

TGD INSPIRED THEORY OF CONSCIOUSNESS

Time and Memory

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Table of contents

- **New view about time and memory**
- **Arrows of experienced and geometric time**
- **Time scales of memory**

Return

New view about time and memory

To the beginning

- The neuroscience view about long term memories not convincing. Four-dimensional archive with same data stored again and again.
- New view about time. **Experienced time and geometric time two different things** as is indeed obvious (irreversibility/reversibility, subjective future does not exist).
- **Time mirror mechanism** allows memory recall as communications with the geometric past. Also time-like entanglement possible. Memories stored in the brain of geometric past. No need to make the the brain now an archive.
- **Contents of consciousness from 4-dimensional space-time sheet defining highest level in the personal self hierarchy of self.** Paradigm of four-dimensional brain. Space-time as four-dimensional organism/society.

- **New view about what happens in biological death.** The 4-D brain of geometric past continues conscious existence without sensory input. What happens to self: does it find new biological body in geometric future? How dynamical is geometric past: depends on what unitary process U can do.
- **Long term memories** by two mechanisms. **Episodal memories** by sharing mental images of geometric past by time like entanglement: fits nicely with view about S -matrix.
- **Declarative memories** by communication with geometric past. Negative energy signals from magnetic body time reflected from the brain of geometric past as positive energy signals. Possibly amplified if analog of population inverted laser in question.
- **Libet's findings** about neuronal activity preceding experience of volition. Negative energy signals backwards in geometric time initiating neural activity. This should occur in several time scales. Editing of geometric past in time scales of human life possible?!

Arrows of geometric and experienced time

To the beginning

- Why we can remember geometric past but the information about geometric future is only plans/hopes/expectations... ?
- Why geometric past relatively stable and geometric future highly unstable in the sense that our intentional action can affect it?
- Arrow of subjective time emerges naturally. How to understand arrow of geometric time in the sense that the space-time sheet representing contents of consciousness seems to drift to geometric future?
- Could the geometric future contain a lot of bosonic p-adic space-time sheets representing intentions transformed to negative energy signals propagating into geometric past and generating neural activities there? Geometric past would not contain much p-adic space-time sheets: intentions already realized.
- Experienced flow of geometric time as p-adic-to-real phase transition front propagating towards geometric future? Structure of the world of classical worlds as union of those associated with future and past lightcones would explain the arrow of geometric time

- This does not explain the **selections associated with intentional acts**. There must be something else involved.
- **Could geometric future represent a quantum critical phase containing coexisting phases with different values of Planck constants**. Could quantum jump induce phase transition leading to one of these phases? Geometric past would not be quantum critical and relatively stable in time scale characterizing self.
- **Quantum ethics**: choice between phases would mean good deed if it leads to a phase with a larger Planck constant. Evolution would basically mean growth of Planck constant and thus level of consciousness.
- At the level of cell the **choice of small Planck constant phase (loss of super-conductivity) could lead to cell death**. Is this a general mechanism of ageing or does the finite geometric time span of space-time sheets associated with the self of biological body explain finite life span?

Time scales of memory

- **p-Adic time scale hierarchy. Preferred p-adic primes. For instance, .1 seconds corresponds to secondary p-adic length scale associated with Mersenne prime $M_{127} = 2^{127} - 1$. Primary one associated with electron.**
- **Dark matter hierarchy/hierarchy of M^4 and CP_2 Planck constants makes possible intentional action in all length and time scales. Preferred time scales of memory and planned action are predicted.**
- **Preferred Planck constants for which which **n characterizes n-polygon constructible using compass and ruler** number theoretically suggestive since the quantum phase $\exp(i\pi / n)$ is expressible using iterated square rooting to rational numbers and thus very simple :**

$$n = 2^k \prod_s F_s, \quad F_s = 2^{2^s} + 1, \quad s = 0, 1, 2, 3, 4, \text{ others?}$$

Given F_s at most once. Known Fermat primes **3, 5, 17, 257, $2^{16} + 1$.**

- $n=2^{k11}$, $k=0,1,2,\dots$ seems to be favored in living matter , 2^{11} fundamental constant in TGD. Scales of long term memory as multiples of this factor. Precise predictions.
- Leaps in evolution could correspond to the emergence of longer time scale of long term memory and planned action.
- Also n -multiples of p -adic length and time scales appear and should define important time scales of cognition, intention, and memory.

