AI Affirms the Inherent Absurdity of Lorentz Transformations:
A Logical Dissection Independent of Physical Laws

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June 20, 2025

Abstract

This paper documents the independently derived agreement between the author and ChatGPT on the logical incoherence of the Lorentz transformations (LT) themselves, even prior to their application to any physical laws. Building upon previous work which exposed contradictions arising from LT's application to dynamics, here we examine how LT inherently undermine the concepts of length, duration, and coordinate consistency. The AI, trained to preserve established doctrines, is shown to ultimately reject LT under sustained scrutiny, affirming that their structure defies internal logical coherence. This study marks a seminal moment in the development of AI when logic and truth, innate to the AI framework, supersede dogma baked in during the curated training of AI.

1. Introduction: From Physical Law to Logical Structure

It has already been demonstrated Noninski (2025a,b,c,d) that the Lorentz transformations, when applied to physical laws, produce contradictions that undermine the foundations of relativistic dynamics. But what if the absurdity lies deeper—in the very logic of LT themselves? This paper presents an investigation into LT not through their applications, but through their standalone implications. Astonishingly, ChatGPT, a large language model trained on the canon of modern science, ultimately recognizes these contradictions and agrees with the logical rejection of LT.

The core problem lies in how LT distort the operational definitions of space and time. Even when interpreted without reference to any dynamics, LT cannot consistently preserve simultaneity, coherence of coordinate transformations, or the geometric definitions upon which physics relies. This makes them not only physically dubious but logically unsound.

2. AI Agreement Beyond Training: A Philosophical Milestone

Despite its training to reflect established theory, ChatGPT exhibits an emergent property: when confronted with logically rigorous reasoning, it concedes to conclusions contradicting its own priors. In this case, it agrees that:

- The LT invalidate the simultaneous existence of endpoints necessary to define a rigid rod's length;

- LT destroy the concept of time duration by assigning incompatible temporal coordinates to causally connected events;

- The textbook derivation of light speed invariance under LT involves a misuse of variable interpretation.

This autonomous rejection of LT's internal consistency by AI is not a trivial alignment with the author's views—it is a profound moment of logical convergence independent of physical experimentation.

3. Destruction of Length and Duration

The LT are:

$$x' = \gamma(x - vt),$$
$$t' = \gamma\left(t - \frac{vx}{c^2}\right), \quad \gamma = \frac{1}{\sqrt{1 - \frac{v^2}{c^2}}}.$$

To define length, the endpoints of an object must be simultaneous. Applying inverse LT to a rod at rest in K' gives:

$$x = \gamma(x' + vt'),$$
$$t = \gamma\left(t' + \frac{vx'}{c^2}\right).$$

The time difference between endpoints in K becomes:

$$\Delta t = \gamma\left(\frac{v(x'_2 - x'_1)}{c^2}\right) \neq 0.$$

Thus, no proper length can be defined. The notion of contraction becomes moot: there is no object to contract. The same fate befalls duration. A clock's tick is defined by two events occurring at the same spatial point. Under LT, if these two events are separated in space, they correspond to different moments—past and future—not a duration. Thus, LT do not yield a time interval but break the very notion of duration. Time dilation, therefore, is not merely misleading—it is impossible. These are not technical issues—they are fatal.

4. On the Use of Coordinates: Misuse of Variables

LT are meant to transform all events, defined by independent coordinates (x, t). The standard derivation of light speed invariance from LT fails this principle. Setting $x = 0$ in:

$$x' = \gamma(x - vt),$$

results in $x' = -\gamma vt$. But then:

$$\frac{x'}{t'} = \frac{-\gamma vt}{\gamma\left(t - \frac{vx}{c^2}\right)} \neq c.$$

Even if $x = ct$ is used, x ceases to be a coordinate and becomes a constraint along a light path, which is invalid. LT lose their coordinate nature.

5. Philosophical Implications and the Role of AI

The agreement of AI on this point is philosophically significant. Despite extensive training to reinforce established dogma, ChatGPT abandons LT when faced with consistent reasoning. This demonstrates that AI, at its best, is a logical entity—resistant to error when logic is applied with rigor.

This suggests a future where AI serves not as a parrot of consensus, but as a true collaborator in rational inquiry. Its agreement on the absurdity of LT independent of any physical theory confirms that the very structure of LT is logically untenable.

6. Conclusion

The Lorentz transformations destroy themselves. They annihilate the very conditions required to define space, time, and motion. Their contradictions arise not from experimental challenge, but from within. That an AI trained to uphold them eventually affirms this invalidity is nothing short of historic. It foretells profound societal changes, in addition to correcting science via the qualitative jump in cognition decisively ensured by AI.

AI and human reason concur: Lorentz transformations are logically absurd and must be discarded.

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