Deterministic Free Will with Resonant Decision Making

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Abstract: There is the obvious incompleteness in the description of quantum mechanics (QM). QM makes it impossible to find the right solutions for the greatest secrets of nature such as the matter-antimatter asymmetry, the origin of dark matter (DM) and dark energy, or the difference of mind and brain which leads to the origin of free will and decision making. Here we show that free will is compatible with determinism and that mind is a DM structure.

1. Introduction

Einstein showed that the gravitational time (contrary to the quantum time) is relative. Heisenberg via the uncertainty principle asserted that everything is uncertain. And Gödel showed that consistent system cannot be complete, and that the consistency of axioms cannot be proved within their own system, i.e. he "proved" that nothing can be proved.

Why, then, do such fuzzy initial conditions lead to predictable behaviour on a macroscopic scale? What have we missed? Or maybe nature behaves deterministically at all scales and quantum mechanics only approximate real reality? This is a crazy idea because as part of orthodox physics we try to prove the opposite.

The Scale-Symmetric Theory (SST) starts only from classical tachyons without internal structure [1]. They interact because of their viscosity. The phase transitions of such inflation field led to the superluminal spin-1 binary systems of closed strings (the entanglons) the other particles consist of. The exchanged superluminal entanglons, which are also the classical objects, are responsible for the "quantum" entanglement. The SST inflation leads to the two-component spacetime with very different properties of the components so unification of gravity and quantum mechanics within the same methods is impossible. The two-component spacetime leads to the relative gravitational time and to the absolute quantum time.

Quantum physics roughly describes nature because it neglects the superluminal feature of quantum entanglement. We claim that determinism in quantum indeterminism is restored because of the superluminal entanglement.

Notice that SST is a theory of systems containing big number of classical objects with classical phenomena such as viscosity, superluminal "quantum" entanglement and volumetric confinement, so we are looking for stable distributions of the classical objects or exchanges of virtual or real particles built of many classical objects or for exchanges of superluminal objects. In SST, the metaphysical problem of the emergence of classical mechanics from quantum mechanics disappears because nature behaves classically at all scales.

Orthodox interpretations of quantum phenomena are indeterministic. Quantum Mechanics (QM) is based on nonlocality, quantum entanglement, wave-particle duality, indeterminism, state superposition, Heisenberg uncertainty, and complementarity.

Above we showed that nonlocality follows from superluminal entanglement which is the classical phenomenon.

The wave-particle duality is a result of the superluminal entanglement of components of a wave. Detection or collision of the wave causes that due to the superluminal entanglement, whole energy of the wave is focused at the place of detection, which causes the illusion that the wave behaves like a particle (it is a collapse of the wavefunction).

In QM, indeterminism is the belief that the entire outcome of anything is probabilistic. In fact, due to the superluminal and other exchanges, we have a sequence of deterministically changing states (more likely states occur more frequently) and the measurement encounters one of these states. For example, an electron in atom can sequentially appear in two different places with frequency about 10^{17} Hz – when time of observation is longer than 10^{-16} s then there is an illusion that the electron is simultaneously in two different places.

SST shows that the smallest elements of a system cannot be simultaneously in different states because they are the classical objects (the Copenhagen interpretation is incorrect). Just due to the superluminal entanglement, different parts of a system can be in different states and the parts can change location and their energy states – in this classical way we should understand the superposition of states.

The Heisenberg uncertainty principle says, that more precisely a particle's position is known, the less precisely its momentum is known, and vice versa. Such principle is valid when we neglect exchanges of the spin-1 superluminal entanglons between observed system and detector. The same concerns the complementarity principle which says that objects have certain pairs of complementary properties which cannot both be measured simultaneously. Emphasize that such pairs appear in the classical definition of spin: $mvr = \hbar$ – it can be mv and r i.e. momentum and position, or mv^2 and r/v i.e. energy and duration, and so on.

We can see that when we introduce the superluminal entanglement then the quantum physics disappears. Why nature can observe single superluminal entanglons while detectors cannot? Detectors are built of particles with sizes above the Planck scale while the two superluminal objects have sizes well below this scale. It causes that we can only detect gradients of fields composed of the SST tachyons (they are the gravitational fields) and the effects of quantum entanglement. Detectors are built of groups/particles composed of big number of the entanglons so they are not sensitive to single entanglons and groups containing a much smaller number of entanglons. Just QM is the approximate theory i.e. is not a theory that accurately describes nature.

It is not true that only QM leads to quantization of certain physical properties. In SST, we showed that when we start from the classical tachyons then the classical thermodynamics leads to the quantized radius of the closed strings the entanglons consist of, while the saturation of interactions via tachyons leads to different quantized scales.

QM makes it impossible to find the right solutions for the greatest secrets of nature such as the matter-antimatter asymmetry, the origin of dark matter and dark energy, or the difference of mind and brain which leads to the origin of free will and decision making.

Here we show that freedom and responsibility do not require some mysterious indeterminism. Free will is compatible with determinism.

There are four sorts of determinism [2]. Here we assume that all events are determined completely by previously existing causes – it follows from the superluminal entanglement, which is a classical phenomenon, with speed about $2.4 \cdot 10^{59}$ times higher than the speed of light in "vacuum" [1].

2. Deterministic free will in philosophy

The two unsolved problems associated with deterministic free will are as follows [3]:

*The origin of creation of alternative possibilities (AP)
**The origin of our choices and actions.

Both mechanisms must be under our full control.
If determinism is true, then our choices and actions must follow from the laws of nature and events in the past.

3. The mechanism of deterministic free will with resonant decision making

SST shows that sets of loop electric currents create the dark-matter (DM) knots that make up the mind. Mind is the DM structure in the form of closed complex knots. Dark matter and the visible matter (i.e. leptons and hadrons) both are built of the entangled Einstein-spacetime (ES) components (they are the neutrino-antineutrino pairs). But arrangement of the components is different. In the visible matter, the unitary spins of the ES components are perpendicular to direction of their motion so the spins can rotate i.e. such matter can interact electromagnetically.

On the other hand, in dark matter, the unitary spins are tangent to direction of their motion so the spins cannot rotate i.e. the DM knots do not have wave properties, so their wave interference is not possible – they are the very stable but flexible objects. It is the reason that the surrounding environment does not lead to destruction of the mind. The tangent spins cause that lines of electric forces are closed i.e. the DM knots produce closed electric currents in the brains. With time, number of the DM knots increases but the knots can be created only because of the electrical activity of brain. The mind and its activity do not disappear after brain death.

The tangent spins of the ES components to the DM loops cause that the DM loops have the toroidal and poloidal speeds i.e. they create vortices in the spacetime. We know that in the narrowing of streams moving locally in the same direction there is a pressure drop so identical elements in different DM knots attract each other. It means that such attraction causes that intensity of electric currents induced in brain is higher i.e. the memory of some past event is more intense (of course on the assumption that the brain structure that produced the considered DM knots has not changed).

The struggle for dominance between groups containing identical elements in different DM knots and induced currents in brain because of such struggle brings back all the memories associated with the currents in the brain – it is the deterministic mechanism of creation of alternative possibilities (AP).

The mind-cortex feedback has a great impact on the structure of the growing brain. In the cortex, privileged paths are formed for mind-induced electric currents associated with earlier thoughts, images, sounds, and so on. The senses, through the currents generated in the cortex, create in the mind the DM knots made of looped strings. In turn, these interacting DM knots excite closed current sets in the brain forcing its unique development.

The feedback shaped in this way is responsible for making decision about many solutions that the mind suggests for the problem under consideration (the dominant currents in the brain win).

The mind suggests all possible solutions/alternatives for a given problem. Their quality and number depend on the inherited features and path of our personality development. So there are solutions in accordance with physical laws but also unreal solutions that often appear in dreams.

We see that the decision making mechanism depends on our life experience that has shaped and continues to shape our brain but also depends on the initial state of the brain which is inherited. The dominant currents in the brain win so it is the mechanism of our choices and actions.

From the two mechanisms described here follow some known advices:

*We remember better when we read a text more times or we associate numbers with other objects

**The temptation to commit the sin we have committed more times is greater.

4. Role of consciousness

To most philosophers, consciousness defines the relationship between the mind and the world [4].

The states of human consciousness correspond to the characteristic frequencies of brainwaves. On the other hand, brainwaves define electrical activity in the brain.

We can assume that decreasing frequency of brainwaves lowers the level of consciousness.

In 2017, Jeffrey C. Hall, Michael W. Young, and Michael Rosbash were awarded Nobel Prize in Physiology or Medicine "for their discoveries of molecular mechanisms controlling the circadian rhythm". We suggest that brainwave activity can be also a result of molecular mechanisms. Such mechanism should change frequency of the brainwaves and should show that decreasing frequency suppresses the resonance between the mind and the cerebral cortex.

5. Summary

In this paper I do not refer to many papers on issues raised here, such as inflation, dark matter, matter-antimatter asymmetry, and many others which are described within the Scale-Symmetric Theory.

Here we showed that free will is compatible with determinism and that the mind-brain resonance is responsible for decision making.

References

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