SPECIAL RELATIVITY
reviewed and corrected

Jean DAVID 2001

For those who are still sceptical ...

Introduction

This document has been made to allow me to answer to very pertinent remarks from some of my contradictors. I wish to thank them for their spontanous reactions to my work.

- if the light beam is directed at the time of emission to intercept the mirror, what will happen then ?

- the muon particles which have a relative short timelife of 10^-6 second seem to live longer when they are moving at higher speed (near to light celerity c)
How can we explain that without dilation of time?

- the theory has been verified practically in all its aspects so many, many times....
(by our famous theorician Laurent Notta)

- and so on...

I don't think I shall be able to answer to each one of these remarks at the end of my exposé but I only hope to convince you that the special relativity theory as we always knew needs to be "revisitée".

Now as a beginning, a little recalling of some basic principles which we shall work upon.

- The speed of light is constant and finite. Its value is equal to **c** in the vacuum, in every direction of space for any observer.

- The speed of light is independent of the movement of the source of its emission.

- The speed of light in the vacuum is a highest limit which no physical entity can go beyond.

I would like to add :

The light beam (composed of photons) will follow the initial direction at the time of emission and will stay on this route as far as it does not interact with any particle of matter on its path. This path is known as the "geodesic" line of the local space curvature.

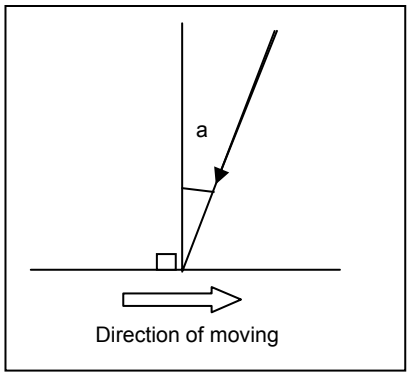
Yet, it already is ....

In the 18th century, an astronomer named Bradley (1693-1762) used an original method to compute the value of the light celerity. How did he manage that?

The lights, which come from the stars above the ecliptic plane, are affected by an optical phenomenom : a "deviation" of 20" seconds of arc relative to the zenith direction. This effect is analog to the one you experience when you walk in the rain. The raindrops seem to fall behind you though they really go vertically down. Bradley explained that this "aberration" is due to the displacement of Earth on its orbit. As the Earth orbital speed and the angle of deviation are known, he could then compute the light speed from the following formula :

c = v / tan a

a is the angle of the deviation relative to the zenith direction
v is the orbital speed of Earth.



Today, from the thought experience of the relativistic train imagined by Eintein and considering the real route of the beam light, I fall on the same deviation which permitted to Bradley to realize its masterly calculation. Coincidence or not, this seems to confirm the rightness of my argument.

But yet neither the approaches, nor the final goal are the same. Unlike Bradley who used the deviation to calculate the light speed, I have simply deducted the effect by correcting the trajectory of the light beam wrongly shown. As a consequence, when I referred to a delimited landmark, I could then prove that "proper" movements (just not to call it "absolute" yet) can be detected. So, contrary to what Galileo said, I maintain that a system state (movement, direction, value) can be determined without any external referentials.

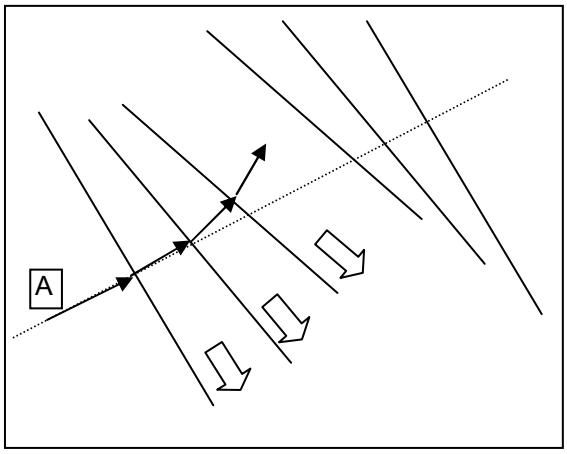
But what kind of "proper" movement exactly ?

The multiple deviations

Our universe is composed of systems in perpetual movement imbricated each one in another just like chinese boxes.

Our Earth which rotates by herself is one of these moving systems. The fact that she moves around the Sun adds another movement to the central one. Carried along next through the Milky Way, the resulting movement of our planet is harder to define.

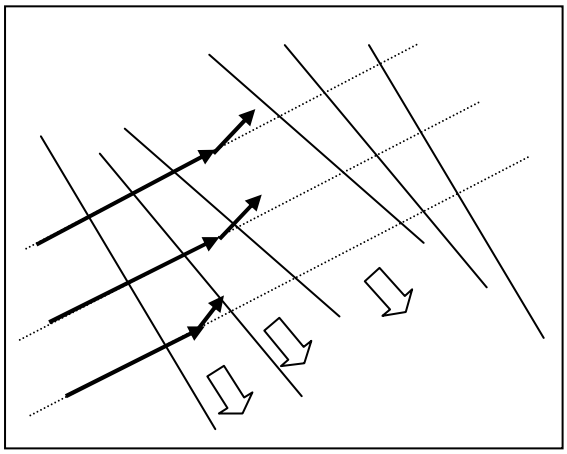
Let's imagine 3 imbricated systems in movement relative to each other.



Does a light beam emitted from the outside point A deviate at each frontier separating 2 systems ?
If so, this beam will reach the most internal system with a resulting "aberration" equal to the sums of all the deviations undergone. That is true if the systems are interdependent.

The beam, in fact, goes through the systems without taking in account their respective movements. Its path is the "absolute" route in space (also called geodesic path).

When we measure the deviation of a light beam in any referential, we use this light path as an absolute reference.



Consequently, we can tell that the deviation is independent of the origin of the light beam generation (stars, terrestrial laser, and so on). Any beam will follow the geodesic path of the "local" space defined by the matter that it encompasses.

In my first document, I thought that the deviation that you measure would give you just only the relative speed of your system relative to the next outer moving system. I was wrong.

The deviation is a result of the combination of all the movements relative to this geodesic path and consequently, relative to the location of the source where this light comes from.

I think that the 20 second of arc deviation due to the Earth movement around the Sun must be preponderant over the effects issuing from the outer movements (our sun through our galaxy, our galaxy through the rest of the universe, ...) because we choose the "absolute" light path that comes perpendicularly to the earth orbital plane. We must detect a deviation due to the movement of the solar system if we choose the lights that come from the stars located in the ecliptic plane.

The last but not the least : can we be sure that these stars are "physically" located in the ecliptic plane? Or what we see is just another undetected "astronomical aberration" ?

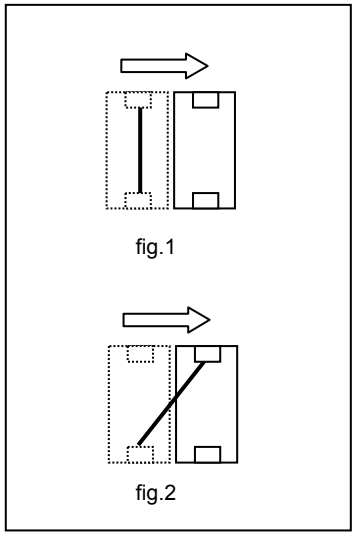
Let's aim at the mirror ...

In my document "Special relativity, 1rst part", I supposed that the beam is emitted perpendicularly to the movement of the train.

I stated then that as generated, the beam could not reach the target due to its displacement during the granted delay of one second (fig.1)

I was asked pertinently :

And if we just aim at the target in order to intercept it at the end of the delay just like a well-advised hunter who points his gun slightly ahead of his moving prey.(fig. 2)

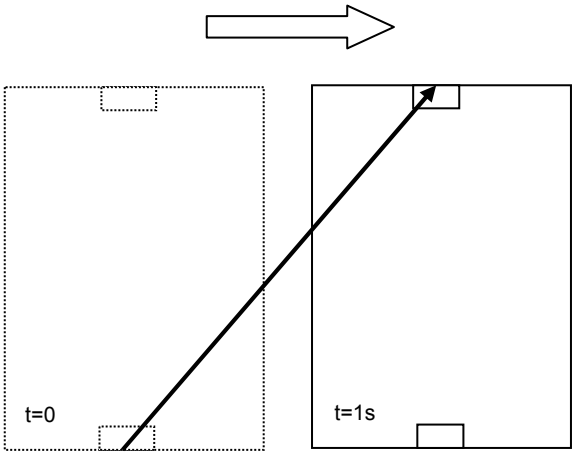


Effectively, at first thought, the triangulation is feasable and here we are again with the famous Lorentz's formula, giving credibility to this incredible propriety for time to become elastic like a chewing gum. My clocks are going fuzzy just like before or rather like after Einstein.

But, let's have a closer look at what really happens in the drawing (Fig.2). Of course ! What really happens exactly?

First, we will neglect the deviation due to the movement of the train to simplify the work.
Is it OK ? **:)**

Does our little beam reach the target after the delay of 1 second ?

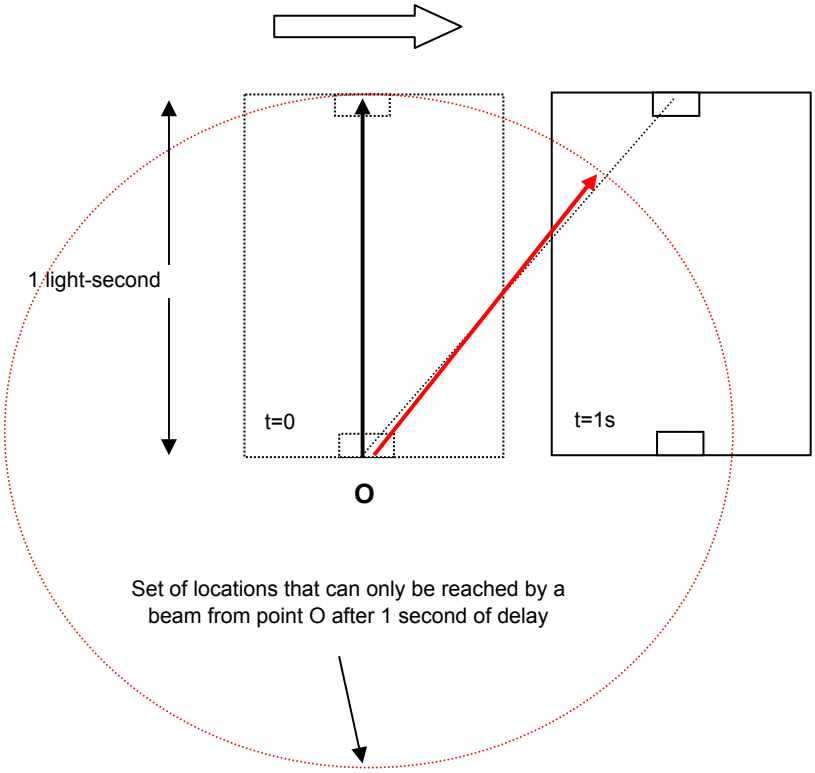


NO, and here's why.

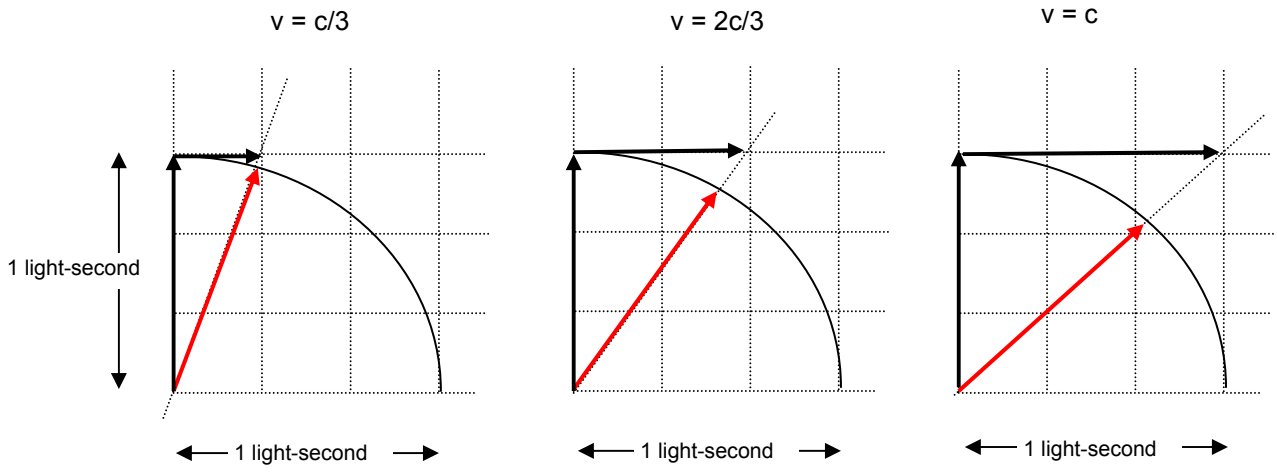
Faster than the light ...

The beam will **never** reach the target because the distance that light can cover during one second cannot be greater than the radius of a cercle of 1 light-second from O.

Ad absurdum, if it really does,this means that the beam would go faster than the speed limit permitted by the theory.

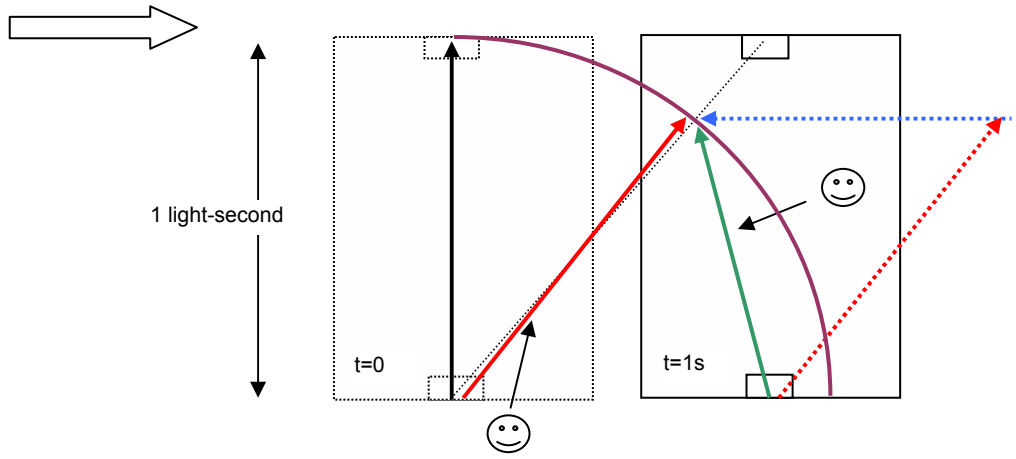


We can note that as soon as the train speed v is not zero, the target is out of reach.
And faster the train goes …..



What about speed combination ….

What can see each observer?



The "motionless" observer will see the red trace while the moving one will see the green trace (which is not the real path of the beam but a combination of the red dotted trace of light and the blue one due to the train movement).

The distances covered are consistent with the speeds and their vector combination.

The clock of each observer counts the same second so we don't need to consider any contraction or dilation of time.

Am I right ?

To be continued ….

VERY IMPORTANT

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