Minkowski diagram with unit hyperbola contradicts the SRT and a Gravitational Level Relativity is born

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Summary: a late discovery was made that the Minkowski theory and special relativity theory clearly contradict each other, namely in the treatment of the units of length. Minkowski stretches it indefinitely and SRT cuts it down to zero with a Lorentz factor. Thus, Minkowski's theory is not a description in 4D for the SRT as intended since 1908. It was further investigated which of the two theories should be the correct one and another discovery was made that the speed of light in SRT, if one considers the inversely proportional relativistic length and uses the time unit for this, no longer remains invariant and thus SRT violates its own 2nd postulate, whereby the decision is clear. Subsequently, a modification of the interpretation of the Minkowski theory was proposed to the extent that the relativity principle of the SRT has to be modified and the inertial frames no longer have to be completely rigorously "equal". They form relativistic levels, which was already given in SRT through time dilation, but was never admitted. Now the length, together with time, is an asymmetrical relativistic property and is subject to a completely identical procedure as the time dilation. There is an equally effective length dilatation and a level relativity was designed and confirmed with other results, which satisfies both postulates. Further relativistic theories provide further arguments. A Gravitational-Doppler-Relativistic explains new discovered impulse and 2nd triplet paradoxes and also makes mass an asymmetrical relativistic attribute. A discovered length "Motirz calculation" reveals the same length measurement error in a direct, very simple and clear way. A new Gravitational Level Relativity GLR is born.

I. Minkowski theory of relativity in diagrams

I.1. An overlooked contradiction and an inferred Level Relativity

We base our analysis on standard textbooks [1] and didactically successful derivatives [2, 3] using Minkowski diagrams and the unit hyperbola as a calibration procedure without deriving it ourselves.

In Fig. 1 we see a quoted Minkowski diagram with drawn in unit hyperbola for time and space world lines ct' and x', which are projected symmetrically about a light line c + and both belong to an inertial frame, IF. On one ct' axis one reads off the temporal in terms of time and the other x' axis in terms of space relativistic process.

The respective temporal and spatial unit hyperbola H + and H-, which Hermann Minkowski already presented in 1908, arises from the generally applicable relationship for invariance of the distance*s*

from the origin in every inertial frame according to Minkowski's theory in Minkowski's non-Euclidean space, which is a world lines like ct' / x 'corresponds to

$$\pm s^2 = (ct)^2 - x^2 \ . \qquad (1)$$

To calibrate units of length and time the distance s^2 set to 1 is used for temporal and -1 for spatial hyperbolas and graphically, one hyperbola each H + and H- intersects the respective axis always in its normalized units 1.

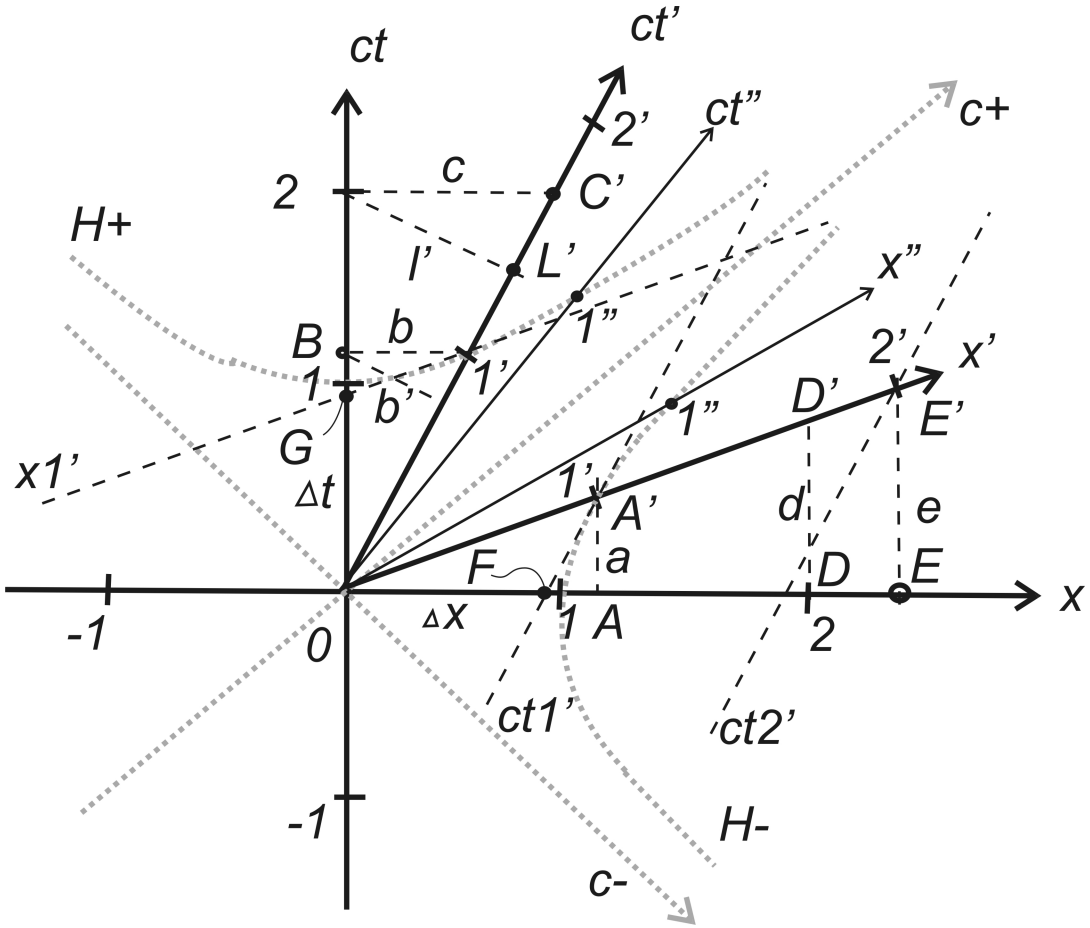

Fig. 1 Minkowski diagram with scaling unit hyperbolas.

What was obtained is that the length units Δx and time units Δt are stretched and dilated equally on the world lines of moving objects compared to the earthly immobile on the x and ct axes to $\Delta t'$ and $\Delta x'$, which is transformed with the Lorentz factor γ. This is according to SRT and Lorentz transformations. The incline angle α of the ct' and x' axes is defined by $\tan \alpha = v/c = \beta$ in Lorentz factor γ in Minkowski diagram. We can write:

$$\Delta t' = \gamma \Delta t \ , \qquad (2)$$

$$\Delta x' = \gamma \Delta x \ , \qquad (3)$$

With Minkowski this is done symmetrically for both units and both are stretched. This can be clearly seen in the diagram in Fig. 1. The units on the axes *x* and *ct* correspond to the stationary IF and the inclined axes *x ′* and *ct′* have longer stretched units. *[1 ′] = [γ 1]*. With *Δx ′= [1 ′]* .

In a subsequent measurement of a distance and a time segment, the lengthened units Δt' and Δx' between the same locations 0 and R are counted less often, resulting in a shortened time *t ′* and a shortened distance and x *′* - *this is so in our new interpretation only, not in SRT and Minkowski*. (Note: the same distance location results on a perpendicular *a, d, e* parallel to the *ct* axis and it is meant for a multitude of locations whose abstract spatial distance is the same, because we have packed 3D in only one dimension x. We can only measure the abstract spatial spacing relatively in an IF).

We list quotations from a recognized standard work [1] that speak for themselves:

Quote 1: "With a transition from Σ to Σ 'both the coordinates are rotated and the units are" dilated ", that is, stretched."

Quote 2: "The axes are then continuously subdivided into these units of measurement, the length of which , viewed from Σ , increases indefinitely for both *x ′* and *ct′* axes with increasing speed *u*."

> The unit of length "increases indefinitely" and on the next page one justify that all lengths including materialized units of length are to be contracted?

I.2. Next higher level IF

And that can be read off directly with a further IF “with double crossed x“ and ct “axes, which move even closer to the light axis c + when the relative speed V“ increases further. The two units are now stretched even further to 1 ”each, dilated like time units.

$$\Delta t“ = \gamma_2 \Delta t \; > \; \Delta t' = \gamma_1 \Delta t; \tag{4}$$

$$\Delta x“ = \gamma_2 \Delta x \; > \; \Delta x' = \gamma_1 \Delta x; \tag{5}$$

$$\Delta x“ \; > \; \Delta x' \; > \; \Delta x; \tag{6}$$

$$\Delta t“ \; > \; \Delta t' > \Delta t; \tag{7}$$

But the measured distances and time segments are exactly the opposite inverse proportion then the units, which is an absolute rule:

$$x“ \; < \; x' < \; x; \tag{8}$$

$$t'' < t' < t; \qquad (9)$$

One also recognizes that IF" is now "more relativistic" above IF' and below it is the immobile IF as a lowest relativistic level. You can determine your own Lorentz factor γ_{12} between the IF 'and IF " , but be careful. There are here 3 relativistic level IF's and can be any number. They are also distinguishable in SRT, at least in asymmetric time dilation, i.e. according to time dilation levels, because time dilation increases with gamma and is asymmetric. Obviously, this did not bother the fact that all laws of physics remained valid and that it contradicts the rigorous Relativity Principle about a "complete equivalence" of all IF's.

In contrast to the SRT relativity principle, one cannot simply declare the 3rd or 2nd highest level to be the resting IF and let everything apply in the same way in our new theory. Then the reciprocal value must be applied (see further). According to time dilation levels of the SRT one also has to calculate down between time dilation levels by reciprocal values: the moved knows that his time flows more slowly compared to the unmoved (earthly). It is only in SRT that you cannot understand why it has to be this way - that is defined by a SRT phenomenon.

However, the SRT interpreters do not represent our interpretation of the lengths as well, but because of the rigorous SRT rule to shorten all lengths including length units, they also have to represent a length reduction of the length units [1 to 11] being in the length of bars and shuttles.

In SRT there is an inverse proportionality for time and length units. Only time dilation agrees with Minkowski diagrams, it is stretched, while all objects are shortened in the direction of movement, which is also very well documented in thousands of standard works and videos about contracted rods and spaceships [1 to 11], which correspond to a multiple of a unit of length.

$$\Delta t' = \gamma \Delta t, \qquad \gamma \to \infty \qquad (10)$$

$$\Delta x' = \Delta x / \gamma . \qquad 1/\gamma \to 0 \qquad (11)$$

The speed of light *c as a consequence* will no longer remain invariant in SRT (see further), since c '= $\Delta x' / \Delta t'$.

Argument 1

Since both units in the Minkowski diagram and theory are handled completely symmetrically, the same procedure and consequences must also apply to length and time, namely that the unit of length has been dilated longer and that there must also be asymmetrical length dilation levels as with time dilation. The thought was not allowed in order not to have to give up the SRT's relativity principle entirely, which, however, was and is only inconsistent.

Consequently, a fast spaceship with a unit of length on board would also be *elongated* with it in the same way . This is in *contradiction* to the SRT, where in thousands of representations all spaceships and rods [4, 5, 6, 7, 8, 9] have to be contracted, shortened and with them the units of length on board.

Who is right now?

The official sources also state it very directly, for example a quote from a physicist Internet teacher A.Fufaev "The faster the system moves, the more stretched os an unit of length in this system" [2], although he does not see any contradictions as he reads it from books and current university lecture notes, where an apparently functioning justification is offered.

I.3. New asymmetrical interpretation of the Minkowski diagrams

We represent an unifying asymmetry for both time and length units. It results in a consequently conceived Level Relativity, since something more relativistic effects in moving versus unmoved IF are caused.

The interpreters conforming to the SRT apply the Minkowski diagrams symmetrically, as he himself saw it, also in the reverse view for the lengths (and masses), but not for time dilation. All you have to do is change the IF, which is equal according to the SRT.

But there are representations where it as in a Minkowski diagram with a retroactive perpendicular as in Fig. 1 with *l '* is showed how supposedly both IF shall see shortens each other. But one forgets again about the asymmetrical rule of thumb "moving clocks go slower", which was introduced by way of an *ad hoc* decision and which is essential for twins paradox. Why should it not apply to lengths, which in Minkowski's theory are treated in the same way as time?

On the time axis, it is easy to see that with a perpendicular b 'parallel to the x-axis, the extended time unit projects *1.0'* (one ') onto a value above the value *1.0* (one). In the idle IF, more of the shorter time units *1.0 has* passed during the *1.0 '* time unit . That must be interpreted in the same way for the length.

We read the lengths of the spaceships in the new asymmetrical interpretation as follows:

A spaceship of the same construction is supposed to stand resting on earth, the length of which is 2 units of length - read off on the x-axis. In the moving IF on the x'-axis, however, we now read 2 'in the new stretched units of length - that's the point, that it remains and is not noticeable. It is clear that you do not notice your own not accelerated movement on board. The perpendicular e from x 'on the x-axis to point E shows us that the moving spaceship is longer than the stationary one. Both see it that way, they just agree. The Unmoved projects a perpendicular *d* to the moving ship and sees that it is longer than his.

Our justification for asymmetry also in lengths can be derived here from Minkowski diagrams alone. And from the asymmetry of the time dilation in SRT it follows that the length must be treated in the same way. We'll have other arguments in a moment, but that's just enough.

I.4. Contracted spaceships in SRT and barn solution

Now everyone will know how to solve the famous barn paradox in SRT. Completely symmetrically, the lengths of the other are contracted in the direction of movement [4, 5, 6, 7, 8, 9].

In numerous video blogger channels on Youtube you can also find well-known professional physics populisers such as J.Gassner [4], Eugene Khutoryansky [5] or Fermilab [6], who enjoy animating and displaying these shortened spaceships, rods and flattened planets etc. represent and teach, according to standard works, how and why it has to be that way.

We list it here so that other physicists who prefer to interpret Minkowski cannot accuse us of it, as has already happened, we had "sealed" it on the SRT or "shoved it into the shoes" and they would always have "extended length units" represented. We had already encountered such claims.

From the representation of contracted spaceships alone, the length units on board must also be contracted. A contracted stick means that a scale drawn on it is also contracted. The rigorous SRT rule is to contract everything in the direction of movement: distances and units of length alike. And symmetrically in reverse relation, too. A spaceship is itself a multiple unit of length and cosmic distances could be measured in its lengths and then converted into other units.

It is written in SRT like this:

Time units: $\Delta t' = \gamma \Delta t$, $\Delta t = \Delta t' / \gamma$, *asymmetrical, see twins* (12)

Measured time world lines: $t' = t / \gamma$, $t = \gamma t'$, *asymmetrical* (13)

Units of length: $\Delta x' = \Delta x / \gamma$, $\Delta x = \Delta x' / \gamma$. symmetrical, see barn paradox (14)

Distances: $x' = x / \gamma$. $x = x' / \gamma$. *symmetrical* (15)

This antisymmetry between time and length was recognized, but with appropriate arguments persuaded that it is not so [5]. Chapter is called "The apparent asymmetry between x and t". No, there is not an apparent, but a factual physical asymmetry in SRT and we are demonstrating that here.

I.5. Time units and time-interval measurement in Minkowski diagrams

This is arguably the most important part of our analysis. We must first state that physics empirically and theoretically determines according to SRT that a twin astronaut returns younger. Let's take it as a fact that we also agree with. This leads to an asymmetry between the IF's, that is our conclusion.

Now, however, the interpreters of the SRT and Minkowski diagrams manage to prove both, that the moved is younger and the unmoved remains supposedly younger. We can meet such meaning by Minkowski experts only – while other don't know why it must be so. You have to stubbornly assert

this because you have to use the same procedure as with the length and because of the rigorous relativity principle with the IF, which are completely equal. And then they absolutely had to enforce mutual contraction and interpreted it skilfully.

So if we prove that it does not apply to time, the procedure falls and a new one that is valid for time must also be applied to the length measurement, and then this mutually nonsensical shortening can be vanished for time and for lengths as just the same.

And that has already been said, since the fact contradicts the m, only the moving twin was theoretically measured younger and confirmed in empirical time dilation measurements. We take a closer look at the interpretive trick used to claim the opposite.

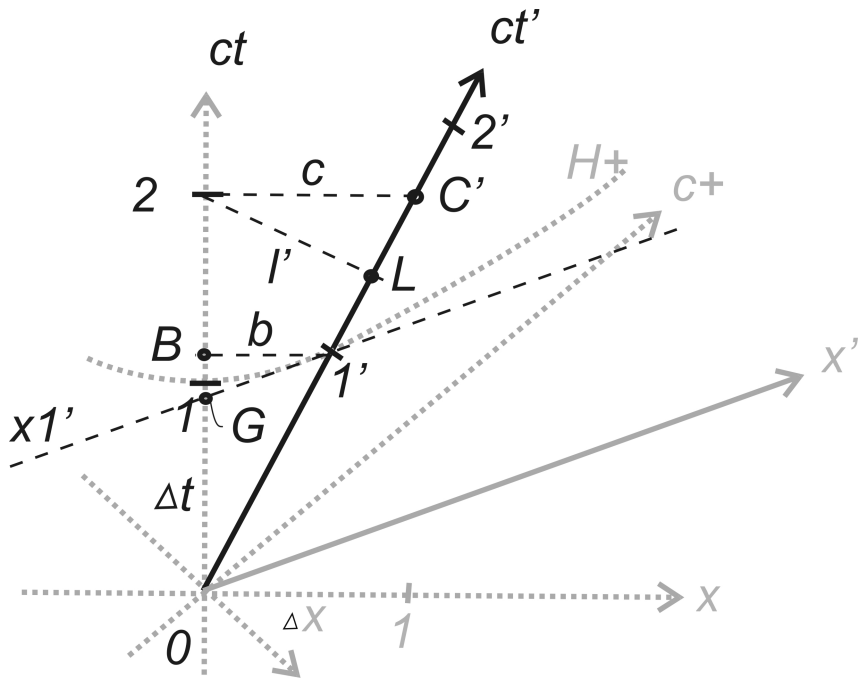

Fig. 2. Time dilation in a Minkowski diagram

The established SRT standard interpreters first make a procedural step and indicate that in the stationary IF, the lines parallel to the *x*-axis mean simultaneity. You can read from lots *b* and *c* that more time has passed in the unmoved IF - by the Lorentz factor γ gamma. OB is equal to γ gamma.

But for a reverse assertion - that the other way round, the moving person also supposedly perceives the motionless person at a slower time despite the time dilation *ad hoc* decision, because of the rigorous principle of relativity - they use a different process step and see in the *x1'* line parallel to the x' axis its simultaneity line and read off a smaller value at a point G below 1.0. They interpret this smaller value as "less time has passed in motionless compared to 1 'in motion". You disregard that the small difference between G and 1 does not correspond to the gamma value γ and is significantly smaller. The gamma value would work if you look at the triangle 1B1 '. So graphically it doesn't fit. The reason is that this line *x1' is* a simultaneity line in the moving IF'. But it can also be interpreted differently: since the distance is longer in the motionless, the light will apparently run

more slowly in the motionless. Simultaneity was justified by the transit times of light. Therefore this shortened distance a little under 1 can mean that the light only covers so little in the motionless, while the light in the moving had traveled a whole 1' unit. But this is due to the time effects and therefore such a strange picture.

Our new interpretation: the short value 0G stands for the shorter distance that the light had covered in *ct* , while in ct ' a 1' unit was covered. But that's only hypothetical. The stretches are of different lengths and c = c ', so it has to be shown somehow that the light has a longer way in the resting IF.

We read off according to another recognizable process step: the lines *b* and *c* are not only parallel to the x-axis as simultaneity axes, but they are also perpendicular to the *ct*-axis. In the opposite direction we also form such perpendiculars l' at a point L and read off that the same angle relationships exist in triangle 02L' as in triangle 0B1 ', i.e. factor gamma. So with factor gamma it gives the same result again that the moving person also finds that his own time t' flows more slowly than that in the stationary IF. This is an asymmetry that was defined *ad hoc* in SRT as a time dilation in the twin *paradox and we have to respect it* consequently.

The claim that one has to experience the same thing in reverse is wrong and consequently there has always been an unspoken contradiction. There are therefore two types of SRT interpreters to be found: one is familiar with the Minkowski diagram like a blogger physicist [2, 3] and asserts "that the captain in the spaceship also sees time on earth flow more slowly". And the second ones do know from SRT that the twin astronaut stays younger and don't know Minkowski diagram well. Amazing harmony between this two mutually exclusive contradicting interpretations.

We interpret from the twin time dilation that an asymmetrical inverted view can be ruled out and that the time dilation in SRT already describes a Level Relativity in which the moving always show a higher relativity. The SRT does not know how to justify it and violates its own rigorous principle of relativity. The Minkowsi-interprets saw a tricky way to assert it anyway and they do so, true to this principle of relativity.

From this it already follows that one cannot, as SRT claims, simply ascribe the role of the immobile to the moving and interpret everything the other way round. Time dilation means "moving clocks go slower", and therefore the unmoved faster. Clearly recognizable time dilation level.

This new method can thus also be transferred to the lengths. But the SRT-Minkowski interprets must also transfer their own procedure in same way for time and length.

I.6. Relativistic simultaneity and equivalency according to SRT

These are very abstract terms that do not help us much if we want to measure the distance and the time interval used for it. If two travellers have different speeds, they measure the same spacing as different lengths, so far so good.

The locations in space are the same in our theory and do not move anywhere. In SRT, one can read [2] whether it is a kinematic effect in contrast to physical compression in Lorentz and Poincare. So no compression of the room, but not communicated so clearly. You have to take action and interpret yourself. In Fig. 2 we see apparently offset locations, but according to the statement it should be meant “only cinematically”. In SRT it wasn't as important as it is in our theory.

As was shown previously, the application of the procedural step which leads to time dilation supposedly also being determined the other way round is forbidden. It is obviously a misinterpretation, which the empiricism and SRT contradict itself by preferred time level choice. This interpretation is not mandatory and another is possible. Mathematics allows a lot and is extremely deceptive. Attempts to substantiate such conflicting requirements led to these bizarre interpretations.

It is important that locations in space remain the same when viewed from all IF and do not move anywhere just because someone is moving there. This means that A = A 'and B = B' apply to the spatial locations.

Furthermore, because the speed of light remains constant, light signals sent in the Earth IF and in the Moving IF arrive at the target at the same time! And in the same place. So this is physically justified. Only the distances and time segments were read out differently in each IF due to the elementary interactions of the elementary particles using own relativistic units.

I.7. Length measurement in Minkowski diagrams

First, we report how length dilation and contraction are presented in the SRT literature. In Fig. 3 we see that the unit of length $\Delta 1'$ in the moving IF' has become longer than in the stationary $\Delta 1$ by the Lorentz factor gamma. This is a central statement of the Minkowski theory and it is consistently presented here as it is for the time dilation.

But then interpretations were encountered in the literature, the purpose of which is to demonstrate two things. First of all, it should still apply that in the moving the lengths are read shorter from the unmoved, because the SRT claims it for all moving lengths, both for distances and for units of length.

And secondly, one also wants to prove that the same thing should happen in reverse consideration. "You are shorter than me because I am shorter than you" - that is the quintessence of the SRT.

Didactically, the blogger physicist A.Fufaev, who is certainly only quoting correctly and a physics student in the master’s degree, succeeds best [2, 3] to explain it in Minkowski diagram's.

In order to prove the first, he places a perpendicular M1 and interprets, in the sense, not literally: the unmoved observer sees how his 1 on the moving shows a value less than 1' by gamma and that is

probably the shortened rod, the shorter than the 1' length unit had become. He also visually showed a stick that had been shortened so appropriately and no longer reached the unit of length 1 '! Why doesn't he choose the neighboring perpendicular 1'A, with which one can see the opposite, how a 1' corresponds to a larger length value in the x-axis and consequently 1' is dilated? Why is it not indicated that the perpendicular M1, so to speak, the elongated length 01 'of the moving object only "reaches under the chin" and that it simply extends further? The unit of length 01' has thus been physically ***decoupled*** from the rod, which previously corresponded exactly to the unit of length in the immovable state. Strange - how is this decoupling justified? Not at all. It just fits.

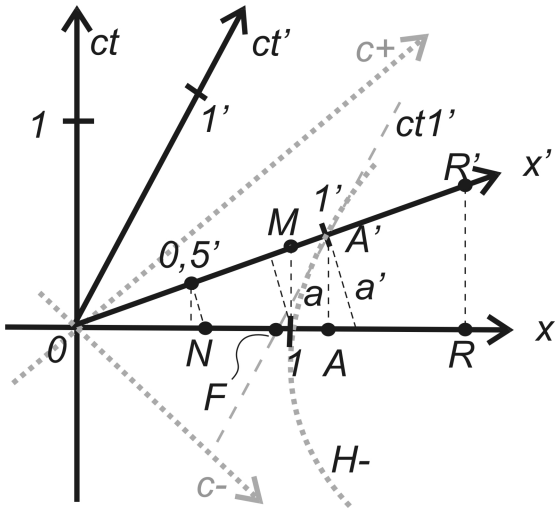

Fig. 3. Measurement of the units of length and distances in a Minkowski diagram.

This also differs from the procedure previously used for time dilation. One couldn't present a time stick and an asymmetrical time dilation was also to be shown for twins paradox solution.

Have you caught scientists cheating? Physicist? No? Will an original author be found? A "motivated interpretation" would be the mildest judgment, but the hard truth heals better.

A reason for this strange ***decoupling of the rod length from the unit of length*** and their drifting apart can be looked for in vain and there is probably no reason - except for the motivation to justify the target model of the SRT that <u>*all*</u> lengths must contract. According to this, while the unit of length *Δ1' [1']* with the Lorentz factor will "grow indefinitely", the moving rods with scales on them and spaceships are contracted towards zero and nothing strange is found. So, again, bizarre logic: "because the unit of length is stretched, scales become shorter".

In order to demonstrate the second model goal, the same reason is used as for time dilation and the parallel *ct1' of the ct'* axis is extended with the similar reason that it is the line of equally *location*. And one reads, similar to the one before in time, a point F which is a little - but again not by the Lorentz factor gamma - smaller than *1* in the immovable. And they say, "You see, the moving also sees the unmoved shortened". Both see themselves shortened and everyone is happy. Again, the triangle 1F1 'is not proportional to the triangle 1'A0 and many others formed by the plumb bobs and cannot therefore represent a shortening based on the Lorentz gamma. What a smaller, deviating value could not be found in a hurry from the available standard works, which we

still owe to explain it. It was enough for the interpreters if it deviated by any small amount and could be interpreted that way.

→ correction

According to another obvious interpretation, this mapping of the parallel simultaneity line *ct1 '* conforms to the present hypothesis that only the *person* moving is length-dilated, asymmetrical as well as time-dilated. The moved 'sees itself longer than the unmoved, the earthly, to be more correct, and is seen back just as longer.

The applicable triangle is F1'A with the correct Lorentz proportions and is a projection of the moving unit's own 1 'length unit onto the unmoved line precisely with the Lorentz factor. While in x 'a 1' "passes" - as with time dilation - in x only 1 '/ γ passes - but in units of the moving x', because the moving carries out this measurement with his own 1 'length units. In F we do not have to compare the 1-unit of the earthly x-axis at rest, but 1 '/ γ in simultaneity projection. In order to read off a value in F, which is measured in 1 units in *x* , we have to convert with times γ and simply get 1 'back, but projected in point A on the x-axis from 0F to 0A = γ0F and er is greater than 1 unit of the x-axis by Lorentz factor γ. This means that more “shorter 1-length units have passed” in x. This is not a mistake, it is logical and a matter of interpretation. This is why this small previously misunderstood deviation value F1. The point F is an F 'for x'-moved and F' for unmoved and both only seem to coincide. The irritation surrounding the interpretation of the parallel simultaneity line *ct1 'is thus* resolved. Another scale is intended next to the x-axis of the motionless. This can now also be used to interpret the time dilation.

The motion is completely absent in the unmoved x-axis, but imaginary standing km-way markings are suitable for comparison and "parked spaceships" of the same design as length objects. The length of the object moved past is compared to stationary objects.

According to Minkowski's SRT interpretation, the shortened distance after measurement is therefore not justified on the basis of the longer, dilated units of length, which simply do not fit in the number between the same starting and destination locations during the movement. This is how time dilation is carried out, we have to interpret it that way - but never called it so explicitly. The result is simply communicated completely without describing a measurement process in more detail. Or someone has to quote it.

New interpretation

Our interpretation of the relativistic length measurements according to Minkowski diagrams is different and we differentiate very precisely and consciously in length units and distances measured with them and use the same procedure as for time:

1.the rod remains the same length in each IF with the unit of length 1 (*Δ 1)* and 1 '(*Δ 1')* and is not decoupled from it for an unexplained reason. The units of length, for example, can be displayed on it, a standard meter measure with a scale in millimetres, centimetres and decimetres.

2.The plumb line 1M, like the plumb line 1'A, shows that the unit of length and the rod dilated with it in motion, i.e. both were stretched. We can take any point such as 0.5 'in the middle of the moving rod, equal to the unit of length, as a point of comparison and get the same thing - that both observers agree that in both relativistic cases, the unmoved shorter and the moved longer are stretched. Just as asymmetrical as with time dilation.

3.We also consistently stick to the SRT's own principle of the obviously *preferred* (a dreaded word in SRT) time dilation and forbid an equitable reverse view, i.e. it is not allowed, simply as SRT contradicts it, to swap the two IF and IF and the moved to be declared dormant and *vice versa* . This is forbidden by the time dilation twin principle of the SRT itself. This consequence has never been expressed so decisively in SRT literature, but it is the only possible one and it contradicts Einstein's rigorous principle of relativity. That is the reason for these contradictions found. You saw yourself torn between two contradictions and simply cheated.

4.The shorter measured distances and time periods in motion result from longer, dilated units of length and time, which are simply counted in smaller numbers between the same spatial locations of the start and destination. In reverse measurement, longer measured distances and time paths result due to shorter, contracted length and time units, which simply fit in larger numbers between the same spatial locations of the start and destination and are counted.

What other physical sense this smaller deviation F1 should have is not immediately obvious.

It is not by chance that we differentiate between length and distance measurements. The length means the own length of a spaceship, for example, and the distance between a start and destination point 0 and R. We explain the difference.

The own length is not simply to be understood as the space between bow and stern, but it is a series of elementary units of length, so that the length of the spaceship is a multiple of the unit of length and is therefore a unit of length itself. They are all guided by multiples of the elementary particle lengths, the wavelengths of the atoms involved. These stretch relativistically and result in a physical stretching of matter. This does not apply to the space and distances in it. The places in space are the same in all IF and do not move anywhere.

Both must be read differently in the diagram. This is exactly what is missing in SRT, there is a mixture of these terms, especially with regard to lengths.

The distance to the destination ends in R and this place is the same in the moving one, so R = R '. It is the same place that it was ultimately the goal. The distance 0R at rest is simply given by kilometer markings without anything moving. The distance 0R 'measured in motion has received a different number n' of stretched units of length $\Delta 1'$ and deviates from the earthly distance, is shorter. It is true that R = R 'still applies, but 0R is not equal to 0R' according to relativistic measurement.

However, we can write down the number of units of length *[Δ 1]* measured with *n* that

$$n \cdot [\Delta 1] = n' \cdot [\Delta 1'] = n/\gamma \cdot [\Delta 1\gamma]; \qquad (16)$$

The number *n* of units *Δ 1* can also be named as a number of measurement processes with the associated unit. If we make this unit elementary, i.e. no longer reducible because it is a property of an elementary particle, then *n* becomes the maximum possible number of such elementary measurement processes and these are really physical interactions. In macroscopic measuring processes, multiples of the elementary units serve as one unit and this means that the measuring processes are macroscopic - due to agreed composite units. That is then not a physical individual process itself, but a cumulative virtual process. Relativistics thus got a direct connection to the elementary particles. And it agrees with the facts, since relativistically with the wavelengths and frequencies there is a redshift, i.e. stretching of the elementary units of length and time.

In addition, we can now see from the diagram that in the target RR 'we can no longer draw a counter perpendicular, because a different distance would be read out. It can be concluded from this that only the perpendiculars from the axes at rest can apply and that only along these two observers can mutually assess each other and physically do it. The fact that the IF are now not quite as equal at relativistic levels is only the logical consequence.

In the Minkowski diagram, the mass *m* can be directly coupled to either the length or time unit on the ct 'or x' axis via a constant and can also be normalized with 1. The Lorentz factor effect goes linearly in the same direction, to a unit stretching. The difference to the measurement method for time and length is, however, that the number of elementary particles remains *invariant* , consequently the measured mass also increases, while the measured distances and time paths are read out shortened by stretched units. This gives the Minkowski theory a new, deeper meaning. Planck mass or the rest mass of an electron can then be selected as the elementary unit and normalized to 1.

I.8. Intermediate result

Obviously Minkowski describes a theory other than SRT Relativistic, in which time and length units are stretched asymmetrically between the IF in the same way, spaceships are stretched with them as well and consequently no barn paradox occurs. In SRT, on the other hand, the units of length and distances are contracted.

→ Minkowski theory contradicts and refutes the SRT interpretation of the Lorentz transformations. Even Minkowski did not notice this and he supported Einstein's rigorous relativity principle.

Which of the two theories is correct? What is clear is that it cannot be both.

In SRT it is disadvantageous that a barn paradox is made very complex by tricky arguments using synchronized clocks and simultaneity.

This does not apply to the newly interpreted relativity theory according to Minkowski, if it is given a new interpretation, based on asymmetry for time and length and modified the principle of relativity. It is then a new theory. An asymmetric level Minkowski theory.

Furthermore, this seemingly mystical assertion in SRT that both relativistic observers compared should perceive the other as being shortened is no longer applicable. That strained the brain and triggered all the heated discussions.

While according to Minkowski's new interpretation it is not necessary and does not occur and everything works out and can be represented nicely mathematically and graphically.

The true content of the Minkowski theory has not been understood since 1908. Minkowski died unexpectedly soon afterwards in 1909, otherwise it would be expected that he would have discovered these fortifications himself and opposed the SRT.

The SRT has a deep logical problem and apparently a systematic error that was covered very cleverly.

The application of the contraction both to distance measurements and to the units of length in SRT leads to the fact that both Lorentz factors applied are eliminated and the contraction is thus canceled and previous distance values are retained. That is another reason to declare the SRT untenable and to replace it.

I.9. The relativity principle according to SRT already contradicts time dilation

According to Einstein's principle of relativity, which was also supported by Minkowski, the inertial frames should be completely equal to each other, ie all relativistic effects should also apply backwards.

For the length contraction, it was possible to justify it in a tricky way by solving the barn paradox on the basis of the synchronized clocks and relativistic simultaneity, which is now more in doubt, since an error was discovered.

But not so for time dilation. This should be asymmetrical per ad hoc phenomenon and the traveling twin therefore remains younger. The rule of thumb among physicists like Dr. Gassner, a youtube and TV popular presenter in Germany, says "moving clocks go slower". And “moving lengths are getting shorter” according to SRT.

Nonetheless, in the standard literature and didactic derivatives from it [1, 2, 3], where Minkowski diagrams and the unit hyperbola are explained for calibration, one finds unmistakable claims that all effects including time dilation also come from the moving IF apply as well. The standard physicists in no way bothered by the fact that it contradicts the asymmetrically interpreted time dilation according to SRT. The authors take it as truth. Will the twin come back older after all? So, are they both getting younger? There are apparently two relativisms that do nothing to each other, peacefully claim opposites in standard works and proclaim that it is only an SRT.

With SRT, a mystification of relativity was created. With such a rigorous relativity principle, all relativistic effects simply have to cancel each other out, which is also what happens through the length measurements in SRT, as we have shown [12].

Einstein's rigorous principle of relativity was allegedly to follow unconditionally and solely from the first postulate, in which the equality of all physical laws is required. But we prove that a different interpretation of the Lorentz transformations also ensures it and eliminates the contradictions of the SRT. Minkowski theory does it too and it contradicts the SRT.

It is no coincidence that Minkowski's mathematical-theoretical theory contradicts this. Unfortunately, he died soon afterwards, otherwise he would soon have discovered what we only have to do now in 2021.

In many sources [1 to 11] the famous claim is brought to light how the moving spaceships and objects shorten in the direction of movement. In the case of reverse, reverse relative consideration, it should also apply. With them, the length units contained therein must also be shortened. This cannot be given up in SRT, because the relativity principle and the justification of the barn paradox stand and fall on it.

I.10. The new level relativity principle

The new level relativity principle is a level relativity and is therefore in the blatant contradiction to the relativity principle according to oneness-SRT. Obviously one also has to admit that in the SRT a level relativistic was already represented for the time dilation, but very inconsistent and even negative.

We have now found out here that the Minkowski theory stretches the units of length to infinity like the units of time. This has been known since 1908 and has been interpreted away. One cannot understand how that could coexist. Here Lorentz factor makes an enlargement to infinity. And in SRT the lengths are also shortened by the Lorentz factor, down to zero. If that's not a problem.

According to the level relativity principle, there are no problems with the equality of all physical laws, which are fulfilled by the fact that relativistic units apply in every IF and thus all constants come out invariant. The first postulate is thus fulfilled. The second is even more fulfilled.

There is no preferred inertial frame, but something relative to one another in levels. We cannot currently know or measure where the “bottom” of these levels is in space. At a local location, the static gravity of the central masses is the level-forming G-field with the lowest level relativity, because a movement also doubles this field gravitationally and therefore creates a higher level for those moving through the static G-field. It is like on a mountain slope in levels, whereby the own static G-field forms a Plato like a local base, which cannot be undercut locally. In this respect it is still preferred, but relatively and not absolute in space.

According to level relativity, it is not permissible, as in SRT, to arbitrarily assign the role of the resting person to each IF without using special calculation methods that must take into account how the IF are leveled to one another. This is not compatible with SRT, but this is the only way to explain the ***impulse paradox*** and the ***2nd triplet*** paradox.

All relativistic attributes are asymmetrically leveled: mass, length, time and the Planck constant. The moving mass units are heavier due to gravitational Doppler, units of length are longer, units of time are more dilated and Planck constants are larger. So all of them are uniformly dilated. It can therefore also be called a dilatation level.

Such a blatant change in relativity brings the new knowledge that physics dictates to us. We have to recognize and acknowledge the physical facts.

The SRT can neither integrate a level realtivism, since it contradicts its fundamentals, nor can it accept Minkowski's length-unit expansion, because then the rigorous relativity principle is no longer tenable.

II. Other new relativistic theories

Further results provide additional arguments for what has been achieved above. Together they result in an argumentative unit for the birth of a new level theory of relativity.

II.1. Asymmetrical unit length expansion and Moritz-Sebastian calculation

We refer to our other previous analysis of the STR, which led to the same result in a different way and resulted in a new paradox-free relativity theory [12]. As with Minkowski, the unit of length was stretched, but not all rods were subsequently contracted in a tricky way, and with it only successively shortened distances were measured using the same procedure as for time. A logical error in the surveying procedure and a spatial conception led the authors of the SRT, Poincare, Lorentz and Einstein, to this epoch-making error.

This logical error can be understood from a short “ *Moritz calculation* ” and “ *Sebastian solution* ” we explain further.

Moritz had 4 classes behind him and learned arithmetic well, but knew nothing about physics and therefore had no respect for authorities. He was told that, relativistically, the distances and units of length according to the SRT are both to be contracted, ie to be divided by a Lorentz factor gamma.

Moritz quickly thought:

an assumed distance between A and B is AB = 1000 [km], in the stationary IF's length units [km], and a Lorenz factor assumed be $\gamma = 2$, so that he can calculate quickly.

The new unit of length through contraction results in [km '] = [km] / ($\gamma = 2$) = 0.5 [km].

The new route will therefore be A'B '= 1000 [km] / ($\gamma = 2$) = 500 [km], but still in the previous old resting [km].

But Moritz took good care of arithmetic for 4 years, seldom miscalculated and he uses the new contracted unit of length, substituted, from [km] = 2 [km '],

and so he gets:

$$A'B' = 1000\ [km] / (\gamma = 2) = 500\ [km] = 500 \cdot 2\ [km'] = 1000\ [km']; \qquad (17)$$

He received 1000 [km '] again, but now in a new, shortened unit of length [km']. *A flop*.

This is what his brother told the 11th class physics teacher. The teacher replied, “If your little brother was right, then SRT would have to be wrong and therefore it does not apply”.

> In the meantime, however, we summarize that the rigorous regulation of the SRT to contract both distances and units of length leads to the fact that the two Lorentz factors cancel each other out in the denominator and numerator and thus the length contraction in the SRT is completely cancelled without noticing it, while that result for measuring contracted distances was correctly recited. SRT deprives itself of its own foundation.

Continuation: a neighbour boy was 4th best in maths from 5th class in same village school, Sebastian, to whom Moritz also told it, had already found out two weeks later that if you stretch the unit of length instead of shortening it, then and only then as a result, the measured distances are measured shorter - just as it was for the time dilation in SRT anyway.

Dilation / stretching of the unit of length according to Sebastian method:

$$[km'] = [km] \cdot (\gamma = 2) = 2\ [km], \qquad \rightarrow \qquad [km] = 0.5\ [km'],$$

Measurement of the distance by substitution:

$$AB = 1000\ [km] = 1000 * 0.5\ [km'] = 500\ [km'] = A'B'. \tag{18}$$

That brought the plausible "Sebastian solution" to the confusing "Moritz problem". At the same time it became clear that A = A 'and B = B' must be true, that is, the places in space are not shifted when someone moves between them.

It is evidently as if a length scale were applied to an elastic band in SRT and this band is rigorously compressed - "contracted" - as a spatial distance with the unit of length on it and in both cases. The measured distance values read off consequently remain the same. And there is no salvation from it because it has been declared a principle, the principle of relativity. And even in GRT, General Relativity, they us to stretch whole space as a model together with length units on it.

> As a result, a method was defined to get from a lengthened, dilated unit of length by means of a distance measurement process to a shortened distance - the same as with time dilation. The Lorentz factor is only applied once, to the unit of length and no longer to the distance, although as a rule of thumb it can be kept that way, but knowing. Consequently, the rods and vessels had to be stretched asymmetrically in the direction of movement instead of shortened, since they are a multiple of the dilated stretched unit of length.

If one could somehow explain the Minkowski diagram interpretation as difficult, tricky and dependent on the interpretation and avoid the discussion as a “non-specialist”, this self-cancelling short Moritz calculation and the solution in Sebastian's consideration, however, must be obvious to every physicist. And who shouldn't call themselves a physicist any more, right? Therefore, these clear vividly arguments are even more important and are additionally supported by the clarification of the Minkowski diagram interpretation and they do support their new interpretation in turn.

II.2. Gravitational level relativity GLR due to a gravitational Doppler

In another work on relativity [13] we have successfully applied our own hypothesis, which says that the ***Gravitons***, as force-imparting particles of the standard model very similar to the photons, are subject to a gravitational, similar to the optical, a gravitational Doppler effect and thus the dynamic movement-relativity also to a gravitational relativistic's how static gravity became and a concept of *dynamic gravity became* justifiable. This makes an unification of the two theories of relativity possible. Nature has only one common relativistic principle available for this, not two, as currently shared in SRT and GTR.

This explains how it is decided which IF of several is more “relativistic” over the other. Consequently, with a relative movement in relation to the earth, the earth's near static gravitational field is dynamically " *Doppler shifted* " from gravitons and therefore a higher

gravitational-relativistic G-level is reached. Therefore, this well-known rule of thumb of the SRT about "moving clocks go slower", which was previously unsubstantiated *ad hoc* , applies .

In the case of "Gemini", they were both in the same terrestrial and solar system near locally statically acting summed gravitational field of gravitons before the start of the journey. The moved one additionally doubles this G-field and is therefore always in a more relativistic compared to earthly level IF. On earth we cannot get any less relativistic IF than we do because we are in the same G-field. To do this, we have to move far away from earth and slowly become like earth again. Nevertheless none of the level IF is an "absolute preferred" - the horror of the SRT - they are all in relation to each other, but in levels, and the laws of physics according to Postulate 1 apply and Postulate 2 is not irreparably violated as in SRT. In addition, no contradiction to Minkowski's theory, as SRT holds in principle and irreparably.

The “first postulate” still applies because all 4 relativistic attributes are relativistically changed in their elementary units at the level of the elementary particles and thus invariant constants measured with them appear to show the same values. They are relative values in a level IF. The rest mass of a lepton is relativistically changed in every IF with the Lorentz factor - and that already applies in SRT. And just as elementary time and length units and the Planck constant have changed relativistically and it remains unnoticed by an observer living in the IF because all of his measurements are level-relative with these units. This must apply as a consequence for the invariance according to Lorentz of the speed of light, the magnetic moments, rest masses, electrical charge etc.

From this gravitational Doppler theory we concluded that the same relativistic asymmetry must also apply to mass as to time dilation. Yes, the crowd is also larger in moving IF compared to less moving. This was shown by a newly discovered ***paradox of the relativistic impulses*** in a " *cosmic billiard game* " in a vivid thought-experiment and was absolutely necessary. As a result, all 3 relativistic attributes, length, time and mass are uniformly *asymmetric* attributes between the level IF.

The problem of the game of *billiards* is that with a relativistically increasing mass it is not possible, as SRT demands, to exchange the two IF, by mere assumptions and mind games, because it gives different impulse results. The spherical impulses and the direction of the cosmic spaceships become different and result in contradicting different realities. In order to be able to exchange the IF, one actually has to bring the masses of the exchanged IF up to the speed of the other before, ie earth has to be accelerated and it has to be moved in a " *Doppler* " manner by the gravitational field . And the spaceship has to be reversed, slowed down into the earthly IF and no longer moved through the G-field and it has to have a doping effect. The static G-field of local central masses together with the background G-field acts as a relativistic reference IF of a locally lowest gravitational level. Nobody will be able to “sink” below this level locally. Everything that moves in the totalized static G-field doubles it higher.

Therefore, in addition to “moving clocks go slower”, “moving lengths are getting longer” and “moving masses are getting heavier”, because they are gravitationally Doppler shifted in a relativistically higher manner. It is the hour of birth of a *gravitational level relativity* . In addition, see further, the Planck constant as the 4th relativistic attribute.

Definition: a static G-field is formed by the fact that the gravitational central masses, stars and planets, move relatively slowly. From every elementary mass particle they send out light-fast gravitons in all directions, which like photons are independent particles without feedback to the transmitter. But this light-fast particle field moves together with the centers of mass, even if it is of course not the same gravitons flowing in afterwards. Like the photons, gravitons must also remain moved transversely to their light-fast movement in the emitting inertial frame. So have a *transverse inertia* . They also have to flow transparently through everything, without being "consumed" in the slightest after interactions with each mass particle encountered in the path. So you don't give off any impulse. (Said somewhat anticipatory as a stone's throw in the direction of the Standard Model of Particles.)

The background G-fields of distant stars form a very homogeneous G-field from all directions and this is therefore eliminated in a compensating manner and cannot be measured. However, it is also Doppler shifted by a dynamically relevant movement. This graviton Doppler takes place blue and red shifting depending on the directional relation. While red Doppler tends to zero, blue Doppler can take place indefinitely, which means that the background G-field is no longer compensated, or it is compensated differently, Doppler shifted. Transversally there is only a red Doppler as it is optically.

The gravitational Doppler of the *graviton fields also* explains why the relativistic effects are not noticeable at classical speeds: there is a red and blue Doppler that compensate each other. Only with a higher V will the red Doppler remain smaller and smaller in amount than the blue, since it is pumped empty red towards zero, while blue can be Doppler shifted indefinitely.

These are truly the famous "groundbreaking discoveries" and the reader should now cheer enthusiastically at the latest. He should “enjoy knowledge” through the release of happiness hormones, if he has them - the more the earlier he got to read it in front of everyone else.

2nd triplet paradox

We called another newly discovered paradox the 2nd triplet paradox, which happens between two triplets travelling anti-symmetrically. They show a particularly high Lorentz gamma between them and yet have the same flowing dilated time. That explains neither SRT nor ART, but the new gravitational level relativity. The two anti-symmetrical travellers are on mirrored G-Levels, which show the same flowing time, equally heavy masses and equally stretched lengths in relation to erth.

These newly discovered paradoxes represent hard physical reasons to call the new Gravitational Level Relativity into being and to set the previous one as untenable, since no solution is possible in them.

II.3. Planck's constant discovered as a 4th relativistic quantity

On the basis of a further new discovered ***photon-atom-energy paradox*** , the necessity was justified to determine the Planck constant as a quadratic-relativistic, and to check it in units of Planck length, Planck time and Planck mass using another method [14] . The photon-atom-energy paradox says that the relativistically heavier atoms in moving IF emit strange and contradictory red-shifted time-

dilated photons. This must also apply to the de Broglie matter waves. This surprising solution was found and confirmed several times:

$$h' = \gamma^2 h \; ; \qquad h = h' / \gamma^2 \qquad : \tag{19}$$

In addition to surprising quadratic-relativistic proportionality, it is also asymmetrical like time dilation between the IF's, which is expressed in the reciprocal value.

This rounds the whole thing off even more in the direction of uniform asymmetrical relativity, which is based on a new fundamental Level Relativity Principle. If it were not asymmetrical, it could also be integrated into the SRT, where an asymmetry is only valid as a rule of thumb exclusively for time dilation per phenomenon.

II.4. Cosmological model away from space expansion and dark energy

Although not directly dependent on the available results, a purely gravitational cosmology model was designed that also uses Relativistic Gravitation Levels [15]. The hypothesis is based on the assumption that the emission of the gravitons, the force imparting particles of gravitation, only began at some point of time spread in space and was not there before. This is in line with the big bang theory.

Furthermore, the universe is therefore much more extensive than we had previously estimated and there are such worlds in the universe as our visible in large quantities, called world bubbles. All mass charges arose in this huge space in a birth phase that was very likely extended in time - but at a great distance from one another. Therefore, gravitons of the first beginning G-field travelled as fast as light for a very long time until they reached other parts of space. Their first arrival from distant and super distant world bubbles added up also to our local Gravitational Fields sum.

Due to a discovered Gravitational Volume Effect, the mass increases to the power of 3, but the weakening of the gravitation occurs with $1/r^2$, so that a linear increasing function f (r) remains for this super-distant primary increasing gravitation. More and more G-fields arriving for the first time are detected. After the primary G-field has arrived for the first time, it continues to flow in unchanged gravitation field flow. Only new incoming G-fields provide an increase in a locak gravitational flood.

This explains the kinks in the cosmological bell curve. There are spacing and volume effects.

The background G-field therefore changed in the course of cosmological history and today we have a "deeper" G-field than billions of years ago among our local central mass G-fields. We don't know anything about it and do not notice it because it comes from all directions and is very homogeneous.

This explains this excessive redshift in the spectra of distant stars. The proportionality to the distance and age of the light shows how much weaker the background G-field was back then - compared to today.

As a result, there is no unphysical assumption of Hubble's space expansion model about space expansion faster than light and consequently also about its assumed cause of dark energy - which is no longer needed.

All relativistic effects - and this is a newly discovered relativistic working gravitational flooding effect - are of a gravitational nature and cause. All. Nature does not make two different causes for the same effects. This common relativistic cause unites all the relativistic theories presented.

II.5. Results

From an asymmetry of time dilation defined in SRT, which is essential when solving the twin paradox, and the completely identical handling of time and length in Minkowski's theory, we already concluded that the same asymmetry must apply to length as to time dilation.

It follows that there is already a per *ad hoc* time dilation level relativity in SRT, but only for time dilation alone and one-sided, but never openly admitted, since the rigorous relativity principle requires complete equality of all IF. It is a lazy compromise that could not be kept. It is clear that if it were also carried through for time, the relativity would be completely nullified as it was discovered for length.

We conclude a level relativity that does not violate the 1-st postulate and laws of physics apply in all IF, but different relativistic levels in time and length, mass and Planck constant are asserted, just as the time dilation levels apply in SRT. A new level relativity principle was formulated in which all units are stretched uniformly in higher levels. The relativistically adapted units of all 4 attributess have the effect that all constants in all IF result in the same values in their own units and cause that apparent equality of the IF's.

The SRT and Minkowski theory do contradict each other: SRT contracts everything in the direction of movement towards zero, while Minkowski diagrams stretch the units for time and length to infinity. You can't be clearer than opposites. In the Minkowkli diagram, the measured distances and periods of time can still be shown in abbreviated form, but due to the less elongated units that fit between the same spatial locations.

$$\Delta x' = \Delta x/\gamma \text{ in SRT vs. } \Delta x' = \Delta x\,\gamma \text{ by Minkowski} \qquad (20)$$

$$0 \neq \infty;$$

The SRT interpreters of the Minkowski unit hyperbola apparently resort to tricks and cheat themselves in order to ***decouple*** from them, fathom the contracted rods and the length units contracted with them in the case of stretching units of length and to deny that too.

The SRT violates its own 2-nd postulate, the invariance of the speed of light, and therefore clearly harbours a serious logical error in the length measurement. It is therefore no longer durable and must be replaced.

$$c' = [m/sek] = [m/\gamma^2 sek] = f(1/\gamma^2) \quad (21)$$

These results are in line with our two other formulated relativistic theories [12. 13], which establish an asymmetrical stretching of units of length and an unifying Gravitational Level Relativity GLR based on the delivered gravitational Doppler effect. It became necessary to solve newly discovered impulse and a 2-nd triplet paradox. A new Level Relativity comes into the world broadly and holistically.

The SRT is no longer durable and must be replaced - by a Gravitational-Doppler Level Relativity. The mass consequently, as the 3rd relativistic attribute, must be handled uniformly to the first 2 asymmetrically in relativistic levels.

Finally a 4th relativistic attribute was discovered, the Planck constant - and this is also quadratically relativistic. And this is also asymmetrical in relativistic levels.

It should be noted that this discrepancy between Minkowski's unit stretching and rigorous length contraction was never recognized in SRT books, although often only a page apart and so clear. Overlooked by all well-known physicists and mathematicians including Minkowski himself, but he also died very quickly after publication at the age of 44.

	Gravitation Level Relativity GLR		SRT, mixed level / no level		
	stationary IF	Dynamic Doppler IF'	*resting IF*	*moved IF'*	
time unit	$\Delta t' = \gamma\, \Delta t$	$\Delta t = \Delta t' / \gamma$	$\Delta t' = \gamma \Delta t$	$\Delta t = \Delta t' / \gamma$	*consensus*
time measured	$t' = t / \gamma$	$t = \gamma\, t'$	$t' = t / \gamma$	$t = \gamma\, t'$	*consensus*
length unit	$\Delta l' = \gamma\, \Delta l$	$\Delta l = \Delta l' / \gamma$	$\Delta l' = \Delta l / \gamma$	$\Delta l = \Delta l' / \gamma$	*contradiction*
length measured	$l' = l / \gamma$	$l = \gamma\, l'$	$l' = l / \gamma$	$l = l' / \gamma$	*contradiction*
mass unit	$\Delta m' = \gamma\, \Delta m$	$\Delta m = \Delta m' / \gamma$	$\Delta m' = \gamma\, \Delta m$	$\Delta m = \gamma\, \Delta m'$	*contradiction*
mass measured	$m' = \gamma\, m$	$m = m' / \gamma$	$m' = \gamma\, m$	$m = \gamma\, m'$	*contradiction*
Planck h	$h' = \gamma^2 h$	$h = h' / \gamma^2$	$h = h'$	$h' = h$	*can get into SRT*
2-d postulate speed of light c in units	$c' = \gamma\, \Delta l / \gamma\, \Delta t$	$c = (\Delta l' / \gamma) / (\Delta t' / \gamma)$	$c' = (\Delta l / \gamma) / (\gamma\, \Delta t) = \Delta l / \gamma^2 \Delta t$	$c = \gamma\, \Delta l' / \gamma\, \Delta t'$	*Violation of 2-d postulate in units*
2-d postulate speed of light c in measured	$c' = \gamma\, l / \gamma\, t$	$c = (l' \gamma) / (t' \gamma)$	$c' = (l / \gamma) / (t / \gamma)$	$c = (l' / \gamma) / (\gamma\, t') = l / \gamma^2 t$	*Violation of 2-d postulate in measured*

Table 1. Comparison of the SRT and GLR in Lorentz transformations [14].

A long-sought integration of the elementary particles into the relativity was achieved: the wavelengths and frequencies of the particles and the gravitons are the elementary relativistic entities and interactions. SRT and ART cannot contribute to this because they stand apart from it.

Table 1 shows the results in a very compact comparison and differentiates according to units and measured values.

You can see clearly that only the time dilation was correctly calculated in SRT and a time dilation level was correctly asymmetrically asserted, although this was a tacit violation of one's own "equality if IF's" principle of relativity. Both, length and mass are treated symmetrically in SRT in opposition to asymmetrical use of time dilation.

The violation of the 2nd postulate in SRT occurs both according to units and according to measured values, but once each in the moving and resting IF, since 2 out of 4 calculations happen to come out correctly and contradict the 2 other incorrect results. This can be read directly from the table lines above for the length and time units and the measurements carried out with them. The failure is evident and not repairable in SRT as it is installed deeply in its basics. Who can after that tell, that this would be none significant new knowledge in relativistic's?

In GLR, only the earths IF or similar is considered a “stationary IF”, while in SRT both IF's can be exchanged at once will - so it is a clear counter-assertion.

II.6. "Barn pole paradox"

This parade heart of the SRT does not even appear in GLR, because both viewers agree that only the moved (in the static gravitational field) is stretched in relation to the *earthly* (in the static gravitational field) unmoved. This relative consideration is not relativistically "equally" interchangeable, as SRT claims, but can only be calculated asymmetrically in terms of time as well as lengths, masses and Planck constant by means of reverse Lorentz transformations according to Tab. 1 in a Level Relativity.

The apparently “successful”, rising explanation of the “barn paradox” on the basis of “synchronized clocks and relativistic simultaneity” must therefore simply be wrong in view of the knowledge available. Just a tricky game of confusion that is still waiting for a detailed, revealing analysis. It is already wrong because of the "Moritz and Sebastian calculation", which reveals and solves a length measurement failure and which remained hidden from the authors of the "successful barn paradox solution". This solution also became the undoing of the SRT.

III. Historical development of dynamic relativity

1.Before 1905: Lorentz and Poincare, in physical terms, contract the unmoved matter in the direction of movement with an "ether wind" thought of as a fluid medium with a certain direction of movement, to explain Michelson's zero result. They recognize the constancy of the speed of light and call ether an "undiscoverable medium". Synchronized clocks and light signals and relativistic simultaneity are introduced by Pioncare.

2.1905: Einstein completely rejects an “ether wind medium” and lets his theory work in completely empty space. It contracts moving matter and space, in terms of

kinematics, in the direction of movement - not explained very clear how, but due to the measurement processes it should only be “cinematic” effects. For the time dilation he introduces a time unit stretching, a dilation, and time segments measured with it are measured shorter. This means that *time dilation levels* are already creeping in, as a phenomenon that is defined *ad hoc*, because the rule of thumb is that “moving clocks go slower”. The equally valid relativity of the term “moving” is tacitly left open.

It does not apply to the lengths in the direction of movement - he rigorously follows his own principle of relativity, according to which all IFs have “equal rights”: they can be selected as a rest IF at any time and everything should be able to be calculated from them in the same way as for impulses, energies, invariant constants etc .. All lengths are always to be contracted, both distances and materialized units of length. All moving matter objects are contracted, such as rods, spaceships, planets etc .. This also applies to a reverse view, which was proven in an only seemingly "successful" solution of the barn pole paradox through "synchronized clocks and relativistic simultaneity". Both viewers-IF see each other symmetrically each shortened. Although completely different asymmetric applies to time dilation.

Furthermore, there can be found no justification why the time dilation in moving IF has to be more relativistic. It remains a phenomenon with no deeper explanation.

A contradiction due to the preferred actual, never recognized time dilation level relativity, which contradicts the relativity principle, in which any “preference for an IF” is forbidden, remains unnoticed and is used pragmatically as is. It was shut down with the abstract term "kinematic". It also goes unnoticed that if you double the contraction of both the units of length and the distances, the contraction is completely cancelled (see our Moritz calculation).

A violation of the 2nd postulate, the constancy of the speed of light, due to a contraction of the unit of length and a dilatation of the unit of time also remained unnoticed until 2021.

3.1908: Minkowski develops a 4D theory for the theoretical description of the SRT. It is uniform that both units, for length and time, are dilated and stretched indefinitely when the relative speed V increases. This contradicts the rigorous length contraction according to SRT, but not the time dilation, which is confirmed.

Nevertheless, a very motivated interpretation was used to cancel this, as required in SRT, only for the length contraction alone - to justify that allegedly, despite the unlimited length units stretching, a length contraction, as desired in SRT - and also symmetrically for both viewers - should apply. This justification is adventurous, to put it mildly, and there is a ***decoupling*** of the unit of length, which continues to grow, from the measured rod lengths, which should be shortened towards zero, even if they originally started the same as the unit of length.

It went unnoticed even by Minkowski, who, however, died of appendix on January 12th very soon after September 21st. Einstein declared Minkowski's theory "superfluous".

Although recognized as a complete mathematical description of SRT, a term like Minkowski's relativity theory, an MRT, was never popular. On the contrary, one clearly subordinates MRT to SRT. Most physicists had never known about the dilated units of time and length in MRT.

4. 1915-16: In continuation of Minkowski's theory, Einstein presents an equally 4-dimensional geometric ART, which stands separately for the static field-gravitation of the masses and leaves the dynamic relativity of movement to the SRT. There are 2

different causes of the relativistic effects, one is the SRT movement and the second is the GTR gravitation. SRT is described as a special case of GTR, but a mathematical derivation from GTR has not yet existed, after 105 years. A dynamic Doppler effect on the spatial geometry of the ART was never suggested and SRT acts as if born in “empty space”.

5.2021 GLR: the length measurement failure of the SRT are discovered and corrected, and a new paradox of the relativistic impulses as well as a 2nd triplet paradox are discovered, which both cannot be solved in SRT and ART. The misinterpretation of the Minkowski diagrams and unit hyperboles also discovered and corrected too. Minkowski's relativity theory MRT while contradicting SRT confirms the new hypotheses.

Furthermore, a violation of the 2nd postulate was discovered due to the contraction of the unit of length in SRT. In SRT it is irreparable and thus SRT is out of the running at all.

To solve the discovered paradoxes and errors, a consistent Level Relativity was developed uniformly for all relativistic attributes.

The Planck constant was discovered as the 4th relativistic attribute besides the mass, length and time, which is also quadratically relativistic. All 4 attributes, like time dilation in SRT alone, are to be handled asymmetrically between the Gravitational Relativistic Levels. A new level relativity principle was set up in which the laws of physics also apply in all IF's. This is achieved in that all units are relativistically changed "equally" and as a result all invariant quantities such as the speed of light, rest masses, magnetic moments and Planck constant etc. are measured as invariant constants. A distinction is made between units and the values measured with them - in contrast to the SRT where it stayed undefined.

→ Only units are directly subject to the relativistic effects and therefore measured values are sums of the measurement processes by that units.

A gravitational Doppler of the gravitons was hypothesized and confirmed as the cause of all dynamic relativistic effects. Both relativism's were thus united in a common cause, the gravitation alone. It explained both discovered paradoxes and the preferred choice for time dilation in SRT too.

In the Standard Model, however, the gravitons are particles, so they are not nothing at all. Therefore one can *retrieve the ether medium idea*, which was eliminated 116 years ago so hastily , and identify it in the gravitons. Gravitons are also undetectable and cannot be shielded and go through everything transparently. They can now be considered proven because they became the only main cause of relativity. In SRT, the only elementary cause of relativity was completely eliminated - only because another derivation of the Lorentz transformation was successful “in an empty vacuum”.

And it became clear that a failure like Morley-Michelsons can never be clearly interpreted as proof of the non-existence of what was being sought, at least not scientifically. A non-find always has two possible interpretations: a) actually non-existent, and b) bad and wrongly searched. And the second case is now clearly available.

IV. Standard particles model and GLR

The elementary properties of the elementary particles, wavelengths and frequencies, are the elementary relativistic entities that are multiplied to become macroscopic units, whereby the

relativity and the standard particle model can be unified, for the first time. All material objects are physically stretched through relativistically higher levels, i.e. moving spaceships and rods are physically lengthened instead of shortened according to SRT or only measured cinematically, and a barn pole paradox does not occur. Relativistic effects only occur on the elementary lengths, masses and time periods. And only then are multiple measurement processes carried out with it, which we carry out with assembled macroscopic units.

The gravitons, the force-imparting particles of gravitation, are given a very prominent role in the new GLR, as they are subject to a Gravitational Doppler in it and thus explain Dynamic Gravitation effects, which comes to view in relativistic movement effects.

It is the birth of a new gravitational level relativistic, GLR, which is now closely coupled and united with the Standard Model of Particles. For the first time.

Each progress in physics did need a very individual method and unexpected one, otherwise we would already know all by using the right golden method only. This time it was like that and only that way it was possible. So it doesn't matter if some one likes or dislikes it. The result is what counts.

V. Physics World War about SRT and the meaning of the sciences

It is already becoming apparent that the physicists and editors of the magazine publishers who have been contacted are not reading it at all. You will find such “arguments” for such as “it cannot be”, “SRT is correct and 100% checked”, “I don't need to read it and I didn't even read half of your post”, “so many couldn't be wrong , who are you already? ”. "We have to protect the world from nonsensical ideas". For some it took seconds. Too big and too long was an official opinion drawn up and concreted into dogmas and established. Nobody is happy about the new knowledge.

But the knowledge will prevail, sooner or later. Hopefully faster than was with Galileo. These are findings and ideas at the forefront of today's physics. No one before looked deeper in that direction. At the moment the physicists are reserved, like the "indians" who saw a book for the first time and others are doing like the Vatican once to Galileo.

It will probably depend on the fact that in a long list of non-reading, arrogant, conceited know-it-alls, ignoramuses, indifferent people, "non-competent" and clairvoyant fortune-tellers without their own contributions in physics, only one person with rank and name can still be found and then verbatimly in the media reports. Little grey ghosts fail when it comes to really forming your own judgment. To do this, he or she just has to want to read. And that will also be an achievement that must be remarkable to be the first to go against this current. The higher the rank, the greater the responsibility. Unfortunately, there are not many of the living who have merit of their own.

The length of time until the world of physics can and may experience it will also be a measure. It will also be interesting to know in which country and language area it will first turn from rejection to recognition. Each individual can find out for himself whether he is a scientist or just a herd animal.

Who will be the first enthusiast?

An exciting new time is coming into physics with a new Gravitational Level Relativity, which will replace very long lasting previous erroneous one. Those who understand sooner will have advantages and will be able to advance science even further. The objectors will exclude themselves from it.

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Quote 2: "The axes are then continuously subdivided into these units of measurement, the length of which , viewed from Σ , increases indefinitely for both x 'and ct' with increasing *u* ."

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