

Re: What happened between Newton and Einstein?

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- *From:* "kk" <mr_kurt_kingston@xxxxxxxxx>
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-

---Maxwell's equations---

[kk wrote:]

Maxwell did not measure light's round-trip speed.
Nothing in Maxwell's equations tell us anything
about either light's one-way or round-trip speed.

It involves the absolute constant c .
It says that light's speed will be c .

You may believe what you are saying, but you
will have to prove it because just saying it
doesn't make it so.

I will give you two unslowed and absolutely
synchronous ideal clocks (on paper), along
with an unshrunk ideal ruler (on paper),
and we will see if you can get your c for
either light's round-trip or one-way speed.

---Einstein's explicit MMx acknowledgement---

Sorry, leading the witness.

You need to tell us what Einstein meant by his
tell-tale phrase "in agreement with experience."

It is clear to anyone that his $2AB/(t'a-ta) = c$
means the round-trip speed of light per a single
clock over the distance AB.

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Maxwell did not measure light's round-trip speed, so he could not have gotten the specified result of $2AB/(t'a-ta)$. He did not have the times $t'a$ and ta , and he did not use the distance $2AB$.

As Maxwell well knew, his c pertains only to the speed of light's propagation through space. This is the same for all frames because it has to do with the nature of space and the nature of light. It is not a measured speed using rulers and clocks.

Maxwell's c is frame-independent simply because the interactions of electric and magnetic fields are frame-independent. These interactions have to do with only the relative speeds of the fields, so are entirely unrelated to any inertial frame.

---Einstein's "synchronization" definition---

Note that this definition works for *any* signal that you can guarantee travels at the same speed from B to A as from A to B.

The fact that Einstein chose light does not mean that it is restricted to light. Are you reading more into it than what's there?

First, since you admit that Einstein's clocks are not synchronous, what does it matter what is used to set them? Asynchronous clocks are of no use.

Second, Einstein had to use light because only light is source-independent. Only that which is source-independent can possibly reveal our motion through space, so Einstein had to have a null result for light. Therefore, he specifically set his clocks to obtain this result.

It could be said that Einstein was saying that only clocks set to get c are properly related, even though they are asynchronous.

However, there can be no such thing as "properly related" clocks because that would mean "clocks chosen by Nature," and yet Nature has no clock preferences.

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Also, even if Nature did prefer (and cause) asynchronous clocks, they would still be asynchronous, and therefore not suitable for correct measurements.

The best we can do is to completely ignore Einstein's clock-setting definition, and to find a way to get our clocks synchronized.

-----PD on Einstein's "synchronization"-----

Nor does he claim he's getting an absolute synchronization. He's just using a prescription that works

But it doesn't work. It cannot lead to correct time measurements. We need synchronous clocks.

There is no workable synchronization procedure that generates an absolute (across all reference frames) synchronization, so we take what we have.

If you had proof that there's no workable procedure, then we would indeed be screwed; however, you have no such proof, and I, on the other hand, have warts, I mean, proof that clocks can be absolutely synchronized.

Try again.

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