

[Open Peer Review on Qeios](#)

# Information Transfer based on Brains Entanglement

Seyed Kazem Mousavi<sup>1</sup>

<sup>1</sup> University of Isfahan

**Funding:** No specific funding was received for this work.

**Potential competing interests:** No potential competing interests to declare.

## Abstract

The research on quantum entanglement for communication between human brains is an intriguing concept that has been investigated. The ability of identical particles to become entangled without interaction has significant implications for quantum information processing and quantum communication. The study involved testing the transfer of information based on entanglement between the brains of two individuals far from each other. The individuals were exposed to the same music to leverage the brain's neuroplasticity property, and their brain reward systems were activated to facilitate aligned thinking at specific times. The results indicated the successful transmission of compressed information between the two individuals, demonstrating the potential for sensory communication through entanglement. Further research in this area could lead to significant advancements in understanding and harnessing the capabilities of quantum entanglement on identical particles and the potential applications of entanglement in various quantum technologies and inter-brain communication.

**Seyed Kazem Mousavi**

*Department of Physics University of Isfahan*

*[Ney.Nava7069@gmail.com](mailto:Ney.Nava7069@gmail.com)*

**Keywords:** Quantum entanglement, brain, Immediate information transfer.

## 1. Introduction

Entanglement is one of the most complex phenomena of quantum mechanics. It has been considered theoretically with no interaction.<sup>[1]</sup> Meanwhile, all similar particles can be entangled.<sup>[1]</sup> Researchers have considered the possibility of entanglement in the brain.<sup>[2]</sup> Many studies have been carried out about brain quantum behavior as well.<sup>[3][4][5][6]</sup>

Various neurotransmitters are secreted in the human brain for different purposes. The human brain also exhibits neuroplasticity properties. The role of dopamine in learning and the brain's reward system is well known.<sup>[7]</sup> The impact of

music on neuroplasticity properties has been thoroughly studied.<sup>[8]</sup> Extrasensory behaviors can be observed within the brain's quantum behaviors.<sup>[9]</sup> Love and an increase in dopamine secretion are directly related!<sup>[10]</sup> Without conducting precise tests, the brain's extrasensory behaviors cannot be linked to quantum phenomena. Scientific tests in this field often face challenges such as the non-reproducibility of events. The complexities of quantum phenomena, such as entanglement, are concealed in the space-time structure.<sup>[11][12]</sup> Consequently, the role of time is significant in the manifestation of quantum behaviors.

In this research, precise tests were carried out based on the music effect and neuroplasticity properties. Quantum entanglement was investigated in terms of dopamine secretion increase level in the brain. In addition, various information was sent and received based on information compression. On this basis, some software is in the process of designing for compressing, decoding, and sending information.

## 2. Test One

Human eyes enjoy looking at the equal and paired numbers in digital clocks. Observation of pair numbers activates the reward and error system in the brain; as a result, biological clocks of the dependent brain regulate their activities on the basis of observing clock pair numbers. By increasing neurotransmitter levels depending on thinking, specified thoughts were related to this phenomenon. The pair clocks were observed by calling a special memory from a particular person. Simultaneously the participating individuals in this test listened to the same pieces of the minor scale music. On the basis of neuroplasticity property in the brain, the time and number of pair clock observations became more after a while. Never these individuals had met. Then, afterwards, these individuals had textual conversations. These individuals observed their photos as well. After a month, daily ordinary conversations were stopped, and the same pieces were heard again.

## 3. Entanglement between two brains' particles

Each time that individual 'A' is thinking about individual 'B', individual 'B' looks at clock pair numbers unconsciously after a short time. A deeper relationship was found due to this phenomenon. Different thoughts were compressed by the brain and sent like worry, love, nostalgia, happiness, and... For example, individual 'A' worried about the problems of individual 'B', and 'A' looked at the clock at 12:12. The individual 'B' understood 'A' worries, and looked at the clock at 12:21. After 12:21, 'A' became calm. This phenomenon follows quantum entanglement completely and expresses the matter that particles in man's brain can entangle with other particles without any interaction. Figure1. (3.1) The time lifting of the feedback is due to decoding based on the structure of six-dimensional space-time, of Quits by the brain. The more complex point was not observing some numbers in some of the testing days. For example, the time 10:01 and the response 10:10 were not observed at all for several days, or only once a day the pair numbers were observed.

$$|00\rangle = \begin{bmatrix} 1 \\ 0 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix}, |01\rangle = \begin{bmatrix} 0 \\ 1 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix}, |10\rangle = \begin{bmatrix} 0 \\ 0 \\ 1 \\ 0 \\ 0 \\ 0 \end{bmatrix}, |11\rangle = \begin{bmatrix} 0 \\ 0 \\ 0 \\ 1 \\ 0 \\ 0 \end{bmatrix}, |01\rangle = \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 1 \\ 0 \end{bmatrix}, |00\rangle = \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 0 \\ 1 \end{bmatrix}$$

$$|\Psi\rangle = b_1 |\tilde{\psi}_1\rangle + b_2 |\tilde{\psi}_2\rangle + \dots + b_n |\tilde{\psi}_n\rangle$$

$$|\tilde{\psi}\rangle = \alpha_1 |A_1\rangle + \alpha_2 |A_2\rangle + \alpha_3 |A_3\rangle + \alpha_4 |A_4\rangle + \alpha_5 |A_5\rangle + \alpha_6 |A_6\rangle$$

$$b_1 = \cos\left(\frac{\theta}{2}\right), b_2 = e^{i\Phi} \sin\left(\frac{\theta}{2}\right), \sqrt{1 - \frac{v^2}{c^2}} = \sin\left(\cos^{-1}\left(\frac{v}{c}\right)\right) = \sin\theta, v \equiv \Delta x$$

$$\Delta x^2 \equiv (\rho c) \Rightarrow \rho \equiv E \equiv \theta, \Phi$$

$$\int_{-\rho}^{+\rho} \int_{-t}^{+t} |\psi(\rho, t, x)|^2 dp dt dx = 1, b_\mu = x_\mu + ti, X_\mu = (x_1, x_2, x_3, x_4, x_5, x_6) \Rightarrow b_\mu b_\mu^* = \left(\frac{1}{3}\right) \quad (3.1)$$

$$\int_0^{2\pi} |\psi(x, t)|^2 dx = 1 \rightarrow \frac{2\pi}{6} \Rightarrow \left\{ \left(\frac{\pi}{3}\right) + i\left(\frac{2\pi}{3}\right) \right\}, \left\{ \left(\frac{2\pi}{3}\right) + i\left(\frac{4\pi}{3}\right) \right\}, \{(\pi) + (i)\}, \left\{ \left(\frac{4\pi}{3}\right) + i\left(\frac{5\pi}{3}\right) \right\}, \left\{ \left(\frac{5\pi}{3}\right) + i(1) \right\}, \{(2\pi) + i(2\pi)\}$$

$$A_1 = \pm \left(\frac{\pi}{3}\right) + iz, A_2 = \pm \left(\frac{2\pi}{3}\right) + iz, A_3 = \pm(\pi) + iz, A_4 = \pm \left(\frac{4\pi}{3}\right) + iz, A_5 = \pm \left(\frac{5\pi}{3}\right) + iz, A_6 = \pm(2\pi) + iz,$$

$$|\Psi\rangle = b_1 |0\rangle + b_2 |1\rangle \Rightarrow |\Psi\rangle = b_1 |0\rangle + b_2 |1\rangle + b_3 |0\rangle + b_4 |1\rangle \quad (3.1)$$

$$\Rightarrow \frac{1}{\sqrt{2}} (|00\rangle + |11\rangle)$$

$$|\eta\rangle = z_0 |a_0\rangle + z_1 |a_1\rangle + z_0 |a_0\rangle + z_1 |a_1\rangle, |\mu\rangle = d_0 |b_0\rangle + d_1 |b_1\rangle + d_0 |b_0\rangle + d_1 |b_1\rangle$$

$$|\eta\rangle \otimes |\mu\rangle = (z_0 d_0^{d_0 z_0} |a_0\rangle |a_0\rangle |b_0\rangle |b_0\rangle + \dots$$

$$A: |12:12\rangle = \begin{bmatrix} 1 \\ 0 \\ 0 \\ 0 \\ 0 \end{bmatrix} \rightarrow B: |12:21\rangle = \begin{bmatrix} 0 \\ 0 \\ 0 \\ 0 \\ 1 \end{bmatrix}, A: |13:13\rangle = \begin{bmatrix} 0 \\ 1 \\ 0 \\ 0 \\ 0 \end{bmatrix} \rightarrow B: |13:31\rangle = \begin{bmatrix} 0 \\ 0 \\ 0 \\ 1 \\ 0 \end{bmatrix}, A: |14:14\rangle = \begin{bmatrix} 0 \\ 0 \\ 1 \\ 0 \\ 0 \end{bmatrix}, B: |14:41\rangle = \begin{bmatrix} 0 \\ 0 \\ 0 \\ 1 \\ 0 \end{bmatrix}$$

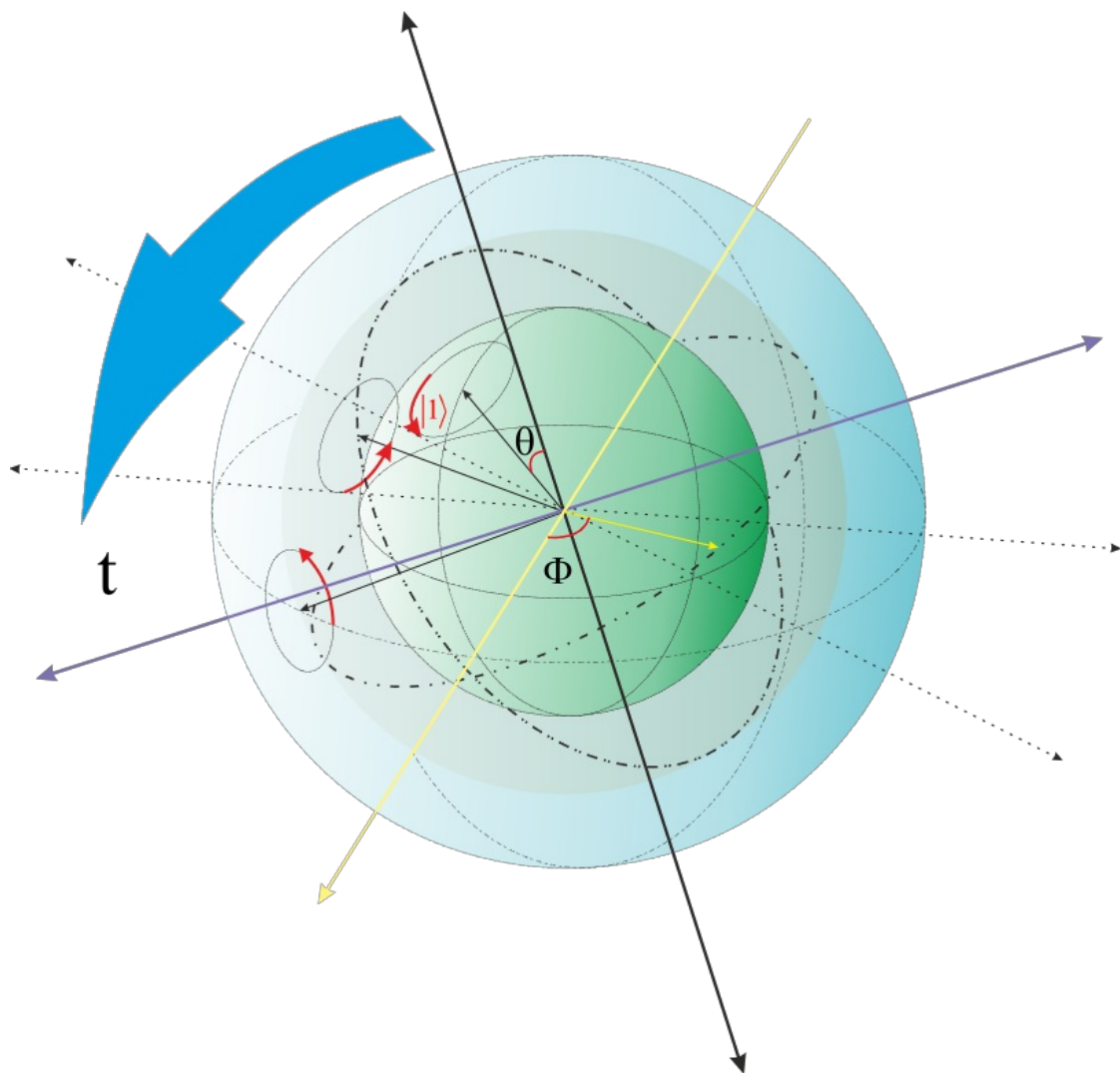


Figure 1.

Figure 1. The density of the object is like a length in the time dimensions. The density is the red line in the figure that rotates around the mass field. Based on the repetition of the quantum states in space and time, a particle is entanglement with its past. The brain predicts future quits based on associated memories. However, identical particles can be entangled with each other. The mass field of each particle has a direct relationship with the spin and state of the particle. Through repeating the states in space and time, particles of the same mass, in general, oscillate together. And they have the wave function same.

#### 4. Decoding and sending information

Finally, a key was designed for decoding information. Words were classified on the basis of the Fibonacci sequence, which is a component of neurons' fractal structure. Letters were categorized in expression. Table (1)

Table 1.

آ او ای ه ی	1	a u i h y ē
ـ	2	æ ε Ω
ب پ م	3	b , p , m
ر ز ل	5	r , z , l
ت د ذ ط ص ض ن	8	t, d,n,z.
ع غ ق ح خ	13	ʔ, ɣ, h, x
ج چ س ش ژ	21	dʒ, s, ʃ, ʒ
ف و ث	34	f, v, c
ک گ	55	k, g

Table 1: Words were grouped based on consonants and vowels in the Persian language. Based on the time of learning the letters by the human baby, the letters were classified. Also, they were coded based on the Fibonacci sequence in the fractal structure of neurons. There is a direct relationship between the Fibonacci sequence and the growth process of living organisms. It seems that there is a connection direct link between learning and the Fibonacci sequence in the human brain.

This key has semantic generality in language. For example, the numbers related to words like sorrow, grief, pain, are related mathematically. This relationship between words' meanings is related to the manner of semantic storage of words in the brain. As well, each number was related to a meaning based on the existing structure of the language. These meanings are both positive and negative. Table (2). A lot of information is stored in one neuron pulse. Similar pulses have similar effects. Accordingly, the human brain classifies related concepts based on the facts of the surrounding world.

**Table 2.** Interpretation of numbers

Number	Interpretation
1	Oneness
2	Genesis
3	Material
4	Hegemony, Wisdom
5	Happy
6	Time
7	Love, Holy
8	Power
9	METAPHYSICAL

Other numbers are also related to the above numbers semantically. By summing the internal component of each number, we obtain the above numbers. For example, the number '36' is equal to the word 'love' in the Persian language. This

number is related to the meaning of the holiness. (4.1) The brain stores, processes and compares information in a reversing manner for learning and timing [13]. Accordingly, to understand the concept of numbers obtained for classification, they must be multiplied by their inverse (4.2). One of the reasons for this is the existence of symmetry in the structure of neurons and the brain. However, this symmetry is not exactly the same as symmetrical numbers.[14]

$$2 + 21 + 13 = 36 \quad (4.1)$$

$$36 \rightarrow 3 + 6 = 9$$

$$36 \times 63 = 2268 \Rightarrow 2 + 2 + 6 + 8 = 9$$

$$12 \times 21 = 252 \Rightarrow 2 + 5 + 2 = 9 \quad (4.2)$$

$$\begin{bmatrix} 3 & 6 \\ 6 & 3 \end{bmatrix} = L, \quad \begin{bmatrix} 1 & 2 \\ 2 & 1 \end{bmatrix} = I \Rightarrow [\hat{L}, \hat{I}] = 0$$

Some related concepts in information transfer can have commutators the role of symmetries in information interpretation is shown in equation (4.2).

Based on using this key, information was sent between the brains of two people received and decoded.

Using the relationship of numbers with reflective thinking in the individual 'A', different meanings and information were transferred and received through observations. Meanings of numbers and methods of word compression were taught to the individuals. After teaching, sending information without observation of numbers became possible and it seems to approve quantum entanglement between two brains' particles.

## 5. Results and discussion

As a result of this research, every particle has a spin. Based on the six-dimensional space-time, spin and quantum state are related to each other. All identical particles are in an oscillatory relationship with each other. And all identical particles can be intertwined with each other. The presence of similar neuronal structures in the human brain can be an effective factor in the emergence of momentary entanglement. It is possible to control the entanglement between identical particles by simultaneously increasing the level of neurotransmitters based on the existence of repeating states in space and time. and can be sent and decode the compressed information between two brains or two devices instantaneously.

Human memory and speech have a deep connection with each other. Human speech is learned based on the difficulty of learning different syllables and letters in the brain over time. As a result, difficult letters have different pulses in learning. Information is classified in the brain based on a number of factors such as aggregation, symmetry, and the role of inhibitory neurons. That should be taken into account in the numerical coding and decoding of words. Based on this, the meaning of words and letters can be understood.

Brain activity differs depending on the surrounding environment. On this basis, symmetrical environments geometrically

can play an essential role in improving brain operation. On the basis of quantum entanglement, the compressed information can be sent and received between two brains immediately. The human brain classifies words in their related meaning. The numerical structure of the surrounding environment has meaning in the brain. Symmetry and the beauty of nature and the environment are dependent on geometry and mathematics. Thus, observation of these symmetries or non-observation has an effect on decision-making and thinking. Semantic compression of information plays an important role in the improvement of sending information by quantum entanglement. Numbers constitute the structure of the universe. Disorder in the environment is a factor in not thinking regularly. This problem had a direct effect on the test. The human brain can organize and classify the problems related to thinking in order, symmetry and mathematics. Sometimes, solving problems related to chaotic thinking is dependent on quantum mechanics and environmental mathematics. On this basis, observation of symmetries and numbers in nature had similar results in individuals. For example, observation of several birds' flight was a response to the person's thinking in the same way. It is evident that the brain knows the response before mentioning the question that is only describable by wave function in quantum mechanics. Quantum entanglement is related to the space-time structure of six dimensions.

The findings of this research in the Persian language had many results, In this research, the working method was mentioned and it should be tested in other languages as well.

## Statements and Declarations

### Conflicts of interest

I hereby declare that I have no conflicts of interest to report. The content and writing of this article are solely my responsibility.

### Acknowledgements

I would like to express my sincere gratitude to Lhm. Razazzi and E.t.S.Sattar for their invaluable contributions to this work. Their insightful discussions and comments have greatly enriched the quality of this article.

## References

1. <sup>a, b</sup>Blasiak, P., & Markiewicz, M. (2019). *Entangling three qubits without ever touching*. *Scientific Reports*, 9(1), 20131. <https://doi.org/10.1038/s41598-019-55137-3>
2. <sup>^</sup>Fisher, M. P. (2015). *Quantum cognition: The possibility of processing with nuclear spins in the brain*. *Annals of Physics*, 362, 593-602. <https://doi.org/10.1016/j.aop.2015.08.020>
3. <sup>^</sup>Schwartz, Jeffrey M., Henry P. Stapp, and Mario Beauregard. "Quantum physics in neuroscience and psychology: a neurophysical model of mind–brain interaction." *Philosophical Transactions of the Royal Society B: Biological Sciences* 360.1458 (2005): 1309-1327. <https://doi.org/10.1098/rstb.2004.1598>

4. <sup>^</sup>Beck, Friedrich. "Synaptic quantum tunnelling in brain activity." *NeuroQuantology* 6.2 (2008). <https://doi.org/10.14704/nq.2008.6.2.168>
5. <sup>^</sup>Tarlacı, Sultan. "A historical view of the relation between quantum mechanics and the brain: a NeuroQuantologic perspective." *NeuroQuantology* 8.2 (2010). <https://doi.org/10.14704/nq.2010.8.2.278>
6. <sup>^</sup>Petkoski, Spase, and Viktor Jirsa. "Renormalization of the brain connectome: Duality of particle and wave." *bioRxiv* (2020). <https://doi.org/10.1101/2020.12.02.408518>
7. <sup>^</sup>Pessiglione, Mathias, et al. "Dopamine-dependent prediction errors underpin reward-seeking behaviour in humans." *Nature* 442.7106 (2006): 1042-1045. <https://doi.org/10.1038/nature05051>
8. <sup>^</sup>Münste, Thomas F., Eckart Altenmüller, and Lutz Jäncke. "The musician's brain as a model of neuroplasticity." *Nature Reviews Neuroscience* 3.6 (2002): 473-478.
9. <sup>^</sup>Fingelkurts, A. A., Fingelkurts, A. A., Neves, C. F., & Kallio-Tamminen, T. (2019). Brain-mind operational architectonics: At the boundary between quantum physics and Eastern metaphysics. *Physics of Life Reviews*, 31, 122-133. <https://doi.org/10.1016/j.plrev.2018.11.001>
10. <sup>^</sup>Takahashi, Kayo, et al. "Imaging the passionate stage of romantic love by dopamine dynamics." *Frontiers in Human Neuroscience* 9 (2015): 191. <https://doi.org/10.3389/fnhum.2015.00191>
11. <sup>^</sup>Mousavi, S. K. The balance In the six dimensions of space-time description of quantum mechanics phenomena and nature of time. *Journal of Physics: Theories and Applications*, 7(1). <https://doi.org/10.20961/jphystheor-appl.v7i1.63874>
12. <sup>^</sup>Mousavi, S.K. The General Balance in the Six Dimensional of Space-Time. *Preprints 2023*, 2023081112. <https://doi.org/10.20944/preprints202308.1112.v1>
13. <sup>^</sup>Linde-Domingo, J., Treder, M. S., Kerrén, C., & Wimber, M. (2019). Evidence that neural information flow is reversed between object perception and object reconstruction from memory. *Nature communications*, 10(1), 179. <https://doi.org/10.1038/s41467-018-08080-2>
14. <sup>^</sup>Wang, J., Ma, S., Yu, P., & He, X. (2023). Evolution of Human Brain Left–Right Asymmetry: Old Genes with New Functions. *Molecular Biology and Evolution*, 40(9), msad181. <https://doi.org/10.1093/molbev/msad181>