

# Complexity, spirituality and ethics

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In eating, sleeping, fearing and copulation men and beasts are alike; man excelleth the best by engaging in mindful explorations and spiritual practices. So why should a man, if he be without intelligence and spirituality, not be equal to the beast? (Excerpt from ancient Hindu Scriptures)

## ABSTRACT

This paper bridges the most powerful ideas of the science of complexity: emergence, self-organisation, autopoiesis, fractals, non-linearity, edge of chaos, vortical dynamics, etc with the spirituality and ethics of the perennial wisdom of humanity. A new theoretical model describing the all-pervading spiritual essence of the existential dynamics is proposed and discussed. Spiritual insights originating from the unique treasure of the ancient wisdom are linked with our reality in an attempt to elicit new perspectives for human life unfolding in today's era of frantic establishment of global economic order.

## I. INTRODUCTION

Complexity studies dynamic processes of change, emergence, self-organisation and transformation in complex environments. At the focus of complexity is the behaviour of large collections of entities endowed with potential to interact, adapt to changes and co-evolve at different levels (scales, 'fractals') of reality.

Spirituality is a progressive awakening to the inner reality, which is other than our mind, emotions and body. It is an inner aspiration to know, to enter into contact and union with a greater reality beyond, which also pervades the universe and dwells in us, and, as a result of that aspiration, a turning, a conversion, a birth into a new being [1].

Ethics is the science of morals: the branch of philosophy dealing with human character and conduct. Can we bridge these three fields of human knowing together and thus to strengthen the power of our creative understanding?

### I.1 Heraclitus' Principle of Motion and Aristotle's Principle of Fulfilment

Two famous ideas from the philosophical treasure of the Ancient Greek help us to initiate the exploration of the link between Complexity, Spirituality and Ethics. The both ideas are holistic; they resonate with the major ideas of complexity theory.

The first idea is encapsulated in Heraclitus' Principle of Motion, and the second, in Aristotle's Principle of Fulfilment (*entelechy*).

### I.2 Unity in Motion

*The universe really is a motion and nothing else* (Plato)

Although the above sentence belongs to Plato, it is directly connected with the idea of Heraclitus (c540-480 BC) that everything is in flux (*Panta Rei*). Contemporary physics agrees with this idea; from the scale of quarks to the scale of stars everything seems to vibrate, move and flow.

Almost a century before Plato, Heraclitus expressed his famous analogy of life with a river: "*Upon those who step into the same river different and ever different waters flow down.*" And it does not matter how different the waters are, the river remains the same, so despite the changes (different waters), the unity (the river's flow) persists [2].

It is the motion, the dynamics - through which the unity of the universe manifests. The recognition of the

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existential unity is an essential element of human spirituality and ethics of all times.

### **I.3 Urge for Fulfilment**

*Everything in nature tends towards fulfilment of its potential (Aristotle)*

Aristotle (384-322 BC) discriminated between the actual and the potential, assuming the existence of an inner activity at the very essence of the matter, which he called 'entelechy' (from Greek *en telecheia* - 'be in fulfilment or completion'). Entelechy [3] expresses the urge towards realisation (fulfilment) of what is in a state of potentiality. An example of entelechy is the capacity of a seed to unfold its potential, when appropriate conditions arise. In the case of a living organism, its sheer matter would be just a synthesis of inorganic substances without entelechy. If the organism is unable to fulfil its urge towards growth, adaptation and evolution, it is no more alive; in this sense each living organism embodies entelechy.

Leibnitz (1646-1716) - German mathematician and philosopher, called his monads entelechies in virtue of their inner self-determined activity. Leibnitz's entelechies-monads are a specific kind of elementary and indestructible units endowed with potentiality to produce all the changes (dynamics) they undergo, and thus determine all natural phenomena related to different levels of existence - physical, mental, psychical, spiritual [4]. Being material and immaterial at the same time, each entelechy is like a microcosm, or universe in miniature. It is, rather, a mirror of the entire universe, because it is in dynamic relationships with all other entelechies, and to that extent reflects them all, so that an all-seeing eye looking at one entelechy could see reflected in it all the rest of creation.

The urge towards self-realisation has been explored by many philosophers, scientists, mathematicians, artists and theologians. In the late 70s of the 20th century, Chilean scientists Maturana and Varela coined the term "autopoiesis" (from "auto" - self and "poiesis" - realising, creating) to refer to the ability of the living organisms to reproduce themselves as autonomous unities in an inseparable connection ('structural coupling') with their environment.

*"When we speak of living beings, we presuppose something in common between them... Our proposition is that living beings are characterized in that, literally, they are continually self-producing. We indicate this process when we call the organization that defines them an autopoietic system... The most striking feature of an autopoietic system is that it pulls itself up by its own bootstraps and becomes distinct from its environment through its own dynamics, in such a way that both things are inseparable" [5].*

Autopoiesis is another interpretation of the entelechy, this time as realisation of the urge inherent in every organism to "pull itself up by its own bootstraps" and thus to self-reproduce and evolve together with the environment.

Being a characteristic of all the forms of existence, the urge towards fulfilment manifests the unity of universe in a similar way as the motion does. In the exploration of human spirituality and ethics, this urge is an issue of a primary significance.

As far as Complexity is a holistic study of the motion (and hence the universe) in its manifestation through the complex and chaotic dynamics of nature and human reality, AND the urge towards fulfilment in its manifestation through the self-organising drive emerging out of the interactions of these dynamics, its findings have spiritual and ethical dimensions.

Let us elicit these dimensions.

## **II UNITY IN DYNAMICS**

*No thing and no being can exist in itself or for itself but only in dynamic relationship with other things and beings.*

### **II.1 All-embracing Web of Relationships**

While reflecting the Heraclitus' principle of motion, the above proposition is a fundamental premise of complexity, and relates to the integrity of existence considered as a complex of dynamics - energies, forces, forms and substances, whose creative, sustaining or destructive powers are constantly demonstrated at different scales of the universe. It is through these dynamics that everything that exists, moves, changes and transforms, from an elementary particle to the gigantic galaxy, becomes connected in a web of mutually dependent, intricately interwoven and co-evolving relationships.

"A human being is a part of the whole, called by us Universe, a part limited in time and space. He experiences himself, his thoughts and feelings as something separated from the rest - a kind of optical delusion of his consciousness. This delusion is a kind of prison, restricting us to our personal desires and to affection for a few persons nearest to us. Our task must be to free from this prison by widening our circle of compassion to embrace all living creatures and the whole nature in its beauty" (Einstein) [6].

## II.2 Inseparability

*Each living being is one's relative.*

Any individual, nay, any phenomenon of existence has the totality of existence at its own base and reflects this totality. As far as existence has ever been, one can infer that every phenomenon and especially every individual has an infinite past based on an infinity of relationships, which cannot exclude anything that existed, exists, or is liable to come into existence in future.

This stream of thoughts has a strong spiritual connotation, as it reveals humans' inseparability from each other and from every other form of existence.

Once upon a time the totality of existence contributed in the emergence of the 'primordial soup' on our planet, from which the first proteins formed and then the first cells and the first simplest organisms. After innumerable loops of the spiral of life - a spiral full of spontaneous emergence, bifurcations and transformations - the humans appeared. So we all were connected as potentialities in the common 'fountain' of life on our planet, and we continue to be connected as actual realisations through the life-supporting conditions on the planet. We constantly contribute to the changes of these conditions and they change us, so that we can together move and co-evolve as an inseparable Self called also 'universal mind' or 'universal consciousness' or 'noosphere' (from Greek 'noos' meaning 'mind')

## II.3 Noosphere

The term noosphere as an emerging web of global consciousness was coined in 1944 by the Russian scientist Vladimir Vernadsky. "Vernadsky discerned a new incipient phase in biospheric evolution -- the noosphere, or sphere of intelligence, wherein humanity could employ its evolutionary gifts as a creative collaborative agent of evolution - and where the widening conflict between technosphere and biosphere could be transformed into synergy" [7].

Noosphere was used also by Pierre Teilhard de Chardin in a book published posthumously in 1955 [8]: "Pushed one against the other by the growth of their number and by the proliferation of their connections, approached one to the other by the re-awakening of a common force and by the feeling of a common anxiety, the future human kind will form nothing but an unified consciousness". This consciousness will ultimately become the "thinking layer of the earth" which Teilhard calls the noosphere.

Some cyberneticians consider Internet as an epitome of the noosphere [9].

## II.4 Oneness does not Mean Sameness

The oneness of the human Self does not mean sameness; every individual is able to realise different aspects of the universal consciousness and has a unique path towards fulfilment.

*"If we fall only by a hair's breadth into the error of supposing that 'we' and 'they' are different things, not one, or supposing that all things are the same, not different, weariness and envy and shame and fear succeed one another in an endless train" (Zen).*

While expressing the idea of unity of all the existential forms, the oneness of the universal Self has a powerful ethical connotation.

## III IMPERMANENCE AND TIMELESSNESS

*Everything whose existence depends on something is impermanent.*

### III.1 Not This but That, And Not That but Something Else

If Y depends on X, every time when X moves and changes, Y moves and changes also. As far as the emotions, thoughts, knowledge and actions crucially depend on the ever-changing (expanding or 'shrinking') ability of humans to perceive, learn, understand and perform actions, they are impermanent.

The emotions constantly change their intensity; the causes, which produce them, and the objects, towards

which they gravitate, also change. The thoughts emerge ever different in contents and potency to discriminate, understand and decide. Often what we consider meaningful in our knowledge today becomes meaningless tomorrow. Our capacity and skill to undertake actions have ups and downs, standstills and jumps.

*"When we see the movement of things, they are not this but that, and not that, but something else"* used to say the Zen masters. It is the dynamics that create the impermanence.

### III.2 Fuzziness Inherent in Knowledge [10]

What is impermanent is characterised by changing boundaries and escapes precise definitions and descriptions. Because of this, the knowledge about the impermanent phenomena is fuzzy. The fuzzy knowledge does not become more certain in result of our capacity to use it for producing technological or other kinds of miracles; often it takes for us only a short time after some human-created 'miracle' to understand that its consequences are not miraculous at all. People still keep in their memories what happened when Einstein's knowledge (treated as certain and precise from every point of view) was turned into a technological 'miracle' in the skies of Hiroshima and Nagasaki.

The tacit assumption that the world, which we build up in our thoughts, is the same multi-dimensional world, which we experience in life, is the main source of errors we make.

*The world which we experience includes the world of our thoughts, but not vice-versa.*

Every time when we treat our fuzzy knowledge as permanent (absolute), we turn it into a dogma which is always an obstacle on the way to know. For example, when the authentic spiritual beliefs of people are turned into dogmas they become an 'organised faith' - a religion with fundamentalist ideas and practices.

*"That which has hardened into a fixed form already belongs to the realm of death, and if we identify ourselves with it, we are delivering ourselves unto death"* - warns us the wisdom of the ancients.

### III.3 Fatal 'Strange Attractors'

However impermanent the emotions, thoughts, knowledge and actions are, they tend to form repetitive dynamical patterns, which result in emergence of various kinds of 'strange attractors' - regions of intensive dynamic attraction - in the chaotic (that is, unpredictable and extremely sensitive to small perturbations) space of experience, reflecting human attachment and addiction, routines and habits, prejudices and stereotypes. The pulling forces of these attractors can be so strong that one can hardly resist them.

To deal with the forces of the attraction, particularly when these forces have roots deeply in the unconscious human psyche, is extremely difficult. The studies of alcoholism and drug addiction demonstrate that fighting against addiction not only fails but has totally opposite effects: fighting intensifies the degree of attraction, that is, makes the attractor more robust and statically stable. The energy feeding the attractor puts into operation a special self-protecting and self-justifying mechanisms which produce impossible to untie 'double binds' eventually reinforcing the drive to addiction.

Below is an old text about those who blindly follow the pulling forces of various attractors, both internal (established mind patterns like prejudice, habit, addiction, obsession with pursuit of selfish achievements) or external (attachment to objects of strong sensory attractions and sources of sense pleasures); the text is used in the spiritual practice of jnana yoga (the yoga of knowledge).

*"How helpless and miserable the people feel in the hands of their own minds and senses! How they dance to the tunes of their minds and senses! These poor, deluded creatures have no proper understanding of the fact that no amount of sense pleasures can ever make them happy. They do not realize that neither money, nor fame can ever lead to true happiness. They do not know that real peace and happiness can be gained only when letting the light of their souls shine lastingly in their hearts and feeding their minds and senses with serenity and wisdom."*

The message is straightforward: it is the spiritual dimension of life that is a source of power aimed at our liberation from the bondage of destructive addictions and attachments. Practical examples of this are programs like Alcoholics Anonymous - a program based on spiritual beliefs, which has proved to be more successful than any other kind of treatment in counteracting society's oldest and most widespread fatal addiction - to alcohol. The cases of spontaneous cancer remission are also rooted in human spirituality.

The idea of impermanence is very important in Buddhist spirituality. Buddhism proclaims that it is not the impermanent things by themselves but the attachment to them, which makes humans suffer. All kinds of

attachments have but one unavoidable and inevitable end, which is sorrow.

*"Seeing that all existing and apparent phenomena are ever transient, changing and unstable, and more especially that the worldly life affords neither permanent happiness nor gain and inevitably ends in death, it is useless to have attached oneself to the pursuit of worldly things rather than nourishing the growth of wisdom capable of assisting one both in living and dying"* - used to say the Buddhist practitioners in Tibet.

### III.4 The Timeless Essence

Although the timeless dimensions of existence and life are widely discussed in the context of human spirituality, the study of complexity adds new dimension in understanding the concept of timelessness.

What is timeless (permanent, non-temporal, eternal) in the gigantic galactic whirlpool, which holds together all the swirling dynamics of existence, can be located only in the hollowness - the cavity, the emptiness - along the central axis of the whirlpool. Only the emptiness, that is, only what is free of any materialised dynamics can be timeless: beyond birth and death, beyond growth and decay. But it is a particular kind of emptiness - an emptiness that is impregnated with an immense creative potential (in the same way as the emptiness of a black hole studied in physics is impregnated with a monstrous sucking power). Being both voidness and plenitude, the hollowness in the centre of the existential whirlpool may be used as a mental image of the ESSENCE of existence.

The essence supports not only the integrity of the existence, it endows the whirling complexity of existence with an ability to self-organise - expand, sustain and fold together with the material forms, in which these dynamics are embodied. All embodied-in-matter motions, dynamics and interactions, all animated and non-animated forms of existence gravitate to the voidness of the essence to release their energy contents and die, and to its plenitude to be filled with energy and live again.

In a state of deep relaxation, when not only our physical bodies are free of tension but also the minds are free of thoughts, and the emotions cease to emerge, we can experience the emptiness. After such an experience, we feel like being born anew, charged by a kind of energy that is similar to the energy of inspiration. Because of this re-vitalising effect, the relaxation positively influences not only the body, but also the mind and soul.

In a state of meditation, the yogis identify their inner nature with the essence of existence and its unlimited spiritual power. Here is a text used to lead the consciousness of the yoga practitioners towards the essence of their inner nature: *"I am not this body, not these senses, not this mind and not even this intellect. No, I am none of these things! These things are ever changing and impermanent. These things have a beginning and an end. I am not bound by these things, and I am not deceived by them. I am the Essence of Existence, which has no birth, no growth, no decay, no disease, no death. Therefore, the sword cannot cut me asunder! The spear cannot pierce me through! The wind cannot dry me! The water cannot wet me. The fire cannot burn me! The sun cannot scorch me! I am unborn, immortal, immovable, unchangeable, all pervading and infinite. I am the Spiritual Power of the Essence, which is ever by itself, one without a second!"*

## IV SELF-ORGANISATION

Self-organisation manifests in the astonishing diversity in animated and inanimate forms in the universe, in their evolution, transformation and metamorphoses.

### IV.1 Emergence of Self-organising Drive

Self-organisation is a potential property of the interactive dynamics. It becomes actual when the dynamics are materialised in some substance and their intensity of interaction increases so that they become swirling (vortical).

The vortical dynamics are characterised by the presence of self-propelling feedback loops and tend to form a vortex-like whirling structure sustained by forces directed towards its centre. At the same time, the forces that act towards the periphery of the structure cause the emergence of a multitude of pulsating vortical layers, similar to the fractals [12] studied in chaos and complexity theory.

The dynamics of every emergent layer (scale) reflects the pulsation of the whirling structure as a whole, and the integrity of the structure crucially depends on the interactive dynamics of the layers. This unique dynamical interplay between the whole (as an expression of layers' interconnectedness) and the layers (mirroring the whole), drives the overall process of self-organisation of the flow.

The magic of self-organisation occurs in the cavity (emptiness, vacuum) at the axis of the whirling structure, where a sucking force emerges to hold its integrity in the same way as the essence of existence keeps all existential forms in a dynamic unity (see the previous chapter). The magnitude of this self-organising drive can be gigantic, as in tornadoes, for example.

Can we ever imagine how incredibly great must be the magnitude of the self-organising drive produced by the existential dynamics in simultaneity of their constant interactions at all scales of existence? This drive must act as a gigantic self-propelling engine feeding with energy the whole universe in its astonishing variety of ever-moving phenomena and processes.

We recognise the work of this engine in the blossom of a flower as well as in the waves of the ocean, in the pulsation of a simple cell as well as in the beats of our hearts, in the rhythm of our breathing as well as in the cycles of the solar activity.

#### **IV.2 Multi-Scale Engine**

*"The same regulating forces, that have created nature in all its forms, are responsible for the structure of our psyche and also for our capacity to think"* - used to say one of the greatest physicists of the 20th century Werner Heisenberg. There is no reason for nature to select a special engine to support human life and evolution and another one to support the life and evolution of the rest of the world. There are no separate engines to support only our physical bodies, or only the emergence of our emotions, the birth of our thoughts and the flashes of our intuition. It is one and the same engine, which works at all visible and invisible scales of the universe.

Apart from being a major concept in studying complexity, self-organisation and its power to create, sustain and transform permeate the spiritual writing of people from the ancient times until now.

According to the oldest sacred text of the ancient Hindus ? Rig Veda (written in its present form between 1500 and 1000 BC), the existence 'started' with the awakening of "impregnators" and "powers: inherent power below and impulses above", in other words, with activating dynamics and interactions.

*"The non-existent was not; the existence was not at that time. The atmosphere was not, nor the heavens which are beyond. What was concealed? Where? In whose protection? Was it water? An unfathomable abyss?... What was below, what was above? There were impregnators, there were powers: inherent power below, impulses above"* [13].

#### **IV.3 Self-Organising Fractals**

No matter at what scale of existence the self-organising drive manifests, it has the support of the whole of the existence. This phenomenon has an equivalent in the fractal structure of the strange attractors studied in chaos theory.

The complex self-organising structure of any strange attractor emerging out of chaotic dynamics is fractal, that is, one can see similar configurational patterns persisting at every level (scale) of this structure. The structure is essentially holistic - each fractal level is described by one and the same general formula used to generate the structure as a whole. In other words, the whole structure 'supports' every fractal level by expressing itself through this level.

The following simple story (which the Zen masters used to pass to their disciples) describes the process of awakening of the self-organising drive and its support by the whole of existence:

When you see the rose flowers blossoming, have you ever thought that all this color, all this softness, all this beauty was hidden somewhere in the seed? But the seed alone was not enough to become a rose, it needed the support of the whole universe - the soil, the water, the sun, the sky. Then the seed disappeared into the soil and the rose bush started growing. Now it again needs air, and water, and the earth, and the sun, and the moon. All these acting together transform the seed, which was initially almost like a dead piece of stone. Suddenly a metamorphosis occurs. These roses, these colors, this beauty, this fragrance, cannot come from the seed unless existence has them already. They all may be hidden, they may be covered in the seed. But anything that happens means it was already in existence - as a potential, as an urge, as a drive...

#### IV.4 Obstacles on the Way of Self-Organisation

##### Art of Becoming

*You can become only your being.*

Changes accompanying the realisations of the self-organising drives are not arbitrary or accidental but dependent on laws according to which each thing or state of existence can only change into something already inherent in its own nature, and not into something altogether different. In this sense, the future state of an unfolding self-organising entity has been already created and exists (in potentiality) in its present state. Actuality and potentiality live simultaneously, although the latter is imperceptible to the senses; the self-organisation carries with it the full matrix of all possible states of an unfolding entity.

*"You can become only that which you are. You can become only your being. There is no other way of becoming, there is nothing else to become. You are already carrying your destiny; just the obstacles have to be removed",* says a message from the spiritual tradition of the Bauls in Bengali.

What are the obstacles on the way of expressing human potentiality for self-realisation?

##### Thirst for power

Self-organisation tends to work perfectly in nature; the plants and animals just follow the natural drive. The obstacles on the way of this drive are created by humans - the only conscious offsprings of nature endowed with ability to think and decide, feel and being inspired, create and act. We are responsible for the continuous worsening of the ecological conditions on the planet today. Our technological inventions lead to ecological disasters and they are the greatest obstacles on the process of self-organisation in nature. And as far as we are product of this process and vitally depend on it for our survival and evolution, the obstacles which we create are, at the same time, obstacles on the way of unfolding of our own lives, on the way of our spiritual growth and evolution.

Like all other animals, we use resources of nature to sustain our physical existence, but these resources are incomparably less than the resources used for establishing our power over nature; and not only over nature. The ego-centred human mind is obsessed with the idea of exercising power everywhere.

The highest achievements of the human intellect were and continue to be directed towards accumulation and realisation of military, economic and political power in society: creating advanced tools to kill each other, to exploit each other, to make those with less power follow the will of the strongest. In the developed capitalist world, the will to exercise power is masked by charismatic political speeches about democracy, freedom and equal rights for everybody. In parallel with this charisma, a massive brainwash keeps the drive towards consumption at its highest possible level, reinforcing the establishment of the global capitalist order, and making people helpless to resist it.

*"Do not belong to this world, Mukunda! This is not the world for human beings, this is not the world for intelligent people; this is an ugly world created by millions of years of darkness, exploited by politicians and religious leaders, dictators, suppressors and liars..."* - with these words the spiritual master tries to encourage his disciple to explore other dimensions of life and not only the 'worldly' one.

##### Ego-centred attractors

Beside the obsession with power and its destructive social and ecological consequences, there are other serious obstacles on the way of fulfilment of human potential. The most difficult-to-remove obstacles relate to addiction, to all kind of unhealthy habits, prejudices and dogmas, as well as to activities centred mainly in individual selfishness (like cupidity, avarice, greed, craving for luxury, self-praising, gluttony, envy, jealousy, lust, hatred, evil-doings to others, etc.). Having tendency to self-propel and grow in intensity, these obstacles absorb enormous amount of our physical, mental and emotional energy. Day after day our self-organising capacity is wasted in 'attractors', which have very little to do with the growth of our intelligence and with applying efforts to help others, to explore spiritual dimensions of our nature, of our life and reality, and to expand our consciousness in a sincere search for wisdom.

The master says to a disciple who is thirsty to know:

To open your spiritual potential means to remove the obstacles on its path. If you remove hate, love starts flowing. You are not to create love, nobody can create love. If you were to create love then it would be impossible. Love is already in you; you just remove the hate with the

power of your heart and you will see love streaming. Remove the unconsciousness with the power of your awareness, and you will see knowing arising in you. Remove the negative with the power of your mindfulness and the positive starts unfolding itself. It is almost as if a rock is blocking a tiny little stream of pure water; you remove the rock and the stream starts moving. When the rock is blocking its path, it may not ever be possible for the stream to come. We are carrying many rocks within our beings – call them blocks in your energy – and those blocks have to be dissolved and removed, if you want to let the tiny little stream of your spiritual endeavour come. Then nourish and care for it with all your love and all your knowing until it becomes a mighty river hurrying to unite with the ocean.

### **How to remove the obstacles?**

Complexity teaches us that the obstacles on the way of the self-organisation can be removed not by fighting with and trying to suppress them, but by facilitating the emergence of conditions, under which their supply with energy decreases and gradually stops. The released energy immediately goes to support emergence of other attractors. If some of them are in harmony with what we try to nourish and develop in ourselves, we can seek to create conditions 'helping' these attractors to grow.

It is clear that this process is not easy; it requires a great dose of attention not to directly intervene with the self-organising forces but to bring forth conditions, which may affect their intensity and directions. And, of course, it needs effort – an extra effort to be able to refer to one's self, to be responsible for oneself and to be able to stay awake.

Here is a simple ('not-spiritual') example from my own life: Many years ago I liked to play bridge; my partners were serious smokers. Although I was not addicted to smoking, every time when we played bridge, I also smoked quite intensively. Gradually, the habit of smoking started to grow. I felt unhappy about this but I was unable not to smoke when playing. And then I decided: as far as smoking was closely connected with playing cards (and to stop playing cards was much easier for me than to stop smoking), I told my partners that I would not play bridge any more. Instead, I started to swim in the same time (in the evening hours) when we used to play bridge. And that was it! Being unsupported by the strong emotions and the nervousness inevitably accompanying every bridge party, the 'attractor' of smoking gradually dissolved; the new attractor – swimming – was much more pleasant and healthy.

## **V RHYTHM AND HARMONY**

*We are imbedded within a rhythmical universe*

### **V.1 Cyclicity and Reversibility of Time**

Self-organisation in nature demonstrates the laws of cyclicity, according to which change follows a cyclic movement (like the heavenly bodies, the seasons, the hours of the day, etc.) representing a kind of eternal recurrence: events that already passed appear again in similar realisations.

In 1890 the great French mathematician Henry Poincare - the chaos pioneer who discovered chaotic patterns in the dynamics of three planets' interaction, proved his famous Recurrence Theorem: systems return infinitely close to their initial positions in the state space (state space is called the space which contains all possible states of a system).

For systems that vary their states continuously, the interval between arbitrary close returns is not fixed but can vary also. If the interval is fixed, the system is periodic, if not - it is chaotic. Most systems which evolve under Newtonian laws are not periodic but chaotic, which means that their evolution is unstable and obeys the famous butterfly effect: a tiny change in the initial conditions may result in enormous change in systems behaviour as it unfolds.

Poincare's Recurrence Theorem [14] reveals the idea of time reversibility: time does not flow only from past to future, it goes back.

### **V.2 Approach of Fractals**

When contemplating about time reversibility, we can apply the approach of fractals - by saying that history repeats itself, we concentrate on similarities in the social events occurring at different levels of the time spiral of complexity. In regard to the events emerging in the experiential space of an individual, one can see similar patterns emerging and dissolving in one's life and, based on their study, predict their unfolding.



The higher the ability to see similarity between events which already occurred in the past and the event which unfolds at the moment, the clearer the picture of the events, which are going to emerge in the future. The chaotic dynamics of human experience stop to be an unsurpassable obstacle for exploring the future!

As far as the similarities between the life events are much more evident in our inner experiential space - through our emotions, thoughts, deep feelings and dreams which these events generate in us, than to their outward manifestation, the deeper we penetrate into the exploration of our inner nature by means of concentration, contemplation and meditation, the clearer we are able to see what is going to happen with us (or with others), and thus to act wisely.

Although the deep exploration of the inner nature is not an easy task, it is not an impossible one; so the development of skill to see the future - a skill that is usually referred to spiritually advanced people - is not covered by an ungraspable mystery.

### **V.3 Rhythm**

Cyclicity relates to the notion of rhythm. Rhythmic dynamical patterns can be seen at every scale of existence - from the scale of a tiny network of cells to the scale of a huge constellation of stars. The rhythm is in the cycles of the seasons, in the migration of the birds and animals, in the fruiting and withering of plants. The biorhythm of every organism expresses the rhythm of nature.

Our bodies resemble multi-dimensional vortices with everything pulsing in synchrony, from the digesting activity of the intestines to the firing of neurones in the brain. Within the body the main beat is laid down by the cardiovascular system, the heart and the lungs.

Rhythm is at the very centre of our lives; it invigorates, energises and centres us. It is not a regular rhythm, it is like the rhythm of the heartbeats and the brainwaves – with an essential nonlinear and hence unpredictable component; such is the 'strange' rhythm of the chaotic (strange) attractors studied in chaos theory.

In the spiritual writings the rhythm is usually associated with the harmony in nature; here is an example of a typical Zen text about the natural harmony [15]:

The stars are in accord with the grass leaves, the earth is in accord with the sky, the rivers are in accord with the mountains. Everything is in such accord that existence is an orchestra. Everything is rhythmic, in tune. Existence is music. And we are not separated from it like observers, like spectators. The observer and the observed are one, the seer and the seen are one – we are it! It is a great inseparable participation. We have fallen into the whole and the whole has fallen into us.

### **V.4 Edge of Chaos**

Complexity considers the edge of chaos as a special region in the state space of nonlinear systems, where order and chaos meet to give birth to dramatic changes in systems' dynamics. It is a region where all established patterns dissolve their rigid boundaries and become permeable and fluid, able to coalesce and evolve, percolate and urge forward new emergent phenomena.

Individual experience is full of such phenomena as our living is mostly at the edge of chaos - it neither follows a fixed sequence of orderly-organised patterns nor disintegrates into an entire chaos.

At the edge of chaos, the self-organising capacity of the life dynamics manifests fully its potential. It is at the edge where the unfolding of human life reflects the process of evolving of the whole universe. Both processes are like pulsating fractals nested within each other - they keep centred at the essence of existence. The ability to experience the inspiring power of this essence is a gift of human spirituality.

At the edge of chaos, free from the burden of any patterns of imposed order or uniform disorder, one can feel the natural rhythm of the universe. Try to sit relaxedly for a while on a rock at the edge of the ocean or where the river flows or near to a waterfall, and be aware of the subtlest motion of your experience. It is as if the whole body starts to pulsate in sync with the rhythm of the moving waters and with the breaths of the breeze and with the thrills of the birds. It is as if the pulse of the entire universe is beating through your heart, through your soul... And this rhythm, once revealed, becomes so compelling, so enchanting that you never want to disconnect yourself from it, never.

## VI ETHICS OF COMPLEXITY

*"In a recursive, complexly interwoven world, whatever one does propagates outward, returns, recycles and comes back in a completely unpredictable form. We can never fully know to what results our action leads" - says S. Goerner [16]. Under such conditions, the 'optimal' strategy for acting ethically becomes surprisingly simple: Always do the right thing, at the right time, in the right way, for the right reasons, as far as you know it.*

When the process of our knowing becomes deeper and wider, when our consciousness expands beyond the limits of the selfhood, when compassion and love towards others and nature dwell in our hearts, and the thoughts of helping other and nature do not leave our minds, our understanding about what is right in any situation of life will constantly grow.

### VI.1 Self-Organisation and Authenticity

What impedes the growth of our understanding is the hypocrisy (falsity, lack of authenticity): when we preach one thing (high moral rules and ethical norms) and do the opposite (hurt and exploit the others and nature, while immersing in selfishness and delusion).

*"Oh, what my body does accords not with what my mouth utters, and my heart is full of shame"* confesses a yoga disciple in a moment of repentance.

The creative power of self-organisation can emerge only out of authentic dynamics - no matter where these dynamics are - in nature or in humans (although or is not needed as we are creatures of nature). Non-imitation is a law of nature. Existence simply does not tolerate imitation and falsity.

False and hypocritical behaviours do not support the emergence of the self-organising drive; what they support are lies and delusion, which are the greatest obstacles on the way of an individual' self-realisation.

The forces of self-organisation appear from within and cannot be imposed from without. Any attempt to impose authentic ethical behaviour from outside of individual dynamics (by means of instructions, moral recipes, preaching, punishment) fails.

### VI.2 Two Vital Factors

Only those ethical or moral norms can be sincerely adopted, which resonate with the actual level of development of one's consciousness. If there is no such a resonance, then people most likely will learn how to perform so that to create an impression of acting, according to the socially accepted moral rules and ethical norms. And every time, when opportunities arise for not acting according to these norms, they are immediately realised.

Two factors play crucial role in the development of our consciousness:

- understanding the lessons which the real-life experience constantly offers to us, and
- being able to commune with nature.

The first factor relates to our ability to see 'messages' in the events of life and reveal their meanings not as separated and sporadically emerging phenomena but in an organic connection with one another and with the individual experience of each of us. Nobody can do this instead of an individual by oneself. There is no written book from which one can borrow knowledge about one's own experience; one must live in this experience, make sense of it, use it in order to transcend its limitations, its destructive attractors and blockages.

The second factor - a factor that is brilliantly manifested in the indigenous spirituality - keeps us open for the life-supporting power of nature and makes us able to discriminate between natural and artificial, authentic and pretentious, genuine and delusive, right and wrong, truth and falsity.

*"...Far better, gentle Sage, to have it smelt of the pines and resound with the hum of insects... than to have it sound of the rules that a smaller type of man gets by studying the works of few great... "* So says the 'voice of wisdom' to a sage when a flash of intuition illuminates the mind.

### VI.3 Spiritual Law of Ethics

*If one thinks constructively, then the results will also be constructive and harmonious; if one thinks destructively, one reaps exactly what one sows.*

We are free to choose what we think, but the resulting thoughts seem to be governed by a law which is unchangeable. (Let us remind that "unchangeable" is only something which relates to the essence of existence, to the hollowness in the centre of the swirling dynamics where the potential for realisation approaches the threshold, after which it becomes an active force.

The creative potential of existence projects onto the human potential, so that constructive can be everything that assists the growth of this potential, everything that supports the urge inherent in individuals for its realisation. And everything that blocks the growth of the human potential, everything that suppresses the urge for self-realisation is destructive.

Ethical behaviour is constructive, as far as it resonates with our urge for self-realisation.

#### **VI.4 Acting Without Attachment**

*All is right which moves towards oneness, synthesis, reunion; all is evil which separates or perpetuates separation.*

The above statement fully reflects the 'spirit' of complexity and its embedded ethics: while everything is connected with everything else in the realm of existence and this connectivity (unity) constantly expresses through motions and interactions, all which supports and strengthens it and thus sustains the dynamics and their self-organising power can be characterised as 'right'. What 'right' means here is clear: unity and support of each and all existential forms in the urge for realisation of their potentialities.

Once the self-organising capacity is supported, it brings forth realisations (fruits). The variety of fruits ever expands - this is a law of nature! If the variety is unlimited, why should we get stuck only to a collection of pre-selected 'fruits'? Just because we like them? Or because we are ignorant about the possibility of growing other fruits, maybe thousands of times better than those to which we are attached? In both cases, it is a grievous mistake to block the potential for emergence with selfish attachment to the products of our actions.

*"...He who knows should act without attachment to the fruits of his action, having for his motive to hold people together..."* - says The Celestial Song - Bhagavad Gita, written in the very beginning of the millennium that passed [17]. If the motive is unity ("to hold people together"), then one does not need to bother about the fruits of action - they will never stop to emerge in ever growing variety.

Ethical, according to the wisdom of Bhagavad Gita is the behaviour of those who having abandoned all attachment to the fruits of their work. They are:

- ever satisfied without any kind of dependence;
- satisfied with whatever gain comes to them, and having passed beyond the dualities, are jealous of none, but equal in failure and success;
- liberated, free from attachment, with mind, heart and spirit firmly founded in self-knowledge.

If we succeed in nourishing such kind of behaviour in ourselves, then the bridge between Complexity, Spirituality and Ethics will verily help us pass over the darkness, stress and pain of delusion and move towards the light, peace and enjoyment of wisdom.

#### **VI.5 Learning to Lead**

The wisdom of the triad *Complexity, Spirituality and Ethics* brings the dimension of learning to the issue of leadership.

Learning to lead in today's global world is learning how to discover and create ourselves as leaders of our own urge to know and understand the world, ourselves and society. Learning to lead is learning how to navigate through social and ecological complexity of the global society together with others, in mutual respect and in a profound ecological awareness. Learning to lead is learning how to inspire and to be inspired, how to make ourselves and others in touch with our inner selves, and how to make our minds, hearts and souls resonate and work together. Learning to lead is learning about the secrets of the virtual facilitation - facilitation that does not depend on the actual presence of an external leader, but constantly stays in each of us and facilitates the emergence of our creative thoughts, aspirations and endeavours.

Learning to lead is learning how to strengthen our thinking, ignite our imagination, leads us towards actions compatible with our inner spiritual urge for self-realisation. Learning to lead is learning how to nourish and sustain the emergence of spiritual attractors in our experiential space, able to transform the swarm of our

thoughts and feelings into coherent and concentrated beams of energy and thus to empower us for accomplishments of great significance for our lives. Learning to lead is learning to discover ethical 'focalisers' in our everyday narratives – creative centres rooted not only in our reason, but also in our emotion and spirituality; and because of this, indestructible and eternal.

Learning to lead is learning how to resist the power of those who search to impose social injustice in today's era of frantic economic, social and cultural globalisation.

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