

Translation into English: [Chapter 2 - Catalogue of Errors for Both Theories of Relativity](#)

from the German documentation of G.O. Mueller

"On the Absolute Magnitude of the Special Theory of Relativity - A Documentary Thought Experiment on 95 Years of Criticism (1908-2003) with Proof of 3789 Critical Works" - Text Version 2.1 - June 2004
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Q: Methodology / Error No. 3

In response to questioning as to the physical causes of effects claimed by them (length contraction - LC; time dilation - TD) the authors of relativity have completely different suppositions, even as regards causality

Thanks to his fundamental contradiction (appearance / reality) in the question as to the causes of the effects AE 1905 can easily dodge the point.

Minkowski declares in his Cologne lecture of 1908 (published in 1909, cited in keeping with the 1958 reprint) that contraction is [to be seen] (p. 59) "not as a consequence of resistance in the ether ... but as a pure gift from above, as an attendant circumstance of motion." And for TD he gives no other cause. As seen in terms of the standards of physics, this is a claim of non-causality.

According to M. v. Laue (1913, p. 43) LC is real, the rod "pulls ... itself ... together", and it is justified (p. 45) in terms of elastic forces that determine the form of the body and that are so influenced by motion that they bring about shortening. TD, by contrast, is explicitly reciprocal, according to M. v. Laue (p.42). As a consequence it cannot be real and therefore requires no discussion as to cause. The twins paradox is treated by Langevin (p. 43) only as a "consequence". This is said (p. 58) to be real in Minkowski's fictitious world: the different world lines serve as the explanation! M. v. Laue is one of a fair number of relativists for whom - inexplicably - both effects, LC and TD, have a different ontological status: LC reciprocal/apparent; TD unilateral/real.

Most relativistic authors, by contrast, believe that both effects must have the same status.

In the case of Born (1920, pp 177-184), both effects have the same status, namely reciprocal/apparent. He declares contraction (p. 179) as being "indeed reciprocal, as the principle of relativity requires". The same (p. 180) holds for time dilation. He confirms (p. 182) that Albert Einstein himself gave no causes, but declared contraction only "as an attendant circumstance of the state of motion", deduced with reference to Minkowski's world lines (p. 183): "Contraction is thus only a consequence of the perspective, and no change in physical reality. In other words, it does not fall under the terms of cause and effect. This viewpoint also settles the notorious controversy as to whether contraction is 'real' or only 'apparent'. If I cut myself a slice of sausage, this will be larger or smaller, depending on how much I slant the cut. It makes no sense to describe the various sizes of the slices as 'apparent' and to describe the smallest, which results from a perpendicular angle, as the 'true' size. In exactly this way, a rod in Einstein's theory has various lengths, each depending on the standpoint of the observer." The relativization of both terms (space; time) only appears to be difficult, "because it is unusual".

Born (5th edition, 1969, pp 216-226) has some great developments ready for his readers, naturally without drawing their attention to this. The first main point is that explicit confirmation of reciprocity on the basis of the principle of relativity is now missing. Those who want real effects - and Born wants to have TD as unilateral/real - must find reciprocity disturbing.

The second main point has to do with LC, which he addresses on two pages (pp 217-219), uncertain as to the standpoint he should take (p. 217):

- in the 2nd paragraph a ruler with a length of 1 cm should have this length of 1 cm in both systems;
- in the 3rd paragraph he refers to this as the "principle of the physical identity of units of measure";

- in the 4th paragraph on "units of length and time" he writes: "the first ones are not only different on each moving ship, depending on its speed, but the unit of length transversely is different from the lengthwise unit". No mention is made of the second (?);

- in the 5th paragraph confirmation is given for the 4th paragraph: "In two systems *S* and *S'* of the model moving relatively with respect to each other the scale of length must be differently chosen";

- there are a number of other considerations and reservations on p. 217, but the 6th paragraph begins unsurpassed with the cryptic sentence: "According to EINSTEIN things are said to be very different in the real world ..."; - On p. 219 LC is again apparently reciprocal/apparent: "no change in a physical reality".

Since Born makes a wide offer, let us take his last-cited statement as being representative of him, in which case LC is reciprocal/apparent. But the other position is also served; on the travelling ship one needs two rulers, one for the transverse direction and one for the lengthwise direction. For Born everything is correct.

Confirms (p. 218) that Albert Einstein himself had given no cause for LC.

The third main point addresses the clock/twins paradox in detail, now as unilateral/real (pp 220-226). As a justification he opts for the different "world lines" in Minkowski's fictional four-dimensional space-time and deduces that the twin returning from the journey (p. 222) "must ... be younger than his brother A. Indeed a peculiar conclusion, but one which cannot be eliminated by any quibbling. One must come to terms with it, just as those who, several centuries ago, had to come to terms with the idea of standing upside down at the antipodes."

With this instruction, given in the brusque manner of the estate owner that one had to come to terms with it, Born believes he has solved the problem (p. 220): "Correctly perceived, Einstein's conception contains no grey areas or internal contradictions whatsoever." Anyone who sees contradictions is to have an incorrect conception. The critic is always to be at fault, never the theory. The criticism rejects four-dimensional space-time as the wrong conception for the treatment of processes in three-dimensional reality. Before resorting to the "world line", Born had to show how the twins could be correctly described in real space-time. This is something that no relativist has ever been able to do (cf. Error G 6).

The conclusion of the criticism is that the methodical inconsistencies of the theory involving contradictions between its great luminaries and between various editions of the same works and within the same monographic editions by the same great luminaries are so conspicuous and of such a fundamental manner that as yet, without a process of clarification within the world of relativity, no theory worthy of criticism exists at all, publicly.

This status is one which the relativists themselves presumably regard as ideal, because they see no reason to discuss these uncertainties, or to at least take an unambiguous position in the matter. A theory kept in the fog of obscurity is one they regard as more difficult to attack. This is the reason why they have no wish to dispel the fog. Quite the contrary.

It is enough to refer to four of the early main representatives of the world of relativity. Since then nothing has changed in the world of relativity. The complete lack of clarity and inconsistency was already there by 1920 and can now only be repeated, varied or made even more bizarre. - As regards the causes, Albert Einstein remained completely silent in 1905. Later he is quoted as according it to an "attendant circumstance of the fact", which of course is nothing other than attributing the cause of the attendant circumstance to the fact. Only, he now prefers not to explain a cause. - With the journalistic "gift from above", in 1908 Minkowski presumably covered up the lack of causality. On the other hand he had the "attendant circumstance of the state" in reserve. - In 1913 v. Laue, by contrast, committed himself to causes: LC was caused by changes in elasticity; TD was without a cause. - And in 1920 Born confirms the reciprocity of the effects on the basis of the principle of relativity, contests as a consequence the reality of the effects and can with this avoid the question as to the causes. With the slice of sausage he believes he has settled the "notorious controversy" as to appearance or reality, though he declares at the same time that all arbitrarily (!) selected cuts (slices of sausage) are equally real for all (!) observers and with this he maintains that several realities are equally real. Fortunately he sees no contradiction in this whatsoever, believing instead that he has expelled all contradictions.

By 1969 Born has changed sides to the faction of realists, though he thereby only increases the number of his contradictions, in that his presentation of the effect of LC is now fully contradictory. One no longer knows what he wants. On the other hand he maintains that the reality of time dilation is to be found in the person of the travelling twin who remained young and seeks to explain this by moving [the argument] to the fiction of four-dimensional space-time, before concluding his argumentation in an authoritarian manner: one must come to terms with it.

The comforting historical analogy given is that previously one had also come to terms with the "antipodes". The fact that the "antipodes" were first satisfactorily explained with the discovery of the gravity of the earth and that with this they were also rationally justified, and the doubts thereby dispelled, appears to be unimportant for Max Born.

Of all relativists Max Born represents most openly the I-say-what-goes standpoint. The physicist decrees, and the public has to come to terms with this, like it or not. It will soon come around - remember the antipodes. This cynical attitude is the same as that of Max Planck. The critics will dye out, and then we will have peace and quiet in the temple

of the world of relativity. Neither the solution of the estate-owner nor the cynical biological solution has so far occurred. Not even after eight decades, and the chances [for these solutions] don't look very good.

AE 1905. - Minkowski, Hermann: Raum und Zeit; Lecture, 80. Naturforscher-Vers., Köln 1908, 21st Sept. In: Naturforschende Gesellschaft, Cöln. Verhandlungen. 80. 1909, P. 2,1, pp 4-9. Also in: Physikalische Zeitschrift. 20. 1909, pp 104-111. Reprinted in: Das Relativitätsprinzip. Lorentz, Einstein, Minkowski. 6. Aufl. 1958, pp 54-66. - Laue, Max v.: Das Relativitätsprinzip. 2., verm. edition. Braunschweig: Vieweg, 1913. 272 pages. (Die Wissenschaft. 38.) - Born, Max: Die Relativitätstheorie Einsteins und ihre physikalischen Grundlagen. Berlin Springer, 1920. 242 pages (Naturwissenschaftliche Monographien und Lehrbücher. 3.) - Born, Max: Die Relativitätstheorie Einsteins. Unaltered reprint of the 5th edition. Berlin 1969. 328 pages (Heidelberger Taschenbücher. 1.)