CAUSATION

International Journal Of Science

No. 5, 2007, pp. 1-52.
http://www.causation.de/
May 10th, 2007.

Big Bang!

Quantum Computer

The 2007 International Conference
on Foundations of Computer Science (FCS'07)

Date and Location: June 25-28, 2007, Las Vegas, USA

Sponsors: Research Labs at MIT, Harvard, Purdue, Univ. of Texas at Austin,
Paper Submission Deadline: February 20, 2007

http://www.world-academy-of-science.org/worldcomp07/ws/FCS07

Contents

Peer Reviewed:

None.

None Peer Reviewed:

Editorial Board:
Ilija Barukčić, Brumunder Ring 91, 26388 Wilhelmshaven, Germany.
Barukcic@t-online.de
Phone: 00 49 - 44 23 - 99 11 11
Fax: 00 49 - 44 23 - 99 11 12

Book Reviews:
Ilija Barukčić, Brumunder Ring 91, 26388 Wilhelmshaven, Germany.

http://www.causation.de/

ISSN 1863-9542

News

Jever, Germany, May, 2007

Quantum computer

Quantum mechanical phenomena such as entanglement or superposition can be used to perform some operations on data.

Quantum computers may be faster than classical computers.

Military agencies and many national government support quantum computing research to develop quantum computers for own purposes.

Jever, Germany, May, 2007.

Eris discovered!

Mike Brown (Caltech), Chad Trujillo (Gemini Observatory), and David Rabinowitz (Yale University) discovered Eris, the largest dwarf planet known, at Palomar Observatory.

Eris is the largest object found in orbit around the sun since the discovery of Neptune.

Eris is like Pluto a member of the Kuiper belt and much larger than Pluto. Pluto was discovered in 1930.

Advertisement

Causation **5** (2007), 5-50.

The Beginning Of Our World.

By Ilija Barukčić[*, 1,2]

[1] Jever, Germany.
[2] http://www.barukcic-causality.com/

Abstract

The beginning of our world, as the foundation on which everything other is built, is determined by laws which should be examined from a higher standpoint before anything else. At the beginning of our world we have nothing else but the beginning of our world itself. It remains to be seen what this is. With what should the beginning of our world be made, what is there before us? Is it possible at all for our world to begin, it doesn't matter either our world is or it is not. In so far as our world is, our world is not just beginning, the world is already. In so far as our world is not, why should this world begin, how could this world begin? Thus, if no presupposition is to be made then the only determination of the beginning of our world is at the end to be the beginning of our world as such. The beginning of our world may not presuppose anything. On this view, is there something like an absolute beginning at all, is there something which is prior to the beginning of our world? Must a preliminary labour be carried out before the beginning of our world? We should not go any further until the beginning of our world has been firmly established. This publication will make the proof that Einstein's field equation, Heisenberg's uncertainty relation and Barukčić's unified field equation are determining

the beginning of our world.

Key words: Beginning Of Our World, Einstein, Heisenberg, Barukčić.

1. Background

The determination of the beginning of our world is both - a beginning out of itself which is necessary for itself and equally a beginning of our world as a condition for its own further development.

In its first manifestation, **the beginning of our world out of itself which is necessary for itself** seems to be something what is absolutely simple, that is, something what is the most general. The beginning of our world cannot be made with anything containing a concrete relation within itself, anything concrete because such a something must not begin, such a something is already. It is not the concrete something itself from which the movement starts because the determinations contained in something concrete must have already developed somehow. Thus, the developed and concrete something would exist before it started to exist. Consequently, anything which is in its own self a first and an other implies equally that it has developed somehow, an advance has already been made. A concrete one must have become somehow the concrete one that it is.
In so far, that which constitutes the beginning of our world, the beginning itself, is to be taken as something simple and unfilled. If that which forms the beginning of our world would be something determined within itself, then this something that is determined within itself must likewise be something otherwise concrete which the beginning of our world cannot be. It is the very indeterminatedness which at the beginning of our world constitutes its own determinatedness.

[*] Corresponding author: e-mail: Barukcic@t-online.de, Phone: +00 49 44 23 - 991111 , Fax: +00 49 44 23 991112. GMT + 1h.

So let us remove all concrete away. Thus, if all concrete is removed away then nothing at all would remain, even the beginning as such would come to an end. But even here after such a removal still remains something which is not constituted or determined by anything, the emptiness, the empty negative, whatever this may be, what ever its properties. Therefore, in emptiness simply as such, in the empty negative that is necessary for itself, the beginning of our world can be found. The insight, that in the empty negative the beginning of our world can be found, is itself so simple that this beginning of our world as such requires no further introduction. Only, how can there be the beginning of our world in the emptiness, in an empty negative? The emptiness in which it must be the beginning of our world can be only an abstract and indeterminate emptiness. Only, in such an emptiness an advance from a one to another has yet not been made. This empty negative, the emptiness as such, is a self-related negativity, is the negative of itself in its own self, it has a relation to the other of itself and is suffering and thirsty for the other of itself. Thus, only in what is simple there is nothing more than the pure beginning, only in such a simple, in emptiness, no advance yet has been made from a one to an other. The beginning of our world begin with the beginning itself. There isn't anything else present, any content which could be used to make the beginning of our world more determinate. We cannot extract any further determination of the beginning of our world from the fact that it is the beginning of our world. The beginning of our world in emptiness, in nothing else but the empty negative, is equally in its first manifestation in fanatical hostility towards an end, is fearful of being lost in an end, is fearful of being captured for ever by an end. The beginning of our world is equally within itself the end of an end, the end of an end in which the end is also the begin and the begin is also the end, the beginning of our world is thus the beginning of everything. The beginning of our world can be compared with an circle in which the first is also the last and the last is also the first. In a point the line begins, the point passes out of itself into the line, moves in itself and gives rise to the line. A line which has reached itself, the line winds itself by the power of π into a circle, returns thus back into itself and becomes a circle. But this circle is moreover a circle of circles and thus in returning into the beginning, this circle returns back into its end. But this end is equally the beginning of a new circle and so up to an n-dimensional space. In so far, that from which this movement began has united with itself, in the beginning an end ends and equally in such an end the beginning begins. The beginning of our world on its own accord determines thus itself as the other of itself, the beginning is thus the local hidden variable of an end, it is a simplicity into which an end has withdrawn. The beginning of our world contains as such within itself thus the beginning of further advance and development. In its last manifestation, the beginning of our world seems to be equally **the foundation on which everything other is built**, it is the simplest, the simple itself, quite general, without any content and still undeveloped. The beginning of our world is the foundation which is present and preserved throughout the entire subsequent development, remaining completely immanent in its further determinations. That which forms the starting point of the development of our world remains at the base of all that follows and does not vanish from it. Enclosed in the beginning of our world is thus the entire development that follows. The further necessary development of our world started right from the beginning itself. The beginning of our world in its own necessary development brings with its own self the demand of further development. The beginning of our world starts from itself and advances to the other of itself, it is a movement through which the latter at the end returns to the first. The progress that follows is more or less only a further determination of the beginning of our world, every further progress is equally a fresh beginning too, it is the sublation of the very first beginning of our world. In so far, while getting further away from the indeterminate beginning of our world, the determinate development of our world is equally getting back nearer to it. Consequently, after the contradictions contained in the beginning of our world have been developed, the final result is the relationship which formed the beginning as such, is the infinite progress, the same contradiction with which our world began. However it may be, once the beginning of our world has inwardly reconstituted itself, all attempts to preserve the end are utterly in vain. In so far, the beginning as such remains to some extent a matter of indifference. Contrary to all, both sides of the beginning of our world constitutes the beginning of our world. The beginning of our world has thus its own result, its own negation in itself and passes thus into a higher form, into the development, into the unity and the struggle of energy, time and space.

2. Material and Methods

The basic relationship between energy, time and space can be expressed in terms of Einstein's basic field equation, which relate the presence of the curvature of space-time and matter. Einstein's field equation is based on a distinction between gravitational field and matter. There is no third, **tertium non datur**, between gravitational field and matter.

2.1. Einstein's field equation

Einstein's theory of general relativity, especially **Einstein's field equation** describes how energy, time and space are interrelated, how the one changes into its own other and vice versa.

Einstein's basic field equation (EFE).

Let

R_{ab} denote the Ricci tensor,

R denote the Ricci scalar,

g_{ab} denote the metric tensor,

T_{ab} denote the stress-energy tensor,

h denote Planck's constant, $h \approx (6.626\ 0693\ (11)) * 10^{-34}$ **[J * s],**

π denote the mathematical constant π, also known as **Archimedes' constant.** The numerical value of π truncated to 50 decimal places is known to be about

$$\pi \approx 3.14159\ 26535\ 89793\ 23846\ 26433\ 83279\ 50288\ 41971\ 69399\ 37510,$$

c denote the speed of all electromagnetic radiation in a vacuum, the speed of light, where

$$c = 299\ 792\ 458\ [m / s],$$

γ denote Newton's gravitational 'constant', where

$$\gamma \approx (6.6742 \pm 0.0010) * 10^{-11}\ [m^3 / (s^2 * kg)].$$

Einstein's field equation describes how a field or energy (or matter) and time changes space and vice versa. Einstein's basic field equation (EFE) is usually written in the form

$$(((\ 4 * 2 * \pi * \gamma\ ) * T_{ab}\ )\ /\ (\ c^4\ ))\ +\ ((\ R * g_{ab}\ )\ /\ 2\ ))\ =\ (\ R_{ab}\ ). \qquad (1)$$

(-+++ metric sign convention)

The stress-energy-momentum tensor as the source of space-time curvature, describes the density and flux of **energy** and momentum in space-time in Einstein's theory of gravitation. The stress-energy-momentum tensor is the source of the gravitational field, a source of space-time curvature.

According to general relativity, the metric of space-time is determined by the matter and energy content of space-time. The Ricci scalar/metric tensor completely determines the curvature of space-time and defines such notions as **future, past**, distance, volume, angle and ...

The Ricci tensor, named after Gregorio Ricci-Curbastro, is a key term in the Einstein field equations and more or less a measure of **volume distortion**.

2.2. Heisenberg's uncertainty principle

An other basic relationship between energy and time was discovered by Werner Heisenberg 1927. **Heisenberg uncertainty principle** states in general that the simultaneous determination of energy and its other, the time, the local hidden variable of energy if you like, has an unavoidable uncertainty. An increasing accuracy in the measurement of energy increases the uncertainty in the simultaneous measurement of its other, of its own local hidden variable, its complement, its negation, the time. In general, Heisenberg's uncertainty principle can be formulated mathematically as

$$\sigma(\Delta \text{ Energy }) * \sigma(\Delta \text{Time }) \geq h / (4 * \pi) \quad (2)$$

where

$\sigma(\Delta$ Energy)	denote the standard deviation of energy,
$\sigma(\Delta$Time)	denote the standard deviation of time,
σ	denote the standard deviation,
h	denote Planck's constant, $h \approx (6.626\ 0693\ (11)) * 10^{-34}$ [J * s],
π	denote the mathematical 'constant' π.

The first mathematically exact derivation of Heisenberg's uncertainty principle was provided by Kennard (Kennard 1930). A fundamental consequence of the basic relationship between energy and time in accordance with Heisenberg's uncertainty principle is that energy and time cannot be separated, both are tighten together, both belong together, the one cannot without its own other but both are equally not the same. It is not possible that there is energy without time or that there is time without energy. Heisenberg's uncertainty principle has at least two meaning, two absolutely equivalent meanings or sides. Thus,

either

$$\sigma(\Delta \text{ Energy }) * \sigma(\Delta \text{Time }) > h / (4 * \pi) \quad (3)$$

or

$$\sigma(\Delta \text{ Energy }) * \sigma(\Delta \text{Time }) = h / (4 * \pi), \quad (4)$$

but not equally booth. In so far, if $\sigma(\Delta\text{Energy})*\sigma(\Delta\text{Time}) = h/(4*\pi)$ is given the consequence is that

$$\mathbf{h = \sigma(\Delta \text{ Energy }) * \sigma(\Delta \text{Time }),} \quad (5)$$

since under certain conditions it is true that **(4 * π)=1** (Barukčić 2007c, p. 9). It is not possible that

(σ(ΔEnergy)*σ(ΔTime) = h/(4*π)) ∩ (σ(ΔEnergy)*σ(ΔTime) > h/(4*π))

is equally true. It is true that

EITHER (σ(ΔEnergy)*σ(ΔTime) = h /(4 * π)) OR (σ(ΔEnergy)*σ(ΔTime) > h /(4 * π)).

Consequently, Heisenberg's uncertainty relation is confirmed to be true and valid under both conditions and equally only **either** in the one (Eq. (3)) **or** in the other (Eq. (4)). According to Barukčić (Barukčić 2007e, p. 10) Heisenberg's uncertainty relation $\sigma(\Delta\text{Energy})*\sigma(\Delta\text{Time}) \geq h/(4*\pi)$ can be expressed in terms of classical bivalent logic equally as **without σ(ΔEnergy) and σ(ΔTime) no h,** since under certain circumstances (Barukčić 2007c, p. 9) π can take a minimum value of (1/4) thus that **(4 * π)=1.** The conditio-sine qua non for the existence of Planck's constant h and in last consequence of the begin of our world, appears to be the existence of something like a standard deviation of energy and a standard deviation of time. Only under this conditions it is assured that there can exist something like a Planck's constant h. Consequently, in a world where **σ(ΔEnergy)=0 and σ(ΔTime) = 0**, we must have the state of absolutely pure energy and absolutely pure time. A standard deviation = 0 presupposes that something is without its local hidden variable, that something = something, that it is just the pure something (Barukčić 2006c, p. 13, p. 14). In so far, it appears reasonable to accept that the begin of our world started with the creation of one point, with the creation of one Planck's constant h.

2.3. Barukčić's unified field equation.

The basic relationship between something and its own other is determined at least by the general contradiction law (Barukčić 2006f, pp. 5-26).

The identity and the difference between A and Anti A (Barukčić 2006e, pp. 5-26).

Let

A — denote a (covariant, contravariant, mixed, ...) tensor (of the second or higher or any ranks), a (contravariant, covariant ...) four-vectors etc., something existing independently of human mind and consciousness,
A be opposed to (Anti A),

B — denote the other side of A, the opposite of A, the complementary of A, the hidden part of A, the Anti A,
B = Anti A be opposed to A,

C — denote the unity of A and (Anti A) .

Let us respect **the law of the excluded middle**. That is to say, there is no third between A and Anti A. In so far, we obtain

$$\mathbf{A + (Anti\ A) = C}$$

or

$$\mathbf{A + B = C}$$

or

$$\mathbf{B = (Anti\ A) = C - A.}$$

Further, let the tensor product obey the distributive law (K-theory).

n(A) — denote the determinatedness of A, the necessity of A. Let us define

$$A = n(A) * C.$$

n(B) — denote the randomness, the indeterminatedness of A, the necessity of B. Let us define

$$B = n(B) * C.$$ Let

$$n(A) + n(B) = 1.$$ Let

$\sigma(A)^2$ — denote the variance of A. Let $\mathbf{\sigma(A)^2 = n(A)*n(B)=n(A)*(1- n(A)) \leq (1/4).}$ Let

(Anti A) = (A) — denote our assumption that (Anti A) is not dominant over (A) and vice versa. Equally (A) is not dominant over (Anti A) ,

then

$$\mathbf{A * (Anti\ A) = C^2 / 4.}$$

Proof.

$$\mathbf{(Anti\ A) = A} \qquad (6)$$

$$(Anti\ A) + (Anti\ A) = (Anti\ A) + A \qquad (7)$$

$$2 * (Anti\ A) = (C) \qquad (8)$$

$$\mathbf{(\ Anti\ A\ ) = (\ C\ )/\ 2} \quad (9)$$

$$(\ Anti\ A\ ) - (\ (\ C\ )/\ 2\ ) = 0 \quad (10)$$

$$(\ (\ Anti\ A\ ) - (\ (\ C\ )/\ 2\ )\ )^2 = 0^2 \quad (11)$$

$$(\ (\ Anti\ A\ )^2 - (\ (\ Anti\ A\ ) * (C)) + ((\ C\ )/2\ )\ )^2 = 0^2 \quad (12)$$

$$\mathbf{(\ (\ Anti\ A\ )^2 - (\ (\ Anti\ A\ ) * (C)) = -((\ C\ )/2\ )\ )^2} \quad (13)$$

$$\mathbf{-(\ (\ Anti\ A\ )^2 + (\ (\ Anti\ A\ ) * (C)) = +((\ C\ )/2\ )\ )^2} \quad (14)$$

$$+(\ (\ Anti\ A\ ) * (C)) - (\ (\ Anti\ A\ )^2 = +((\ C\ )/2\ )\ )^2 \quad (15)$$

$$(\ Anti\ A\ ) * (C) - (\ Anti\ A\ )^2 = C^2/4 \quad (16)$$

$$\mathbf{(\ Anti\ A\ ) * (\ C - (\ Anti\ A\ )\ ) = C^2/4} \quad (17)$$

$$(\ C - A\ ) * (\ C - (\ C - A\ )\ ) = C^2/4 \quad (18)$$

$$(\ C_t - A\ ) * (\ C - C + A\ ) = C^2/4 \quad (19)$$

$$(\ C - A\ ) * (\ 0 + A\ ) = C^2/4 \quad (20)$$

$$(\ C - A\ ) * (\ + A\ ) = C^2/4 \quad (21)$$

$$A * (\ C - A\ ) = C^2/4 \quad (22)$$

$$A * B = C^2/4 \quad (23)$$

$$\mathbf{A * (\ Anti\ A\ ) = C^2/4} \quad (24)$$

Q. e. d.

Anti A and A can be equal to each other but this is not necessary. It is possible that the one is dominant over the other.

A is dominant over Anti A . The opposition between A and Anti A (Barukčić 2006e, pp. 5-26).

Let

A — denote a (covariant, contravariant, mixed, ...) tensor (of the second or higher or any ranks), a (contravariant, covariant ...) four-vectors etc., something existing independently of human mind and consciousness,
A be opposed to (Anti A),

B — denote the other side of A, the opposite of A, the complementary of A, the hidden part of A, the Anti A,
B = Anti A be opposed to A,

C — denote the unity of A and (Anti A) .

Let us respect **the law of the excluded middle**. That is to say, there is no third between A and Anti A. In so far, we obtain

$$\mathbf{A + (\ Anti\ A\ ) = C}$$

or

$$\mathbf{A + B = C}$$

or

$$\mathbf{B = (Anti\ A) = C - A.}$$

Further, let the tensor product obey the distributive law (K-theory).

n(A) denote the determinatedness of A, the necessity of A. Let us define

$$A = n(A) * C.$$

n(B) denote the randomness, the indeterminatedness of A, the necessity of B. Let us define

$$B = n(B) * C. \text{ Let}$$

$$n(A) + n(B) = 1. \text{ Let}$$

$\sigma(A)^2$ denote the variance of A. Let $\mathbf{\sigma(A)^2 = n(A)*n(B)=n(A)*(1- n(A)) \leq (1/4).}$ Let

$(A) \geq (\text{Anti A})$ denote our assumption that (A) is dominant over (Anti A) and not vice versa. Equally (Anti A) is not dominant over (A) ,

then

$$\mathbf{A * (Anti\ A) \leq C^2 / 4.}$$

Proof.

$$\mathbf{A \geq (Anti\ A)} \quad (25)$$

$$A + A \geq A + (\text{Anti A}) \quad (26)$$

$$2A \geq A + (\text{Anti A}) \quad (27)$$

$$2A \geq C \quad (28)$$

$$\mathbf{A \geq C/2} \quad (29)$$

$$(A /C) \geq 1/2 \quad (30)$$

$$\mathbf{(A /C) - (1/2) \geq 0} \quad (31)$$

$$\mathbf{((A / C) - 0.5)^2 \geq 0^2} \quad (32)$$

$$((A /C)^2 - (A /C) + (1/4)) \geq 0 \quad (33)$$

$$\mathbf{-(A /C)^2 + (A /C) - (1/4) \leq 0} \quad (34)$$

$$-(A /C)^2 + (A /C) \leq (1/4) \quad (35)$$

$$(A /C) - (A /C)^2 \leq (1/4) \quad (36)$$

$$(A /C)* (1 - (A /C)) \leq (1/4) \quad (37)$$

$$(A /C)* ((C/C)* - (A /C)) \leq (1/4) \quad (38)$$

$$((A)* (C - A))/ (C * C) \leq (1/4) \quad (39)$$

$$((A)* (C - A)) \leq ((C * C) /4) \quad (40)$$

$$A * (C - A) \leq C^2 / 4 \quad (41)$$

$$A * B = C^2/4 \quad (42)$$

$$\mathbf{A * (Anti\ A) \leq C^2 / 4} \quad (43)$$

Q. e. d.

On the other hand, Anti A could equally be dominant over A . Thus, we obtain the next relation.

Anti A is dominant over A . The opposition between A and Anti A (Barukčić 2006e, pp. 5-26).

Let

A — denote a (covariant, contravariant, mixed, ...) tensor (of the second or higher or any ranks), a (contravariant, covariant ...) four-vectors etc., something existing independently of human mind and consciousness,
A be opposed to (Anti A),

B — denote the other side of A, the opposite of A, the complementary of A, the hidden part of A, the Anti A,
B = Anti A be opposed to A,

C — denote the unity of A and (Anti A) .

Let us respect **the law of the excluded middle**. That is to say, there is no third between A and Anti A. In so far, we obtain

$$\mathbf{A + (Anti\ A) = C}$$

or

$$\mathbf{A + B = C}$$

or

$$\mathbf{B = (Anti\ A) = C - A.}$$

Further, let the tensor product obey the distributive law (K-theory).

n(A) — denote the determinatedness of A, the necessity of A. Let us define

$$A = n(A) * C.$$

n(B) — denote the randomness, the indeterminatedness of A, the necessity of B. Let us define

$$B = n(B) * C. \text{ Let}$$

$$n(A) + n(B) = 1. \text{ Let}$$

$\sigma(A)^2$ — denote the variance of A. Let $\mathbf{\sigma(A)^2 = n(A)*n(B)=n(A)*(1- n(A)) \leq (1/4).}$ Let

$(\text{Anti A}) \geq (A)$ — denote our assumption that (Anti A) is dominant over (A) and not vice versa. Equally (A) is not dominant over (Anti A) ,

then

$$\mathbf{A * (Anti\ A) \leq C^2 / 4.} \quad (44)$$

Proof.

$$\mathbf{(Anti\ A) \geq A} \quad (45)$$

$$(\text{Anti A}) + (\text{Anti A}) \geq (\text{Anti A}) + A \quad (46)$$

$$2 * (\text{Anti A}) \geq (C) \quad (47)$$

$$(\text{Anti A}) \geq (C)/ 2 \quad (48)$$

$$(\text{Anti A}) \geq (C)/ 2 \quad (49)$$

$$(\text{Anti A}) - ((C)/ 2) \geq 0 \quad (50)$$

$$((\text{Anti A}) - ((C)/ 2))^2 \geq 0^2 \quad (51)$$

$$((\text{Anti A}))^2 - ((\text{Anti A}) * (C)) + ((C)/2))^2 \geq 0^2 \quad (52)$$

$$((\text{Anti A}))^2 - ((\text{Anti A}) * (C)) \geq - ((C)/2))^2 \quad (53)$$

$$- ((\text{Anti A}))^2 + ((\text{Anti A}) * (C)) \leq + ((C)/2))^2 \quad (54)$$

$$+ ((\text{Anti A}) * (C)) - ((\text{Anti A}))^2 \leq + ((C)/2))^2 \quad (55)$$

$$(\text{Anti A}) * (C) - (\text{Anti A})^2 \leq C^2/4 \quad (56)$$

$$(\text{Anti A}) * (C - (\text{Anti A})) \leq C^2/4 \quad (57)$$

$$(C - A) * (C - (C - A)) \leq C^2/4 \quad (58)$$

$$(C - A) * (C - C + A)) \leq C^2/4 \quad (59)$$

$$(C - A) * (0 + A)) \leq C^2/4 \quad (60)$$

$$(C - A) * (+ A)) \leq C^2/4 \quad (61)$$

$$A * (C - A) \leq C^2/4 \quad (62)$$

$$\mathbf{A * (Anti A) \leq C^2 / 4.} \quad (63)$$

Q. e. d.

Set ((-A - B) = - C) < 0, the situation doesn't change at all. It is known, that (=) is part of (≤). In so far, the relationship between **A** and (Anti A) expressed in the language of tensors is governed by the same inequality

$$\mathbf{A * (Anti A) \leq C_t^2 / 4}$$

too, which was already termed as the general contradiction law (Barukčić 2006e, pp. 5-26). On this account, it is important to stress that an **anti tensor** is not absolutely identical with the **antisymmetrical tensor**. An anti tensor in our understanding is defined something like

$$\mathbf{Anti\ A = C - A}$$

while an antisymmetrical tensor according to Einstein (Barukčić 2006e, pp. 12-13) is defined in an other way. But in a world where **C = 0** (C could denote the Ricci tensor R_{ab} in accordance with Einstein's field equation) it appears to be possible to obtain the identity, the equivalence of

anti tensor = antisymmetrical tensor.

A world where C = 0 (f. e. the Ricci tensor $R_{ab} = 0$) is determined by the identity of an anti tensor with an antisymmetrical tensor, both are identical and equally not the same. An anti tensor is something else then an antisymmetrical tensor and vice versa. An antisymmetrical tensor is not absolutely the same like an anti tensor. The equivalence of an anti tensor with an antisymmetrical tensor (Einstein's equivalence principle) under certain conditions and at least before the beginning of our world is an identity of two that are different. According to the known general contradiction law and classical logic, it appears possible to obtain the inequality (Anti tensor)*(Antisymmetrical tensor) ≤ $0^2/4$, which is the contradiction. In so far the situation even before the beginning of our world appears to me is not free of laws and is determined or governed at least by the laws of classical logic and the general contradiction law.

The unified field equation (Barukčić 2006e, pp. 5-19) is an immediate consequence of Einstein's field equation and the general contradiction law. The unified field equation can be rewritten as

$$((R_{ab})^{2} / 4) - (((4 * \pi * \gamma)/(c^{4})) * (T_{ab} * R * g_{ab})) \geq 0,$$

where

R_{ab} denote the Ricci tensor,

R denote the Ricci scalar,

g_{ab} denote the metric tensor,

T_{ab} denote the stress-energy tensor,

h denote Planck's constant, $h \approx (6.626\ 0693\ (11)) * 10^{-34}$ **[J * s],**

π denote the mathematical constant π, also known as **Archimedes' constant.** The numerical value of π truncated to 50 decimal places is known to be about

$$\pi \approx 3.14159\ 26535\ 89793\ 23846\ 26433\ 83279\ 50288\ 41971\ 69399\ 37510,$$

c denote the speed of all electromagnetic radiation in a vacuum, the speed of light, where

$$c = 299\ 792\ 458\ [m / s],$$

γ denote Newton's gravitational 'constant', where

$$\gamma \approx (6.6742 \pm 0.0010) * 10^{-11}\ [m^{3} / (s^{2} * kg)].$$

Recall, Einstein's field equation describes how a field or energy (or matter) and time changes space and vice versa. Einstein's basic field equation (EFE) is usually written in the form

$$(((4 * 2 * \pi * \gamma) * T_{ab}) / (c^{4})) + ((R * g_{ab}) / 2)) = (R_{ab}).$$

We obtain the co-variance of the stress-energy tensor and the Ricci scalar / metric tensor according to Barukčić (Barukčić 2006d, pp. 15-65) as

$$\sigma((T_{ab}),(R * g_{ab})) = ((R_{ab}) / 4) - ((((4 * \pi * \gamma)/(c^{4})) * (T_{ab} * R * g_{ab})) / (R_{ab})^{2}) \geq 0,$$

where

R_{ab} denote the Ricci tensor,

R denote the Ricci scalar,

g_{ab} denote the metric tensor,

T_{ab} denote the stress-energy tensor,

π denote the mathematical constant π, also known as **Archimedes' constant.** The numerical value of π truncated to 50 decimal places is known to be about

$$\pi \approx 3.14159\ 26535\ 89793\ 23846\ 26433\ 83279\ 50288\ 41971\ 69399\ 37510,$$

c denote the speed of all electromagnetic radiation in a vacuum, the speed of light, where

$$c = 299\ 792\ 458\ [m / s],$$

γ denote Newton's gravitational 'constant', where

$$\gamma \approx (6.6742 \pm 0.0010) * 10^{-11}\ [m^{3} / (s^{2} * kg)].$$

3. Results

The preliminary work is done, the methods are introduced and explained. It is time to analyse the beginning of our world now ore precisely.

3.1. The Beginning Of Our World With Pure Energy.

3.1.1. Philosophy

The beginning of our world with pure time is claimed to be possible. Those who are dissatisfied with pure time as the beginning of our world may find the beginning of our world with pure energy more satisfactory than the beginning only with pure time. Thus to get some idea of the beginning of our world let us proof whether the beginning of our world with pure energy itself is possible. Let us proof whether the beginning of our world is possible with pure energy by a proof by contradiction. The proof by contradiction is used by mathematicians extensively. How does a proof by contradiction works? We wish to proof that **a thesis is false**. We use the proof by contradiction for our purposes by assuming the opposite of that what we want to proof. In so far, we assume that the opposite, the **anti-thesis,** in fact is **true**. Based on this assumption we try to see what conclusions can be drawn out from an anti-thesis that is assumed to be true. We try to derive a contradiction from this starting point (something that disagrees with logic or mathematics that is already known to be true). If our assumption, the anti-thesis is true, leads to a **logical contradiction** then we must conclude after all that our assumption, that the anti-thesis is true, must be false. We would have to accept the thesis and to reject the anti-thesis, our proof would be complete (Barukčić 2006d, p. 17).

Thesis.
The beginning of our world without energy is not possible.

Antithesis.
Since we wish to proof whether the beginning of our world without energy is possible by a proof by contradiction we are assuming the opposite of that what we want to proof. We obtain the antithesis.

The beginning of our world without energy is possible.

Synthesis. Proof by contradiction.
In so far, we assume that our antithesis is true, the beginning of our world without energy itself is possible. What are the consequences if this antithesis is true? Thus, since it appears to be correct that there was something like a beginning of our world, the same world which is today full of energy must have started without energy. Consequently, since energy at the beginning of our world yet is not, the same energy at the beginning of our world would be only on the way to itself, on the way to become. Energy would thus have to come from somewhere without energy. But to come from somewhere without energy, something is necessary, energy, that something that before the beginning of our world yet is not. A work has to be done or energy is needed to leave a state of non-energy. On the one hand, there is no energy at the beginning of our world and equally there is energy, since the same has become and both is equally true which is the contradiction. Further, in last consequence, to come from somewhere without energy to energy, the same energy that yet is not would have to be created. Only, physicist are claiming that energy cannot be created. In so far, our antithesis leads once again to a logical contradiction. Thus, we must reject our antithesis and accept our thesis. It is proofed as true that

The beginning of our world without energy is not possible.

Q. e. d.

Energy, pure energy, is a conditio sine qua non for the beginning of our world. Without pure energy no beginning of our world. The following 2x2 table gives us an overview about this relationship.

The beginning of our world and pure energy		The beginning of our world		
		1	0	
Pure energy	1	1	1	
	0	0	1	
				1

The beginning of our world was made with energy or energy is already contained in the beginning of our world. But the energy at the beginning of our world cannot be a somehow determinate energy. A determinate energy must have changed and developed, which the energy before the beginning of our world cannot be. Otherwise, our world would already exist before the same begun. In so far, at the beginning of our world there can be only the pure energy or energy as such, energy without its own other, energy without any further determination or content, energy without any reference outwards, an indeterminate energy, energy without anything else, an energy missing its own other, an energy without time.

The pure energy is only energy and nothing else, it is not equally the contrary of itself too, it is without its otherness, it is without its own negation, it is without a local hidden variable, the pure energy is thus an energy without time. In so far, the beginning of our world must have been made with pure energy, that is without time or time must have been created at the beginning of our world. If the time is supposed to have been created, to have begun, then the time must have been created by energy, which is already proofed as necessary at the begin of our world, because the process of creating time needs energy but equally the process of creating time takes time too. It doesn't matter how long, but it takes time. But again, under this circumstances, the begin of our world only with pure energy, something, the time, which must be created at the beginning of our world must already exist, before the same is created. Thus, the time is at the beginning of our world and equally the time is not at the beginning of our world and both has to be true, which is the contradiction.

It is true that in pure energy there must be the beginning of our world but equally it is true that in pure energy alone there cannot be the beginning of our world since pure energy doesn’t contain any time. For this reason, the beginning of our world cannot begin only with pure energy, because pure energy is missing the other of itself, pure energy is without any time. It is obvious that, energy and time, independent from each other, each in separation from its own other, considered as isolated from each other, would enable any beginning, because time is not already contained in the beginning. Without energy there is no beginning of our world but without time too.

3.1.2. Mathematics

The variance of pure energy is equal to zero.

Let

E denote the pure energy, energy without its own other,

E(E) denote the expectation value of the pure energy E,

$\sigma(E)^2$ denote the variance of the pure energy E,

E = E denote that pure energy is equal only to itself.

Then

$$\sigma(E)^2 = E (E^2) - E (E)^2 = 0 .$$

Proof.

$$+ E = + E \quad (64)$$

$$- E = - E \quad (65)$$

$$E*E = E*E \quad (66)$$

$$E^2 = E * E \quad (67)$$

$$E (E^2) = E (E * E)^1 \quad (68)$$

$$E (E^2) = E (E) * E (E) \quad (69)$$

$$E (E^2) = E (E)^2 \quad (70)$$

$$E (E^2) - E (E)^2 = 0 \quad (71)$$

$$\sigma(E)^2 = E (E^2) - E (E)^2 = 0 . \quad (72)$$

Q. e. d.

In so far, it is obvious that if the pure energy E is nothing else then only equal to itself, if E = E, then the variance of pure energy E must equal zero. The pure energy E is equal only to itself and nothing else, it is pure energy and it stays just pure energy. The pure energy E doesn't change in this sense at all. So, if E=E, then it is impossible for the pure energy E to begin, if the pure energy E is only the pure energy E and nothing else then there is no becoming, the pure energy E just stays the pure energy E, no substantial changes, no movement, all is like it is, no development. In so far, as the pure energy E is, the pure energy E is not just beginning, in so far, as the pure energy E would change, the same would be no longer only the pure energy E, the same would become something else. On the other hand, in so far as the pure energy E is not, where should this pure energy come from. If the pure energy E is not and if the pure energy E would begin, then the pure energy E must change at least from not energy to energy. If the pure energy changes then $\sigma(E)^2 > 0$ otherwise $\sigma(E)^2 = 0$. Only, the variance of pure energy E cannot become **unequal** to zero as long as E = E. The beginning of our world which is determined by the changing of pure energy E implies equally that pure energy E does not remain pure energy E but passes into its other and vice versa. In so far, the beginning of our world is determined by the fact, that pure

energy must change and equally the same cannot change since it is only the pure energy, it is E = E. Thus, if the pure energy E never changed, how was it possible for our world to begin, how could this world become that what it is, the same is no longer only the pure energy E, it is a somehow developed energy but equally time too. It is obvious, that any alteration of the pure energy E raises thus subtle problems. But is this really the whole true? The identity of pure energy only with itself is an identity that is based on a difference and thus on a contradiction. In the case of pure energy, it is true that

$$+\text{energy} = +\text{energy}.$$

But equally the purity of energy is given if

$$-\text{energy} = -\text{energy}.$$

It is the same purity that is either positive or negative. The pure energy is not free of contradictions. It is the same pure energy that is either the positive energy or the negative energy. In so far, if our world has started we the pure energy or if it was true that **+ energy = + energy** it is equally true that we must have started from zero, from perfect symmetry. Let us assume, that George **Boole** is right, let it be true that "the respective interpretations of the symbols 0 and 1 in the system of Logic are Nothing and Universe" (Boole 1854, p. 49). In this case, 0, the nothing, "the 'black hole' of mathematics" (Barukčić 2006a, p. 56) is full of something and must equally be the point our world has started from, since it is true that

$$\mathbf{+\,energy - energy = 0}.$$

In so far, even the pure energy before the beginning of our world is determined by incompatible properties, the same pure energy is either the positive or the negative energy. The philosophical question here is can a positive become a negative, why should a positive become a negative and vice versa, can a positive at all become a negative out of itself and without an urge from another? In the first place, it must be said that the situation before the beginning of our world was determined by the unity and the struggle of positive energy and negative energy.

Further and above all, if pure energy would be somehow determinate and depend on an other, it could not be immediate, could not be the beginning as such. Only energy that is indeterminate could bridge the gap between itself and an other, could be a genuine beginning out of itself and equally the end. The transition from energy into its own other, into time, and vice versa according to Heisenberg is possible. In the light of this, it may be continued, as the result of such reasoning that it appears not to be possible to separate energy from time and vice versa even before the beginning of our world, both cannot be separated from each other. In so far, if energy is only the pure energy and nothing else then it has to be that

$$\mathbf{\sigma(\,energy\,)^2 = 0.}$$

According to the proof above, only energy is, energy is entirely on its own, is indeterminate and has therefore no relation to an other, it has only a relation to it self. Thus, energy and its own other, the time, in isolation from each other, separated and separable, each outside the sphere of the other, energy outside the sphere of the time, time outside the sphere of the energy, with the consequence that their transition is denied, would enable any beginning.

---

1 " $E(XY) = \ldots = E(X\,E(Y)) = E(X) * E(Y)$ " (A. N. Kolmogoroff [Grundbegriffe der Wahrscheinlichkeitsrechnung, 1933] Foundations of the Theory of Probability, Transl. Nathan Morrison, 2. Ed. (New York: Chelsea Publishing Company, 1956), p. 60.).

The unity and struggle between pure energy pure time.

Let

E	denote the pure energy, energy without its own other, energy without time,
t	denote the pure time, time without its own other, time without energy,
E(E)	denote the expectation value of the pure energy E,
$\sigma(E)^2$	denote the variance of the pure energy E,
$\sigma(t)^2$	denote the variance of the pure time t,
E = E	denote that pure energy is equal only to itself.

Then

$$\sigma(E) * \sigma(t) = 0 .$$

Proof.

$$+ E = + E \quad (73)$$

$$- E = - E \quad (74)$$

$$E*E = E*E \quad (75)$$

$$E^2 = E * E \quad (76)$$

$$E (E^2) = E (E * E) \quad (77)$$

$$E (E^2) = E (E) * E (E) \quad (78)$$

$$E (E^2) = E (E)^2 \quad (79)$$

$$E (E^2) - E (E)^2 = 0 \quad (80)$$

$$\sigma(E)^2 = E (E^2) - E (E)^2 = 0 \quad (81)$$

$$\sigma(E) = 0 \quad (82)$$

$$\sigma(E) * \sigma(t) = 0 * \sigma(t) \quad (83)$$

$$\sigma(E) * \sigma(t) = 0. \quad (84)$$

Q. e. d.

A world build up by pure energy and pure time is not free of laws. The same world is determined by the relation

$$\sigma(E) * \sigma(t) = 0.$$

Consequently, according to Heisenberg's uncertainty principle, it is true that

$$\sigma(\Delta\text{energy}) * \sigma (\Delta \text{ time}) \geq (h / (4 * \pi)) \quad (85)$$

Thus, if Heisenberg's uncertainty principle is valid before the begin of our world too, it must be equally true that

$$\sigma(\Delta\text{energy}) * \sigma (\Delta \text{ time}) \geq (h / (4 * \pi)) = 0. \quad (86)$$

That is to say, it has to be true, that

$$(h / (4 * \pi)) = 0 \qquad (87)$$

$$h = 0 * (4 * \pi). \qquad (87)$$

$$\mathbf{h = 0.} \qquad (89)$$

Let us assume that Heisenberg's uncertainty principle is valid before the begin of our world too, under this circumstances it is proofed that Planck's constant h cannot exist before the begin of our world, before the begin of our world Planck's constant h has not existed. According to Eq. 2 and according to Barukčić (Barukčić 2007e, p. 10) it is equally true, that without $\sigma(\Delta energy)$ and $\sigma (\Delta time)$ no Planck's constant h.

Consequently, if Heisenberg's uncertainty principle deals about the begin of our world too then it appears reasonable to accept, that the „Big Bang" started with a „Small Step". The begin of our world started with the creation of a small and tiny point, with the creation of one Planck's constant h. Thus, finding the condition under which a Planck's constant h can be created would equally mean to find the condition for the beginning of our world.

The begin of our world started with the creation of one Planck's constant h, with this small and tiny point our world began. This point developed immediately to a line, this point passed out of itself into a line, moved in itself and developed to a line. This line reached itself, winded itself by the power of π into a circle, returned back into itself and became a circle. This circle developed itself out of itself to a circle of circles and thus in returning into its own beginning, this circle returned back into its own end. But the end of this circle was equally the beginning of a new circle and so up to an n-dimensional space. In so far, if the beginning of our world is equally **the foundation on which everything other is built**, then Planck's constant h is the simplest, the simple itself, quite general, that which formed the starting point of the development of our world and is equally that which remains at the base of all that follows and does not vanish from it. Our very big world seems to be grounded on the small Planck's constant h.

On the one hand, in the special case of pure energy it has to be that

$$\mathbf{\sigma(energy)^2 = 0.}$$

On the other hand, according to Heisenberg, it must be that

$$\mathbf{\sigma(\Delta energy)^2 > 0.}$$

This is a contradiction. In other words, Heisenberg has definitely proved that energy is an existing contradiction. Heisenberg has proofed that

$$\mathbf{energy \neq energy,}$$

energy is equally itself and its other too. According to Heisenberg, energy is not only pure energy, energy is energy and equally energy is its own other too, energy is equally the opposite of its self too. Heisenberg has definitely proved, that energy is inherently self-contradictory, energy is determinated and defined by time.

3.1.3. Physics

It lies in the very nature of the beginning of our world that it must be pure energy. Here the beginning of our world is made with pure energy and the reason, why the beginning of our world is made with pure energy is directly given in energy itself. Whatever other form the beginning of our world takes in the attempt to begin with something other than pure energy, it will suffer from the defects already specified above. Pure energy is that from which the beginning of our world depends and, in fact, from which the beginning of our world originates, that with which the beginning of our world is made. Only, how can there be a beginning in purity? What is pure energy, what could this be? Does it has some incompatible properties?

Pure energy as the unity and the struggle of positive energy and negative energy.

Let

Energy denote the pure energy,

E = E denote that pure energy is equal only to itself,

κ denote the basic relationship between particle and wave,

$$\left(\left[\frac{(Energy*R_{ab})}{(c*c)}-\left(\frac{(4*2*\pi*\gamma*T_{ab})*(R*g_{ab})}{(c*c*c*c)\quad*\quad 2}\right)\right]*\left[\frac{(Energy*R_{ab})}{(c*c)}-\left(\frac{(4*2*\pi*\gamma*T_{ab})*(R*g_{ab})}{(c*c*c*c)\quad*\quad 2}\right)\right]\right)$$

$$=(\kappa*\kappa)*\left(\left[\left(\frac{(R_{ab}*(4*2*\pi*\gamma*T_{ab}))}{(c*c*c*c)}\right)-\left(\frac{(4*2*\pi*\gamma*T_{ab})*(4*2*\pi*\gamma*T_{ab})}{(c*c*c*c)*(c*c*c*c)}\right)\right]*\left[\left(\left(\frac{R_{ab}*(R*g_{ab})}{2}\right)-\left(\frac{(R*g_{ab})*(R*g_{ab})}{2*2}\right)\right)\right]\right)$$

where

R_{ab} denote the Ricci tensor,

R denote the Ricci scalar,

g_{ab} denote the metric tensor,

T_{ab} denote the stress-energy tensor,

π denote the mathematical constant π,

c denote the speed of all electromagnetic radiation in a vacuum, the speed of light,

γ denote Newton's gravitational 'constant'.

Then

+ Energy – Energy = 0.

Proof.

+ Energy = + Energy (90)

+ Energy * (1) = + Energy * (1) (91)

The κ relationship can take the values $|\kappa| = 1$.

+ Energy * $|\kappa|$ = + Energy * $|\kappa|$ (92)

Set $\kappa = -1$, we obtain the next equation.

- Energy = - Energy (93)

+ Energy – Energy = 0. (94)

Q. e. d.

In the first place, pure energy is only identical with itself. On the other hand, under certain circumstances, positive energy can change into negative energy and vice versa. Thus, in general, it is proofed, that pure energy can change itself out of itself and without an urge from an other into the other of itself and vice versa. Energy is defined as the capability to change and even pure energy has not lost this basic capability of energy. Closer consideration shows that energy as such is an existing contradiction, it can be different, pure energy can be opposed to something else, to its own self. Energy as contradiction contains not only the negative but equally the positive too. There is no apparent reason why it should be only the one and not equally its own other too. The positive energy is only the opposite of the other, the negative energy. The one is not as yet negative but equally the other is not as yet positive and equally both are the same energy, the positive and negative are moments of opposition. The positive and negative energy are thus equally negative to one another, each is, only in so far as the other of itself is. The positive or the negative energy is what it is only through the other of itself, through its own non-being. Even pure energy contains thus within itself the reference to the other of itself, to its own non-being. The positive energy possesses within itself that whereby it is positive and vice versa, the one is just as much an opposite as its own other. The positive and the negative as moments of energy are different in the same identity and are simply opposites. In opposition, energy as the unity of the positive and the negative finds thus its own completion.

Energy constituted by the positive and negative has thus its own negation within itself and as a vanishing of opposites into themselves it is equally the zero. Opposites can cancel one another in their relation thus that + Energy – Energy = 0, the result is zero. Energy, which cannot be created and destroyed can resolve itself into 0 which is the nothing according to Boole (Boole 1854, p. 49). Zero or nothing seems to be full of something, even the infinity has a lot of space within the nothing, within zero.

Pure energy as the unity and the struggle of positive energy and negative energy.

Let

$+\infty$ denote the positive infinity, whatever this may be (e.g. energy),

$-\infty$ denote the negative infinity, whatever this may be,

$+\infty = +\infty$ denote that the law of identity is valid.

Then

$$+\infty \; -\infty = \mathbf{0}.$$

Proof.

$$+\infty = +\infty \tag{95}$$

$$+\infty \; -\infty = +\infty \; -\infty \tag{96}$$

$$+\infty \; -\infty = 0. \tag{97}$$

Q. e. d.

On the other hand, zero is zero or not? How can there be a beginning of everything in nothing, in zero according to George Boole (Boole 1854, p. 49)? What is needed to ensure that the beginning of our world remains immanent in its own development? What is at the beginning of our world actually present in it, what is directly involved in the simplest of all things? What could this simple, this general be? If it is true that our world started with pure energy then it is equally true that the beginning of our world is identical with the escape from zero. Only, is it possible at all too escape from the omnipotent zero?

3.2. The Beginning Of Our World With Pure Time.

The beginning of our world only with pure energy brings with itself the disadvantage of missing time, time at the begin of our world must be created. Thus, we are far away from clarifying the problem of the beginning of our world. In so far, is the beginning of our world in some other way possible too, maybe without energy and only with pure time? On the other hand, is it possible for energy at all to begin in time, can energy be created out of time?

3.2.1. Philosophy

Those who are dissatisfied for one reason or another with the beginning of our world only with pure energy may find the following beginning of our world much better. Let the beginning of our world start with pure time, time without any further specification or filling, no future, no past, no present, a time which do not contain within itself any determination, time that does not convert itself into energy. Time is time, it stays time. It was only time, it is time and it will be time for ever. It is evident that a world taken as thus stays the way it is, no changes.

Thesis.
The beginning of our world without time is not possible.

Antithesis.
Since we wish to proof whether the beginning of our world without time is possible by a proof by contradiction we are assuming the opposite of that what we want to proof. We obtain the antithesis.

The beginning of our world without time is possible.

Synthesis. Proof by contradiction.
Let us assume the opposite of our theorem, let there be no time at the beginning of our world. In so far, we assume that our antithesis is true, the beginning of our world without time itself is possible. What are the consequences if this antithesis is true? Thus, let there be only energy at the beginning of our world. There is to become time, the time has to be created. In so far, the beginning of our world which begins, as yet does not posses time, would be only on the way to gain time.

In so far, even if energy would posses the capability to create time the same cannot create time, since the same time that has to be created by energy is needed before it can be created. It appears possible that it can take more or less a lot of time to develop from as state of no time to time. In so far, something is needed for this development, time itself, that something that we have excluded at the beginning of our world, that yet is not. We arrived at a logical contradiction.

Our assumption was that we don't need time at the beginning of our world, energy as such is absolutely enough. But we found, the beginning of our world without time is not possible. In so far, our antithesis leads once again to a logical contradiction. Thus, we must reject our antithesis and accept our thesis. It is proofed as true that

The beginning of our world without time is not possible.

Q. e. d.

Firstly, there is not something, there is no time and it has to become something, it has to become time. Secondly, at the same moment there is something, there is energy, since we are starting with energy.

But to come from a world without time into a world full of time, something is necessary, time itself, the something that has to become. Thus, the beginning cannot start only with pure energy, pure time is needed too.

Time, pure time, is a conditio sine qua non for the beginning of our world too. Without pure time no beginning of our world. The following 2x2 table gives us an overview bout this relationship.

The beginning of our world and pure time		The beginning of our world		
		yes	no	
Pure time	yes	1	1	
	no	0	1	
				1

3.2.2. Mathematics

The variance of pure time is equal to zero.

Let

t denote the pure time, time without its own other,

E(t) denote the expectation value of the pure time t,

$\sigma(t)^2$ denote the variance of the pure time t,

t = t denote that pure time is equal only to itself.

Then

$$\sigma(t)^2 = E (t^2) - E (t)^2 = 0 .$$

Proof.

$$+t = +t \qquad (98)$$

$$-t = -t \qquad (99)$$

$$t*t = t*t \qquad (100)$$

$$t^2 = t * t \qquad (101)$$

$$E(t^2) = E(t * t) \qquad (102)$$

$$E(t^2) = E(t) * E(t) \qquad (103)$$

$$E(t^2) = E(t)^2 \qquad (104)$$

$$E(t^2) - E(t)^2 = 0 \qquad (105)$$

$$\mathbf{\sigma(t)^2 = E(t^2) - E(t)^2 = 0.} \qquad (106)$$

Q. e. d.

If the pure time t is only equal to itself and nothing else, then $\mathbf{\sigma(t)^2 = E(t^2) - E(t)^2 = 0.}$ The pure time t doesn't change at all, pure time t is only that what it is, it is only pure time t and it stays just the same pure time t. But if pure time t never changed, how was is it possible that there is something like a past, a future and a present? How could the time of today become that what it is, it is not pure time t. Consequently, the pure time t must have changed. In so far, any alteration of the pure time t raises subtle problems. The pure time t cannot change since it has to be that $\mathbf{\sigma(t)^2 = E(t^2) - E(t)^2 = 0.}$ On the other hand, the pure time must have changed and is changing since there is something like a past, a future and a present. Only this is not possible, **pure time = pure time** and nothing else. Out of pure time, nothing can develop. A time from which something can proceed must be somehow determinated which the pure time is not.

3.2.3. Physics

Energy and time are as opposites distinguished from each other but it is not possible to separate energy from time. Consequently, it lies in the very nature of a beginning of our world that the same must be determinated by energy and time, it is much more difficult to believe that a beginning of our world is possible without energy and time, that it is possible to separate energy from time and vice versa. If the pure energy should be the unity into which an end has collapsed at an extreme point of its union with its own other, where the end itself has vanished in that unity, the same end is leaving behind nothing else but pure time, pure time is gained too. Can time get rid of the energy? Can energy be thinned out to the point where time can be gained?

Pure energy as the unity and the struggle of positive energy and negative energy.

Let

E denote the pure energy,

$\sigma(E)^2$ denote the variance of the pure energy E,

t denote the pure time,

$\sigma(t)^2$ denote the variance of the pure time t,

Then

$$+ \sigma(E)^2 = - \sigma(t)^2$$

Proof.

$$\mathbf{0 = 0} \qquad (107)$$

$$0 + 0 = 0 \qquad (108)$$

$$+ \sigma(E)^2 + 0 = 0 \qquad (109)$$

$$+ \sigma(E)^2 + \sigma(t)^2 = 0 \qquad (110)$$

$$\mathbf{+ \sigma(E)^2 = - \sigma(t)^2} \qquad (111)$$

Q. e. d.

From this immediately follows that

+ energy = - time

or

- energy = + time.

We substitute this basic relationship and obtain at the end

+energy + time = 0

as an other basic condition before the beginning of our world.

We must have escaped from zero and are fleeing away from zero in all directions.

3.3. The Beginning Of Our World With Energy And Time.

In the unity and the struggle between energy and time there is contained a point in which energy and time coincide and their distinguishedness vanishes. The result is the unseparatedness of energy and time, energy cannot be separated from time and vice versa.

3.3.1. Philosophy

We have proofed that our world cannot begin without energy but equally without time too. That which begins is thus at least energy and time, the beginning of our world contains both, energy and time.

3.3.1.1. The identity of energy and time

The beginning of our world is the unity of energy and time or is non-energy which is equally energy too, and energy which is equally non-energy. The beginning of our world is based on an identity of energy and time, on an equivalence of energy and time.

Pure energy and pure time are the same.

This equivalence is an equivalence of two that are different. On the other hand, the beginning as such cannot be only pure time, but a time from which energy is to proceed, therefore energy, too, is already contained in time and vice versa. Time, as the non-energy carries a reference to energy as to an other, is somehow related to energy and vice versa. In so far, **energy and time are the same**.

A finite, a determinate energy is energy that is in relation to another and at the end to the whole world. It is content, which brings it into relation with something else. This energy is only through such a relation essentially that what it is.

There is no intermediate state between energy and non-energy. Energy and time are one and the same, they contains them as distinguished. In time is energy, in energy is time, energy and time cannot be separated from each other. Now in so far as energy and time are one and the same, but, in fact, equally they are distinguished from each other, they are self-contradictory.

Bearing this in mind we find that the movement which involves the spontaneous vanishing of energy into time and vice versa, that in thus vanishing, there takes place in it that which is to constitute its own content, the space. Space is the unity and the struggle of energy and time and consists rather in this movement, in this transition from energy to time and vice versa.

Let us assume that energy is only pure energy and nothing else, it was pure energy, it is pure energy and it will be pure energy for ever. Consequently, from this pure energy no further progress can be made. There is no progress from pure energy to an other.

If there is only pure energy, energy without its other, how can pure energy change and develop, how can space be created? From pure energy the beginning itself and any other progress can only be achieved by linking the same pure energy on to something extraneous, something third, something outside of the pure energy, something like an "intelligent designer". Only, in this case energy would miss the capability to change out of itself and would no longer be that what it is, energy, the capability to change out of itself and without any urge from an other.

3.3.1.2. The difference of energy and time

Our analysis of the beginning of our world yields the unity of energy and time or in a more general point of view the unity of non-differentiatedness and differentiatedness. The most of us know that energy is not time, time is not energy, both are different and not the same. At the beginning of our world, energy and time are equally present as distinguished from each other. The beginning of our world is at the end the identity of identity and non-identity.

Pure energy and pure time are not the same.

There is a difference between energy and time, but at the end a difference which no less sublates itself and is not. Let us insist, that energy and time are absolutely different. The challenge to distinguish between energy and time also includes the challenge to say then, what is pure energy and what is pure time? Who can state exactly, of what the difference consists. Energy as such is determined, first, as against another in general and secondly as immanently self-determining. Energy as such is the other of itself in its own self. Let energy and time have some determinatedness by which they were distinguished from each other. In this case, as has been observed, they are no longer pure energy and pure time, they would be determinate energy and determinate time. Thus, their difference must therefore be completely empty, each of them is in the same way indeterminate.

On the other hand, the difference between energy and time, exists not in themselves but in a third. But the third in which energy and time subsist must also be present itself here, in the beginning of our world. This third is the space. In space energy and time are only distinct moments. Space only is, in so far as energy and time are distinguished. Space, this third, is an other than energy and time, energy and time subsist only in an other. Space is the unity of energy and of non-energy, only a transition of energy into non-energy, of the one into the other and vice versa. But, something can be distinguished only in its relation to its other. Space, as the unity, whose moments energy and time are inseparable, is at the same time different from energy and time and is thus a third to energy and time. Thus, wherever and in whatever form energy and time are in question, the space, this third, must be present; for energy and time have no separate subsistence of their own but are only in this third. The space, this third and has many empirical shapes, it develops from a point over a line to a plane and up to n-dimensional space. In so far, if it is true that

$$\textbf{pure energy} = \textbf{pure energy}$$

it is equally true that

$$\textbf{+energy} = \textbf{+energy}$$

But how can energy be only positive and not equally the other of itself, the negative. In so far, it is equally true that

$$\textbf{+energy} \quad \textbf{- energy} = \textbf{0.}$$

Energy as the positive in the negative is breaking itself in pieces. If energy is positive then it is not negative. There is no third, there is no *intermediate state* between energy and non-energy. Energy has removed itself from non-energy. Only, can energy remove itself from non-energy without needing itself, energy, for this? How can energy remove itself from non-energy? Why should energy leave the state of symmetry? On the other hand, if it is true that

$$\textbf{- energy} = \textbf{- energy}$$

then it is equally true that

- energy + energy = 0.

Here too, the absolute separation of energy from non-energy (time) is assumed but in fact, energy and non-energy are the same. It is the same energy that is positive and negative and both are united in 0. The pure energy sublates itself in itself and is in its own self the opposite of itself. It is the same energy which carries within itself equally a relation to its own opposite. Energy is present as distinguished from itself. Energy points in the same equation to the other of itself, to non-energy, it carries a reference to non-energy. Such an energy is inherently self-contradictory because it unites within itself those who are opposed to each other. But such a unity destroys itself (0 = zero). Only, can energy be destroyed at all? In 0, the positive energy has entered into a unity with its opposite, the negative energy. Energy is the unity of opposites, the unity of itself and its opposite, of a positive and negative one. Even if we have only pure energy we do not have the purity as such. This pure energy can be positive or negative one. Positive energy is straight forward moving into its opposite, the negative energy and unites with the same in 0. Why should or how can the positive energy leave the state of symmetry and enter into a relation to its opposite? How has the energy become positive, how has energy left its negative behind itself? How can positive energy pass over into its opposite, into negative energy? How can positive energy become negative one? How can we make positive energy out of negative energy and vice versa? It is true that

$$+ \text{energy} = + \text{energy}$$
$$+\text{energy} * (+ 1) = +\text{energy} * (+ 1)$$
$$+\text{energy} * (\kappa = + 1) = +\text{energy} * (\kappa = + 1)$$
$$+\text{energy} * \kappa = +\text{energy} * \kappa$$

The κ relationship can be equal to $\kappa = -1$ as shown above. We obtain the next equation.

$$+ \text{energy}^{**} (\kappa = - 1) = + \text{energy}^{*} (\kappa = - 1)$$
$$- \text{energy} = - \text{energy}$$

Energy according to the κ relationship has the power to change itself out of itself, the positive energy can change to negative energy and vice versa. Is the positive energy which passes into its opposite, the negative energy, free of any determination? Does the process of passing into its opposite, the negative energy, takes time or is the negative energy the time itself. The positive energy which passes into its opposite, the negative energy must not take time for this process otherwise the beginning of our world would already have been started. The positive energy which passes into its opposite, the negative energy is the changing of energy into time and of time into energy. As proofed above, we obtain the next equation

energy + time = 0.

Positive energy and negative energy are absolutely different and opposed to each other although they are inseparable. Zero tights them both together. In so far, it is true that

+ energy = - time

or

+ time = - energy .

Positive energy contains its opposite within itself and in its opposite, in negative energy, it is united with itself. Energy positively or negatively charged, is the same energy, it is energy. In so far, it is a contradiction of a positive and a negative which constitutes this basic relation before the beginning of our world or at the end it is the equivalence of

positive = negative.

3.3.1.3. The opposition of energy and time

The positive energy contained in the beginning of our world is an energy which removed itself from non-energy that is from time. Energy sublates time as something opposed to it and vice versa. Time sublates energy as something opposed to it. Energy removes thus itself out of itself by its own self. Energy needs for the act of removing itself from non-energy, itself, energy, that is time.

Pure energy and pure time are the same. But it is equally true that energy and time are not undistinguished from each other, on the contrary, energy and time are not the same, energy and time are absolutely distinct, and yet energy and time are unseparated and inseparable. Each of this opposed to each other immediately vanishes in its opposite. Energy vanishes in its opposite, the time. The time vanishes in its opposite, the energy. The opposites, energy and non-energy directly united in the beginning of our world are in its relation inseparable. Time is not only just time, time as such is opposed to something, time is opposed to energy. Thus, energy as something **as yet is not time**, would be only on the way to time. But again, that something which already is on the way to time, needs time, is time, is no longer non-energy. Thus, in non-energy the relation to energy is contained. Energy and time are the same. In this union of energy and time the transition from energy to time and from time to energy takes place, in so far energy and time are in themselves absolutely the same.

It is the immanent nature of energy and time to manifest their unity in space. Space as such implies that time does not remain time, that time passes into its other, into energy and vice versa, that a transition from time into energy is possible. Space is the unseparatedness of energy and time, a unity of energy and time in which there is both energy and time. The unseparatedness of both, of energy and time, which is everywhere before us, is a imperfect union. In so far as energy and time, each unseparated from its other, is, each is not. Energy and time are therefore in this unity of energy and time only as vanishing or if you like sublated moments. But yet even in the most imperfect union there is contained a point in which energy and time coincide and their distinguishedness vanishes. Because of the unseparatedness of energy and time, there is nowhere in "heaven" or on earth anything which does not contain within itself both, energy and time. Energy and time as thus distinguished, each of them is in this distinguishedness as a unity with the other. Space therefore contains energy and time as two such unities. The one is energy as relation to time, the other is time as a relation to energy. Both are related to each other, each of them is unseparated from its other. Space is in this way in a double determination. In one of them, time relates itself to energy, or in other words changes into it, in the other, energy changes into time, energy passes over into time. But time is equally the opposite of itself, and is thus transition into energy. Time passes over into energy, but energy equally sublates itself and is rather transition into time. The resultant equilibrium of the movement of energy and time is in the first place space itself, a stable unity. Energy and time are in this unity only as vanishing moments and space as such is only through the distinguishedness of energy and time. The vanishing of energy and time is in this sense therefore the vanishing of space or the vanishing of the vanishing itself. Space is the vanishing of energy in time and of time in energy and the vanishing of energy and time generally. At the same time, space rests on the distinction between energy and time. Space is therefore inherently self-contradictory. Space unites within itself determinations which are opposed to each other, but such a union destroys itself. Space destroys itself, but space that is sublated is at the same time preserved too. Space as the simple oneness of energy and time is the transition into the unity of energy and time, into a unity which has settled into a stable oneness.

Energy and time are even in their contradistinction from each other the same, something is in itself as against its energy. Energy is simply by itself the other in its own self, the other of itself and so the other of the other, the time. Time preserves itself in the negative of its determinate energy, it is essentially one with it and essentially not one with it. Energy as including within itself non-energy is thus determinate energy. The one is the pure opposite of the other and vice versa. Energy is thus negated within itself and for this reason it is in the first instance an other. But at the same time energy also preserves itself in its

negation, it is only energy. Energy in general is thus self-related in opposition to its relation to other, is self-equal in opposition to its inequality. In this sense, the beginning as such is the unity of time and energy, the unity of the identity of non-identity and identity.

Energy and time, therefore also contains within itself its other moment which is distinguished from it. Energy in something is energy which is equality with self, is self-relation, but is only as the non-energy of otherness. In the same way, non-energy as a moment of something is, in this unity of energy and non-energy is differentiated from. In the unity of the energy with itself, energy as it is outside the limit, the unlimited energy, is only a determinate in general, it is not distinguished from its other as such and therefore has the same determination as its other. In this sense each is an other or both are the same.

The energy contained in the beginning of our world is an energy which removed itself from non-energy, that is from time. How can energy remove itself from non-energy or from time? This can happen only in vanishing of space. The nature of the beginning of our world which is the point of interest is that in the beginning of our world, energy and time are at the same moment present as distinguished from each other. Consequently, the beginning of our world therefore contains both, energy and time, the unity of energy and time. The beginning is non-energy which is energy and energy which non-energy or the unity of identity and non-identity. The beginning of our world here is made with the unity and the struggle between energy and time, that is with space. Space as the unseparatedness of energy and time is a simple determination for it contains the two other determinations, energy and time, within itself as moments. Space is this vanishing of energy into time and vice versa, of the one into the other, the movement in which the both, energy and time, are distinguished, but at the same moment a special difference which has equally immediately resolved itself. Thus we obtain the basic relationship between energy, time (if we add both together) as

+ pure energy + pure time = something.

Let us assume that this something is the unity and the struggle between energy and time, let this something denote the (n dimensional) space. We obtain

+ pure energy + pure time = (n dimensional) space.

If our world has started with pure energy and pure time but without space, we obtain

+ pure energy + pure time = space = 0, or

+ pure energy = - pure time

or

+ pure time = - pure energy.

In the beginning our world there is the unity of identity and non-identity, the unity of a negative and a positive, the equivalence of energy and time, in the beginning there is the contradiction. The beginning start with a contradiction and the beginning of our world is a contradiction. Since the relation between energy and time is not absolutely constant and determined by a constant, there must be a conversion of energy into time and vice versa. But how does energy passes over into time and vice versa, how does time passes over into energy? It seems to me, this can happen only in changing, creating or destroying of space.

3.3.2. Mathematics

The beginning of our world from zero is possible.

Let

E	denote all the amount of energy that constitutes our world today,
t	denote all the amount of time that constitutes our world today,
S	denote all the amount of space that constitutes our world today,
E + t + ... = S	denote the amount of all that is existing.

Then

The beginning of our world from zero is possible.

Proof.

$$E + t + ... = S. \quad (112)$$

Our world that is existing has developed to the point where the same is now. Thus let us look back from the point of today to the starting point of this development. Let us assume, that all what is existing is constituted by something like energy + time + ... although this is not necessary for our proof, this doesn't matter at all. For our proof it is important that all that is existing equals something like S. Thus, to see where we have come from, let us take all away from our world. We obtain the next equation.

$$E + t + ... - S = S - S. \quad (113)$$

$$E + t + ... - S = 0. \quad (114)$$

$$E + t + ... - E - t - ... = 0. \quad (115)$$

$$0 = 0. \quad (116)$$

Q. e. d.

It appears possible that our world has started out from itself and without an urge from an other, out from zero. At the end, George **Boole** seems to be right, "the respective interpretations of the symbols 0 and 1 in the system of Logic are Nothing and Universe" (Boole 1854, p. 49). In this case, 0, "the 'black hole' of mathematics" (Barukčić 2006a, p. 56), is a nothing that is full of something, is full of life and not only an empty and dead thing. Nothing is equally something and vice versa. It appears to be that which has disappeared into zero, the same is not dead, the same enters a new stage of its own development. The world inside zero has its own laws and seems to me is more or less governed at least by the laws of classical logic.

The condition for the beginning of our world I.

Let

E	denote pure energy,
Anti E	denote pure non-energy, all the other but pure energy, the complement of pure energy, what ever this may be,
S	denote all that is existing,
E + Anti E = S	denote that there is no third between pure energy and pure non-energy.

Then

$$\mathbf{(S^2 / 4) - (E *(Anti\ E)) \geq 0 .}$$

Proof.

$$E = (Anti\ E) \quad (117)$$

$$E + E = (Anti\ E) + E \quad (118)$$

$$E + E = S \quad (119)$$

$$2E = S \quad (120)$$

$$E = S/2 \quad (121)$$

$$E - (S/2) = 0 \quad (122)$$

$$(E - (S/2))^2 = 0^2 \quad (123)$$

$$E^2 - (E*S) + (S/2)^2 = 0^2 \quad (124)$$

$$- E^2 + (E*S) = - (S/2)^2 \quad (125)$$

$$- E^2 + (E*S) = + (S/2)^2 \quad (126)$$

$$+ (E*S) - E^2 = + (S/2)^2 \quad (127)$$

$$E (S - E) = + (S/2)^2 \quad (128)$$

$$E *(Anti\ E) = S^2 / 4 \quad (129)$$

$$(S^2 / 4) - (E *(Anti\ E)) = 0 \quad (130)$$

Q. e. d.

The condition for the beginning of our world II.

Let

t	denote pure time,
Anti t	denote pure non-time, all the other but pure time, the complement of pure time, what ever this may be,
S	denote all that is existing,
t + Anti t = S	denote that there is no third between pure time and pure non-time.

Then

$$\mathbf{(S^2 / 4) - (E *(Anti\ E)) = 0 .}$$

Proof.

$$t = (Anti\ t) \quad (131)$$

$$t + t = (Anti\ t) + t \quad (132)$$

$$t + t = S \quad (133)$$

$$2\ t = S \quad (135)$$

$$t = S/2 \quad (136)$$

$$t - (S/2) = 0 \quad (137)$$

$$(t - (S/2))^2 = 0^2 \quad (138)$$

$$t^2 - (t *S) + (S/2)^2 = 0^2 \quad (139)$$

$$- t^2 + (t *S) = - (S/2)^2 \quad (140)$$

$$- t^2 + (t *S) = + (S/2)^2 \quad (141)$$

$$+ (t *S) - t^2 = + (S/2)^2 \quad (142)$$

$$t (S - t) = + (S/2)^2 \quad (116)$$

$$t *(Anti\ t) = S^2 / 4 \quad (143)$$

$$(S^2 / 4) - (t *(Anti\ t)) = 0 \quad (144)$$

Q. e. d.

The condition for the beginning of our world III.

Let

E	denote pure energy,
Anti E	denote pure non-energy, all the other but pure energy, what ever this may be,
S	denote all that is existing,
E + Anti E = S	denote that there is no third between pure energy and pure non-energy.

Then

$$\mathbf{(S^2 / 4) - (E *(Anti\ E)) \geq 0 .}$$

Proof.

$$E \geq (Anti\ E) \qquad (145)$$

$$E + E \geq (Anti\ E) + E \qquad (146)$$

$$E + E \geq S \qquad (147)$$

$$2E \geq S \qquad (148)$$

$$E \geq S/2 \qquad (149)$$

$$E - (S/2) \geq 0 \qquad (150)$$

$$(E - (S/2))^2 \geq 0^2 \qquad (151)$$

$$E^2 - (E*S) + (S/2)^2 \geq 0^2 \qquad (152)$$

$$- E^2 + (E*S) \geq - (S/2)^2 \qquad (153)$$

$$- E^2 + (E*S) \leq + (S/2)^2 \qquad (154)$$

$$+ (E*S) - E^2 \leq + (S/2)^2 \qquad (155)$$

$$E (S - E) \leq + (S/2)^2 \qquad (156)$$

$$E *(Anti\ E) \leq S^2 / 4 \qquad (157)$$

$$(S^2 / 4) - (E *(Anti\ E)) \geq 0 \qquad (158)$$

Q. e. d.

We assumed that E ≥ (Anti E). This is not necessary. It is equally possible that (Anti E) ≥ (E).

The condition for the beginning of our world IV.

Let

E	denote pure energy,
Anti E	denote pure non-energy, all the other but pure energy, what ever this may be,
S	denote all that is existing,
E + Anti E = S	denote that there is no third between pure energy and pure non-energy.

Then

$$\mathbf{(S^2 / 4) - (E *(Anti\ E)) \geq 0 .}$$

Proof.

$$(Anti\ E) \geq E \quad (159)$$

$$(Anti\ E) + (Anti\ E) \geq (Anti\ E) + E \quad (160)$$

$$2*(Anti\ E) \geq S \quad (161)$$

$$(Anti\ E) \geq S/2 \quad (162)$$

$$(Anti\ E) - (S/2) \geq 0 \quad (163)$$

$$((Anti\ E) - (S/2))^2 \geq 0^2 \quad (164)$$

$$(Anti\ E)^2 - ((Anti\ E) *S) + (S/2)^2 \geq 0^2 \quad (165)$$

$$- (Anti\ E)^2 + ((Anti\ E) *S) \geq - (S/2)^2 \quad (166)$$

$$- (Anti\ E)^2 + ((Anti\ E) *S) \leq + (S/2)^2 \quad (167)$$

$$+ ((Anti\ E) *S) - (Anti\ E)^2 \leq + (S/2)^2 \quad (168)$$

$$(Anti\ E) * (S - (Anti\ E)) \leq + (S/2)^2 \quad (169)$$

$$E *(Anti\ E) \leq S^2 / 4 \quad (170)$$

$$(S^2 / 4) - (E *(Anti\ E)) \geq 0 \quad (171)$$

Q. e. d.

The condition for the beginning of our world V.

Let

t	denote pure time,
Anti t	denote pure non- time, all the other but pure time, what ever this may be,
S	denote all that is existing,
t + Anti t = S	denote that there is no third between pure time and pure non-time.

Then

$$\mathbf{(S^2 / 4) - (t *(Anti\ t)) \geq 0 .}$$

Proof.

$$t \geq (Anti\ t) \qquad (172)$$

$$t + t \geq (Anti\ t) + t \qquad (173)$$

$$t + t \geq S \qquad (174)$$

$$2 * t \geq S \qquad (175)$$

$$t \geq S/2 \qquad (176)$$

$$t - (S/2) \geq 0 \qquad (177)$$

$$(t - (S/2))^2 \geq 0^2 \qquad (178)$$

$$t^2 - (t * S) + (S/2)^2 \geq 0^2 \qquad (179)$$

$$- t^2 + (t * S) \geq - (S/2)^2 \qquad (180)$$

$$- t^2 + (t * S) \leq + (S/2)^2 \qquad (181)$$

$$+ (t * S) - t^2 \leq + (S/2)^2 \qquad (182)$$

$$t *(S - t) \leq + (S/2)^2 \qquad (183)$$

$$t *(Anti\ t) \leq S^2 / 4 \qquad (184)$$

$$(S^2 / 4) - (t *(Anti\ t)) \geq 0 \qquad (185)$$

Q. e. d.

We assumed that t ≥ (Anti t). This is not necessary. It is equally possible that (Anti t) ≥ (t).

The condition for the beginning of our world VI.

Let

t	denote pure time,
Anti t	denote pure non-time, all the other but pure time, what ever this may be,
S	denote all that is existing,
t + Anti t = S	denote that there is no third between pure time and pure non-time.

Then

$$\mathbf{(S^2 / 4) - (t *(Anti\ t)) \geq 0 .}$$

Proof.

$$(Anti\ t) \geq t \quad (186)$$

$$(Anti\ t) + (Anti\ t) \geq (Anti\ t) + t \quad (187)$$

$$2*(Anti\ t) \geq S \quad (188)$$

$$(Anti\ t) \geq S/2 \quad (189)$$

$$(Anti\ t) - (S/2) \geq 0 \quad (190)$$

$$((Anti\ t) - (S/2))^2 \geq 0^2 \quad (191)$$

$$(Anti\ t)^2 - ((Anti\ t) *S) + (S/2)^2 \geq 0^2 \quad (192)$$

$$- (Anti\ t)^2 + ((Anti\ t) *S) \geq - (S/2)^2 \quad (193)$$

$$- (Anti\ t)^2 + ((Anti\ t) *S) \leq + (S/2)^2 \quad (194)$$

$$+ ((Anti\ t) *S) - (Anti\ t)^2 \leq + (S/2)^2 \quad (195)$$

$$(Anti\ t) * (S - (Anti\ t)) \leq + (S/2)^2 \quad (196)$$

$$t *(Anti\ t) \leq S^2 / 4 \quad (197)$$

$$(S^2 / 4) - (t *(Anti\ t)) \geq 0 \quad (198)$$

Q. e. d.

The condition for the beginning of our world VII.

Let

t	denote pure time,
Anti t	denote pure non-time, the complement, the other but pure time, what ever this may be,
S	denote all that is existing,
t + Anti t = S	denote that there is no third between pure time and pure non-time.

Then

$$\mathbf{(S^2 / 4) - (t *(Anti\ t)) \geq 0 .}$$

Proof.

$$(\text{Anti t}) \geq t \qquad (199)$$

$$(\text{Anti t}) + (\text{Anti t}) \geq (\text{Anti t}) + t \qquad (200)$$

$$2*(\text{Anti t}) \geq S \qquad (201)$$

$$(\text{Anti t}) \geq S/2 \qquad (202)$$

$$(\text{Anti t}) - (S/2) \geq 0 \qquad (203)$$

$$((\text{Anti t}) - (S/2))^2 \geq 0^2 \qquad (204)$$

$$(\text{Anti t})^2 - ((\text{Anti t}) *S) + (S/2)^2 \geq 0^2 \qquad (205)$$

$$- (\text{Anti t})^2 + ((\text{Anti t}) *S) \geq - (S/2)^2 \qquad (206)$$

$$- (\text{Anti t})^2 + ((\text{Anti t}) *S) \leq + (S/2)^2 \qquad (207)$$

$$+ ((\text{Anti t}) *S) - (\text{Anti t})^2 \leq + (S/2)^2 \qquad (208)$$

$$(\text{Anti t}) * (S - (\text{Anti t})) \leq + (S/2)^2 \qquad (209)$$

$$t *(\text{Anti t}) \leq S^2 / 4 \qquad (210)$$

$$(S^2 / 4) - (t *(\text{Anti t})) \geq 0 \qquad (211)$$

Q. e. d.

Let pure energy and pure time be in absolute isolation from each other, let each be outside the sphere of the other, energy outside the sphere of the time, time outside the sphere of the energy, with the consequence that their transition into each other is denied that energy and time are separated and separable. Thus only pure energy is, pure energy is entirely on its own, is indeterminate and has therefore no relation to an other, it has only a relation to it self and none to its other. Thus, if pure energy and pure time are absolutely independent from each other, pure energy and pure time are equally not determined by each other.

The condition for the beginning of our world VIII.

Let

E	denote pure energy,
$E(E)$	denote the expectation value of pure energy,
$\sigma(E)$	denote the standard deviation of pure energy,
t	denote pure time,
$E(t)$	denote the expectation value of pure time, what ever this may be. Let $E(t) \neq 0$. Let
$\sigma(t)$	denote the standard deviation of pure time,
$\sigma(E, t)$	denote co-variance of pure energy and pure time,

Then

Proof.

$$-E = -E \quad (212)$$

$$+E = +E \quad (213)$$

$$E(E) = E(E) \quad (214)$$

$$E(E) * \left(\frac{1}{1} \right) = E(E) \quad (215)$$

$$E(E) * \left(E(t) / E(t) \right) = E(E) \quad (216)$$

$$E(E) * E(t) = E(E) * E(t) \quad (217)$$

$$E(E, t) = E(E) * E(t) \quad (218)$$

$$E(E, t) - E(E) * E(t) = 0 \quad (219)$$

$$\sigma(E, t) = E(E, t) - E(E) * E(t) = 0 \quad (220)$$

$$\sigma(E, t) = 0 \quad (221)$$

Q. e. d.

The condition for the beginning of our world IX.

Let

E	denote pure energy,
E(E)	denote the expectation value of pure energy,
σ(E)	denote the standard deviation of pure energy,
t	denote pure time,
E(t)	denote the expectation value of pure time, what ever this may be. Let $E(t) \neq 0$. Let
σ(t)	denote the standard deviation of pure time,
σ(E, t)	denote co-variance of pure energy and pure time,

Then

$$\sigma(E, t) = \sigma(E)* \sigma(t) = 0$$

Proof.

$$- E = - E \qquad (222)$$

$$+ E = + E \qquad (223)$$

$$E (E) = E(E) \qquad (224)$$

$$E (E)*(\quad 1 \quad) = E(E) \qquad (225)$$

$$E (E) * (E(t) / E(t)) = E(E) \qquad (226)$$

$$E (E) * E(t) = E(E)* E(t) \qquad (227)$$

$$E (E , t) = E(E)* E(t) \qquad (228)$$

$$E (E , t) - E(E)* E(t) = 0 \qquad (229)$$

$$\sigma(E, t) = E (E , t) - E(E)* E(t) = 0 \qquad (230)$$

$$\sigma(E, t) = 0 \qquad (231)$$

$$\sigma(E, t) = \sigma(E)* \sigma(t) = 0 \qquad (232)$$

Q. e. d.

Energy absolutely separated from time, energy without any relation to its other, to time, energy as thus taken has nothing with which it could bridge the gap between itself and its own other, its opposite, from such an energy at the beginning of our world no further progress can be made, such an energy would enable any beginning out of itself and without an urge from an other. Such an energy would depend on an other and could not be the beginning of our world out of itself, from such an energy the beginning of our world itself and further progress can only be achieved by linking it on to something outside itself, the beginning of our world had to be added to energy from outside. Consequently, under this conditions, the beginning of our world is something that appears to be impossible. In other words, under the condition that σ (energy, time) = 0, energy would be an indeterminate and without any relation to its other, to time.

But nevertheless, if there were any justification at all for those who are dissatisfied with the resulting equivalence of energy and time, the resulting **transition of energy into time and vice versa** at the beginning of our world to presuppose simply an other general idea, something outside the energy, this would suffer from the fact, that energy is needed, energy would have to be created, only energy cannot be created. Consequently, σ (energy, time) has to be unequal to zero at the beginning of our world. Let us assume that σ(energy, time) $\neq$ 0 is the foundation on which our world is build, then even today this condition has to be true.

In our world, it is proofed as valid, that $(\sigma(\text{energy}) * \sigma (t)) \geq (h / (4 * \pi))$, which is known to be Heisenberg's uncertainty relation. Contrary to the same, in a world with only pure energy and pure time it is true that $(\sigma(\text{energy}) * \sigma (t)) = 0$. Let us assume that even today there is something like pure energy and pure time. Under this conditions, Heisenberg's uncertainty principle equation must break down, since in this case it has to be true that

$$\sigma(\text{energy}) * \sigma (t) = 0.$$

Contrary to this, today the unseparatedness of energy and time can be expressed according to Heisenberg's Uncertainty principle as

$$\sigma(\text{energy}) * \sigma (t) \geq (h / (4 * \pi)).$$

In so far, there seems to be a contradiction. Either Heisenberg's uncertainty relation is not valid before the beginning of our world or energy and time before the beginning of our world are substantially not the same as energy and time of today. Heisenberg's uncertainty relation is the best proof known, that there isn't something like pure energy and pure time. Today, energy cannot be separated from time and vice versa, energy is itself but equally its own opposite too.

According to Heisenberg, energy is time, in time is energy. There is no intermediate or third state between energy and non-energy. Energy and time are one and the same. In time is energy, in energy is time, energy and time cannot be separated from each other. Now in so far as time and energy are one and the same, but, in fact, equally both are equally only as distinguished from each other, they are equally self-contradictory. Bearing this in mind we find that the movement which involves the spontaneous vanishing of time into energy and vice versa, that in thus vanishing, there takes place in it that which is to constitute its own natural content, the space.

Space is the unity and the struggle of energy and time and consists rather in this movement, in this transition from energy to time and vice versa.

The equivalence of energy and time as a condition for the beginning of our world X.

Let

S	denote the all that is existing,
E	denote pure energy,
Anti E	denote the pure non-energy, the complement, the other but pure energy, what ever this may be,
S = E + Anti E	denote that there is no third between pure energy and pure non-energy,
t	denote pure time,
Anti t	denote pure non-time, the complement, the other but pure time, what ever this may be,
S = t + Anti t	denote that there is no third between pure time and pure non-time,

Then

pure energy = pure time.

Proof.

$$S = S \qquad (233)$$

$$S^2 = S^2 \qquad (234)$$

$$S^2/4 = S^2/4 \qquad (235)$$

$$E(S - E) = S^2/4 \qquad (236)$$

$$E(S - E) = t*(S - t) \qquad (237)$$

Let our world start from zero, thus S = 0. We obtain the next equation.

$$E(\mathbf{0} - E) = t*(\mathbf{0} - t) \qquad (238)$$

$$-E^2 = -t^2 \qquad (239)$$

$$+E^2 = +t^2 \qquad (240)$$

$$-E = -t \qquad (241)$$

$$+E = +t \qquad (242)$$

pure energy = pure time. (243)

Q. e. d.

The equivalence of pure energy and pure time is the direct consequence of the fact if our world has started from zero. Pure energy und pure time are the same and equally both are distinguished from each other. The transition of energy into time and vice versa appears to be possible. However, as we have remarked, energy passes over into time, time passes over into energy and so gives rise to the unity of energy and time.

3.3.3. Physics

The beginning of our world from or below zero appears to be possible. Since Einstein's theory of general relativity, especially **Einstein's field equation** describes how energy, time and space are interrelated, the same could have to do something with the beginning of our world too. Einstein's General Field Equation is more then only a relation between matter and gravitational field. Matter in accordance with Einstein is nothing else then energy (E) or $E = m * c^2$. In so far, Einstein's General Field Equation which is based on some assumptions is equally a field equation of energy and time too. Einstein himself has made a distinction.

"Wir unterscheiden im folgenden zwischen 'Gravitationsfeld' und 'Materie', .." (Einstein 1916, p. 802) .

or in English <We make a distinction hereafter between '**gravitational field**' and '**matter**'>. Einstein denoted everything as matter but the gravitational field. Albert Einstein wrote:

"Wir unterscheiden im folgenden zwischen 'Gravitationsfeld' und 'Materie', in dem Sinne, daß ***alles außer dem Gravitationsfeld als 'Materie'*** bezeichnet wird, also nicht nur die 'Materie' im üblichen Sinne, sondern auch das elektro-magnetische Feld. " (Einstein 1916, pp. 802-803).

Einstein's writing in English: >>We make a distinction hereafter between '**gravitational field**' and '**matter**' in this way, that we denote everything but the gravitational field as 'matter', the word matter therefore includes not only **matter in the ordinary sense**, but the **electromagnetic field** as well.<< In so far, according to Einstein, there is no third between "matter" and the "gravitational field", **tertium non datur**. Einstein is respecting the law of the excluded middle and defines the universe the following way:

All that is existing (energy, time ...) = '**gravitational field**' + 'Matter'.

Matter according to Einstein is thus the complementary of the gravitation field. In so far, if all that is constituting our world is build either out of '**gravitational field**' or the rest, which Einstein denotes as matter, the otherness, the complementary of the '**gravitational field**', then Einstein's General Field Equation must have the capability to explain the beginning of our world too. Thus, is there a relationship between Einstein's field equation and the beginning of our world?

The beginning of our world and Einstein's basic field equation (EFE).

Let

R_{ab}	denote the Ricci tensor,
R	denote the Ricci scalar,
g_{ab}	denote the metric tensor,
T_{ab}	denote the stress-energy tensor,
h	denote Planck's constant, $h \approx (6.626\ 0693\ (11)) * 10^{-34}$ **[J * s],**
π	denote the mathematical constant π, also known as **Archimedes' constant.** The numerical value of π truncated to 50 decimal places is known to be about $\pi \approx 3.14159\ 26535\ 89793\ 23846\ 26433\ 83279\ 50288\ 41971\ 69399\ 37510,$
c	denote the speed of all electromagnetic radiation in a vacuum, the speed of light, where $c = 299\ 792\ 458$ **[m / s],**
γ	denote Newton's gravitational 'constant', where $\gamma \approx (6.6742 \pm 0.0010) * 10^{-11}$ **[** $m^3 / (s^2 * kg)$ **].**

Further, let the tensor product obey the distributive law (K-theory).

κ denote the basic relationship between particle and wave.

Einstein's field equation describes how a field or energy (or matter) and time changes space and vice versa. Einstein's basic field equation (EFE) is usually written in the form

$$\mathbf{(R_{ab}) = (((4 * 2 * \pi * \gamma) * T_{ab}) / (c^4)) + ((R* g_{ab}) / 2)) .}$$

Then.

$$(| \kappa | - ((| \kappa | - (((4*2*\pi*\gamma)*T_{ab})/(c^4))) * (| \kappa | - ((R*g_{ab})/2))))) \geq (R_{ab})*(1-((R_{ab})/4)) .$$

Proof.

$$(R_{ab}) = (((4 * 2 * \pi * \gamma) * T_{ab}) / (c^4)) + ((R* g_{ab}) / 2)) \quad (244)$$

So let us take all away, because our world could started from 0. We obtain the next equation.

$$\mathbf{(R_{ab}) - (((4 * 2 * \pi * \gamma) * T_{ab}) / (c^4)) - ((R* g_{ab}) / 2)) = 0} \quad (245)$$

According to the unified field equation, we obtain as the condition for the begin of our world as

$$\mathbf{((R_{ab})^2 / 4) - ((((4 * 2 * \pi * \gamma) * T_{ab}) / (c^4)) * ((R* g_{ab}) / 2)) \geq 0} \quad (246)$$

We obtain the next equation.

$$((R_{ab})^2 / 4) - ((((4*2*\pi*\gamma)*T_{ab})/(c^4))*((R* g_{ab}) / 2)) \geq (R_{ab}) - (((4*2*\pi*\gamma)*T_{ab})/(c^4)) - ((R*g_{ab})/2)) \quad (247)$$

$$(((4*2*\pi*\gamma)*T_{ab})/(c^4)) + ((R*g_{ab})/2)) + ((R_{ab})^2 / 4) - ((((4*2*\pi*\gamma)*T_{ab})/(c^4))*((R* g_{ab}) / 2)) \geq (R_{ab}) \quad (248)$$

$$(((4*2*\pi*\gamma)*T_{ab})/(c^4)) + ((R*g_{ab})/2)) - ((((4*2*\pi*\gamma)*T_{ab})/(c^4))*((R* g_{ab}) / 2)) \geq (R_{ab}) - ((R_{ab})^2 / 4) \quad (249)$$

$$(((4*2*\pi*\gamma)*T_{ab})/(c^4)) + ((R*g_{ab})/2)) - ((((4*2*\pi*\gamma)*T_{ab})/(c^4))*((R* g_{ab}) / 2)) \geq (R_{ab})*(1-((R_{ab})/4)) \quad (250)$$

$$0 + (((4*2*\pi*\gamma)*T_{ab})/(c^4)) + ((R*g_{ab})/2)) - ((((4*2*\pi*\gamma)*T_{ab})/(c^4))*((R* g_{ab}) / 2)) \geq (R_{ab})*(1-((R_{ab})/4)) \quad (251)$$

$$+1 - 1 + (((4*2*\pi*\gamma)*T_{ab})/(c^4)) + ((R*g_{ab})/2)) - ((((4*2*\pi*\gamma)*T_{ab})/(c^4))*((R* g_{ab}) / 2)) \geq (R_{ab})*(1-((R_{ab})/4)) \quad (252)$$

$$(1 - ((1 - (((4*2*\pi*\gamma)*T_{ab})/(c^4))) * (1 - ((R*g_{ab})/2))))) \geq (R_{ab})*(1-((R_{ab})/4)) \quad (253)$$

This equation is not absolutely identical with the law of the excluded middle.

Recall, that the κ relationship $| \kappa | = + 1$. We obtain the next equation.

$$(| \kappa | - ((| \kappa | - (((4*2*\pi*\gamma)*T_{ab})/(c^4))) * (| \kappa | - ((R*g_{ab})/2))))) \geq (R_{ab})*(1-((R_{ab})/4)) \quad (254)$$

Q. e. d.

Recall, the term $(R_{ab})^* (R_{ab})$ in the formula of the causal relationship c cancels out and is not necessary for causation to work well. Causation at the end is based on the inner contradiction of tensors. If the beginning of our world has started with $(R_{ab}) = 0$, then we obtain the next equation.

$$(| \kappa | - ((| \kappa | - (((4*2*\pi*\gamma)*T_{ab})/(c^4))) * (| \kappa | - ((R*g_{ab})/2))))) \geq 0. \quad (255)$$

If our world started with the creation of space, then the equation above could be the condition under witch space can be created, is the condition for the beginning of our world. Nonetheless, zero as such is full of life. Energy as such contained before and in the beginning of our world has according the equation above the power to change out of itself . On the other hand, if Heisenberg's uncertainty relation should be valid before the beginning of our world, then as proofed above, it has to be that $h/(4*\pi) = 0$. In so far, is appears possible to accept, that the condition for the creation of Planck's constant h is

$$(| \kappa | - ((| \kappa | - (((4*2*\pi*\gamma)*T_{ab})/(c^4))) * (| \kappa | - ((R*g_{ab})/2))))) \geq h/(4*\pi) \quad (256)$$

$$(4*\pi) *(| \kappa | - ((| \kappa | - (((4*2*\pi*\gamma)*T_{ab})/(c^4))) * (| \kappa | - ((R*g_{ab})/2))))) \geq h \quad (257)$$

Set the minimum value of π as $\pi = (1/4)$, we obtain $(4*\pi) = 1$.

$$(| \kappa | - ((| \kappa | - (((4*2*\pi*\gamma)*T_{ab})/(c^4))) * (| \kappa | - ((R*g_{ab})/2))))) \geq h \quad (258)$$

If the begin of our world started with the creation of one Planck's constant h, the equation above show us the condition under which Planck's constant h can be created.

Without $(4*\pi)*(| \kappa | -((| \kappa | - (((4*2*\pi*\gamma)*T_{ab})/(c^4))) * (| \kappa | - ((R*g_{ab})/2)))))$ no Planck's constant h

and thus no world that is surrounding us and no world that is in us.

3.4. Euler's identity

Euler's identity, one of the greatest equations ever (Crease 2004), named in honour of the Swiss mathematician Leonhard Euler (April 15, 1707 – September 18, 1783), is known to be defined as

$$-1 + 1 = 0, \text{ or} \quad (259)$$

$$\mathbf{\cos \pi + \sin \pi = 0, \text{ or}} \quad (260)$$

$$\mathbf{e^{(i*\pi)} + 1 = 0,} \quad (261)$$

where

e	denote Euler's number, the base of the natural logarithm,
i	denote the imaginary unit, one of the two complex numbers whose square is negative one,
π	denote Archimedes' constant, the ratio of the circumference of a circle to its diameter.

Euler's identity can be defined in terms of the basic relation between particle and wave too. In general, there is a relationship between Euler's identity on the one hand and between **negation, the general form of Einstein's relativistic correction,** on the other hand. Euler's identity has been named somewhere as one of the greatest equations ever (Crease 2004) and may be rightly too. Thus, let us consider the following in this respect.

Let

e denote Euler's number, the base of the natural logarithm,

i denote the imaginary unit, one of the two complex numbers whose square is negative one,

π denote Archimedes' constant, the ratio of the circumference of a circle to its diameter.

Further, let the tensor product obey the distributive law (K-theory). Let

$$A^2 = \left(\left[\frac{(Energy * R_{ab})}{(c*c)} - \left(\frac{(4*2*\pi*\gamma*T_{ab})*(R*g_{ab})}{(c*c*c*c) \quad * \quad 2}\right)\right]*\left[\frac{(Energy * R_{ab})}{(c*c)} - \left(\frac{(4*2*\pi*\gamma*T_{ab})*(R*g_{ab})}{(c*c*c*c) \quad * \quad 2}\right)\right]\right) \quad (262)$$

$A^2 = \kappa^2 * B^2$ (Barukčić 2007d, pp. 75-76).

$$B^2 = \left[\left(\frac{(R_{ab}*(4*2*\pi*\gamma*T_{ab}))}{(c*c*c*c)}\right) - \left(\frac{(4*2*\pi*\gamma*T_{ab})*(4*2*\pi*\gamma*T_{ab})}{(c*c*c*c)*(c*c*c*c)}\right)\right]*\left[\left(\left(\frac{R_{ab}*(R*g_{ab})}{2}\right) - \left(\frac{(R*g_{ab})*(R*g_{ab})}{2*2}\right)\right)\right] \quad (263)$$

κ = denote the k relationship. (264)

Then

$$+1 - \kappa^2 = -e^{(i*\pi)} - \kappa^2 \quad (265)$$

Proof.

$$e^{(i*\pi)} + 1 = 0 \quad (266)$$

$$e^{(i*\pi)} + 1 = +\kappa^2 - \kappa^2 \quad (267)$$

$$e^{(i*\pi)} + 1 - \kappa^2 = -\kappa^2 \quad (268)$$

$$+1 - \kappa^2 = -e^{(i*\pi)} - \kappa^2 \quad (269)$$

General negation or the general form of Einstein's relativistic correction is known to be $+1 - \kappa^2$. In so far, there is some kind of identity between Euler's identity and negation.

$$(B*B)*(1 - \kappa^2) = (B*B)*(-e^{(i*\pi)} - \kappa^2) \quad (270)$$

$$(B*B)*(1 - \kappa^2) = (B*B)*(-e^{(i*\pi)} - \kappa^2) = (B*B) - (A*A) \quad (271)$$

Q. e. d.

4. Discussion

This publication has proofed, that it is possible to escape from zero, the nothing according to George Boole (Boole 1854, p. 49). On the other hand, it is equally true, that the world inside zero is not the emptiness as such, the world inside zero has its own laws and is thus full of life. Even the infinity has a lot of place inside zero. The intrinsic randomness of our world and even of the world inside zero is determinated by π, which is part of the κ relationship and proofed not to be constant. Thus, "... it is important to realise that besides of all, no one has claimed to have discovered the exact value of π, an exact numerical value of π is still unknown. The intrinsic randomness of π is determined by the fact, that the decimal expansion of π never ends and it does not repeat." (Barukčić 2007b, p. 13). π as a natural process is determined by Einstein's field equation (Barukčić 2007b, p. 16) as

$$\pi = (c^4)*((R_{ab}) - ((R* g_{ab}) / 2)) / (4 * 2 * \gamma * T_{ab}) \quad (272)$$

where

R_{ab} denote the Ricci tensor,

R denote the Ricci scalar,

g_{ab} denote the metric tensor,

T_{ab} denote the stress-energy tensor. Let us assume that it is allowed to divide by T_{ab}, otherwise let us set $T_{ab} = 1$. Let

c denote the speed of all electromagnetic radiation in a vacuum, the speed of light, where

$$c = 299\ 792\ 458\ [m / s],$$

γ denote Newton's gravitational 'constant', where

$$\gamma \approx (6.6742 \pm 0.0010) * 10^{-11} [m^3 / (s^2 * kg)],$$

π denote the mathematical constant π, also known as **Archimedes' constant.** The numerical value of π truncated to 50 decimal places is known to be about

$$\pi \approx 3.14159\ 26535\ 89793\ 23846\ 26433\ 83279\ 50288\ 41971\ 69399\ 37510 ...$$

π as such is responsible for the intrinsic randomness of our world and for the intrinsic randomness of the situation before the beginning of our world and has thus to do with the begin of our world too.

The beginning of our world is determined by π and started by chance out of nothing.
With the power of π it is possible to escape from zero.

Zero is not only a number, zero is a natural process and defined by Einstein's field equation as

$$0 = ((4 * 2 * \gamma * T_{ab})/(c^4)) + ((R* g_{ab}) / 2)) - (R_{ab}) \quad (273)$$

where

R_{ab} denote the Ricci tensor,

R denote the Ricci scalar,

g_{ab} denote the metric tensor,

T_{ab} denote the stress-energy tensor. Let

c denote the speed of all electromagnetic radiation in a vacuum, the speed of light, where

$$c = 299\ 792\ 458\ [m / s],$$

γ denote Newton's gravitational 'constant', where

$$\gamma \approx (6.6742 \pm 0.0010) * 10^{-11} [m^3 / (s^2 * kg)],$$

π denote the mathematical constant π, also known as **Archimedes' constant.** The numerical value of π truncated to 50 decimal places is known to be about

$$\pi \approx 3.14159\ 26535\ 89793\ 23846\ 26433\ 83279\ 50288\ 41971\ 69399\ 37510 ...$$

The situation before the beginning of our world must have been determinated by the equivalence of energy and time, an indeterminate energy and an indeterminate time. If Heisenberg's uncertainty relation is valid before the beginning of our world too, this world must have been determined by the fact, that Planck's constant h had the value 0.

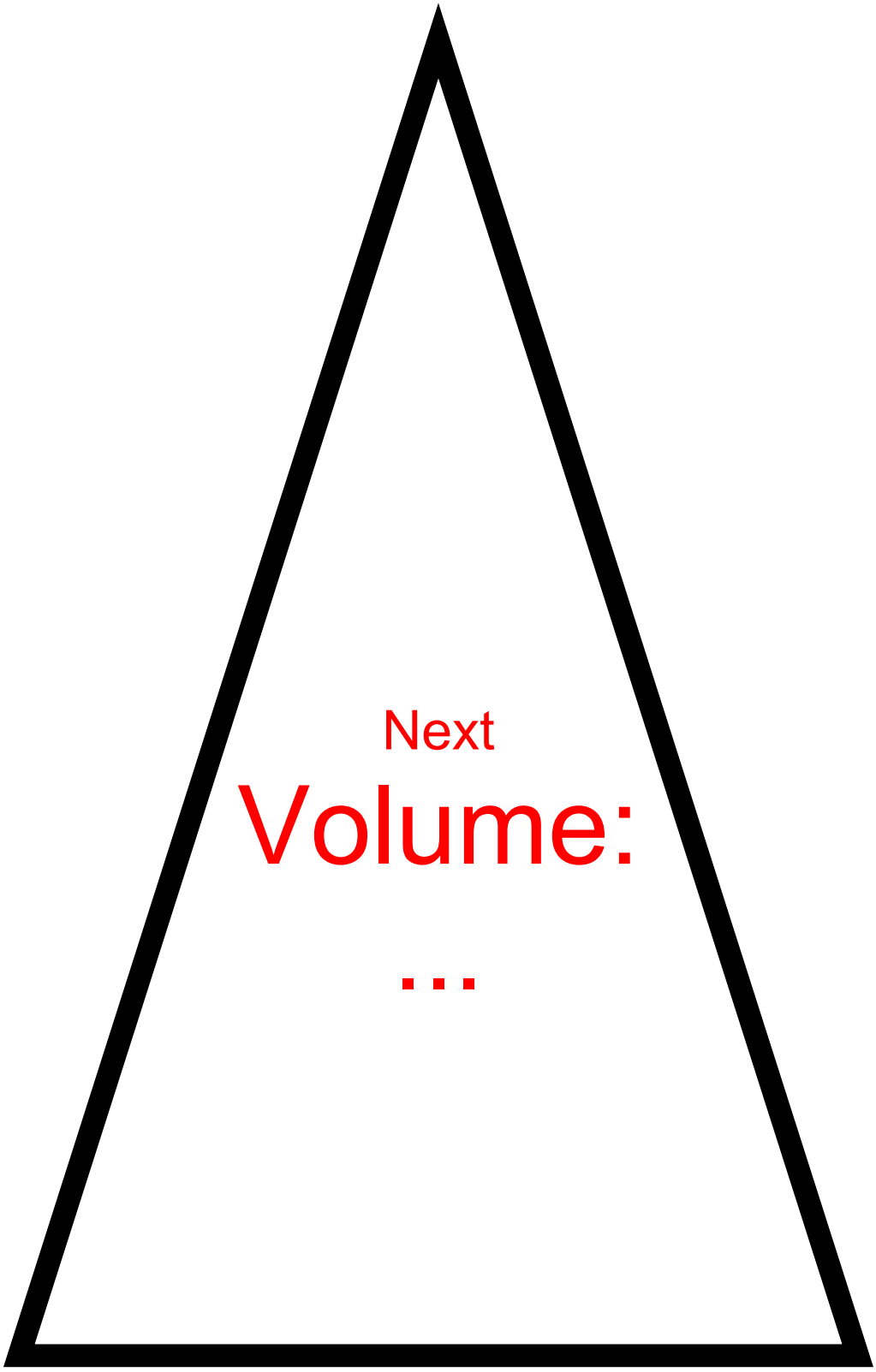
It appears to be, that the beginning of our world started with the creation of Planck's constant h. The creation of Planck's constant h seems to be that which formed the starting point of the development of our world and Planck's constant h remains equally at the base of all that follows and does not vanish from the same. Any further progress is thus only a fresh beginning. Planck's constant h appears to be that simple and general on which our world is grounded.

Acknowledgement
None.

Published: May 10 th, 2007.
Revision: none.

References

Barukčić, Ilija. (1989). Die Kausalität. First Edition. Wissenschaftsverlag, Hamburg, pp. 218.
Barukčić, Ilija. (1997). Die Kausalität. Second Edition. Scientia, Wilhelmshaven, pp. 374.
Barukčić, Ilija. (2005). Causality. New Statistical Methods. First Edition. Books on Demand, Hamburg. pp. 488.
Barukčić, Ilija. (2006a1). Causality. New Statistical Methods. Second Edition. Books on Demand, Hamburg. pp.488.
Barukčić, Ilija. (2006a2). Photon electron telescope. First Edition. Books on Demand, Hamburg. pp. 76.
Barukčić, Ilija. (2006b). New Method For Calculating Causal Relationships, Montréal: XXIII International Biometric Conference, July 16 - 21 2006.
Barukčić, Ilija (2006c). "Local hidden variable theorem, " *Causation* **1,** 11-17.
Barukčić, Ilija (2006d). "Bell's Theorem - A fallacy of the excluded middle," *Causation* **2,** 5-26.
Barukčić, Ilija (2006e). "General contradiction law," *Causation* **3,** 5-26.
Barukčić, Ilija (2006f). "Unified field equation," *Causation* **4,** 5-19.
Barukčić, Ilija (2006g). "Anti γ - Negation of Newton's constant γ," *Causation* **5,** 5-13.
Barukčić, Ilija (2006h). "'Anti' CHSH inequality - natura facit saltus," *Causation* **5,** 15-25.
Barukčić, Ilija (2007a). "Darkness - The Negation of light," *Causation* **1,** 5-11.
Barukčić, Ilija (2007b). "Anti π - Negation of Archimedes' constant π," *Causation* **1,** 13-28.
Barukčić, Ilija (2007c). "Anti h - Negation of Planck's constant," *Causation* **2,** 5-14.
Barukčić, Ilija (2007d). "Particle-wave dualism," *Causation* **2,** 15-78.
Barukčić, Ilija (2007e). "Dialectical tensor logic," *Causation* 3**,** 5-58.
Barukčić, Ilija. (2007f). "General contradiction law and the standard model," *Causation 4***,** 5-30.
Barukčić, Ilija. (2007g). "The constancy of the speed of light in vacuo," *Causation* 4**,** 31-51.
Crease, Robert P. (2004). "The greatest equations ever," Department of Philosophy, State University of New York at Stony Brook. http://physicsweb.org/articles/world/17/10/2.
Einstein, Albert. (1916). "Die Grundlage der allgemeinen Relativitätstheorie," *Annalen der Physik*, Vierte Folge, Vol. 49, **7**, 769 - 822.
Einstein, Albert. (1908). "Über das Relativitätsprinzip und die aus demselben gezogenen Folgerungen," *Jahrbuch der Radioaktivität und Elektronik* **4**, 411-462.
Einstein, Albert. (1908). "Berichtigungen zu der Arbeit: Über das Relativitätsprinzip und die aus demselben gezogenen Folgerungen," *Jahrbuch der Radioaktivität und Elektronik* **5**, 98-99.
Einstein, A., Podolsky, B., and Rosen, N. (1935), "Can quantum-mechanical description of physical reality be considered complete?" *Physical Review* **47**, 770-780.
Hegel, G. W. H. (1998). *Hegel's science of logic*, Edited by H. D. Lewis, Translated by A. V. Miller. New York: Humanity Books, pp. 844.
Heisenberg, W. (1927). "Über den anschaulichen Inhalt der quantentheoretischen Kinematik und Mechanik," *Zeitschrift für Physik* **43**, 172-198.
Kennard, E.H. (1927). "Zur Quantenmechanik einfacher Bewegungstypen," *Zeitschrift für Physik*, **44,** 326-352.
Kolmogoroff, A. N. (1956). [Grundbegriffe der Wahrscheinlichkeitsrechnung, 1933] Foundations of the Theory of Probability, Transl. Nathan Morrison, 2. Ed. New York: Chelsea Publishing Company, pp.
Thompson, M. E. (2006). "Reviews. Causality. New Statistical Methods. I. Barukčić," Editor Dr. A. M. Herzberg, International Statistical Institute. *Short Book Reviews*, Volume 26, No. 1, p. 6.



CAUSATION

International Journal Of Science

No. 5, 2007, pp. 1-52.
http://www.causation.de/

$$+\infty - \infty = 0$$

ISSN 1863-9542