

## Re: re:Can Light Propagate without Space??

**Source:** <http://sci.tech-archive.net/Archive/sci.physics.relativity/2005-03/3373.html>

---

**From:** TomGee (*lvlus\_at\_hotmail.com*)

**Date:** 03/14/05

Date: 14 Mar 2005 14:05:20 -0800

PD wrote:

> *TomGee wrote:*

>> *PD wrote:*

>>> *TomGee wrote:*

>>>> *PD wrote:*

>>>>> *TomGee wrote:*

> [snip]

>>>>>>

>>>>>>> *P 1. Matter exists in the space of our universe and so does*

> *the*

>>>>>>> *dimension of time. In physics, a dimension is a property*

or

>>>>>> *magnitude,*

>>>>>>> *or groups of such, that collectively define a physical*

>> *quantity.*

>>>>>>

>>>>>>> *Disputed. Back it up.*

>>>>>>

>>>>>>

>>>>> *Sure, soon as you note the basis of your dispute so that we can*

>> *know*

>>>> *what it is you dispute.*

>>>

>>> *A dimension is better described as one of the counted independent*

>>> *degrees of freedom within a space, where a space consists of*

> *elements*

>>> *that can be described as related by a set of mathematical rules.*

>>>

>>>>>>

>> *True, when it refers to math. However, this is physics, not*

>> *mathematics.*

>

> *Back up your claim that my definition does not apply to physics.*

>

>>>

Theoretical Physics uses math instead of what physics uses – empirical evidence. Thus, anything is possible with math no matter how far from reality it may be.

>  
>>>>>  
>>>>> > P 2. According to SR, time is a property of matter  
>>>>>  
>>>>> Disputed. Back it up. This is the linch pin.  
>>>>>  
>>>>>  
>>>>> Sure, soon as you note the basis of your dispute so that we can  
>> know  
>>>> what it is you dispute.  
>>>  
>>> OK, see below, as well. Time is not a property of matter. The  
claim  
>>> that it is, is based on a false chain of logic. Time is one of  
the  
>>> dimensions in spacetime, in which events live.  
>>>  
>>>  
>> No, sorry. Events do not "live" anywhere. Events "occur" in time.  
>  
> Events occur both at a place and at a time. They have both space and  
> time coordinates. Here is the Wikipedia blurb about spacetime, since  
> you seem to value Wikipedia as being authorized by well-respected  
> physicists.  
> <http://en.wikipedia.org/wiki/Spacetime>  
>  
>> And time is a real dimension of the universe and not of fantasy  
>> spacetime. If time was a dimension of space, space could not be  
>> dependent on time then, could it? And time cannot be a dimension  
of  
>> time, can it?  
>  
> Here is your argument, as far as I can tell.  
> a) Time cannot be a dimension of space  
>  
>  
True. Time is a dimension of the universe.  
>  
>  
> b) Time cannot be a dimension of time  
>  
>  
True. Time is a dimension of the universe.  
>  
>  
> c) Therefore time cannot be a dimension of space or time, and thus  
> cannot be a dimension of spacetime.  
>  
>  
No. Since  $s-t$  is imaginary, it can have any dimensions it needs to  
make it sound real.

- >
- >
- > *d) Therefore spacetime, which claims to have dimensions of time and*
- > *space, cannot exist.*
- > *Have I got it?*

>

>

I think what you got is incurable. S-t does not claim to have dimensions of time and space, it claims to be both in an interdependent relationship.

- >>>
- >>>
- >>> *Events can be separated*
- >>> *in time, and there exists a region of time in which no events*
- > *occur.*
- >>>
- >>>
- >> *That would depend on your definition of "event", would it not? In*
- >> *Relativity, it is a single point in space-time, which is chosen by*
- >> *whomever is making the s-t diagram.*

- >
- > *No. That is incorrect. An event is a physical occurrence which has a*
- > *localized place in space and a localized place in time. It therefore*
- > *\*corresponds\* to a location in spacetime.*

- >
- >
- > *The \*values\* of the coordinates in spacetime depend on the observer,*
- > *but that does not deny the physicality of the event, any more than a*
- > *choice of coordinate axes determines the physicality of a paperclip*
- > *hitting the floor in classical physics.*

>

>

You mean "in reality", doncha? You do not measure a real body moving in time; you only imagine a real body moving in time just like you can imagine a bus moving at a certain time without you having to have a physical bus around. All of s-t is imaginary no less than mathematics is imaginary. Dintcha learn that in hs?

- >
- >
- >> *However, events do not occur on*
- >> *the whim of humans, nor are they confined to single events. The*
- >> *orbiting of the moon is a single event,*
- >
- > *Not according to the definition that SR uses.*
- >
- >> *to some, but to others, it is*
- >> *continual succession of events because it is a continuous*
- > *acceleration*
- >> *of the moon which keeps it in its orbit. For us, each of those*
- tiny
- >> *little events is of utmost importance because if just one fails to*

> > *occur, we're done.*  
>  
> *And SR agrees with you on that.*  
>  
> >  
> > *S-t, however, ignores those little intricate events which together*  
> *make*  
> > *up larger events, in saying that if nothing significant occurs, it*  
*is*  
> > *not an event.*  
>  
> *That is not so. Back this claim up with a reference.*  
>  
>  
I can, but first you tell us why you think that is not so.  
>  
>  
> > *Fortunately for us, s-t does not define our reality.*  
> > *Our reality takes into account the relatedness of events to other*  
> > *events which makes up the "now" and leads into the future. S-t is*  
*a*  
> > *math construct which only accounts for the distances traveled by*  
> > *objects within certain time spans. It is a tool for theoretical*  
> > *physicists and as such it cannot be taken as a real place like our*  
> > *universe.*  
> > >  
> > >  
> > *It*  
> > > *therefore makes no sense to say that time exists only in the*  
> *presence*  
> > > *of matter.*  
> > >  
> > > >  
> > *Then SR is wrong in saying that the twins will age differently?*  
>  
> *Not at all. One does not imply the other.*  
>  
> > >  
It does in the TP experiment, since the aging process occurs only to  
the twins and all matter around them. How could space age?  
>  
> > > > >  
> > > > > *and it passes for*  
> > > > > *discrete objects or systems inversely proportional*  
> > > > >  
> > > > > *Disputed. "Inversely proportional" has a definite meaning,*  
*and*  
> > > *using*  
> > > > *it*  
> > > > > *here is an error.*  
> > > > >

> > > > >  
> > > *So give us your definite meaning and how it conflicts with the*  
> *way*  
> > *I*  
> > > *use it here. I have had one poster who also said I was using*  
*it*  
> > > *wrongly and I should make that statement read better. I tried*  
*it*  
> > *for*  
> > > *awhile but then I forgot how I was using it wrongly and it*  
*crept*  
> > *back*  
> > > *in again. I didn't bother with it anymore, I confess, because*  
*it*  
> > *did*  
> > > *not seem germane to the issue in which I used it. No one else*  
> *but*  
> > > *you*  
> > > *has been bothered with my use of it, but if you will state your*  
> > > *argument about my use of it, I will try to let you win one.*  
> > >  
> > > *Understand that "winning one" means that you must then revisit*  
*your*  
> > > *model and revise it to be correct, right. Saying that "you won*  
*one"*  
> > *and*  
> > > *then changing nothing about your thinking accomplishes nothing.*  
> > >  
> > >  
> > *Ha Ha! You wish! I can let you win your contention that I am*  
*using*  
> *it*  
> > *wrongly, but not that I am wrong in what I mean.*  
> > >  
> > >  
> > > *Inversely proportional implies a specific mathematical ratio. A*  
*is*  
> > > *inversely proportional to B if increasing B by a factor of m*  
> > *decreases*  
> > > *A by a factor of m, where m is a nonzero number. For example,*  
*time*  
> > > *would have to dilate by a factor of 2 if the "state of motion"*  
> > > *increased by a factor of 2. It does not.*  
> > >  
> > > > >  
> > *And how do you know it does not? How do you determine A if A is*  
*the*  
> > *time rate and B is the state of motion of the object? Let's say,*  
> *e.g.,*  
> > *that the time rate of A is 9, B is 20, and m is 2. Increasing B by*  
*m*

sci.physics.relativity: Re: re:Can Light Propagate without Space??

> > gives us 40 and decreasing A by 2 gives us 8. Is that not an  
> inversely  
> > proportional change? If not, why not?  
>  
> Because time dilation and state of motion simply do not have that  
> relationship.

>  
>  
According to your beloved SR, yes they do.

>  
>  
> If the velocity doubles, for example, the time dilation  
> neither doubles nor halves. Experimentally.  
> It therefore does not have an inverse proportionality relationship.

>  
>  
Experimentally it does, according to SR. Cite where you got that belief since it contradicts the TP.

> > >  
> > > > >  
**SNIP**

> > >  
> > > > >  
> > I responded to that above in this post and to that below in my  
> previous  
> post.

> > > > >  
> > > > > P 3. However, space can exist without matter and matter's  
> > > property  
> > > of  
> > > > time, as evidenced by areas where no matter can be  
observed.

> > > > > C 2. Therefore, since matter cannot exist without space and  
> > time  
> > > > cannot  
> > > > exist without matter, time is dependent on space.

> > > > >  
> > > > This is how you maintain that SR says that time is dependent  
on  
> > > > space?  
> > > > Deep, deep misunderstanding here.

> > > > >  
> > > > Obviously, but only on your part. The above is NOT what SR  
says,  
> > but  
> > > simply my attempt to show how I conclude that the relationship  
of  
> > > time  
> > > to space is one of dependency and not one of interdependence,

> since  
> > > *space has no dependence on time.*  
> > >  
> > > *You misunderstand SR's statement about interdependence. According*  
> *to*  
> > > *your approach, two things could never be interdependent, because*  
A  
> > > *being dependent on B would rule out B being dependent on A.*  
> > >  
> > >  
> > *It is you who does not understand the meaning of "interdependence",*  
> > *obviously. A being dependent on B does not rule out B being*  
> *dependent*  
> > *on A. That is in fact what constitutes interdependency – the fact*  
that  
> > *each depends on the other for its existence. A can depend on B,*  
but  
> *if*  
> > *it is so that B does not depend on A, there is no interdependent*  
> > *relationship because there is no mutual dependency.*  
>  
> *Alright, then.*  
>  
> > >  
> > >  
> > > *What is the proper statement is that space and time \*coordinates\**  
> *of*  
> > *an*  
> > > *event depend on the inertial frame of reference. Both are*  
> *\*connected\**  
> > > *quantities in spacetime.*  
> > >  
> > >  
> > *Yes, but quantities are not physical things, they only refer to*  
> > *physical things but they themselves are not such. Quantities are*  
> *math*  
> > *constructs used in s–t diagrams to plot world lines and such. They*  
> > *cannot prove that s–t is a real place.*  
>  
> *What would you use to determine that space is a real place that*  
> *spacetime cannot be tested in the same way?*  
>  
>  
Simply show me where AE said s–t is our own 4d universe and not an  
imaginary place.  
> > >  
> > >  
> > > *An analogous statement is the location of something in a plane.*  
The  
> > > *values of the x and y coordinates depend on the origin and*  
> > *orientation*

sci.physics.relativity: Re: re:Can Light Propagate without Space??

> > > *of the axes chosen. It is improper to say that x depends on y or  
> that  
> > y  
> > depends on x, but the values of x and y depend on the choice of  
> > coordinate axes. As well, if that choice should be, say, rotated,  
> > then  
> > both the values of x and y coordinates of that something will  
> > change.*

> > >

> > >

> > *No one has said that, AFAIK.*

>

> *You claim that this is NOT what is said in SR?*

> *Read "Spacetime Physics", Taylor and Wheeler, Chapters 1–3.*

>

>

No, I meant no one has said that is an analogy to s–t, except you. If I am wrong, cite a reference – not a website.

>

>

> > *AE made or propounded the claim that  
> > space and time are interdependent in our universe or in his  
> fictitious*

> > *universe of s–t, and in either universe his claim is patently untrue.*

> > *Sorry.*

> > >

> > >

> > > > *My model explains space as filled*

> > > > *with particles having negative matter and energy which makes them*

> > > > *invisible to us and we see through them. Since time is a  
> property*

> > > *of*

> > > > *visible matter, being matter having positive matter and energy,  
> and*

> > > > *the*

> > > > > *rate of its passage depends on motion, time is not a property  
of*

> > > > > *negative matter and energy since such matter has not the  
property*

> > > > *of*

> > > > > *motion. Thus, time does not pass for invisible matter, or more*

> > > > > *probable, not so we can discern it.*

> > > > >

> > > > >

> > > > > > *C 3. Therefore, since space exists empty of matter, space  
> does*

> > > > *not*

> > > > > > *depend on matter and thus, not on time either, which shows*

> that

> > > *the*  
> > > > > *two, space and time, are not related in an interdependent*  
> > > > *relationship.*  
> > > > >  
> > > >  
> > > > *Tom, note the following.*  
> > > > *1a. It is not solely true that time is the only thing that*  
> > *changes*  
> > > *in*  
> > > > *viewing from a relatively moving frame of reference.*  
> > > >  
> > > >  
> >  
> >  
> > *I have said nothing about viewing time changes, in any ref. frame.*  
> >  
> >  
> > > *No one I know has made such a statement. What relevance has*  
*it?*  
> >  
> > > *Look up length contraction. Distance (space) changes in viewing*  
> *from*  
> > *a*  
> > > *relatively moving frame of reference.*  
> >  
> > > >  
> > *Oh? And how do you know it is space that changes and not just the*  
> > *distance.*  
>  
> *Define space without distance.*  
>  
>  
Why? You assume that space decreases along with time in the TP time  
dilation effect, so you tell me how space can do that. Just assuming  
it does not mean it's true. Objects are immersed in space and they  
move through it, not with it. The distance between them increases or  
decreases, but there is no change in the space between them, only in  
the amount of space between them.  
>  
>  
> > *That is what SR claims happens in the TP, that because space*  
> > *and time are interdependent, when time dilates, so must space.*  
>  
> *Length contraction is predicted on its own from SR. It does \*not\**  
> *follow as a consequence required by time dilation. The two of them*  
*are*  
> *\*both\* predicted, at the same logical level of inference, and the two*  
> *of them are connected.*  
>  
>  
Length contraction of what, space? No, matter, not space. Space

contraction follows as a consequence of SR's claim that space and time exist in an interdependent relationship.

>

>

>> my

>> model claims that time dilation is our term for an effect which

gives

>> us the impression that time and space warp in order to account for

> some

>> counter-intuitive events. My model shows that there really is no

>> actual warping of time or space; it only appears that way to us.

>>>

>>>>>

>>>>> 1b. SR also maintains that distance (length) ALSO changes in

>>> viewing

>>>>> from a relatively moving frame of reference.

>>>>>

>>>>>

>>>>> OK, so what?

>>>

>>> You said that time must depend on matter because its magnitude

>> depends

>>> on the state of motion of the matter.

>>>

>>>

>> No, I said that time rates must depend on that, not on the

magnitude

> of

>> time, whatever that means.

>

>>From Wikipedia:

> "In science, magnitude refers to the numerical size of something: see

> orders of magnitude."

> For you, then, change "its magnitude" in my sentence to "the

magnitude

> of the rate of time". Does that sit better?

>

>

No, because the "amount of time", or the magnitude of time, as you put

it, has nothing to do with time rates. An hour of time does not refer

to time rates, it is only a quantity and not a time rate.

>>>

>>>

>>> Well, space must then also depend

>>> on matter (or neither time nor space depends on matter) by the

same

>>> argument, because its magnitude depends on the state of motion of

> the

>>> matter. There is no asymmetry between time and space in this

> respect!

>>>

> > >  
> > *No, not so. If space depended on matter for it to exist, we could*  
> *have*  
> > *no space where there is no matter. You are using the term wrongly*  
*in*  
> > *calling time rates a magnitude. Time is different than time rates.*  
> > *Time is a dimension of the universe.*  
>  
> *OK, I agree with the last sentence.*  
>  
> > *It is a property of discrete*  
> > *objects/systems which accrues to them dependent upon their states*  
*of*  
> > *motion, meaning that the rate of the passage of time or, the time*  
> *rate,*  
> > *for each discrete object/system varies in relation to their own*  
> > *particular and current state of motion.*  
>  
> *That part is fine, too.*  
>  
> > *Your premise above also*  
> > *assumes, wrongly, that time and space are interdependent wrt each*  
> > *other.*  
>  
> *That part is wrong.*  
>  
>

How, wrong? That the premise is correct, or that time and space are not interdependent upon each other.

> > > >  
> > > >

SNIP

>  
> > *Anyone who proposes a theory being on math constructs and lacking*  
> *any*  
> > *relations to reality is a theoretical scientist, while the same*  
> *person*  
> > *can relate it to empirical research as a physicist. Until*

Relativity

> > *underwent confirmations of its theories, AE was a theoretical*  
> > *physicist.*

> > >  
> > >

> > > *Fine, then, let's suppose that all events (like a firecracker*  
*going*  
> > > *off, my birthday party, you sneezing in the hallway) are*  
*associated*  
> > > *with tangible things. This does not mean that time \*depends\* on*  
> *those*  
> > > *tangible things or resides in them, for the same reason that*  
*space*

> > *does*  
> > > *not.*

>  
>

You still have trouble separating time and time rates. True, time does not depend on those tangible things. Time rates depend on the speed at which an object is moving. When you are driving at 95 mph, compared to me sitting at home, you are aging at a rate less than me. We both exist in the same time dimension, but our time rates at that instant are different and so time passes differently for you compared to me.

>  
>

> *There can be empty space (or, said a different way, two*  
> *tangible*  
> > > *things can exist at finitely separated distances) between things,*  
> *and*  
> > > *there can be empty time between events.*

> > >  
> > >

> > *Yes, but you see, you are still talking about the time dimension*  
and

> > *not the different time rates ascribed to the twins by SR.*

>

> *Ah, but to two different observers, the \*difference in time location\**  
> *between events A and B are different. Explain to me how if one*  
observer

> *says there is 2.5 seconds between A and B, and another observer says*  
> *there are 3.2 seconds between A and B, that this is semantically*  
> *different than saying there are different time rates between the two*  
> *observers.*

>  
>

"Time location"? Do you mean where an object is located at any given instant? What does that have to do with time rates?

>  
>

> *(However, it is simpler to understand and more true to SR's basis to*  
> *stick to stating the time location of two events according to*  
different

> *observers, than it is to talk about time rates. Perhaps this is*  
what's

> *causing your conceptual disbelief.)*

>  
>

You mean your being able to conceptualize my ideas, don't you? You are way off-subject now, back into the sea of semantic kelp where you think you are safe from predators.

> > > > >  
> > > > >

> > > > > 3. *Therefore, SR (note SR, not GR) declares that both space*  
and

> > > *time*  
> > > > *are affected by the state of motion of the reference frame,*  
*and*  
> > > *that*  
> > > > *neither of these depend on the presence of mass.*  
> > > >  
> > > >  
> > > > *So you agree that SR claims space and time are interdependent*  
*even*  
> > *in*  
> > > *an imaginary ref. frame, right?*  
> >  
> > > *In the sense that I described above, yes. And not just in*  
*imaginary*  
> > > *reference frames --- real reference frames.*  
> > >  
> > >  
> > *Ref. frames are made up by observers in our heads, they do not*  
*exist*  
> *as*  
> > *physical entities.*  
>  
> *Uh--huh. Define a velocity without inclusion of a reference frame.*  
> *I'll give you an example. I'm in a car headed east, moving with*  
*respect*  
> *to telephone poles at 60 mph. On oncoming train is moving west with*  
> *respect to the telephone poles at 125 mph. Define the velocity of the*  
> *train without respect to ANY reference frame.*  
>  
>  
Sorry but I don't see any trains, nor you, nor East, nor poles. They  
are all in your mind. They do exist physically, but not here on this  
CRT screen or in this post. It is all fantasy, uc. Your proposed  
experiment is all in our minds, donchasee?  
> > >  
> > >  
> > > > *Things you make up in your mind never*  
> > > > *require anything you don't want them to require; did you not*  
*know*  
> > > *that?*  
> > >  
> > > > *I see, and yet your test of a valid theory is whether it makes*  
> > *logical*  
> > > *sense. Your model that you made up in your mind never required*  
> > *anything*  
> > > *you didn't want it to require; did you not know that?*  
> > >  
> > > > >  
> > *I just said that was so and you agree.*  
>  
> *I just said that your model and the idea of reference frames have the*

> *same level of reality. You still agree?*  
>  
>>>  
Yes.  
>  
>>>>>  
>>>>> 4. *Therefore, both space and time are dependent on the state*  
*of*  
>>>> *motion*  
>>>>> *of the reference frame.*  
>>>>>  
>>>>>  
>>>> *And so when you are no longer imagining the empty ref. frame,*  
> *does*  
>>> *time*  
>>>> *and space disappear from reality and us with it, since they*  
> *cannot*  
>>>> *exist without the ref. frame to which they depend upon?*  
>>>  
>>> *I don't know where you get the idea that reference frames are*  
>>> *imaginary.*  
>>>  
>>>  
>> *Yes, I understand that is the basis of your confusion. You have*  
*not*  
>> *learned to distinguish the real from the fantasy.*  
>  
> *See the above car/train example. Define the velocity in that case*  
> *without reference to any reference frame.*  
>  
>  
And see my response to your little fantasy.  
>>>  
>>>  
>>> *If you stop imagining a cube, do the three space dimensions that*  
> *are*  
>>> *occupied by that cube disappear?*  
>>>  
>>>  
>> *Yes, of course, because the 3 dimensions were imaginary in the*  
*first*  
>> *place.*  
>>>  
>>>  
>>> *Define for me "reference frame".*  
>>>  
>>>>>  
>> *Why? So you can argue interminably about its definition? Sorry,*  
*not*  
>> *relevant.*  
>

sci.physics.relativity: Re: re:Can Light Propagate without Space??

> *It's completely relevant if you maintain that a reference frame is*  
> *completely imaginary, and I say that it is not. We clearly differ on*  
a  
> *definition.*  
>>>  
>>>>  
>>>>> 5. *Therefore space and time can be seen to be connected.*  
>>>>>  
>>>>>  
>>>> *Yes, just like I said, in your imagination.*  
>>>  
>>> *Indeed, space and time are merely separate dimensions in the real*  
>>> *entity, spacetime.*  
>>>  
>>>  
>> *Yes, they are, but s-t is imaginary while our universe is not. In*  
> *our*  
>> *universe we have space and time dimensions but they are not*  
>> *interdependent. Wishing your s-t was real cannot make it so.*  
>  
> *If experiment is consistent with predictions of a theory that says*  
they  
> *ARE interdependent, and ONLY consistent with a theory that says they*  
> *are interdependent, do you STILL reject that they are interdependent?*  
>  
>  
No, But if you can't even come up with a declaration by AE as to his  
claim of s-t interdependence, how can you hope to find such an  
experiment which obviously does not exist?  
>>>  
>>>  
>>> *You decide how imaginary that makes them. If I take*  
>>> *two events and I determine \*experimentally\* that the spatial*  
> *distance*  
>>> *between them is not independent of the state of motion of the*  
>> *observer,*  
>  
>  
"Spatial distance"? We are not talking about distance. We are talking  
about space and time. Distance is a quantity while time and space are  
two dimensions.  
>  
>  
>>> *and \*experimentally\* that the time duration between them is not*  
>>> *independent of the state of motion of the observer, and*  
>>> *\*experimentally\* the ONLY quantity that is independent of the*  
> *motion*  
>> *of*  
>>> *the observer is the spacetime interval, then you tell me which*  
one  
>>> *should be taken to have more reality.*

> > >

> > >

> > *Which one of what? I agree with the first two posits, and the third*

> > *one is about quantity, not a real thing, and the s-t interval, a math*

> > *construct,*

>

> *All three, distance, duration, and spacetime interval are logically at*

> *the same level of reality. If you think otherwise, define distance and*

> *define duration.*

>

>

How bout you first define "same level of reality"? All the above are quantities and not physical objects. Thus, none of them apply to our discussion of the time dilation effect and my claims that it has to do with time being a property of matter.

>

>

> > *neither of which have much to do with reality.*

> >

> >

TomGee