

# The Emergence and its Architecture

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*O anumită superficialitate este necesară, mai ales când vrei să exprimi doar esențialul și numai esențialul.<sup>1</sup>*

Emil Cioran

Understanding the process of *emergency*, as the most important task of the existential becoming, is and was always the main challenge for the human knowledge. By turn, the emergence of life, of psyche, of awareness, of the social, of consciousness, ... are currently approached in a more or less speculative way. The structural sciences offer meaningful *reductionist* theories to explain the chemical processes by physical mechanisms, life by the chemistry of the macromolecular structures, and so on. Reductionism works well explaining the complex by the simpler<sup>2</sup>. But, the knowledge process faces fundamental difficulties when the *existential chain*<sup>3</sup> is scanned from simple to complex, from minerals to consciousness processes<sup>4</sup>.

## *The architectural approach*

The current formal-structural knowledge uses the *reductionist* approach as the main explanatory mechanism. The pure *phenomenological* knowledge acts, by the rule, only for the use of individuals (only sometimes it lights up in small communions). The *structural-phenomenology*, introduced by Mihai Drăgănescu, represents the way which allows the *non-formal forms* to work for increasing the knowledge. It does that taking into account the *architecture of existence*. Thus, the structural-phenomenology, as a philosophical attitude, and the *architectural approach*<sup>5</sup>, as the associated cognitive method, offer the context for approaching emergency.

At the level of the philosophical debate the 20th century witnessed the confrontation between the formal-structural positivism (the analytic philosophy triggered

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<sup>1</sup> "A sort of superficiality is necessary, mostly when you intend to express merely the essential and only the essential." Excerpt from Emil Cioran: *Scrisori către Wolfgang Kraus, 1971 – 1990*, Humanitas, 2009.

<sup>2</sup> This is maybe the main reason for which we are mentally accustomed to accept the image of a fundamental simplicity grounding complex realities in our macroscopic world.

<sup>3</sup> See the seminal book of Arthur O. Lovejoy, *The Great Chain of Being: A Study of the History of an Idea*, Harvard University Press, 1936.

<sup>4</sup> Nick Lane: *Life Ascending. The Ten Great Inventions of Evolution*, W. W. Norton & Company, 2009.

<sup>5</sup> In *Arhitectură și structură în sisteme deschise și introdeshise* (Architecture and structure in open and intro-open systems), preprint, ICCI, București, 1978, Mihai Drăgănescu advances the idea of using the concept of architecture with a philosophical meaning, thus allowing the adaptation of the formal and non-formal forms at the level of the same discourse, using the moderating flexibility offered by „a functionally defined interface”.

by Gottlob Frege) and the integrative phenomenology (based on the various trends initiated by Edmund Husserl's phenomenology). No one of these doctrines won out. Instead, were created the premises of a new way, an „intermediary” one: the **architectural** approach. Not as an exclusive solution, but as a new form of an actual noetic behavior to be added to the previous two, which are thus possibly conciliated. The architectural approach takes into account only the set of functions offered at the interface between the investigated reality and the context containing it. The architecture of an object is independent by its internal structural details (the same architecture supports different structural actualizations), and manifests independent of the context (the phenomenal wholeness of the existence is largely eluded). Because the internal structural connections of the object and the context in which it is immersed have little importance, behaviors with a bigger complexity than structuralism allows, but simpler than the phenomenology asks, are considered. Because we are faced with a huge diversity of facts, we developed a multitude of mental attitudes organized in what can be called the *space of mental attitudes*:

$$\text{SMA} = [\text{structural}, \text{architectural}, \text{phenomenological}]$$

Any mental attitude is positioned in a functioning point in SMA where the investigated object is understood as a well pondered „mixture” of *phenomenon*, *architecture* and *structure*. There are extremist pure structural attitudes, pure architectural or pure phenomenological. These are ideal cases, more precisely, hard achievable and unrealistic aspirations. Whenever we believe our approach is only of one type we are victims of a blindness originated in a limited self understanding. The philosophical debates of the previous century, but not limited to, originate mainly in the obsessive practice of the only one of these attitude, discarding the possible others.

The integral knowledge is the knowledge which for any kind of object accesses the most appropriate functioning point in the three-dimension space of mental attitudes, so as the best weighted combination of phenomenological, architectural and structural attitude is exercised. Any object is related with our mind as phenomenon, as architecture and as structure, with weights depending on the kind of interaction produced between the object and our mind.

The interaction modes between minds and objects generate the multitude of the relations each mind exercises in SMA. At one end, results scientific knowledge, while at the other end various form of meditation are practiced. In between we expect different kinds of artistic creation, technological creation, ..., or the understanding of the *emergent processes*, scanning the chain of being in the ascending direction.

### ***The Mechanisms of Emergence***

The architecture of the emergence, we try to emphasize, acts in specific conditions, uses specific mechanisms, and is based on fundamental properties of existence. We define it preliminary by its components and by the ways they interact in the emergent processes.

### **The Architectural Components of Emergence**

In this early stage of meditating on the emergence's architecture its components are only lay down and shortly explained. In the process of using this approach new components

will be maybe disclosed. They will be added to initial ones or will replace a part of them. For the beginning we suggest five architectural components able to generate the conceptual space where the emergence, as a fundamental existential process, is disclosed:

- *complexity* – characterizes quantitatively the space of emergence
- *nonlinearity* – characterizes qualitatively the space of emergence
- *feedback connection* (positive & negative) – specifies types of connections
- *information* – allows meanings to act
- *non-locality* – allows the connection to the existential wholeness.

The weight each of these components has depends on the actual emergent process and on its position in the chain of being.

**Complexity.** In order to allow novelty, the environment in which the emergence is possible must have enough high structural diversity. In the simple structure of a crystal, or inside a fluid with a simple chemical composition, the phenomenon of emergence is not expected. Complexity, as the consequence of the minimal presence of the ordered structures, is characteristic for the environments where something new emerges by reducing the complexity or by its conditioned increase.

We are referring to a complex reality having in mind the *algorithmic complexity*<sup>6</sup> which considers complex only the entities whose size and symbolic description have the dimension in the same range. The absence of *pattern* is characteristic to complex realities<sup>7</sup>.

The structural diversity refers to both, the content of the environment and the connections established between the components.

The complexity offers only a chance for emergence. Inside a sufficiently extended reality the complexity triggers the most diverse behaviors. For example, we say the pure noise contains all the music of our world, the only problem is to be able to trigger the process of segregating it.

**Nonlinearity.** The nature of the things manifests its sensitivity is through nonlinearity. We take the term “sensitive” almost literary. The simplest way of reality to react to meanings is offered by nonlinearity, as a peculiarity of reacting to a certain stimulus according to its “content” or “amplitude”. The ideal linearity of the response to a stimulus does not say anything about the size of the stimulus.

The reality is “lucky” because linearity is only an ideal extreme, proposed by our inquiring mind so predisposed to simplicity. It has no actual correspondent into the real existence. Nonlinearity is a form of the inherent complexity of the existential processes, and of their ability to be informational sensible.

Let us take, for example, an economic process which financed under a certain level is non-profit, sufficiently financed is profitable, and over financed leads to losses. The output of the system is, roughly speaking, proportional with the stimulus only in a narrow and well delimited range. The financing level will determine not only the functioning of the system it will send also an additional information used by the system

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<sup>6</sup> Gregory Chaitin: “Algorithmic Information Theory”, in *IBM J. Res. Develop.*, July, 1977.

<sup>7</sup> More on complexity and its role played in emergent processes in the last book of Melanie Mitchell: *Complexity. A guided Tour*, Oxford University Press, 2009.

to regulate its level of activity: the benefit is maximized for a narrow range of the financing level.

**Positive & negative feedbacks.** Technical sciences study rigorously all kinds of feedbacks. Even if the feedback connection has been emphasized in many domains for long time ago, only the control engineering was able to disclose all of its refinements.

We are accustomed with *generative* positive feedbacks, or with *control* negative feedbacks, but only rarely we are in the position to analyze the most spectacular case of the combined effects produced by the two types of feedback. Combining the two kinds of feedback can be responsible, *under certain conditions*, by the **controlled generation** of some specific new behaviors. The architecture of emergence will use scarcely this limit case to trigger and to maintain emergent processes.

**Information.** As human beings we lived and we live always in a symbiotic relation with the most diverse forms of information manifests. What is strange is the fact that we pay attention to it only recently, after we started using the various forms of information technology. More, the information systems generated the false impression that the information exists and acts only supported by these new technologies. The information of the computational world blocked off the more extended and more subtle existence of information at any levels and in any backs of the existence.

In our universe *information is a syntactically ordered structure acting through its meaning*. Mihai Drăgănescu<sup>8</sup> distinguishes between syntactic information, semantic information, and phenomenological information, depending on the considered type of meaning: pure *syntax*, *significance* (by context or by reference), or the phenomenological *sense* (meaning). The emergence uses all these kinds of information depending on the position on the *Great Chain of Being*.

**Quantum entanglement (non-locality).** The only physical phenomenon which is able to give us the hope of the existential wholeness is the non-locality disclosed us by the quantum mechanics. Albert Einstein intuit it (1935), but he did not believed it is possible, John Bell reformulated it making possible an actual experiment (1964), Alain Aspect was the first to prove it experimentally (1982), but almost no one of us is able to accommodate mentally with its existence<sup>9</sup>.

When on the great chain of being we reach the highest levels, the emergent processes are not possible without the existential wholeness which is *maybe* mediated by the quantum entanglement. When the emergent process is produced at higher levels the existential integration of the emergent reality becomes more and more important. For example, when conscious entities emerge, their “connection” through and to the deep phenomenological meanings becomes essential, even if, how this “connection” takes place is not yet very well understood.

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<sup>8</sup> Mihai Drăgănescu: „Information, Heuristics, Creation”, in I. Plauder (ed): *Artificial Intelligence and Information Control System of Robots*, Elsevier Publishers B. V. (North-Holland), 1984.

<sup>9</sup> Brian Clegg: *The God Effect. Quantum Entanglement, Science's Strangest Phenomenon*, St. Martin's Press, 2006. Luisa Gilder: *The Age of Entanglement. When Quantum Physics was Reborn*, Alfred A. Knoph, 2008.

We speculate regarding the non-locality that it is possible due to the *phenomenological information* (Mihai Drăgănescu) which manifests at the deepest levels of existence. Thus, the phenomenological behavior seems to be conditioned by the non-locality acting by imparting wholeness those who or those which become through emergence.

### How emergence's architecture works

Novelty emerges only in an environment where the complexity exceeds a certain level. Complexity allows many connections to be closed as positive (generative) feedbacks or/and as negative (control) feedbacks. For example, if a positive feedback depending non-linearly on a parameter  $p$  triggers an evolving process which by turn, using a negative feedback depending on a parameter  $n$  tend to stabilize, then emerge the behavior  $E(n_0, p_0)$  for a value  $p_0$  of  $p$  and  $n_0$  of  $n$ . It is meaningful that there is a pair of specific values,  $(n_0, p_0)$ , for which  $E(n_0, p_0)$  manifests as *quasi-stable*, i.e., for small variations around  $(n_0, p_0)$  the process  $E$  is up-kept. An energy supplier must be around in the most of cases.

The general case is of an emergent process supported by more than one positive feedback and negative feedbacks. Thus, the emergent behavior depends on many parameters:  $E(n_0, n_1, \dots, p_0, p_1, \dots)$ . The dynamic stable behavior in the point of coordinates  $(n_0, n_1, \dots, p_0, p_1, \dots)$  is secured by the *nonlinearity* of the multiple feedback ways. The stabilizing effect occurs only because the multiple positive feedbacks generates for  $(p_0, p_1, \dots)$  a global effect dynamically compensated by the effects of the multiple negative feedbacks only for  $(n_0, n_1, \dots)$ . The complexity of the emergent process is delivered by the amount of feedbacks involved.

For the first links of the existential chain the emergence is dominated only by the mechanisms above described, where information and quantum entanglement (non-locality) do not play an important role. But, to ascend on the existential chain means the weight of the information mechanisms and of the process of entanglement increases. The useful moving around of a cell looking for food is guided by the signals received from its environment which *act* informational. "Maturing" on the existential chain means to grow the role of informational connections in the prejudice of physical interconnections. As the human being and the human community develop the psycho-socio-economical behaviors start to evolve spreadingly under the control of the "informational circuits". The new behavioral acquisitions at the social level result from processes emerging in the context of prevalent informational feedback loops.

When the emerging process has inherent phenomenological components (hard to be architecturally or structurally reducible) it is the non-locality which mediates the deep meaningful connections. The loops responsible for inherent phenomenological emergences are closed through the deep reality using non-locality or yet undiscovered related phenomena. The awareness, consciousness, transpersonal experiences (the philosophical experiment, meditation, the intense artistic perception, the moment of authentic creation, ...) emerge from the subtle equilibrium of various feedbacks which do not elude non-locality – the connection to the existential wholeness.

## ***The Emergence of Consciousness Society***

The courage to propose a society of consciousness is redoubtable in a cultural and scientific environment where even the reality of consciousness is strongly debated. But, just because we are unable to mentally converge toward accepting and understanding consciousness a consciousness society is more necessary than ever. Not all of us will enter consciously into the consciousness society, but all of us will do it, if at least some of us will clear out thoughts about what consciousness means. Mihai Drăgănescu opened the debate publishing the volume ***Consciousness Society*** (*Societatea conștiinței*).

On the big chain of being in existence, the consciousness society results at the end of a long stream of spectacular emergences. Mihai Drăgănescu envisages the consciousness society as an emergent process in the knowledge society. The integrative knowledge, we hope to be achieved inside the knowledge society, will be probably crowned with the solution of the hard problem of consciousness. If this will be possible we will have already a foot inside the consciousness society. More, understanding what consciousness means we will evolve transforming ourselves as human beings, becoming more able to build and support a consciousness society.

The consciousness society will be the result of an **actualization** and of **emergence**. The *Fundamental Consciousness of Existence* (concept proposed by Mihai Drăgănescu) will be *actualized* at the level of human society, and a new form of social existence will emerge based on the historical becoming of the same *Fundamental Consciousness of Existence*. The consciousness society foreshadows as an important moment of the evolution on the great chain of being. It is a historical “closing” for Our Universe. All the “systemic openings”, practiced by the existential becoming in order to accelerate and to make sure the evolution of the human being, are now “closed back” in order to allow a real phenomenological (re)integration. Through the emergence of the consciousness society the big chain of being takes the liberty of making the first consistent closing through the *intro-openness* (an existential connection disclosed us by Mihai Drăgănescu).

Starting from the following remark, full of Hegelian connotations:

*“adevărul sens al istoriei într-un univers este devenirea conștiinței.”<sup>10</sup>*

M. Drăgănescu considers that:

*“Societatea conștiinței va fi o societate spirituală. Aceasta nu înseamnă o societate pur meditativă, ci o societate în care predomină spiritualitatea, fiind în același timp o societate activă informațional, științific, tehnologic, industrial, sustenabilă și cu un mediu protejat.”<sup>11</sup>*

thus implicitly claiming the fact that the consciousness society will be possible only in a global world which already solved the fundamental unbalance between *state*,

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<sup>10</sup> Mihai Drăgănescu: *Societatea conștiinței* (Consciousness Society), ICIA, București, 2007, pag. 55. (... the true meaning of history inside a universe is the consciousness becoming.)

<sup>11</sup> *Ibid.*, pag. 34. (The consciousness society will be a spiritual society. That does not mean that it will be a pure meditative society, it will be only a society dominated by spirituality, but in the same time a society informational, scientifically, technologically, industrially, agricultural active, sustainable, and with a protected environment.)

corporations, and non-governmental organizations, because in this unbalance originate all the unsolved issues of our world.

The integrating in *geomodernity*<sup>12</sup>, the integral knowledge, the consciousness society suppose co-evolutions based of an integral human being, for which *reason*, *imaginary* and *spirituality* are highly balanced. The global word will put together not only all the economic activities or the regulating initiatives, but will allow cultural interferences which will enforce even reconsidering some concepts of the civilized world (such as, for example, the economic model based exclusively on the quantitative growth will be supplemented with mechanisms allowing it to avoid the catastrophic and abrupt “discharges” which now looks like as unavoidable processes “regulated” only by periodic crises).

As we will understand the true nature of consciousness, the mental premises for reconsidering the relation between the *good* and the *evil* in the human behavior will emerge. It will not be possible to avoid completely the evil, but its role will be reconsidered, as an unavoidable mental reflex. The spirituality of the consciousness society will imaginatively balance the good with the evil using rational methods.

But till then we must first find consistent answers to the honest challenges coming from who still have doubts about the possibility of consciousness. When the human minds are seen as “*syntactic engines that can mimic the competence of semantic engines*”<sup>13</sup>, there is a very little room for understanding or even accepting the phenomenon of consciousness. If mind is a machine, then we can talk nothing about consciousness! This does not mean we should ignore possible artificial components of consciousness produced using structural or structural-phenomenological technologies. Mihai Drăgănescu asks himself<sup>14</sup> if it would be possible at least a *foreshadowed consciousness society* using only the human’s natural consciousness so much affected by the distorted history of the last few millennia. According to the same author, developing artificial forms of consciousness is the only solution to compensate the dysfunctions historically accumulated by the natural consciousnesses.

A first step in considering and understanding consciousness is to recognize the information as a fundamental existential ingredient. It is a mandatory step in order to unstop the knowledge process from the deadlock manifests when our understanding tries to reach the depths where the human consciousness is connected. This message is reiterated in *Consciousness Society*. But, if the depth of existence are investigated looking only for *simple*, *absolute* and *abstract* laws, there are little chances for disclosing something meaningful about the deep phenomenological information. The fundamental *non-simplicity* contained in the deep phenomenological information is the condition for the emergence of our, or others, universe.<sup>15</sup>

The obsessions of the Abrahamic world are: the *absolute good*, the *abstract simplicity*, and the *liberal individualism*. If we do not balance them by the *necessary evil*, the *inherent complexity*, and the *communitarian spirit*, then we will be unable to

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<sup>12</sup> Mircea Malița: *Zece mii de culturi, o singură civilizație. Eseuri despre geomodernitate* (Ten Thousand Cultures, One Civilisation. Essays on Geomodernity), Ed. Nemira, 1998.

<sup>13</sup> Daniel C. Dennett: *Brainchildren - Essays on Designing Minds*, MIT Press/Bradford Books and Penguin, 1998.

<sup>14</sup> Mihai Drăgănescu, quoted op., pag. 228 and the following

<sup>15</sup> Mihai Drăgănescu, quoted op., pag. 161.

understand the fundamentals of the emergent processes, and, more serious, we will be unable to contribute to the emergence of consciousness society. The Aristotelian, the Buddhist, and the Confucian heritages<sup>16</sup> must be constructively opposed to the “too hurried” Abrahamic world in order to find the right way toward the consciousness society.

The emergence of consciousness society will be based on the *complex* understanding of existence, on the *non-linearity* of the environments through which various *positive and negative loops* will be closed, on the preeminence of the *informational* mechanisms governing our world, each human being, and existence, all of them aiming at wholeness through *quantum entanglement*.

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<sup>16</sup> Lou Marinoff: *The Middle Way. Finding Happiness in a World of Extremes*, Sterling, 2007.