Information within Universe

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Abstract   We disclose some thoughts about the role of information and how information is transmitted within Universe. This letter could be the backbone for a more extended work on this issue.

I.   Information matter

1. Space is a set of nodes-vertices (see spacetime manifold in NCS)[1].

2. Each vertex carries a four bit string of information and each such string of information represents its state.

3. So, there are 2^4=16 different states (strings) that a vertex could exist in (e.g. 0110 or 1010). Symbol "0" represents a negative quantum of quantity while symbol "1" represents a positive quantum of quantity.

4. These four bits represent primitive properties (e.g. mass, charge, spin and time-"activity"). More specific, string 1010 means that this vertex carries a positive quantum of mass, a negative quantum of spin, a positive quantum of charge and a time property of "future". The "present time" is presented by the vertices that their time-"activity" bits are not past or future in both RCS and VCS (time-"activity" bit is the dimensionality that connects real with virtual present).

5. By using four bit string the following Natural Code (NC) is formed:

string	mass	spin	charge	time-"activity"
0000	negative	negative	negative	future
0001	negative	negative	negative	past
0010	negative	negative	positive	future
0011	negative	positive	positive	past
0100	negative	positive	negative	future
0101	negative	positive	negative	past
0110	negative	positive	positive	future
0111	negative	positive	positive	past
1000	positive	negative	negative	future
1001	positive	negative	negative	past
1010	positive	negative	positive	future
1011	positive	negative	positive	past
1100	positive	positive	negative	future
1101	positive	positive	negative	past
1110	positive	positive	positive	future
1111	positive	positive	positive	past

6. The most probable state of a vertex (or the quantum of information it exerts) is found by a stochastic procedure just as Feynman-like diagrams (or Petri nets).

7. The probability of a vertex state is the product of two (equal) transit probabilities: one in RCS and the other in VCS. Recall that a vertex is consisted by its real part (RCS) and its complementary virtual part (VCS). That is why often probability is expressed as square of an entity.
8. Transit process of information is memoryless, in other words, it ignores prior state of the vertex information is carried to.
9. Transit process is also nondeterministic and lossy meaning that it may contain a kind of "noise" that prevents the process to be reversible.

II.   Objects

1. Real entities (e.g. observable objects) are sets of real vertices, hence the sum of all the quanta of information that these vertices carry.
2. A vertex may belong to many different real entities (e.g. to an electron, an atom, a molecule …).

III.   Information related to Universe

1. The present Universe is the sum of information that is consisted in the vertices of present horizon (PH).
2. The whole information included in a Universe is the sum of information carried by all vertices within it. The overall sum of properties within any Universe is 0. The information of the present Universe is the sum of information carried by vertices within the PH.
3. The information of PH is the sum of the previous horizon's information plus (or minus) the information that is carried by the new appeared (or new disappeared) vertices due to expansion (or shrinkage) of the Universe.[2]
4. Conceivable Universe consists of the information of previous vertices that are transferred by a stochastic process to an observer and seem as if they are on the light cone that represents the past.
5. During the expansion era of Universe, more vertices are added into PH and hence, apart from increase of its radius, a temperature decrease is evident due to virial theorem ($1/T \propto M$, where T: temperature, M: mass of Universe and $M \propto R^3$, where R: radius of Universe).
6. Our Universe is coordinated with the rest Wholeness. However, because net properties of previous and future Universes are 0, there is no conceivable interference among them.

References:
1.   Ioannis Hadjidakis, Has the time come …?, http://www.fqxi.org/data/essay-contest-files/hadjidakis_Has_the_time_com.pdf
2.   Ioannis Hadjidakis, Nature's coordination, http://vixra.org/pdf/1304.0116v1.pdf