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Generalization of Einstein's Relativity Two dimensional approach

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Abstract: Einstein's (General and Special) relativity has been described in four-dimensional space (Minkovskian space) by four-coordinates under Lorentz transformation. However, the analysis is useful in modern physics but yet non-generalized. Moreover, generalization of relativity would not be possible with simple (any way if four) coordinates because it despite generalized coordinates. In this manner of description, *generalized relativity* would be formulated in two-dimensional space under a new *generalized space-time geometry* under two-dimensional generalized transformation. However, in generalization of Relativity, its epistemology and paradoxial cases remain unchanged. They would only be modified under new scheme with two-dimensional description instead of four. Reference frame observeability has unchanged epistemology under such schemes. However, the procedure for choosing coordinates, with despite of generalized coordinates, is modified.

Keywords: Generalization of geometrodynamics; special relativity; general relativity; space-time geometry; generalized coordinates; two-dimensional space-time.

Dedicated to Librarian Baddu Babu in his honour.

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1. Formulation of the problem

In this pure formulation of Relativity, by the need of generalization (the despite of daring theorists) leads to develop two-generalized Geometry and new transformation to describe it. Under generalized two-dimensional Minkovskian geometry, space and time are fixed for reference frames.

1.1 Space

The phenomena of space in generalized formulation (whether any bulk we theorists despite) is considered only by generalized coordinates q_α (having observed by fixed frames of reference).

1.2 Time

Under generalized description, we propose generalized time. Whether it should be any different from simple time concerning the generalization of clock mechanism should be later considered.

1.3 Mathematical overview

Generalized coordinate represents, first, in accordance with its despite, the covariant description of q under α (degrees of freedom) covariants. q itself is interpreted, for the sake of generalization, component of all variables in all known systems of spaces. For example, Lorentz variables x, y, z (x^1, y^2, z^3), ϑ, φ or any (that does not matter). However, this two-dimensional generalized description is, in actual, the n-dimensional formulation. Number of dimension, in the sense of generalization, depends upon the choice of coordinate system. Moreover, Lorentz transformation with Minkovskian geometry (present Relativity) is a preferred case of generalized Relativity, the choice for Minkovskian space-time, the choice of Euclidean space. Here generalized coordinate q_α plays best coordinate, generalized space and a fantastic mixed tensor.

"The generalized coordinate is a fantastic mixed tensor
if we concern many dimensional interpretation."

1.4 Generalized space-time

Generalized space-time is proposed by the combination of generalized coordinate q_α and time t. First, it is simply proposed as two-dimensional (if we do not interpretate q_α in pure coordinations). But the interpretation of q_α i.e., the fixing of coordinate system, the generalized space-time assumes its desired dimension. For example, interpretation of q_α in Cartesian coordinate system provides Minkovskian space-time under Lorentz transformation with coordinates ct, x, y, z with line element signature $(+---)$. However, in different coordinate systems (for example, in Schwarzschild metric, Robertson-Walker metric and so on) generalized space-time assumes different dimensions (n).

We pure theorists, however, now ought not to interpretate coordinate system in Relativity to be more advance, we would (just like yet modified classical theoretical physics) use generalized two-dimensional space-time under generalized transformation. The present described General and Special Relativity is, in this extend, deduced as a especial case of coordinate interpretation of generalized space-time in Cartesian space and Minkovskian space-time under especial case of generalized transformation, Lorentz transformation in Cartesian (tensor) space-time with signature $(+---)$.