Re: The velocity of light going pass a moving train.

Source: http://sci.tech−archive.net/Archive/sci.physics.relativity/2007−06/msg02581.html

- *From*: Dono <sa_ge@xxxxxxxxxxx>
- *Date*: Thu, 21 Jun 2007 11:22:52 −0700

On Jun 21, 10:50 am, BZ <WQAHBGMXS...@xxxxxxxxxxxxx> wrote:

> On Jun 21, 9:00 am, Dono <s...@xxxxxxxxxxx> wrote:
>
> > On Jun 21, 4:52 am, BZ <WQAHBGMXS...@xxxxxxxxxxxxx> wrote:
> >
> > > On Jun 21, 1:33 am, Dono <s...@xxxxxxxxxxx> wrote:
> > >
> > > > On Jun 20, 10:26 pm, "Jeckyl"
> > > > <n...@xxxxxxxxxxx> wrote:
> > > >
> > > > > "Dono"
> > > > > <s...@xxxxxxxxxxx> wrote
> > > > > in message
> > > > >
> > > > > news:1182387866.761051.23130@xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
> > > > >
> > > > > > On Jun 20,
> > > > > > 5:27 pm,
> > > > > > "papar...@xxxxxxxxx"
> > > > > > <papar...@xxxxxxxxx>
> > > > > > wrote:
> > > > > >
> > > > > > > On
> > > > > > > 20
> > > > > > > jun,

18:29,
Dono
<s...@xxxxxxxxxxx>
wrote:

On
Jun
19,
11:05
pm,
"Jeckyl"
<n...@xxxxxxxxxxx>
wrote:

"Dono"
<s...@xxxxxxxxxxx>
wrote
in
message

news:1182303768.824683.175520@xxxxxxx

Yes,
I
kept
trying
to
get
dr.Jeckyll
to
understand
it
.....I
already
showed
him
the
formula,
to
no
avail
(at
least,

so
far).

You
were
simply
misunderstanding
the
problem
and
so
coming
up
with
the
wrong
solution.

No,
idiot.
You
simply
don't
understand
aberration,
that
is
all.
If
you
stopped
talking
and
you
started
using
math
you
would
understand.
But
since
you
avoid
using
math
like

the
plague,
you
keep
repeating
the
same
errors.

It
helps
when
you
are
actually
talking
about
the
same
problem
as
everyone
else
(G,
Harry,
myself).
As
I
said
..
you
were
using
the
right
formulas
but
misapplying
it
(as
far
as
the
problem
the
rest
of
us
were

talking
about).

Again,
no,
idiot.
The
description
of
the
problem
in
math
terms
is
not
as
ambigous
as
you
keep
making
it
to
be.
Here
it
is,
one
more
time,
mr.
Jackasss:

−In
the
traincar
frame
theta_car=pi/2
−In
the
track
frame

cos(theta_track)=(cos(theta_car)−v/c)/(1−v/c*cos(the

So,
can
you
calculate
cos(theta_track)?
I
asked
you
5
times,
why
are
you
so
shy
about
using
a
little
math?

Since
you
don't
get
the
math
and
you
didn't
get
the
"separation
speed"
explanation,
I
will
give
you
a
third
explanation:
since
in
relativity
all
frames

are
equivalent,
instead
of
having
the
train
moving
Left
to
Right
with
respect
to
the
tracks,
imagine
that
the
tracks
move
Right
to
Left
while
the
light
bounces
vertically
in
the
car
frame.
How
is
the
light
inclined
in
the
track
frame?
If
you
still
don't
get
it,
look
at
these

pictures:

http://www.fourmilab.ch/cship/aberration.html

But in those pictures, the observer is in the train frame and he sees through the window as if the ground is moving from left to right and, obviously the rain is falling with an angle that clearly is inclined into the direction

of
the
movement
of
the
ground,
again
as
seen
from
the
train
frame.
So
those
pictures
actually
contradict
what
you
are
saying.

Miguel
Rios

In both
cases the
light is
inclined
from right
to left,

No .. if the traing goes left
to right in the FoR of the
tracks, then the
light that is vertical in the
train goes left to right in the
FoR of the
tracks.

You are using the correct
formula .. but applying it

> incorrectly. BTW: Do
> you even understand
> relativistic aberration works,
> and why you get a great
> difference in angle when
> you take relativity into
> accout.

Yes, I do i****. Now check with the guy
who was the first to derive
the formula:

http://www.fourmilab.ch/etexts/einstein/specrel/www/

> i.e. it makes
> an angle
> greater than
> 90 degrees
> with the
> semipositive
> x−axis.
> Try
> understanding
> the
> relativistic
> aberration
> formula,
> would you?

> How about you try it .. you
> seem to think the light goes
> the wrong way

Check with Einstein, you ignorant t***:

http://www.fourmilab.ch/etexts/einstein/specrel/www/

> Do you understand that in the train iFoR, the vertical beam in the
> light
> clock hits both mirrors 'dead' center, all the time, because the mirrors
> are aligned in the trains iFoR to be parallel?

Correct.

> If you see that, then you should realize that a basketball player,
> riding
> on the train, sitting in his seat, dribbling the ball in the isle, would
> have the ball moving vertically in the trains iFoR.

I hope you also agreed with this. The ball, of course, moves much more sllllooowwwly than the light.

> If you agree with those, then you should realize that from ANY iFoR,
> the
> light must continue to be seen to hit the mirror in the center and the
> ball
> to hit the floor and the basketball players hand dead center.

> Since the mirrors and the hand are traveling left to right, the light
> and
> the ball must travel left to right and follow the path that Jeckle
> keeps
> describing to you.

Incorrect. In the track frame, while the light travelled from the floor to the ceiling, the train moved from LEFT to RIGHT.

In mathematical terms:

1. In the train frame the light makes an angle pi/2 with the semipositive x axis, so cos(theta_car)=0

right, for the train's frame.

cos(pi) = −1.

The beam misses the mirror, in which direction?
cos(0) = 1.

The beam misses the mirror, in which direction?

In the track frame the beam hits the mirror a little behind the center, in the direction opposite to the train movement.

2. The track frame, according to the relativistic aberration formula

cos(theta_track)=(cos(theta_car)−v/c)/(1−v/c*cos(theta_car))

so

cos(theta_track)=−v/c

meaning that , in the track frame, the light wave vector k, makes an andgle LARGER than pi/2 with the semipositive x−axis

We KNOW that the beam HITS the mirror dead center, no matter which FoR the observer is in.

We KNOW that the ceiling mirror (and the floor mirror or laser) are moving toward our right.
We KNOW that the basketball hits the basketball player's hand, no

matter which FoR the observer is in.

We KNOW that the basketball player, his hand and the ball are moving toward the right.

RIGHT???

And we are talking about the trip from the floor toward the ceiling, or basketball players hand, right?

Assuming the bounce starts just as the train passes, going 20 MPH. Assume that the ball bounces at 20 MPH (strong basket ball player).

The ball will be seen to be rising, along a path that is almost straight and at 45 degrees [off of the vertical AND off of the floor], as seen by the trackside observer, through the picture window in the side of the car.

We need not worry about Einstein at all at 20 MPH. Right?

And we are even dealing with something that can be seen from the side [a beam of light could only be seen from the side if there were something in its path to scatter the light].

By similar reasoning, a beam of light, in a light clock, aboard a rapidly moving train, would STILL have to travel along a path that slants to the right, in order to hit the center to the mirror [and we KNOW that is where it does hit because the guy riding on the train told us so.]

> In other words, contrary to what you are saying, the light beam in inclined towards the REAR of the car as viewed from the frame of the tracks.
> This makes perfect sense, since, as pointed out earlier, the car has moved from the LEFT to the RIGHT while the light travelled from the floor to the ceiling.

The mirror is ALSO traveling from left to right and the beam MUST hit the mirror dead center. All observers will see that happen.

> Now, the above system would not allow for dtection of absolute motion because, inside the closed car the light moves perfectly vertically regardless of the car speed v. So, an observer closed inside the car would not be able to detect any "absolute motion"

> They WOULD if the beam did NOT hit the center of the mirror for some observers while it does hit dead center for other observers!
>
> −bz−

Correct, the beam hits the center for the train observer but does not for the track observer. The reason is that the mirror has moved to the right while the beam travelled from the floor to the ceiling.

.