

# The mythology of Einstein's followers

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Modern physics has been replaced for many people by a belief in a mythology. Einstein made numerous changes to how physics then was because he had a different way of thinking about things to how most normal people think, this means that when they try to understand Einstein's' relativity from their way of thinking about things (which is not the same way as how Einstein was thinking) they create myths. As result there is a vast number of Einstein's followers that do not properly understand Einstein's relativity in the way that Einstein understood it, and instead believe myths. i.e. instead of understanding modern physics have replaced modern physics by a belief in a mythology.

## Introduction

The issue of “proof” in the context of theories in science will now be dealt with, building upon the issues of the changes that Einstein has made with his relativity (issues dealt with in previous articles).

Part of the problem in this area has been Karl Popper. Stanford Encyclopedia of Philosophy [1] says: “Karl Popper is generally regarded as one of the greatest philosophers of science of the 20th century.”

How Einstein does things differently to most people's way of thinking and how Popper wants to deal with the philosophy of science has made a mess of what is meant by “proof.”

Where I am at present as regards studying Einstein's relativity is: Most of modern physics is based on mistakes.

The equation  $c'^2 t'^2 = (c^2 - v^2) t^2$  (1)

By Einstein would interpret as  $c=c'$ , which is his constancy of light-speed (in vacuum) idea and it leads to consequences such as  $t$  not equal to  $t'$  leading to time dilation, and time dilation leads to length contraction and that leads to lots of other things.

By Newton however equation (1) would be interpreted as  $t=t'$  and then  $c$  is not equal to  $c'$  meaning light-speed (in vacuum) is variable.

That is the main difference between Einsteinian physics and Newtonian physics.

There is a big problem with proof in regards to theories in science. Some people are of the opinion

that theories cannot be proven in science and some people are of the opinion that certain theories have been proved. I shall first deal with those who believe theories can be proved:--

### **From the opinion that there is proof in science**

If we go by what is taught on special relativity, a lot of maths is given and if a lecturer is asked by student why that specific maths, then proof is supposed given by citing the Michelson-Morley experiment

i.e. proof for special relativity supposedly comes from Michelson-Morley experiment.

(This is the scenario of student and lecturer believing science can prove theories: When proof for special relativity is asked for, the Michelson-Morley experiment is usually offered.)

However, as pointed out by Professor Norton – the Michelson-Morley experiment does not prove light-speed (in vacuum) is a constant, and that experiment is interpretable from maths where light speed (in vacuum) is variable. (It then results in two different meanings to “proof”, that will be explained anon.)

That means equation (1) is applicable to the Michelson-Morley experiment, as has been dealt with in my previous articles.

The way that Einstein thinks about things is – assume light-speed (in vacuum) is constant and then interpret the experiment from maths based on that assumption.

This is contrary to how many people think – they think the method is assume light-speed (in vacuum) is constant and then test by experiment to see if that is the case. So this leads to many of them thinking that light-speed (in vacuum) has been found constant by experiment, when it hasn't. So these people are believing a falsehood – i.e. a myth.

Often they will point to other things such as binary star observations as proving light-speed (in vacuum) as a constant, but those observations don't prove what they claim either. Really its just the maths being based on assuming light-speed (in vacuum) as a constant and those observations being interpreted from that maths.

So basically they are believing a myth about physics, and they have created a complete mythology of numerous myths based on building upon this initial myth about light-speed (in vacuum) constancy.

Now going back to “proof” it has to mean different in the way Einstein wants to deal with things. What is meant by it in the Einstein context - is that now means that assuming light-speed (in vacuum) constancy then the maths based upon that works in dealing with Michelson-Morley experiment, and its not “proof” in the sense that the experiments proves light-speed (in vacuum) constancy

And the maths that modern physics is working from is equation (1) and that means Newtonian physics still works. Taking Newton way of dealing with that equation  $t = t'$  and light-speed (in vacuum) as variable, then all of the other things about Newtonian physics work, it is still able to deal with acceleration etc. .

Uniform acceleration still works in equation (1). Special relativity talks of this as flat space-time

If we deal with acceleration caused by gravity in scenario of non-uniform directed at a point-source then this gets called tidal gravity, and is still dealt with in Newtonian physics. While Einsteinian physics deals with this tidal gravity as space-time curvature.

As Kip Thorne points out – tidal gravity can be dealt with by Newtonian physics and Einsteinian physics, it is just a change in language. I.e. the physics systems talk about the same thing but in different ways.

Kip Thorne – one of the students of John Wheeler, and Wheeler the main inheritor of carrying on Einstein's work on relativity. Einstein left a lot of wrong maths in his work, and this was corrected by later workers such as Wheeler's group, so that now Newtonian physics and Einsteinian physics are as I perceive dealing with the same equation (1) but interpreting it differently by their different languages. Ideally this group should have pointed out the correction and update to Einstein's work that they have been engaged in, but they have not sufficiently made enough publicity on this issue and left many people now still pursuing the falsehoods of the myths.

Changing all the meanings of words such as how “proof” is to be used in regards to how Einstein thinks about things has confused many people, resulting in these myths that people have.

### **From the opinion that there is no proof in science**

Now to the other type of people as regards proof in science:

Some people actually point out that science does not prove its theories, that experiments being performed today and in agreement with any particular theory does not prove the theory, because later experiments might be in disagreement with that theory. So they think in terms of science not being able to prove theories by experiments, only being able to disprove theories by experiments. This works to the advantage of Einstein's way of thinking about things, because he wants experiments adjusted to conform to his theory, thus making his theory unfalsifiable. Those people who think that theories should be falsifiable look upon an unfalsifiable theory as unscientific. But that is their opinion. Their opinion is that theories should be falsifiable and they have failed to notice that the mainstream has adopted a theory that is unfalsifiable, and fall into believing myths that things have happened when they haven't.

Thus summarising as regards proof:

proof version 1 – people who believe science can prove theories

proof version 2- people who believe science can only disprove theories, think that any theory accepted now is only provisional when it is shown to agree with experiments so far performed

Einstein's belief in theory – adjust experiments to conform to theory

People who believe proof version 2 would believe such a theory as unscientific (as based on Einstein's belief in theory), but have deceived themselves by myth that special relativity is not that sort of theory.

People who believe proof version 1 – have deceived themselves that Einstein's theory has been proved, but really all that has been shown is that the maths of Einstein's theory can be adjusted to fit experiments that have so far been performed.

In this manner of people having lots of different opinions and beliefs as regards to issues such as proof in science, they then manage to construct myths instead of realise what has really happened in regards to Einstein's theory. Namely Einstein does things differently to how they think about things. They fail to realise this and then proceed to think in their way about things and construct a mythology to believe from what Einstein has presented to them.

As example of someone who believes there are no proofs in science, Satoshi Kanazawa is an evolutionary psychologist says [2] : “One of the most common misconceptions concerns the so-called “scientific proofs.” Contrary to popular belief, there is no such thing as a scientific proof. Proofs exist only in mathematics and logic, not in science. Mathematics and logic are both closed, self-contained systems of propositions, whereas science is empirical and deals with nature as it exists. The primary criterion and standard of evaluation of scientific theory is evidence, not proof. All else equal (such as internal logical consistency and parsimony), scientists prefer theories for which there is more and better evidence to theories for which there is less and worse evidence. Proofs are not the currency of science. “

This is voicing their opinion, they are usually also of the opinion that a theory should make predictions that can be proved true or false. This second part of their opinion does not however agree with Einstein in regard to his theory of special relativity. Einstein's opinion is that his theory should be true by definition and any experiment adjusted to fit to his theory. So their first opinion is defending Einstein's theory when they say such things as Satoshi that: “In contrast, all scientific knowledge is *tentative* and *provisional*, and nothing is final.” Because Einstein's theory does not conform to that, and they are unaware of that. So they defend something that if they had more sense they would realise wasn't what they thought it was.

It reduces science to being just subjective, where evidence supposedly supporting a certain theory can be interpreted by different theories.

In the case of Einstein's relativity (special and general) a great deal of fuss was made about it overturning Newtonian physics, but that never happened and the supposed evidence that can be interpreted by Einstein's relativity can still be interpreted by Newtonian physics.

i.e. there was no evidence presented circa 1919 to change from interpreting the evidence from Newtonian physics to Einsteinian physics, because present any evidence and Newtonian physics can be adjusted to interpret that evidence in similar fashion as to what now happens with Einsteinian physics – present any evidence and Einsteinian physics can be adjusted to interpret it.

Ideally proof for change should have been presented circa 1919, but those who believe that there is no proof in science have discarded that possibility, and reduced it to mere theory adjustments.

The thesis from Einstein that has caused all the problems, is as Thomas J Hickey tells us [3]: “Heisenberg himself was influenced by Bohr in ways that impeded his developing a philosophy of science that is consistent with Einstein's thesis that theory determines what is observed.”

The result of such a thesis is that observations that do not conform are either ignored or adjusted to fit with theory, and those observations that are ignored can be taken into account later by a theory update.

Einstein kept changing his mind on many issues, but this thesis was the basis of the formation of his relativity theories and so its effect still lingers on, and then add that to the ill-informed opinion of people believing in Popperian-type philosophy as regards scientific proof and Einstein's relativity is defended without the realisation that Newtonian physics still works.

## Notes

Karl Popper wanted theories to be falsifiable, but he noted from looking at Marxism that a theory can start off falsifiable but when it does meet a test that falsifies it then the theory gets adjusted, as Stanford Encyclopedia says [1]: “For Marxism, Popper believed, had been initially scientific, in that Marx had postulated a theory which was genuinely predictive. However, when these predictions were not in fact borne out, the theory was saved from falsification by the addition of *ad hoc* hypotheses which made it compatible with the facts. By this means, Popper asserted, a theory which was initially genuinely scientific degenerated into pseudo-scientific dogma.” What happened for Marxism can happen for any theory. In the case of special relativity – Einstein never wanted it to be falsifiable, he wanted it true whatever, so when things don't conform -adjustments are made.

Equation (1) and many other issues (other than about “proof”) is dealt with in more detail in my other articles and lectures.

If special relativity were making the prediction that speed of light in vacuum was a constant, then you could go and test that prediction.

But special relativity does not do that, instead it tells you to adjust the experiment so that light-speed (in vacuum) is constant, and it deals with things in a very restricted set of conditions. Other things like time dilation are just consequences of that adjustment. So it is not making a prediction. And it is as consequence unfalsifiable. But people are deceived into thinking it makes a prediction when it doesn't.

## Conclusion

So for the people who noticed that Einstein was making radical changes to how physics was being done, some decided Einstein was an idiot for doing that and others thought he was a genius.

While for those who did not appreciate just how radical were the changes that Einstein was making, they tried to adopt what Einstein had done into their way of thinking about things and created a mythology to believe. There is a vast number of this type and they teach others to believe their mythology in physics courses.

## References

[1] Stanford Encyclopedia of Philosophy <http://plato.stanford.edu/entries/popper/>

[2] Common misconceptions about science I: “Scientific proof”, Satoshi Kanazawa  
<http://www.psychologytoday.com/blog/the-scientific-fundamentalist/200811/common-misconceptions-about-science-i-scientific-proof>

[3] Werner Heisenberg and the semantics of Quantum mechanics, Thomas J.Hickey  
<http://www.philsci.com/book4.htm>

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