

MORE PROBLEMS WITH
GENERAL RELATIVITY
Gamma fails again



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Abstract: I show that the current number for bending of starlight by the Sun, 1.75, is incorrect. I show precisely why the number is incorrect, pulling apart the field equations to show the simple mathematical errors. I then show that my number, 1.68, is correct, even given the most recent experiments. It is correct because my correction to *gamma* and the field equations yields precisely a 4% error. 1.75 minus 4% is 1.68. After correcting the errors in the equations, the experiments confirm my math and falsify Einstein's math.

I recently got an email from a sympathetic reader, who was worried that my theory might be dismissed out of hand because my number for bending of starlight by the Sun did not match the current number. In several papers I have shown that the number should be around 1.68. The current number from experiment is 1.75, and this number comes from very respected data, including data from VLBI (very long baseline interferometry) and from Hipparchos, an optical satellite. However, I do not need to question either experiment, since the problem is once again with the math. If we look at the equations that these physicists and astronomers are using to achieve the number 1.75, we quickly see that they are using the term *gamma*. For instance, if we go to Physicsword.com* we find that the bending by the Sun converges on $(1 + \gamma)/2$. Since I have shown <http://milesmathis.com/simp.html> that *gamma* is false, being achieved by faulty math, this equation cannot give us the correct number.

Let us look at this in more detail, to see if we can find the cause of the difference between 1.68 and 1.75. Current physicists are still using Einstein's equations for *gamma*: nothing has been corrected in the past century. According to Einstein, $\gamma = t/t' = x/x'$. That is, *gamma* is the straight transform due to time or distance separation. Problem is, in that last triple equation, time and distance transform in the same way: as one gets larger the other does, too. Time and distance are in direction proportion, as you see. But this is opposite to what Einstein intended and stated in clear sentences.** Einstein wanted time and distance to transform in the opposite way, in inverse proportion. Time dilation and length contraction happen at the same time, with the same object, but dilation and contraction are opposites. Dilation is the act of getting bigger and contraction is the act of getting smaller. That is the definition of each word, and Einstein knew that when he used them. When time dilates, the period gets larger; when length contracts, the length gets shorter. So x and t should change inversely. Unfortunately, his math does not match his intentions, his statements, or his theory.

I have corrected his math, and in doing that I have kept his intentions, his statements, and his theory (mostly) intact. That is why I deny that I have overturned Relativity. I have not overturned it, I have only corrected the math. After the embarrassingly simple corrections, neither t/t' nor x/x' is equal to γ .

We have to completely delete *gamma* from all the field equations, since it is not true under any circumstances. I have shown that the math has to be redone from the ground up, to include the already known fact that time and length change in opposite ways. Now, since my new transform, like *gamma*, is not a constant, it will vary depending on the problem at hand. Here we are looking at bending in the field of the Sun, and fortunately I have already done that math in my paper on Mercury's perihelion precession <http://milesmathis.com/merc.html>. I have already corrected Mercury's precession, so I know exactly how much Einstein's field equations are wrong in the field of the Sun. They are off by exactly 4%, as I show in the third part of that paper (see the sub-section where I correct the number 528). In other words, I showed that the difference between *gamma* and my corrected transform, in the field of the Sun, is 4%. Therefore, I could have predicted that current physicists would be 4% wrong, as long as they used *gamma* to develop their number. I didn't predict it, or mention it at all, because I have not kept up with these latest experiments on bending. In my papers, I still assume the number is 1.7, because that was Einstein's number. After my experiences at Wikipedia, I no longer waste breath arguing in forums or elsewhere online, so I have to be prompted sometimes by my readers. In this case, it was fortuitous I was brought up-to-date on this, since it provides strong confirmation of my number 1.68.

As you see, the current number is not proof against my theory and math, it is proof FOR my theory and math. The difference between 1.75 and 1.68 is 4%. It is the current number 1.75 that is false, and I have shown precisely why it is false. It is false because the field equations are wrong. The experiments are correct, but the math is wrong.

Let me gloss the math here, for those who are allergic to links in a science paper. In several papers <http://milesmathis.com/easy.html> I have derived the number 1.68 without using any transforms at all. I simply reverse the gravitational field, *a la* Einstein's equivalence principle, and this allows me to find the number 1.68 without any pulling forces, traditional gravitational forces, or curvature of any kind. Reversing the field gives me a Euclidean background, and using that background I can find an angle of deflection in three lines of math:

$$s=(9.8\text{m/s}^2)(500\text{s})^2/2=1,225,000\text{m}$$

$$\tan\theta=1,225,000\text{m}/1.5\times 10^{11}\text{m}$$

$$\theta = 1.68 \text{ seconds of arc}$$

In other papers, where I correct Einstein's transforms, I correct the time, length, and mass transforms

separately, as has been the custom. But to correct the number 1.75 requires that we use all three transforms. Einstein's field equations include mass, length, and time, so we must transform all three simultaneously. For this reason, I cannot simply show you a difference between *gamma* and my transform in a single equation. Einstein uses *gamma* in all three transforms, so when we see *gamma* in a final equation, as it is used at Physicsworld, it is a sort of compressed transform. Another way to state that is to remind you that the field equations express a force. It requires a gravitational force to curve space. Since force is equal to the dimensions of kilogram meter per second squared, we have to include mass, length and time transforms, all three at the same time. Force will not vary like mass alone or time alone or length alone. Force must vary as the force equation varies, so we must look at how time separation affects each parameter.

Now, Einstein never recognizes this subtlety, which is why his equations are incomplete. Yes, he looks at the mass transform in the curved field, but his math does not include the fact I have just related: the force cannot vary like the separate transforms, since force is defined as a mass times an acceleration. To be specific, I showed in the paper on Mercury that length would increase by a factor of 1.04, time would decrease by a factor of 1.04, and mass would increase by a factor of 1.57. Therefore, according to the force equation, force would increase by 1.51.

$$F = (1.57)(1.04)/(1.04)^2 = 1.51$$

The difference between 1.51 and 1.57 is 4%. Einstein ties his field equations to the mass transform, not the force transform, so he is 4% off. Current theory has not corrected Einstein, so they are still 4% off. That is why and where they get the number 1.75.

A final interesting question begged by all this, but never asked by anyone before me, is how current physicists explain my number 1.68. You will say it is not up to them to explain it, since it is my number; but it is not my number. In a very real and direct way, it is Einstein's number, which also makes it their number. To get this number, all I did is follow Einstein's equivalence postulate or principle. In his books, Einstein famously states that there is no mathematical difference between acceleration up and gravity down. He shows this with his elevator car in space, and the thought problem and postulate are still accepted as true. This means that we should be able to invert the field with no numerical difference. That is what equivalence means: it is a mathematical equivalence, not just a theoretical equivalence. Einstein says the *number* for acceleration and gravity should be the same. If this is so, then why does the inverted field give us a different number than the normal field? The inverted field gives us 1.68 and the normal field gives us 1.75. Why? How do mainstream physicists explain this? They have never shown that I have done the math wrong, but if they want to believe in the equivalence principle, they must show that. They cannot claim to believe in equivalence and then fail to address the difference between 1.68 and 1.75. If I am wrong in this paper, and the difference is not caused by Einstein's mathematical error, how is it caused? Mainstream physicists must either show a mathematical cause of the difference, or they must give up the equivalence principle.

As it is, they seem proud that their number is different than "mine", since it seems to them to imply that they are correct and I am not. But they haven't appeared to recognize that the deviation between the two numbers is also a problem for them. It is a problem because it conflicts with the equivalence principle. To confirm Einstein, they should have matched experiment to equivalence, which would have given them 1.68. To confirm Einstein, *gamma* should have confirmed equivalence. It doesn't, but they have swept this problem under the rug. I have just solved it. How do they solve it?

* http://physicsworld.com/cws/article/print/21148/1/PWrel4_01-05

***Relativity*, Ch.XII, p. 37. "As judged from K, the clock is moving with the velocity v ; as judged from this reference body, the time which elapses between two strokes of the clock is not one second but $[\gamma]$ seconds, i.e. a somewhat larger time. As a consequence, the clock goes more slowly than when at rest."

