A BRIEF INTRODUCTION

TO

ABSOLUTELY LOST IN RELATIVITY,

A Cautionary Tale of the Perils of Using the Wrong Experimental Design

The following three pages give a brief overview of what is proven in *Absolutely Lost in Relativity, A Cautionary Tale of the Perils of Using the Wrong Experimental Design.* It is provided for those who have a reasonable understanding of generally accepted theory and not much time to do a full review of the report.

The best way to review what is presented here is to print the pages on one side so they can be laid side-by-side.

1. **Page 1 provides an illustration that shows how and why Newton's laws do not and cannot conform to Galileo's relativity principle. If you read it thoroughly, it should be a sufficient explanation.**
2. **Page 2 gives a step-by-step description of what is shown in that illustration with references to sources of generally accepted theory.**
3. **Page 3 focuses on what happens when an experiment and observer have their velocity (a.k.a. the speed and direction of their motion) changed from one inertial reference frame to another (Newton's laws) and how the observer's observations are affected by those changes (Galileo's relativity principle). It starkly reveals where the flaw lies. Galileo's relativity principle is based on the incorrect assumption that what is perceived and measured by an observer in inertial motion is what actually happens in that reference frame. However, an observer in an inertial reference frame has no means by which he can determine the speed and direction of his own motion, nor that of his frame of reference, other than they are not changing. And he can determine the motion of what he observes only relative to his frame of reference, whose speed and direction of motion cannot be defined. Thus, Galileo's relativity principle and Einstein's first postulate are based on the incorrect assumption that observations lacking the information required to correctly interpret them are prima facie valid.**

It is really that simple. It only has taken me a couple of decades to figure out how to explain it.

With regards, Richard O. Calkins

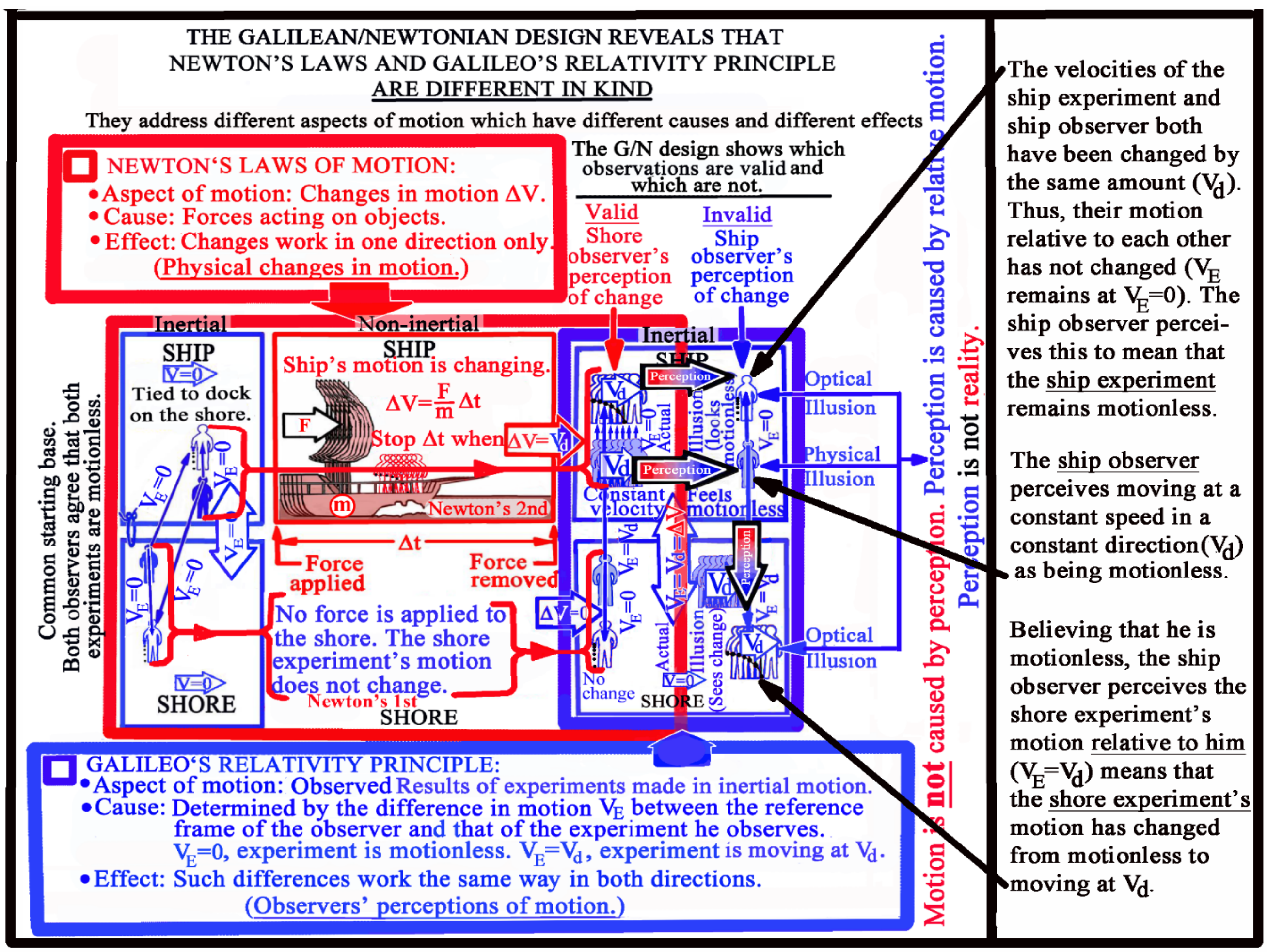
There is a Fatal Flaw in Einstein's Special Theory of Relativity, page 1.

Richard O. Calkins, an amateur physicist, has unveiled a fatal flaw in Einstein's special theory of relativity. In a report based entirely on generally accepted theory, he has proven that Newton's laws of motion do not conform to Galileo's relativity principle. Thus, Einstein's first postulate of relativity, which is the cornerstone of relativity theory, is invalid.

Mr. Calkins' 40-year career in the telecom industry included positions as a Senior Engineer at Pacific Northwest Bell telephone company and as an Assistant Vice President at GTE in both Marketing and Regulatory Strategy. He also served as Vice President for national telephone industry policy at the United States Telephone Association in Washington, DC.

Mr. Calkins has spent the last two decades researching physics with special emphasis on relativity. It has taken that long to develop a presentation that can be understood by engineers, mathematicians, and scientists in all fields. Because physics research reports will not be accepted for review without being sponsored by a recognized professional physicist, and sponsoring something that disagrees with Einstein's special theory is akin to professional suicide, the only way to get this presentation reviewed is to make it go viral. If you want physics returned to reality, making this report go viral is in your best interest. Below is a slide from the report to pique your curiosity. It shows the illusions caused by unrecognized flaws in the Galilean experimental design, which created and then have hidden the flaw in the first postulate for more than a century. Until now. They have been unveiled simply by combining the Newtonian and Galilean experimental designs to permit a full comparison of how they relate to each other.

You are cordially invited to download *Absolutely Lost in Relativity, A Cautionary Tale of the Perils of Using the Wrong Experimental Design* without charge or obligation at either of the following sites: https://calkinspublishing.com/relativity.html or, for fellow members of academia, at their website: https://independent.academia.edu/RichardCalkins.



#

There is a Fatal Flaw in Einstein's Special Theory of Relativity, Page 2.

For those who want more information about the flaw, the reasoning is as follows: According to generally accepted theory, Einstein's first postulate of relativity says that Newton's laws of motion fully conform to Galileo's relativity principle, as written, without any adjustments, such as those required by James Clerk Maxwell.[1] However, as is shown in the illustration on the previous page, under conditions not previously examined, Newton's first two laws of motion produce results which disagree with Galileo's relativity principle. Thus, Einstein's first postulate is invalid.

The conditions not previously examined occur when the motion of an experiment or its observer is changed, in between observations, to move it to a different inertial reference frame. Changes in motion occur in non-inertial reference frames.[2] But experiments related to Einstein's special theory, as conducted for more than a century, have not used non-inertial reference frames.[3] That seemed eminently reasonable given that both Einstein's special theory and Galileo's relativity principle deal exclusively with inertial motion.[4] However, as a result, experiments thus far conducted have never examined what would happen if an experiment or its observer were moved from one inertial reference frame to another. Will they agree, or not? Until now, that question has neither been asked nor answered.

The illustration on the previous page shows two experiments, one on a ship and one on the shore, where each experimenter drops a ball. When the ship is docked at the shore, both the ship observer and the shore observer observe that both balls fall vertically. Thus, according to Galileo's relativity principle, experiments conducted at the same velocity as the shore's inertial reference frame are motionless (V_{shore}=0).

The ship's velocity then is changed horizontally, from $V_{ship}=V_{shore}=0$, to moving from left to right, relative to the shore, at $V_{ship}=0+\Delta V=V_d$. The change in the ship experiment's horizontal velocity will change the momentum of the experimenter and the ball he holds.[5] Thus, when dropped, the ball will fall on a curved trajectory (i.e., the experimental result will be different). The change in the ship's velocity ΔV also will change the velocity of the ship observer by the same amount as the ship experiment. Thus, the experiment remains motionless relative to the ship observer ($V_E=0$). Even though both are moving at a different constant velocity than when the ball fell vertically, the ship observer will feel the same (motionless) and see the ball as falling vertically, just as it had before the change.[6] He will be in total disagreement with Newton's second law. And when he looks at the experiment being conducted on the shore; he will see it as moving horizontally from left to right at velocity $V_E=V_d$ relative to his frame of reference. Thus, he also will disagree with Newton's first law. He will observe the shore's motion as having changed, when, according to Newton's first law, wind applied to the ship's sails cannot change the shore's motion. It is that simple.

An experimental design capable of fully comparing Newton's laws with Galileo's relativity principle reveals that they are different in kind. They address different aspects of motion which have different causes and different effects. According to Newton's second law, each different amount of change in the ship's velocity (ΔV) will produce a different experimental result on the ship. But the ship observer always will feel the same (motionless) and see the same experimental result ($V_E=0$, ball will appear to fall vertically). As a matter of simple mathematics, there can be only one inertial reference frame in which the ship experiment's result (ball actually does fall vertically) will be the same as what the ship observer observes (ball always appears to fall vertically). Observations made when the ship is in any other inertial reference frame must be adjusted for the ship's motion relative to the unique reference frame in which the ball actually does fall vertically. Accordingly, it turns out that Maxwell was right, and Einstein was wrong, even for the motion of physical objects moving at every-day speeds. Maxwell's equations, Newton's laws, and generally accepted theory all agree that Newton's laws do not conform to Galileo's relativity principle. However, that also means that they all must disagree with Einstein's first postulate of relativity... whether they admit it or not.

The problem is that generally accepted theory accepts observations made from inertial reference frames as being prima facie valid. However, observers in inertial reference frames actually are fatally information challenged. They have no means by which they can determine their own speed and direction of motion or that of anything they observe, other than relative to the unknown motion of their own inertial reference frame.[7] Such incomplete observations are not sufficient to support a theory that upends the universe and makes variables out of time, space and mass. Nor are they sufficient proof that motion is caused by perception (i.e., defined by observations) rather than by forces acting on objects. The Galilean relativity principle is simply an exercise in magical thinking.

1. Douglas C. Giancoli, *Physics,* 4th Edition (Englewood Cliffs, New Jersey: Prentice Hall, 1995) 76-79, 743. Goldsmith, Dr. Donald, and Robert Libbon, *Einstein: A Relative History* (New York: Simon & Schuster, Inc., 2005), 70.
2. Giancoli, *Physics*, 76-77, 99.
3. Ibid., 743.
4. Ibid., 743-735.
5. Giancoli, *Physics, 167.*
6. Goldsmith, *Einstein, A Relative History,* 69-70. American Physics Society (http://physicscentral.com/explorer/plus/galilean-relativity.cfm)
7. Ibid.

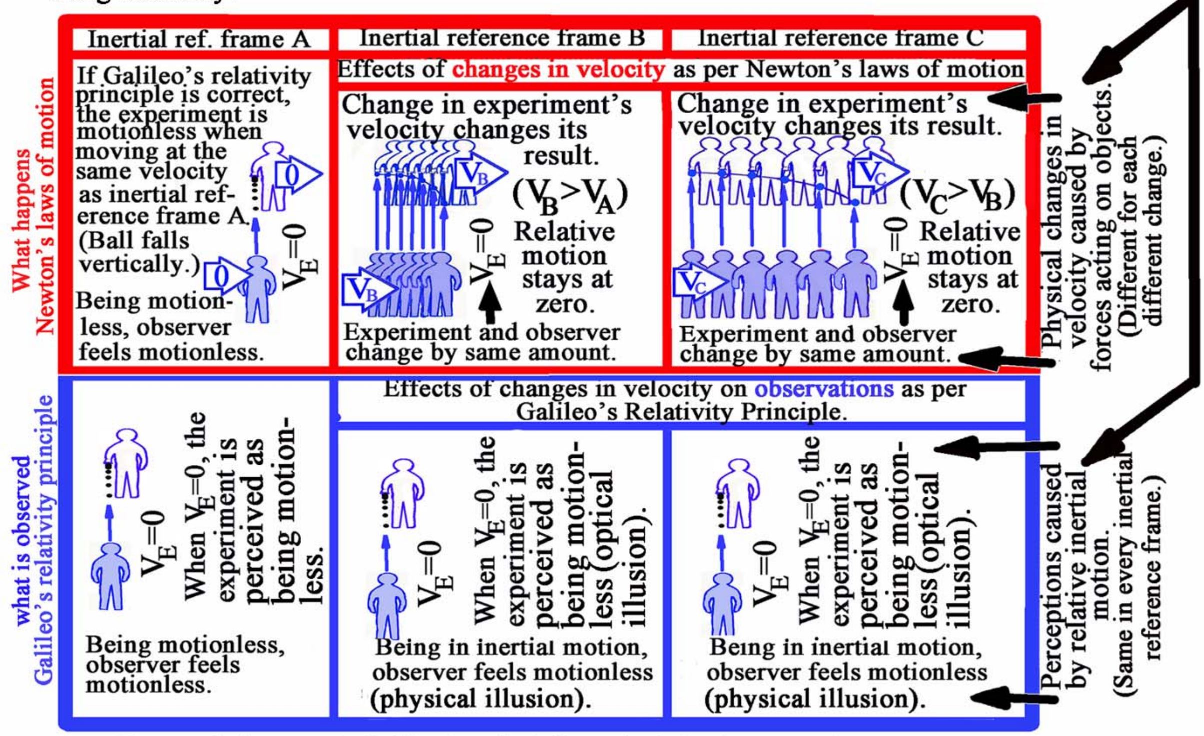
There is a Fatal Flaw in Einstein's Special Theory of Relativity, Page 3.

According to generally accepted theory:

1. Applying a force to an experiment and its observer to move them to a different inertial reference frame will produce a different experimental result in every different inertial reference frame to which they are moved (Newton's laws of motion).[1]
2. The observer who accompanies the experiment in moving to the different inertial reference frame will feel the same (motionless) and will see the same experimental result (the experiment will appear to be motionless) in every different inertial reference frame to which they are moved (Galileo's relativity principle).[2]

<u>Both statements are true</u>, yet they disagree. <u>HOW CAN THAT BE?</u>

- First, the two are different in kind. They address different aspects of motion having different causes and different effects.
- Second, an observer in inertial motion feels motionless and can perceive and measure motion only relative to his own frame of reference, which he always will perceive as motionless. Thus he will have not even a clue as to the speed or direction of anything he observes, except relative to himself.
- Third, as we proudly proclaim to know, and then routinely forget, perception is not the same thing as reality.



Newton's laws and Galileo's relativity principle do not and cannot agree with each other, even for physical objects moving at every-day speeds. Thus, Einstein's first postulate of relativity and special theory are invalid.

1. Giancoli, *Physics*, 167.
2. Goldsmith, Einstein, A Relative History, 69-70. American Physics Society (http://physicscentral.com/explorer/plus/galilean-relativity.cfm), 2018.