

Evolutionary Unfolding of Natural and Biological Systems

Summary of a philosophical book

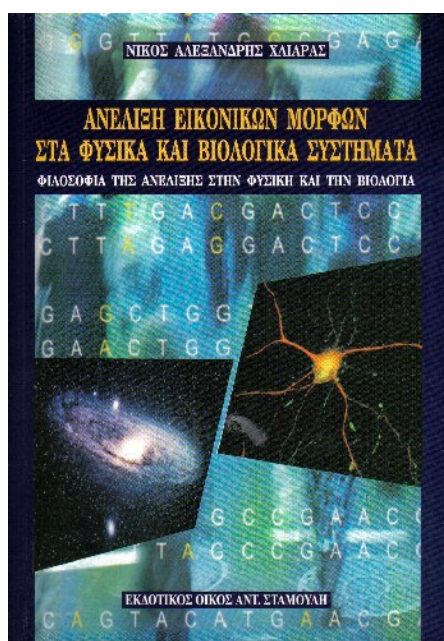
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bellow Kamara Thessaloniki , tel.2310264748

Author : Nikos Alexandris , nalxhal@yahoo.gr



Abstract

Analysing the subject, referring to the archetypal (potential, iconic, virtual forms), I mean the elements relating to the various levels in evolution, both in the natural world and in society. This happens so as each evolutionary step is accompanied by a corresponding evolution to the latter level, while the simple variations of the archetypal figures tally to exiguous alterations, such as the creation of species or some kind of molecular alteration.

Introduction

The human being is regarded as a creature that is evolving and this is a really revolutionary way of thought. On the other hand, the power of conscience is appreciated as the dominant element of things and, in a way, governs the world. Plato's notion is under no circumstances moribund: if one changed its wording and replaced the word 'ideas' with 'relations' and 'laws of nature', or the word 'ideas' with 'information', he would recognise many of the modern notions in philosophy

and in practical sciences. This book aims at giving answers regarding the issues relating to philosophy in a more general sense, resulting in it being linked with all the sciences.

Main Article

Analysing the subject, referring to the archetypes (potential, iconic forms), I mean the elements ally the various levels of evolution, both in the natural world and in society. This happens so as each evolutionary step is accompanied by a corresponding evolution to the previous one, while the simple variations of the archetypal figures tally to exiguous alterations, such as the creation of species or some kind of molecular alteration.

The relation of material figures is made up by the forces of material interaction, meaning the connection forces. These forces are the relations themselves, as they are identical notions. Only in biological systems are these relations not reflected and identified with them. What happens to biological systems is that the connection forces are decided and appointed by a depiction of them, initially to the DNA and secondly to the nervous system.

The depiction of the relations, of the forces and their positioning is relatively autonomous, while its evolution is independent and faster. This depiction works as an independent variable relating to the forces with which it is connected and developed. While the abiotic world blossoms into the biologic one, the transition from the identification of the relation of the connection force to the relation as a depiction is taking place philosophically. This does not identify with the connection forces, but exists separately as a self- contained figure.

The best possible way I could describe this natural law is as a law concerning the unfolding of natural figures and provides this evolution with a specific direction of how the enclosed information could be upgraded. This means that this law is related to the unfolding of the pictorial (abstract) figures.

In nature, the varying movement becomes the vehicle for the production of material figures, which unravels into more complex and always asymmetric figures. This is the reason why time is connected with a continually greater increase of asymmetry, meaning that the time is evolutionary despite and against the truculent second thermodynamic axiom tending to downgrade the total energy, meaning to reduce the light frequency to all the energy interchanges and, consequently, inflict an ultimate disorder.

Provided that there is a tendency towards downgrading the energy, namely the production of greater thermal disorder and unevenness, it is permissible to accept the tendency of upgrading the asymmetry, which converts the changing movement into evolutionary time, at the time dimension. (The asymmetry during the evolutionary processes has already been put forth as a term concerning evolution by the philosopher Thomas Coon, which makes it not only a geometry of the physical term, but a philosophic definition as well).

On the other hand, the pictorial (abstract) particles (potential, iconic) make up the most typical case of quantifying the relations arising at a given time, to be converted from pictorial force into a specific structure, namely into a 'chapter'.

The main admission I initially set is that the unfolding process is in fact a changing movement primarily existing on the time direction and defining the time, provided that the material cannot exist into cases of set movements.

As the material moves, it tends to normalise the changing movements and convert them into periodical movements. The whole unfolding process is a movement of reducing the encompassing location and indefinability; that is realising more stable figures.

All the known unfolding systems, either biological or social, are asymmetric in a point of time. Consequently, from a philosophic point of view, the issue is originally solved. Provided that all the movements are changing, the conversion genesis matter is out of the question. The conversion has always existed and still exists.

The relations in the abiotic world can also be called relations 'per se', since they identify with the vehicle of this relation, namely the connection force. In the abiotic world, the evolution of the relations per se is realised as the material position and conversion into movement. It is phrased as the conversion of the position possibility both in time and in space, and, after the end of the process, it finally it goes over into a new figure.

The time dimension is the dimension of the changing movement, and apart from the linear time that we comprehend from our experiences, there is also an evolutionary time. We usually regard evolutionary time as part of the linear one, where into the row of the time depiction one can find the evolutionary shots, and vice versa, as one can add dates to the facts. If the maze formation is a evolutionary fact, as well as an electron localisation into a closed orbit under the impact of a magnetic field, (for these cases to take place, at least two magnetic fields are necessary). This means that two changing actions have to happen, not to mention the two time dimensions. Independent quantities can be correlated after they have been multiplied. For their correlation is defined, their different parts have to be squared.

What is interesting about the independent facts and forces is that they relate in two dimensions, and instead of measuring lengths, one can measure the area. This can acquire a general importance. The drawing and depiction of an electromagnetic field calls for an algebraic total of dynamic squares. However, the square is a very special quality of self-definition. The self-definition is a two-dimension plain quantity. This, however, means that to the extent that our world is made up from self-defined quantities, it is composed of plain bodies or masses. This has to do with the fact that time is two- dimensional. The core conclusion of the book's philosophic course into the natural world is that the universe is organised into several levels, to make a multi-dimensional world. The levels of two dimensions show that the organisation of time is taking place in two dimensions.

The space at the active center of an enzyme results from a specific arrangement. It therefore carries some potential energy, which is employed to loosen the chemical

bonds in any molecule that happens to find itself there, thus leading to a quick chemical reaction.

Spatial asymmetry involves a certain level of information, which is related to a reduction in activation energy, and therefore to a change in reaction speed and in energy release per unit time. The energy yield of the reaction exists per se, regardless of the presence of any enzyme (free energy). The enzymes are systems of spatial asymmetry of forces, which help reduce the activation energy of a reaction and increase its speed.

The spatial asymmetry of the forces which are involved in the shaping of a protein corresponds to position probability, to information, i.e. to an interdependence among its monomers (or discrete units). Very few force asymmetries lead to functional proteins. Functional proteins are extremely rare, compared to the huge number of combinations which are theoretically possible. The phenomenon of life is very rare, extremely improbable, in the universe.

We observe that, at this level of organization too, an increased asymmetry leads to an increased probability of a superior organization of matter, i.e. life.

The possibility of change in the genetic material by means of mutations shows the subjective and false character of this representation. However, the flexibility of the genetic information (picture, image) helps change reality and drive evolution. A biological system is not a sum of reactions, but a set of reactions in steady and mutual interaction: it is their product, or the sum of their products. It consists of anabolic and catabolic reactions in cyclical motion and mutual interaction.

Biological systems involve cyclical motions in steady and mutual interaction, which are self-reproducing, i.e. they keep returning to their starting point.

All relationships which involve some necessity are recorded in the genetic material of the plants in the form of adaptations. Thus, the pine tree produces cones which open when exposed to fire and seeds which sprout when exposed to high temperatures; other trees produce seeds which must first pass through the digestive system of plant-eating animals in order to sprout in their feces. All these relationships reinforce one another and produce asymmetries, which are in essence competitive domains.

The relation between some asymmetry and the information content of an ecosystem may be understood through the following experiment. If two insect species are introduced into a bottle which contains food, they will both multiply, but only one of them will ultimately stay in the bottle. However, if we introduce a body that compartmentalizes the space, both species can survive as long as there is food. Compartmentalization increases asymmetry, hence information content, and permits an increase in bioinformation, i.e. two new species instead of one. However, beyond this particular experiment, a fundamental principle (GAUSE's axiom) exists in ecology.

This is the principle of competitive exclusion: two species which are ecologically similar cannot coexist for a long time. The environment of the species which obeys

Gause's axiom is called ecological niche (temperature, food, humidity). The niche defines environmental asymmetry in a biological manner.

Any such space of asymmetry is the biotope of plants and animals, as well as the likely space for new species: i.e. any place of asymmetry is a potential biotope of future species. Does this endanger the Darwinian consideration of evolution? I will risk the observation that the Darwinian consideration of competition is the special relation in the origin of the species, while asymmetry is the general one.

Darwinian competition creates the species, while asymmetry creates the space and defines the maximum or possible number of species that can be created. To clarify this view, we must look at the special relationship between plants and animals. Because plants (i.e. producers) exist before animals (i.e. consumers) in a given area, it is usually thought that plants help determine the animals of that area. However, by eating some plants and by avoiding others, animals also help determine the plants of the area: for example, by eating tender leaves and grass, goats and sheep contribute to the creation of pine forests. Hence, the initial set of possible states becomes a mutually interacting system in which cause becomes effect and effect becomes cause, and this relationship has been so strong and permanent for thousands of years that it has been encoded in the genetic material of living organisms. Whenever a new species appears, the asymmetry changes through the introduction of new relationships.

A good approach is to accept the thesis that, through movement and phenotype variation, consumers can reduce pressure and avoid competition either by moving to specialized positions or by spreading the competitive pressure to more species. In the first case, they narrow down their diet or domain, while in the second case, they broaden their diet and, possibly, their domain as well.

The gene potential of a given population includes all sorts of relations and mutual interactions, constituting a kind of virtual «capital» for an already existing population form. Its importance lies in the fact that it can increase the potential for survival: it may not have a direct and/or obvious survival value right now, but a neutral or even harmful allelomorph can be useful in the future, should environmental conditions change. For example, the white color, which is not very common in an animal's fur right now, can become dominant in the future if the climate gets colder and snow conditions start to prevail.

At that level, the dominant form of information is the diversity of the species.

The key principle of evolution is that it is an irreversible process. Thus, an evolved form is much less likely to return to its original form than to create a new one. This is a manifestation of time asymmetry. The transformation speed of form A into form B is greater than the transformation speed of form B into form A. The probability of all genes and their mutations returning to their original form ranges from very small to zero, as the number of possible combinations is almost infinite.

This speed variation corresponds to a differential probability of place in time, i.e. to an entropy variation, and corresponds to a specific variation speed in evolutionary time.

Diversity is the result of the competition between natural selection and the inherent ability of genetic information to mutate. Diversity exhibits an asymmetric distribution of traits, which are thought to arise mainly through the differential action of natural selection as well as through the accumulation of mutations. A total lack of diversity is unlikely to prevail for long, but if it does, the corresponding life form tends toward extinction. Reduced diversity is very rare in nature, appearing only in living organisms under strong selection pressures; these organisms are described as highly specialized. The long-term viability of these populations is thought to be precarious. This is so because their environment, as well as the other organisms who live there, and therefore their competitive relations, do vary with time.

It has been observed that the number of species usually increases with time, unless a catastrophic event occurs. Therefore, the quantity of information in the biosphere increases. The higher the number of already existing species, the higher the number of potential species. Thus, the number of species keeps growing, and it does so exponentially. This is easy to understand through the following simple example: if every species could produce another species without becoming itself extinct, then the number of species would automatically double. If this process would continue indefinitely, then the quantity of information would grow geometrically.

On the other hand, the species which succeed each other during the evolutionary process keep getting more complex. This means that the information content keeps growing and the relations among species keep getting richer. This process may be understood as competition among species. If a species acquires a certain advantage, then both its predators and its quarries, i.e. the entire biotic community, must also change by resorting to new mutations that will enable them to better hide or escape or hunt. Thus, new information and new relationships are added to the competition process, and in a multiplicative way at that. In essence, what happens in the adaptation process of living organisms is the introduction of new information from the environment, biotic and non-biotic, into their genetic material. This is the basis of the evolutionary origin of species, as well as of the evolution toward more complex forms.

The human being tries to put down the memory signs happening both in himself and in his environment, in a symbolic and compact way: the way of living, the necessary behaviours in a ritualistic way, by dance movements, harmonic sounds that can be memorised, and by pictures drawn on cave walls or tools. Although, the symbolic depiction gains in time its own hypostasis, again independent from the realistic elements that it is practically called to serve.

Ideas, notions giving new ideas, dreams and fictional figures are generated, being so strong that they define a community, providing it with coherence and historicity. The ideas and dreams may become legends and so the community becomes socially conscious, often giving its existence fake utilities. The utilities, the historic consciousness and the legends are nothing but unfolding figures (forms) of symbolic depictions, which are separating themselves from reality. The chaotic figures of our fantasy and our dreams are called to be tested and become reality in the fields of hunting, tool making, jewellery, adornments and dance.

In order that the latter take place, some conversions to the nervous system as well as to the body agilities are necessary. Fantasy, with its endless variations and depictions away from reality, reminds us of a creature which, although awake, is dreaming, or better, it fantasises. The fake depiction gives this species the ability to win over nature, to extent its sway, which results in the depiction acquiring value and therefore becoming realistic. The independence of our consciousness from the real world has set the basis for its emancipation from nature, as well as its resignation to the noetic figures and social relations that it created itself. All the other history of human beings consists of a continuous production of fake consciousness to which human beings are resigned, but it was a requisite so as to preserve the social relations or overthrow them. This resulted in a lie converting into truth and vice versa.

However, how is it possible that a false consciousness can ensure a greater viability, and be compatible with reality? The false consciousness is called so, as it arises from the generalisation of partial knowledge, the so-called experiential knowledge, as it is defined at each evolutionary level of society. For the reason why its base is prosaic, it is realistic and so essential that it calls for repetition and the existence of homeostatic mechanisms to reproduce it. In this way, it is generalised, becomes a legend, a religion, an ideology. All the latter are methods of depicting reality and therefore are false consciousness figures. Their importance is crucial for the evolution of a society, whose structural elements are dependent on them, as they do in the cases of other directional figures. Human history is that of those consciousness figures making up compact relational figures, which continually and compulsively remind us of the social relations.

END

Writer : Alexandris Nikos
Thessaloniki Oreokastro Greece

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