Re: IRT: A New Theory of Relativity

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From: Jesse Mazer (*vze2ztqw_at_mail.verizon.net*)
Date: 02/10/05

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Date: Thu, 10 Feb 2005 19:47:50 GMT
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kenseto wrote:

>"Jesse Mazer" <vze2ztqw@mail.verizon.net> wrote in message
>news:420A56E5.9070805@mail.verizon.net...
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>>kenseto wrote:
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>>>"Jesse Mazer" <vze2ztqw@mail.verizon.net> wrote in message
>>>news:4207F7D9.2030708@mail.verizon.net...
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>>>>kenseto wrote:
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>>>>>"Jesse Mazer" <vze2ztqw@mail.verizon.net> wrote in message
>>>>>news:4206D243.10600@mail.verizon.net...
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>>>>>>kenseto wrote:
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>>>>>>>"Jesse Mazer" <vze2ztqw@mail.verizon.net> wrote in message
>>>>>>>news:4206A90C.7080507@mail.verizon.net...
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>>>>>>>>kenseto wrote:
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>>>>>>>>>"Jesse Mazer" <vze2ztqw@mail.verizon.net> wrote in message
>>>>>>>>>news:42060D6C.20708@mail.verizon.net...
>>>>>>>>>
>>>>>>>>>
>>>>What frame does "wrt the light rays" specify? Is it just the frame where
>>>>the light rays are moving horizontally at c, or is it a frame where the
>>>>photons are actually at rest, or something else?
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>>>>
>>>No frame is specified. We arbituary defined that the light rays are
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>>>
>moving
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>
>>>in the "horizontal direction".
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>>What does the word "horizontal" mean in the absence of some axes to
>>compare the motion to?
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>>
>>>With that definition then the apparatus must
>>>be moving vertically wrt that direction of motion of light to get the

>>>
>>>
>null
>
>
>>>result for all the orientations of the arms.
>>>
>>>
>>>
>>I still don't understand what you mean by "moving vertically wrt that
>>direction of motion".
>>
>>
>
>Then there is no pint of continuing this conversation.
>
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>
>>When people say something is moving "with respect
>>to X", they mean that its distance from X is increasing at a certain
>>rate. But what does it mean to say X is a "direction of motion"? Can you
>>pinpoint the location of the "direction of motion" in space, and say how
>>the distance of the apparatus increases with respect to it over time?
>>
>>
>
>the words *horizontal* and *vertical* defined directions of motion. It got
>nothing to do with distance. It is much like moving in the x−axis direction
>and the y−axis direction..
>

If you are moving with respect to both the x−axis and the y−axis, that
means your distance from the y−axis is changing over time, as is your
distance from the x−axis. It wouldn't make sense to talk about moving in
the x−axis direction and the y−axis direction if you hadn't defined the
position of the x−axis and the y−axis!

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>>
>>>We could arbituary define the
>>>light rays are moving in the "right to left or left to right direction".
>>>
>>>
>>>
>>Not without defining a left−right axis.
>>
>>

>
>*Why?*
>

Because it's meaningless. How do I know what "left" and "right" mean if I don't have a left−right axis?

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>
>
>>*You might as well say "we could*
>>*arbitrarily define the apparatus to be at position x=5" without*
>>*specifying the location and origin of the x−axis.*
>>
>>
>
>*Sigh....you can certainly say that an object is moving in the x−axis (call*
>*this horixontal) and another object is moving in the y−axis (call this*
>*vertical). There is no distance involved in this definition.*
>

Yes there is. If something is moving at velocity vx on the x−axis, that means its x−coordinate changes by vx*t in any time interval t. So, you have to know its x−coordinate at any given time, and its x−coordinate is just its distance from the y−axis. Likewise, to say something is moving on the y−axis, that must mean its distance from the x−axis (ie its y−coordinate) is changing over time.

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>
>
>>*Sure, we could*
>>*arbitrarily "define" things that way, but it would be meaningless, like*
>>*saying "I arbitrarily define the light rays to be moving in the*
>>*sdjhfshjdfh direction".*
>>
>>
>
>*But that's how the MMX apparatus is moving wrt the light rays to get the*
>*null result for all the orientations of the arms.*
>

Suppose I told you I had a very special balloon, and every point on its surface was moving in the vertical direction wrt the horizontal plane parallel to the surface at that point...and yet the balloon was not expanding! Would you say this was possible, that I have expressed a coherent physical picture here?

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>>>In
>>>that case the apparatus must be moving in the "up and down" direction to
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>>>
>get
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>
>>>the null result for all the orintations of the arms.
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>>>>>
>>>>That isn't a reference frame.
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>>>>
>>>Why do you need a reference frame??
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>>>
>>>
>>Because I want to get a quantitative understanding of what you are
>>proposing−−right now I can't even picture it. Can you come up with some
>>specific scenario to illustrate what you're trying to say?
>>
>>
>
>So are you saying that you can't even visulaize that something is moving in
>the x−axis and something is moving in the y−axis?????
>

Of course I can. If something is moving in both the x−axis and the
y−axis, it must be travelling on a diagonal path wrt these axes. For
example, if x(t)=(1 meter)*t and y(t)=(2 meters)*t, then the object is
travelling along the line y=2x. Can you define the path of the light
beam in terms of x and y coordinates? If not, then you aren't really
talking about something that's moving along the x−axis and along the y−axis.

>
>
>
>>For example,
>>in fig. 2.2 of the paper you sent me, let's say that the source and the
>>target are a distance of 2 light−seconds apart along the vertical axis,
>>and they're moving at 0.6c along the horizontal axis. Suppose a light
>>beam is emitted from A at t=0 seconds, and travels up a distance of 2

>>light−seconds to the same height as the target at t=2 seconds...but by
>>that time the target will have moved horizontally a distance of 1.2
>>light−seconds, so the light beam will miss it.
>>
>>
>
>Only the first portion of the light beam will miss the target.Why? Because
>the speed of light is much faster than the speed of the target that means
>that the photons that are generated at a later time will have a chance to
>catch up and hit the target. Why can't you look at the diagram to see this
>effect???
>

Because your diagram is confusing, it doesn't tell you the *times* that the different verticle light beams were emitted. Please just give me a quantitative scenario so I can understand what you're saying here. If the mirrors are moving right at 0.6c along the x−axis, and the top mirror is 2 light−seconds above the bottom mirror, and the first beam of light is emitted at t=0 when both mirrors are at position x=0, then it will miss the top mirror because it will take 2 seconds to climb up a distance of two−light seconds, and in that time the top mirror will have moved to the right by a distance of x=(0.6c)*(2 s)=1.2 light−seconds. So my question is, in this scenario, at what time and from what position is the light beam emitted that ends up hitting the top mirror? If the light beam travelling on path AB was emitted at t=0 from position x=0, at what time and position was light beam CE emitted?

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>
>
>>Now, if point C is 6
>>light−seconds away from point A, at what time−coordinate would light
>>have to be emitted from point C in order to hit the target?
>>
>>
>
>Sigh....the light beam is continuous and is composed of a train of photons.
>The first photon will have to travel a full two light−second to reach the
>old position of the target and thus missing the target. The second photon
>will have to travel the gap between the first photon and itself to reach the
>old position of the target and it too will miss the target but it will miss
>the target by a lesser distance.
>

Why will it miss the target by a lesser distance? Each photon has to travel the same vertical distance to hit the target, no? So won't each photon take the same time (2 seconds in my scenario above) to travel from the emission point to the height of the target? And if each photon is emitted at the same horizontal position as the target, then in each case the target will have moved horizontally by the same amount away from the photon in that amount of time.

Your diagram only seems to make sense if we assume all the verticle
light rays were emitted at the *same time*. But this obviously doesn't
make any physical sense, since a light ray can't be emitted from a
certain position along the x−axis until the bottom mirror has actually
reached that position.

> Each subsequent photon will miss the target
>by a lesser distance. The first photon (and the subsequent photons) that
>hits the target is the photon that arrive at the position of the target when
>the target does not yet have a chance to move away.
>
>
>
>>Would it be
>>emitted at t=10 seconds, since at that moment both the source and the
>>target will be at the same horizontal position as C? But if so, wouldn't
>>the light emitted from C take another 2 seconds to reach the the target,
>>by which time the target will have moved another 1.2 light−seconds
>>horizontally?
>>
>>
>
>See above explanation.
>

Your explanation doesn't help me. Please, just give me a quantitative
scenario, if your idea is coherent it shouldn't be that difficult.

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>>>
>>>>Is there a coordinate system where the
>>>>center of the apparatus has changing z−coordinates while its x and y
>>>>coordinates are constant, while the light rays have changing x and/or y
>>>>coordinates while their z−coordinates are constant?
>>>>
>>>>
>>>>
>>>>
>>>You are trying to introduce a third system into the arguement. The light
>>>rays are "defined" as moving "horizontally" that all you need to know.
>>>
>>>
>>>
>>That is not enough to give me a picture of what you're proposing.
>>

>>
>
>Sorry then I can't help you.
>

Sure you can, if you're willing, just by giving me a quantitative scenario. Say the vertical direction is the y−axis, the horizontal direction is the x−axis, and the mirrors start out at x=0 at t=0...then at what time and what x−coordinate is the photon which travels path CE emitted?

>
>
>
>>If
>>your idea is coherent, surely it would at least be *possible* to define
>>all the motions in terms of some fixed coordinate axes, even if you
>>don't find it *necessary* to do so? Or are you claiming to have
>>discovered some new type of motion which is impossible to understand in
>>terms of a coordinate system?
>>
>>
>
>Fixed coordinates axes mean absolute rest. Who can propose such an axes
>system???
>

No, fixed coordinate axes don't mean absolute rest. Even in Newtonian mechanics, it's perfectly acceptable to have coordinate axes which are moving at some constant velocity wrt Absolute Space.

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>>>>If there is a coordinate system where the train is moving vertically in
>>>>the z−direction while all the photons move only in the x,y directions,
>>>>
>>>>
>>>>
>>>>
>>>Why are you keep on harping on a coordinate system??? When you assign
>>>coordinate system you are assuming that the person who assigne the
>>>coordinates is in a state of absolute rest.
>>>
>>>
>>>
>>Uh, no you're not. Are you familiar with basic Newtonian physics? Do you
>>understand that if I am driving in my car at 60 mph relative to you, we
>>are free to use either a coordinate system where you are at rest and my

>>velocity is 60 mph *or* a coordinate system where I am at rest and you
>>are moving at 60 mph in the opposite direction?
>>This was true despite
>>the fact that Newton did believe in Absolute Space−−so even if you
>>believe in Absolute Space, that does not obligate you to use a
>>coordinate system where the origin is at rest in absolute space. The
>>Galilei transform of Newtonian physics is based on the idea that each
>>system's origin is moving at velocity v in the other coordinate system:
>>
>>
>
>In SR an observer assumes that he is in a state of absolute rest. That's why
>he sees all clocks moving wrt him are running slow.
>

No, that's not how any physicists understand SR. That's what I've been
trying to explain to you−−*all* observers will measure other observer's
clocks to be running slow relative to their own. If you would just
clarify whether you are willing to accept my "5 assumptions" for the
sake of the argument, I can prove that these 5 assumptions together can
be used to prove that each observer will measure everyone else's clocks
slowed down and their rulers shrunk, even if it is *really* their own
rulers which have shrunk and their own clocks which have slowed down.
Here are the 5 assumptions again:

>
> 1. Rulers moving at velocity v relative to the ether shrink by
> squareroot(1 − v2/c2), and clocks moving at velocity v relative to the
> ether extend their ticks by a factor of 1/squareroot(1 − v2/c2).
>
>
> This is true only from the ether frame point of view.
>
>
> Yes, my assumption was only that rulers moving at velocity v *relative
> to the ether* shrink down by squareroot(1 − v2/c2) and clocks extend
> their ticks by 1/squareroot(1 − v2/c2). If you agree with this
> assumption, then you agree with #1.
>
>
>> But in real life both
>> the observer and the observed frame are in different states of absolute
>> motion. Therefore the observer must use the IRT. That means that the
>> observed ruler is shrank by 1/gamma or expanded by gamma and the tick
>> rate
>> of the observed clock is running at a rate of 1/gamma or gamma
>> compared to
>> the observer's clock..
>>
>
> Irrelevant, because #1 doesn't ask you to assume anything about how

> things look from the point of view of observers in motion relative to
> the ether, it's only talking about how things would look if you were
> at rest in the ether frame.
>
>>
>>
>>> 2. In the rest frame of the ether, light travels at c in all directions.
>>>
>>
>>
>> This is true in all inertial frames.
>>
>
> Good, so you also accept #2.
>
>>
>>
>>> 3. All observers, even those in motion relative to the ether,
>>> synchronize spatially separated clocks using the assumption that light
>>> travels at the same speed in all directions *relative to themselves*.
>>>
>>
>>
>> Yes.
>>
>>
>>> 4. Each observer defines their coordinate system in terms of local
>>> readings on a network of rulers and clocks which are at rest relative to
>>> themselves, and with the clocks synchronized using assumption #3
>>>
>>
>>
>> There is no clock synchronization required.
>>
>
> Huh? You just agreed with #3, which was all about clock
> synchronization! Even if you do not consider this the most practical
> or useful way of measuring coordinates, do you agree it's *possible*
> to define coordinates in this way?
>
>
>
>>
>>
>>> 5. observers in different frames must agree on local events, like the
>>> readings on each of their clocks when the two clocks pass right next to
>>> each other.
>>>
>>
>>
>> I don't see your point on this.

>>
>
> Well, see my explanations above. Again, if observer A programs the
> clock at his 0−meter mark to explode when it hits "1 microsecond",
> and observer B programs the clock at his −519.3−meter mark to explode
> when it hits "2 microseconds", then surely all observers will agree
> whether there were two small fireballs at different spatial locations
> or one large fireball at a single location? If so, then even if you
> remove the dynamite, surely you must agree that all observers will
> either see these clocks right next to each other when the A−clock
> reads "1 microsecond" and the B−clock reads "2 microseconds", or they
> won't.
>
> Of course, this is equivalent to the assumption I mentioned earlier
> that if coordinates x,t in frame A are mapped to x',t' in frame B,
> then the transformation from frame B back to frame A must map x',t' to
> x,t.

Furthermore, even if you are attached to the idea that the coordinate axes should be at rest in absolute space, why can't you just tell me how the MMX (or the train/track system from our earlier discussion) are moving in a coordinate system that *is* at rest in absolute space?

> Similarly the coordinate
>system you proposed for the supernova....you assumed that you are at
>absolute rest..
>

No I didn't. Again, you're just not understanding how SR works, and I can prove to you that it's unecessary to assume anything about absolute rest, if only you will answer my questions about the "5 assumptions" above.

>
>
>>$x' = x - vt$
>>$y' = y$
>>$z' = z$
>>$t' = t$
>>
>>
>>
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>>>
>>>>then no matter what time the photon is emitted, by the time it reaches
>>>>the current x,y coordinate of the target, the target will have a greater
>>>>z−coordinate than that particular photon. This will be true regardless
>>>>of when the photon is emitted, or how small the z−velocity of the train
>>>>is compared with the x,y velocity of the photon.

>>>>
>>>>
>>>>
>>>>
>>>What you said here is irrelevant to our discussion how the MMX null
>>>
>>>
>result
>
>
>>>can be realized even if the apparatus is moving wrt the light rays.
>>>
>>>
>>>
>>Maybe so, but it's relevant to your claim that the light would not be
>>moving diagonally in the rest frame of the ether/Absolute Space, and
>>it's also relevant to the paper about light clocks you sent me.
>>
>>
>
>No its not relevant. Your failure to understand is not a fault of my theory.
>Your insistence that light is moving diagonally is bogus. How is light so
>smart that it can select the correct diagonal path−−out of infinite number
>of diagonal paths−−− to follow dependent and the selected path is dependent
>on the velocity of the light clock?
>

Suppose I am riding a train and I shoot a from a gun pointing straight
up. Do you agree that, regardless of the velocity of the train, I will
always see the bullet travel straight up in my frame? So doesn't that
mean that an observer on the track will see the bullet travel
diagonally? Does the bullet need to be "smart" to do this? No, it just
has to have the same horizontal velocity as everything else on the
train. Similarly, Maxwell's equations of electromagnetism can by used to
prove that a light beam aimed straight up from a given source (say, a
flashlight, or a laser) will also travel straight up in the rest frame
of the source, therefore it will travel diagonally in other frames.

>
>
>>>Your explanation is irrelevant.
>>>
>>>
>>>
>>I'm not trying to give an explanation of anything at the moment, I'm
>>just pointing out that your explanation of how the light from the source
>>can reach the target without travelling diagonally in the rest frame of
>>the ether/Absolute Space doesn't seem to make any sense.
>>
>>
>

>It is clearly illustrated in the diagram.
>

There is no indication in that diagram of what times the various vertical light beams are emitted. That's why I'm asking you to please give me a quantitative scenario corresponding to that diagram, so I can see the position and time that two different vertical light beams are emitted, and then we can check if you're right that one light beam will miss the target while the other will hit it.

Jesse