

REVELATION AND PROGRESS

A.C.V. Ceapa
e-mail alex_ceapa@yahoo.com

Disclosing the physics warranting Einstein's manipulation of some mathematical equations that led him to Lorentz transformation (LT) in 1905, hence their correctness, the latter foundation of the special relativity theory (SRT) with the ignorance of that derivation of the LT (the only that could validate the classical principle of physical determination of equations within SRT), suggests that those manipulations were revealed to him, and that, failing in giving them a rational explanation, he raised polemic and restricted the range of applications of the relativistic theories.

I pointed out [1] the advantages which an inertial observer has tracing the radius vectors of the moving geometrical points by physical signals, particularly by light signals. They are:

1. The origin of such a signal is a point of Euclidian space, i.e., a point at absolute rest, identifiable with the origin of a coordinate system at absolute rest K parallel with his coordinate system k .

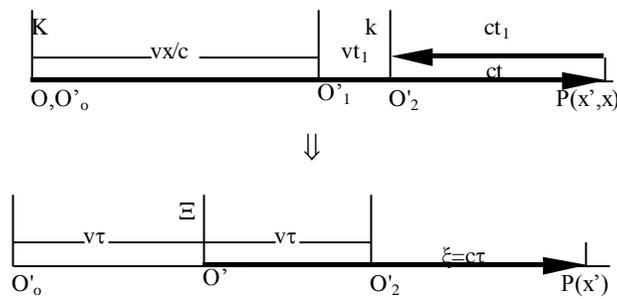


Figure 1

a) Relative motion referred to a coordinate system at absolute rest K .

*The origin of k is defined by that of the light signal reflected at $P(x')$ fixed in k . A light signal emitted from the origin of k at time $t=0$ is reflected at P .

** $O'0, O'1, O'2$ are successive positions of the origin of k in K .

b) Coordinate system at absolute rest (Ξ) associated to the inertial k .

***For $\tau = (t + t_1) / 2 \Rightarrow \tau = \beta^2 x' / c, \xi = c\tau$, diagram a) $\Rightarrow \Xi$ in diagram b)..

2. If the geometrical point $P(x')$ is fixed in k , and the signal is reflected at P back to the origin of k (Fig. 1a), he can determine the absolute velocity v of k , as well as that of the signal in the two ways, with no physical contact with the outer world [2]. Moreover, by the fixed point O' (Fig. 1b), he associates the coordinate system at absolute rest Ξ to his inertial coordinate system k [3].

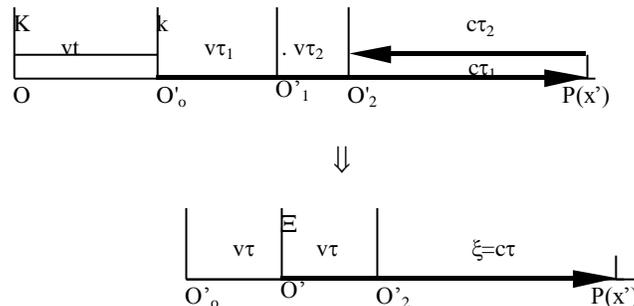


Figure 2

a) The diagram of Einstein's 1905 thought experiment.

* P fixed in k . A light signal emitted from the origin of k at time t is reflected at P .

** O'_0, O'_1, O'_2 are successive positions of the origin of k in K .

b) **Coordinate system at absolute rest (Ξ) in Einstein's 1905 paper on relativity.**

* Einstein's extension of the equation defining synchronous clocks at points 'of space' (i.e., at absolute rest) to inertial synchronous clocks \Rightarrow $\tau = \beta^2 x'/c, \xi = c\tau$. Diagram a) \Rightarrow Ξ in the second diagram

Deducing the LT by projecting onto coordinate axes radius vectors traced by light signals [4], and comparing the diagrams in Fig. 1 with those in Fig. 2 -the first of which describes the thought experiment that led Einstein to LT in [5]-, we see that the SRT founded by [5] was a true mechanics in which the coordinate system at absolute rest and the absolute motion were well-defined, and the geometrical points in uniform rectilinear motion traced by light signals. Unfortunately, unaware of the fact that the outcome of the Michelson-Morley experiments pointed to an experimental determination of the absolute velocity independent of its Newtonian definition with respect to a physical 'substratum', as well as of the fact that he used the light signals to trace radius vectors, Einstein concluded rather different: After a priori discarded the coordinate system at absolute rest and the absolute motion, needing the light-speed principle, and deduced the LT by manipulations of some mathematical equations -with appearance of tricks- in [5], Einstein founded the standard SRT on challenging, pure mathematical derivations of the LT. He did it in despite the correctness of his 1905 derivation of the LT (it is the physics associated by the tracing of radius vectors by light signals in [1] that which warranted those manipulations of equations).

The difference between Einstein's derivation of the LT in [5] and his later mathematical derivations of the LT is one of essence: there is an objective reality determining the terms of the LT only in [5] ([4], [6]). It is that reality that which validates the classical principle of physical determination of equations within the SRT founded by [5], extending its range of application. That is not the case with the standard SRT. Although its mathematical structure is correct, and identical with that in [5], the above principle does not work within standard SRT: Unlike a mathematical structure deduced from an objective reality, that deduced by means of the mathematical logic can be filled with a variety of hypothetical physical contents having little or nothing in common with the objective reality. Einstein's preference for the standard SRT introduced corruption in physics by the coincidences (like that of the denominators of some equations of the LT and the relativistic mass [7]) appearing in its mathematical structure, and the relativistic theories (built on it) within which the principle of physical determination of equations also does not work, responsible for the crisis of modern physics. Moreover, the human logic was broken, the scientific thinking was distorted, radically new technologies were hindered, and the relativism governing society 'scientifically' justified. Disclosing the validity of the classical principle of physical determination of equations within [5] involves its validity in the relativistic theories [7], guarantying very progress, and removing the crisis of modern physics (not overturning it).

Einstein's failure in providing a rationale for the manipulations of equations leading to the LT in [5], at a time when nobody has proposed something similar to his method, and his abandonment of that derivation of the LT, against its proved correctness and peculiar physical importance, entitled me to state that those manipulations of equations were revealed to him. This does not mean to introduce idealism in physics (more generally in science), but to ascertain the major part that revelation plays -via subconscious- in the discovery act (remember that Einstein was not aware of the tracing of radius vectors by light signals when he manipulated those equations!) at a time when large amounts of physical information are hidden within the basic equations of the modern physics due to its ignorance, hindering its development. The identification of such essential information depends on the attitude emerging from recognizing that revelation's role. It is interesting to note in this context the remark of the Nobel Prize winner Steven Weinberg concerning theoretical physicists:

<<If the reader is mystified at what Heisenberg was doing, he or she is not alone. I have tried several times to read the paper that Heisenberg wrote on returning from Heligoland, and although I think I understand quantum mechanics, I have never understood Heisenberg's motivations for the mathematical steps in his paper. *Theoretical physicists in their most successful work tend to play one of two roles: they are either sages or magicians...It is usually not difficult to understand the papers of sage-physicists, but the papers of magician-physicists are often incomprehensible. In this sense, Heisenberg's 1925 paper was pure magic.*>>

Concluding, as concerns Einstein, he was, by his SRT a 'magician', the greatest among the physicists who failed in rendering conscious the whole information revealed by a superhuman objectivity manifested through their subconscious. Further ignoring deepening the understanding the role played by revelation in the discovery act means losing essential scientific information, undermining the mankind's progress.

References

[1] A.C.V. Ceapa, [2] A.C.V. Ceapa, "Aspects of Relativity", paper in Proc. PIRT VIII (London, Sept. 2002, Ed. M.C. Duffy, Liverpool, 2003), pp. 99-115.

[2] Ibid., Appendix III.

[3] Ibid., Appendix I.

[4] Ibid., Appendix IV.

[5] A. Einstein, "Zur Elektrodynamik bewegter korper", Annalen der Physik 17, 891 (1905).

[6] A.C.V. Ceapa, "Lorentz Transformation as a Complementary Time-Dependent Coordinate Transformation", Galilean Electrodynamics **16**, 3-11 (2005).

[7] A.C.V. Ceapa, Physical Grounds of Einstein's Theory of Relativity; Roots of the Falsification of 20th Century Physics, 3rd ed., part IV (Bucharest, 1998, LC call No QC173.55.C43 1998).