

# SUNRISE

## Causality and Chance in Mutual Symmetry

Milan D. Nešić – Writer and independent researcher (Belgrade, Serbia)

E-mail: [univerzumkaorelativnanula@gmail.com](mailto:univerzumkaorelativnanula@gmail.com)

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### Abstract

**THE STORY OF FATHER AND FATHERLAND**, as a historic-philosophical novel, begins with Lepenski Vir on the Danube (“Lepena Whirlpool”) and the motto: “I’ve made up my mind to begin.” But from the part **EAST, WEST AND SUNSET**, the motto is: “There is no beginning nor end, the beginning is a chance and the end is a projection. I’ve made up my mind to begin, and I thought up the ending.” Of course, the novel is a work of art, that’s why it is homocentric, by humans for humans, just like the art of the Lepena humans. But science has advanced so much in the meantime that it threatens a paradox,  $E=mc^2$ : the A-bomb and H-bomb destruction of civilization itself, far, far before our solar system completes its stellar evolution. It is necessary to overcome homocentrism philosophically. So, the beginning is a chance, and the projection is inertia, according to the law of causality in symmetry with chance, as the Lepena humans also felt. That’s something that all people feel; they just need to become aware of it. Let us overcome inertia and the desire for eternal power at all costs, even if it may mean that I will be killed. Let us also embrace symmetry and relativity—let us enjoy diversity and freedom.

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I've made up my mind to begin

The Earth's equator, we know, is where the sun passes through the zenith at the time of the equinox, and the equinox is at least everywhere on Earth on the same day and the same night—whether in autumn or spring—when the six-month transparent night and the six-month pale day are exactly alternating at the poles. The equator is, therefore, the only one, the greatest parallel after all. That is why it is the zero, the initial one. But the Greenwich meridian, the one that passes through the former suburb of London, that meridian as the zero is only a choice, originally of only one observatory—this in Greenwich, that is now a museum in London—and at first it is only a suggestion, even of the Royal Society I don't know which one. Well, good, that is, if the king is just history and this or that society doesn't bother anyone with its ado and wig, better such a way, in a disciplined manner, than for everyone to declare their city the city of the initial meridian. After all, parallels and meridians are just a way of calculating, not at all the calculation itself, let alone what is calculated with and on, or perhaps the one who calculates—nothing about that yet, as if there is nothing, a real night.

### **A mysterious and suggestive symmetry**

And there is one place where the night appears to be the darkest and most complete it can be—pitch black, as if at the bottom, in bottomless blackness: twenty-three degrees east of Greenwich— $22^{\circ} 1' 10''$  to be exact—and forty-five degrees north of the equator— $44^{\circ} 32' 0''$ . If the quiet splashing of water were not heard from time to time, it would seem as if nothing existed, as if the world did not exist. And that sound of water here and there, it seems as if the Gods themselves are whispering to each other how to create this world. And the first thing that a man, somewhere up in the east, senses more in the grey dawn than sees, is that strange silhouette: two close and opposite bevels uniquely aligned at the top—a mysterious and suggestive symmetry. And indeed, with the first fading of the dawn, the black and dark green truncated peak that spread out to the left and right as huge hands, and merged with uncertainty and darkness, became more and more powerful. But the blush increases, from time to time, a golden flicker shines. It is as if the equilateral roof of the world itself opened up, truncated, and let in a new deity—the Sun. Everything shines, envelops it and turns it into nothing to bring it before itself and creates it. So man blinks in joy and pain; he has already had to lower his gaze. And there the miracle:

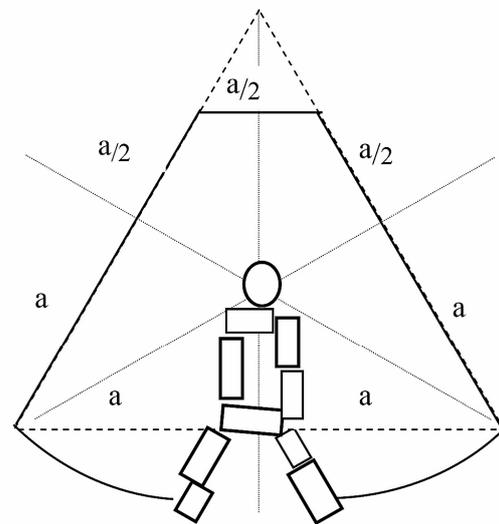
Before him, a large river—underfoot, it splashes by transparent waves into the gravel and sand, and in the distance, the steel-blue surface ripples here and there in strands of glittering light. The insufficiently clear line of the opposite shore turns yellow in the sand and reflection, and immediately above it rise hills covered with green bushes. Here and there, the steepness breaks and becomes even steeper. The rocky God of symmetry and height shines in the sun and seems to say: Good morning!

Occasionally, fish can be heard jumping out of the water. A bird circles high above. Backward, behind the sand- and clay-compacted elevation (the pale yellow of which appears only here and there under the sparse grass on the shallow humus), dark-green bushes rise.

Then the trees become larger, denser, and more vivid in color. The slope becomes steeper. From time to time, it seems as if from somewhere you can hear the creak of gravel soil or perhaps a landslide, and then suddenly a clear crunch of twigs, a squawking and flapping of wings. Downstream, behind the pale coppery white tongue of the bank, there is a solitary tree, a single rock, the river suddenly widens to the right, its end disappears behind a green bend, and then again an obstacle and a hill: this huge river and all life with it bends to the left, making its way between the green-blue lumps in the distance. Everything has its course, its own life. It is beautiful to see: a miracle has happened, the world exists.

At that place, on that hillock, archaeological excavations began in 1965. On a layer of loess that was on the surface some 6.5 to 7 millennia ago, remains of pottery were found, decorated in a jagged manner, obliquely, vertically, crosswise, not at all special, not at all a special find, as expected. Clay remains of baked dishes, jewellery, or amulets of former herders or farmers had long been known to science, as well as entire animal skeletons alongside human bones, and in nearby lowland areas that were certainly more suitable for this way of organizing life in the Neolithic Age than the gorge. But the excavation continued,

palm by palm, century by century. In 1967, a surprise awaited scientists in the layers from 7.5 to 8 millennia ago. Pottery was still unknown at that time, but stone by stone and grave here, grave there, an ancient culture of a creative and spiritual level previously unknown to science when it came to hunters, fishermen, and gatherers, i.e., even the very end of the Old Stone Age, resurfaced in the light of day. The remains of the habitat of the entire settlement! Well, the stone foundation, dug into the ground or even poured with crushed limestone, served, of course, only as a support and fulcrum for the slanting beams, which, together with the probably skins that were thrown over, were also the wall and roof of that former shelter that still resembled a cave. But something else is strange. Today's man, namely, has at his disposal at least a protractor and a mutual agreement that a full circle has  $360^{\circ}$ . So one takes a protractor and measures: the direction of the lateral sides of the foundation was always at an angle of  $60^{\circ}$  to each other! Without a protractor in hand and, in fact, arbitrarily counting to 60 or 360, this is only possible if an equilateral triangle is first drawn on the ground. All of these triangles of those ancient habitats, regularly facing the water with their base, had a truncated tip: exactly for a quarter of the height, the half of the half. It is as if the God of symmetry himself orders that the rear of the habitat be placed there. And indeed, in the very center of symmetry, at the intersection of the bisectors of the sides and the corners of that basic triangle, there is always a half-buried oval pebblestone specially decorated with carved spirals and mottles, with an oval



The base of the triangle,  $2a$ , is not always the same length; it depends on the intended size of the habitat, or the significantly smaller surface of the grave, for example, but the proportions are always the same.

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depression facing upwards: altar, pleas and gratification to God (traces of red, cult color). Right below it, a rectangular hearth (traces of a fire) was built from flat stones. Further in the same direction (of the triangle's altitude and its bisector) are two stone thresholds, slanting towards each other as if in a straddled stance. There, the hearth acts as the body of a human figure, the altar as the neck, and at the place of the head there is always a statue made of a larger pebblestone with a carved relief: the arches of the eyebrows, nose, mouth, most often a fish-like mouth, often round, fish-like eyes can be seen. Is it possible that all this play of triangles and symmetry is accidental? Even the curvilinear protrusion on the foundation that deviates from the base of the triangle, making the dwelling more spacious, is not arbitrary: it is always part of a circular arc (with a center) at the top of the triangle, a triangle that is not visible, although it is felt everywhere! Or is it just the imagination of modern man? And then the skeleton of a former special expert was found, probably a magician or sorcerer, most likely the first architect, who in all likelihood ritually, somehow, measured and with a stone scepter in his hand marked where (and how) a new dwelling should be built—the skeleton of the one who knew how to explain the will of the gods and the origin of man. For 8 thousand years, he has been lying underground in a position in which he could only have been carefully (and only he) buried: the top of the skull at the top of the triangle, the shoulders and the base of the neck at the base of the triangle-truncator, the upper arms on the sides of the basic triangle, the legs bent at the knees and spread wide so that the knees fall into the two basic vertices of the triangle, the shins along the base of the triangle, the heel bones almost touching, and the feet spread out like the thresholds of the habitat. And then the navel falls exactly on the place of the altar, that only umbilical connection with the gods, and the lower abdomen on the place of the hearth, on the place of light and fire that takes everything into itself and gives birth to the spirit.

Didn't the God of the sun, light, and fire breathe soul into all world? Didn't the God of symmetry, triangle, and stone give it a body and measure? Didn't the capricious God of water and movement create the first life from the mentioned duality: an egg-shaped pebble slipping underfoot or out of one's hands by the mainstream? Wasn't a fish, a human-like fish, the progenitor of all humans?

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The Lepenski Vir on the Danube <sup>1,2,3,4</sup> is known today throughout the world, not only in scientific circles. Entire tourist groups of Italians, Germans, and French people visit the site, which has now been relocated and placed exactly the same way, about a hundred meters upstream and uphill (due to the “Đerdap” hydroelectric power plant, the water level at this location has risen by over 15 meters). Above the finely wavy plastic covering, slightly sloping and yellow as the transferred loess beneath it (the roof beams are wooden, low, and appropriate)—a small, beautiful, modern-built museum rises at the top of the side staircase. Here, people look at the movable finds. And after all—they are amazed: it seems that these ancient inhabitants of the Earth, a good 5 millennia before Plato, thought of the triangle and symmetry as the cosmological principles of the world, long before Anaximander, they suspected the biological development of living beings and man from water, that long before

all the Greeks, they considered fire, water, and rocky earth to be the elements of the world. But what about air? Is that the only reason why the similarity is uncertain?

### **That's what can be said about this symmetry today**

Under the title **PORTRAIT**, this excerpt from the novel was broadcast on the III program of Radio Belgrade on 16.12.2000.

By the mid-seventies, my father was already retired, he practiced the violin regularly for several hours a day, went fishing all day long on the Sava and Danube at least once a week,<sup>5</sup> and he visited his childhood comrade and friend painter Jovan Kukić in his studio every afternoon: sometimes a cup of coffee and a chat, an intellectual conversation about anything and everything, and—Kukić was painting a portrait of his friend. I loved watching Kukić's calm work, a stroke, two with a brush, and then a comment. Kukić was a year older than my father, both of them on the verge of seventy, one would say, two hale old men in the prime of experience, thought, and strength—what about life, what about death?

Once, a conversation like this took place.

— Come on, Neško, head, if you want the more beautiful portrait to outlive you!

— Thank you, Jovo, now, and after death, nothing! — And the father still took the better pose.

And me, I just published my **ESSAY ON GOD**, so I say: — Nothing does not exist.

— How does it not exist?

— There is always something.

— Matter is something; everything else is nothing.

My father was sitting on the chair closest to the window, his head in the required position, throwing words to me almost over his shoulder. I was on the stool, as close as possible to the side of Kukić's easel. Kukić silently and devotedly pulled his paintbrush, raising his eyebrows at my every word.

— That is what **dialectical materialism** says, Engels, there has never been and will never be anything other than matter — I continued.

— Yes.

— It is uncreated, indestructible, and in perpetual motion, forever and ever.

— We see that.

— So as soon as we say that *matter is infinite, we have said everything that needs to be said*, and that is what Engels said.

— Isn't that so!?

— Something like that is true; however, Thomas Aquinas claimed that still in the 13th century. Only! God is always, forever, and in a thousand ways, i.e., in perpetual motion. He is everywhere, so as soon as we say that *God is infinite, we have said everything that needs to be said*.

That's when my father completely turned to me. And Kukić also put down his paintbrush and started looking at me questioningly, now at me, now at my father. They both knew I wasn't a religious fanatic.

Because, I continued, if there is no God, and there is none, of course we agree on that, then there is no matter either, the one we see, i.e., how we see. And that is precisely because Lenin said, yes, matter is an objective reality, and in **dialectical materialism**, that is even a definition! While, in fact, it is nothing more than a trick, a psychological trick to make people believe. Those who prefer to believe in what is seen, rather than in what is not seen, which is only thought of—materialism and idealism, the whole dispute is just about that. Well, of course, objective matter, but relating to which subject is it objective? Since there is no God, relating to what or to whom? Relating to Lenin, who said that, heh, funny! Or relating to the Leader in general and the Party as the avant-garde, heh, even funnier, as if people were the Originator of everything! In Marxism there really was such a definition: society, it is objective reality!

— So ideology?

— Yes, just as Marx said: a distorted awareness of oneself, of one's importance, of one's significance.

— But then how?

— So matter can be only a method, I think, even the most convenient method to start thinking about these questions. One really has to start from science, and that means from experiment, and of course, from objective reality and worldly experience. And then—science itself forces you to see, if you don't want to go around forever, a chicken or an egg, which is older, forces you to see. Even Matter itself, now with a capital M, is not quite such a solid something; it is not everything versus nothing—Matter itself is only Everything and Nothing. That is precisely why it is uncreated and indestructible, because it is not exactly something itself, but is like that, both Everything and Nothing—from the aspect of all nature, the Universe, that very Infinity and its eternity. Because, therefore, nothing does not exist, i.e., there is no other nothing, because Nothing can exist only as the Totality of nature, in the sense that only all infinite Nature exists without a reason—as Nothing, because nothing does not need any cause. Infinity is Infinity because it has no boundaries; it's not just from here to there, and again and again, all in the same direction to infinity. Infinity has no limits in terms of anything or in any way. It is Infinity because it is completely indeterminate, therefore Nothing.

— Philosophy, good. However, you also say Nature, so let's stick with Nature with a capital N! Look! You see a meteor, we know, a rock, matter. So you see a shooting star, it falls, and suddenly it's gone, scientists say burned up, nothing.

— And the ashes and smoke?

— And that is matter, just the rest of matter actually. And from such a meteor that you can see it even from the ground, nothing, nothing remains.

— And you saw it?

— I did!

— Well, it's not nothing, but light.

— The last trace, I see it and it's gone.

However, that's not quite true! Because what is light? Today, even an ordinary person says: light energy. So, energy that travels through space. Although, imagine, it has no mass—

however, that matter in the sense of an Objective should have mass is a tacit psychological trick of those so-called **dia-mat**-philosophers who actually only care about people believing them. Light by itself has no mass; that is, it both had and does not have, because it is actually dual. Why would light be, for example, only a continuum, i.e., a wave, and why exclusively a discrete, i.e., particle!? Nature is perfectly objective, completely impartial, and just, let's say, like God! In the Universe itself, there is no reason for this or that; everything depends on the specific situation. And specifically: the speed of light is three hundred thousand kilometers per second—as long as it travels. And so, something travels through space, imagine, and has no mass. And even stranger, even more magical: it always travels at the same speed, always at the same relative speed, whether you run away from that fate, so to speak, even with a rocket, or rush towards it—it will always catch up with you at the same speed. How is that possible? At the same one,  $c = \text{const.}$  And yet, at a relative one? Another contradiction, a paradox, a magic. But two contradictions—pure logic! Simply because not only does it not have mass, but it also does not have a specific speed, because it does not have a specific place, it is just there somewhere. One quantum, one package of light energy, so to speak, capital  $E$ , one photon finally becomes a particle only when you see it, only in the eye, in the receiver. Only then does it become of a certain mass,  $m = E/c^2$ . This, however, does not mean that it is now something, and that before that, it was nothing. Or maybe just by looking, we create light?!

— Of course, no.

Hereabout, Kukić also nodded his head. He was now sitting completely turned to me. The play of colors and light nearby, palette, brushes, however, all three of us looked away, so who knows where, so that we could see all that, as well as the meaning of art and life, better.

What, then, if a photon remains forever travelling in space, always in the vacuum and nowhere seen, nowhere caught, an infinite projection for itself, so to speak? The vacuum itself, therefore, is not nothing. It has no mass, but it is still not nothing— even though I would even say, it does not even have energy in its integral, in its totality, if one can say so: that the infinite Universe itself is in that way Nothing, somehow from outside seeing, if one can say so, somehow in itself. (Consequently, it does not need any cause for itself.) In short, infinite possibilities inherently characterize the vacuum; the vacuum is omnipotent, so to speak. These possibilities travel through the vacuum, not only photons, but, scientists say, gravitons as well —let alone also what they don't say because they don't know—in which direction do they travel? God, as we said, is impartial: in all possible directions, from wherever, and everywhere. And only when two possibilities collide, scientists say, for example two  $\gamma$ -quanta, a mass is born, a pair of electron-positron is born; this for collision of two  $\gamma$ -quanta is an experimental fact,<sup>6</sup> as when, on the other hand, an electron and a positron attract each other, the two masses disappear, two  $\gamma$ -quanta arise to disperse into eternity or until a new collision. But when the mass is already there, then even a layman believes in matter, and then everyone feels what inertia is. It is said that mass is inert. However, this is because the very logic of the Universe is inert; there is no reason for anything in the Universe, the vacuum itself is zero, so to speak. Because why would it be anything, right? Iron logic! And yet, why would it be zero? And it is some kind of something, some kind of determination. Why would there be any reason for it!? By the force of the logic of infinite

justice, there is no reason for anything like that, for that stationary, static state of the vacuum and the Universe. So, what now? Will yet be a small Plus, and on that occasion, necessarily a completely equal, i.e., symmetrical Minus, because why just Plus!? And there is no way out of this iron and contradictory logic, the vacuum must explode, as if the Universe itself explodes—even if by chance, where, here, there, finally—into countless tiny pairs of Plus-Minus, Yes-No, Left-Right... Today, scientists know of over 150 so-called elementary particles. It doesn't matter that in this constellation of our cosmos, one possible cosmos, or at least seen from one possible angle, that only the electron, proton, and neutron are stable, i.e., atoms built from them. And so, the vacuum itself, just Nothing, necessarily exists only as the infinite multitude of these so-called elementary particles, as All Nothing...

— Because when there is no mass, — I concluded — when there is nothing, so to speak, that iron logic of Omnipotence remains: there is no reason, but it must! All, precisely because there is no reason for anything, not even for the fact that there is no reason, that is, when something is already something, why would it not be different? Infinite relativity and infinite symmetry. And whether any possibility will ever be realized is another question. But it is iron logic: when then, or, on the other hand, once realized a possibility, its trace forever...

Kukić was thoughtful:

— Eh, what's the point when I'm not aware of myself!

— Now you are! — I said and shrugged my shoulders. That was all I could honestly say. To say “After death, who knows?!”, as one might say with faith, this I could not!

### **Breit-Wheeler effect: collision of two light quanta**

In 1897, J. Thomson discovered that cathode rays were deflected by both electric and magnetic fields, and he measured and calculated the mass-to-charge ratio  $m/e$  of these cathode ray particles. In 1909, R. Millikan determined the charge of an electron in an experiment involving a dispersed drop of oil in a homogeneous electric field. This experiment, combined with Thomson's earlier findings, allowed for the determination of the electron's mass, which was found to be 1830 times smaller than that of a hydrogen atom. E. Rutherford made many discoveries: first that the atom is not compact but has a nucleus, then the discovery of  $\alpha$ - and  $\beta$ -particles in radioactive decay, and in 1917, of the proton; together with N. Bohr in 1921, he predicted that the neutron must also exist. That year, A. Einstein received the Nobel Prize, although not for the theory of relativity but for the photoelectric effect; nevertheless, considerable work was already being done on the application of the special theory of relativity to quantum electrodynamics. In 1928, P. Dirac published an article, *The Quantum Theory of the Electron*,<sup>7</sup> in which he addressed the shortcomings of the quantum description of electrons by W. Pauli and C. Darwin, specifically the fact that the spin of the electron did not follow directly from the theoretical description. On that occasion, in his equation, the possibility of symmetry of electron energy appeared—negative energy. Based on this, Dirac predicted a particle with the opposite charge to the electron, the positron. When the neutron (J. Chadwick, by bombardment with  $\alpha$ -particles) and the positron (C. Anderson, in the collision of cosmic rays with the atmosphere) were discovered in 1931/32, it turned out that the free neutron yet was not a stable particle like when it was bound in the

nucleus of an atom by nuclear forces: it decays after about fifteen minutes into a stable proton and a stable electron—and the proton has less mass than the neutron. (Less mass = minus energy; later explained as  $\beta$ -decay.) Subsequently, many laboratory experiments showed that the passage of a  $\gamma$ -quantum through a metal foil creates an electron-positron pair, always at the expense of the  $\gamma$ -quantum's energy,  $E > 1.02$  MeV. Therefore, according to the symmetry of quantum electrodynamics, two  $\gamma$ -quanta of sufficient energy should collide with each other to produce an electron-positron pair.

And already in 1934, Breit and Wheeler published an exact calculation of what should happen at this COLLISION OF TWO LIGHT QUANTA, depending on how much energy the quanta have, what the angle of collision is, which direction the impulses will be in, and everything. But year after year passed, decade after decade, no experiment could be performed to confirm this. The whole century passed.

In the year 2010, I. Sokolov, N. Naumova, J. Nees, and G. Mourou published the article, *Pair creation in QED-strong pulsed laser fields interacting with electron beams*.<sup>8</sup> So, the creation of not one  $e^- e^+$  pair by two light quanta, but the creation of a hundred or more pairs by collision with at least one electron from the electron beam. Regardless, a significant experiment because it encourages research on the trail of collisions of two light quanta, i.e., in the direction of the *Balanced Universe of Light*,<sup>9</sup> rather than the *Primeval Atom* from which the entire world supposedly emerged.<sup>10</sup> So in 2016, for example, the article *Pair creation in the collision of  $\gamma$ -ray beams produced with high-intensity lasers* was published,<sup>11</sup> not simply the COLLISION OF TWO LIGHT quanta, but of entire  $\gamma$ -ray beams. Although the Breit-Wheeler process is one of the fundamental processes in the Universe, as the abstract of the article already states, the creation of electron-positron pairs has not been observed because the laboratory lacks the necessary  $\gamma$ -ray power density. Therefore, the paper only studies the possibility of an experimental setup with different  $\gamma$ -ray sources and mathematically simulates the number of pairs produced. Further attempts followed to find a way to directly observe the creation of an  $e^- e^+$  pair from the collision of two  $\gamma$ -quanta, but no such way was found. However, this *ScienceDaily* news from July 28, 2021, is true: *Collisions of light produce matter/antimatter from pure energy*. Behind it, namely, stands an article that proves the Breit-Wheeler process, albeit not by direct observation, but even better, by observing **the vacuum** itself and its both real and virtual photons, even if they were created by the experiment itself. It was then proven (by measurement of  $e^- e^+$  momentum and angular distributions) that among the virtual photons and virtual annihilations, there are many also real  $\gamma\gamma$ -photons and real creation of  $e^- e^+$  pairs.<sup>12</sup>

Finally, therefore, in July 2021, when the article in question was published, the so-called reverse **symmetry** of the vacuum, described by the Breit-Wheeler effect as far back as 1932, was confirmed. This also confirms the possibility of simultaneously creating heavier particle-antiparticle pairs from collisions of higher-energy  $\gamma$ -quanta. And that's not all.

Finally, the deepest **Logic of the vacuum** was clearly seen as the **CREATIVE LOGIC** of infinite Nature and the Universe in general: always and forever **inertia, symmetry, and relativity**.

Therefore, it is clearly understandable that one jet from the black hole of active galaxies

must be **matter**, and the other, symmetrical to it, must be **antimatter**.<sup>13</sup> Especially since the black holes of active galaxies pull in large amounts of various material particles through the accretion disk at speeds close to the speed of light. This is similar to the experiment [8], where even a single electron acts as a catalyst for creating new  $e^-e^+$  pairs, or to the experiment [12], which uses ionised gold particles as catalysts, accelerated almost to the speed of light.

\* \* \*

Today, in my bedroom, my father's portrait hangs above my head, the one done in oil paints that I watched as brushstroke by brushstroke was created, framed with wide margins and a beautiful frame, glazed on the back after my father's death. Under the glass, in the upper left corner, it says: "*To my dear friend Neša from the bottom of my heart—Jovo.*" And: "*Belgrade, March 21, a spring day in 1977.*"<sup>14</sup>

In March 1977, I was convinced that the creation of an  $e^-e^+$  pair by the collision of two  $\gamma$ -quanta was an experimental fact. When I started publishing my collected works after the fall of Milošević, and then began studying the material for my new book **THE UNIVERSE AS RELATIVE ZERO**, I tried to find evidence for the aforementioned creation of the  $e^-e^+$  pair. However, I could not find anything other than the article [8], which was published the same year I published my book, in 2010. There was also no such evidence in 2014 when I published the book **WAS GIORDANO BRUNO BURNED IN VAIN?** Nor in 2020, when I published **GRAVITY AND  $C^2$ -INERTIA**.

But after the experimental proof of **the creative symmetry of the vacuum itself**, my postulating the mutual symmetry  $e^-e^+$  from the black holes of active galaxies by the intuition of artists, as in the article  *$c^2$ -inertia and the affine theory of gravity*,<sup>15</sup> is only an interesting illustration. The creative symmetry of the infinite vacuum is the reason for the necessary hypothesis about these mutually symmetrical jets of matter and antimatter.

But that's still not all.

Because—the infinite vacuum and its infinite symmetry?

So, which yet symmetry?

### **Causality and Chance in Mutual Symmetry?**

In the experiment [12], by measuring and analysing the corresponding flux, both the creation of real  $e^-e^+$  pairs from the collision of real  $\gamma$ -quanta and then their annihilation, as well as the annihilation of virtual pairs from virtual  $\gamma$ -quanta, were detected. A series of positive gold ions at a speed close to the speed of light, except for the electric field, also creates a magnetic field almost completely perpendicular to the direction of the velocity, thereby making it possible to create real  $\gamma$ -quanta practically in the same direction as the ion motion (Poynting vector). A parallel series of such ions, but with opposite velocity, produces real  $\gamma$ -quanta in the opposite direction. This creates the possibility that, in the space between these two series of ions, **TWO QUANTA OF LIGHT COLLIDE** with sufficient energy to create a real  $e^-e^+$  pair. Here, the diverging real  $e^-e^+$  pair differs in the direction of the impulse from randomly created virtual  $e^-e^+$  pairs of all possible directions by the vacuum itself, and they are detected accordingly.

Real  $\gamma$ -quanta are, therefore, caused by fast ions, not by chance made of gold but by calculation, to be suitable: of sufficient charge, for example, for sufficient acceleration exceeding the Compton energy of 1.024 MeV.

And this is in the same experiment and within the same vacuum space where virtual, entirely random  $\gamma$ -photons with virtual short-lived  $e^-e^+$  pairs are also detected. It is precisely in this interspace that **both causality and coincidence** coexist, so that each detection must be verified by measurement and calculation, whether it is a collision of real or virtual quanta.

Isn't that already a sign that **causality** and **chance** are in mutual symmetry? Because that is the **LOGIC** of the vacuum itself, **symmetry**.

Especially since this would also be a consequence of relativity.

Einstein began his work *Zur Elektrodynamik bewegter Körper*,<sup>16</sup> with the requirement for equality of all inertial  $v_i = \text{const}$ ,  $i = 1, 2, 3, \dots$  coordinate systems. In electromagnetism, too. The Michelson-Morley experiment of 1897 could not establish the motion of the Earth through the "light medium"; there is no **asymmetry** between the supposedly absolute  $v_0$  coor-system at rest and all the others. With the Galilean transformation of coordinates, the kinetic energy  $1/2mv^2$  always has the same form; it's the physical law, this mutual symmetry of frames 1 and 2 for example: if frame 1 is at rest, then the kinetic energy of frame 2 is the same as when frame 1 is considered to be moving while frame 2 is at rest. The similar situation also exists in electromagnetism. „*Bewegt sich nämlich der Magnet und ruht der Leiter, so entsteht in der Umgebung des Magneten ein elektrisches Feld von gewissem Energiewerte, welches an den Orten, wo sich Teile des Leiters befinden, einen Strom erzeugt. Ruht aber der Magnet und bewegt sich der Leiter, so entsteht in der Umgebung des Magneten kein elektrisches Feld, dagegen im Leiter eine elektromotorische Kraft, welcher an sich keine Energie entspricht, die aber (...) zu elektrischen Stömen von derselben Größe und demselben Verlaufe Veranlassung gibt.*“ Accordingly, the same **asymmetry** between the magnetomotive and electromotive forces, as Einstein calls them, when a magnet moves and a conductor is at rest, which does not exist in nature. Therefore, the speed of light must be a **fixed physical law,  $c = \text{const}$** ; it remains the same in all inertial coordinate systems. Consequently, in moving frames, the magnetic and electric fields are mutually conditioned **symmetrically**. Hence, in the electrodynamics of moving bodies, Lorentz coordinate transformations are essential; they are not mere mathematical fiction but reflect physical reality.

In the paper *Ist die Tragheit eines Körpers von seinem Energieinhalt abhängig?*,<sup>17</sup> at the beginning, Einstein writes that the results of his previous article lead to a very interesting conclusion, primarily because the relativistic Doppler effect is different from the classical one, thus the length in the moving frame is shortened, and so is the energy ratio  $E'/E$  different. But energy of what? „*Ein System von ebenen Lichtwellen besitze Energie, auf das Koordinatensystem  $(x,y,z)$  bezogen, die Energie  $L$ .*“ This is, therefore, the energy of light, deutsch **Licht**. And it is possessed by the entire coordinate system, all space from  $-\infty$  to  $+\infty$  with the plane electromagnetic waves, with a source we know not where, we know not how, in infinity. But: „*Es befinde sich nun in System  $(x,y,z)$  ein ruhender Körper, dessen Energie—auf das System  $(x,y,z)$  bezogen,  $E_0$  sei.*“ Here, Einstein also takes into considera-

tion a second coordinate system  $(\xi, \eta, \zeta)$  moving with a constant velocity  $v$  relative to the first. And so on, with the remark that I have already made in my article *Einstein's  $E=mc^2$  and Dark Energy*<sup>18</sup> and in my book **GRAVITY AND  $C^2$ -INERTIA**: that Einstein in that article tacitly introduces a third coordinate system as a quasi-absolute one. In relation to that third one, the kinetic energies of the first two are calculated, and to their kinetic energies, he adds the same constant  $C$ . However, each of the masses  $m_i$ ,  $i=1,2,3,4,\dots$ , which can be treated by the special relativity, has its own measure of length and time.<sup>19</sup> Each one can be considered as a rest mass and as a coordinate origin. Therefore,  $c_{\max}$  is determined starting from it, which surpasses the mutual symmetry of two masses and becomes a cyclic **symmetry** for any number of masses, thus solving Einstein's twin paradox of 1911 trivially: time will flow fastest in the co-system that is chosen to be at rest. And not only that.

Back in 1976, I published in my book **ESSAY ON GOD** that Einstein's explanation of the postulate  $c = \text{const}$  with the train and lightnings on the railway embankment is invalid because it leads to an elementary contradiction and that  $c = \text{const}$  can only be understood if photons from the same light source and the same frequency are not the same, except that each will be realized in its own receiver at the speed  $c$  regardless of whether and how that receiver is movable relative to the emitter. In 2018, I published the article *In Cosmology,  $c^2 = \text{const}$  is the Measure of Inertia, not Mass*.<sup>20</sup> So,  **$c^2 = \text{const}$  is the physical law, not  $c = \text{const}$** . The differential of that  $c^2$ -inertia explains everything,  $dc^2 = 2cdc = 0$ .

When a photon energetically interacts with mass, the speed of light is realised as  $c = \text{const}$  because of  $dc = 0$ , while otherwise  $c$  is undetermined, perhaps infinitely large as non-energy information about entropy?<sup>21</sup> Yet, it is still  $cdc = 0$ . This unity of the vacuum was experimentally proven by Alan Aspect on entangled photons at a distance of over 200 meters from each other, in 1999.<sup>22</sup>

In the same book, **ESSAY ON GOD**, I also wrote about the mutual symmetry (and relativity) of the Point and Infinity, which transcends both the Point as the magical beginning of the material world and Infinity with its vicious circle in search of the first cause of that material world.

Various types of symmetries are becoming increasingly complex—the infinite symmetry of **the Universe's inner LOGIC**, the symmetry of the very vacuum logic.

Why not also the mutual symmetry of chance and causality, the ever-changing random instability of the **zero** of vacuum, the ever-changing alignment by causality of created masses? In relation to what kind of uncertainty (indefiniteness) of the infinite vacuum, of the indefinitely indeterminate infinity of the **UNIVERSE** itself?

Stable or however unstable, here is that zero:

### **Cosmic microwave background and $1 + e^{i\pi} = 0$**

When there is no mass yet, there is a vacuum, namely the virtual vacuum; virtual photons are observed in the experiment [12], unrealised but possible.<sup>23</sup> This possibility  $E$  of the vacuum makes the probability that mass  $m$  exists. Compared to an infinite vacuum, it is not large,  $m/E = 1/c^2$ , but it is clearly sufficient for mass to exist. Is it matter or antimatter, that is a **coincidence**. But if it is matter by chance, then there must also be antimatter, and that is

already **causality**. And vice versa, if there is antimatter, there must be matter too, always and again, symmetrical oscillation of the vacuum around zero. Vacuum is unstable, Professor Grujić used to say.<sup>24</sup> Virtual photons, each in its own coordinate system; being massless, they can move arbitrarily, both accelerated and decelerated as far as infinity in all directions. Due to the spherical symmetry of space, it is enough to keep in mind only one, say even the virtual Euclidean 0x-axis, as a reference. In classical mechanics, the motion of a non-gravitational mass  $m_i$  by inertia is defined by  $v_i = dx/dt = \text{const}$ .

And nothing more, because the speed of light is only realised by  $c^2$ -inertia in interaction with the mass, from whatever direction the photon comes. Therefore, this is sufficient for macroscopic relativistic theory, where a small mass moves around a large one along its geodesic line space-time. But! For the motion of virtual photons in quantum physics, each at rest in its own coordinate system,  $v_0 = 0$ , one would say that this is insufficient, it is not enough  $dx/dt = 0$ . For an infinite vacuum, eternal and **the same in inertia**, it is appropriate to say that all higher derivatives must also be **the same in inertia**, so  $d^2x/dt^2 = 0$ ,  $d^3x/dt^3 = 0$  and so on. Because no matter how the virtual photon moves, as we said, it remains the same in its own coordinate system. Moved? If there were only one, it would not be known whether it was moving or at rest because there was nothing to compare it to. Sima Marković also wrote<sup>25</sup> that no specific state of rest or movement could be attributed to the vacuum. Therefore, one should consider another photon with a virtually Euclidean straight 0x-axis.

The only function that meets the above conditions for virtual photons is the exponential function  $y = e^x$ . Moreover, this function also meets the condition of macroscopic relativity. Whatever point we take as the coordinate origin  $x = 0$ , the ordinate will be  $y = 1$ . And not only that. The entire course of the function and up to  $+\infty$  and  $-\infty$  is exactly the same, i.e. no matter how the 0x-axis is moved parallel up or down along the 0y-axis, the function remains the same, only the chosen scales change. (Quantum physicists would call it renormalisation). On the other hand, it does not matter which of the two coor-systems of virtual photons will be considered the Euclidean reference, whether  $x = ct$  or  $y$ , when in the realization by  $c^2$ -inertia all photons are the same; any realized particle can be taken as the coordinate origin (Maxwell-Boltzmann distribution law). Therefore, we have two virtual coordinate systems of photons, one of which we assume to be at rest, and the other to be moving at the speed of light. Or: two virtual photons that are moving away from each other at the speed of light. It doesn't matter which one we take to be at rest because they are obviously mutually symmetric. So, we can also observe the relation  $y = e^x$  explicitly in terms of  $x$ . And since photons are the same by inertia,  $y = x$ , look at that, we get a relation similar to the case of entropy  $x = \ln y$ . **Two mutually symmetric functions due to inertia.** (Naether's theorem).

Let us now return to Einstein's consideration of a plane electromagnetic wave originating from an infinite distance in the macro-world,  $y = \text{Cos}x + \text{Sin}x$ . When a small non-gravitational mass radiates electromagnetic energy for some time, and another such mass  $m_0$ , moving at a constant velocity  $v$ , absorbs this energy, Einstein demonstrated that its kinetic energy increases due to the mass increase inversely proportional to the Lorentz contraction of length:

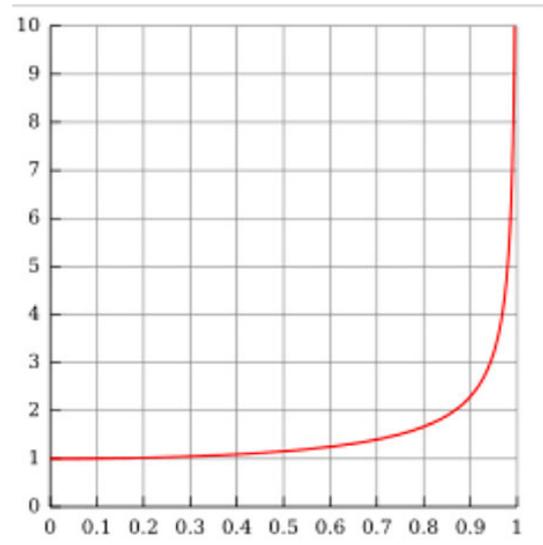
$m = m_0 \left(1 - \frac{v^2}{c^2}\right)^{-\frac{1}{2}} = m_0 \left(1 + \frac{1}{2} \frac{v^2}{c^2} + \frac{3}{8} \frac{v^4}{c^4} + \frac{5}{16} \frac{v^6}{c^6} + \dots\right)$ , when expanded into the binomial series.

This series is, however, non-convergent because it approaches infinity for  $v = c$ . But the deviation from unity is not observed until  $v = 0.3c$ , and since in our galaxy there are no velocities greater than, for example, a hundred times smaller, it is possible to ignore all terms of the order of powers greater than 2, which gives the increase in mass due to velocity:

$$\Delta m = m - m_0 = m_0 \left(1 + \frac{1}{2} \frac{v^2}{c^2} - 1\right) = m_0 \frac{1}{2} \frac{v^2}{c^2}, \text{ or rather this } c^2 \Delta m = \frac{1}{2} m_0 v^2 \text{ and hence}$$

Einstein's  $E = mc^2$ .

However, now something else is interesting. Already at the velocity of  $v = 0.25c$  on the diagram of mass increase with velocity, galaxies with active galactic nuclei appear that eject mutually symmetrical jets of matter and antimatter hundreds of thousands of light-years away, with radial axis components more or less in all directions. This ejecting of mass in opposite directions leads to the alignment of the space-time curvature somewhat directly, but primarily by annihilation and then by electromagnetic radiation just as supernova explosions lead to alignments. Or black hole collisions, followed by the emission of gravitational



Lorentz contraction diagram  
(mass increases with velocity)

waves. And not only that, but each source of these jets of matter and antimatter is a new reference for  $c_{\max}$ . Starting at, say,  $0.22c$ , each diagram of mass increase with velocity is flattened by the superposition of further sources of matter and antimatter, further and further away from our view of the starry sky, always at most by  $0.22c$ . Contemporary astronomy already has catalogues with over 300 thousand quasars starting from  $0.22c$  all the way up to  $0.92c$ . It is an incalculable series of superpositions, an enormous, unimaginable power  $\rho_\lambda$  of aligning gravitational space-time curves, which was portended as necessary, for example, by Perlmutter: *“Therefore, it has long been assumed that there must be some underlying symmetry that precisely cancels the vacuum energy. (.....) it seems likely that the standard model is missing some fundamental physics. Perhaps we need some new kind of accelerating energy—a ‘dark energy’ that, unlike  $\lambda$ , is not constant.”* That is not constant, as  $\lambda$  is—just as the ‘dark energy’ of mutually symmetric jets of mass and antimass in different active galaxies is not constant. **It is precisely this dark energy that renders the hypothesis of an initial inflationary expansion of the Big Bang unnecessary**, just as, after all, active galaxies in general render the hypothesis of a Big Bang unnecessary.

In 2011, the Nobel Prize in Physics was awarded to S. Perlmutter, B. Schmidt, and A. Riess for discovering that the universe is expanding faster than previously expected based on

the general theory of relativity. Astronomical “*observations show an accelerating Universe which is currently best explained by a cosmological constant or other form of dark energy with an equation of state near  $\omega = P/\rho = -1$ .*” That is, observations show that the Universe is best explained by the cosmological constant or another type of dark energy that provides the equation of state **of a flat cosmos**. At the same time, “*there are many possible remaining systematic effects, none appears large enough to challenge these current results.*” None of the many possible remaining effects can challenge this conclusion.<sup>27</sup>

This flat Universe, discovered by astronomical observation, is flat precisely because of active galaxies, which eject jets of matter in one direction and antimatter in the opposite. When a jet of matter somewhere in intergalactic space encounters an antimatter jet originating from another active galaxy, they annihilate. This process results not only in mass loss but also in an increase in the Universe's expansion rate. The speed of light  $c_{\max}$  is now calculated starting from that other active galaxy as a new, independent source of mass and antimass. So, it is non-relativistically added to the speed  $c_{\max}$  of the previous active galaxy—the Euclidean 0x-axis continues: the component of the velocity along the 0x-axis of one active galaxy is added algebraically with the component  $c_{\max}$  of the velocity along the same 0x-axis of the previous active galaxy, etc. Who knows how many annihilations and additional  $c_{\max}$ -speeds? After all, such a case **always** comes up—it is an **eternal** situation: some of the most distant quasars eject jets of matter towards us, which we identify as blazars. The opposite jets from us – those jets will fall beyond our  $c_{\max}$ -horizon.

### **Beyond what we now call the cosmic microwave background.**

Why would the end of our view of the starry sky be the end of the cosmos and the Universe itself?

Why would the speed of light calculated starting from our Earth be the highest speed in the cosmos and the Universe in general? What kind of senseless homocentrism is that! From that distance that we consider to be the end of the world and the Universe in general, our Earth cannot even be seen. Not only Earth. Nor can our entire galaxy be seen except perhaps as a fragment of some cosmic microwave background—from there.

The velocity of the jet that the most distant blazars emit towards our  $c_{\max}$ -horizon, although it is not higher than the  $c_{\max}$  associated with that blazar, is definitely higher than our  $c_{\max}$ . No energy, no matter how immense, could accelerate any mass  $m_0$  from our galaxy to that speed, to our  $c_{\max}$ -horizon, let alone beyond it,  $v > c$ . We would also not see it at such a speed; the Lorentz contraction of length would be imaginary to us,  $i\sqrt{\frac{v^2}{c^2} - 1}$ . Imaginary quantities can be expressed trigonometrically and exponentially:  $e^{i\theta} = \text{Cos}\theta + i\text{Sin}\theta$ .

It is believed that the **cosmic microwave background** is at the very limit of visibility, that it is our  $c_{\max}$ -horizon, thus the end of the world. However, why not still an unstable vacuum that virtually oscillates around zero? Specifically, in the direction of our virtual Euclidean 0x-axis. Why wouldn't that electromagnetic wave,  $\text{Cos}\theta + i\text{Sin}\theta$ , that comes to us from an infinite distance (as Einstein wrote), why wouldn't it become visible on that horizon? For the direction towards us, it is  $\theta = \pi$ , so  $\text{Cos}\pi = -1$ , with  $\text{Sin}\pi = 0$ . That would enter at that

conditional horizon boundary with a virtual energy of  $-i m_0 \left( \frac{v^2}{c^2} - 1 \right)^{-1/2}$ .

How would it pass through that mathematical singularity  $-\infty/+\infty$  (most likely completely imperceptibly) and finally be realised somewhere in our telescope as how much large of energy (that is the real question) with what corresponding absolute temperature?

However, it is important to understand the following.

Not on one side God and on the other Matter, then whose atomic weapons prevail, but on the one hand **the LOGIC of nature and the vacuum itself**, and on the other **an infinite multitude of the elementary particles**, charged or uncharged, with or without mass, energy relevant or virtual etc., that is only, but the only mode in which vacuum can exist.

In this, the theses of Thomas Aquinas, on the one hand, and the theses of dialectical materialism, on the other,<sup>28</sup> are just another proof of the symmetry and relativity of that **LOGIC** of eternal nature. Symbolically presented, it is:  $\mathbf{1} + \mathbf{e}^{i\pi} = \mathbf{0}$ . Here is our cosmos **1**, and all the rest of the transcendent Universe that we can think about in different ways is  $\mathbf{e}^{i\pi}$ . Each mass  $m_0$  has its  $c_{\max}$ , its cosmos. That in every cosmos is an equal amount of matter and antimatter, that would not be said. But that in every cosmos, together with the distant Universe, there is an equal amount of matter and antimatter within the limits of Heisenberg's uncertainty relations, I hope that is acceptable as certain.

### About sunset instead of conclusion

Four hundred and ninety years after the execution of Thomas More, who as secretary to King Henry VIII refused to sign a decree declaring himself a religious leader too, and 425 years since the public burning of Giordano Bruno at the stake by the verdict of the Inquisition; 232 years after the guillotine of the end of Louis XVI and 204 years since the death of Napoleon Bonaparte in captivity on the deserted island of St. Helena under suspicion of being poisoned; 80 years after Adolf Hitler committed suicide, before Soviet troops entered Berlin, and Japanese kamikazes were attacking American ships and **atomic bombs were dropped** on the cities of Hiroshima and Nagasaki; 77 years after the assassination of Mahatma Gandhi, who was not killed by any of the English colonisers but by a local religious fanatic; only 36 years since the Chinese government massacred citizens and students in a peaceful protest at the Gate of Heavenly Peace, Tiananmen Square; just a few months after Russian President Putin, regarding the war in Ukraine, threatened at the end of 2024 that he would use **nuclear weapons** if US President Trump delivered **long-range missiles with nuclear warheads** to Ukraine, and Trump replied that he would not, but that his goal was at least peace in the Middle East, where the entire Gaza area, devastated by Israeli shelling, from which Palestinians have already fled, would be converted into a tourist resort with hotels by American investments; a few days ago I received this email from a fellow engineer from Canada:

*Milan,*

*I am sending you this article that I received in my newspaper. This is "higher mathematics" for me and for my society. But it may not be bad to get your comments.*

*Regards, Sava*

<https://www.iask.ca/news/> but Google will find it with just the following string of words:  
neutrino-results-offer-possible-clue-as-to-why-matter-exists

My answer was:

*Thanks, Sava,*

*I read the article.*

*If of the three types of neutrinos, all of which oscillate moving at almost the speed of light, and if the fact that two neutrinos are heavier than the third means that it is an asymmetry, then that is the wrong way. If two neutrinos are lighter, almost massless, and one is heavier, and if that means symmetry, then that is the right way.*

*Namely, I believe in inertia, which means that the world of the masses has always been and always will be, and that there is no human religious God as a beginning, but that **God is the logic of nature itself: inertia**, and according to the theorem of mathematician Emmy N  ther, this means **symmetry**, which already means **relativity**, i.e. if this, then also that, etc.*

*Greetings, Milan*

*P. S. I am currently writing an article in which I prove that in mutual symmetry there is both causality and coincidence, and that therefore the question of which is older, the chicken or the egg, is inappropriate.*

That same day, late in the afternoon, I went out onto the terrace of my apartment and looked at the sky; the first darkness was already falling. The setting sun was dark red, occasionally behind some pale brown clouds. Night was already falling. Soon, only the starry sky will remain. Looking through the largest telescopes, the last blackness behind the last stars would appear. From that blackness, only radio noise at wavelengths from 0.01 to 100 cm can be registered, as from a black body at a temperature of 2.7<sup>0</sup>C. The artificial visualisation of that noise over the entire sphere above the earth is the tiny non-homogenisation, almost uniform, only here and there somewhat larger.

How will that same blackness look to our civilisation in a few tens of thousands of years? Will spots of slightly paler blackness, some new nebulae, and future galaxies as part of our cosmos perhaps emerge from it? Because the stars which we call fixed stars today have changed their positions somewhat in relation to the same constellations drawn in the time of the ancient Greeks. Or maybe everything that will be left of our civilisation will be in an astronomical photograph of some later civilisation, which will not know whether it was the explosion of a new type of supernova or what?

When I sat down at the computer again, I saw that a reply had arrived from Sava.

Sava is a fellow engineer who, back during Yugoslavia, sought better conditions for his profession and life and moved to Canada with his family. Regarding the problems with Serbia, which increasingly resembles a colony of the Chinese or whoever, and with the student demonstrations, who are demonstrating precisely because they want better conditions for their profession in Serbia, he suggested patience. He saw, he says, that no milk and honey were flowing anywhere. Yes, an economy based on the idea of dictatorship in the name of the proletariat,<sup>29</sup> one nation or whatever, after the collapse of that idea can hardly recover for the

world market without foreign investment: it all depends on whether the government simply sells labor power for the sake of its own enrichment or really encourages free human and equal national opportunities, so patience is really needed here. Perhaps political awareness will also advance with new generations, that is, with student encouragement.

Anyway, Sava's answer encouraged me:

*Milan,*

*I really liked your comment. It is informative, has strong logic and overcomes many of our social limitations including religious ones. By the way, Art McDonald, a Canadian, won the Nobel Prize but I am not sure how much neutrinos played a part in that.*

*Regards, Sava*

Maybe our civilisation will be smart enough not to disturb the natural evolution and the end of our solar system, to remain part of eternity together with such a natural **SUNSET**.

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### Notes and references

1. Dragoslav Srejović: **LEPENSKI VIR**, *Nova praistorijska kultura u Podunavlju* (1969, Beograd)
2. Dragoslav Srejović, **EUROPE'S FIRST MONUMENTAL SCULPTURE: New Discoveries at Lepenski Vir** (1972, London)
3. Dragoslav Srejović: *Lepenski Vir*, **EINE VORGESCHICHTLICHE GEBURTSSATTE EUROPAISCHER KULTUR** (1973, Bergisch-Gladbach)
4. Dragoslav Srejović, Ljubinka Babović, **UMETNOST LEPENSKOG ČOVEKA** (1983, Belgrade); the photo is from that book:



5. Once upon a time, one man was walking through those areas, already advanced in years. Over his shoulder, he carried a canvas bag with long straps reaching his thigh, a narrow

canvas holster in his hand that reached almost to the ground, and a light canvas cap on his head. It was still night, but the sky was already pale, the stars were dim, and the city lights were sparse. With the light pointed upwards, from spotlights in the pedestal, the monument to the Victorious was still shining. And then the splash of water and the boat.

— Hello, Boško — the man said and put down his fishing tackle.

They set off downstream. The engine hummed like a bee, wisps of fog over the water like bushy refreshment in the summer heat, and two men sat at the stern and chewed. A mat spread out, then a piece of bread, a piece of chicken. A small pitcher of brandy is within reach. And then sips of coffee from a thermos.

— Look! — Boško said.

They were opposite the White Rock; they were already in the Great Waters. From the direction of the Middle Waters, the rosy east was blazing, and the Danube was like oil. Both the sky and the water were already announcing all the light of day and life.

— This is divine! — the man said and holding his breath, he listened to that harmony of nature with his eyes, ears and whole body.

It was my father.

No one had yet understood what nature is, does it have any explanation, some secret point of assemblage or even nothing, which could still be experienced as something definite and taken to oneself: from always and forever, all the sky and all the splendour. In that magic, where is the place for human thought and man himself?

The ancient Greeks had more than one god, but they had one at the very center of the world. They believed that Apollo understood and predicted human and world destiny, and that it was no coincidence that his temple was located in Delphi, on the steep slopes of the northern side of the Gulf of Corinth — here the center of the world is. Greek civilisation encompassed something from southern Europe, northern Africa, in the west to the Pillars of Heraclitus, i.e. Gibraltar, and in the east to Phoenicia, i.e. Palestine and Israel — and Delphi really is in the center. Much came from Greek civilisation, and Europe itself owes its name to a Greek legend, but Delphi is not the center of the world.

The old people of Dubrovnik (Ragusa) used to say: Put your finger in the sea and you will be connected to the whole world—and they knew what the world was and what commerce was. My father, when he threw the hook into the water—and he often reached Ritopek (Tricornium)—and when he felt all that strong current under his hand over the line, lurking even the slightest jolt of life, he really felt that he was connected to the whole world.

6. G. Breit; John A. Wheeler (15 December 1934), *Collision of Two Light Quanta*, *Physical Review*, 46 (12)
7. Paul Dirac: *The Quantum Theory of the Electron*  
<https://royalsocietypublishing.org/doi/10.1098/rspa.1928.0023>
8. I. Sokolov, N. Naumova, J. Nees, and G. Mourou: *Pair creation in QED-strong pulsed laser fields interacting with electron beams*  
<https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.105.195005>

9. Milan D. Nešić: **ESEJ O BOGU**, *O relativnosti i simetriji povodom deda Jovine smrti* (Beograd 1976, 2001 ID=88493068)
10. G. Lemaître: **THE PRIMEVAL ATOM** – *An Essay on Cosmogony*, New York-London, D. Van Nostrand Co, 1950.
11. X. Ribeyre, E. d' Humières, O. Jansen, S. Jequier, V. Tikhonchuk, and M. Lobet: *Pair creation in collision of  $\gamma$ -ray beams produced with high-intensity lasers*, Physical review E 93 013201 (2016)
12. J. Adam et al. (STAR Collaboration): *Momentum and Angular Distributions from Linearly Polarized Photon Collisions*, Physical Review Letter **127**, 052302 – Published 27 July 2021
13. “Astronomers have long known about galaxies with active nuclei that eject jets of matter from their black holes to symmetrically opposite sides. For now, spectroscopic studies can only be conducted on their accretion disk. Attention should be paid to the jets they eject; all chances are that one jet is made of matter, of course, this of which the galaxy is made, but that the other jet is made of antimatter. Thanks to the unique magnetic field of these two jets, the one of antimatter will have a passage even into the distance of hundreds of thousands of light-years. The article aims to pique the interest of scientists in the fact that every such galaxy is a potential **mini “big bang”**, which, with the proposed  $c^2$ -inertia, could fundamentally alter the scientific picture of the Universe.”  
 Milan D. Nešić: *On the simultaneous creation of matter and antimatter jets*,  
<https://www.opastpublishers.com/open-access-articles/on-the-simultaneous-creation-of-matter-and-antimatter-jets.pdf>
14. And in the lower right-hand quarter, in large block letters, that's my handwriting:  
 DAY 10 X 84, AROUND TWO O'CLOCK IN THE AFTERNOON, IN SUNNY AND CALM WEATHER, DOWNSTREAM FROM THE WHITE ROCK AND UPSTREAM FROM THE SMALL ISLAND ŠVEB, THE BOAT'S ENGINE WAS TURNED OFF: EVERYONE STOOD AND THREW A ROSE STRETCH INTO THE WATER, AND BOŠKO FIRED A TRIBUTE SHOT INTO THE AIR FROM HIS PISTOL—THE FATHER JOINED THE ETERNAL FLOW.
15. Milan D. Nešić:  *$c^2$ -inertia and the affine theory of gravity*, Space science journal, Volume 2, Issue 2, 1. <https://www.opastpublishers.com/open-access-articles/c2const-and-affine-theory-of-gravity.pdf>
16. Albert Einstein: *Zur Elektrodynamik bewegter Körper*, Annalen der physik und chemie, 17, Seite 891–921 (1905)
17. Albert Einstein: *Ist die Tragheit eines Körpers von seinem Energieinhalt abhängig?* Annalen der physik und chemie, 323, 13, Seite 639–641 (1905)
18. Milan D. Nešić: *Einstein's  $E = mc^2$  and Dark Energy*, <https://vixra.org/pdf/1912.0175v2.pdf>
19. Božidar Jovanović: *Affine Geometry and Relativity*, <https://arxiv.org/pdf/2305.13496>

- 20 Milan D. Nešić: *In Cosmology,  $c^2 = \text{const}$  is the Measure of Inertia, not Mass*,  
<https://vixra.org/pdf/1812.0230v1.pdf>
21. R. G. L. Aragao, C. A. S. Silva: *Entropic corrected Newton's law of gravitation and the loop Quantum Black Hole gravitational atom*, <https://arxiv.org/abs/1601.04993>
22. Alain Aspect: *Bell's inequality test: more ideal than ever*,  
<https://www.nature.com/articles/18296>
23. Richard Feynman: *Space-Time Approach to Quantum Electrodynamics*, Physical Review, 76, 1949. <https://journals.aps.org/pr/pdf/10.1103/PhysRev.76.769>  
 Richard Feynman mentions virtual quanta fifteen times, and virtual electrons, mesons, nucleons, particles, or processes, emissions, transformations more than twenty times ...
24. Petar V. Grujić: *Cosmic Physical Ontology*, Institute of Physics, Belgrade University
25. Sima Marković: Sima Marković: **EINSTEIN THEORY OF RELATIVITY**. Belgrade, 1929. *Space-time approach to quantum electrodynamics*. Physical Review. 1949; 76(6):769.
26. Saul Perlmutter: *Supernovae, Dark Energy, and the Accelerating Universe*. Physics Today, Volume 56, Issue 4, pp. 53-62 (2003).
27. Saul Perlmutter and Brian P. Schmidt: *Measuring cosmology with Supernovae*. arXiv:astro-ph/0303428v1, 18 Mar 2003
28. Milan D. Nešić: *Einstein, Heisenberg and  $c^2$ -inertia*,  
<https://vixra.org/pdf/2112.0152v1.pdf>
29. Milan D. Nešić: **THROUGH SOCIALISM TO WAR**, *Fragments from the four-volum book THROUGH SOCIALISM TO GOD* (2010, Belgrade) ISBN 978-86-903845-7-0  
<https://vixra.org/pdf/2502.0098v1.pdf>