

How special relativity is protected as demonstrated by João Magueijo degenerating into talking nonsense

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Special relativity is defended by people making false claims, an example is looked at.

João Magueijo (born 1967) is a Portuguese cosmologist and professor in Theoretical Physics at Imperial College London. He is a pioneer of the varying speed of light (VSL) theory. [1]

Ideally, he should be saying special relativity is wrong or needs some amendment or been misunderstood because he has a different theory to it, but unfortunately in the article by Hewett [2] Magueijo degenerates into talking nonsense. (Maybe Hewett misrepresents him; who knows; but going by what is written.) That is one of the ways Einstein's relativity gets defended – proponents and dissenters often end up talking nonsense.

Article says:

“For Magueijo relativity is not really difficult to grasp and a constant speed of light is the start point.”

By which must mean - special relativity, and also mean - talking about constancy of lightspeed (in vacuum) in the context of special relativity.

It continues:

“To help to visualise this he invited the audience to imagine driving alongside a car made of light. Since the speed of light is constant it does not matter what you do in terms of accelerating or decelerating the light car will still have the same relative speed to you.”

I think that all bad, for the person in the car observing the light if accelerating then not in an inertial frame, and insufficient details being gone into by this description about inertial versus non-inertial motion. It is in fact- typically bad; most speakers on relativity are bad like Magueijo.

He continues:

“This counter-intuitive notion led Einstein to propose that speed and time must be variable - in particular that time advances at different rates for objects moving relative to each other. The speed of light, c , thus is a speed limit - it is not possible to go faster than it. This is quite annoying - especially from the point of view of space travel. Although it is very fast compared to the speed at which we do things, c is slow compared to the size of the Universe - there is a disparity of scale especially considering the length of human life. “

This is also bad but let us ignore dissecting that and take it as he has given an account of special relativity, because next he wants to discuss his VSL theory.

Says:

“Those proposing a VSL have been described as the punk rockers of physics, but the notion is not without precedent. Einstein himself proposed a VSL theory in 1911, but abandoned it. Like any assumption in science the constant c is not dogma - all theories are open to revision in the light of experimental or observational evidence.”

He says it is not dogma, but unfortunately in my experience many do take it as dogma.

Says:

“So, why propose a VSL? According to Magueijo a number of problems in physics led to the VSL theory - primarily in the area of cosmology. In 1930 Edwin Hubble discovered that the Universe is expanding. This means that space is literally being created between the galaxies. Hubble was observing the creation of distance. Reading time backwards this suggested that the Universe was increasingly small the further back in time we go, and led to the conclusion that everything started from a point - The Big Bang. Magueijo drew attention to the horizon problem this gives rise to - at any time the Universe has a finite age and thus there is only a finite time for information to travel through it and things can only travel a finite distance. This means that we can only see to the horizon of the Universe and cannot be affected by anything beyond this. The closer in time (and space) we are to the Big Bang the smaller that finite distance is. If we allow for c to be higher earlier in the Universe then information could travel faster. Magueijo claimed he had a hangover when he first considered this - it must have been some headache!”

A lot of these problems in cosmology that he mentions are caused by Einstein's relativity.

Says:

“Magueijo drew attention to Dirac's complaint in 1968 that there was too much speculation in cosmology. It seemed to Dirac that cosmologists were making any assumptions they fancied, especially in the light of the possibility that the laws of physics may be varying with cosmological time.”

Yes there is too much speculation by cosmologists much of it caused by their dogma of trying to stick to their understanding of Einstein's relativity; and in my view that is often their misunderstanding of Einstein's relativity they are sticking to.

Says:

“For Magueijo the fact that we live in an expanding Universe means that it makes sense to question the static nature of the laws of physics. However, as a scientist he believes that it is a matter for experiment to decide whether any theory is right or wrong.”

The problem with that is – often theories deal with things beyond existing technology being capable of the experiments.

It continues:

“The second part of the story is related to the ongoing search for a Grand Unified Theory (GUT) for the laws of physics. The theory of relativity is 100 years old next year and it was Einstein’s great dream to find a GUT. However there has been a 100% failure rate so far. The fact that this has still not been solved is another reason to abandon constant c .”

It seems non sequitur to abandon constant c for that reason.

Continues:

“In his theory of general relativity Einstein showed that gravity is a property of space-time - the presence of matter warps space-time and it is this distortion that we experience as gravity. The other fundamental forces are electro- magnetism and the strong and weak nuclear forces, all of which are characterised by quantum effects. For a GUT gravity needs to be quantized, but this would mean that time could not be continuous. This gives rise to the notion of a granular property of space - As Magueijo puts it ‘Planck space’ is pot holed. Thus we have to ask what kind of object would fall through holes in space. In relativity length, like time, is not absolute - there is the theory of length contraction which, according to Magueijo needs to switch off at some point if a GUT is to be achieved.”

Less said about that the better, just usual theorists’ dead-end.

The experimental evidence for VSL theory was:

“First he pointed to the existence of ultra high energy cosmic rays. These particles have been detected passing through the earth and represent a contradiction with relativity. Relativity predicts that there should be a limit to the energy level possible for cosmic rays and the theory has thus been shown to be wrong. Further evidence comes from astronomical observation - astronomers look into the past when they look into space and have been measuring and observing quasars. Reconstructing the speed of light in the past it seems that it was slightly higher 7 or 8 billion years ago than it is now. This work has not been repeated and thus cannot be taken as irrefutable yet. Another experiment Magueijo suggested to test the VSL hypothesis is to try to measure how much c varies from year to year. If c varies over the history of the Universe then we would expect a very small variation in the course of a year. Magueijo pointed to the way atomic clocks are becoming ridiculously accurate and suggested that, if they keep improving, we should be able to measure whether c varies year to year quite soon.”

Then gets to:

“Magueijo was scathing about string theory, describing it as ‘like intellectual masturbation.’ He doesn’t like string theory for sociological reasons, his main objection being that it is completely disconnected from experiment, making it hard, or impossible, to confirm or disprove. He conceded that it may be possible to consider a VSL theory and string theory together, but considered the notion a strange one. In contrast, when asked whether there is any mileage left in the ether hypothesis Magueijo thought that perhaps there is! The idea of the ether originates with the discovery of the wave properties of light. The hypothesis was that, if light is a wave, then it must travel in a medium - the ether.” [2]

After this he starts to slowly degenerate into talking falsehoods:

“If it existed the ether would be a preferred frame of reference for the speed of light - an idea which does not fit in with relativity theory, but if there is a VSL the situation may be different. However, this must be tempered with the recognition that there is strong experimental evidence against such a preferred frame of reference, for example in the Michelson-Morley experiment which was central in Einstein originally formulating the constant c hypothesis. Michelson and Morley showed that different observers measure light at the same speed - Magueijo was clear that if the VSL theory is correct the results of such experiments must still hold at the appropriate scale in this part of the Universe at this time - if not there is no justification for adopting such a theory since the experimental evidence is clear and repeatable.” [2]

So, he is claiming that Michelson-Morley experiment gives lightspeed c constancy (in vacuum).

He seems unaware that the opposite is the case:

John Norton: "The Michelson-Morley experiment is fully compatible with an emission theory of light that CONTRADICTS THE LIGHT POSTULATE." [3]

That is how special relativity is able to survive, because even physicists like Magueijo who are going against the mainstream are making false claims to support special relativity.

References

[1] wiki https://en.wikipedia.org/wiki/Jo%C3%A3o_Magueijo

[2] Newcastle Science Festival 2004, Faster than the Speed of Light Joao Magueijo at Cafe Scientifique, Live Theatre, 15th March 2004, Review by Caspar Hewett
<http://www.thegreatdebate.org.uk/VSLRevPrnt.html>

[3] <http://philsci-archive.pitt.edu/1743/2/Norton.pdf>

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