

CAUSAL NATURE OF THE PHENOMENON OF HAPPINESS AS A MENTAL FACTOR OF PROCESSING OF INFORMATION IN THE HUMAN BRAIN

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The ontological underpinnings of the phenomenon of happiness as for me cannot be understood unless viewed in such a general scientific context, which takes into account the philosophical problem of the functional relationship between the physical and mental [1] during the processing of information in the human brain. In other words, as in most of my researches, I will be interested in the problem of how a mentally active person can be understood precisely as a causal entity that, in the wish of happiness, has the ability to change the future physical world in desired direction [2]. Ontologically happiness is first of all the mental concept. So, in the status of mental concept happiness may be considered as an complex of the most significant subjective values for the subject. And, if these values are relatively satisfied, happiness may guarantee a person a real relatively happy life. But while these values not being satisfied, in European tradition happiness must be mental construct that intensifies, directs a person to achieve real state of happiness in the future by means of reconstructing of surrounding physical world. (On the contrary, in Buddhist philosophical tradition, the subject may achieve states of happiness by reconstructing his inner world, by reconstructing the hierarchy of his subjective values.)

Let's first make a statement that will allow us to see later in the phenomenon of happiness a causal factor, which is based on integrated experience (information), accumulated in the brain over life. With all the semantic and ontological complexity of any subjective phenomenon, we, nonetheless, need use here the generalized ability of our human "Self" to evaluate something qualitatively, i.e. in terms of "good-bad", "satisfactory-unsatisfactory", "positive-unpositive", "pleasure-displeasure" and such others. This statement we formulate in such way: human happiness can be regarded as an integral of the most important subjective values of a person, which, be relatively satisfied, can guarantee a relatively happy life, but while be not satisfied, must be a mental construct which can guide the person to achieve happy state in the future. Is happiness such a human experience that integrates in itself all the most significant subjective values of a person? Really is. In our opinion, such an interpretation of term of happiness can operationalize this concept and incorporate it into the system of rational general scientific terms in the process of knowing the causal nature of a man as the bearer of the most complicated forms of subjectivity and his experience in the surrounding physical world. What is meant here? What is meant first of all is that the phenomenon of happiness, itself as a mental construct, can (if it is already formed in person) acts as an operator of information processing in the neural networks of its brain [3,4]. Next, I will try to show how the phenomenon of happiness (precisely as a mental construct, ontologically representing a certain integral of the most significant subjective values of a person) is involved in the accumulation of information in the neural networks of the human brain and the physical determination of the surrounding world on the basis

of this information integrated in the brain. So, in fact, I will try to show here that the phenomenon of happiness, if it is already formed in the psyche of a certain person, is involved in the accumulation and formation on the basis of the accumulated information of such new information, which guarantees a person to increase the likelihood of being happy in the future. Here I have to apply Fig. 1, which shows how the subjective evaluation factor is the operator of information processing in neural networks of the brain, that is, the reason that determines the course and content of information processes in the brain. For example, Fig.1 demonstrates that the voluntary perception of information in the human brain may occur only by means of subjective value. In demonstrates too that the integration of information is controlled by means of subjective value too. Except it, Fig.1 demonstrates that even the storing information in the brain is controlled by means of subjective value. Can we watch the processing of information directly in the physically described activity of neural networks? Cannot. Can we watch this processing during deliberation? Yes, we can.

In this study the phenomenon of happiness is interpreted as a complex of the most significant subjective values of a man. But it remains to show that exactly the phenomenon of happiness is really a causal factor governing information processes in our brain. So, now I need show that subjective evaluation (as the ontological basis of phenomenon of happiness) is information processing operator. The demonstration of causal nature of subjective valuation automatically shows the causal informational nature of phenomenon of happiness. This demonstration of the mechanism of processing of information through the phenomenon of happiness by means of the mechanism of processing of information through a phenomenon of subjective value is the aim of this investigation.

Fig.1 describes in graphic form brain networks spreading from sensory input to motor output. Control networks of a brain (first of all neuronal networks of frontal cortex and limbic system) manage informational activity of sensory input, informational activity of memory structures and, thirdly, informational activity of neuronal networks, carry out motor output for integration of information by means of phenomena subjective value. Neural networks that implement the function of the sensory input, the memory function and the function of direct control of motor acts are controlled by neural networks that carry out a mental phenomenon of subjective value (see Fig. 1).

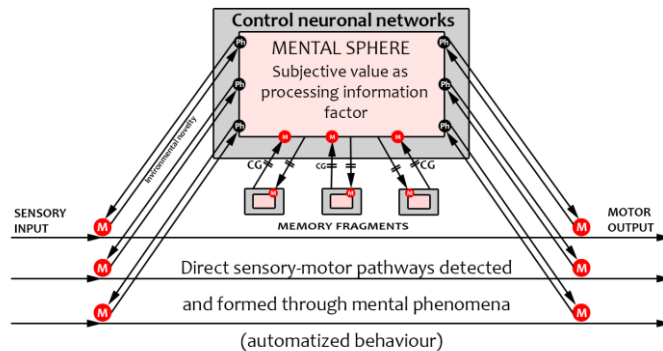


Fig.1. Scheme of activity neuronal networks of the brain directed to integrating information by means of mental phenomena for forming biologically-socially expedient and informationally well-endowed motor acts.

Symbols and their meanings: - Any grey rectangle, which includes little light rectangle symbolize neuronal networks carrying out certain functions associated with specific functional capabilities of psychic phenomena realized by them. - Any little light-red rectangle included in larger dark rectangle symbolize specific mental phenomena, which is realized by exactly this neuronal network. - Lines with arrows symbolize neuronal connections between neuronal networks. - Arrows means causal influence of one neuronal network on the other. - Red circles M mean localization in the brain of synapses where neuronal networks by mental causation determining neuroelectric (physic) processes of other neuronal networks. - Black circles Ph mean localization in the brain of synapses where neuronal networks by physical causation determining other neuronal networks. - Sign CG means the presence of physical (synaptic) gaps in neural networks, indicating the impossibility of integrating information through physical causation only.

Control neuronal networks integrate information for their more ‘competence’ to manage of sensory input, memory function and motor output. This integration of information (personal experience) occur for creation informationally well-endowed and biologically or/and socially expedient motor acts (see symbol contents below). Control neural networks perform their control function precisely because they implement the psychic phenomenon of subjective assessment, which directs information processes in controlled neural networks in a biologically and / or socially appropriate way. All our desires, emotions, experiences are a way of subjective assessment of external objects and phenomena, expressed in the form of the terms “good-bad”, “positive-negative”, “pleasure-displeasure”, etc. And the phenomenon of happiness is no exception here. It, as a more complex composite form of subjective assessment, turns out to be the psychic state which stimulates the neural networks of the brain to integrate past experience to realize real states of happiness in the future.

All light-red rectangles, enclosed in darker and larger rectangles, mean mental processes that are carried out in the corresponding neural networks. Bidirectional parallel arrows indicate the functioning in neural networks of reverse informational (non-physical) causation, without which information cannot be exchanged between neural networks. The exchange of information between control and managed neural networks is carried out through mental images that concentrate in their mental structure the most subjectively relevant information that describes an object or a phenomenon. Exchange of information between networks by means of mental phenomena carries out the general process of integration information in the brains.

Here I must say about free choice as an aspect of processing information in the human brain (and, because of this inclusion in informational process, is the phenomenon mentally connected with the phenomenon of happiness). Indeed, the phenomenon of subjective value is the factor through which the process of subjective choice may occur. In other words, subjective value is the ontological foundation of the process of subjective selection information on the continuum of information fixed in the neuronal networks of the brain. That's why much of cortical fields of human brain structurally are the continuums of causally independent from one another neuronal elements.

Mental processing (including related to the mental phenomenon of happiness) allows neural networks to integrate information even in the absence of the necessary synaptic physically implemented connections (see fig.1, symbol CG (physic causal gap)). In this case, mental phenomena can act in the brain as a factor due to which control networks can rebuild bioelectric activity of controlled networks in accordance with the new information integrated in the controlling neural networks [3].

Thus, psychic phenomena may be considered as an intranet aspect of information processing in the neural networks of the brain.

Conclusion. The psychic sphere, realized by neural networks of the brain, acts as a sphere, causally independent of the physic processes around a person and even in his/her organism [3]. By virtue of this causal independence, in the field of the psyche one can freely manipulate information, combining it, and thus eliminate uncertainty in the interactions of living systems with their physical (including socially organized) environment. Indeed, the past don't exist physically already. But it can be saved for a living system in the form of information about it. The future does not physically exist yet. But it can unfold in front of a living system with a fan of opportunities that can be realized through motor acts. If these motor acts are to be based on the experience of a living system, and if, in addition, the information processes in the brain are controlled by a subjective assessment factor, such motor acts change the physical environment of a person in the desired direction.

And the phenomenon of human happiness most openly demonstrates the functional connection between the sphere of the human psyche and physical processing. Indeed, the phenomenon of happiness itself, being, as shown above, a complex information processing operator in the human brain, turns out to be a motivation factor directing a brain to carry out precisely those information operations in the brain that ensure the formation of the corresponding imaginative-semantic pictures of the happy future life of a person in the physical world. For example, if we dream about something, we try to make our dreams come true in the future (and if we feel the edge of our possibilities, we quite successfully turn our dreams into the reality of the future). The presence of such imaginative-semantic picture of the future "happy world", formed on the basis of our past experience, in turn, allows us to form the corresponding motor acts (behavior) that directly allow us to achieve real states of happiness in the future. The more information on which this process of forming models of states of happiness is based, i.e. the more information is recorded in our brain, the more reliable and long-lasting are those "imaginative-semantic pictures of happiness" that a person "builds". An ignorant person constantly tempts himself "childishly" to build "here and now models" of achieving happiness, instead of "building" them "deeply penetrating" into the future.

Reference

1. Чалмерс Д. Сознательный Ум. В поисках фундаментальной теории. – М.: «Либриком», 2013.
2. Соловьев О.В. Человеческое «Я» в просвете физического закона. *Вопросы философии*. №11, 2008. – С.52-64.
3. Soloviov O., Dyachenko Y. The mechanism of information processing in neuronal networks by means of mental phenomena as a model of human-like AI: causality and free choice. *Computational cognition*. Osnabruck, Germany, October 01-02, 2019.
4. Soloviov O.V. Neuronal networks responsible for genetic and acquired (Ontogenetic) Memory: Probable Fundamental Differences. *Neurophysiology*. - 2015. - Vol. 47. Issue 5. – 419-431.