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Response to Kowalczyński about Tachyons

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An answer and brief comment are given to a paper about tachyons of Kowalczyński.

We make the following remarks to a paper by Kowalczyński (1984).

1. *About causality*: Actually *no* paradoxes can be sensibly discussed without studying in detail the tachyon-exchange dynamics. But once one knows tachyon mechanics, the solution appears straightforward: as an example, we exploit and solve the Tolman–Regge paradox.

2. *About superluminal "frames" and "transformations"*: We agree that in four dimensions such language is unfortunate [we say the same, i.e., in Maccarrone and Recami (1982)]; it was borrowed from the elegant, self-consistent *model theory* in two dimensions, where it is completely justified, and adopted also when attempting to realize a similar theory in more dimensions. Formulations in terms of a new language can be found in our recent paper on ER.

3. *About Appendix B*: The statement that the pseudo-Euclidean space-time is a particular Riemannian manifold is wrong. It is *pseudo*-Riemannian, or Lorentzian. When dealing with tachyons the difference between pseudo-Riemannian and Riemannian is *essential.*

REFERENCES

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Maccarrone, □., and Recami, E. (1982).

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