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BOOK REVIEW

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A New Theory for the Examination of Human Society[1]

Ars poetica

One of the important events of the Hungarian academic publishing in 2015 was the emergence of an entirely new approach to social theoretical work ("The Theory of Human Society on the Basis of Multistructural Model"). The one of the co-authors is Tamás Dénes[2], a mathematician and the other is János Farkas[3], a sociologist (Ankerl 2016; Bangó 2017; Fabó 2016; Lükő 2016).

János Farkas was led by a strong urge to present the results and findings of his long and rich social sciences in a synthesis of a great common organizing medium. Tamás Dénes was the mathematician of complex systems – within that of society – and the essence of that was already formulated by an autistic daughter who had become an adult artist[4] and quoted the elegantly accurate derivation of the work: "There was once a world, / a planet in the world, / a continent on the planet, / a country on the continent, / a city in the country, / an apartment in the city, / a room in the apartment, / a man in the room, / and a world in the man" (Dénes – Farkas 2015:47). The publishing of their present book was preceded by a ten-year-long abundance of correspondence besides personal consultations, which may also be exciting for those interested in it.

In November 2004, correspondence began, when they started to clarify their positions and ideas about a globalizing information society (Fabó 2017). János Farkas recorded a knowledge-based society: "*Let's talk frankly. If capital, economy, administration, and science come into symbiosis, the critical considerations, the values, and the*

internal logic of scientific research, must be braced in such a way that science will deny itself. ...The problem is particularly acute for us if the system known as the »knowledge society« is increasingly identified with the society defined by the information and communication techniques and knowledge ... I am aiming to reduce human, territorial, family and urban inequalities ... to raise people's informatics tools, which improves their lives, job opportunities, etc." (Dénes – Farkas 2017: 14–15). Tamás Dénes replied: "To be able to negotiate these with a scientific demand (not at the press or policy level), a completely new and fundamentally based social theory should be. I suggest a completely new system model on a structural mathematical basis ... [focusing on the EU]. To unify true cultures is not just a chance, but it would also be mistaken for them to blend (which would otherwise perfectly contradict the laws of social evolution). And according to the very deep definition of society you have given: *society is based on the unity of culture!* .... The learning and knowledge-based society is precisely about the chance to steer it consciously to INFOSANCE[5]. That is, the revival (transmission) of classical cultures with modern instruments and its transfer to the masses of people and its natural application in daily practice means the desirable direction of European progress (development)!" (Dénes – Farkas 2017:15–16)

Tibor Vámos as an Hungarian academician[6], observing their work and writing the foreword, found: "This pair of authors is a lucky intellectual association, as the one of them has an excellent authorship in mathematics, structural modeling and their applications of social sciences, and the other has a great oeuvre in the field of philosophy, sociology and social history. The authors' credible professional life is a guarantee to cope with the difficult scientific function of the new coherent multi-structural social theory

labeled in the title" (Dénes – Farkas 2015:13) and offer a new opportunity with "structured thinking about society, consistently consistent, coherent theory building" (Dénes – Farkas 2015:14).

They combine social stratification theory with a completely new mathematical toolkit, the theory of multi-structures. Their creation is more than convincing, i.e. disarmingly unbeatable.

Their volume is divided into five major chapters. The introductory thoughts are followed by the "guideline" which describes the theoretical frameworks and concepts.

Concepts, operating principles

As the authors set up a theory based on a completely new approach, they created an edited guide for the understanding of concepts and fundamentals in the multi-structural model, the "world(space)map". They also prove that the contradictions of human cognition can be eliminated. The world – reality is extremely complicated. It is far more complex than one can use to sense and combine sensory organs. The limited, simplifying observations mostly can be counted, measured based on a certain feature. Thus, various unidimensional frameworks of interpretation emerged from the concrete units of measurement through data in social research focused on age, income, education, habits to the other finer/more abstract categories as the desires, the scale of values. These interpretation frameworks or metric spaces may well explain each other, but at the same time they cannot show all aspects together, in the context of each other's effects and the stressed mechanisms of action are less fit to reality. And the situation of investigator basically influences, detruncates the completeness and correctness of systematization. However, in the multi-structu-

re space, individuals displayed in their relationship system are linked to one another by a specific pattern (society formation).

They show that, in the case living systems, all plant, animal and human communities form societies, and therefore the authors restrict their territory, that, is limited to the human society indicated in the title of their book. The first basic principle of the theory is the triad structure of social change. The essence of the claim is that the more the categories of social thinking are virtualized (distracted, more valued) the more they support the concentration of power. Force concentration creates the conditions of exploitation between the holders and vulnerable ones of material ≡ energy ≡ information. So there are two main types of human society (social evolution): the one is the (power) *holders* of material ≡ energy ≡ information and the other is the *poor* of material ≡ energy ≡ information.

Social evolution or "development history" can be derived with the expressing process of proportion shifting to the virtual in the element triplet according to multi-structural social theory. That is how the power increasingly relies on not only material goods and the energy but also the contents of information, the more it will become increasingly asystematic for the *defenseless ones*. The proportional shifts of the various types of society do not overturn the law of social energy conservation. The asymmetrization of communities' triad structure means that (in the lifeless systems general) the law of interaction is becoming less and less effective, that is, the *vulnerable ones* are less and less resistant, as the *power* is becoming more chaotic. Therefore, the thesis can be established which says that the evolution of human society is nothing more than the story of the virtualization of social thinking. Thanks to the logic outlined above, theory is free of the trap of paradoxes and

copes with the concept of social mass, social energy, social strength, speed of social movements, and so on.

The complex approach describes the "social development" with a precise classification, which is now centered on legitimate passwords for economic and social policy strategies. Thus, in addition to the exact definition, the theory separates the 13 types of social changes with the *periodical system of all social motions*. This structure makes it possible that human societies can be compared with each other remote, existing communities' formations in the geographical space and historical time. So, the modeling in multi-structural space also demonstrates that social proper time, social energy and social strength are system characteristics. That is, the solidifying virtual multi-structure phases chronologically locate in the historical time scale, which form the types of society. They prove the law of social energy conservation in the whole complex system, which is demonstrated by a hypothetical model, the so-called Arena model.

In the field of development, the authors also show that globalization slows down, reverses time, so society retrogrades in the aspect of structure. And they also draw attention to the fact that the globalization is unique proper to human community's social evolutionary mutation which can only be maintained if it is viable.

It indicates the completeness of the theory that they mention the definition of system concepts such as system time, system distance, system speed, system mass, system energy, system strength. The clarification of the concepts contributed to the defining the social work of the basic concept of modern social theory and the argumentation of social performance. In social theory, for the first time, these categories and definitions were exactly deduced and described.

Interpretation frameworks

The authors created the illustrative figure for the demonstration of the viability of their idea which shows an operating structure that is very similar to the blood circulation of human body. The essence of the basic unit of the new, comprehensive social theoretical concept is the matching of the element triplet of a material, an energy, and an information to each other (the equivalence triad of "material ≡ energy ≡ information"), during the appearance and the movement of which in space, the information based society can be captured by the circle process from information to cognition and from cognition to knowledge in social inequalities, differentiations and other organizations. This formation carries the process of knowledge and cultural succession called "blood circle", in which social energy, information is multi-structured, and "which is connected through the social value-system as a social evolutionary big »blood circle« back to energy circle" (Dénes – Farkas 2015:18). And in living human community, the going flow of directions, stations and filters release "the two blood circles model of human society" (Dénes – Farkas 2015:26) reflecting the symbolic nature of working organization, which is the interpretation frameworks of theory.
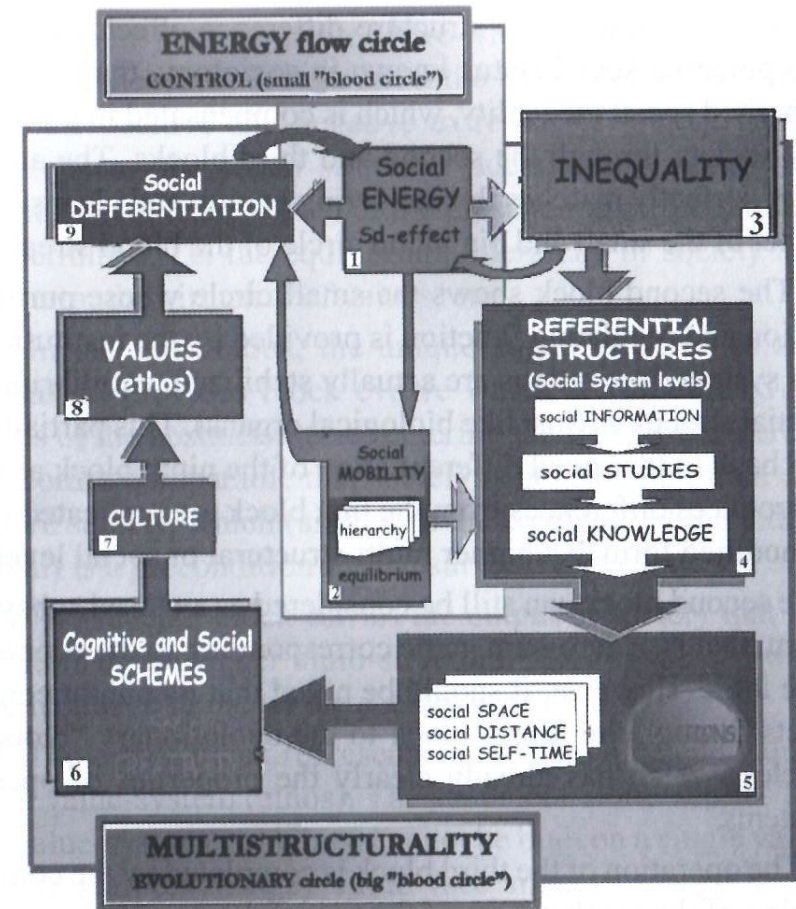

Figure 1

1. The operation of human society represented with two blood circles model is divided into nine blocks. (See Figure 1.) [The next explanation is almost entirely by the authors (Dénes – Farkas 2015:25–27)]. In abstract sense, individual abilities and capabilities are introduced into the various multi-structural levels of society (ignoring social status variables for the time being). The first block displays the entry point. It is here that society is connected to the

more ancient mounting biological natural multi-structure system-level.

Embedding into the big system takes place according to the basic law of the structure difference effect. This is the potential social status known in sociology, that is, the inherited social inequality, which is compensated in a healthy society through the second and third blocks. The analogy perfectly matches the delivering energy and cleansing effect of the small and big blood circle of the blood stream.

2. The second block shows the small circle whose purification and regulating function is provided by the institutional system. Institutions are actually stabilized, equilibrium-partial structures (just like biological organs). This partially fed back to the social differentiation of the ninth block as it reproduces differences from the first block are replicated in a modified form at a higher multi-structural or social level.

The second block can still be considered as a closed subsystem, that is, a zero-sum game corresponding to the economic logic. However, it should be noted that its output connects through the fourth block to the evolutionary "blood circle", which has already clearly the properties of open systems.

3. The operation of the third block is completed by the combining of the mechanisms of the first and second blocks.

4. The fourth block is more divided unit, as systemic levels of society can be uniformly interpreted in multi-structures, in the subsystems of individual entering from the third block and in the institutional subsystems of the second block. This is where the multi-structuring of information takes place on the appropriate reference systems, that is, the feedback loop of the information → cognition → knowledge triad. This process can be approached partly from the structural temporal development of individual and partly from the institutional and technical hierarchy.

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5. The fifth block leads to the structural interpretation of development. These are located here, and unlike the institutional subsystem (see second block), only the mutations (exceptions) can be treated here which affect the development of the whole system under the law of exceptions. They are the positive and negative extremes of society. In this subsystem, the social structure (social space, social own time, social energy, etc.) of the present and of the future is determined, i.e. the equilibrium, hierarchy of society as a system, the virtuality of values, etc.

6. In the sixth block, the unique cognitive schemes as a result of previous block evolve which are modified versions of the abstract entities entering the first block. Here, it becomes comparable that society is developing into a creative society, which (as well as the creativity of the individual) is a precondition for the survival of society.

7. The seventh block carries the output of society that is a culture at the higher multi-structural level of society, whose feedback to the whole society is a "new values".

8. The eighth block represents the system of social values, the value-system (ethos). The statement alone verifies that a value-system(s or ethos) cannot be built on a single value. Universal (exchange) value (see money, money-saving tools) resulting from globalization leads to the plummeting of the value-system. This is a process of virtualization that many millions of years of evolution nature has produced no example, that is, it can only considered (a few seconds) human social evolution mutation in chronological time's embryonic age. The fate of mutations, with rare exceptions, is extinction.

A degree of virtuality the values determines the structure of the ethos and its virtuality, which basically determines social differentiation and hierarchy, that is, the social structure (see ninth block). So in today's global societies,

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money as a universal (exchange) value dominates. The result of this is a "single-value society" in which the ethos disappears, since one element does not form system. Changing this, the revival of the value-system can only be imagined in the fourth, fifth, and sixth blocks of the system.

9. The ninth block is described above.

Explanation of the theory

The second chapter presents the theoretical background of the outlined conceptualized the system of thoughts. A pair of author has set up a theoretical viewpoint in which reality – system is characterized by the reference system is characterized that "brings order and connects into the experienced reality (for example, the theory of expanding universe or the theory of social time paradox)" (Dénes – Farkas 2015:35). Therefore, they give a metaphor in order to model new and controversial phenomena, too. Ludwig von Bertalanffy (1968) has priority in the board theoretical foundation since he is considered the father of system theory who has revealed that the regularity of the systems' operation means a more complex mechanism: "*The whole is more than the sum of the parts, the properties of the system do not directly come from characteristics of the components. The relationships between the components create a complex, complex network (structure)*" (Dénes – Farkas 2015:46). Dénes Gábor (1976), the inventor of holography, expanded the boundaries of the metric science description with the use of the interference picture: "*The ordinary photograph completely loses the phase, only fixing the intensity. But then we do not be surprised to lose the phase if we do not have anything to look like! Let's see what happens when we add an etalon or »coherent« background!*" (Dénes – Farkas 2015:46) By referring to the metaphorical power of the aforementioned metaphor chain, they model the multi-structure depicting the graphs with material ≡ energy ≡ information equivalence triad which was anticipated by Austrian social scientist Gustav Ratzenhofer (1908) in his views seeking complexity: principles of the social phenomena and movements in the "human interactions", which create shape: social, political, individual, financial inequality. "In his view, all sociology is necessarily based on a monism worldview, according to which the same laws are predominated in social life as in the universe. Social laws are the modifications and variations of nature's general laws. The general law over the natural and social world is the law of the »mutual dependence of things« that reigns. (…) Undoubtedly, one must start from the *universal and common laws* of nature and society. The basic concept may be »social gravity« in which the same basic laws produce more and more complicated phenomena by modification from the ancient nebula to society and human. Meanwhile, the *system and environment* concept must be explained which is based on the *principle of adaptation*. The emergence of »*innate interest*« leads to different *social forms*, their conflicts, their inequalities, etc." (Dénes – Farkas 2015:54).

The third major chapter discusses society as a living system, that is, its theoretical concept and fundamental laws. As authors specify culture, knowledge as the main driving force or motivating factor in the functioning of human communities, they show this its change and transformation through information, cognition and knowledge in the multi-structuralism of living society. They interpret the human society as an opening: "*in a wider sense, the all of the historically developed forms of collective human activity. In a narrow sense, we understand the social system or its historically specific type, or a specific social organization, or a form of social relations*" (Dénes – Farkas 2015:77) and

culture: "*Culture is broadly the sum of human actions that are not genetically, but socially inherited. Culture therefore extends both to the material and intellectual products and to the abilities themselves. In time and space definable material and ideological products, accepted values, institutionalized forms of life are included in this concept*" (Dénes – Farkas 2015:77).

The perpetuity of the latter ensures the continuity of society, because the consistently transmitting (multi-structurally integrated) social knowledge is the culture that branches in different societies, such as the biological inheritance of each species. The perpetuance of human communities can only be interpreted in terms of the viability of culture, so "*human society is the culture-producing activity of the cooperating people, the transmission of values and experiences between different generations*" (Dénes – Farkas 2015:78). The nature of multistructural society can be illustrated by the information → cognition → knowledge circle process, whose specific forms of humanity (thinking, language, communication) are further transferred by the transmission of social (cultural) inheritance through generations. This creates a differential specificity of human (human) society, i.e. social (cultural) continuity.

The fourth longer chapter of the book discusses the functioning of society's describing reference environment and its components. As noted above, the observable change in the human organizations is reflected in the displaying relation systems of the distance units of multistructure space which circumscribes the individual actors' situation and mobility or the timing and causality between the status positions. In the conceptual system developed by the authors, among other things, the social inequalities can be easily explained: by the social inequalities: "social actors live their life on the basis of material ≡ energy ≡ information equivalence triad in which the vulnerability of the majority was manifested in the uneven distribution of material goods and in the concentration of power in the hands of a minority at the beginning of history. The possessor and vulnerable one in the relationship between the Lord and the Servant were appeared by Hegel (1979–1981). The evolutionary »product« of living society is the human society where the virtualization of information is equal to the antisymmetry of power." (Dénes – Farkas 2015:164).

The identification of the principles is supported by the system mass and system energy factors that are comparable to each other in the nature and in the society, and they make the important recognition that "the objects involved in change are part of a common system, that is, the acting forces are not against each other, but to the change of system state" (Dénes – Farkas 2015:194). After the presentation of force, speed, acceleration, work and performance expressing magnitude of displaying events, Sigmund Freud (1985) turned up regarded as the intellectual precursor who one of the first opened up the way to co-disciplines with the theory of dreamwork and jokework, and in his track, the theses of – namely Marxian (1970) – economics were verified in the multistructural dimension. In the multiple expanded space, social structure and stratification can be represented the most complex way and mobility can be periodicized. Moreover, due to the structure-preservation theorem, because of space ≡ time ≡ material ≡ energy ≡ information equivalence, the examined phenomena give more accurate picture than in the usual four dimensional space-time relationship, and the authors made a deep bow to the prudent logic of the former social theorist, Gustav Ratzenhofer (1908) since he also touched upon the importance of "gravity" (Dénes – Farkas 2015:244). And in the

so-called Arena model set up as an experiment fulfilling the completeness of social energy conservation, which can to applied European Union, "the changes of society (social space)'s position are generated by social energy changes created because of the effect of social forces" (Dénes – Farkas 2015:250). The presented analogy is closed by a cardinal conclusion: "*No »exchange tool« (whether economic, communicative, etc.) that combines cultures cannot exist without a real cultural (economic) background!*" (Dénes – Farkas 2015:256)

The last major thematic chapter covers the problem of social development and evolution with social theoretical antecedents, arguments and mathematical proofs, as a result of which the "two blood circles" model of evolution is delineated. (Dénes – Farkas 2015:276). The summary can be set as a definition: "The stable inherited social knowledge (which is incorporated in the multicultural space) is itself a culture whose specific descendants are the individual societies, as the biological inheritance of each species. The continuity of culture guarantees the continuity of society." (Dénes – Farkas 2015:280) The authors draw attention to the non-negligible circumstance that, although one is biologically determined, that is, one's surrounding system is a part of nature, but one is able to remedy all kinds of anomalies of society created oneself. (Dénes – Farkas 2015:288). Finally, as a guessing of chance and a promise of our present's INFOrmational renaiSANCE society – and at the beginning of the future's one as well –, they cited the sentences of the greatest and the most authentic Hungarian writer, Mór Jókai's (1872–1874) book titled "The Novel of the Next Century": "*One is still looking at the glorification of the highest degree of perfection, that is knowledge. It will be the triumph of knowledge when the mortal who says about oneself, »I am God«, puts his crown before the mortal who says, »I am a man!«*" (Dénes – Farkas 2015:298) To facilitate the orientation, they compared the main features of the industrial and INFOSANCE society.

The reader-friendliness of careful work and the understanding of the mathematical statements also indicate that abundant references, indexes, social theoretical complements and mathematical aid can be found at the end of the nearly four-hundred-page volume.

Summary

The elegance of the theory lies in its ability to realize the unity of space-time (multi-structure) in which the operation of the partial or subsystems is influenced by the change in the proportions of the substance ≡ energy ≡ information element triad. The regularity of systematized social movements has been certified by all the laws known in the scientific world for the first time in social sciences.

The book described in the basic social theoretical literature is certainly a milestone as Tamás Dénes and János Farkas have succeeded in creating a so-called comprehensive systematized social-theoretical model based on a mathematical base, which no one has been able completely to accomplish in the last hundred years. The pioneering work can lead to further, novel researches into a deeper understanding of the individual social, cultural phenomena, the essence of information, and promotes a more detailed understanding and comparison of different societies, cultures and information. The greatness of the book is to provide a thoughtful, exact theoretical handhold with many uncertainties (risk factors), the prospective result of which shows the examined phenomena as complex as possible.

Note

1   This paper is based on the lecture of the 8th World Complexity Science Academy's Conference ("Turbulent Convergence") of Rome November 13–15, 2018.

2   Tamás Dénes (1952–) is mainly a theoretical mathematician. He studied mathematics at the József Attila University of Szeged between 1972 and 1974 than mathematics and programmer mathematics at the Eötvös Loránd University of Budapest between 1974 and 1977. As a young scientist, he participated in the Fourth International Conference for Pattern Recognition of Kyoto (Japan) in 1978 and his lecture was titled "Graph theoretical approach to structural representation of systems: An attempt to generalize the holography principle". In the beginnings, Dénes worked as a research fellow at the Management and Computer Science Institute of Csepel Works, Research Institute of Central Service Development. Later, he became a scientific advisor at the Department of Social Sciences of the Hungarian Academy of Sciences (MTA), Research Institute of Economics of the MTA, Theoretical Research Institute of Trade Unions, Hungarian Institute for Educational Research, Social Research Institute, Research institute of Psychology of the MTA, Institute for Research Organization of the MTA, Institute for Computer Science and Control of the MTA, Research Institute of Sociology of the MTA. Then, he taught at the Budapest Metropolitan University. Dénes has written more than ten books and about 200 papers.

3   János Farkas (1933–2016) had a rich and productive academic career. He studied logic and philosophy at the Eötvös Loránd University of Budapest between 1952 and 1957. In 1960, he received his university doctoral degree in philosophy. Later, he obtained his Candidate's degree at the Lomonosov University of Moscow in 1967. In the same time, he studied theoretical physics at ELTE. Then, he made postdoctoral studies at the London School of Economics in 1974 and eventually became a Doctor of the Hungarian Academy of Sciences in sociology in 1980. He worked as a lecturer at the University of Chemistry in Veszprém between 1957 and 1968. Farkas was a deputy director of the Institute of Sociology of the Hungarian Academy of Sciences between 1969 and 1974 and a scientific advisor until 1984. His next step was the founding of Sociology Faculty at the University Technology and Economics of Budapest, where he taught as a professor until his death. And Farkas was also president of the Research Committee of Sociology of Science and Technology of the International Sociological Association (1982–1986), president of the Hungarian Sociological Association in 1995 and advisory board member of the *Philosophy and Social Action* of New Delhi since 1986. He could be found among the registered experts of UNESCO and United Nations. Farkas won International Social Science Award in 1989. His biography is not complete either, as he had written more than two dozen books and about 200 papers.

4   Her name is Henrietta Fajcsák and her pseudonym is Henriett Seth F.

5   The acronym was created by Tamás Dénes at the turn of the millennium: INFOrmational renaiSANCE.

6   He is the founder of Hungarian computer science, information technology, artificial intelligence and robotics researches.

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