

The author essentially blends a Lorentzian interpretation of STR (there exists a privileged RF, contraction and time dilation are real effects) with a kind of conventionalism about space-time structure, to arrive at their conclusion that STR does not in fact say anything new about space-time. He claims (p. 2) that rather than our having originally thought that $F(x)$ (where x is space-time and F is the set of its properties) and now thinking $\neg F(x)$ and rather $G(x)$ -- this being the traditional presentation -- instead we should say that STR talks about something different from x -- call it y -- and we now believe $G(y)$. But we can still believe $F(x)$ and so STR has in fact taught us nothing new about *what we meant when talking about space and time* (namely, x), and instead has taught us different things about *some other structure*. I can only interpret this as a kind of conventionalism: depending on our preferences we may say that the structure of space-time is F , or we may say it is G -- modifying other bits of physics and kinematics accordingly so that everything works out.

But it is well known that, while this sort of conventionalism *can* be maintained logically speaking, it typically leads to absurd complications in the physics or kinematics -- the ways one must modify other bits and procedures -- which lead most realist-inclined physicists and philosophers to throw in the towel and agree that the "real" space-time structure is the one where everything works out nice and simple. In this paper, the author makes it sound as though that isn't the case here. So, e.g., on p. 8 he claims that classically-defined velocity turns out to be still additive. If this is correct based on his definitions (and I didn't work through them in detail -- D6 seemed ambiguous to me, in any case) then this can only work out because what one is doing is, in effect, insisting that all velocities "in other frames" be defined as the velocity that would be measured using the true rest-frame's instruments. These quantities are labelled

$v^{K'}(K'')$ and so on (see p. 8), but whereas one normally thinks of this as meaning "The velocity of frame K'' as measured by rods and clocks at rest in K' ", here it has no such meaning. Instead it means "the velocity of K'' measured with rods and clocks in K' , with the results then corrected for the length contraction and time dilation of same" or, in other words, "the velocity of K'' measured in K' ". "Additivity" thus becomes merely the consistency of measurements all done in the rest frame. This is a kind of change of meaning, this time of what is meant by "additivity of velocities"! Similarly, the author is changing "length of an object in frame K' "; instead of meaning "length as measured by a copy of the standard meterstick at rest in K' ", it now means "the length as measured in K' ". And so on.

In short, what the author is saying is that we can claim that the structure of space-time is exactly what Newton said it was, as long as we recognize that only measurements done in the "privileged" reference frame give the correct results, all other measurements needing to be "corrected" first. This is kind of an interesting point, though I think it surely is not novel, and the author does not put it as clearly as this. If he did make clearer what is going on, I suspect the reaction of most readers would be to say, "Oh, that is just the Lorentzian interpretation of STR." The difference really seems to be just this: a proper Lorentzian about STR says that the contraction and dilation effects have a real, physical/causal origin (ether wind or something like that), whereas this author wants to deny any such connection. But without the physical/causal reason for privileging one special reference frame, the "classical" definitions he offers seem too unmotivated. Why should we buy into a view that insists: "calculate all quantities as those that would be measured in the True Frame!" -- if the "truth" is not a physical or causal fact, but rather just a conventional choice? As I said, conventionalism usually runs into the problem that one set of conventions looks simple, intuitive and natural, while the others look complicated, bothersome, unmotivated. That is exactly what is going on here, I think.

This paper raises interesting issues, but gives the impression of being a bit "tricky" and concealing the unnatural character of the classical definitions of space-time coordinate systems, velocity, length etc. being offered. At the very least, the discussion should be supplemented by bringing in discussions of conventionalism and the Lorentzian interpretation of STR. But I can't say in advance whether, after this is done, the paper would have enough original content to justify publication. As it stands, I do not recommend publication.