"The Bioethism"[i] paradigm, stressing the awareness of footbridges between processor networks as a systemic transdisciplinary necessity, is explicitly showing a new approach of interactivity within a circular environmental[ii]-psycho-somatopsychic[iii] flow

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Abstract
This work, developed throughout "The Bioethismic approach" of different aspect of life's natural transdisciplinary features, describes some footbridges and links interconnecting the biopsychic-physicochemical processes ("biops" for short) and those networks that manage the "environmental-psycho--somatopsychism proceedings" of survival. "E-psop" is a self-invented neologism that represents a general vision upon the circular systemic fluxes of all "survival needs[iv] dynamics" that percolate natural and circular streams of matter and energy throughout the "environment-brain-body-brain-environment" field. Such moves and emergences, resulting from the interactivity of living system's structures and procedures in reaction to ecosystemic factuality and internal environments show life's "systemicity".
As the transdisciplinarity of "The Bioethism" paradigm is not just an intentional approach of living system's behaviours from several disciplines viewpoint, it is assumed that observing living system's behaviours requires much awareness about their complex "ins and outs" while being triggered and shaped. By knowing a viable move is an emergent result from synergetic interactions between elements within exogenous and endogenous spatial levels of systems, it is, then, indispensable to recognise and understand the interconnectedness of sub-systems and the systemicity of processor networks. The new notions brought up by the "e-psop" proceedings as transdisciplinary knowledge teaches us how the interdependency of life's components and proceedings is consubstantial to survival and of its dynamics.

Keywords:
transdisciplinarity, ecosystems, sociosystems, consciousness, sustainability, adaptability, footbridges and links, thinking, ago-antagonism, survival, "environmental-psycho-somatopsychism" ("e-psop").

1. PRIOR NOTICE FROM THE AUTHOR OF "THE BIOETHISM"

1.1. A scientific turn of mind and a mode of thought

This document is a general non-exhaustive approach and synthesis of systems science learning with "The Bioethism" as a transdisciplinary new paradigm [J.-J. Blanc, 1996]. **This first part of a global work** on transdisciplinarity stresses the necessity knowing footbridges and links that conduces to the practice of a systematic transdisciplinary approach of living systems structures, behaviours and actions upon environments. Here, for length text reasons, it is not intended to go into deep developments on each scientific discipline concerned with ecosystems components and their factual ecological behaviours. However the "e-psop" approach, herein described, does require such integration. As for a mode of thought, this work is aimed to be controversial, particularly by "calling into questions" some actual scientific works and anthropocentric fields. It is also meant to discover new scientific matters intended to "bring up" numerous new research systemic fields generally not yet developed, since works presented are usually scattered. Moreover, this work is oriented towards

exercising a thoroughly new descriptive language that integrates into the narration the "systemicity" of survival fundamental values and of their dynamics in terms of processing stimuli, signals and internal and external event changes as general information treatments.

1.2. Transdisciplinarity awareness: about footbridges, links and the "e-psop"

This work suggests many new theories and/or theoretical bases not developed here but one: the "e-psop", a work upon the systemicity and natural transdisciplinarity of life. It also integrates cultural influence and effects of survival conditions upon the "environmentality[v]" of sociosystems and ecosystems. Footbridges and links, which interconnect the different systems' survival dynamics and process levels, are submitted to percolation rules and confronted to the permanency of changes. They stress the importance of being aware of the continuity of circular flows, moves and of the interconnectedness of lanes through which interactivity results ensure the percolation of information-energy data in between the different vital elements as functional phenomena of creatures' survival. Out of such flows, the maintenance of creatures' sustainability and adaptability is provided from within their sociosystems and ecosystem contexts current situation stimuli, and from that of the qualification of their survival processes and dynamics ability. Both the biopsychic-physicochemical ("biops") survival processing substrate together with the environmental-psycho-somatopsychic processing ("e-psop") stream are major notions, in systemic knowledge, that apply to any living creature's behaviours while observing how they exercise their decision-making and projects-engineering abilities since committed for solving survival problems.

1.2.1. The basis of "The Bioethism" approach is "bioethismic"

The transdisciplinary basis of a "bioethismic approach" is suggested by the content of the acronym: bio-eth-ism, as a contraction of:

- **Bio…***logy (psychophysiology of the organism and of its bio-physicochemical environment),*
- **Eth…***ology as individual and collective behavioural aptitudes,*
- *Environmental structures and events occurring within ecosystems (ecology of biotopes),*
- *Human…***ism** *and animalism[vi] as survival fundamental values and their dynamics (dwelling, feeding, parading, reproducing, dominating, mating, struggling...) that maintain survival both in terms of biology, Cultures and traditions throughout sustainable and adaptable move requirements.*

Such wide interactive and transdisciplinary process fields conduce to developing awareness abilities for learning which and where their necessary footbridges and links ensure the interconnectedness of life's functionalities and the sustainability and adaptability of their dynamics.

1.3. The biological, psychical and physicochemical systemicity of systems' structures and behaviours

The interconnectedness, interdependency and continuity of "behaviours and actions processes for survival" require millions of "biops" interactions of which emergent result moves percolate throughout the external and internal environments-brain-body-brain-environments. Their environmental contexts require the correlated qualifications of emergent chemical results that ensure the circularity of survival dynamics fluxes. Endogenous and exogenous processing abilities induce to performing viable interactive moves from treating environmental stimuli, signals and internal and external event changes. The different survival dynamics, throughout the "e-psop" processing networks, does organize the connectivity of those numerous interdependent mechanisms and ensure the "biops" percolation continuity participating in the perpetuation of life's sustainability and adaptability.

1.3.1. Number of processes and proceedings as vital mechanisms

Survival fundamental "biops" values, their dynamics, through many millions interactions, maintain the homeostasis (or self-organization) of individual and collective metabolisms within a context of a "dynamic stability" keeping up systems far from a lethal state of equilibrium. Among those dynamics, diverse processes have different types of footbridges and link functions that are virtually or materially emergent mechanisms, mentioned above or not, such as: *interactivity, ago-antagonism, interdependency, interconnectedness, morphodynamics, mnemonics, synergetics, symbiosis, emergence, catabolism, anabolism, somatism, mentalism and homeostasis… as* participating in the management of living systems' sustainable and adaptable development and survival. A system lives

under influence of social groups, and/or other neighbouring species spheres and factual environments. Interdependent along food chain networks, living systems self-manage their biological metabolisms processes, compensating endogenous ageing and outside entropy losses of energy, a global dynamic supported by an emotional “biops” substrate of moves as motors of survival dynamics.

2. THE SYSTEMIC “INS AND OUTS” OF COMPLEXITY AND NATURAL TRANSDISCIPLINARITY

The intra-linked immune, neural, humoral and endocrine interconnected nets, tied up to the different sensory, neural and cells circuits and aggregates, participate in the "survival dynamic stability" of life. Throughout such 3D nets, the environmental "biops" exchanges undergo the permanency of non-linear changes that occur at all spatial levels of systems' body and those of their ecosystems' niche. The treatment of their numerous and specific information data that occurs at all such levels, requires a connectivity ability ensured by footbridges and links that carry those millions of "biops" interactions and reactions throughout the 3D networks where percolate[vii] those vital moves results, those that sustain the viability of survival behaviours. Viable move results from " 3D highly interconnected graphs", as a representation of flowing networks (like in a flow-chart), may be observed in terms of metabolism (energy and information) along with the systemicity of feedback that participate in the regulation of the system's functions and the building up of behavioural moves. They surge from internal and external environmental events and survival needs, which, being treated throughout the different physiological nets, are carried out through flushes of emotion, flashes of sensitive reactions and steady flows of relevant matters and information, participating in the different survival dynamics.

Moreover, electrical impulses, biochemical energies and different "biops" matters, sustaining relevant processing of behaviours and actions, keep up with the "dynamic stability" of system's survival. As fitted in with the permanency of changes and the maintenance of moves fluidity, the system's viability is emergent from that percolation surging along networks and "biops" exchanges. This vision and approach of survival moves is pertaining to any living system's level, from cells to supra-national societies. Proceeding by analogy and with metaphors conduces to a homogenous approach of the different footbridges and links that build up the connectivity of systems' survival needs and dynamics. A major example resides into the perfect "reversibility and circularity" of the psychosomatic and somatopsychic phenomena. While environmental stimuli, signals and internal and external event changes are interacting within the "e-psop proceedings", fitting in sensory information; they are treated and filtered throughout the "specific individualism of a brain" thanks to many links and footbridges processors such as the hypothalamus.

An approach of different aspects of living systems' thinking and mental moves, as emergent from inferred representations and emotional fields, induce to the building up and memorization of images or sense given. Emergent from neuronal processes, they permanently promote survival needs motivations of the moment. At any time, a behaviour is induced by "a thought of emotion or symptom" of which nature, motivation and objective is given a certain "colour" according to the degree of the individual's intelligence and culture while adapting the treatment of stimuli, signals and internal and external event changes as a response to survival needs.

Collective systems, like sociosystems (i.e.: a civic society or an enterprise), have a collective consciousness that develops, throughout environmental interactivity, cultural and traditional thinking and knowledge, which build up mentalities with a specific amount of cultural abilities managing survival values. "Mental representations and ways of thinking" undergo the permanent effects of "environmental-psycho-somatopsychic" ("e-psop") fluxes and ago-antagonist survival dynamics reactions. Moves that give sense to emergent results in accordance with the psychological context and physiological status change of the moment. Individuals as well as groups get efficiency for survival that depends upon their ability for timely interactions. The qualification given to the management of both environmental factors and the permanency of change does influence the quality of responses of the "e-psop" processing.

As we see, "The Bioethism" paradigm is not just an intentional approach of living systems from several disciplines viewpoint. Observing living system’s behaviour, while being triggered and shaped, requires awareness over both their systemic “ins and outs” and complex emergence factors. Some of those factors that participate in systems’ survival are strong “notions of life’s survival values

maintenance", since they are efficient "biops" moves throughout the "e-psop" processing facing energy losses from thermodynamic entropy. The transdisciplinarity of life's moves complexity gives anyone to understand a good example of it within the global warming case: links or binds among the biogeochemical and climate cycles are known through the overall pattern of the cycling of all major elements, and ways in which different cycles interact with one another and their effects over both the different components of ecosystems and living systems' niches. The influence of changes in any one of nutrient cycles over other cycles (carbon dioxide and other "greenhouse gases') are also known as participating in giving more complexity to the phenomena that constitute the global warming. Such complexity cannot be approached without having a sound knowledge on "Systems science transdisciplinarity".

3. "E-PSOP" FOOTBRIDGES AND LINKS FOR UNDERSTANDING THE NATURAL TRANSDISCIPLINARITY OF LIFE

As said before, "The Bioethism" paradigm, as a systemic transdisciplinary approach of living systems, was developed towards a large understanding of systems' natural structures and behaviour processes. In order to satisfy permanent survival needs, systems, interactive with both environmental factors and homeostasis moves within the body, have to integrate ecosystems and sociosystems changing statuses of the moment. The learning of footbridges and links in between scientific disciplines not being sufficient, I stressed the importance of the environmental-psycho-somatopsychic ("e-psop") processing as the substratum towards a clear systemic knowledge of transdisciplinarity. Therefore, I have proposed that the "e-psop" processing becomes a "generalized notion" as of being the "central circular flow procedures[viii] that manages any level of survival fundamental values". Survival management means in terms of consciousness and awareness, emotions and thinking, intelligence, representation and abilities are universal survival functions whatever system is concerned. The genetic and learnt processing means at neural, physiological and physical substrates levels provide the different fundamental mechanisms of which management through the brain is both located into both the primary brain areas and the different cortical levels and memory basins (or its equivalent according to species). There, sensory information and emotions stimuli are inferred and treated unconsciously and/or consciously, inducing to a "primary thinking" and to a silent speech, which, in physiological and partly unconsciousness terms, participates in life's metabolic processes and the building up of behaviours and actions for survival.

3.4. Consciousness and awareness

Living systems' collective and local consciousness, as well as that of individuals, being permanently on the move to maintain the engineering of survival dynamic regulations and issues, is the "motor" of "e-psop" components that process all factors of sustainability and adaptability along food chains. As conscious individuals and/or societal local and regional actors, living systems learn and acquire that awareness giving them their survival abilities (particularly through decision-making and project engineering). They, then, have access to an efficient management of their sustainability and adaptability through behaviours and actions that usually suit their survival needs and means taking into account their local socioeconomic fabrics current situation at their neighbourhood level. Locally, they also participate to maintaining their situation far from equilibrium, i.e. manage their survival by overpowering that part of entropy surplus, which is a "survival liability and duty" as related to their capacity of reproduction and adaptation to evolution moves. At Mankind's level, humans, if particularly trained to practice "The Bioethism" transdisciplinary approach, would become capable to efficiently maintain individual and collective consciousnesses capable to permanently regulate the pursuit of a challenge of sustainability and adaptability, a challenge pertaining to their capability to salvage their sociosystemic and ecosystemic future. Consciousness and awareness, being both the tool of vigilance and of underpinning mental life, serve the emotional intelligence and find a learnt consistency within genetic memories and neural memory basins for survival.

3.5. Emotions are biopsychophysicochemical phenomena

3.5.1. Neurotransmission and neuromodulation as emotional transducing

Candace Pert (1997) studied emotions in terms of molecules, and showed how neuropeptides were participating in emotional processes. The neurotransmission, or communication in between neurons

transducing information through electrical signals, is provided for only a few milliseconds by neurotransmitters (acting upon postsynaptic receptors). On the contrary, neuromodulation, affecting synaptic transmission of neuropeptides, then called neuromodulators, is provided for from several seconds to several days (i.e.: acetylcholine as activating muscles) and chemically modify the state of the neuron receiving the signal. This occurs when signals are not inhibited (calcium ions Na+) while transducing through the synapse (cleft in between two connections). Neuropeptides have each a specific function corresponding to both the maintenance of the endocrine process network and the binding of organ cells, as well as sustaining emotional statuses according to different levels of surge. Among them are: substance P, neurotensin, somatostatin[ix], vasoactive intestinal peptide, cholecystokinin[x], and the opioids[xi] peptides.

3.5.2. Molecules of emotion: opiate peptides

The Opioids or opiate peptides are those that permitted Candace Pert to demonstrate the proprieties of opiate neuropeptides as molecules of emotions ("opiate drugs such as morphine bind to their cells' membrane receptors and mimic their pain-killing and mood-altering actions"). Neuropeptides, such as Opioids and opiate drugs, have diverse effects on the gastrointestinal tract and on the cardiovascular system, but also on pain, mood, sleep, sedation, and the cough reflex. Their action move is "captured" by specific receptors (binding) that are numerously seated on most creature cells' membrane, its boundaries that bind peptides like morphine, dynorphin, endorphin, enkephalin… Globally, endorphins are involved in the regulation of pain (and pleasure), as "connected with "pleasure centres" in the brain, the release of sex hormones and the adverse effects of shock. They are also concerned with opiate addictions, in certain cases related to appetite control along food chains, and certain degrees of addictions that induce to chronic pain disorders."

3.6. Intelligence, representation and abilities for them

3.6.1. Representations, sociality and co-operation

Survival is for all living systems a matter of "representations of the world's elements" that feed their emotional memory basins and alertness abilities to manage their needs. Their satisfaction implies a permanent information treatment, were they internal or/and external stimulus and signals interactions. The production of such emergent results is percolated along the psycho-somatopsychic processing networks and participates in the building up of "intentionality" and "motivation schemes" that end up into behaviours and actions for survival (e.g., drink or eat). At different levels of species evolution and sociobiological traits, inferences (deduction) and representations (mental image) have degrees of complexity, depending on the characterisation of the creature's sensory outfit. Human individuals, when facing a phenomenon, interpret it from the representation and emotional world they have induced or inferred. What they bear in mind is filtered through sets of affect specificities and Cultural ideas, which sociogroups to whom they belong have given sense to, as well as does the individual interacting with groups and environmental events. The "representation world" structures the " dynamic stability" of sociogroups and that of individuals and is compounded of affective, social, civic, organizational, political, defensive and strategic representations…and mainly refer to the qualification of most survival fundamental values when they are not related to purely intellectual digressions. However, and unfortunately, too many and/or too frequent representation changes, or too much degradation of their sense, in a short period of time, are known as inducing perverse effects in society's individual and communities behaviours and actions. Stresses, violence and both derivation of resource and survival sensitivity weigh much over emotional intelligence, organism's integrity, sociogroups dynamic stability and environmental health and socioeconomic situations.

3.6.2. Intelligence is first a general aptitude to solving survival fundamental problems

Any living system, individual as well as collective, inherit, learn and develop a certain number of relevant aptitudes and skills by which it solves survival problems such as: inhabiting, eating, communicating, protecting oneself, defending against predators, managing one's position along food chains…General survival necessities that are called "intelligent behaviours" have to be described according to the diversity of skills applied to apprenticeship, learning and managing current situations. Therefore, intelligence is of different types and must be distinguished in terms of where and for what it is applied to. Throughout the psycho-somatopsychic ("e-psop") proceedings flux, the degree of intelligent abilities applied to accomplishing a response to stimuli, signals and internal or

external environmental events changes promotes the quality of behaviours or of endogenous physiological reactions and becomes a factor of survival efficiency. An ability to adapt oneself to environmental events calls for a certain number of mental processes, such as perception, learning, memory, reasoning, and problem solving, in order to change or adapt oneself to a feeling or a behaviour that is influencing oneself as well as it might, at the same time, influence the environment or the assumption of new survival solutions. The degree of intelligence and types of intelligence therefore constitute the necessary substratum that participates in decision-making and projects engineering efficiency.

3.6.3. Emotional intelligence: the management of thoughts and emotions

Self-awareness, as a keystone of survival solutions, supports the ability to recognize feelings and world's events when they happen. Because emotional intelligence is the mean for monitoring emotional fields and of an uppermost importance to balance psychological insight and self-understanding, the inability to experience true feelings leaves people at mercy. However, greater certainties about emotions induce to pilot both social relationships and one's life with a surer sense of how people really feel about decisions for what to do. Managing emotions by handling appropriate feelings is an ability that builds up self-awareness content, and chase rampant anxiety, gloom, or irritability and, much important, the consequences of failure. Such basic emotional skill is consubstantial with intelligence of individuals and groups.

3.6.4. Collective intelligence and collective behaviour: a matter of synergy

Within a local environment, any sociogroups and the society develop specific mentalities and global abilities building up behaviours that confer a general collective degree of intelligence to them (e.g. as in an enterprise team) and, with certainty, specific forms of Culture. The specific status of a collective intelligence is emergent from a context of co-operation between individuals (or "agents" as said in socioeconomic) and from the weight of ago-antagonistic behaviours as witnessed and expressed from interactions among individuals having different types of interest. A context of co-operation therefore reflects the fact that individuals have integrated a collective challenging and common goal, which require an important volume of information exchange increasing their relationships. [A. Brigoo, 1993 - D. D. Woods, 1988]. Furthermore, collective behavioural contexts are of distinctive quality and intensity, since social interactions, emergent from permanent synergetic moves results within the community, are different from what emerges from individual motivations and needs. However, the Cultural side of a "local mentality", having its specific components and colours, induces to some sort of a "temporal marking" surged from a "contagious spread of moods and behaviours". The qualification of collective behaviours and of their intelligence emerges from the contextual degree of unanimity, intensity and of its difference with the manner in which individual members of the community customarily act and feel in their brain-body.

3.7. Thinking, a controversial however natural living system's process

Many psychologists postulate that "the thought" does not exist since it contains sets of different mental operations such as learning, solving problems, reasoning, memorizing, recognizing… However, there is a difference between these "mental actions", as defined by humans, and the "biops" substratum that induces to make them emerge! Scientists like Jean Piaget developed the genesis of thoughts, or E. Claparède and John Dewey suggested that directed thinking proceeds by "implicit trial-and-error", and have, like many others, studied the process of thinking in those different ways. However, the most relevant definition of thinking refers to mental activities as being "internally adaptive responses to intrinsic and extrinsic stimuli"; not only do they express "inner impulses" dictated by the succession, or even the simultaneity of survival needs, but also serves to build-up goal-seeking behaviours" as environmentally wise and effectively pertaining to current conditions for survival. Memorized inference results participate in the quest for mental solutions as relevant with survival behaviours and needs; therefore apply to an array of mental images, inferences and representations that sustain an unconscious and/or conscious thinking, silent or not.

3.8. Unconscious thinking as common to living system's survival

There is a distinction between conscious and unconscious thinking [Ed. Claparède, 1873-1940] since thinking has mechanisms that are not necessarily appearing as conscious. Many events, signals and stimuli may be inferred unconsciously, or at least are not memorized or treated through an intentional

conscious process. However, the interaction between emotions and/or other stimuli with stored memory basins inferences is of an important "biops" effect upon "thinking": within the limbic system, the unconscious chemical processes are largely intervening into the thinking process, and memorised inferences have a large role upon the qualification of self-ability and self-adaptation during the interaction with factual internal and external environments. Since behaviours proceed from motivations and choices, it is assumed that living systems, individuals as well as communities, have different types and degrees of "thinking", depending on species, type of community and on levels of unconscious thinking that participate in strategic decision-making, such as for example "fight or flight". Co-operation, sociality and projects engineering for choosing and building a habitat site or tracking down and storing food, or other survival acts, require certain forms of unconscious thinking and reasoning. Thinking induces to behavioural mechanisms fed with specific Cultural expressions and is basically supported by emotions and some degrees of mental and emotional intelligence [D. Goleman, 1996] giving creatures a capacity to recall precise apprenticeship facts, inferences and souvenirs from the past. A great part of this unconscious thinking participates in decision-making processes fed by motivations and survival needs, facilitating a relevant evaluation of events in their dimension of the moment. The understanding of "Thinking" is found into the emergence of interaction results that integrate stimuli, signals and internal and external event changes between body and mind, internal environments and exterior ecosystems and sociosystems, while confronted with the weight of unconscious processes. So is the set of processes that are giving consistence to the postulate of "psycho-somatopsychism" and its global networks of integration and fluxes that maintain relevant survival dynamics.
Thus, "The Bioethism" transdisciplinary paradigm approach of living systems structures and behaviours, of their sustainability and adaptability awareness for survival, describes the complex interdependence towards their internal and external environments moves as well as the complex interconnectedness that presides over their decision-making and projects-engineering. The uppermost of "systemicity" is then well described throughout the different levels of those processes that permanently function within the "e-psop" flux.

4. THE "PSYCHO-SOMATOPSYCHIC PROCESS": SYSTEMIC ROOTS OF NATURAL TRANSDISCIPLINARITY

The "psycho-somatopsychic proceeding" is postulated herein as being the global dynamic stream of living systems' survival, in terms of a general circular flux that permanently supports life's systemicity. The natural biological and psychical "flow-streams" and "flow-charts" formed by the "brain-body-brain-environments-brain-body" interrelations treat biochemical, physical and psychical stimuli data and produce emergent results that underpin survival operations. Interaction necessities imply a variety of sensory structures that respond to survival or vegetative needs stimuli, natural elements and events, other species neighbourhood, light, pressures, or chemical product and phenomena while treating information-energy, etc. Once excited, sensory organs or cell's receptors convert the stimulus energy into endogenous and/or exogenous behavioural responses emerging from a set of sub-levels in the organism. In multicellular organisms, signals are transmitted from sensory organs to other parts of the body by specialized cells. Animals with a neuronal net, the minimum being one neuron, see their sensory neurons converting and transducing a stimulus into an electrochemical activities, as nerve impulses percolating molecules of emotion or other stimuli along with information-energy. These impulses, processed, interpreted and diffused within the brain-body networks, have different degrees of evolution according to the complexity of their sets of "biops" reactions and interactivity factors. If empiricism[xii] may measure the system-environment sets of networks interrelationships, then feedback, as emergent exogenous or endogenous results from circular interactions within individual systems, shape up a reflexivity that participates in the expression of innate structures of living systems (biological heritage) and in their species phenotypic traits, those resulting from their evolution trends and acquisition abilities.

4.9. The neuronal and endocrine information stream for interactive communication

Globally, neuronal and endocrine information streams imply both functions and paths managed by the autonomic nervous system and the central nervous system. In terms of the general notion of the environmental-psycho-somatopsychic proceedings flux ("e-psop"), they carry permanent data and signals that are principally emergent results from interactions between "bio-physicochemical" agents,

hormones, neurotransmitters, other molecules and information-energy. An organ, or an organism, builds up or reactivates some behaviour with the support of emotional substrates and homeostatic functions that, through the intermediation of inferences, participate in survival dynamics. Fear while facing a danger turning out into flight, or anger out of aggression, is a source of extra "biops" needs and means strategically enacted to manage their apparition. Furthermore, the pleasure of an affective relationship induces to sustain it alive. In such context, if emotions are deeply anchored to biological survival dynamics, they require the intervention of complementary processes that contribute to evaluating stimuli, events or signals. An information evaluation is pertaining to the individual personality and/or to the mentality of the living systems ability to interpret the elements of life and of the world. An apprenticeship through categorizing and memorising that is the relevant mean for storing inferences within the different brain memory basins.

4.10. Psycho-somatopsychic reflexivity and interactivity of the percolating flux

Spatial and temporal perceptions are empirical finite matters, while reflexivity is potentially infinite, because of the recursive status of the body-brain circular structures. Reflexivity induces to update one's awareness throughout constant interactive proceedings of one's brain-body confronted to the permanency of factual environment changes and one's trial and errors results (stimuli-responses interactions). Inversely, reflexive activities induce to memorize knowledge by some sort of an extrapolation of facts as "understood" from inference or induction. Since the linearity of phenomena concerns the left hemisphere, the right one, for example, controls the non-linearity of direct intuitive representations of exterior phenomena and of affectivity: then conscious-unconscious statuses of interactions play a major role while any living system is occupied with creative activities. More, the natural selection and abilities of systems for survival needs management provide for those dynamics that maintain the metabolism "stability", an homeostasis against non-linear moves that regulate both internal and external environment events and stimuli. Life's transdisciplinary approaches much prevails over other modes: empiricism, reflexivity, linearity, non-linearity, consciousness and unconsciousness have undeniable psychosomatopsychic roots and are some of those footbridges proceedings that participate in the creatures' survival mechanisms.

4.11. Psychosomatic and somatopsychic proceedings: ago-antagonism circularity

Neuropeptides and their cell-receptors are the substrates of emotions management and are in constant communication with the immune system, the mechanism through which both health and disease emerge from changes of homeostasis degrees to sustain the metabolism. Such correlation is so relevant that it pertains to ago-antagonism proceedings that disrupt or not the tension between sets of causal links as in psychosomatic or somatopsychic proceedings. Candace Pert, when concluding her work, enhances that fact since *"there are four basic molecules that code for all DNA in living organisms, there is some given number, not yet finally determined, of informational molecules that code for communication, for the information exchange that runs all living systems around, whether that communication is inter- or intra-cellular; organ to organ, brain to body, or individual to individual"*.

4.12. Systems science pluralism and the environmental-psycho-somatopsychic process

Pluralism induces to observe and discriminate different fields and levels of the bio-psycho-physiochemical statuses ("biops") of a living system: **First**: it is now assumed that no dualism exists between mind and body since Candace Pert, 1997, showed that psychosomatic behaviours were supported and sustained by the combined process networks of organs bodily functions as well as of "biops" functions (endocrinal, humoral, neural and immune…). **Second**: pluralism is, in some sense, "reflected in such occurrences as sensations, perceptions, emotions, memory, desires, various types of reasoning, motives, choices, traits of personality, in the unconscious" and conscious world of each individual. **Third**: life's complexity emerges from intertwined networks of systems' natural faculties involved in "perceiving, remembering, considering, evaluating, and deciding". **Fourth:** the circular percolation throughout the psycho-somatopsychic stream is sustained by a certain number of "synergetic moves" processing the different "bio-physiological and biochemical evolving fluxes such as: the emergent effect of the "cost-benefit game", the law of the least effort, "morphogenesis" and other "ago-antagonist biochemical and or bio-psychological results". Moreover, many sciences require relationships to disciplines such as neurology, psychology, sociology, history and others: a relationship between their fields and levels pertains to the necessity of transdisciplinarity with its

variety of footbridges and links. Particularly explicit through a certain number of mechanisms, or interactive proceedings (see above "**Fourth**:"), those relations illustrate what permanently occurs during living systems and their sociosystems' lifetime moves that prove the relevancy of "e-psop".

4.13. "Schemes" as for survival dynamics are structuring consciousness means

Within a hierarchy of local groups, each individual possesses a consciousness of which elements are diffused among its memory basins and other body-brain areas, serving schemes building up. Schemes[xiii] are survival preoccupation, realized throughout the exercise of projects engineering and are essential components of any individual or local collective consciousness qualification. They are complemented by global collective schemes in terms of consciousness and feelings that each creature experience as belonging to a species group at different levels of society. A local collective consciousness is structured according to levels and cultural specificities of local social sub-groups and to socioeconomic schemes that foster the development and evolution of their ecosystem's fabric. Such process conditions the specificity of local collective intelligence [P. Levy, 1994]. Correlatively, individual consciousness is strongly structured and influenced by sociosystems interactions with environmental contexts they belongs to and, from such, develops schemes and engineer them according to its specificity. Sociogroups, as components of sociosystems participate to influence themselves from interacting in-between them, and structure a "consciousness whole", closely related with the diversity of individuals and sub-group collective behaviours.

5. POSTFACE AND PROVISIONAL CONCLUSION

The advantage of the "bioethismic" approach, as being transdisciplinary, is here particularly enhanced by living system's structures and behaviours as being submitted to the same survival abilities and constraints (such as inhabit, co-habit, eat, struggle for life, reproduce, cope with food chains…). Such approach permits a relevant transdisciplinary description of survival proceedings from biological cells to all living creatures' species, which, individually as well as collectively, require the drive of equivalent survival dynamics needs and means as survival necessities at their level of organization and abilities. Processing "matters[xiv] and ways of thinking", under the permanent effects of "psycho-somatopsychic proceeding fluxes" and "ago-antagonist dynamics", creatures give specific sense, or not, to emergent results issued from stimuli, signals and representations of internal and external event changes. Following their psychological context and physiological status of the moment, systems interact specifically with environmental events according to their endogenous and exogenous ecosystemic context. Individual as well as sociogroups, communities and societies, have a certain degree of efficiency for survival that depends upon their survival dynamics abilities and cultural qualification. The “ecosystemicity” of an enterprise is quoted as the field of sociogroups interactivity with environments that require a capacity of relevant responsiveness for its individuals and for the whole of the group when managing the different needs and means that have to sustain their individual and collective survival dynamics. Hence, the "unity of life", as referred to by C. Pert, promotes the idea that transdisciplinarity is "the meta-discipline" that grants us with an efficient learning of living system and sociosystems' structures and behaviours, actions and permanent adaptation with the ever changing contexts. Interdependent, systems conserve their integrity from daily tensional oppositions (ago-antagonist results) from abilities they acquire for such moves. Within their interconnected networks, the systems' psycho-somatopsychic flux provides the different survival fundamental needs and means they commonly need: to habit, eat, communicate, breed, feed, react from fight or flight, reproduce, socialize, etc. As "biops" moves that manage survival rely upon the interconnectedness of physiological networks, physical structures and the "e-psop" stream, one can observe that non-linearity, lying upon "stochasticity (xv)", hazard (xvi), permanently changing environmental conditions, resistance to entropy, "predator-prey games issues", "excess and scarcity management results", "power and natural selection degrees towards adaptative evolution" and other opened and emerging results, as many factors of life's complexity, weigh much and permanently over the interdependent and fragile survival dynamics.

5.13.1. A provisional conclusion on such learning

"The Bioethism" transdisciplinarity learning brings in synergetic abilities within "decision-making and projects-engineering" that induce to understand those specific systemic behaviours and actions that pertain to the responsibility of creatures towards "their sustainable and adaptable survival

dynamics challenge". Apprenticeship and social education of children and adults come first to be seen in the light of the "fundamental precepts of necessity", and, from the learning of "The Bioethism" systemic principles, that these precepts are ferments to the building up and maintenance of a permanent seeding of "sustainability and adaptability germs and genes". Both are conducive to the make-emerge of adequate systemic schemes and challenging promotions of a survival quality to bequeath to next living systems generations.

Three fundamental principles for survival are associated with adequate challenging purposes that preserve the "requisite diversity and integrity" of living systems' societies (metaphoric for certain creatures communities) and pertain to natural selection necessities:

- The conservation of local collective memories in order they participate in the maintenance of diversities as vital to life's perennial and to local specific schemes as well as to local knowledge and savoir-faire...those that support an evolving qualification of local actors towards a relevant management of factual environments while interacting with stimuli, signals and internal and external event changes.
- The maintenance of an historical, societal, civic and collective consciousness being as fundamental to the cohesion and quality of the local socioeconomic fabric survival and of a dynamic evolution of their current situation (both genetic and phenotypic).
- The maintenance of those memory basins that constitute "the roots of the self" as participating in the shaping up of individual and collective identities and in keeping up a psychic balance of the sensation of the self.

The numerous disciplines involved with survival give importance to learning footbridges and links that pertain to understand the local and global permanency of endogenous and exogenous moves and change effects within the different levels of body-mind system's structures.

- "Natural synergetic and morphodynamic drives" of phylogenesis and biodiversity,
- "Thriving arborescence" of biological networks, scientific and technologic processes,
- "Evolving diversity" of Cultures and mentalities,
- "Cautiousness about theorization, intellectualism, falsification of realities and abuse of life's values",
- "Openness mentality against psychological manipulations towards extremes and their opposition", etc.

Development, in terms of welfare, as "the perfectibility of progress" and fulfilment, is subject to natural and/or triggering events from: entropy drive, positive feedback and progression of asymptotic speeds always inducing multiple perverse effects. For an individual apprenticeship of what is sustainability and adaptability Mankind's individual apprenticeship of an efficient transdisciplinary approach, require an adaptation of mentalities to learning and practicing together with individual and collective emotional intelligence and cultural local traditions. The "field theory", as a general metaphor practice, is a premium natural principle to define many footbridges and links of systems' behaviours. A provisional conclusion assumes that the second part of "The Bioethism" transdisciplinarity approach will consider other fields that will concern the apparition of specific system's approaches such as embryology, phylogeny and ontogeny together with the intrinsic life of ecosystems and their environmental psychological contexts, i.e. the factual content and context of natural, social and built environments where systems have to cope with factual environments for their survival maintenance efficiency.

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Notes

[i] - "The Bioethism" is a universal paradigm that I developed in 1996 and which proposes a transdisciplinary approach of any living system interactions within its environmental spaces, its body and ecosystem's niche, a behavioural representation in terms of **"Biology, Ethology-ecology and Humanism".** The presence of man stresses the necessity to approach survival fundamental values as common to all creatures and for the protection of life on Planet Earth.

[ii] - Environmental: as external conditions influencing development or growth of people, animals or plants

[iii] - Self-invented neologism: "e-psop" for "environmental-psycho-somatopsychism"

[iv] - Survival needs: to habit, feed, eat, parade, reproduce, fight, …and also make decisions and engineer projects.

[v] - Environmentality: contextuality

[vi] - Animalism: 'the theory that man is a mere animal being, in reference to animality. It refers also to the status of an animal or of a lower animal"

[vii] - Percolation: refer to the verb percolate that means, " to spread throughout a large area. A critical phenomenon of transfer and communication, where " different sites are capable to locally relay an information, which may be psychical, physical, biological and liquid. The stochastic qualification of the links and their activity, above a certain threshold, induce to the propagation of the flux beyond the local area. A rigorous fitness between percolation and phase transitions values (Kasteleyn et C. M. Fortuin, 1969) leads to the description of biologic, physiological, physical, or sociological phenomena with the same geometrical and statistical concepts.

[viii] - "e-psop": a metaphor for it is the highly connected 3D graph that represents the interdependent interconnected physiological and sensory networks.

[ix] - Somatostatin: "appears to inhibit the secretion of certain other hormones, especially growth hormone".

[x] - Cholecystokinin: "appears as a neurotransmitter targeting the gall bladder that "stores and concentrates bile, and releases it into the intestine".

[xi] - Opiate, or opium: "a drug containing opium or a substance with similar addictive or narcotic properties; something which dulls sensation, physical or mental. Inducing sleep or slowness and somnolency".

[xii] - Empiricism: "knowledge depending on trial or experiment, also knowing only by experience without a regular learning.

[xiii] - Scheme: " structure of an operating behaviour, of a process (action, intelligence...) that can be in the form of images or kinaesthetic sensations " (in the form of an interior move...). Then the set of shapes might be considered as contingent of the personality

[xiv] - Matter: "whatever has physical existence, as distinct from mind".

[xv] - Stochastic: randomly determined or having a random probability distribution or pattern that may be analysed statistically but may not be predicted precisely.

[xvi] - Hazard: a danger or risk or a potential source of danger: *an accident or a health hazard.*