Special Theory of Relativity is Right Only in External-form but Intrinsic-origin Deleted Innately a Basically Imperfect Theory

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Abstract:: Being mutually symmetry-equivalent that all inertial frames in the Special Theory of Relativity (SR) and so being All Identical Each Other that Intrinsic-real Velocity Between Any Two Fixed Clocks of Any Different Inertial Frames, acting as the Key Gene of SR, are congenitally determined by SR's premise, the unity of the principle of special relativity and principle of invariance of light velocity. Decided by them, the essence of the twin paradox (TP), the 'Astronautic Youth-ate' (AY) being the Intrinsic Real Physical Change Effect (IRPCE) proved by the mathematical logic of Lorentz transformation and the Longevity of High-energy Meson, can only be the 'non-inertial effect'. Here we shows: The 'non-inertial effect' is the SR's Mirage --- the result of exterior-only relationship of mutual observation (RERMO), i.e. the extrinsic observational-only outcome caused entirely by that the set off by contrast with the greatly rapid change of observer's own simultaneity in the non-inertial phase, which is thoroughly not IRPCE; and so which though has testified the 'no-antinomy of TP' and 'self-consistent of SR' in RERMO-only but can not originate AY in IRPCE. It has been expounded and verified that AY can only be a fruitage of the process accumulation of the difference in physical elapsed-time caused by the different intrinsic-real velocity of physical clocks between the traveler and earth *mainly in the two inertial phases*; which denies the SR's Key Gene and reveals: It must objectively exist in the universe that the Unique Absolute Reference System, of it the time-space is isotropic and steady-homogeneous, *relative to it all the Lorentz effect of whole universe are IRPCE,* for it the simultaneity is the absolute unified sole of whole universe, by it AY is originated. SR has innately ignored this intrinsic origin of physical time-space structure and so is right only in external-form a basically imperfect theory. How can such an absolute essential gene coexist with SR in the opposite-unity structure of natural time-space, which has been analyzed in the sequel articles attached here as the Supporting Materials.
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1. Introduction

The twin paradox (TP) is a thought experiment for checking that whether the Special Theory of Relativity (SR) is self-consistent and perfect. It is well known that TP has verified the 'self-consistence of SR', yet follows revealed also by TP, almost never be known:

(Ⅰ) the 'Astronautic Youth-ate' (AY) being the essence of TP is the Intrinsic Real Physical Change Effect (IRPCE), which proved by the mathematical logic of Lorentz transformation and the Longevity of High-energy Meson.

(Ⅱ) The inertial-IRPCE acting for the intrinsic gene of nature of physical time-space has been congenitally deleted in SR by the premise of SR, the unity of the principle of special relativity and principle of invariance of light velocity, and so AY in SR can only be the 'non-inertial effect'.

(Ⅲ) Being the result of exterior-only relationship of mutual observation (RERMO) instead of IRPCE the 'non-inertial effect' can not originate AY in IRPCE, so the verification of 'self-consistence of SR' by TP is only in RERMO rather than in IRPCE.

(Ⅳ) SR is unable to essentially solve TP in IRPCE, which reveals SR is an inborn-basically imperfect time-space theory that is right only in external-form.

(Ⅴ) Consequently *the 'Longevity of High-energy Meson',* mistaken by almost all SR's scholars for an identification of SR, *is a negation* instead of evidence *for SR's relativity-only time-space view* and reveals the *inevitability of the objectively existence* of the unique Absolute Lorentz-Filtzgerald Contraction.

Making all these public to world and consummating modern time-space view to agree with the naturally dialectic objective reality of physical time-space, is the imperative and significant mission of this paper and its sequel articles.

2. Relativity-only time-space view

It is the necessary and sufficient premise for set up SR that the hypothesis about the principle of special relativity and principle of invariance of light velocity

are simultaneously both holding water *[1-7]*, of which the Lorentz transformation is the flawless expression and perfect embodiment.

$$T^* = \frac{T - \frac{v}{c^2}X}{\sqrt{1-v^2/c^2}},\ X^* = \frac{X - vT}{\sqrt{1-v^2/c^2}},\quad Y^* = Y,\ Z^* = Z \text{ . ..... (1)}$$

In Eq.(1), the two zero clocks both begin the timing at the moment that the Cartesian coordinate axes of the two inertial frames Σ and Σ^* are all correspondingly overlapped. The velocity V of Σ^* relative to Σ is identical in direction with the axis X.

Solving Eq.(1), get Eq.(2):

$$T = \frac{T^* + \frac{v}{c^2}X^*}{\sqrt{1-v^2/c^2}},\ X = \frac{X^* + vT^*}{\sqrt{1-v^2/c^2}},\ Y = Y^*,\ Z = Z^* \text{ , ... (2)}$$

2.1. Relativity-only character of simultaneity

By Eq.(2) and Eq.(1), get:

$$T^*(X^*) = T\sqrt{1-v^2/c^2} - \frac{v}{c^2}X^* = T^*(0) - \frac{v}{c^2}X^* \text{ ..... (3)}$$

$$T(X) = T^*\sqrt{1-v^2/c^2} + \frac{v}{c^2}X = T(0) + \frac{v}{c^2}X \text{ ..... (4)}$$

Eq.(3) shows that in $\Sigma's$ simultaneity space the moment value (*MV*) field of Σ^* is not the constant field, of which the gradient is the constant vector of $-V/c^2$ instead of zero. It can be graphically expressed as Fig.1. And Eq.(4) means the symmetry: The gradient of the *MV* field of Σ is the constant vector of V/c^2 rather than zero or $-V/c^2$ in $\Sigma^*'s$ simultaneity space. This is the famous relativity of simultaneity expounded firstly by Einstein, and which only a mathematical logic conclusion of the Lorentz transformation instead of a new elementary origination. Paying attention to that along the direction of V the simultaneity of Σ & of Σ^* are mutually different, but all identical each other are the clocks *MV* for each system in the plane being orthogonal with V. In order to emphasize such an important character, *all the points in the plane being orthogonal with V including a point p, are called as the 'MV-coincident (for each system its own instead of between the two system's) points with p as an identifier' (MCP with p) in this paper.*

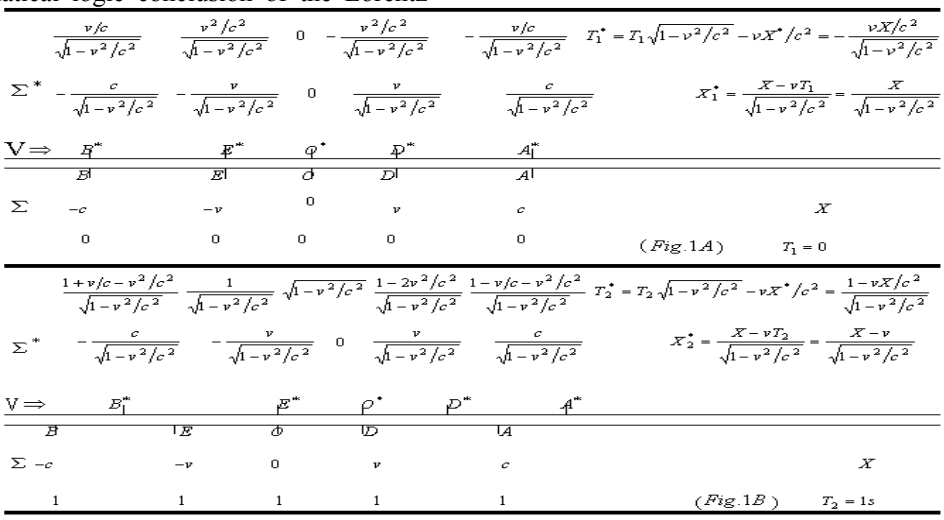

Fig.1. Correspondence Law of time-space coordinates: Gradient of Σ^*'s *MV* field is constant vector $-V/c^2$ instead of zero in Σ's simultaneity space. (A) At *MV* $T_1 = 0$. (B) At *MV* $T_2 - 1s$. Comparing (B) with (A), get $\Delta T_F^*/\Delta T_s = \Delta T_F/\Delta T_s^* = \sqrt{1-v^2/c^2} < 1$ .They are exact interpretations of relativity simultaneity & time dilation.

Eq.(3) & Eq.(4) reveal: So long as the conversion in time-space coordinates between two inertial frames abiding by the Lorentz transformation, the existence of absolute simultaneity, the unified simultaneity of whole universe, is impossible. So the simultaneity in SR is relativity-only.

2.2. Relativity-only character of motional clock slower effect

Comparing the *MV* of every settled clock in Fig.1B with the *MV* of themselves in Fig.1A (comparison takes place in Σ's simultaneity space), the conclusions are all following:

$$\Delta T^* / \Delta T = \sqrt{1 - v^2/c^2} < 1 \quad \ldots\ldots \quad (5)$$

Eq.(5) is justly the 'motional clock slower effect', which means 'the clock velocity of Σ^* is slower than those of Σ caused alone by the motion of Σ^* relative to Σ'.

But if such a comparison takes place in Σ^*'s simultaneity space, the conclusion will precisely be the opposite:

$$\Delta T / \Delta T^* = \sqrt{1 - v^2/c^2} < 1 \quad \ldots\ldots \quad (6)$$

Eq.(6) means that 'the motion causing mobile own clock slower, which is of Σ relative to Σ^* rather than of Σ^* relative to Σ'.

Can both Eq.(5) and Eq.(6) be simultaneously tenable? Yes, they can. They are contrary only in the external form instead of the internal content. Their connotations are entirely identical each other: *The ratio of any fixed-clock time (FCT) to its corresponding series clocks moments D-value (SMD) all is equal to* $\sqrt{1 - v^2/c^2}$ *--- FCT is the Difference of any a fixed clock*（*not only including the one in inertial state, but also including the one in any a uniform curvilinear motional state that is relative to its comparing inertial frame*）*MV between at the end and beginning of the settled course. As for its comparing system, it must be inertial frame rather than any non-inertial system. In this comparing system there are series clocks being 'MCP with the fixed clock' one by one in the course, which is called as the corresponding series clocks of the fixed clock in the settled course, and the Difference of the end corresponding clock MV minus the beginning corresponding clock MV is called as SMD.* So Eq.(5) and Eq.(6) should be essentially merged into:

$$\Delta T_F^* / \Delta T_S = \Delta T_F / \Delta T_S^* = \sqrt{1 - v^2/c^2} < 1 \ldots \quad (7)$$

Eq.(7) shows that the Lorentz effect in SR is also relativity-only, and which together with Eq.(3) & Eq.(4) is rightly the implication of what 'being mutually symmetry-equivalent of all inertial frames in SR'.

It must be emphasized that *FCT is absolutely the elapsed time of the fixed clock in the settled course, but SMD is generally not (the elapsed time of the frame of the correspondent series clocks in the settled course)*, or otherwise, Eq.(7) would be false.

2.3. Key gene of relativity-only time-space view

Whose fixed clock is objectively real slower, those of Σ^* or of Σ? Einstein has never openly answered this problem, but declared *[1-7]* that the Lorentz effect is RERMO-only instead of the intrinsic real physical change of mobile (Einstein's effect). Why and what is the meaning?

The time-space character includes only two aspects: the time-space metric and simultaneity. This two aspects are *mutually independent each other*. The time-space metric is the 'Intrinsic Velocity of Fixed Clock' with the 'intrinsic Length of Rule'. If there is any modification in time-space metric, the alteration would be the Intrinsic Real Physical Change caused by IRPCE. *The existence of such a difference in metric between any two inertial frames caused by such an IRPCE should bring about such two inertial frames to be neither symmetric nor equivalent each other, and so absolutely cannot be tolerated by SR* for that being mutually symmetry-equivalent of all inertial frames shown as in the unity of Eq.(3), Eq.(4) & Eq.(7) determined congenitally by SR's basic premise, simultaneously both tenable of the principle of special relativity and principle of light velocity constant. Therefore, above reply of SR is beyond all doubt that the Intrinsic-Real Physical Velocity of Any Fixed Clocks Between Any Different Inertial Frames are All Identical Each Other and that the Lorentz Effect is Only Resulted From the Relativity-Only Character of Simultaneity instead of *Any Intrinsic-Real Change of Physical Clock Velocity Caused by The Difference of Motional Speed of Different Inertial States*, and which acts justly as the Key Gene of SR's Relativity-Only Time-Space View.

Negating This Key Gene is the Historic Mission of TP.

3. Non-antinomy of TP and self-consistence of SR only in RERMO

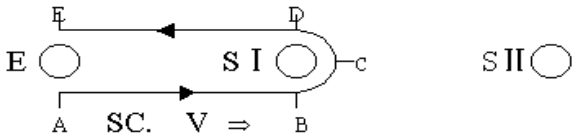

Fig.2.Skatch map of travel: (1) it is combined by an instantly finished turn-back non-inertial phase with two inertial phases that elapsed time can be infinitely set up; (2) end and beginning positions of two frames for whole travel both are MCP with each other; (3) relative speed is nearly c.

Fig.2: Supposedly there are the Earth (E.), Star Ⅰ (S. Ⅰ) and Star Ⅱ (S. Ⅱ) all on a straight line and relatively rest; their distance is $10^4 ly$ one by one. A travel of a spacecraft (SC.) shown as Fig.2 $A \Rightarrow B \Rightarrow C \Rightarrow D \Rightarrow E$ includes three phases: (1) from E. (point A) to S. Ⅰ (point B) in uniform straight motion, (2) followed by the half turn uniform circular motion surrounding $S.1$ -- the length of the half circumference B-C-D is $10^{-5} ly$, (3) finally moving inertially back to E. (point E); its velocity relative to the inertial frame $E. - S.\text{I} - S.\text{II}$ is throughout $v = c\sqrt{1-10^{-8}}$; V is the velocity vector in the phase(1). So if the observation made in E., the time of E. will be follows:

$\Delta T_1 = 10^4(1+5\times10^{-9})y$, $\Delta T_2 = 10^{-5} y$, $\Delta T_3 = 10^4(1+5\times10^{-9})y$.

And the time of SC. according to Eq.(7) is:

$\Delta T_1^* = (1+5\times10^{-9})y$, $\Delta T_2^* = 10^{-9} y$, $\Delta T_3^* = (1+5\times10^{-9})y$.

The time of whole travel is:

$\Delta T = 10^4(2+11\times10^{-9})y$, $\Delta T^* = (2+11\times10^{-9})y$.

And get:

$$\Delta T - \Delta T^* = 9999(2+11\times10^{-9})y \quad \ldots\ldots (8)$$

Must emphasize that ΔT & ΔT^* all are *FCT* because of what the end & beginning of the whole travel both take place at the '*MCP with* E. (Fixed Clock) '. Therefore, $\Delta T - \Delta T^* = 9999(2+11\times10^{-9})y$ is *the D-value of two FCT, the D-value of the Real Elapsed Time between of E. and of SC. in the whole travel, which shows justly the AY & what 'AY being IRPCE proved by the mathematical logic of the Lorentz transformation '.*

On the other hand, if the observation is made in SC., then the time of SC. is still above-mentioned (*i.e.* $\Delta T_i^{*'} \equiv \Delta T_i^* : i = 1-3$); but the times of E. according to Eq.(7) is changed into:

$\Delta T_1^{'} = 10^{-4}(1+5\times10^{-9})y$, $\Delta T_3^{'} = 10^{-4}(1+5\times10^{-9})y$;

$\Delta T_2^{'}$ can not be solved by Eq.(7) because of that SC. is non-inertial frame and so ΔT_2^* is not SMD of SC. corresponding to FCT of E. in this phase.

Since X^* of E. from $-1ly$ leapt to $1ly$ in this phase, so $\Delta T_2^{'}$ must be calculated as follows:

$$\Delta T_2^{'} = \frac{T^*(D) + \frac{v}{c^2}\times 1ly}{\sqrt{1-v^2/c^2}} - \frac{T^*(B) + \frac{v}{c^2}\times(-1ly)}{\sqrt{1-v^2/c^2}} = 10^4(2-9\times10^{-9})y.$$

The time of E. for whole travel observed in SC. is:

$$\Delta T^{'} = \Delta T_1^{'} + \Delta T_2^{'} + \Delta T_3^{'} = 10^4(2+11\times10^{-9})y$$

It equals justly to ΔT ! This result shows that between observed in the two different frames, the times of E. although are all dissimilar in every phase, but is unconditionally identical each other for the whole travel.

It must repetitively be emphasized that AY is the D-value between the *Real Elapsed Time* of E. and of SC. in the Whole Travel shown as Eq.(8) so is IRPCE, and that the Key Gene of SR is Being All Identical in Intrinsic-Real Velocity of Any Fixed Clocks Between Any Different Inertial Frames; therefore, according to SR, above A*Y can only be resulted from the instant turn-back non-inertial motion of SC. in the phase-(2)*. On the other hand, justly the

leap $\Delta T_2^{'}$ causes that the times of E. though are both less than the times of SC. in the phase-(1) and phase-(3) but greatly larger than the time of SC. for whole travel, and $\Delta T_2^{'}$ is rightly caused by that the observation is made in the non-inertial frame SC., so $\Delta T_2^{'}$ was called as the 'non-inertial effect' and affirmed for the origin of AY by SR's physicists. Precisely in view of above coincidence, the SR's scholars declare that both the 'non-antinomy of TP' and 'self-consistent of SR' has been perfectly solved.

Is it true?

No! The essential issue of principle can only justly be set out!

4. Mirage exposing imperfection of SR

As mentioned above: $\Delta T^{'} = \Delta T$ and ΔT^{*} are all FCP, so the D-value of $\Delta T - \Delta T^{*} = 9999(2+11\times 10^{-9})y$ is actually the D-value between the real elapsed time of E. and of SC. for whole travel. Such a D-value can only be a fruitage of process accumulation of the *difference in intrinsic-real velocities of physical clocks between E. and SC.* caused by IRPCE rather than RERMO. Therefore, the essential issue of principle is as that: Is the 'non-inertial effect' of SC., which only exists in its return phase for its own time of $10^{-9}y$, being IRPCE so as to accumulate the D-value of $\Delta T - \Delta T^{*} = 9999(2+11\times 10^{-9})y$?

If SC.'s 'non-inertial IRPCE' causing AY was existence, there would only be three existential forms for it: (1) causing only SC. its own clocks become real slower; (2) causing clocks of all inertial frames of whole universe become real quicker; (3) having both above two at the same time.

Is it the-(1), for which is 'non-inertial IRPCE' so can only exist in the 'non-inertial' phase-(2) but is absolutely unable to exist in the '*inertial'* phase-(1) & phase-(3), and FCT of the inertial frame $E.-S.\mathrm{I}-S.\mathrm{II}$ in the phase-(2) is only $10^{-5}y$, so even which was exceedingly strong up-to that causing the clocks of SC. are all stopped, would result in only that the D-value of SC.'s FCT less than E.'s FCT is $10^{-5}y$ for whole travel — about one over two billion of AY. So this feasibility is negated.

Analyzing the possibility-(2) is actually to reveal the essence of the MV leap $\Delta T_2^{'}$.

Observed in SC., $(-10^4 ly,0,0;10^{-4}(1+5\times 10^{-9})y)$ & $(10^4 ly,0,0;10^4(2+10^{-9})y)$ are the time-space coordinate of E. when SC. respectively at the position of B & of D. What is E.'s time-space coordinate when SC.'s position at the half circumference B-C-D midpoint C?

As the position of SC. at the C, $E.-S.\mathrm{I}-S.\mathrm{II}$ is MCP with SC., so the time-space coordinate of E. is $(0,10^4 ly,0;10^4(1+5.5\times 10^{-9})y)$ — the time coordinate of every point on line of $E.-S.\mathrm{I}-S.\mathrm{II}$ should all be equal to the *MV* of S.1.

Above three sets of time-space coordinate of E. show that observed in SC. during the phase-(2), accompanied by the *MV* leap $\Delta T_2^{'}$, E. moves a half cycle along the ellipse, of which the major axis is 10^4 times to the minor and the maximum velocity is over 3×10^{13} c!

Similar analyzing and calculating would show that observed in SC. during the phase-(2), The *MV* of S.Ⅱ has a *Retrogressive* (instead of Forward) rapid leap of $10^4\left(2-11\times 10^{-9}\right)y$, and accompanied by moving S.Ⅱ along the another half cycle of the ellipse that moving E. along.

Alike, under general circumstances, observed in SC. during the phase-(2), All inertial objects of the whole universe should entirely finish the similar ellipse movement a half cycle, and all accompanied by a half period *MV* oscillation and a *MV* leap: if R is the positional vector of the object relative to S.I measured in ly for length, would the major axis of the ellipse be $|R|$, the maximum velocity be $\left|10^9 c\pi R\right|$, the *MV* oscillating amplitude and leap respectively be $\left|vR/c^2\right|$ & over $-2V\bullet R/c^2$ — they are all unexpectedly direct proportional to the R! For instance, if $R=10^{10}ly$, over $3\times 10^{19}c$ the maximum velocity and almost $2\times 10^{10}y$ the *MV* Onward or *Retrogressive* leap would be! Justly such an intensity of being as farther as stronger so as seemingly to be the 'space

accumulated effect', causing Einstein to declare that such a 'non inertial effect' is equivalent to the 'gravitational deep-well effect' in 1918.

Only above-mentioned such an overall whole picture *shown as Fig.3 can rightly be the so-called 'Non Inertial Effect' and give us the* possibility *to reveal its natural essence* & reach the right judgment.

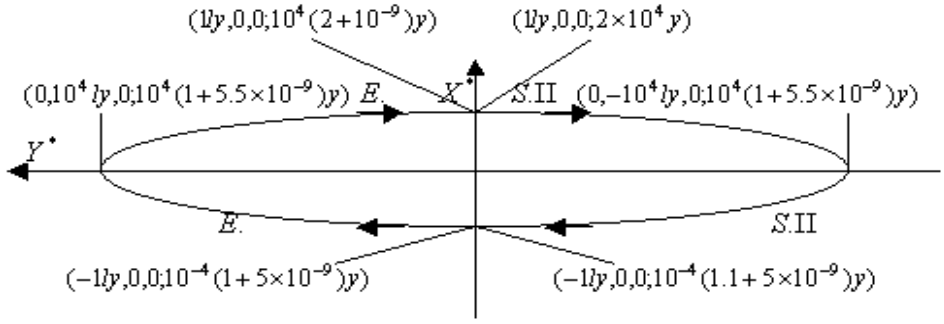

Fig.3. SR's Mirage: Observed in SC. during turning phase, all inertial objects of whole universe should entirely finish a half period *MV* oscillation & a *MV* leap, and all accompanied by similar ellipse moving a half cycle; which is union result of that set off by contrast with greatly difference of SC.'s own simultaneity at the D relative to at B and that whole universe observational-only reversing sighted certainly by rotating observer, so which is SR's Mirage instead of IRPCE. Onward Leap 10^4 y of E.'s *MV* & Retrogressive Leap 10^4 y of S. II 's *MV* is two examples only.

Can such a 'non inertial effect' leap $\Delta T_2'$ be IRPCE so as result in AY? If can:

Why can the clock intrinsic-real velocity of all inertial frames of whole universe be greatly and variedly changed only caused by an instant turn-back motion of an Inconsiderable SC.? Such a changing should result in the giant difference of the clock intrinsic-real physical velocities between different inertial frames; is which consistent with the key gene of relativity-only time-space view of SR?

Why can a minute turn-back motion of a small SC. cause all inertial objects of whole universe completely finishing similar ellipse movement a half cycle with the speeds may be infinite super-c?

What is the signification of the *MV* endless *Retrogressive* leap of all inertial frame clocks in the half of universe — being the immeasurable intrinsic-real *Retrogression* of physical-history of limitless objects and which caused merely by a twinkling non-inertial motion of an insignificant SC. located can be at infinity?

There are innumerable non-inertial object motions in the universe, why does only the momentary turn-back of SC. have such infinite magic a power that unexpectedly direct proportion to the distance?

And so forth.

It is only unique answer can simultaneously solve all the puzzles what above-mentioned *overall picture as a whole* is the result of the unification of that the inevitable observational-only reversion (instead of real movement) of whole universe caused by observer's own rotation, and that the outcome of the set off by contrast with the greatly rapid change of observer SC. its own simultaneity in the turning-back non-inertial motion phase.

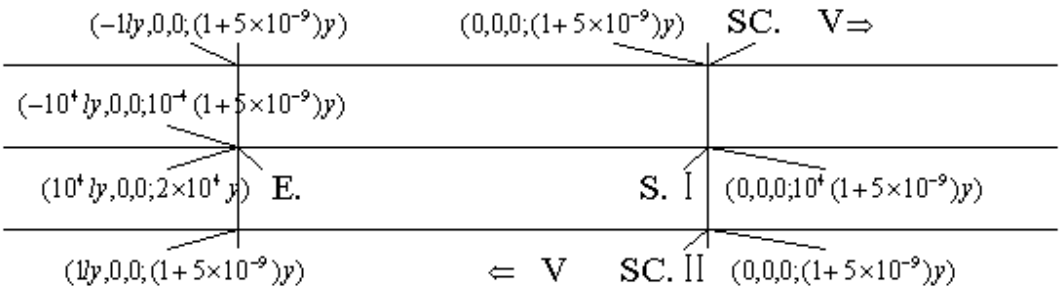

Fig.4. *MV* leap of E. caused by contrast: $T''-T'=10^4\left(2-10^{-8}\right)y$ is unadulterated the set off by contrast with greatly different simultaneity between of SC. II & of SC. without any elapsed time of E.. It less than $\Delta T_2'$ is only $10^{-5}y$, which precisely equal to ΔT_2 , and is justly elapsed time of E. in phase-(2).

The former is easy to understand without any further explanation; as for the latter that can be expounded by follows analyzing shown as Fig.4: If at the moment for that SC. at the position of B, there is a SC.II at position of D with *MV* same as $(1+5\times10^{-9})y$ of SC. and velocity of -V relative to E.; taking $X'(SC.1)=X''(SC.1)=X'(SC.II)=X''(SC.II)=X'(S.1)=X''(S.1)=0$ for 'MCP with SC.-S.1-SC.II', then $(10^4 ly,0,0;2\times10^4 y)$ would be the time-space coordinate $(X'',Y'',Z'';T'')$ of E. observed in SC.II according to Lorentz transformation. Comparing it with $(-10^4 ly,0,0;10^{-4}(1+5\times10^{-9})y)$ of E. time-space coordinate of $(X',Y',Z';T')$ observed in SC. at the same moment, there is a giant D-value $T''-T'=10^4(2-10^{-8})y$.

What is it? Is the real physical elapsed time of E.?

No! *It is the observational-only D-value of MV of the same fixed an object E. observed at the same real-moment* but between the observations being made in two different inertial observational frames SC.II and SC., which *uniquely caused by that* the MV of E. is $5000(2-10^{-8})y$ *less than* MV of S.1 in the simultaneity space of SC. but oppositely in the simultaneity space of SC.II the MV of E. is $5000(2-10^{-8})y$ *more than* MV of S.1, so which is unadulterated the result of the set off by contrast with the great difference in the relative simultaneity between the observational frames SC.II and SC.1 instead of any elapsed time of E.. It less than the *MV* leap $\Delta T_2'$ is only $10^{-5}y$, which is precisely equal to ΔT_2, the elapsed time of E. in the phase-(2) of the travel.

Therefore, the 'non-inertial effect' leap $\Delta T_2'$ is thoroughly RERMO instead of IRPCE. So it can perfectly testify 'non-antinomy of TP' and 'self-consistent of SR' in RERMO-only, but absolutely can not originate AY in IRPCE. Feasibility-(2) is also negated.

The feasibility-(1) & (2) are both negated, the possibility-(3) naturally cannot become effective.

There is universal significance in above argumentation because of that the solutions of TP available in literatures are though variegated in modality but all uniqueness and equal to ours in essential key: all rely on the *MV* leap $\Delta T_2'$ of E. observed in SC. during the phase-(2) of the travel, and so can essentially be summed up as follows:

Suppose the phase-(2) of SC. travel is that SC. moves in linear variable motion state until its velocity U relative to E. become of $-V$ $(U(Position):V(B)\Rightarrow 0(C)\Rightarrow -V(D))$ for (elapsed time) $10^{-5}y$ of E., then observed in SC. would get: the E. time-space coordinate $(X_E'',Y_E'',Z_E'';T_E'')$ is $(-1ly,0,0;10^{-4}(1+5\times10^{-9})y)\Rightarrow(-10^4 ly,0,0;10^4(1+t\times10^{-9})y:6>t>5)$ during position of SC. being $B\Rightarrow C$; is $(-10^4 ly,0,0;10^4(1+t\times10^{-9})y:6>t>5)\Rightarrow(10^4 ly,0,0;10^4(1+t\times10^{-9})y:6>t>5)$ as position of SC. at C; and is $(10^4 ly,0,0;10^4(1+t\times10^{-9})y:6>t>5)\Rightarrow(1ly,0,0;10^4(2+10^{-9})y)$ while position of SC. being $C\Rightarrow D$. There is also the E. *MV* leap $\Delta T_{E.2}''=T_{E.}''(D)-T_{E.}''(B)=10^4(2-9\times10^{-9})y\equiv\Delta T_2'$ accompanied by the *MV* retrogression $2V\bullet R/c^2$ & the infinity-speed movements of all inertial objects of whole universe, which testified the 'non-antinomy of TP' and 'self-consistent of SR' in RERMO-only but originate no AY in IRPCE.

It is thus clear that above prospects of 'non-inertial effect' is RERMO-only a SR's characteristic *mirage* originating no AY in IRPCE. *Justly having no other choice but to absurdly ascribe AY to such a typical* mirage *of SR, exposes the basic imperfection of the SR's relativity-only time-space view [8-10].*

As for Einstein's opinion about the 'gravitational deep-well effect', due to which guesses justly above 'non-inertial effect', the 'gravitational deep-well effect' is equivalent to, and so which does not bring any change to above argument. Can the issue be tested to solve directly according to the guess of 'gravitational deep-well effect'? Certainly can. But *no matter what is the calculated result, such a virtual 'gravitational deep-well effect' is definitely also RERMO-only originating no AY in IRPCE*, of which the verification may entirely follow above-mentioned argumentation for the same about the 'non-inertial effect'. In order to close our demonstration but does not disturb

the main task, an appendix-1 is given to analyze that whether at the meaning in RERMO-only the guess can also emerge an observational self-consistency for 'non-antinomy of TP'. Regretful, it cannot even only to do so, which shows the opinion is a false conjecture and the 'non-antinomy of TP' has no any link together to the 'gravitational deep-well effect'.

5. Absolute Lorentz-Filtzgerald Contraction, the intrinsic-origin of physical time-space structure, must uniquely exist

It is proved by the mathematical logic of Lorentz transformation and confirmed by physical experiments such as the 'longevity of the high-energy meson' that AY is IRCPE. Just for it, AY can only be caused from the 'non-inertial effect' in SR determined innately by the key gene of its relativity-only time-space view. Now this unique theoretical outlet of SR has absolutely been stopped up, which has undoubtedly revealed that SR is the non-perfect time-space theory and the imperfection is congenital and basic. Therefore, implanting the essential gene of nature of physical time-space to consummate modern time-space view and so to certainly originate AY in IRPCE is imperative.

In above travel for AY, $\Delta T, \Delta T_2, \Delta T^*, \Delta T_1^*, \Delta T_2^*$ & ΔT_3^* are all FCT so are all the real elapsed time of the corresponding frame in the corresponding phase; only ΔT_1 & ΔT_3 are SMD so can be different from the real elapsed time of E. in the corresponding phase. But the sum $\Delta T_1 + \Delta T_3 = \Delta T - \Delta T_2 = 10^4(2+10^{-8})y$ is D-value $\Delta T - \Delta T_2$ of two real elapsed times of E. so also is the real elapsed time. 'At least one of two addends is unless to a half of their sum' shows that *at least one among the real elapsed physical time of E. in the phase-(1) & phase-(3) is unless* $10^4(1+5\times10^{-9})y$. Not lose general, can suppose that it is in phase-(1). Thus get: *in the phase-(1), the real elapsed physical time of E. is unless* 10^4 *times to that of SC.*. Because of all the clock velocity in any fixed inertial frame are identical each other and respectively constant, this result is equal to that *in the phase-(1) the intrinsic-real physical clock velocity of E. is unless* 10^4 *times to that of SC.* (Must emphasize that surely the clock real velocity of SC. does not exceed 10^{-4} times to that of E., which only in one among the two inertial phases. As for another, the result can logically be the opposite). Since *this result is reached uniquely according to the Lorentz effect decided only by the motion velocity instead of any else motional quantity such as accelerations or displacements*, and so which is the Lorentz-Filtzgerald Contraction and reveals:

(1) The inertial motion besides have the relative extrinsic aspect of the mutual relationship, of which inertial frames are all mutually symmetry-equivalence and caused by which the Lorentz effect is Einstein's effect in RERMO, but *also have the absolute intrinsic aspect of the objective existence, of which inertial frames are generally non symmetry-equivalent each other and caused by which the Lorentz effect is* the Absolute Unique Lorentz-Filtzgerald Contraction *(*$AULFC$*) so is all IRPCE. Therefore, the reference frame for such an absolute motion must uniquely exist in universe and certainly is called as the Absolute Reference System* Σ_0.

(2) The Lorentz effect must be the opposite-unity of the extrinsic existent form with the intrinsic substantial essence.

The extrinsic existent form is Einstein's effect in RERMO instead of IRPCE for motion object described rightly by SR.

The intrinsic substantial essence being the nature-essential gene of physical time-space deleted innately in SR is the $AULFC$ and can be resumed as follows:

It must uniquely exist in the universe that the Absolute Reference System Σ_0*, in which the time-space is isotropic and steady homogeneous, relative to which the Lorentz effect of whole universe are all the* $AULFC$*, of which the simultaneity (set up by the principle of the light velocity is constant alone in* Σ_0 *rather than any else inertial frames) is the absolute simultaneity, the objective unified simultaneity of whole universe, by which AY is originated in IRPCE.*

Can such two aspects coexist and transform mutually? Naturally can and the crux is:

Deprive entirely *none of the absolute intrinsic-real metric of whole universe decided by the* $AULFC$ but respectively for every motional system （*i.e.* except alone for ARS） displace the nominal value field of initial moments only, SR would necessarily and sufficiently be mathematic-logically reached from the $AULFC$ and the

twin paradox may essentially be solved by the $AULFC$, which reveals that justly the $AULFC$ induces a possible physical time-space structure theory standing alone in no-paradox, of which $AULFC$ is the intrinsic origin & determining connotation and SR is the right description of external-form only. But on the other hand, *it is impossible determined innately by* $AULFC$ *itself that to quantitatively find-admeasure the* $AULFC$ *immediately by kinematics experiments*, which endows it innately with the forced inevitability, and the feasibility of it is ensured congenitally by that the physical time-space metric & simultaneity is mutually independent each other, the opposite-unity of $AULFC$ & SR in above 'possible physical time-space structure' has become an inborn inexorable law.

This is a fundamental but complex view of dialectics of nature. Due to the main task and limited space, have no choice but to analyze it by the appendix-2 entitled 'Dialectical View of Nature in Physical Time-Space — Consummating Special Relativity'.

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Appendix-1

Negation of 'AY is Gravitational Deep-well Effect'

Einstein declared that AY is equivalent to the 'gravitational deep-well effect' in 1918. Is it true? -- He did not give the proof, but following analyzing will negate it.

In order to simplify the close verification, the phase-(2) of SC. travel is changed into what SC. moves in uniformly variable motion state for time of t until its velocity relative to E. becomes the equivalent reversion. So its acceleration is –2V/t. If observed in SC. during this phase, all the inertial frame of whole universe completely would have the acceleration of 2V/t without exception. According to Einstein's equivalence principle, 'a gravitational field is equivalent to an acceleration field', whole universe would be equivalent to a virtual gravitational field with the invented constant gravitational acceleration of 2V/t. Such a gravitational field should take its source as an infinitely great plane board that is normal to V and located at infinity. Its general solution of the Einstein's gravitational field equation is follows.

$$d\tau^2 = \pm\left[\left(1+\alpha\xi^1\right)d\xi^{4^2} \mp \frac{d\xi^{1^2}}{1+\alpha\xi^1} \mp d\xi^{2^2} \mp d\xi^{3^2}\right]$$

For making the surety, let us corroborate it by way of substitution:

(1) Covariance metric g_{ij} and contra-variance metric g^{ij}:

$$g_{ij} = \begin{pmatrix} \pm\left(\mp\dfrac{1}{1+\alpha\xi^1}\right) & & & 0 \\ & \pm(\mp 1) & & \\ & & \pm(\mp 1) & \\ 0 & & & \pm\left(\begin{smallmatrix}+\\+\end{smallmatrix}\left(1+\alpha\xi^1\right)\right) \end{pmatrix}$$

$$g^{ij}=\begin{pmatrix} \pm\left(\mp\left(1+\alpha\xi^1\right)\right) & & & 0 \\ & \pm(\mp 1) & & \\ & & \pm(\mp 1) & \\ 0 & & & \pm\left(\begin{smallmatrix}+\\+\end{smallmatrix}\left(\frac{1}{1+\alpha\xi^1}\right)\right) \end{pmatrix}$$

(2) Covariance metric partial derivatives $g_{ij,k}\equiv\frac{\partial g_{ij}}{\partial\xi^k}$, non-zero independent components are only two:

$$g_{11,1}=\pm\left[\pm\frac{\alpha}{\left(1+\alpha\xi^1\right)^2}\right] \qquad g_{44,1}=\pm\left(\begin{smallmatrix}+\\+\end{smallmatrix}\alpha\right)$$

(3) Affine connection components $\left\{\begin{smallmatrix} i \\ jk \end{smallmatrix}\right\}\equiv\frac{1}{2}g^{im}\left(g_{mj,k}+g_{mk,j}-g_{jk,m}\right)$ non-zero independent components are following three: $\left\{\begin{smallmatrix}1\\11\end{smallmatrix}\right\}=-\frac{\alpha}{2\left(1+\alpha\xi^1\right)}$, $\left\{\begin{smallmatrix}1\\44\end{smallmatrix}\right\}=\begin{smallmatrix}+\\+\end{smallmatrix}\left(\pm\frac{\alpha\left(1+\alpha\xi^1\right)}{2}\right)$, $\left\{\begin{smallmatrix}4\\14\end{smallmatrix}\right\}=\frac{\alpha}{2\left(1+\alpha\xi^1\right)}$

(4) Curvature tensor $R_{ijk*}{}^{m}\equiv\left\{\begin{smallmatrix}m\\ki\end{smallmatrix}\right\}_{,j}-\left\{\begin{smallmatrix}m\\kj\end{smallmatrix}\right\}_{,i}-\left\{\begin{smallmatrix}m\\li\end{smallmatrix}\right\}\left\{\begin{smallmatrix}l\\kj\end{smallmatrix}\right\}+\left\{\begin{smallmatrix}m\\lj\end{smallmatrix}\right\}\left\{\begin{smallmatrix}l\\ki\end{smallmatrix}\right\}$, are all zero.

So gets: $R_{ij}\equiv R_{mij*}{}^{m}=0$; $R\equiv g^{ij}R_{ij}=0$; $R^{ij}\equiv g^{im}g^{jn}R_{mn}=0$; $G^{ij}\equiv R^{ij}-\frac{1}{2}g^{ij}R=0$. In the plane source field, the stress-energy tensors P^{ij} are all zero everywhere except alone for the field source plane, so get: $G^{ij}+\alpha P^{ij}=0$.

Although the four solutions determined by their field source form are all the 'non curved solution', but all the nontrivial solution, and so all the valid solution. They do not transfer into Euclidean metric at infinity, which is caused by the source plane board itself is infinite.

Comply with Schwarzschild condition, taking the solution-1 and getting $\alpha=-2a/c^2=-4v/c^2t$ into it, so get: $d\tau^2=\left(1-4vX/c^2t\right)dT^2-\left(1-4vX/c^2t\right)^{-1}dX^2-dY^2-dZ^2$

The disposal of finite restriction is necessary. There are two suggestion of it: (1) X of E. is zero, then X of SC. is $10^4 ly$; (2) X of SC. is zero, so X of E. is $-10^4 ly$.

Is it the-(1), would get: The metric of E. is $g_{44}=1$, then that of SC. is $g^*_{44}=1-4\times10^4\left(1-5\times10^{-9}\right)t^{-1}y$. This result means that if $t\le4\times10^4\left(1-5\times10^{-9}\right)y$, SC. will be in the Schwarzschild-singularity time-space area. Such a 'gravitational effect' cannot certainly be cognate with AY.

Is it the-(2), will the metric of SC. be $g^*_{44}=1$ and that of E. be $g_{44}=1+4\times10^4\left(1-5\times10^{-9}\right)t^{-1}y$. If $t=10^{-9}y$, will get $g_{44}=4\times10^{13}$, so $\Delta T_2^{''}=t\sqrt{g_{44}}=6.3\times10^{-3}y$, is far less than $\Delta T_2^{'}=10^4\left(2+11\times10^{-9}\right)y$ that is necessary for the 'non-antinomy of TP'. As for to get $\Delta T_2^{''}=10^4\left(2+11\times10^{-9}\right)y$, then the real elapsed time of SC. in the phase-(2) will be $t=8.3\times10^3y$ exceeding 4.1×10^3 times to the elapsed time of SC. in the whole travel!

Therefore, at the meaning for RERMO-only, the view of the 'AY is non inertial effect' has testified the 'non-antinomy of TP', but the opinion of the 'AY is gravitational deep-well effect' is even unable only to do so! — It is a false conjecture.

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