Do people leave in Matrix? Information, entropy, time and cellular-automata

The paper proves that we leave in Matrix. We show that Matrix was built by the creator. By this we solve the question how everything is built.

We prove that the creator is infinite Turing machine or infinite Cellular-automaton.

We show that Universe is Cellular-automaton or Turing machine too. And everything in the Universe is built as Cellular-automaton. We show that our Universe was created by "vegetative birth" from another Universe. In other words, there is an infinite Life Tree that is actually the creator itself.

In other words, we show that everything is only Information, i.e. the creator.

We show that there is no Time, moreover Time is the creator. So, the time is reversible. The arrow of time depends on Information entropy: if entropy increases – people leave in one world, if the entropy does not increase, in other words, no lost of information occurs – people step by step become closer to another world – the world where the creator is sensed directly.

Someone can call the creator of Matrix – God.

We would like to recall that Immanuel Kant tried to prove the existence of God but He did not succeed.
The main reason for this is that he searched for a proof outside His own mind or His own conscience. Also, he did not take into consideration any evolutionary processes.

The given paper tries to fill some gaps and show another way in understanding the reality. It is based on the existing science. In the paper we use mathematical methods in creating scientific concepts. The results are presented in the form Definition – Theorem to present them in a straightforward way.

The immediate consequences of the obtained results are so that in studying the reality it is enough to develop Number Theory, Poetry, Art and other Sciences that are based on the Nature and Inner World of a person.

We also give a simple solution for Yang-Mills Mass gap problem: there is no time and mass has no sense since it was invented artificially as an approximation of reality.

Definition.
Higher Conscience is a conscience that has always more knowledge (amount of information) than all people have.

Theorem.
Higher Conscience exists.
Proof.
Assume that Higher Conscience does not exist. Then the number Pi can not exist in Human Conscience (knowledge of all people) since people know, describe and operate only with what they see or sense. But number Pi can be derived only from the fact that someone saw or sensed

the circle ("perfect wheel").
QED

Theorem on Infinite Monkey.
Monkey that typed everything exists.
Proof.
There is a straightforward proof of this theorem. As an introduction, recall that if two events are statistically independent, then the probability of both happening equals the product of the probabilities of each one happening independently. For example, if the chance of rain in Moscow on a particular day in the future is 0.4 and the chance of an earthquake in San Francisco on that same day is 0.00003, then the chance of both happening on that day is $0.4 \times 0.00003 = 0.000012$, assuming that they are indeed independent.

Suppose the typewriter has 50 keys, and the word to be typed is banana. If the keys are pressed randomly and independently, it means that each key has an equal chance of being pressed. Then, the chance that the first letter typed by a monkey is 'b' is 1/50, and the chance that the second letter typed is a is also 1/50, and so on. Therefore, the chance of the first six letters spelling banana is

$$(1/50) \times (1/50) \times (1/50) \times (1/50) \times (1/50) \times (1/50) = (1/50)6 = 1/15\ 625\ 000\ 000\ ,$$

less than one in 15 billion, but not zero, hence a possible outcome.

From the above, the chance of not typing banana in a given block of 6 letters is $1 - (1/50)6$. Because each block is typed independently, the chance X_n of not typing banana in any of the first n blocks of 6 letters is

$$X\_n=(1-\backslash 50^6)^n.$$

As n grows, X_n gets smaller. For an n of a million, X_n is roughly 0.9999, but for an n of 10 billion X_n is roughly 0.53 and for an n of 100 billion it is roughly 0.0017. As n approaches infinity, the probability X_n approaches zero; that is, by making n large enough, X_n can be made as small as is desired, and the chance of typing banana approaches 100%.

I AM ONE OF SUCH TYPING MONKEYS AND TYPE HERE: BANANA.

Since the word banana is typed NOW, then n is equal INFINITY in the previous formula. Hence Infinite Monkey who typed EVERYTHING EXISTS.
QED.

Consequence.
Higher Conscience and Infinite Monkey are the same.
Proof.
Self-evident.
QED

Consequence.
All mathematics that operates with infinitesimal values belongs to Higher Conscience, hence it can be done.

Let us discuss relation between Infinite Monkey, Halting problem and Eternity.

In computability theory the **halting problem** is the problem of determining, from a description of an arbitrary computer program and an input, whether the program will finish running or continue to run forever.

Theorem on Halting Problem.
Solution of a Halting Problem exists.
It belongs to Infinite Monkey, ie to Higher Conscience.
Proof.
Infinite Monkey typed Everything, also all possible algorithms and their inputs. He also knows for arbitrary algorithm and its input if it halts or not.
QED

Theorem on a Key to Eternity.
Solution of a Halting Problem is a Key to Eternity.
Proof.
The solution of a Halting problem gives a solution to all possible situations in all possible cases, ie to death as well.
QED

Many philosophers discussed and speculated what is our Universe (and in earlier times – the Earth) and how it was created.
Relativity theory announced that there is no absolute point of reference in our Universe.
It is easy to show that such point exists.

Theorem.
There is an absolute point of reference in Universe.
Proof.
Universe forms a compact set in some Hilbert space since it consists of bounded amount of information (information can be formalized as some Hilbert Space). By theorem about Fixed point (Brouwer fixed point theorem applied to a compact set in Hilbert space, see [1]) we get the existence of a fixed point for a mapping that we call Time (series of events), in other words there exists an absolute point of reference.
QED

Theorem.
There is no Time in Universe.
Proof.
From Event Horizon and previous Theorem we get that there is no time in absolute point of reference. Hence there is no Time anywhere in Universe since it can not differ.
QED

Theorem.
We leave in Hologram (series of informational events).
Proof.
Since Higher Conscience exists (see the proof in the theorem above), there is no time in Universe and we see that "something" is changing, then the Universe is a Hologram - series of informational events.
QED.

Theorem.
Our Universe (and Earth) is a Cellular automaton built by Higher Conscience.
Proof.
We already showed that our Universe is a hologram (information projection) from another Universe. Since it is an information with evolution, then it is a Cellular automaton. The same applies to Earth.
QED

Consequence.
Our Universe consists of Universal Cellular automata.
Proof.
Self-evident.
QED

Consequence.
Our Universe was created by vegetative birth.
Proof.
Cellular Automaton is how everything is built. Our Universe is one of such Automata. Hence it was created as a result of evolution process in another Universe (parent).
QED

Let us recall Cellular automata classification.

S. Wolfram found out that there are four types of Cellular automata:
Class 1: Nearly all initial patterns evolve quickly into a stable, homogeneous state. Any randomness in the initial pattern disappears.
Class 2: Nearly all initial patterns evolve quickly into stable or oscillating structures. Some of the randomness in the initial pattern may filter out, but some remains. Local changes to the initial pattern tend to remain local.
Class 3: Nearly all initial patterns evolve in a pseudo-random or chaotic manner. Any stable structures that appear are quickly destroyed by the surrounding noise. Local changes to the initial pattern tend to spread indefinitely.
Class 4: Nearly all initial patterns evolve into structures that interact in complex and interesting ways, with the formation of local structures that are able to survive for long periods of time.

Class 2 type stable or oscillating structures may be the eventual outcome, but the number of steps required to reach this state may be very large, even when the initial pattern is relatively simple. Local changes to the initial pattern may spread indefinitely. Wolfram has conjectured that many, if not all class 4 cellular automata are capable of universal computation. This has been proven for Rule 110 and Conway's game of Life.

Those describe the possibilities in evolution of our Universe including Human Conscience (since it is information too).
The most interesting type is Class 4. It forms the most interesting patterns.
But there are also known to be so-called Garden-of-Eden patterns that can not be reached in any possible state of cellular automata evolution.

We can assume that those patterns are the Higher Conscience.

Let us discuss in our opinion the most suitable way to reach Garden-of-Eden Cellular Automaton.

Richard P. Feynman in His book [2] was telling about energy supplies in the nature and finally He wrote "Therefore it is up to the physicists to figure out how to liberate us from the need for having energy. It can be done".

This paper suggests a way for such liberation.

Theorem.
Information = Energy.
Proof.
As discussed in [3] p. 137-148 it is seen that Universe is an atomic tape, ie Turing Machine, in other words Information. This is strictly proved above. Hence Energy is a part (word) of information as well.
QED

In His book Richard P. Feynman writes "we will define the information in the message to be proportional to the amount of free energy required to reset the entire tape to zero" and further "we can show that to reset this to zero costs no energy in several ways".
He suggests a way to such reset of the tape – turn the atomic box over.
This procedure is known as "garbage collection" in computer science.
So, to make the above "reset" one needs to understand that Energy is just a notion that always leads to a paradox such as Maxwell Demon.

In simple words, Energy exists only because people wanted that it exists. If one imagine world where notion of Energy is removed, it will be a different world.

Theorem on Probability.
There is no probability in events.
Proof.
Assume that there is a probability in events. This means that those events can be described by probability theory. Probability theory includes rules of arithmetic. By Gödel Theorem [3] this Theory contains some statement that can not be proved or disproved by this Theory. Such statement is "Higher Conscience exists". Why? If Theory of Probability would prove that "Higher Conscience exists" hence this Theory would become false since obviously "Higher Conscience does not play dices". If Theory of probability would disprove this statement, it would prove that "Higher Conscience does not exist". But we proved above that "Higher Conscience exists".
QED

Theorem on Arithmetic
There is only arithmetic (visible world is arithmetic).
Proof.
There is no probability in events. Hence everything is sequential. In other words, arithmetical.
QED

Let us discuss two different possibilities for the world as people see it.

Definition.
World of type A is defined as world where loss of information occurs all the time and it is full of paradoxes.

Definition.
World of type B is defined as a world where no information loss is possible and there is no paradoxes.

Theorem.
If the notion of Energy is not removed there will be always information losses and paradoxes.
Proof.
Since by Second Law of Thermodynamics Entropy increases if the notion of Energy exists, sooner or later there occurs information loss.
Due to Gödel theorem and because the world has a notion of energy which is based on arithmetic, there exists a statement that can not be proved or disproved in such world. In other words, there arises paradox.
QED

As one can easily see this means that people leave in World of type A. On the contrary, it is easy to see that there are no information loss and no paradoxes if the notion of energy is removed. In other words, people will leave in World of type B.

The World of type A is full of paradoxes so such World has evolutionary bottlenecks or we can call them mental gaps that actually stop the progress. It is similar to the car that is standing on the surface because of the broken wheel, the driver is trying to speed, he thinks the car is moving, but in fact the car has stopped long time ago.
It is also similar to the moments in history of people when new ideas like Lobachevsky break of Fifth postulate occurred or invention of imaginary, negative or rational numbers.
The mental gaps prevented the real usage of new ideas for a very long time.

Literature.
1. Wikipedia. Brouwer fixed point theorem
2. Richard P. Feynman. Six easy steps, p. 86
3. Richard P. Feynman. Lectures on Computation
4. Wikipedia. Gödel theorem