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Review Article

The Mathematical Modelling of the Internetics

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Abstract

Life is an embodiment of matter that is a common feature of living organisms and can be used as a fundamental criterion for characterizing them. That is why I cannot neglect the physical, physico-chemical, and chemical aspects of the study of life, which is central to the biological sciences, because they are necessarily present in even the most intimate biological properties. The new approach – qualitatively different and more than that of classical or borderland sciences – is the interdisciplinary perspective. It is certainly part of being human to understand our world better and better. However, we usually expose quantitative problems in this context. Internetics is concerned with the articulation of interactions and the description of their properties. According to systems theory, the same interaction has different meanings at different levels. From a biological point of view, the types of interactions are no longer so clearly distinguishable. In internetics, the aim is to study not only the different types of interactions, but also the dynamics of how different interactions interact with each other. As interdisciplinarity is transforming the way we think about science, its tools and methods, it is also placing new demands on education.

Keywords: Mathematical modeling, Interdisciplinarity, Internetics

Introduction

Living systems are highly diverse, with a range of morphological and physiological manifestations that can vary by the billions depending on their narrow environment. There are approximately two million living species on Earth, but the range of structural and functional differences is even greater. We study here a comprehensive cross-section of the fundamental laws of this manifold, the size of which is characterized only by the traits of the species and not by individual differences within it. That is why our aim is primarily to discover, describe and dissect the general features, so that in this way, in the light of newer and newer scientific discoveries, we can come closer to a more demanding, more certain and more faithful knowledge of reality [1].

Life is an embodiment of matter that is a common feature of living organisms and can be used as a fundamental criterion for characterizing them. The easiest way to discuss life is to clarify the processes that are specific to living organisms in the first place. These are: metabolism, growth-development, excitability, motility, selection-secretion, regulation, adaptation, reproduction, transmission-versatility. These specific properties together characterize life, but without any of them being determinative in the definition of life, and thus life cannot be defined using these concepts.

Everything that is common to living organisms falls under the umbrella of biological motion. Movement is the mode of existence of the material world, which in its evolution passes through the most diverse forms (mechanical, physical, chemical movement) until it reaches the biological form of movement, which synthetically contains all the previous more general forms of movement. That is why I cannot neglect the physical, physico-chemical and chemical aspects of the study of life, which is central to the biological sciences, because they are necessarily present in even the most intimate biological properties [2].

Both the structure and the function of living matter are in a state of extremely dynamic change, even if it does not appear to manifest itself in anything. Experiments with radioactive isotopes have shown that the constituents of living organisms are incorporated and decay uninterruptedly at different rates. For any organization, to live is to both survive and change incessantly in relation to a constant and changing environment.

Interdisciplinarity

Everything that is common to living organisms falls under the umbrella of biological motion. It was therefore necessary to create a completely new scientific perspective, approach and method. This was demanded by the sensational discoveries of the classical disciplines: Einstein's theory of relativity, the calculation of the orbital elements of planetary motion, macromolecular polymerization, the structure of molecules, the laws of species interactions, thermonuclear reactions, etc [3]. In the 1940s, several groups in different scientific laboratories around the world began to work on general issues at the same time, and one after the other, qualitatively new sciences emerged: interdisciplines.

As a result of the internal development of science and the radical change in societal requirements, the situation is ready for a solution to the scientific crisis: a new approach and the creation of disciplines that approach and solve the issues at stake in a radically different way [4].

The new approach – qualitatively different and more than that of classical or borderland sciences – is the interdisciplinary perspective. Many were shocked by the new direction, which was soon followed by a defensive reaction of indignation. Taunting "high priests" stepped in before they knew what was going on, either cursing the "heretics" or trivializing what had happened in the hope of regaining their lost ground. Nowadays, however, an interdisciplinary approach has become predominant, which does not aim to answer new questions, but rather, by cross-referencing existing disciplines, provides a different type of answer to the questions and introduces a different way of thinking.

It becomes rather banal to talk about the light of the information explosion if, at the same time, we do not talk about the qualitative diversity of the many sub-phenomena inherent in it [5]. It is certainly part of being human to understand our world better and better. However, we usually expose quantitative problems in this context. We use the information explosion as an excuse, even though it is far from certain that we would understand each other if we could cope with the information overload. In other words, beyond the mountains of journals and books, there is another, perhaps even more difficult mountain to conquer in order to understand each other: the "more qualitative" problem of common ground, common outlook, common language. The interdisciplinary approach, which has become increasingly common in recent decades, offers a solution. Be that as it may, however, our desire to know everything, one of the most basic characteristics of our human condition, makes us impatient: we cannot wait for the more institutionalized offers of science [6] There is no royal road in science!

But scientists from different disciplines who enter into dialogue without preparation often encounter communication difficulties. These difficulties are rarely apparent, because even in interdisciplinary meetings people generally listen to each other patiently, and papers from different disciplines that only loosely fit together can fit together peacefully in symposium publications [7]. Language difficulties only exacerbate communication problems, the real cause of which is the fundamental difference in the way different professions think. An interdisciplinary approach shows how a mathematician, a philosopher, a medical researcher, a historian, all ask the same question.

Internetics

There is constant interaction between material objects at the most diverse levels and in the most diverse forms. Interaction is a general concept, which, like in the case a set, we do not define, we may try to explain or describe, which is of course not a definition, interactions are concrete manifestations of the way matter exists [8]. We know only the finite extent of the material universe, both in time and space, and thus have only limited knowledge of the possible forms and modes of manifestation of matter. But it is certain that the types of interactions will continue to multiply as scientific research and knowledge of matter progresses. Internetics is concerned with the articulation of interactions and the description of their properties [9].

It seems probable that the different objects are different states of a kind of common matter, if you like, the "primordial matter". The parts are manifestations of the stationary states of the material entity. For the moment, this view is nothing more than a convenient hypothesis, and will remain so until we can write down and solve the equations that bring the known fundamental interactions into a unified theory. And this is a difficult task, because we do not even know the types of interactions in their entirety, although we have an idea of their complexity.

The most diverse objects in the material world interact with each other. According to our current physico-chemical knowledge, the different types of interactions can be traced back to four basic forms:' gravitational, electromagnetic, weak and strong interactions [10].

According to systems theory, the same interaction has different meanings at different levels. The force of gravity plays a crucial role in the evolution of stars, but is negligible at the level of the nucleons that make up the nucleus. The cycling of matter on Earth plays a huge role at the biosphere level, but it is overlooked when studying individual metabolism.

The main properties of basic interactions are: interaction time, strength, range, symmetry. In general, when characterizing interactions, it is very important to know what kind of symmetries they exhibit, what kind of symmetries apply to them, i.e. what conservation laws are in force during the interaction [11]. This is expressed as one type of interaction showing symmetry with respect to some property, while the other does not. Thus, a strong interaction shows symmetry with rarity, while a weak interaction does not. Similarly, mating exhibits symmetry with respect to the entity of life, while the death of the individual from a fertile disease does not.

The symmetries deserve special attention. Some of them apply to several types of interaction, others to fewer, or even only to one interaction. The conservation laws for several interactions are: energy, electric charge, entity of life, baryon charge, angular momentum, lepton charge, sparsity, etc. [12] A special position here is occupied by the law of conservation of information, which we know only in the form of conjecture, but which we have not yet managed to relate quantitatively to the entities of energy, momentum, mass, life, consciousness.

From a biological point of view, the types of interactions are no longer so clearly distinguishable. First and foremost, metabolism can be seen as a fundamental interaction that brings about the unity of a living organism with its environment. There is also the interaction of individuals within a species, the interaction of species with each other, and the interaction of the biosphere with the inanimate environment. Of course, there are interactions at other levels, such as between matter and consciousness, between human life and spiritual phenomena, between different social classes, between members of the same family, etc.

In internetics, the aim is to study not only the different types of interactions, but also the dynamics of how different interactions interact with each other. We try to apply this approach consistently to questions about the physics of life. We explore life-related phenomena through the interplay of biological and physico-chemical interactions [13].

Interdisciplinarity is the Future

In the breathtaking development of the sciences, an interdisciplinary approach makes us understand that long gone are the romantic days when a lone scientist could sit alone in their study and ponder the problems that fascinated them. The struggle to understand the secrets of nature can only be successful if scientists work together, using all modern technical means. Knowing the complexity of the civilizational and social problems of our time and the intrinsic problems of the further development of each discipline, we already find the basic motivation for an interdisciplinary approach: the necessary interdependence [14].

As interdisciplinarity is transforming the way we think about science, its tools and methods, it is also placing new demands on education. Science is breaking through all the old frameworks, but our education system is the legacy of past centuries, reformed - it needs to undergo radical change to provide a modern scientific education that meets both societal needs and scientific progress. Today's world is characterized by an increasing amount of knowledge, which can be modeled by the following formula:

$$A = A_0 e^{0,07t}$$

where: A – the amount of knowledge accumulated at time t; A_0 – the amount of knowledge at an initial instant; e – the base of the natural logarithm.

Put in words: as long as the amount of knowledge is small, its growth is minimal, but when it reaches a certain level, its growth becomes rapid. Today, the body of knowledge doubles every decade or so. Because of time constraints, a choice must therefore be made between deepening understanding and expanding the material covered. In any case, the first should be preferred in education. One has first to realize interdisciplinary communication within oneself, to lay the foundations of intrapersonal interdisciplinary communication – which has to happen in school, in such a way that the minimal but optimal alphabet and semantics of each discipline are well "memorized".

Developing an interdisciplinary approach means not only recognizing connections, but also developing a vision that connects with concepts that are similar in terminology but often quite different in content for learners in different disciplines, and usually never synthesized. Thus, an interdisciplinary approach is only possible if natural phenomena are examined in their context, because this means that their explanation requires fewer basic laws.

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Conflict of Interest

None.

References

1. Vincze J (2015) The Capital Chapter of the Biophysics. 5th Edition, NDP P., Budapest.
2. Vincze J (2007) Interdisciplinarity. NDP P., Budapest.
3. Hoppe W, Lohmann W, Markl H, Ziegler H (1983) Biophysics. Springer-Verlag, Berlin.
4. Vincze J (2020) The Biophysical Modeling of the Apparatuses in the Human Organism. Lambert Academic Publishing Berlin.
5. Vincze J, Vincze Tiszay G (2020) The Biophysics is a Borderland Science. Roum J Appl Scien Tech (2)3: 115-121.
6. Vincze J (2018) Medical Biophysics. NDP P. Budapest.
7. Sarson E, Cobelli C (2014) Modelling Methodology for Physiology and Medicine. Elsevier P.
8. Vincze J, Vincze Tiszay G (2020) The Human organism is a Biopsychical-Biopsychological System. Technium 2(7): 29-35.
9. Vincze J, Vincze Tiszay G (2020) The Biophysical Modeling of the Seven-Dimensional Man. Int J Recent Sci Res 5(6): 123-130.
10. Vincze J (2020) Biophysics of the Apparatuses. NDP P. Budapest.
11. Vincze J, Vincze Tiszay G (2020) Some Aspects of Sciences from the Biophysical Point of View. Int J Software & Hardware Engin 8(9): 103-108.
12. Vincze J, Vincze Tiszay G (2020) The Biophysical Adjustment in the Human Organism. J Med Res Case Reports 3 (2): 1-7.
13. Vincze J, Vincze Tiszay G (2020) The Biophysical Modeling of the Different Regulation in the Human Organism. Int J Innov Stud Med Sci (4)1: 1-5.
14. Vincze J (2015) The Biophysics is a Boderland Science. Second Ed. NDP P., Budapest.