"The true statement is able to displace the erroneous idea; state alone if discussion is impossible." (Henri Bergson 1859-1941)

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REASON REJECTS RELATIVITY IN 3 PAGES

and restores the true ideas, which were well-known before Relativity arrived in 1905

SUMMARY The logic of Albert Einstein's theories of Special and General Relativity is shown to be contradictory and indefensible; except for postulate #1 of Special Rel which is correct but was not established by him. *(Some other texts reverse the numbers of Special postulates 1 & 2. This essay formerly did.)*

Here are **Relativity's major claims**, presented in order of how they are dealt with here :

General	-**Time** slows down for moving observers and would stop if they reach lightspeed.	Wrong.
General	-**Space** has a fabric which is curved by the presence of mass and gravity.	Wrong.
Postulate 1 Special	-**Light** and mechanical experiments will give the same results in stationary or uniformly moving labs.	Right.
Postulate 2 Special	-**Light**speed is always the same to all observers, regardless of the motion of the observer or source.	Wrong.
General	-**Mass** increases with velocity and reaches infinity at lightspeed.	Wrong.

Here are **the correct ideas**; previously understood by the physics community, and in large part by the world in general :

-The speed of **time** is a universal constant (regardless of the motion of observers).
-The shape of **space** is uniform (regardless of the presence of mass and gravity).
-**Light** and mechanical experiments will give the same results in stationary or uniformly moving labs.
-**Light**speed is different at the observer if there is velocity or gravitational bias between observer & source.
-An object's **mass** stays constant (regardless of its velocity. An object's energy of motion changes with velocity.)

CONTENTS

INTRODUCTION This was done for the sake of human knowledge in general, and for the future of our physics. Reason has a defined authoritative structure, and its disciplined conclusions are not refutable. Relativity can be hard for people to understand, because it is wrong. It is not so hard to understand why, when it is explained clearly.

Relativity was accepted decades before any so-called experimental evidence was required of it. That is bad method to start with, especially for such an unexpected set of claims. With support from the right people at the right time, everyone went along and echoed the reports about it, even though by all accounts, almost no one understood it. By the time an experiment was attempted, the idea of its genius was so entrenched in our society, that it would have been shocking for its supporters to reverse their stand. It was that saddening, familiar socio-logical phenomenon, which caused the dense absurdity of Relativity to be viewed as greatness for all this time.

Some say that this must be discussed with intense mathematics, but that is not so, and it tends to scare off the public and preserve faulty logic. Einstein knew that Relativity could be wrong, and was surprised at its acceptance. True science from Galileo, Newton and the physics community before 1905 opposes it, and some people have opposed it since. There are people today who know it is wrong, at least partly. In fact Relativity is all wrong, except for postulate 1 of Special Rel. That is established here beyond doubt.

In the time since this essay was sent to many major physics publishers, starting in Dec 2002, they have all declined to print it, even though it is plain that some of them understand its correctness. I argued at length about their duty to inform the public properly. There was success at one point, with the Institute of Physics (iop.org), but I eventually offended them by mistake, and our relationship fell by the wayside. Those publishers deserve respect for the good things they normally do, but this situation is damaging to the integrity of science, and to the potential of young researchers to move in the right direction. All we can do is our best for them. **HAPPY READING**

REASON REJECTS RELATIVITY

Preliminary- **Mic-Mor & Rel** (Review Michelson-Morley experiment & Relativity) : It seems best to begin with a quick review of an important experiment in the history of physics. This is referred to a few times in the following pages.

In 1887, two researchers named Michelson and Morley sent two light beams a short distance in perpendicular directions and reflected them back, to find out if lightspeed 'c' is the same in different directions when the light is sent from a moving source. Their laboratory was stationary on Earth, but since Earth is moving around the sun, the lab was in fact moving quite fast. One beam was sent in the direction of Earth's trajectory around the sun, and the other perpendicular to it.

The returned light beams met back at their common source, and the light wave interference pattern was observed. A difference in lightspeed would have been implied by any change from a normal interference pattern. The results showed a tiny difference that was regarded as insignificant. So we can say that light travels at the same velocity in all directions, relative to its stationary or uniformly moving source.

18 years later in 1905 when Einstein was 26, that same idea appeared in his postulate 1 of Special Relativity. General Relativity was released about 10 years after that. Here is a quick review of Relativity's major claims, presented in order of how this essay deals with them :

	General	-**Time** slows down for moving observers and would stop if they reach lightspeed.	Wrong.
	General	-**Space** has a fabric which is curved by the presence of mass and gravity.	Wrong.
Postulate 1	Special	-**Light** and mechanical experiments will give the same results in stationary or uniformly moving labs.	Right.
Postulate 2	Special	-**Light**speed is always the same to all observers, regardless of the motion of the observer or source.	Wrong.
	General	-**Mass** increases with velocity and reaches infinity at lightspeed.	Wrong .

Only postulate 1 of Special Rel is correct in the above claims. It is now about 115 years since Mic-Mor.

Section 1- TIME Time does not stop at light speed or change speed at all. Here are some reasons why-

1.1 **Velocity & age :** There is a difference in velocity between most things in the universe. A point that is stationary relative to some chosen points, is moving relative to other points. We may use the words 'stationary' and 'moving', but they just represent 2 frames of reference that are moving differently. So, if the speed of time were different for moving entities as Relativity says, then the universe would have to possess zillions of different ages all at once, and that should not be correct.

1.2 **Einstein's train :** (This is a summary and critique of his analogy, but Albert's own wording can be found in the essay Einstein's Great Idea by James R. Newman in Adventures of the Mind from the Saturday Evening Post; 1958; Borzoi Books/Alfred A.Knopf; New York; Curtis Publishing; and in Canada by McClelland & Stewart Publ.; pg 225-226.) Let's consider the train analogy from Albert Einstein.

A and B are light sources on the ground, M is an observer on the ground exactly midway between them, and M' (for M' say em prime) is an observer seated in the train which is moving from left to right in the diagram below. When the movement of the train brings M' to a position adjacent to M, flashes of light originate simultaneously at A and B, and proceed toward the middle region.

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                --->--->  M'  --->--->              -Observer M' in train moving left to right.
A---light--->--->---        ---<---<---light---B    -Light sources A and B still on ground. Each emits a flash when M' is next to M.
                          M                         -Observer M still on ground.
```

M' moves past M toward B while that B flash of light is travelling toward her, so M' gets the B flash before M. So relativists say that this time interval is contracted for M', because in Relativity the arrival time of the light represents the alleged changes in the speed of time. (In Relativity, contraction produces faster time, and dilation would produce slower time.)

Solution- The A flash has been forgotten. But when we consider that M' gets the B flash before M, *and the A flash after M*, we see that Rel would have to deduce a contraction and a dilation of time for M', which is of course contradictory, and it reveals the faulty logic. No time change can be deduced from this or from anything else. (Note that an 'instant' of observation has no duration.)

1.3 **Again :** Simultaneousness of signal reception or lack of it, for two observers, does not imply any temporal strangeness. For example, if another observer were standing between M and B, the two flashes would not arrive simultaneously at that observer, and we would not deduce a time shift between M and that observer.

1.4 **Again :** Let's consider two other simultaneous waves from A and B that were sent when M' had not yet reached M, and *arrive* when she reaches M. When we consider these waves, we find no difference in their experience. The moving observer and any ground observer will report the same travel time for any light waves arriving when the observers are adjacent.

1.5 **Acceleration :** Some textbooks say that acceleration is needed for the speed of time to change, and that the acceleration distinguishes the moving observer. (ex. in Feynman Leighton Sands Linzee; The Feynman Lectures in Physics; Addison-Wesley Publ.; c1989; Vol. 1; 16-2.) There is no acceleration in the train analogy, so those books do not agree with the analogy either. The points in this section are not challenged by introducing acceleration.

1.6 **Moving light clocks :** A 'moving light clock analogy' is often used in books to illustrate Relativity's idea that time is different for observers that move differently. That hypothetical clock is the same as the real Mic-Mor device, but the forward beam is ignored. In the sideways beam, a light particle's travel time out and back marks one tick of that clock. …

In that clock's moving frame of reference, Relativity teaches that the light's travel time must increase because the light's travel distance is thought to increase, because instead of going straight out and back, a light particle has to follow a longer v-shaped path through 'stationary' space to return to the moving source. The time dilation is based on the alleged increase in the travel time of the light.

Solution- If we had a stationary and a moving light clock, Relativity would have to imply that time is dilated in both frames of reference, since the light in each clock traces a v-shaped path in the other's frame. That is contradiction. In reality, the v-shaped paths exist, but the speed of light is different between observers moving differently. The light's travel time is the same in both frames. Ref. Sect. 3.

1.7 **Fast or slow :** The relativistic dilation in 1.6 contradicts itself *and* it contradicts the contraction in 1.2 which contradicts itself.

1.8 **Clocks :** It is improper to strictly link the speed of time to repetitions in material phenomena, like the ticking of any kind of clock. Clocks do not flawlessly present the speed of time. When a clock moves relative to an observer, the observer will receive an inaccurate reading of the clock's frequency according to the Doppler frequency equation, and an inaccurate reading of the time according to the light's travel time. Those inaccuracies will disappear if the clock returns and stops at the observer. Some different clock inaccuracies might remain, including those caused by changes in gravity, acceleration, heat and medium.

1.9 **Stoppage :** If time stops at lightspeed, time would stop for light, so light would not be able to travel or arrive anywhere.

1.10 **Time & light :** In any case, the speed of time is not subordinate to the speed of light. Time can exist without light. *Father Time lives.*

Section 2- SPACE

2.1 **Light paths :** There has always been only one observation that claims to support Rel's curved space theory; gravitational lensing; the path of starlight bends when it passes a massive body in space. That is like saying that space is curved because the path of a meteor is curved by Earth's gravity. The path of light should not imply that space is curved, but that light is affected by gravity. What is curved, is the graph of the mathematical relation between gravity and distance from a massive body; as described by Isaac Newton in 1687.

2.2 **Space inside stars :** If space were curved near a star or planet as Relativity says, then space would be 'sloped' (for lack of a better word) in the opposite direction inside, because the gravitational force declines from surface to centre. It would be an imperfect slope because a star or planet is not uniform in density. That does not sound like the true shape of space.

2.3 **Nothing :** The idea of curved space would be better worded as variations in the concentration of nothing, and nothing cannot have such qualities; there is no fabric of space except the practical coordinate systems that are used to divide space into grids.

2.4 **Measuring space :** If gravity concentrates space and any matter therein, then perhaps so should magnetism (they are both forces of nature), but when we put a ruler beside a magnet, the length of a centimetre remains the same along the length of the ruler. Similarly, a metre is not shorter near a gravity source. Light will travel a bit faster toward a close gravity source, and slower away from it. Ref. Sect. 3. The length of a metre, as defined by the distance light travels in a certain time, would be longer for inbound light and shorter for outbound. No concentration of space is implied. Since curved space is not verifiable by us, there is no basis to claim that it's true.

It seems most reasonable to say that if the universe has a boundary that has shape, the boundary may be curved (although a boundary pretty much defies comprehension) but space inside it is uniform. Space is pervaded by, not shaped by, gravity.

Note- Einstein's equivalence principle between gravity and acceleration is a good observation of their similar effects, but it does not lead to any relativistic conclusions; it illustrates Newton's gravity and force equations.

Section 3- LIGHT

In Special Rel, postulate 1 says (correctly) that optical and mechanical experiments will give the same results in stationary or constantly moving labs. Postulate 2 says (incorrectly) that lightspeed in space is a constant of nature; unaffected by the motion of the light source or the observer. We all seem to agree with postulate 1. However, the concept in postulate 2 is that c should be the same to the observer and to the source, even if they converge or diverge, and that c is the limit in all relative velocities. This section opposes postulate 2 of Special Rel, and the Lorentz contraction theory.

3.1 **Velocity between light beams :** When light goes out from two flashlights that are pointed in opposite directions, the velocity between the two beams of light is twice c, since each beam is moving at c. This is self-evident and can be demonstrated, but it is not allowed in Postulate 2, which presents c as being always the same in relation to anything and everything, moving or not.

3.2 **Lorentz contraction & Rel :** In the 'Lorentz-Fitzgerald contraction' theory (c1890), a moving mass was alleged to experience a shrinking effect which was supposed to account for the Mic-Mor result. The physical shrinking of the mass was said to exactly compensate for the hypothetical slowing of light in the forward direction, as the source moves through the hypothetical stationary aether of space, making it seem that light goes the same speed in all directions while it is not really doing so. That theory proposed an unwarranted, untestable explanation and supplied no cause. Mic-Mor opposes the stationary properties of the aether, and the whole aethereal idea was abandoned long ago by most people, yet some of it remained in Relativity.

3.3 **Again :** Relativity has been said to accept and add to the Doppler frequency equation, by combining the (mistaken) Lorentz equation with the (true) Doppler equation. The result is a quagmire. Given that combination, it is curious that Relativity says that c is always constant, while Lorentz implied that c just appears constant.

3.4 Lightspeed equation : There has never been reasonable cause to accept Relativity's idea of the constancy of c, and never any cause to doubt the pre-existing true Galilean concept of relative velocities, which reads like this when applied to light : c at the observer = c at the source, plus or minus the relative velocity between observer and source.
Let us extend that to include gravity, which is another cause for c to be different at the observer-

In starlight, an outbound wave wants to coast at c, but the star's gravity pulls back on it. The gravitational acceleration 'g' is strongest at the star's surface and fades outward, so gravity's pull should slow the wave less and less as it gets further from the star. For average sized stars, the effect on c is small because c is such a large velocity. Gravity's effect should be included in the lightspeed equation:

c at the observer = c at the source, plus or minus the velocity between observer and source, plus or minus the change in c due to gravitational acceleration X time along the light's path.

Notes- -c at the observer is the velocity between the observer and the light at the instant of observation.
-c at the source is the velocity between the source and the light at the instant of release.
-c will vary relative to the source after release, if the source accelerates or is in a gravity field.

3.5 Gravitational red-shift : The conclusion here may be known already in physics, but it is good to state this particular reasoning. A star's gravity field would not change the starlight's frequency, because each light wave is sent from its source atom at a constant frequency and takes exactly the same time to reach a given distance from the star (ignoring radial oscillations and fluid flow). The arrival time of each wave at a given location is equally delayed (shifted), so there would be a changed interference pattern with light that is hypothetically unaffected by the gravity.

Section 4- MASS Relativity proposed 2 kinds of mass (rest, and relativistically increased) but in fact there is only 1 kind. This section presents some reasons why that is so. The equation F = ma from Isaac Newton (1642-1727) correctly defines mass: mass = Force divided by acceleration. Force / acceleration defines an object's mass.

4.1 Mass in Relativity : It is correctly stated in postulate 1 of Special Rel, that all experiments in optics and mechanics will give the same results in labs at rest or in uniform motion. That contradicts this other relativistic idea about mass increasing with velocity, which would make mass harder to accelerate in moving labs. (Accelerating mass is a mechanical experiment.)

4.2 Mass & velocity : Every star, planet, object and particle is moving through space in different ways. None of their velocities could be called absolute. Mass cannot vary with velocity because it would have to possess a zillion values all at once.

Example- If we test how much Force is needed to accelerate a mass to a certain speed in a certain time, while the mass and our lab are moving at say 10,000 metres per second relative to the ground, and we report our result to someone in a lab moving half that speed, and to someone in a lab on the ground, then they will know the single value that is correct. If those two labs calculate the expected value according to Relativity's idea, they would get slightly different values for the amount of Force that we should have used, because they have different velocities relative to the mass that we tested. The point is that there is only one true result, and we found it. (There is also one true result for the input energy that it took to accelerate the mass in our lab, and one for the increase in its energy of motion relative to our lab, but there are two different true results for the mass's energy of motion relative to the 2 other labs.)

4.3 Mass of particles : *If* photons have mass, then in Relativity that mass would be infinite because they move at c; but of course their mass is not infinite. Similarly for other particles such as electrons or cosmic ray particles which might move at or near c.

Photons have been said to have no mass, but since they can knock electrons off a photoelectric metal plate, then perhaps they do have mass. Also, if light that hits a thin reflective surface causes any pressure on that surface, then perhaps photons do have mass. We say that they have Energy, which may require mass. Photons are affected by gravity, which may require mass. (It is interesting that Hertz's photoelectric effect for which Einstein earned a Nobel prize for explaining, may add to the list of ideas that disprove Rel. He rightly got no prize for Rel.)

4.4 Mass in accelerators : The speed of accelerated particles must be limited by the speed of electricity and the design of the accelerator. The ability of the device to accelerate particles must decrease to zero at or below c, meaning that it is not the alleged increase of mass with velocity that prevents the particles from reaching c.

Note- One of the smaller consequences of all this, is that lightspeed is not the limit for space travel; given suitable propulsion. It may be the limit for simple direct communication between Earth and a craft moving away, unless the craft slows to sub-c relative to Earth.

CONCLUSIONS Relativity theory is all mistaken except postulate 1 of Special Rel, which was not discovered by Einstein. Here are the right ideas, which were mostly known before Relativity first arrived in 1905:

1- TIME -The speed of **time** is a universal constant (regardless of the motion of observers).
2- SPACE -The shape of **space** is uniform (regardless of the presence of mass and gravity).
3- LIGHT -**Light** and mechanical experiments will give the same results in stationary or uniformly moving labs.
-**Light**speed is different at the observer if there is velocity or gravitational bias between observer & source.
4- MASS -An object's **mass** stays constant (regardless of its velocity. An object's energy of motion changes with velocity.)

Dedicated to integrity in science, justice and respect between people. Thank you for reading. ■