected here, but for the sake of clarity, we will use the term theory of relativity, or simply relativity, to refer to the disparate ideas that developed around the end of the nineteenth century with respect to the problem of electromagnetic propagation and the theory of the corpuscular electron. There are actually two problems which merged into a single problem. The first was the failure to detect a sun referenced ether reference frame as expected from the Maxwellian electromagnetic theory, and the second was to formulate a theory for the corpuscular electron consistent with this fact.

The situation was that theory was far ahead of the empirical science of the corpuscular

electron. Hence, the ideas that developed were based on theoretical analyses and not empirical facts. The empirical facts were colored by theoretical prejudices and this has persisted ever since, and forms the basis for the objections of the minority to the conclusions of relativity. Simply put, the theory asserts physically absurd conclusions on the basis of disputed hypotheses, which have never been directly tested by experiment. The theory rests on the claim that the predictions of the theory have been demonstrated by experiment and that these justify its acceptance. Here the view will be advanced that the claimed experimental verifications of relativity are the actual scientific facts which must be considered laws, and that these laws do not follow from the theory in a logically derived manner.

The claim is basically very simple. Relativity claims that the empirical facts are deducible from the hypotheses without contradiction, while the minority view is that these facts are either incorrect, or do not logically follow from the hypotheses without contradiction. The second position is the claim made by this author.

Over 40 years ago Herbert Dingle showed that the predictions of the special theory of relativity resulted in fatal flaws, that demonstrated the inconsistency of the mathematics of relativity. Dingle's proof rested on the basic fact that according to the theory of relativity, two clocks in relative motion each ran slower than the other, a fact which is a physical impossibility. The refusal of the scientific world to recognize this simply expressed idea is actually astonishing. Physics has in this case embraced a physically absurd idea, and rejected a criticism of it that is based on solid reasoning. The reason for this is multifold, but the author believes there is a simple explanation. The reason is that physicists don't understand the theory, and have persistently misinterpreted the mathematics of relativity which they don't understand as well.

The problem can be analyzed in the following way. There are two interpretations of relativity and one mathematical theory. The mathematical theory was developed by Lorentz, Poincare, and Minkowski, but the interpretation of this mathematical theory is not consistent with the physical interpretation advocated by Einstein. Einstein suggested that the physics of time and space was warped at high relative velocities. What Dingle showed is this. The mathematical formalism of the Lorentz-Poincare-Minkowski mathematical theory is inconsistent with the Einstein interpretation of space-time. Thus the mathematical interpretation is false, and since the Einstein interpretation is based on this falsified mathematical theory, then the theory is false and should be rejected.

The reaction to Dingle's claim is an example of how science should not be performed. Dingle's claims were rejected because experiment apparently disproved them. This is a very illogical procedure, because Dingle never claimed the experimental facts were wrong, but that the mathematical interpretation was. Here is a case in which a falsified mathematical theory is held to be correct, because experiment proves it is true. This example will eventually become the celebrated reason for the failure of modern scientific method. Once a mathematical theory has been shown to be false because it is internally contradictory, it is not possible to rescue it by appealing to empirical facts as prove that it

is correct. That procedure is clearly absurd.

The problem can be simplified to the following. There are two physical interpretations of relativity and one mathematical theory. The first interpretation asserts that the observers in relatively moving reference frames observe reciprocally equivalent events, so that from their perspective in a relatively moving reference frame the physics in the other reference frame appears changed relative to the observer. The second interpretation, which is attributed to Einstein, is that the observed changes in physics in the opposite reference frame are real and reflect real physically different conditions in the moving frame. There is some confusion as to whether Einstein actually meant to advocate this second interpretation or whether he meant to advocate the first one. The facts are these. The first interpretation is inconsistent with experiment and the second is consistent with experiment. Because, the second interpretation is inconsistent with the mathematical formalism of the first interpretation as clearly demonstrated by Dingle, then the second interpretation is clearly falsified along with the first one.

The facts clearly are that when experiments are performed by earth based observers, time and mass of elementary particles are changed in apparent accordance with the Lorentz transformation equations. However, no empirical verification has ever been performed that demonstrates the reciprocal effect that occurs when an observer in the rest frame of a fast or relativistically moving particle, observes the reciprocal change in time and mass predicted by the reciprocal Lorentz transform. So there is absolutely no reason to claim that the theory of relativity is verified by experiment. In fact Dingle showed conclusively that if the change in time and mass is valid for any frame, then the theory is false since it is logically impossible for the reciprocal interpretation to be true in this case.

With respect to the Michelson-Morley experiment and its variations, there is the uncomfortable fact that it only demonstrates the following scientific fact. The electromagnetic rest frame can not be taken to be different from that of the earth. This means that an electromagnetic rest frame relative to the sun is disproved, but this does not invalidate the earth as an electromagnetic rest frame. In fact, some experiments demonstrate the earth is the correct electromagnetic rest frame: Haefle-Keating is one that does this. No experiment has ever been attempted to demonstrate that the earth is not the at rest relative to the electromagnetic rest frame. In fact, as discussed in my paper on Dr. Carl Zapffe, the scientific establishment has steadfastly refused to conduct experiments that would empirically test this aspect of the theory.

#### **4.0 The Empirical Laws For High Velocity Physics**

The author claims that the following laws are the correct laws of high velocity physics or “relativity“. They are not the Einstein’s Laws.

The first law is stated as follows:

The earth rest frame is the proper rest frame for the establishment of the mathematical

form of the laws of physics.

This means that we can empirically establish the laws of physics in an earth based laboratory rest frame. Essentially this is a “no brainier”. It is obviously a true statement, because that is how experimental physics is done. The empirical proof of this law is that the laws obtained for earth based physics remain valid when tested at high velocity.

The significance of this law is that it is the basis for the second one as follows:

The basis for the units of measure of physics is changed for the laws of physics referenced to rest frames in motion relative to the earth based laboratory rest frame in accordance with the Lorentz transformation law.

Here the law is stated so that the laws of physics are of the same form as determined in the earth laboratory frame, when written for the rest frame moving with respect to the laboratory earth frame. However, the units of measure the standard units are not the same in the two different frames. For example the experiments show that the characteristic decay times for elementary particles obey this law, because the decay times for slowly moving particles are related to very high speed “relativistic” particles by the Lorentz transformation law. This implies that the units of time measure are longer, relative to the earth rest frame time units of measure. Similar results are obtained for orbiting satellite clocks.

The reader should notice that the speed of light is numerically the same in the earth frame and the relatively moving frame in accordance with this law. However, in terms of earth based units of measure, the speeds are not the same in the two frames.

The mathematical formalism used with these laws is simply the Lorentz transformation equations in a linear vector space where the basis or units of measure transform according to the Lorentz transform, and a different inverse Lorentz transformation is used to transform in the opposite direction. The traditional inverse Lorentz transform is used to transform the coordinates of measure from the moving frame into the rest frame. It has an inverse to transform in the opposite direction. Hence there are four transformations and not the usual two as specified in the traditional theory based on the Minkowski space formalism. This is the formalism that leads to confusion, contradictions, and misinterpretation. It is based upon a false hidden assumption that the units of measure of physics are the same for all inertial reference frames. The reader should consult the following paper by Yves Piereaux for a discussion of this hidden assumption of relativity.

<http://209.85.165.104/search?q=cache:Opp8ljlCDEJ:www.physica.org/xml/article.asp%3Farticle%3Dv068aC0059.xml+yves+piereaux&hl=en&gl=us&ct=clnk&cd=19>

## **5.0 Concluding Discussion and Comments**

The author has written extensively on a revised theory of relativity that is contradiction free. (See submissions list.) The required modifications are based on the two laws proposed here. The mathematical changes are not radical, since the Lorentz transformations are retained. The differences are in the interpretation of the Lorentz transformation laws. The author's claim is that the experiments disprove the tacit assumption of relativity that the units of measure are the same for all reference frames. Hence relativity is empirically disproved and the second law given here is proposed to fix the problem.

The primary reason to reject the traditional interpretation of relativity is two fold. First, the theory is inherently a contradiction. There are two mutually exclusive physical interpretations of the mathematical formalism that contradict each other. The first interpretation is consistent with the mathematical formalism but is refuted by experiment. The second is apparently consistent with the experimental facts but inconsistent with the mathematical formalism. Much of the confusion is engendered by a failure to correctly interpret the Michelson-Morley experiment. It does not disprove the ether, but only a sun centered, or external ether rest frame. An earth centered ether frame is not disproved, and some experiments such as the Hafele-Keating experiment and GPS satellites are consistent with an earth centered rest frame.

The second reason is that the theory is not demonstrably proven by the experimental facts. This fact has generally been buried under a mountain of confusion and argument over relativity. No experiments have been conducted which conclusively demonstrate its unique truth. To do this its fundamental assumptions would have to be carefully tested and these crucial experiments have never been done. Many apparent confirmations have been claimed but these do not uniquely confirm the Minkowski mathematical formalism of the special theory of relativity. They are consistent with relativity and other theories as well. Finally, there are a number of experiments which conclusively refute the theory, although these are not well known. Examples are the Michelson-Gale and Sagnac experiments.

The proposed laws are empirically derived scientific facts, and not metaphysical dreams as proposed by traditional relativists.