Re: The relationship between meter, speed of light and c

Source: http://sci.tech−archive.net/Archive/sci.physics.relativity/2007−02/msg01348.html

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- *From*: The Ghost In The Machine <ewill@xxxxxxxxxxxxxxxxxxxxxxxx>
- *Date*: Sun, 18 Feb 2007 15:15:35 −0800

In sci.physics.relativity, kenseto
<kenseto@xxxxxxxxxx>
wrote
on Sun, 18 Feb 2007 17:14:49 −0500
<45d8cea3$0$5806$4c368faf@xxxxxxxxxxxxxx>:

> "The Ghost In The Machine" <ewill@xxxxxxxxxxxxxxxxxxxxxxxx> wrote in message
> news:12dma4−t5v.ln1@xxxxxxxxxxxxxxxxxxxxxxxxxx
>
> > In sci.physics.relativity, kenseto
> > <kenseto@xxxxxxxxxx>
> > wrote
> > on Sun, 18 Feb 2007 09:42:22 −0500
> > <45d86498$0$4881$4c368faf@xxxxxxxxxxxxxx>:
> >
> > > "The Ghost In The Machine"
> > > <ewill@xxxxxxxxxxxxxxxxxxxxxxxx> wrote in
>
> message
>
> > > news:9o6ka4−h5f.ln1@xxxxxxxxxxxxxxxxxxxxxxxxxx
> > >
> > > > In sci.physics.relativity, kenseto
> > > > <kenseto@xxxxxxxxxx>
> > > > wrote
> > > > on Sat, 17 Feb 2007 14:38:50 −0500
> > > > <45d75896$0$18891$4c368faf@xxxxxxxxxxxxxx>:
> > > >
> > > > > > SR's
> > > > > > frequency
> > > > > > predictions
> > > > > > for this
> > > > > > scenario are

as follows;
these are
expressed
as ratios. In
IRT one
might
express
R(v_ab) =
Fab/Faa, for
example.

O A B C
O 1 R(v_a)
R(v_b)
R(v_c)
A R(v_a) 1
R(v_ab)
R(v_ac)
B R(v_b)
R(v_ba) 1
R(v_bc)
C R(v_c)
R(v_ca)
R(v_cb) 1

where R(v)
=
sqrt(1−v/c)/sqrt(1+v/c),
v_ab = v_ba
=
(v_b−v_a)/(1−v_b*v_a/c^2)
v_ac = v_ca
=
(v_c−v_a)/(1−v_c*v_a/c^2)
v_bc = v_cb
=
(v_c−v_b)/(1−v_c*v_b/c^2)

SR's
wavelength
predictions
are:

O A B C
O 1 W(v_a)
W(v_b)
W(v_c)
A W(v_a) 1
W(v_ab)
W(v_ac)
B W(v_b)

W(v_ba) 1
W(v_bc)
C W(v_c)
W(v_ca)
W(v_cb) 1

where W(v)
=
sqrt(1+v/c)/sqrt(1−v/c).

I HAVE NO IDEA WHAT
YOU ARE TALKING
ABOUT.

Too bad. SR is fairly clear on this matter,
although it takes some
massaging to get here from the Lorentz.
Note that I'm using
light−defined (local) units throughout this
system.

Regrettably, I forgot to expand(1) the above
post, so that's screwed up
the formatting. I've corrected it in this post.
(If your newsreader
is having problems switch to a font such as
Courier.)

I have no idea what all these W(v), w(v_a), W(v_b), W(v_c)
.....etc

means.

Also I have no idea what is your point.

The point is that I'm predicting the wavelengths (W(v)) and frequencies (R(v)) using ad hoc notation, given the velocities. That's what a theory *does*.

If you prefer I can restructure the problem so that I can predict the velocity given wavelength and/or frequency.

In IRT relative velocity is predicted as follows:
Mean relative velocity = v = Lambda(Faa−Fab)
OR
Instantaneous relative velocity = v =Lambda(f_aa − f_ab)

OK. Hopefully I've defined sufficiently well my ad hoc notation W() and R() for you. From section 3 of
http://www.geocities.com/kn_seto/2007IRT.pdf
f_aa is defined as "the instantaneous frequency measurement of a standard light source in A's frame as measured by A".
f_ab = "the instantaneous frequency measurement of a standard light source in B's frame as measured by A".
lambda = "the universal wave length". [*]

The interesting thing is that section 1 defines

F_aa = "The frequency of a standard light source in A's frame as measured by A". [+]
F_ab = "The frequency of a standard light source in B's frame as measured by A; if F_ab is not constant the mean value is used."

The sole difference is the word "instantaneous"; they are otherwise identical. Are they? This quirk to me is a little weird.
But let's see how far I get.

The predicted velocity v_irt = Lambda * (F_aa − F_ab).
F_aa is a given, as is Lambda. F(SR)_ab, from SR's predictions, is F_aa * sqrt(1−v/c)/sqrt(1+v/c)
and of course includes the Doppler effect.
Unfortunately, the paper stipulates F_ab = 1/gamma, which is an interesting difference. How one can directly measure this is far from clear, since v
is not initially known.

Also, c = Lambda * F_aa, as stated just below.

Therefore

v_irt/c = (F_aa − F_ab) / F_aa
= 1 − sqrt(1−v^2/c^2)

I for one would hope that v_irt = v; clearly, however, this is not the case. If one, for instance, substitutes v/c = 7/25 (to make the math somewhat easy), one gets

v_irt/c = 1 − 24/25 = 1/25 != 7/25 = v

It is of course possible to solve

v = 1 − sqrt(1−v^2/c^2)

which yields

(1 − v) = sqrt(1−v^2/c^2)
(1 − v)^2 = 1 − v^2/c^2

v^2 − 2v + 1 − 1 + v^2/c^2 = 0
v(−2 + v/c^2) = 0

so either v = 0 or v = 2*c^2, neither of which is a very
good value for general velocity.

In SR one can do a little juggling and come up with the
following formula:

v_sr = c * (1 − (F(SR)_ab/F_aa)^2) / (1 + (F(SR)_ab/F_aa)^2)

if one assumes F_aa and F(SR)_ab are measured using light−defined (local) units.

Since 1 + v_sr/c = 2/(1 + (F(SR)_ab/F_aa)^2) and
1 − v_sr/c = 2*(F(SR)_ab/F_aa)^2 / (1 + (F(SR)_ab/F_aa)^2),
sqrt(1−v_sr/c)/sqrt(1+v_sr/c) = F(SR)_ab/F_aa = sqrt(1−v/c)/sqrt(1+v/c);
this formula, at least, is mathematically consistent.

If you're very nice to me I might reply with a scathing review of the
rest of your mathematics. :−)

Ken Seto

[*] you have stated in the past that lambda is the same everywhere.

[+] presumably F_aa = Faa; the former is preferred by tools such as TeX.

−−
#191, ewill3@xxxxxxxxxxxxx
Linux. Because vaporware only goes so far.

−−
Posted via a free Usenet account from http://www.teranews.com

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