Translation into English: Chapter 2 - Catalogue of Errors for Both Theories of Relativity

from the German documentation of G.O. Mueller

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Translator: Rothwell Bronrowan

B: Light / Error No. 1

According to Albert Einstein, the constancy of the speed of light in a vacuum is supposed to constitute a principle

Without giving any justification, Albert Einstein first stipulated (AE 1905, p. 892) as a "precondition ..., that light in a vacuum always travels with a certain speed V that is independent of the motion of the light-emitting body." Three pages later (AE 1905, p. 895) he describes his precondition as the "principle of the constancy of the speed of light", again without giving reasons for the presumption of a precondition and its elevation to a principle. In this formulation of the principle independence from the motion of the source is contained, though not as yet the subsequently added condition that the supposedly constant speed of light always remained the same vis-à-vis randomly moving observers, although the light propagation and its speed was to be exempted from the relativity of the respective motions.

To this, the criticism has raised the following fundamental objections:

(1) For each precondition introduced to a theory, justification must be given. Albert Einstein in 1905 gives no justification for this whatsoever. His precondition must therefore be held as unfounded.

(2) The elevation of a non-justified precondition to a principle without any further justification whatsoever is supposed to attribute greater importance to the alleged facts. But since the "precondition" is already without justification, so too is the sublime "principle".

(3) The speed of a natural occurrence is not directly given, but is calculated from the quotient distance travelled per time taken; i.e. it presupposes a distance measurement and a time measurement. Alone the quotient, a calculation, gives the magnitude of the speed. Such a measurement of the (one-way) speed of the propagation of light was not available in 1905. And it is still not available in the present day. Instead one works with measurements of reflected beams of light, i.e. with the average speed for the outbound and return journeys of the light.

(4) The use of an average speed of light in the STR is impermissible, because it has no physical magnitude but represents a mathematical fiction only and possibly different speeds on the outbound and return journeys, i.e. the non-constancy of the speed of light veils, and gives rise to far-reaching physical conclusions from the world of fiction.

(5) The claim of constancy is put forward in 1905 for (p. 892) "empty space". Under this term Albert Einstein refers to a space free of measurable bodies, though not free of radiation or of fields (electrostatic, magnetic, electromagnetic and gravitational fields), so that even in supposedly "empty space" physical influences can have an effect on the light.

(6) In order to be able to maintain the "principle" of a constancy of the speed of light under these conditions of "empty space" the speed of the spreading of the light or other electromagnetic radiation must be measured empirically. The measurements must at the same time establish the spreading of the radiation in different directions, because the "principle" also claims a uniformly constant spreading in all directions of space. Only continuously repeated measurements of this sort with exactly corresponding results can lend the assumption of constancy a certain plausibility. As to when such a demonstration of reliability has been adequately given in order to justify the status of an irrefutable "principle", this question need not be

answered at present since the empirical findings have not as yet been recorded under the conditions mentioned.

(7) For Albert Einstein in 1905 the idea of a "constancy" of the speed of light was probably also bound up with the idea of the "identity of the calculated magnitude", though these must be differentiated, because there are experiments that give no measured value for the speed of light, but only a comparison of two beams of light as regards their equal or unequal speeds, i.e. running-time differences, regardless of what the actual speed might be. The comparative experiment of this sort conducted by Michelson and Morley, famous since 1881/1887, has only measured traces of a running-time difference that have been evaluated as a "null result". Subsequent running-time measurements made with interferometers have recorded considerable running-time differences (Sagnac 1913; D. C. Miller 1925 and 1927) and have thereby clearly refuted the assumption of the "principle of constancy" made by Albert Einstein.

(8) Only 11 years later (in 1916) Albert Einstein himself had given up his "principle" of the constancy of the speed of light, since in his GTR the light is accelerated or decelerated under the influence of gravitation, i.e. its speed changes. - To sum up: the "precondition" was not justified, nor was the "principle", and the magnitude of the alleged constancy of the one-way speed was never measured. Instead the non-constancy was proven in a variety of ways by running-time differences detected by Sagnac and D. C. Miller, and even Albert Einstein himself, 11 years later with the GTR, abandoned the constancy requirement in 1916.

The idea of "constancy" as an "identity for speed" has been refuted by the measured running-time differences. What remains is the idea of "constancy" in one direction, one direction in space, i.e. a one-way speed. So far there has been no empirical confirmation of this whatsoever. The reason lies in the difficulty of measuring the one-way speed of light. As long as one uses light signals for the synchronization of clocks, all "proofs" remain circular, i.e. meaningless. Some other form of synchronization procedure is necessary. This is why the relativists work only with the assumption of the average speed of an outbound and returning beam of light.

The running-time differences proven in interferometry experiments (1913, 1925 and 1927) for various directions in space were not measured in a vacuum, but their disappearance in a vacuum is not to be expected, which is why the relativists already deny the findings without a vacuum, just to be on the safe side. The summary of findings for the world of relativity is dreadful: (1) one has no one-way speed whatsoever, (2) one cannot therefore give a single plausible justification for the constancy of this speed, and (3) the results of the interferometry experiments with the positively established running-time differences indeed shatter all expectations of constancy. With its supposed "principle", the STR is basically already a lost cause.

It is inexplicable how, after 1911 or after 1916 at the latest, Albert Einstein and his successors could continue to publish the theory of 1905, which as explained relied on the constancy principle, unaltered.

With the subsequent GTR - 11 years after the announcement of the STR - Albert Einstein himself had given up the "principle", and had even prepared this relinquishment already in 1911. In other words, the constancy principle really only had a lifespan of 6 years. Abraham already greatly welcomed this in 1912 as the declaration of bankruptcy of the STR. Since the relativists appear to know nothing about this declaration of bankruptcy, they have had to live alternately in two worlds ever since: in the world of the STR, in which the constancy principle applies, and in the world of the GTR, in which it does not apply. The perpetrators of the propaganda in the world of relativity speak continuously of both of these worlds, though they never tell one in which of them they themselves live. The public apparently has a free choice. It cannot be ruled out completely that some relativists might even manage to live in both worlds at the same time. Albert Einstein has already shown them how to, and they have never had any fear of contradictions.

AE 1905. - Abraham, Max: Relativität und Gravitation : Erwiderung auf eine Bemerkung des Hrn. A. Einstein. In: Annalen der Physik. F. 4, Vol. 38 (1912), pp 1056-1058.