Telepathy for Interstellar and Intergalaxies' Communications

Alexander Ya. Temkin

ABSTRACT

In the present paper telepathy is considered as a relevant mechanism of the information exchange between thinking systems separated by enormous cosmic distance, e. g., between galaxies or between stellar systems separated by very large distance inside the same galaxy. Influence bodies populating the universe on the transferred telepathic information is considered. Advances of this method as well as problems arising in its use and how to overcome them are considered.

Key Words: thinking, quantum minds communication, telepathy, telepathic information transfer, universe, telepathic information reliability

DOI Number: 10.14704/nq.2016.14.4.925 **NeuroQuantology 2016; 4:683-691**

1. Introduction

In our book (Temkin, 1999) was proposed and developed quantum theory of mind, quantum according its spirit, but not identical to the well-known quantum mechanics of the micro-World. For example, quantum mechanics is based on the use of the Hilbert space mathematical formalism. It is demanded by the experimental bases of micro-World physics. However, such an experimental base does not exist in the field of quantum mind and so there are no grounds for the use of the Hilbert space mathematical formalism in the quantum mind theory (Temkin, 1999). In the book (Temkin, 1999) the metric space formalism is used in the quantum mind theory demonstrating, as it is showed, that it has much wider spectrum of possibilities to represent different aspects and ways of the thinking. It allowed formulating mathematically the concept of personality, to construct the quantum logic for human thinking different from that of micro-World quantum theory, we hope it will permit to understand nature of autism and build the mathematical theory of autistic mind etc. The present article is based on the quantum mind theory represented in the book (Temkin, 1999).

In our article (Temkin, 2014) was argued that the Universe is built from quantum of information, their clusters and much more complicated combinations (planets, stars, galaxies etc.), as well as *vacuum* that may be real, i.e., not containing anything, or filled by quantum information (analogously to the well-known Dirac electron-positron vacuum, Dirac, 1958). We accept this approach in the present paper.

Corresponding author: A. Ya. Temkin
Address: 3/1 Remez Str., Rishon Le-Zion 75202, Israel
Phone: + 972-3-9693098
e-mail ✉ temkin2@bezeqint.net

Relevant conflicts of interest/financial disclosures: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.
Received: 23 March 2016; **Accepted:** 18 April 2016
***e*ISSN** 1303-5150

Let there is the wave of a particle before an observation by an observer when the wave packet reduction was not yet performed. This wave is a function homogeneous throughout the whole space-time, if the 4D continuum can be defined (cf. Temkin, 2014). This is the phase wave of De Broglie.

Suppose now that the particle is replaced by a system $\mathscr{A}$ possessing such set of internal degrees-of-freedom that is able to think (Temkin, 1999, 2011). Then the thinking system $\mathscr{A}$ may be in states when it is able or not able to measure such its, $\mathscr{A}$'s, variables as position, orientation, temperature etc. We called the second type of states meditation state (Temkin, 1982, 1999). Thus, $\mathscr{A}$ can serve alternately as observers of two types:

1. Observer $\mathscr{A}_{\mathscr{B}}$ which is the system $\mathscr{A}$ himself (or itself) *not* in the meditation state (Temkin, 1982, 1999) able to measure place and orientation in space-time etc., of any $\mathscr{A}$, and

2. Another type of measuring system $\mathscr{A}_{\mathscr{M}}$ that is $\mathscr{A}$ being in the meditation state (Temkin, 1982, 1999) able to measure states of mind of any $\mathscr{A}$ as well as other states *of its set of* ***internal*** *degrees-of-freedom*, no matter whether this $\mathscr{A}$ *is or not* in the meditation state. *Results of such a measurement will be the information transferred from measured system to the measuring one.*

Taking into account the written above on $\mathscr{A}$, we represent each $\mathscr{A}$ as a system possessing of translational degrees-of-freedom (e. g., in a 4D continuum) of the considered system as the whole, as well as internal degrees-of-freedom, in particular, those that are necessary for the thinking (Temkin, 1999, 2011). If the observer $\mathscr{A}_{\mathscr{B}}$ does not measure of $\mathscr{A}$'s state, then $\mathscr{A}$'s position in space-time is not determined while the probability of a certain state of mind is determined in the metric space of states as it was defined in (Temkin, 1999, 2011). In certain cases, the variables determining the system position in space – time can be parameters (among others) determining state of mind. In such cases it is to solve an inverse problem to find the probability of a position from the probability of the considered state of mind. In the beginning, for the sake of simplicity, we suppose that 4D space-time continuum exists. However, for the general case the formalism of (Temkin, 2014) is to be used for the same purpose. Thus, at least two observers are necessary to study state and behavior of an object $\mathscr{A}$ being in a meditation state, which are $\mathscr{A}_{\mathscr{M}}$ and another observer

$$\left[\mathscr{A}_{\mathscr{B}} \neq \varnothing, \mathscr{A}_{\mathscr{M}} \neq \varnothing, \mathscr{A}_{\mathscr{B}} \cap \mathscr{A}_{\mathscr{M}} = \varnothing\right] \mathscr{A}_{\mathscr{B}}.$$

2. On the internal mechanism of the information transfer inside the universe: general notes

1) From the point of view of observer of the type $\mathscr{A}_{\mathscr{B}}$ being in the meditation state the position of any other $\mathscr{A}$ has the equal probability throughout the whole 4D-space. It can be represented by the wave function homogeneous in the 4D-space.

2) Let there is another observer of the same type. Denote these two observers $\mathscr{A}_{1\mathscr{B}}$ and $\mathscr{A}_{2\mathscr{B}}$. The written above is correct for wave functions measured by $\mathscr{A}_{1\mathscr{B}}$ and $\mathscr{A}_{2\mathscr{B}}$, as well.

3) However, each of these two $\mathscr{A}$'s is not perpetually $\mathscr{A}_{\mathscr{B}}$, but can be $\mathscr{A}_{\mathscr{M}}$ i. e., to be in the meditation state, which appears and disappears interchanging between $\mathscr{A}_{\mathscr{M}}$ and $\mathscr{A}_{\mathscr{B}}$. The overlapping between wave functions of two $\mathscr{A}$'s and therefore telepathic information transfer between $\mathscr{A}_1$ and $\mathscr{A}_2$ can occur only when at least one of them is in the meditation state. During this process $\mathscr{A}_1$ and $\mathscr{A}_2$ interchange the roles measuring and measured systems. Thus, there is a stochastic process when the system can be in one of 4 following states: I) $\mathscr{A}_1$ and $\mathscr{A}_2$ the both are in meditation states, II, III) only $\mathscr{A}_1$ or $\mathscr{A}_2$ is in the meditation state and IV) no one of $\mathscr{A}_1$ and $\mathscr{A}_2$ are in a meditation state. In the cases I – III the information transfer $\mathscr{A}_1 \rightleftarrows \mathscr{A}_2$ is possible in two directions or in one direction, correspondingly. In the case IV the telepathic information transfer is impossible because in the absence of the meditation state an object of the type $\mathscr{A}$ turns into the one of the type $\mathscr{A}_{\mathscr{B}}$ that cannot send *telepathems* (*a telepathem is an information body transferred from sender to receiver by the telepathy*) toward other objects.

4) Thus, the mathematical consideration of the telepathic information exchange between cosmic objects must include this "twinkling" of the meditation state that could be a random process, but not without fail.

3. Information transfer mechanism (continuation)

Let there is a pair sender $\mathscr{A}_s$ and receiver $\mathscr{A}_r$, which positions in 4D continuum are determined by an observer $\mathscr{A}_{\mathscr{B}}$ as $x_s = \left(x_s^{(1)}, x_s^{(2)}, x_s^{(3)}, x_r^{(4)}\right)$ and $x_r = \left(x_r^{(1)}, x_r^{(2)}, x_r^{(3)}, x_r^{(4)}\right)$, correspondingly ($x_j^{(n)}$ are 4-co-ordinates). We shall consider here such a mechanism when the overlapping of sender and receiver wave functions is *a necessary* condition that the information transfer could be possible.

In this case the problem of the information propagation may (in a certain approximation) be represented as consisting of two problems: 1) mechanism of telepathic information transfer between a number of objects of the type $\mathscr{A}$, and 2) statistic theory representing the collective effect of all such objects.

Suppose that, according Sec. 2, the transfer of information from an object $\mathscr{A}_n$ to another one is possible, iff (*iff = if and only if);*

1) The wave functions of their internal degrees of freedom responsible for the thoughts (Temkin, 1999) generation and processing i.e., for the mind creation is being overlapped at measurement $\mathscr{A}_{n'}$ state by $\mathscr{A}_n$ being at least one of them in meditation state (cf. Sec.2 (3));

2) An information transfer mechanism can function only inside this overlapping region mentioned above (Sec.2).

The consideration written above can be generalized to the case when the information can be transferred inside sets $\forall\left[n \in \mathbb{N}_1, n \geq 2\right]\left\{\mathscr{A}_n\right\}$. Then the information exchange between all $\mathscr{A}$ of this set is possible. This situation is mathematically like the one in systems of interacting particles, e.g., in the real gases theory, so, it seems, that mathematical methods of this theory (Mayer and Mayer, 1940; Mayer and Montroll, 1941) could be adopted for our consideration. In our case it is to represent the set $\left[\forall n \in \mathbb{N}_1\right]\left\{\forall \mathscr{A}_n\right\}$ by all possible combinations of its subsets.

No doubt that the majority of the Universe objects do not possess of such sets of internal degrees-of-freedom that are *able to think* (Temkin, 1999, 2011). Denote each of them $\mathscr{B}$. It is important that evidently such a $\mathscr{B}$ cannot serve an observer alone, but only in pair with an $\mathscr{A}$: $\left\langle \mathscr{B} \middle| \mathscr{A} \right\rangle$ which may exist as

$$\left\langle \mathscr{B} \middle| \mathscr{A} \right\rangle = \frac{\left\langle \mathscr{B} \middle| \mathscr{A}_{\mathscr{M}} \right\rangle}{\left\langle \mathscr{B} \middle| \mathscr{A}_{\mathscr{B}} \right\rangle}.$$

However, it exists in the Universe set of subsets

$$\left[\left(\begin{matrix}\left\langle \mathscr{B} \middle| \mathscr{A}_{\mathscr{M}} \right\rangle \\ \left\langle \mathscr{B} \middle| \mathscr{A}_{\mathscr{B}} \right\rangle\end{matrix}\right)_{\xi} \subseteq \left\{\forall \begin{matrix}\left\langle \mathscr{B} \middle| \mathscr{A}_{\mathscr{M}} \right\rangle \\ \left\langle \mathscr{B} \middle| \mathscr{A}_{\mathscr{B}} \right\rangle\end{matrix}\right\}, \xi \in \left[1, \xi_{\max}\right] \subset \mathbb{N}_1\right]\left\{\left[\begin{matrix}\left\langle \mathscr{B} \middle| \mathscr{A}_{\mathscr{M}} \right\rangle \\ \left\langle \mathscr{B} \middle| \mathscr{A}_{\mathscr{B}} \right\rangle\end{matrix}\right]_{\xi}\right\} \subset \left\{\forall \begin{matrix}\left\langle \mathscr{B} \middle| \mathscr{A}_{\mathscr{M}} \right\rangle \\ \left\langle \mathscr{B} \middle| \mathscr{A}_{\mathscr{B}} \right\rangle\end{matrix}\right\} \qquad (1)$$

of such objects of the types $\mathscr{B}$ and $\left\langle \mathscr{B} \middle| \mathscr{A} \right\rangle$. Each of these objects can change, process, reflect, disperse, send and absorb the information.

So the question arises: whether 4D-distance between $\mathscr{A}_n$ and $\mathscr{A}_{n'}$ measured by observers from different subsets Y of the set $\left\{\left\langle \mathscr{B} \middle| \mathscr{A} \right\rangle_{m'}\right\}_Y \subseteq \left[m \in \left[1, m_{\max}\right] \subset \mathbb{N}_1, Y \in \mathbb{N}_1\right]\left\{\forall \left\langle \mathscr{B} \middle| \mathscr{A} \right\rangle_m\right\}$ influences the information transfer, and, if yes, how? It is clear that the answer to this question depends on that whether the wave function of internal degrees-of-freedom (responsible for the $\mathscr{A}_n$ quantum mind) depends on the 4D-distance from $\mathscr{A}_{n'}$, as parameter. We denoted $\mathbb{N}_1$ and $\mathbb{N}_0$ sets of all natural numbers without and with the 0, correspondingly.

Denote also

$$\mathcal{C} \overset{def}{=} \hat{\mathcal{A}} \oplus \tilde{\mathcal{A}} \oplus \mathscr{B}; \hat{\mathcal{A}} \oplus \tilde{\mathcal{A}} = \mathcal{A}, \qquad (2)$$

$$\left.\begin{aligned} \mathcal{A} &\overset{def}{=} \left[n \in \left[1, n_{\max}\right] \subset \mathbb{N}_1\right]\left\{\forall \mathscr{A}_n\right\}, \\ \tilde{\mathcal{A}} &\overset{def}{=} \left[n \in \left[1, n_{\max}\right] \subset \mathbb{N}_1\right]\left\{\forall \tilde{\mathscr{A}}_n\right\}, \\ \hat{\mathcal{A}} &\overset{def}{=} \left[n \in \left[1, n_{\max}\right] \subset \mathbb{N}_1\right]\left\{\forall \hat{\mathscr{A}}_n\right\}, \\ \mathscr{B} &\overset{def}{=} \left[m \in \left[1, m_{\max}\right] \subset \mathbb{N}_1\right]\left\{\forall \mathscr{B}_m\right\}, \end{aligned}\right\} \qquad (3)$$

where $\tilde{\mathscr{A}}_n$ and $\hat{\mathscr{A}}_n$ denote observers in meditation state and not, correspondingly, while no one of observers of the type $\mathscr{B}$ is able to be in the meditation state.

Thus, in the framework of this approach the information propagation through 4D continuum occurs by its transfer between two different $\mathscr{A}$'s when at least one of them is in a meditation state, in other words, it is realized only by the multiple use of the telepathic mechanism. If the 4D continuum does not exist, the similar consideration can be developed in the framework of the formalism of (Temkin, 2014). As it was written above, such processes are possible between two $\mathscr{A}$ s, and, more generally, between subsets..: $\left[n\in[1,n_{\max}]\subset\mathbb{N}_1,\rho\in[1,\rho_{\max}]\subset\mathbb{N}_1\right]\{\forall\boldsymbol{a}_\rho\subseteq\{\mathscr{A}_n\}\}$ of the set $\{\forall\mathscr{A}_n\}$, when a certain part of them is in meditation states, under condition that their wave functions overlapping in pairs, or in three, in four, or, generally speaking, in $n\le n_{\max}$. This propagation occurs as a random walk because transitions $\mathscr{A}_{\mathscr{B}}\rightleftarrows\mathscr{A}_{\mathscr{M}}$ are random. This means, the situation is principally analogical to the one existing in systems of many interacting particles, if instead the interaction to consider the telepathy. The propagation of an information $\mathscr{I}$ through 4-continuum can be detected by the following way. Let the first measurement performed by an observer $\mathscr{A}_{\mathscr{M}m}$ the information $\mathscr{I}$ was detected at $\mathscr{A}_{\mathscr{M}n}$ being at the point $x_n=\left(x_n^{(1)},x_n^{(2)},x_n^{(3)},x_n^{(4)}\right)$, and by the second measurement it was detected at $\mathscr{A}_{\mathscr{M}n'}$ being at the point $x_{n'}=\left(x_{n'}^{(1)},x_{n'}^{(2)},x_{n'}^{(3)},x_{n'}^{(4)}\right)$. The distance between these points in the metric space is $\rho_{nn'}=\begin{pmatrix}\left(x_n^{(1)}-x_{n'}^{(1)}\right)^2,\left(x_n^{(2)}-x_{n'}^{(2)}\right)^2,\\ \left(x_n^{(3)}-x_{n'}^{(3)}\right)^2,\left(x_n^{(4)}-x_{n'}^{(4)}\right)^2\end{pmatrix}^{1/2}$.

Thus, the average velocity of the information $\mathscr{I}$ propagation between $\mathscr{A}_{\mathscr{M}n}$ and $\mathscr{A}_{\mathscr{M}n'}$ could be defined as

$$\bar{\mathrm{v}}_{\mathscr{I}}=\frac{\rho_{nn'}}{t_{n'}-t_n}, \qquad (4)$$

where t_n and $t_{n'}$ are time moments of the first and second measurements.

4. Telepathic information exchange in a set of observers of the type $\mathscr{A}$

Telepathic information exchange needs no contact between two $\mathscr{A}$ s, i.e., between sender and recipient, because it is realized at their wave functions overlapping. As it was described above, really the propagation of the information in the Cosmos occurs by means of different types multiple processes combinations. In this Section we shall consider the possibility of the representation of the telepathic information transfer in the Universe as combinations of those occurring in all different subsets of the set $\{\boldsymbol{a}\}\overset{def}{=}\left[n\in[1,n_{\max}]\subset\mathbb{N}_1\right]\{\forall\mathscr{A}_n\}$.

Let $\Psi\{\boldsymbol{a}\}$ be the wave function of the set $\{\boldsymbol{a}\}\overset{def}{=}\left[n\in[1,n_{\max}]\subset\mathbb{N}_1\right]\{\forall\mathscr{A}_n\}$. Denote

$$\psi_2\left(\{\boldsymbol{a}_{kl}\}\right)\overset{def}{=}\left[l\ne k,[k,l]\in[1,n_{\max}]\subset\mathbb{N}_1\right]\{\forall(\mathscr{A}_k\mathscr{A}_l)\}$$

(5)

And, in the general case,

$$\left\{\forall\alpha\left[q\in[1,n_{\max}]\subset\mathbb{N}_1\right]\psi_q\left(\left\{\boldsymbol{a}_{k_\alpha^{(1)}\dots k_\alpha^{(q)}}\right\}\right)\right\}\overset{def}{=} \left\{\forall\alpha\begin{bmatrix}n\in[1,n_{\max}]\subset\mathbb{N}_1,\\ \forall(\alpha\ne\alpha')[k_\alpha\ne k_{\alpha'}],\\ k_\alpha\in[1,s_{\max}]\subset\mathbb{N}_1\end{bmatrix}\left\{\mathscr{A}_{k_\alpha^{(1)}}\dots\mathscr{A}_{k_\alpha^{(q)}}\right\}\right\} \qquad (6),$$

where q is the number of elements in a subset of the considered set $\{\forall\mathscr{A}\}$. Try to represent the wave function of the considered system as a combination of ψ_q functions by Fock columns (Fock, 1932).

Let us consider it:

$$\Psi=\sum_{q=1}^{n_{\max}}\left\{\left[q\in[1,n_{\max}]\subset\mathbb{N}_1\right]\psi_q\left(\left\{\boldsymbol{a}_{k_{\alpha_1}\dots k_{\alpha q}}\right\}\right)\right\}\overset{def}{=} \sum_{q=1}^{n_{\max}}\left\{\begin{bmatrix}n\in[1,n_{\max}]\subset\mathbb{N}_1,\\ \forall(\alpha,\beta)[k_\alpha\ne k_\beta],\\ \left[k_\alpha,k_\beta\right]\in[1,n_{\max}]\end{bmatrix}\left\{\mathscr{A}_{k_{\alpha_1}}\dots\mathscr{A}_{k_{\alpha q}}\right\}\right\} \qquad (7)$$

Suppose that an observer $\langle\mathscr{B}|\mathscr{A}\rangle_1$ or $\mathscr{A}_{1\mathscr{B}}$ detected that $\mathscr{A}$ is at a place of 4D space-time (for the sake of simplicity we indicate only one point $\in\mathscr{A}$). Let another observer $\langle\mathscr{B}|\mathscr{A}\rangle_2$ or $\mathscr{A}_{2\mathscr{B}}$ detected that $\mathscr{A}$ is at a place $x^{(2)}=\left\{x_1^{(2)},x_2^{(2)},x_3^{(2)},x_4^{(2)}\right\}$.

Let $x_4\overset{def}{=}ict$ be the time. Let be $x_4^{(2)}>x_4^{(1)}$. Let there is a set of observers

$$B_{\{\alpha_\beta\}}=\frac{\left\langle\mathscr{B}_{\{\alpha_\beta\}}\middle|\mathscr{A}_{\mathscr{M}}\right\rangle}{\left\langle\mathscr{B}_{\{\alpha_\beta\}}\middle|\mathscr{A}_{\mathscr{B}}\right\rangle}\overset{def}{=} \left[\beta\in[1,n]\in\mathbb{N}_1,\alpha_1=1,\alpha_n=2\right]\left\{B_{\beta\ne1,\beta\ne n}\right\}, \qquad (8)$$

placed in points of 4D space-time:

$$X_{\{\alpha\}}=\left\{\forall x^{(\alpha_\beta)}\right\}=\left[\beta\in[1,n]\in\mathbb{N}_1,\alpha_1=1,\alpha_n=2\right] \left\{\forall\left\{x_1^{(\alpha_\beta)},x_2^{(\alpha_\beta)},x_3^{(\alpha_\beta)},x_4^{(\alpha_\beta)}\right\}\right\} \qquad (9)$$

Note

The transmission of the information from a certain object of the Universe to the other one could be explained not only in terms of distance and time, but in terms of cosmic objects able to interact with the information carriers of the considered information object. This means, for different information objects the information propagation could occur differently and could be expressed in different terms, but not universally in terms of space-time continuum (Temkin, 2014). It is clear that in such general case the notion of the information propagation velocity cannot be determined universally. This *note* can be applied also to the information propagation throughout sets (2-3).

Let the set of points

$$X_{\{\alpha\}} = \left\{ x^{(\alpha_\beta)} \right\}$$

be ordered so that $x^{(\alpha_{i'})} \succ x^{(\alpha_i)} \Leftrightarrow i' > i$. If an observer at point $x^{(\alpha_i)}$ detects an object, then he obtains its wave packet as δ- function. In more general case the amplitude of probability to detect this object is represented by a wave packet being a continuous function having maximum at the point $x^{(\alpha_i)}$.

The approach proposed above is not the only possible one. For example, the following approach is possible: the propagation of the information in the Universe can be reduced to the problem of quantum random walks (Kempe, 2003) in the Universe among the cosmic objects mentioned above interacting with the propagating information object that may change its properties for example, to damp (or/and) distort this information object depending on the distance between sender and receiver and its walks' parameters.

Let $\Lambda_{\mathscr{I}} = \left[\chi \subseteq [0,\infty) \subseteq \mathbb{R} \right] \left\{ \lambda_{\chi_{\mathscr{I}}} \right\}$ be the set of all properties of the information object $\mathscr{I}(\Lambda_{\mathscr{I}})$. Really the set $\Lambda_{\mathscr{I}}$ is the information carried by the considered information object $\mathscr{I}(\Lambda_{\mathscr{I}}) = \mathscr{I}\left(\left[\chi \subseteq [0,\infty) \subseteq \mathbb{R} \right] \left\{ \lambda_{\chi_{\mathscr{I}}} \right\} \right)$. If this information object $\mathscr{I}(\Lambda_{\mathscr{I}})$ is detected by an observer $B_{\{\alpha_\beta\}}$ being at the point $X_{\{\alpha\}} = \left\{ x^{(\alpha_\beta)} \right\}$, its wave packet will be δ- function, which means that *all the information, i. e.,* $\forall \Lambda_{\mathscr{I}}$, will be known only to the observer $B_{\{\alpha_\beta\}}$ placed in the point $X_{\{\alpha\}} = \left\{ x^{(\alpha_\beta)} \right\}$. However, if the considered wave packed is not the δ-function, then the probability amplitude (carried by this information object) to be detected by other observers at this condition could be

$$\Psi_{\left\langle B_{\alpha_\beta} \middle| B_{\{\alpha_\beta\}} \right\rangle} \overset{def}{=} \left(\psi_{B_{\{\alpha_\beta\}}} \Big| \cdots \left\| \begin{matrix} \left[\forall \left(\left\langle k^{(1)},\ldots,k^{(l)} \ldots k^{(l_{\max})} \right\rangle \in \mathbb{N}_1, l_{\max} \le \infty \right) \right] \\ \left\{ \psi_{B_{\{\alpha_{\beta_k}\}} \cdots B_{\{\alpha_\beta k^{(l)}\}}} \right\} \Big| \cdots \end{matrix} \right. \right) \tag{10}$$

where $\left\{ \psi_{B_{\{\alpha_{\beta_k}\}} B_{\{\alpha_\beta k'\}}} \right\}$ is the set of *twin* observers' (inside) correlation amplitudes and, in general, $\left\{ \psi_{B_{\{\alpha_{\beta_{k_0}}\}} B_{\{\alpha_\beta k_1\}} \cdots B_{\{\alpha_\beta k_n\}} \cdots} \right\}$ is the set of correlation amplitudes of a number of observers. Note, the word correlation we use here by the analogy with the statistical theory of real gases (Mayer and Mayer, 1940; Mayer and Montroll, 1941), and it is to clarify whether it is relevant to the problem in consideration, or it must be replaced by the word interaction.

If a 4D continuum is considered, we shall denote $\bar{\rho}\left(X_{\{\alpha\}}, X_{\{\alpha'\}} \right)$ the average 4D distance from the point $X_{\{\alpha\}} = \left\{ x^{(\alpha_\beta)} \right\}$ to the one $X_{\{\alpha'\}} = \left\{ x^{(\alpha'_\beta)} \right\}$. The Eqn. (4) allows one to find the average displacement of the information object $\mathscr{I}(\Lambda_{\mathscr{I}})$ during the time Δt.

Eqn. (4) allows one to find the probability at what time moment an observer B_{α_β} will detect this information object. By the continuation of this process we can find the probability when this information object will reach a certain point of the 4D continuum. This consideration can be generalized to the case when no continuum exists (Temkin, 2014).

The question arises when, i. e., at what value of $x_4^{(\alpha_{i'>i})}$, the observer could be able to detect the considered object. The wave packed (created by the 1st observer) shape and corresponding effective width depend on time. Therefore, the two possibilities exist: 1) the distance between the two measurements is >> effective width of the considered wave packet; 2) the second measurement is performed by the observer being at the space point inside the first wave packet. Note that (in case 1) we mean that the maximum effective width is determined when the packet height just became to be below the level of quantum fluctuations. If we consider the case when 4D continuum can be defined, the velocity (or the average velocity) of the considered object can be defined as usual.

In the general case considered in (Temkin, 2014) it is to consider interactions of the propagating information with different objects as measurements performed by different observers, in other words, the above mentioned objects should be considered as observers. According (Temkin, 2014) there could be two cases: 1) in the considered part of the Universe it is possible to define 4D $(\text{or}\,\text{nD})$ *continuum*, and 2) *it is impossible* to do it. Correspondingly, the information propagation can or cannot be a continuous process, so its velocity can or cannot be defined.

Let us consider the second of the above cases. Let the first observer detected the considered information object. Then its wave packet will be non-zero only at the first observer. If the second observer performs simultaneously (with the first one) its measurements, their result will be the zero. Note that the words "wave packet" do not represent correctly measurement results in this case because the representation of wave packet shape demands the existence of space continuum.

How the information on the considered information object $\mathcal{I}(\Lambda_{\mathcal{I}})$ movement could be detected? It could be done by measurements performed by a subset of observers using a method of scan throughout of this subset. Consider it qualitatively in detail.

Suppose that there is a finite or countable set of observers. Each of them sends signals and receives them back reflected from the considered object. If an observer detected such a reflected signal, it forwards the information carried by this signal to others observers. This means, all these observers must be connected by any way to enable the exchange of the information. So the new characteristic time(s) appears: the time(s) of the information exchanges. From these data a global characteristic of the considered process, which is the time of the whole observers' system reaction, can be found. In particular, this process allows the system of observers to get to know which observer detected the particle, and from this result to find the trajectory and velocity of the information propagation.

5. Telepathy parameters in the cosmos

5.I. possible processes occurring with a telepathem propagating inside the universe

1) Variables characterizing the appearance of telepathem inside emitter.
2) Variables characterizing telepathem emission.
3) Variables characterizing telepathem absorption.
4) Variables characterizing telepathem and their changes at propagation in space-time (4D-continuum) including processes occurring with the telepathem on the way, among others, all kinds of distortion.

5.2. Beginning notes on kinetic equation for telepathic information propagation

Introduce the following notations:

I.(1): $Q\overset{def}{=}\left[\forall\vartheta,\vartheta\in\left[1,\vartheta_{\max}\right]\subset\mathbb{N}_0\right]\left\{q_\vartheta\right\}$, where q_ϑ is the power of the type ϑ telepathem source of the emitter.

I.(2): $W_Q Q\overset{def}{=}\left[\forall\vartheta,\vartheta\in\left[1,\vartheta_{\max}\right]\subset\mathbb{N}_0\right]\left\{w_{q_\vartheta}q_\vartheta\right\}$, where w_{q_ϑ} is the emission rate coefficient for q_ϑ, while W_Q is the same thing for the system.

I.(3). $\mathcal{K}_Q Q\overset{def}{=}\left[\forall\vartheta,\vartheta\in\left[1,\vartheta_{\max}\right]\subset\mathbb{N}_0\right]\left\{\kappa_{q_\vartheta}q_\vartheta\right\}$, where κ_{q_ϑ} is the absorption rate coefficient for q_ϑ, while $\mathcal{K}_Q$ is the same thing for the system.

I.(4): Variables characterizing telepathem: a) initial 4-velocity vector (at the moment of emission) $\left[\mu=1,2,3,4\right]v_{em}^{\mu}$, b) initial information structure of telepathem $\mathcal{I}_{t_{em}}$, c) position of telepathem in 4-space-time continuum $\mathcal{I}\left(\left\{x^\mu\right\}\right)=\mathcal{I}_{\left\{x^\mu\right\}}$ that determines also all telepathem properties as functions of this position.

Using notations **1**.(1 -4) one can write the kinetic equation for telepathic information propagation.

6. Information bodies' flux propagation inside a universe' region

The simplest way to consider the information bodies' flux propagation inside a Universe region is to use the Boltzman gas kinetic equation. In the framework of this approximation the flux of information bodies must be rarefied so that the information transfer between such bodies should be neglected. Note that this condition is fulfilled for the majority cases. It is like to the particles' transfer problem: as it is well known from the non-equilibrium gas theory, some limitations of the applicability of linear Boltzman equation exist. The most important ones are that *only binary correlation function and only case of short range interaction between gas molecules* can be considered. Our problem is like the one of particle transfer theory, e. g., neutron transport, that is described by linear version of Boltzman equation. Let us write this transport equation for a flux of information objects

$$\mathscr{I}(\Lambda_{\mathscr{I}}) = \mathscr{I}\left(\left[\chi \subseteq [0,\infty) \subseteq \mathbb{R}\right]\left\{\lambda_{\chi_{\mathscr{I}}}\right\}\right)$$

using the binary distribution function

$$\Phi\begin{pmatrix} \mathscr{I}(\Lambda_{\mathscr{I}}) = \\ \mathscr{I}\left(\left[\chi \subseteq [0,\infty) \subseteq \mathbb{R}\right]\left\{\lambda_{\chi_{\mathscr{I}}}\right\}\right) X_{\{\alpha\}} = \left\{x^{(\alpha_\beta)}\right\} \end{pmatrix}.$$

Acting in the spirit of transport equation, one will accept that at each interaction ("collision") of the considered information object with a cosmic object internal variables of the information object may be changed. The probabilities of these changes should be find independently and inserted into equation.

On the linear transport equation for the neutron transport see, for example (Marshak, 1947; Davison,1958; Sanchez & McCormick, 1982; Temkin, 1956, 1969). Let the index λ represents the whole set of types of the information carried by the considered information body. An interaction of this body with a cosmic object may change the set $\{\lambda_{\mathscr{I}}\}$, like collisions of a neutron with nuclei may change neutron linear and angular momentum and energy of the neutron. In our consideration the set $\Lambda_{\mathscr{I}} = \{\lambda_{\mathscr{I}}\}$ plays the same role in the information transfer equation as linear momentum in the neutron transfer equation. Now let us write the information transfer equation for the binary information distribution function:

$$\Phi\begin{pmatrix} \mathscr{I}(\Lambda_{\mathscr{I}}) = \\ \mathscr{I}\left(\left[\chi \subseteq [0,\infty) \subseteq \mathbb{R}\right]\left\{\lambda_{\chi_{\mathscr{I}}}\right\}\right) X_{\{\alpha\}} = \left\{x^{(\alpha_\beta)}\right\} \end{pmatrix} \tag{11}$$

$$\frac{\partial \Phi\left(t,\vec{r},\vec{p},\mathscr{I}(\Lambda_{\mathscr{I}})\right)}{\partial t} + \vec{v}\; grad_3 \Phi\left(t,\vec{r},\vec{p},\mathscr{I}(\Lambda_{\mathscr{I}})\right) + \frac{v}{b}\Phi\left(t,\vec{r},\vec{p},\mathscr{I}(\Lambda_{\mathscr{I}})\right) = \boldsymbol{S}\frac{v'}{b'} w\left(\vec{p}',\Lambda'_{\mathscr{I}},\vec{p},\Lambda_{\mathscr{I}}\right)\Phi\left(t,\vec{r},\vec{p}',\mathscr{I}(\Lambda'_{\mathscr{I}})\right) d\vec{p}'\delta\Lambda'_{\mathscr{I}} + q\left(0,\vec{r},\vec{p},\mathscr{I}(\Lambda_{\mathscr{I}})\right) \tag{12}$$

where symbol $\boldsymbol{S}$ includes integration and generalized summation with respect to $d\vec{p}'$ and $\delta\Lambda'_{\mathscr{I}}$ correspondingly, and $q\left(0,\vec{r},\vec{p},\mathscr{I}(\Lambda_{\mathscr{I}})\right)$ is the source of the information emission. We use here $\vec{p}$ as vector indicating only direction of the information movement, but not the linear momentum.

Eqn. (12) is not relativistic. In this paper we shall limit ourselves with this case postponing the relativistic generalization to future researches. For this generalization one can use relativistic Boltzmann equation (Debbasch and van Leeuwen, 2009).

Return to the Eqn. (12). If we want to find the distribution of the information produced by the source $q\left(0,\vec{r},\vec{p},\mathscr{I}(\Lambda_{\mathscr{I}})\right)$ through the space as function of time, it must find all coefficients in Eqn. (12) by theoretical or experimental way and thereupon to solve Eqn. (12). These coefficients depend on the structure of the considered part of the Universe and character of the expanding information objects.

7. Conclusions

In the present paper we have considered some ways of telepathic information propagation inside the Universe or its regions. The equation like linear Boltzmann equation, e.g., like neutron transport equation, is proposed to be used for the propagation of low density information objects' flux when the information exchange between two information objects (inside the flux) would be negligible. The obtained equation allows one to take into account changes of information objects produced by their collisions with different objects contained in considered regions of the Universe, in

NeuroQuantology | December 2016 | Volume 14 | Issue 4 | Page 683-691 | doi: 10.14704/nq.2016.14.4.925
Temkin A.Ya., Telepathy for interstellar and intergalaxies communications

other words, allows one to find the distortion of the information by the Cosmos. It could be important for the interpretation of observation results at the study of Cosmos, and, in the future, for inter stellar and inter Galactic communications, as well as for communications between cosmic vessels separated by enormous distances, e. g., being in different Galaxies. Note that only telepathic information exchange is practically meaningful for such enormous distances because in distinct from electromagnetic communications, their propagation velocity is not limited by the velocity of light (Temkin, 1982, 1999) and can be much larger. Note that a non-trivial generalization of the Eqn.12 is necessary to take the abovementioned fact into account. Indeed, the relativistic generalization is based on the affirmation that the velocity cannot be more than the velocity of light c, while telepathem can propagate with any velocity (Temkin, 1982, 1999). This fact suggests the idea that the relativity is valid for events that do not depend on the information propagation velocity. It must be taken into account that processes occurring with the information propagating with the velocity $>c$ (see above) lead to distortion a. o. uncontrollable errors of the received information, i.e., "it must pay" by reliability and exactness of such "express post". This problem merits to be studied in detail in future researches. In particular, it is to find how many identical messages must be send to the same addressee that his (or its) receiving device be able to reproduce exactly (or with the desired exactitude) the original message sent by the sender. Another aspect of the abovementioned study is the clarifying the connection between different parts of the Universe producing by the information exchange throughout the Universe. It could connect all parts of the Universe and turn it into an enormous "cosmic brain". It can also change profoundly our understanding of the Universe origin state (for example, point) and its expansion after Big Bang. It is to be taken into account the increase ways' lengths for information bodied between different parts of the Universe during its expansion. Indeed, it may provoke an increase of their distortions a. o. changes demanding increase of such bodies number (see above), which may influence the Universe expansion process, as well as physical, chemical, biological a. o. processes inside the Universe. *Perhaps the Universe development after Big Bang should be considered as the one of the set of all information paths. This set could be identified as the Universe.*

Some considerations and concepts of the present paper could be applied to the consideration of the telepathic information exchange, in general, but not only in the connection with the cosmology, e. g., $\Lambda_{\mathscr{I}} = \left[\chi \subseteq [0,\infty) \subseteq \mathbb{R}\right]\left\{\lambda_{\chi_{\mathscr{I}}}\right\}$ and $\mathscr{I}\left(\Lambda_{\mathscr{I}}\right)$. These concepts can be used, for example, in the theory of the telepathic exchange between two or more human or animal brains (Tressoldi *et al.,* 2014). being closed enough not to consider the information propagation in the medium between them. At the same time, they can be used to take into account the influence of the medium between these brains upon *telepathems* when the brains are not so close one another.

Mathematical notations used in this paper

$\wedge$ - conjunction (... and ...)
$\vee$ - disjunction (... or ..., but not both)
$\forall$ - universal quantor (for all(...))
$\exists$ - exists (...)
$/\exists$ - does not exist (...)
$\Rightarrow$ - implication
$\Leftrightarrow$ - equivalence, necessary and sufficient conditions, *i.e.*, $(\varphi \Leftrightarrow \psi) = (\varphi \Rightarrow \psi) \wedge (\psi \Rightarrow \varphi)$
$\varnothing$ - not empty set
$\bigcirc$ - empty set
$\bigcap$ - sets crossing
Iff = if and only if
$\mathbb{N}_1$ - is the subset of natural numbers $\mathbb{N}_1 = \{1, 2, ..., \infty\} \subset \mathbb{N}_0 = \{0, 1, 2, ..., \infty\}$
$\oplus$ - Cartesian some of sets
$\{A\} \subset \{B\}$ - set $\{A\}$ is a subset of the set $\{B\}$
$\{A\} \subseteq \{B\}$ - set $\{A\}$ is a subset of the set $\{B\}$ or $\{A\} = \{B\}$
$a \in \{A\}$ - element a belongs to the set $\{A\}$
$\mathbb{R}$ - real numbers' set

References

Davison B. Neutron Transport Theory. Oxford University Press, London, 1957.

Dirac PAM. The Principles of Quantum Mechanics. 4th Editions, Oxford at Clarendon Press, 1958.

Fock V. Konfigurationsraum und zweute Quantelung. Z F Physik 1932: 75: 622–647.

Kempe J. Quantum random walks – an introductory overview. 2003: http://arxiv.org/pdf/quant-ph/0303081v1.pdf

Marshak RE. The Slowing-down of Neutrons. Rev Mod Phys 1947; 19: 185.

Mayer JE & Mayer MG. Statistical Mechanics. John Willey and Sons Inc., New York, 1940.

Mayer JE & Montroll EW. Statistical Mechanics of Imperfect Gases. J Chem Phys 1941; 9:626.

Sanchez R & McCormick NJ. A Review of Neutron Transport Approximations. Nuclear Science and Engineering 1982: 80: 481-635.

Temkin AYa. Consciousness, Subconsciousness: Theory of States of Mind and its Applications. NeuroQuantology 2011; 9: 669-680.

Temkin AYa. Diagram technique in the transport theory. In: Generatory Nizkotemperaturnoy Plazmy (Generators of Low Temperature Plasma), collection of papers of All Union Conference on Generators of Low Temperature Plasma, held in Minsk in 1966. 1969: "Energia", Moscow, pp.60-70 (in Russian)

Temkin AYa. Information Dynamics in the Universe. NeuroQuantology 2014; 12: 391-397.

Temkin AYa. On the theory of neutron slowing-down. J Experim I Theoret Phisiki 1956: 31: 893 (in Russian); English translation: Soviet Phys JETP 1957: 4: 757.

Temkin AYa. Parapsychology from the Point of View of Modern Physics. European J of Parapsychology 1982; 4: 257-280.

Temkin AYa. Some Ideas on Information Processing, Thinking and Genetics. 1999: Tel-Aviv University Press, Tel-Aviv, Available on: http://www.eng. tau.ac.il/~temkin/

Tressoldi P, Luciano P, Bilucaglia M, Caini P, Fedele P, Ferrini A, Melloni S, Richeldi D, Richeldi F, Accardo A. Brain-to-Brain (mind-to-mind) interaction at distance: a confirmatory study. 2014. http://f1000r.es/3sky 2014 3182