On time-dilation and non simultaneity of events

One of the conclusions of the special theory of relativity (STR) is that time runs differently for two observers in relative motion with each other. This principle of STR gets refuted when analyzed with a single shell (pulse) of light of fundamental nature, produced consequent to annihilation of an electron and a positron.

It has been earlier analyzed and shown that transmission of a shell of fundamental-light relative to space (mass-less fluid) is independent of the source (electron and positron under annihilation) producing it. The arguments placed were thus: Let an observer O, moving at velocity v relative to space carry with him an electron and a positron. The particles too will move with O at v. The field structure of the particles will shift in space with the motion of the particles, readjusting and maintaining its distribution pattern around them and in space as the very (postulated) property of space. Suppose, at some instant, annihilation of the particles takes place. Consequently, the central interfaces of the particles will collapse, their mass and charge will vanish, and their field structure and the position of annihilation will get fixed in space while the observer O will continue his motion at v relative to space. A shell of light will be formed around the annihilation point and will transmit out relative to space at c (due to postulated basic property of space), de-energizing the potentials of the annihilated particles in space. The shell during its transmission, being a mass less entity, does not inherit the momentum that the particles possessed before annihilation.

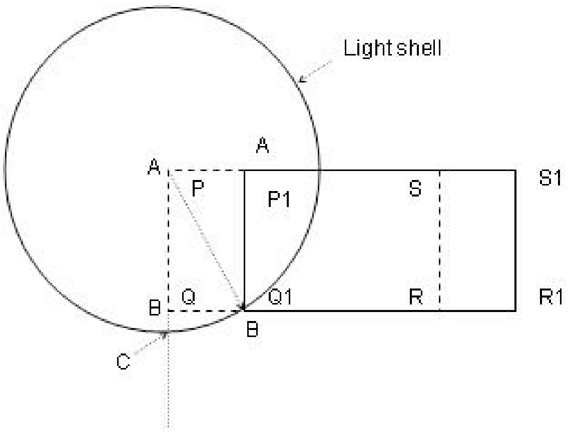

Fig. 1

PQRS : Position 1: Platform moving at velocity v relative to space.

A and B : Observers seated on the platform.

P' Q' R' S' : Position 2: New position of the platform.

C : Observer standing stationary at ground

Consider a platform PQRS moving at a uniform velocity v relative to space. Two observers, A and B, are seated on the platform as shown in the Fig. 1. One more observer C is standing on the ground. As per STR: (The Clock Paradox, Dr. J. Bronowski, Scientific American, February 1963, Vol. 208, No. 2, pp. 134-144) if A strikes a match, it seems to B that the light has come to him straight across the platform , but a bystander C sees the light from the match take a longer route along PQ1 before it reaches B. According to this interpretation as given in the above referred article, the path of a beam of light does not look the same to two observers in uniform relative motion and in this particular experiment, the light produced by the observer A striking the match, is moving with the observer B **(**who is in the same frame of reference as A)**.** And hence to B, the light seems to have followed the path PQ. But to C who is stationary, the light seems to take the longer path along PQ1. And, if the speed of light has to be the same, the longer path must seem to take a longer time. Therefore for C who sees the longer path, the time must pass faster.

That the above argument is fallacious can be demonstrated thus: Suppose A has an electron and a positron with him, moving at the same velocity as that of A. Let them cause annihilation at P (when the platform is in the first position) at some instant. Consequent to this, the position of annihilation and the field structure of the particles will get fixed in space. A shell of light will be formed around P—the point of annihilation, and will transmit at c relative to space, meeting the observer B at Q1 when the platform is in the second position P1 Q1 R1 S1. (The light-shell does not carry momentum of the annihilated particles that they had prior to their annihilation.) If the observer C stands on the ground at the same location as shown in the figure, where PQ1 = PC, then the light shell-front will meet him (stationary observer) at the same instant at which it meets the observer B (moving relative to C).

The conclusion drawn is that the pre-relativity concept of universal time is valid for all, and events can take place simultaneously even for the observers in relative uniform motion with each other.