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Leiashvily, Paata

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by *Paata Leiashvily*¹

Abstract

Structural functionalism sees society or other social objects as a system, as a structurally dissected integrity, in which each system unit performs a specific function, creating conditions for the normal functioning of all subsystems and of the system as a whole. The main problem that sociologists try to explain on the basis of functionalism - How does the social order under conditions of free activity of individuals, pursuing their own interests? How does a social mechanism operate that leads to mutual coordination of their actions in the public interest? As we see, sociologists of this direction see for themselves the basic scientific problem the same as, beginning from Adam Smith, economists see it in relation to the decentralized economic system. Economic theory can discover for itself many valuable ideas in very interesting scientific developments of sociologists.

Keywords: Economics, nonlinear complex systems, functionalism, constructivism, operational closure, causal openness, economic action.

1. To exit from the crisis economics must take greater account of the achievements of other sciences and implement interdisciplinary research. In this regard, scientific ideas arising within constructivism deserve special attention. As an independent branch of the philosophy of science constructivism emerged in the 80s, and soon attracted the attention of scientists. Constructivism is gradually gaining more and more influence in contemporary epistemology.² However, the problems of constructivism go far beyond epistemology. It is amazing but constructivism is built into the inner core of cybernetic theoretical concepts. Cybernetics creates constructivism as its logical continuation. From the very beginning of its existence, from the 1940-1950-s (the concept of N. Wiener, U. Ross Ashby, X. von Foerster), one of its central concepts was the idea of circular causality. This same idea is central to the theoretical constructions of constructivism.

2. A good example of circular causality can serve the aforementioned dependence of cognition of economic reality on the results of this cognition. On the basis of his knowledge the actor interacts with reality, adapts to it, and adapts the reality to himself. Actor and reality do change each other

¹ Prof. Paata Leiashvily, Director of the Institute of Social and Economic Studies, e-mail: palepano@gmail.com.

² Constructivist paradigm emerged based on research results of a number of related disciplines, at the junction of natural sciences and humanities. In its formation a great role is played by the scientific ideas of psychologist J. Piaget, biologists and neuroscientists U. Maturana and F. Varela, cybernetics and philosopher H. von Foerster, engineer and mathematician J. Spencer-Brown, epistemologist, anthropologist and ecologist G. Beytson and others.

during the interaction. After all, as a result of observing the actor receives the knowledge about reality. And it is clear that the actions of the actor cannot be the same before and after the acquisition of new knowledge about the existing reality, because along with their change the nature of these actions also changes. And so it is clear, that the results of observations, i.e. the knowledge, cannot remain unchanged before and after the interaction acts with reality, because the observable reality changes as a result of these interaction acts. There is a circular causality.

Here, the effect caused by some reason, itself becomes the reason causing the effect. Action generates the action, the cause generates the cause, and they both generate each other. Cause and effect are merged into one. This is an activity that has become the cause of itself, or self-generation activities. Formally, this process can be expressed in general form as: $x = F(x)$, where x - is the interaction between any elements of a system, and F - is the form of the relationship between these processes. Systems, in which such circular processes are carried out, are called self-referential systems which are studied by second-order cybernetics and constructivism. Such systems are autonomous, operationally closed and have unique properties.

An interesting feature of these systems is that they have so-called "Eigen-Values", "Eigen-Functions", "Eigen-Algorithms", "Eigen-Behaviors". The fact is that in the processes of interaction with the environment there is no unequivocal correspondence between input and output. The reaction of such a system to the impacts of environment depends not only on the nature of this impact, but also on the state of system, which in turn is caused by the previous state and previous impacts of environment. And the output reaction affects its subsequent change. The system evolves and gets its history. In other words, the output is not a direct response to the input stimulus. It depends on the intrinsic structure of the system, its current state and those recursive processes that were initiated by the input signal. Such behavior of system assumes the character of "Eigen-Behaviors" and it cannot be considered as a simple response to external stimuli in the direct sense of the word.

Constructivism has a strong influence on sociology. The German scholar Niklas Luhmann (1927-1998) was one of the first who built a system of social philosophy on the fundamental ideas of constructivism, such as the ideas of theory of complex self-organizing systems, autopoiesis, operational closure and causal openness, self-reference, structural coupling, contingency, etc. (See, Luhmann, 2007, 2007a, 2004). Proceedings of N. Luhmann represent a sociological version of constructivism and are mentioned already as classic works on a par with the works of E. Glasersfeld, H. von Foerster, W. Maturana, F. Varela, and other famous constructionists. In contrast to

sociologists, due to the dogmatism prevailing in modern economics, economists have shown indifference toward new ideas of the constructivists.

3. As a result of dialectical analysis of economic phenomena and processes, the market economy appears as a functionally closed complex system, which has all the properties that are well studied in the second-order cybernetics, and about which constructivists write. Out of the separate actions of million independent economic subjects, who act in their own selfish interests, depending on the actions performed by these functions the various economic flows are formed. These flows in the scale of society form the functional structure of a closed complex nonlinear system - a market economy. The market economy is a complex self-organized autopoiesis system, the primary element of which is economic action.

The structural functional analysis of this system leads to a fundamentally new understanding of how occurs the self-regulation of decentralized economy, how arise the economic cycles. This method of analysis has long been successfully used in sociology, but, unfortunately, in economic theory it is not given due attention. Thanks to the work of sociologists Talcott Parsons and Robert Merton structural functionalism reached the greatest influence in the 1950-1960's, but the second half of the 1960s more and more intensified criticism of this approach from different perspectives. After a long decline of interest in the theory of Parsons, with the 80s the interest in functionalism was renewed. The most prominent representatives of "neo-functionalism" are sociologists N. Luhmann, J. Alexander and R. Munch. Especially should be emphasized the role of N. Luhmann, whose name is associated with fundamental rethinking of basic concepts of functionalism of the latest advances in the theory of complex systems and methodology of constructivism.

Scientific concepts of sociologists attempting to explain social phenomena from the perspective of the theory of complex systems are developed in detail, have a long history and intensive research in this direction continues. Similar attempts to explore the society in the context of the theory of complex systems are undertaken in the framework of synergetics, as a scientific paradigm. However, the difference between these two approaches is that in its methodology synergetics based on the positivism, but constructivists are more inclined to transcendental phenomenology and therefore fully take into account the specifics of society not only as a living system, but also as a cogitative, policontextstual, semantic system.³

³ There is a close connection between constructivism and synergetics. Like synergetics, constructivism is the result of a generalization of a number of scientific concepts and researches in various areas of knowledge. It is interesting that many of these concepts belong to both discourses. Therefore, along with the names of the founders of synergetics - I. Prigogine, H. Haken, E. Lorentz, B. Mandelbrot, etc., more often are called the names of H. von Foerster, U. Maturana, F. Varela and others, who laid the foundations of constructivism. However, between synergetics and constructivism

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The functioning of society is the cumulative result of interactions of an infinite set of individuals. To understand the society as a system, it is necessary in this chaos of interactions and absolute social mobility of subjects in the social space and time to reveal something relatively sustained and stable, i.e. structure. In the structural-functional paradigm structure of a system of social actions is understood as a set of relatively stable relationships between the elements thanks to which the system maintains its integrity and functionality in a transformation process under influence of external or internal factors. There is no structure outside the system and there is no system without the structure. They imply each other. Concrete individuals are born and die, begin and end socially active life, replace each other, but the social structures remain. That is, structures are not strictly tied to the actions of certain individuals. Accordingly, social systems are not composed of people. These are the people, who are involved in them, and performing certain functions by their actions support their existence.

4. In our concept, we adhere to the standpoint of Talcott Parsons, according to which the constitutive element of society, as a social system, is social action, and society is a system of social actions.⁴ At that, the economy is a kind of social system and economic action – a kind of social

there are also differences. Although, in general, they have a common methodological and philosophical installation, but in constructivism relatively more attention is paid to the epistemology and functioning of living systems, but in the spotlight of synergetics is the ontological context of studies, while the processes of learning and life processes are considered only as applied aspects of the functioning of non-equilibrium systems. In synergetics it comes about open non-equilibrium systems in general, but radical constructivism focuses on the process of maintaining homeostasis in living cognitive systems. In the conception of constructivism the self-organization of complex systems is based on the principle of feedback, which gives them stability. In synergetics this principle is of secondary importance, since the focus is on the dynamics of the system, balancing on the verge of chaos and order.

⁴ K. Marx believed that society is a set of social relations; T. Parsons believed that it is a system of social actions; N. Luhmann believed that it is a system of communication. But, anyway, despite the various arguments, along with many other social scientists, they agree that the primary element of society (in the special sociological sense) is not an

action. The term "social action" T. Parsons borrowed from sociological theory of Max Weber, according to which social action is a unit of social reality, its primary constituent element. Social action is an *action* because for actors it has subjective meaning, and is *social* because according to this sense it relates to the actions of others and is focused on them. (See, Weber, 1990) Through their actions all subjects are interconnected into a single system. Each action of the subject affects the actions of other subjects and the system as a whole. Each action has as a reaction another action. The action is a function of the expected reaction, and the reaction is a function of action, which caused it.

If we consider, for example, only economic subsystem, all actors, whether individuals, businesses, organizations, households, churches, universities, government agencies, etc. - all of them, in one way or another, participate in the economic process, perform in it a particular function. But none of these subjects is purely economic subject and in one way or another, each of them is involved in the functioning of other, non-economic subsystems. That is, all subjects are multifunctional. So naturally, unit or indivisible part of economical subsystem cannot be a holistic subject that performs not only economic roles, but who is also an actor of other subsystems of society. Economic subsystem does not cover all the actions of concrete subjects, whether individuals or groups, but their actions only in the specific role performing economic functions. The element of economic subsystem may be only those actions of subject, which perform some or other economic functions, i.e. only economic action. Therefore, as a subsystem of society, the economy is a system of economic **actions**, but not a system consisting of **subjects**. Weber defines economics as "autocephalous system of economic action."

5. An elementary action "... is the "smallest" unit of an action system which still makes sense as a part of a concrete system of action." (Parsons, 1949, 731). Elementary action (unit act) is the ultimate unity only in a system of actions, but by itself it does not constitute an indecomposable entity. It itself is composed of components, such as the end, conditions, means of one or more norms governing the choice of means to achieve the end. (See *ibid.*) To describe the actions requires an appropriate frame of reference, which is essentially a framework of relations between the elements of action. Without such a framework to talk about the action does not make sense. "... the schema is inherently subjective, This is most clearly indicated by the fact that the normative elements can be conceived of as "existing" only in the mind of the actor. They can become accessible to an

individual. Individuals form a society with their relationships, actions or communications, but they are not directly the primary elements by which society is constituted.

observer in any other form only through realization, which precludes any analysis of their causal relation to action.” (Ibid, 733) T. Parsons writes:

“Every physical phenomenon must involve processes in time, which happen to particles which can be located in space. It is impossible to talk about physical processes in any other terms, at least so long as the conceptual scheme of the classical physics is employed. Similarly, it is impossible even to talk about action in terms that do not involve a means-end relationship with all the implications just discussed. ... Thus the action frame of reference may be said to have what many, following Husserl, have called a “phenomenological” status. ... It is not a phenomenon in the empirical sense. It is the indispensable logical framework in which we describe and think about the phenomena of action.” (Ibid, 733)

As we see it is important to distinguish between the actions themselves and empirical processes.

In this context remark by Ludwig von Mises is also interesting:

“Economics is not about things and tangible material objects; it is about men, their meanings and actions. Goods, commodities, and wealth and all the other notions of conduct are not elements of nature; they are elements of human meaning and conduct. He who wants to deal with them must not look at the external world; he must search for them in the meaning of acting men.” (Mises, 1996, p.92) Also: “Production is not something physical, material, and external; it is a spiritual and intellectual phenomenon.” (Ibid, p.141)

6. According to the structural-functional approach the economy appears as a system of economic actions. But, according to the said above, the economic action is not purely empirical process. Economic actions are such only because of the meanings and values, which a man gives them. Therefore, the economy as a system of economic actions, exists only in human consciousness, and is a system of senses and values. But the empirical processes that correspond to the economic actions in the real world, by themselves are not economic actions, but only the causal processes that take place according to the laws of nature.

After all, the facts themselves are not *economic* facts. All depends on the ends, needs, which provoked them, depends on the relation of the subject to the existing and the due. Consequently, the subjects perceive in different ways one and the same objective facts. For example, production or consumption, as such, is not exists objectively. Objectively there exist only the transformations of some objects into others according to the laws of nature. But whether or not a man would call it production or consumption - it depends on his attitude to this process. Accordingly, he will be called producer or consumer. Also on this depends whether or not he perceives these or other objects as products or resources, and whether or not perceives them as the embodiment of costs or utilities. Etc. etc. In the same way all other economic categories - they are relative and exist only in human consciousness.

Although by his economic actions a person on his owns will provoke some empirical processes, however, these processes exist as the real facts. But his attitude to these processes, which causes this

or that perception of the facts, exists only in his consciousness and constantly changes together with his needs and ends. That is why, the same fact is perceived differently by different persons and even by the same person, depending on his needs and the ends. One and the same object or process performs different functions at the same time, simultaneously exists in different relations to different subjects and objects, therefore, simultaneously is, for example, product, and resource, or buying and selling, import and export, credit and debt, and so on. In this (and only in this) sense, we can say that economic processes exist only in human consciousness. Economy is just his attitude to these processes through the prism of his needs, his understanding of due. And in it there is no mysticism. That is to be a producer, consumer, product, resource, etc. - all this is not inseparable real properties of objects or subjects, but those functions that they perform. It is impossible to produce a product, not being a consumer of resources. Therefore, he also is a consumer. But he is not only producer and consumer. He is also the seller and the buyer, investor and saver, creditor and debtor, etc. And in the conditions of division of labor, each of these functions he can perform only as one party, in collaboration with other economic actors. So in a market economy, he can be producer only because someone else is a consumer; can be a seller - because someone else is buyer; lender - because someone else is debtor; etc. (See. Leishvily, 2013)

By its result every action excites the need for response to it in some way. For the result of every action is a means for the other actions, the product is a resource for other actions. The product of each action creates the need, according to which it itself becomes a resource, i.e. creates the need for another action in which this product itself will be consumed. Moreover, if the product cannot be transformed into a resource, it will not be considered as a product. From the very beginning the product is produced as a resource for future action. Therefore, each action in itself already implies a need for another action. And if it cannot find its continuation, it itself will appear invalid, fictitious. (See, Leishvily, 2012; 2011).

7. Actions differ from each other by their function. The function can exist in reality only being implemented, and therefore, only with the action. In reality, the function does not exist separately from the action, which it performs, as well as the action cannot exist without performing this or that function. There is no action without the particular function; if the action belongs to the system, it performs defined function. Therefore, each economic action not only creates other action like itself, but creates "its other" action. This "its other" action, being the same economic action, is identical with it. Since otherwise it will not belong to this system, but it would be something belonging to the

environment. And at the same time, "its other" action differs from its parent action by its function. It performs the function conjugate with it, which necessarily is implied by a function of parent action.

As already noted, in a market economy, the action, having a function of producing some product (using the consumption of some other goods) means "its other" action, which has the function of consumption of produced good. But since the action for production of good, and "its other" action for consumption of this good, performed by different actors, so before being consumed, produced good must be sold by producer, and therefore bought by consumer; and thus supplied on the market by producer; hence, the consumer should demand for this product before he buys and consumes it; then he must supply money for sale or other good; therefore, he acts not only as consumer, but also as producer, which also must give rise to a similar sequence of economic actions, as well as producer of goods consumed by him, etc. That is appears a sequence of actions, whose functions are interrelated. At that the circular organization of interrelated functions is formed.

Moreover, each of the economic actors simultaneously is a producer and consumer, seller and buyer, investor and consumer in debt, entrepreneur and saver, creditor and debtor. It is impossible to be a producer of goods, not being a consumer of others goods, and it is impossible to be a consumer, not being a producer, and is impossible to be neither one nor the other, without being the seller of the goods and the buyer of others goods, and it is impossible to be neither the seller nor the buyer of the goods not being a buyer and seller of money.

8. In the end, we find that all the functions performed by different actors, are interrelated as well, as the actions, which perform these functions. All of them generate each other. Each action creates "its other" action and itself is generated by others, because itself is "its other for its other." Through this they reproduce the structure of system. A functionally closed structure of a system or functional closeness, that is a circular organization of intersystem functions, is reproduced by the sequence of performed actions; for reproduction of this sequence of actions is caused just by the very functions, which are performed by each of these actions. The sequence of actions causes the reproduction of circular organization of functions. Their circular organization determines this sequence of actions, thanks to that each action generates "its other" action, just that other action, which is a necessary link in this sequence, which reproduces the circular organization of functions.

In this functional closeness of structure is just reflected the essence of economic subsystem of society based on a division of labor; because these functions only show the relationships between themselves. They are closely interrelated and refer to each other as positive and negative: consumption and production, selling and buying, supply and demand, investment and consumption

in debt, credit and debt, making profits and making savings, entrepreneurship function and saving function, etc. Opposites can come into clash only because they are in relation and form a unit, in which one moment is needed as well as another. These functions cannot exist without each other. They make a single whole, closed structure, where everything is relative, where all relate to each other as positive and negative, where one cannot exist without the other. The "symmetric model", considered below, which reflects the functional closeness of economic system, reflects the *essential relationship* of a market economy and, thus, reflects in itself the *essence* of economic system in which everything is relative and all are in reflective relationships to one other.⁵

From the foregoing it follows that for the analysis of market economy in the constructivist discourse, it should be presented in the form of a functionally or organizationally closed complex system. But to identify this functional or organizational closeness, in turn, must first be identified the dialectical relationships between the fundamental economic categories, which cannot be detected by traditional methods of neoclassical theory. Forth below is given dialectical analysis of these categories as a necessary precondition for building a "symmetric model" of functionally closed decentralized economic system.

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⁵ "In the sphere of Essence one category does not pass into another, but refers to another merely. In Being, the form of reference is purely due to our reflection on what takes place: but it is the special and proper characteristic of Essence. In the sphere of Being, when somewhat becomes another, the somewhat has vanished. Not so in Essence: here there is no real other, but only diversity, reference of the one to *its* other. The transition of Essence is therefore at the same time no transition: for in the passage of different into different, the different does not vanish: the different terms remain in their relation. When we speak of Being and Nought, Being is independent, so is Nought. The case is otherwise with the Positive and the Negative. No doubt these possess the characteristic of Being and Nought. But the Positive by itself has no sense; it is wholly in reference to the negative. And it is the same with the negative. In the sphere of Being the reference of one term to another is only implicit; in Essence on the contrary it is explicit. And this in general is the distinction between the forms of Being and Essence: in Being everything is immediate, in Essence everything is relative." (Hegel, 1974, 262-263.)