ISSN 2661-2666 (Online) International Scientific Journal Monte (ISJM)

DOI: 10.33807/monte.20243115 | Volume 9, No.2 (2024): April

MEANWHILE, THE ARROW OF TIME PURPOSEFULLY, RAPIDLY AND INEXORABLY IS CARRYING US FORWARD!..

/To the issue of the aptitude of one paradigm, enough spread among physicists/

Emir E. Ashursky
Institute of Artificial Intelligence at NAS of Ukraine,
futuroid@mail.ru

ABSTRACT

This article is devoted to the overthrow of the idle conjectures of sci-fi writers (and after them some romantically minded astrophysicists), one way or another relating to the notorious time travel. Wherein primary attention here is paid to proof of the absolute conceptual prohibition on moving into the past. After all, according to author's count, lots of fabrications of the human intelligence are by no means equivalent to the quantity of objects of the so-called Cauchy horizon. And moreover: the ordinal of our generalized spiritual world should be obviously higher than for a similar set of structural elements of the observed cosmos. In particular, if a number of material objects is N, a manifold of their cogitable combinations may vary from 2n to Nn. But still with that, it does not seem possible, however, to refute (as shown yet by Kurt Gödel) the significant majority of these frankly dubious speculations at a physical & mathematical level. Thus precisely the probabilistic approach (or, if you like, algorithm) is a quite legitimate and the only correct for given case!

And summarizing, the author leads his reader to a quite reasoned conclusion that unraveling the most complex outlook problems of existence, it is better obviously to trust philosophers rather than naturalists or techies!

Keywords*: special theory of relativity, time ribbon a la Minkowski, cardinality of the set, Novikov self-consistency principle, dark energy, prophetic perception.*

INTRODUCTORY PART

Serious academic science states that time travel is possible in only one direction, namely, the future. After all, at returning to the past, we interrupt fundamental laws of causality. And, by the way, it's precisely because of this once we've been in the future, we will never be able to "land" at our habitual environment again.

Although a particular case is the idea, expressed in the early 1990s by my now deceased friend Vadim Chernobrov [2013]: supposedly it is quite permissible to travel in both directions, for we are not talking about hypothetical chrono-voyagers visiting exactly our universe but only some parallel worlds. However, since given statement is impossible either to confirm or deny, it's probably more logical to put this in the sphere of ordinary harmless fantasy, rather than in the real scientific problems.

While, regarding common postulate of the unidirectionality of the arrow of time, it for now, alas, contradicts many of used us standards basing on almost everywhere observed attributive symmetry like "forward or backward", "better or worse", "right-left", "plus-minus" etc.

That is, similar pronounced exceptionality of "His Majesty Chronos" thereby as if a priori not available to realized human perception. Though this conceptual conflict is easily obscured by means of fundamental rethinking current space-time paradigm. And, besides, as it was repeatedly emphasized in the previous author's

articles, such an updated interpretation of the time factor would certainly help also to figure out with the notorious "dark energy", which in practice does not exist [Ashursky, 2022].

II. Under the cherished heading "retro".

At the beginning of the 20th century (and largely due to Michelson's amazing enthusiasm and perseverance who managed – with his ultra-precise experiments - to prove the invariance of the speed of light), the special theory of relativity was created. And the truly immortal works of Lorentz, Poincaré and Einstein following then led to a root qualitative reset in the scientific field, but along with it - to the emergence of new unsolved mysteries as well. That is, with the development of SRT, we finally began to properly understand those comprehensive principles and axioms which guide the Universe. And besides, one of useful practical results of this consisted namely in the opportunity of adequately calculating all admissible spatio-temporal correlations (including for a rapidly moving object). And just here in physicists' minds, another still desperate but quite noteworthy creative idea has latently ripened: isn't it possible (i.e. in accordance with existing natural laws) to speed up the flow of time to such parameters as to overtake the future? Well or, say, on the contrary: is it really to somehow get on similar imaginary "chronoplane" into the past?

As you know, in a series of his theoretical studies, Hendrik Lorentz deduced a number of patterns associated with the transformation of the four-dimensional space-time continuum. Let us have a certain frame of reference K, relative to which the frame K' moves where the observed object is placed. One of the Lorentz transformations states that

$$t = \frac{t' + \frac{v}{c^2}x'}{\sqrt{1 - \frac{v^2}{c^2}}} \quad (1)$$

Here t is the moment of time in the reference frame K (or respectively, t' - in the frame K'), x' is the coordinate of the observed object in the frame K' (we suppose it constant), v is the speed of the frame K', c is the speed of light. This transformation interconnects moments of time of allegedly moving system and the system being at rest. Based on the speed of a body will never exceed the speed of light, we can conclude that the gamma factor

$$\frac{1}{\sqrt{1 - \left(\frac{v}{c}\right)^2}} \geq 1$$

from which it follows that for the system K' time will go more slowly.

By traveling into the past, we break causal relationships, and what has already happened can disappear forever: after all, one event, by and large, is the cause of another. A striking example of this is the "paradox of the murdered grandfather": if some grandson returns to the past and kills own grandfather, his birth will be impossible. However, as the grandson was not born, then no one killed the grandfather, so the grandson has still been born. This is precisely the logical essence of given contradiction.

And now let's again look at the Lorentz transformations, i.e. to formula (1) – and note that the gamma factor

$$\gamma = \frac{1}{\sqrt{1 - \left(\frac{v}{c}\right)^2}}$$

will never become negative, i.e., the inequality $t \geq t'$ is true. From here the conclusion immediately suggests itself that due to the effect cannot precede the cause, any travels into the past are impossible.

By the way, half a century ago, young American physicists R. Keating and J. Hafele managed to carry out a compared ingenuous and cheap but long-demand by science experiment to test the validity of SRT. To do this, they took a couple of cesium chronometers and made with them two flights around the globe. As a result, the experimentally obtained data on the change in the course of time on board the aircraft (relative to the control clock at rest) completely coincided with the calculated ones. Which, therefore, has been another convincing argument in favor of the correctness of the Lorentz transformations.

It would seem everything is finally put in own place, so it's overdue to stop an idle speculation on the topic of "murdered grandfather". But it was not there! For the notorious general theory of relativity (that has been ignored, by the way, with the Nobel Committee's experts) it turns out, admits still possibility of some special wormholes, through which one allegedly can walk readily into the past. That is, there are on the face quite weighty prerequisites for a revision or even a denial of the fundamental postulate about the universal causality of any phenomena observed in nature.

Although representatives of such an elitist-intellectual sport as billiards have tried to resist this sheer "worm-like" drivel. Let's say, they reasoned, we have an imaginary cue-ball which rolls along some carefully calculated trajectory, falling into an early version of itself; but wherein acting on own former hypostasis (i.e. in relation to the ball – on coordinates, momentum and path) so, that all these parameters retain as a whole their status quo ante. However as if incidentally we deal with other very unpleasant paradox here - a causal loop (this is when the effect turns into its cause, which ultimately leads to a complete cycle of given process).

At that Nobel laureate Kip Stephen Thorne [1994], the creator of superstring theory Joseph Polchinski Jr., president of the American Astronomical Society J. Craig Wheeler [2007], popular sci-fi writer Robert Lull Forward [1995] worked more than enough on an adequate interpretation of the most diverse pills' options; but - alas - without particular success. And eventually, perhaps, the single benefit from those unfruitful logical-probabilistic sophistications was extracted only by the famous Austro-Czech cybernetician Hans Moravek [1992] to improve the iterative method in the computer, and also the developers of the appropriate electronic video-games, where the plot is not rarely built just on such "causal-loop" correlating.

III. And why do not you learn at first the basics of philosophy, my elderly gray-haired colleague?

Separately one should dwell here on so-called Igor D. Novikov's principle of self-consistency; especially that since when he was the head of the Center for Theoretical Astrophysics (and later - deputy director of the new-minted ASC LPI), Igor Dmitrievich did indeed make all sorts of attempts to construct some kind of intertemporal capsule. And moreover, unlike V.A. Chernobrov [1999] (who worked simultaneously with him on accelerating or delaying internal time parameters among representatives of small biota and natural minerals), this "fallen into childhood" metropolitan professor was seriously going to meet with dinosaurs, mammoths and the legendary biblical patriarchs.

By the by, here is how his notorious hypothesis is verbatim formulated [Friedman/Novikov, 1990]: "The different-time events influence each other around a closed curve in a self-adjusted cyclical way. Therefore, the only solutions to the laws of physics that can occur in the real Universe are those which are globally self-consistent". At that, as it is easy to see, this postulate has quite a distinct resemblance to already compromised anthropic principle. For in both cases, surrounding world supposedly must itself somehow adapt to the personal requests and needs of an abstract observer [Ashursky, 2021]. Or - translated into a more intelligible language - this is called "from a sick head on a healthy!"

And besides, in Novikov's concept, any sapient individual willy-nilly is likened to a simple soulless robot. Because, having got into the previous epoch, he has no right to violate some once and for all established space-time trajectory. Hm... Wait a minute, comrade Corr.-Member: but from a philosophical point of view, this is a real dense slipping off the positions of relativistic indeterminism now generally accepted in the scientific community! For, as known, even purely this-worldly being is multi-vector in fact: it, particularly, depends not only on the external macrostructure, but also on subtle latent influences (including those from the stars, the terrestrial mantle and Universe's noosphere). Let alone spontaneous virtual-quantum fluctuations at the level of

given concrete "Ego". Whereas in the presented by you interpretation, all this is recklessly and without remainder ignored!..

Although, in my opinion, the prime cause of Igor Dmitrievich's quite obvious outlook delusions lies in that on the natural-science department of Lomonosov MSU (which he graduated in 1959) insufficient attention was paid to the humanities. Since, as many have apparently learned from their everyday experience, not all, what mathematics postulates, is just as easy implemented in habitual life. That is, the practical probability of some too much speculative scenarios and complex ornate combinations, either by mischance or maybe luckily, is approaching inexorably zero [Chaisson, 2001].

As for the rest of retro-voyage constructs, the situation here is, perhaps, even worse, because they make meaning unless in surely casuistic option of clearly and forever captured newsreel, named on established tradition “Minkowski’s ribbon”. Which, in turn, might well serve as a typical example of abstract neo-sophistic ranting or in general a kind of delusional fabrication of the sore cerebrum humanum. Moreover, by and large, the same applies to exotic (i.e. baryon-free) matter [Hawking, 2002], although it’s precisely that essence is so widely (but most often, however, very unfounded) manipulated now by adherents of wormholes [Cramer/Forward, 1995]. After all, if you attentively understand this, it is an ordinary freshly baked variation on the theme of parallel worlds (or, let's say, in an alternative presentation - some special area [Ambarzumjan, 1965] of the imaginary Multiversum).

On the other hand, although we, apparently, will never be able to travel into the past, yet we have a real chance to see the Universe as it was billions of years ago, and exactly - in those corpuscular-wave (for instance, relict) flows that reach us from its bottomless depths.

And besides, a vague indirect contemplation of the past (as well as the future, by the way) still is practically quite feasible [Wilson, 2007], but only in the general context of overwhelming astrological dependence (John of Patmos, Nostradamus, Vangeliya Gushterova). And - most importantly - for this you do not even have to relocate anywhere! However, we will in detail talk about that unique opportunity at the closing section of given article.

It’s possible to satisfy curiosity, but no one from there will come back!

As we just found out, according to the Lorentz transformations, time in a moving system will go more slowly, which on the whole makes travel to the future available.

But it turns out that even here with a careful approach, you can find many different ambiguous dead ends and inconsistencies. Let’s imagine, for example, that one of the twin brothers went on a journey to a distant planet in a hypothetical super-fast ship. And when he returns home, the other partner, obviously, will outstrip him already in age. However, why did we suddenly decide that namely the terrestrial fellow would grow old? After all, if we take the reference system relative to the ship, then time, it seems, should slow down just for an earthling!..

The corresponding rationale here can be as follows: on the path of a ship flying into the distance there are sections where it accelerates or, on the contrary, slows down a little (for simplicity, we identify them with points, since they are comparatively small). That is, in this case, the system "space ship" can no longer be attributed to inertial, and for it the world line will be bent. But for the terrestrial observer, it will remain straight.

Thus, since the manned vehicle traveled a bigger distance in space-time than our home planet, but in the end they made the same movement, more time passed for the moving ship. And therefore - it was he who made the journey into the future.

As obvious confirmation of time dilation, muons could serve whose life-span is about 2.19 μs; so even with enormous cosmic velocities, they should not, in theory, overcome significant distances. However, due to relativistic effects, the time interval before decay in a stationary system

$$\Delta t = t_2 - t_1 = \frac{\Delta t'}{\sqrt{1 - \frac{v^2}{c^2}}}$$

will be much longer, because the speed of muons is close to the speed of light. And this can just easily explain the well-known fact that muons manage, nonetheless, to reach us from the seemingly most remote depths of the universe.

While concerning another paradox (which, a true, is not so mathematical, but purely everyday in nature), its essence is as follows: a person or a robot that will go on a superluminal ship into the future will never be able to return back and, moreover, transmit from there any information. Alas!..

About all the secrets and subtleties of prophetic perception.

Still, as already mentioned, the amazing ability of individual earth uniques to foresight may well be directly not related to travels on the time scale.

For the seers contemplate not the dynamic perspective itself, but only astral widening somehow coupled with it (even if they borrow all the required information from celestial contact-agents). At that, numerous episodes of twins' life (who, developing from a single maternal egg, respectively, have a joint astral destiny, as a result of which are then subjected to almost same vicissitudes of fate) also testify in favor of such a quite obvious hypothesis. And from this, in turn, it follows that given metaphysical vector (or, if you like, the theosophical sheath) has the greatest impact on the subconscious thoughts and many involuntary movements of a person.

By the way, a detailed theoretical analysis of the available evidence suggests the fact only two versions are actually suitable for substantiating the precognitive techniques. Whereas everything else seems frankly far-fetched or at least deeply doubtful [Ashursky, 2007].

So here they are in a nutshell:

Computing of our future by some stealth contact-agents - with subsequent transfer of information to Earth through selected mediators like Edgar Cacie [Bauval/Hancock, 1997], Marie-Anne Le Normand, Erna Droesbeke von Enge [1990], as well as above-mentioned John of Patmos, Baba Vanga or Nostradamus [1672]. Since it is carried out along to precisely lead determinant vector, hence, is probabilistic rather than affirmative here. Moreover, this vector may even be astral; but in any case, such complex multi-valued calculations could realize only by extraterrestrial creatures (or, for example, the cosmic noosphere as a whole), while our homegrown astrologers - unless to get already prepared information from them.

Programming of separate allegedly "foreseen" episodes. This point, if relevant, is perhaps only in combination with the first. Its general meaning is as follows: in order to maintain the reputation of the chosen clairvoyant or fortune-teller, and also to intimidate earthlings, the disembodied cosmic pranophytes in every possible way contribute to the implementation of the previously predicted action at the right time (including through UFOs, built-in spirit-spies etc.).

While as for "direct contemplation" of the future like peculiar documental movie, such a vulgar-idealistic approach just doesn't stand up to criticism - and especially in the light of the current paradigm (according to which the cause must be followed by an effect). Well, and vice versa: in the case of proven real existence of Minkowski's ribbon, the vast majority of the previous achievements of world scientific thought will have to be thrown, I'm afraid, into the dump. By the by, a similar situation is with so-called "parallel universes" [Hynek/Vallee, 1975] (i.e. as if everything predicted comes true somewhere, but not necessarily with us): this is another example of typical empty ranting, that can only take away researchers' mental health and precious years of life.

Therefore, when substantiating successful (and especially - for sure attested) prophecies, it has most often to be considered both factors: as preliminary as programmed. But still, of course, the first of them is much more

important (at least even etiologically). In turn, among the secondary (programmed) levers of influence, the following can be distinguished here:

a) the exceptional sporadic giftedness of this particular human through a strong astral (what generally should anyhow manifest itself from an early age);

b) certain personal interest on the part of the given demigod (contact-agent);

c) polyfactorial prediction (say, regarding A.S. Pushkin - several alternative "white riders on a white horse") [Gorbovsky, 1990].

And although the last of the versions seems here to be somewhat far-fetched (and, all the more, the rather sensational story [Gorbovsky, 1991] with the executed Decembrist S.I. Muravyov-Apostol does not fit into that, for instance), it still has the right to a conceptual discussion.

CONCLUDING REMARKS

So what inferences useful for science can be drawn from this?

1. Wanderings in the ages and eras preceding us are impossible either through the notorious "wormholes" or with the help of any similar tricks. Yes, and Novikov's principle itself is applicable, perhaps, only in some optional way, for the probability that a robot or a living creature will overpower this difficult transcendental labyrinth (and especially taking into account many factors involved here: energy, technological, economic, psychosomatic etc.) is tritely close to zero. And various turbid schemes with cue-balls do not hold water at all because of the a priori limitations of such an approach: as if there could be nothing in real life (i.e. outside observed us estimated trajectories) more than very ball launched into the pocket.

2. Well and consequently, the mentioned already earlier (namely - in the introduction to this article) audacious author's guess about the divine nature of time receives rather weighty portion of positive bonuses.

3. Unlike far-fetched and completely delusional retro-voyages, travel to the future is quite feasible; but only if you move with unimaginably huge near-light speeds.

4. Lots of inventions of the human mind are by no means equivalent to the set of objects of the so-called Cauchy horizon. Although, of course, we are not talking about the meager intellectual baggage of some isolated savage, imbecile or crime-recidivist, but about the conventionally generalized spiritual world of all earth's inhabitants. Particularly, in any scenario, their ordinal will obviously be higher, i.e. more potent than for a similar set of structural elements of the observed cosmos. For example, if a number of material objects is N, a manifold of their cogitable combinations may vary from 2n to Nn. At that, it does not seem possible to refute, as shown by Kurt F. Gödel, the significant majority of these frankly dubious speculations in any strict way (i.e. on a physical & mathematical level). Thus precisely the probabilistic approach (see p.1 just above) is completely lawful and right in given case! For it is the sole algorithm that, by and large, would allow us to separate the correct options from surely dead-end moves. Especially that, as you know, almost anything can be boredom come up with or "sucked out of finger": nobody, after all, will be shot and even put to a loony bin for this. Whereas the Universe will, meanwhile, quietly develop in own way further, and its laws would not change due to such kind of violent fantasies.

So for now the arrow of time purposefully and unrestrainedly carries us in only one direction - forward; and in this context, it doesn't matter at all, relative to what...

REFERENCES

Ambarzumjan V.A., Kusnezow B.G., Naan G.I., Smorodinski J.A. & Steinman R.J. (1965): “Philosophische probleme der modernen kosmologie” - Berlin, p/h ”VEB Deutscher Verlag der Wissenschaften” (in German).

Ashursky E.E. (2007): “Precognition or recalling?”// journal «Nature & Man», №5 (in Russ.)

Ashursky E.E. (2021): “Whereas an observer has nothing to do with it!” (journal “ComBAO”, vol. 68, issue 1, June), link access: https://doi.org/10.52526/25792776-2021.68.1-125

Ashursky E.E. (2022):"Under a mysterious mute marquee of “silentio universi” - journal "Science and Education" (Vol. 3, iss. 2), link access: https://openscience.uz/index.php/sciedu/article/view/2616

Bauval R., Hancock G. (1997). “The message of the Sphinx: a quest for the hidden legacy of mankind”. - NY: Crown Publishing Group.

Chaisson Eric (2001): “Cosmic evolution: the rise of complexity in nature” - Harvard Univ. /USA/, p/h “Press”.

Chernobrov V.A. (1999): «The mysteries of time». Moscow: ed/house «Olimp» (in Russ.).

Chernobrov V.A. (2013): “How can we remember future events and how do people even see the things to come?” – Moscow: Encyclopedia of wonderful ideas; link access: http://www.abc-people.com/phenomenons/proscopia.htm (in Russ.)

Cramer John G., Forward Robert L. et al. (1995): "Natural wormholes as gravitational lenses"// Phys. Rev. D51 (pp. 3117-3120), link access: https://arxiv.org/abs/astro-ph/9409051

Droesbeke von Enge E. (1990): “Voorspellen met Speelkaarten en Waarzegkaart”// Antwerpen: Uitgeverij Parsifal, 246 pages (in Dutch).

Friedman John, Novikov Igor et al. (1990). "Cauchy problem in spacetimes with closed timelike curves" / Physical Review D / American Physical Society — APS, 1990. — Vol. 42, Iss. 6. — pp. 1915—1930.

Gorbovsky A.A. (1990): «Prophets and seers in own country». Moscow: ed/house «Prometey», pp. 102; link access: https://studylib.ru/doc/3925333/proroki-i-prozorlivcy-v-svoem-otechestve (in Russ.)

Gorbovsky A.A. (1991): “Prophets? Seers?”// Moscow: ed/house «Znaniye», link access: https://www.litmir.me/br/?b=175336 (in Russ.)

Hawking, Stephen (2002). “The Future of Spacetime”. — New-York, p/h “W. W. Norton”, p. 96

Hynek J. Allen & Vallee Jacques (1975): “The edge of reality”. - Chicago: p/h Henry Regnery.

Moravec Hans (1992): “Time travel and computing”//journal “Extropy”, No. 9, July, pp.15 - 20, http://www.frc.ri.cmu.edu/users/hpm/project.archive/general.articles/1991/TempComp.htm

“The true prophecies or prognostications of Michael Nostradamus, physician to Henry II. Francis II. and Charles IX. Kings of France” (1672). London: p/h of Thomas Ratcliffe and Nathaniel; link access: https://www.crystalinks.com/nostyepistle.html

Thorne Kip (1994): “Black holes & time warps: Einstein's outrageous legacy”// New York: p/h W. W. Norton & Company (pp.509-513)

Wheeler J. (2007): “Cosmic catastrophes: exploding stars, black holes, and mapping the Universe”// Cambridge University Press. pp. 294–295, link access: https://www.semanticscholar.org/paper/Cosmic-Catastrophes%3A-Exploding-Stars%2C-Black-Holes%2C-Wheeler/146f3199cf00970228fd94035a9f0b35ed6fb1a3

2Wilson Ian (2007): «Nostradamus: the man behind the prophecies». London: p/h “Macmillan”, pp. 229.