

ETHOS - PATHOS – LOGOS

The New Old Ways of Knowledge

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Abstract

The formal-structural approach in the knowledge process is exhausted by reaching its own limits. An *extended rationality* must be promoted in order to gain resources for future developments. We start from the assertion that *knowledge* is a specific interaction between the whole existence and the punctual entity of man. This process is triggered by the tension between the *phenomenological unity* of existence and the *triadic behavior* of the human being characterized by *spirituality, imaginary* and *reason*. The original unity of knowledge was broken in the last two millenia of Western cultures. The three ways of knowledge, each corresponding to a distinct human behaviour, have had performed diachronically emphasizing in turn only one of its dimension. Man's unity must be now restored starting with the attitude about of knowledge. The *complexity* reached by the contemporary knowledge supports and imposes in the same time a rebuilding process, in which the phenomenological unity, the pontaneous performances of the oneness and the structural simplicity are together considered as distinct faces of the unitary existence. In order to know, the human being must regain his own deep unity. More, the knowledge process must borrow from the object of knowledge a new dimension: the ability of **self-organizing**. *The deep understanding can not be organized, it must self-organize itself.*

Our confidence in the adding algorithm can be analyzed using the rhetorical techniques established thousand of years ago in ancient Greece. The ancient Greek philosophers classified formal argument into three distinct classes:

- **Ethos**: Proof by authority. ("I am the teacher, and I say that it works.")
- **Pathos**: Proof by emotion. ("It would make me happy if you believe that it works.")
- **Logos**: Proof by logic. ("Here's how it works")

Our initial confidence in the addition algorithm comes from the ethos or pathos of our teacher (preferably the former, but lamentably often the later), and increases as experience verifies that it is indeed correct. Logos often comes much later, if at all.

Ian Parberry, 1994

1. Introduction: Limiting in Formal-Structuralism

We cross a happy stage of knowledge dominated by the emphasizing of many *limits*. This end of millenium is full of the constructive optimism imposed by a strong apprehending of the limits. Specifying the limits of a certain domain, it will be firmly outlined. Being aware of the limits the thought is concentrated, thus promoting the performance. Assuming the limit we reach the knowledge. The limit leads us beyond it, so grounding the deep knowledge.

The main limit emphasized in this century is the limit of the *formal-structuralism*. Starting with Goedel's Theorem and ending with many forms of complexity, the formal-structural approach is under a serious debate.

Most problems rise in the knowledge domain. The last few centuries of rationalism exhausted, in the most positive sense, the formal - structural paradigm. In order to go further on we must activate or, more correctly, reactivate some other ways of knowledge.

Besides, we believe that a new ability must be stimulated in order to make the deep knowledge possible. This new ability is an old behaviour of the existence: **self-organizing**. We must "borrow" from the whole existence this feature and use it in the knowledge process. This new, maybe old, ability can occur or reappear only if man regains its triadic unity between *spirit*, *imaginary* and *reason*.

The man exercised too much a one-dimensioned variant. Avoiding the imaginary and tolerating the spirituality, the man directs towards the limited world of the formal-structural where reaching the limits is the rule.

The following three sections represent a short argument for a triadic approach. The last one advances a possible conclusion.

2. Man's Triadic Unity

The great successes of the human knowledge are surpassed only by the spectacular domains in which the ignorance is chronicied. We don't know almost anything about life, mind and consciousness¹. We have a fragmentary image about the physical Universe, image mediated by two, theories much too distinct (the quantum mechanics and the theory of gravitation). More, there is an explanatory gap between consciousness and the physical level of reality. The explanation of these facts could start from a inappropriate understanding of what the man can be.

The incontestable successes of the formal and structural approach, reached in the last few centuries of rationalism, can not hide a deep lack of knowledge. More, even the great successes of the pure rational approach emphasize limit problems remained to be solved. We believe that an inadequate image of the human being about itself obstructs the way towards the searched solutions. Therefore, we must start with some point of views about what the human being is.

2.1 Homo Sapiens - Homo Ludens - Homo Faber

In the Western world the debate around the problem of man's identity stressed mainly on the *spirit-reason* alternative. For example, the Greek rationality is currently opposed to the Christian spirituality, even if it can be proved that the ancient Greek man was more than a simple rational being (see the famous *The Greeks and the Irrational* of E. R.Dodds) and the Christian ideology had its own moments of imaginative exuberance or rational rigour.

¹ David Chalmers considered: "We know consciousness far more intimately than we know the rest of the world, but we understand the rest of the world far better than we understand consciousness." [Chalmers '96, pag. 3]

But, I believe that all the time the human being has manifested a triadic behaviour¹, thus justifying the three labels rarely used together: *homo sapiens*, *homo ludens* (*demens*²) and *homo faber*.

Homo sapiens is the wise or the spiritual man, that has the phenomenological³ experience⁴ of the existence as a whole full of senses, thinking and acting accordingly.

Homo ludens is the imaginative man that uses his fantasy or his intuition in order to generate or to understand things hard to be rationally conceived or disclosed.

Homo faber is the rational man that knows the formal-structural ways that help him to build (technical objects, institutions, formal theories, ...) together with the other men, or to understand the truncated world in which only the forms and the structures are possible.

2.2 Spirituality - Imaginary - Reason

Man's unity is reached well balancing its three components: spirituality, imaginary and reason.

- Men uses **reason** for synchronizing its gesture with other men.
- *Imaginary* helps man to solve his problem beyond the rationally imposed rules or on the traditional customary laws.
- **Spirituality** offers valuation criteria for the products of the rational or for the emanation of the imaginary.

The **co-occurrence** of the previous three components is a basic principle and is the main idea of understanding any act of knowledge performed by man. If we stress on only the one of these, then we will assume the huge risk of a truncated process. Even if a truncated process offers some successful results, on long time term we are wrong.

2.3 Revelation - Imagination - Explanation

We have access to truth in many ways. The school taught us that the truth can be proved. Is nice to believe that for our inner peace, but from Epimenides the Cretan until Kurt Goedel people strive to understand that **there is truth beyond what can be proved**. Beyond what is rationally *explained* there are many true things that can be only *imagined* or *revealed*. The lack of **trust**⁵ has moved away the man from the results of imagination or of revelation. Man does not trust men and the men do not trust the imaginative or the spiritual man.

There are three kind of truth for which the trust is very important:

¹ Chalmers' approach with his *phenomenal mind* and *psychological mind* [Chalmers '96] imposes only a dual behaviour of mind. The first *feels* and the second *does*. Jackendoff distinguishes also only between two kinds of mind: the *phenomenological mind* and the *computational mind* [Jackendoff '87]. I "feel" that the third kind of mind must be added, and I "do" it proposing the **imaginative mind**.

² Edgar Morin [Morin '73] told us about the ability of man to extract order from noise, using its huge imaginative capacity to develop itself in a self-organizing process.

³ [Dr\ ag\ v anescu '79, 85]

⁴ [Chalmers '96]

⁵ Fukuyama

- *theoretical truth*⁶. for which we do not fill the necessity to have proof (the "direct accessed" truth, the truth of the axioms)
- *paradoxical truth* for which we need a proof but this proof does not exist (various formal buildings belonging to the class of logic-mathematical paradoxes)
- *complex truth* having a known but a much too complex proof (truth needing a proof that uses exponentially increasing computational resources).

Explanation consolidates the community, *imagination* outlines the communions and *revelations* isolated individuals. But we know that *the rules of the explanation are based on revealed facts and the performant use of them asks imagination.*

The way toward truth is a complex process in which all the three ways are involved. To avoid one of them implies an unacceptable risk for the knowledge process. The Cristian civilization assumed this risk, stressing by turn on (Orthodox) *revelation*, on (Catholic) *imagination* and finally on (Protestant) *explanation*.

The man must remember its triadic unity in order to (re)gain the ability to understand what existence is. Homo faber must be reconciled with homo ludens and homo sapiens, so as the spiritual attitude, the imaginative spontaneity and the rational building to be well balanced. The big challenge of the knowledge process implies man's triadic unity to be opposed to the phenomenological unity of existence.

3. The Wholeness as Phenomenological Unity

The wholeness of the entire existence is a fundamental principle, a *theoretical truth* beyond the necessity of a proof. Its main behaviour is the phenomenological unity. More, the wholeness implies the phenomenological unity. The entire existence is a phenomenon as against itself. Therefore, the phenomenological unity of the wholeness leads us to think about a *fundamental consciousness*, postulated in [Dr\ v ag\ v anescu '98]. The wholeness can not be proved and in the same time to emphasize wholeness does not improve the knowledge.

The man faced with the wholeness acts according its triadic unity: the phenomenological unity is substituted with a more complex "image". Man's *representation* of the phenomenological unity must take into account the triadic behaviour of the human being. But, men's *representations* can not follow easy man's *representation*, thus we can explain most of wandering on the knowledge ways.

In the same time the phenomenal behavior of the wholeness contains non-phenomenal facts. Dominant facts allow to emphasize inside a phenomenon non-phenomenal behaviours. The human being has the ability to distinguish diverting from the phenomenality. Thus the *chaotic behavior* and the *structural equilibrium* become "components" of the phenomena.

⁶ From the Greek {\em theoria} having the meaning of {\em immediately} accessed knowledge, opposed to {\em episteme}, the knowledge occurred in a deductive process, {\em mediated} by proofs that start from {\em theoria}

3.1 Wholeness - Spontaneity - Locality

We understand better the *wholeness* setting it in opposition with the *locality*. The locality makes a "strong opposition" against the wholeness, thus generating an unstable pair of concepts. In order to gain "stability", a third "weak opposed" concept must be introduced. Let be the *spontaneity* this intermediary agent that *suggests a possible continuous transition* between wholeness and locality.

The spontaneous behaviour disturbs the stability of the local forms or structures and in the same time continuously obstructs the firm settlement of wholeness. Thus, the spontaneity is an ineffable bridge between wholeness and locality. The spontaneity is responsible for the sources of diversity that support both the phenomenal evolution and the structural settlement.

A strong opposed pair of concepts is substituted with a weak opposed triad of concepts. A more stable image (like a three foot stool) is imposed using the unforeseeable consequences of spontaneity.

3.2 Unity - Oneness - Uniformity

The idea of **one** can be used to derive three very distinct attributes. The existence can be characterized, from different points of view, as having *unity*, as tolerating *oneness* and as delighting in *uniformity*.

Wholeness suggests unity. The *synchronic* unity of the whole existence does not allow a *causal* and a gradual knowledge.

Spontaneity implies oneness. The oneness surprises and we can't catch up the fruit of spontaneity. The oneness of the spontaneous process disturbs and emphasizes, in the same time, the phenomenal unity and the structural uniformity.

Locality allows uniformity. Only the local uniformity can be surprised by a causal and hierarchical knowledge.

3.3 Phenomena - Chaos - Structures

The phenomenon is a "fluctuation between" chaos and structure. The chaos is the hot kernel and the structure borders the space in which the play of the phenomenon takes place. Any existential event is a phenomenon that appears in structural limits conditioned by a chaotic behaviour. The phenomenon is a *well-tempered process*. The structure is a *medium* and the chaos is the *agent*.

A structure results ignoring the chaotic component of a phenomenon. Avoiding the chaotic behaviour inside a phenomenon we obtain the truncated form of structure. A phenomenon can be approximated with a structure only if its chaotic components are not dominant.

The chaos is the source of the phenomena and of the structure. Being restricted by structures the chaos generates phenomena. On the other side, phenomenological attractors allow chaos to degenerate into structures.

The current approaches oppose the phenomenon of the structures generating an **explanatory gap**. How can be thought the transition between phenomena and structures. Is there a structural or a phenomenological way connecting the phenomena with the structures? Because we believe that a catastrophic transition is not possible, we accept chaos as an intermediary agent that acts connecting "continuously" phenomena and structures.

4. Knowledge as Tension between the Phenomenological Unity and the Triadic Unity

We understand the knowledge as a positive tension established between the phenomenological unity of existence and the triadic unity of the human being. The man broke the phenomenological unity imposing a point of view governed by its triadic unity. Thus, the structures became useful and the chaos came to fill up the "space" toward phenomena.

Homo faber needs structures and forms in order to build institutions, technical objects, theories, and so on. The man, a weak being, must *exteriorize*⁷ its own internal limits in order to improve them and thus dominating the nature using the world so built. The *rational* approach is the best way to synchronize the men in this process of building the *man's world*.

Homo sapiens gave meanings of homo faber's buildings. Homo faber builds systems using accurately the same rules in the same manner. The *internal* structure of a systematic building is very rigorous. But the *external* articulation of the resulting system does not have the same systematic look. Any system has systematic external connections and in the same time non-systematic connections. Homo sapiens is also responsible for the non-systematic meanings associated to a strict rational human building. A rational symbolic or physical building makes sense only in a deep dialogue between homo faber and homo sapiens.

Homo ludens helped both, homo faber and homo sapiens, by his fantasy and his intuition. The systematic search for a solution in the huge space of the all possible solutions supposes an algorithmic approach. All of these algorithms are formal buildings. But two problems rise:

- for some very important problems there are not physical and temporal resources to run the known algorithms
- to establish an algorithm is not a systematic work.

A "well trained" *fantasy* makes spectacular jumps in the space of solutions choosing solutions easy to be evaluated in a formal-structural algorithmic process⁸. On the other hand, only a inspired *intuition* "discloses" efficient algorithms. Thus the *play* of the imaginary - with its two

⁷ The term is introduced by A. Leroi-Gourhan [Gourhan '64].

⁸ Suppose we have a problem with a solution space increasing exponentially with the input dimension. If the only algorithm we have must travel through all this space, then the temporal or spatial resources involved increases also exponentially. But, if there exist a "lucky guesser" that propose a candidate for a solution, then this candidate is validated or invalidated in polynomial time. The algorithmic approach is thus involved only in evaluating, wasting only polynomial resources, some attempt to find a solution performed by a "well trained guesser". This can be future full of sense interaction between the computing machine and man.

components, the intuition and the fantasy - defines homo ludens as an useful partner of homo faber and homo ludens.

4.1 Sense - Signification - Syntax

In the framework of the knowledge process, the triadic unity of man induces its distinct components into the phenomenological unity of existence. Thus, meanings emphasized are ordered on three levels. Indeed, the knowledge process has three main components:

- discovers or constructs the syntactical order that is meaningless because it implies only the internal relations between the components of a system associates with maximal freedom significations of syntactical ordered facts (structures) or of phenomena using an external relation in different limited
- contexts (results a contextual meaning)discloses senses as significances defined by an external relation in the whole context of existence (results a whole meaning).

Any knowledge is expressed by a symbolic building having in the same time syntactic rigor, an accurate signification and a deep sense.

4.2 Mystery - Expressivity - Clarity

The subjective conditions are very important for the efficiency of knowledge. The same content can be imposed in many forms. Individual propensities will select the best way for understanding of a certain domain at a certain time. In turn,

- the truth must be revealed like a mystery
- the imagination must be stimulated by the expressiveness of our approach
- the explanation must have clarity in order to be unambiguously understood.

An *extended rationality* will take into account all this three forms to reach the knowledge. In order to achieve man's unity, men must interact using synchronously, with an appropriate weight, clarity, expressiveness and mystery. The clarity is useful only where a truncated approach is possible. But there are spaces in which only the expressiveness offers an useful image. And sometimes only mystery can disclose the truth.

4.3 Spirituality - Cultures - Civilization

Men's attitude towards existence, nature or society is divided also in three distinct behaviours:

- a spiritual attitude dominated by a *holistic* understanding of phenomena
- a cultural attitude that promotes, more or less local, *values*
- a civilized attitude that accepts and promotes the pre-eminence of the *rules*.

We have many cultures, each corresponding to a distinct system of values, but there is only one civilization [Mali\c ta '98], because the formal-structural approach imposes the same rational rules anywhere. The spirituality is also in the singular, thus deeply sustaining the uniformity of the civilizing approach.

For example, *beauty* is not a value, it is a spiritual entity. The *beauty of a haiku* represents a value in the Japanese culture. Pythagoras' theorem is a rule used in any civilized part of the world, and is *beautiful by its simplicity*.

The civilization synchronizes men, the cultures spread men and the spirituality offers a deep unity of men, thus making civilization possible. But without cultures we lose the source of diversity that can be sometimes converted in new rules or other times distilled in "new" spiritual "values".

5. A Possible Conclusion: Self-Organizing Deep Knowledge

Deep Reality grounds any universal behaviour and the human beings connected in the same time to Our Universe and at the Deep Reality [Dr\ v ag\ v anescu '97/79, '85]. The spiritual gift of man helps him mainly to be connected to the Deep Reality and therational abilities are used to approach mainly Our Universe. But, what are the ways to reach the whole image about the existence? What is the role of **man's will** in "building" a useful knowledge about the entire existence?

Man's will implies a *controlled process* toward knowledge. Our image about any knowledge is tied to an *elaborated* building. The usual understanding about the building of knowledge leads us toward an *imperative* action. But man's will acts beyond of what he builds in a controlled process. Man's will is part of the existence and behaves accordingly, as a phenomenon and as a structure, both "interconnected" by spontaneous chaotic behaviours. The main game played in the knowledge act is supervised or guided by limits imposed by the **complexity**.

The complexity results from the simplicity of the *structural* premises that ground the knowledge systems. Indeed, if we use simple "bricks" for building theories about complex realities, then results complex buildings.

In the same time, the phenomenological approach uses too much complex entities to build an image about the existence: the *phenomena*⁹. We can even say that "to build with phenomena" is a paradoxical assertion. Indeed, *structuring with no-structures* is an impossible action, because the way from the structured to the non-structured can not be neither structural nor non-structural.

Therefore: *the complexity of the simply founded systems against the complexity of the phenomenal premises*. Question: is there a way to avoid the huge complexity of the structural or of the phenomenological approach? Is there a solution to combine them into a structural-phenomenological approach? Yes, it is, but we need a *binder*!

We can not organize phenomena, because they are too complex, we can not organize structures because results a too complex building. Therefore, we must find a specific space where a **self-organizing** process will be responsible for an *emergent knowledge*. This will be the space where men's imaginary meets with the chaotic behaviour of the existence.

⁹ The phenomenological-domain (P-Domain [c Stefan '98]) consist in phenomena without (simple) structure. Where the structure loss the description has the same size as the described object. Thus, the P-Domain has the biggest complexity.

Thus, the deep knowledge can be an emergent self-organizing process that, binds the structural with the phenomenal. *Causality* characterizes the relations in the current accessible world. As we advance into the deep existence the causal relation is substituted with synchronous processes. *Synchronicity* grounds the deep deep existence, where all the facts are synchronously together, without any causality. In between, the chaotic *spontaneity* makes the games.

The *spontaneity* of the self-organizing knowledge puts together the deep *synchronicity* with the superficial *causality*. Thus, the knowledge process emphasizes one more triad:

Synchronicity - Spontaneity - Causality

The synchronicity and the causality act together like, more or less strange, attractors that lead the spontaneous processes to degenerate in structures or to flourish in phenomena. Accordingly, the knowledge self-organizes having as deep guide marks the synchronous facts and as universal accepted facts the causal connected structures.

Fuzzy concepts, such as *information*, *complexity* and *time*, stimulate the imaginary, thus allowing the self-organizing process of knowledge. We must maybe preserve this kind of fuzzyness in order to have a specific space for the imaginary.

Finally, rises a question: *teleology* or *spontaneity*? It is an alternative that divide the scientific community. Is it the emergence and the evolution of the living until the consciousness according of a becoming tendency of the existence or is it the result of a spontaneous deviation (something like the "clinamen" of the ancient Greeks)? The "games of imaginary" are rejected by teleology and the becoming tendency are undermined accepting the spontaneous "behaviour" of existence. We have not another chance than to hope that the existence's *telos is the spontaneous* game and the man who knows must accept it in order to stimulate the imaginary on the way leading toward the **self-organizing knowledge**.

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