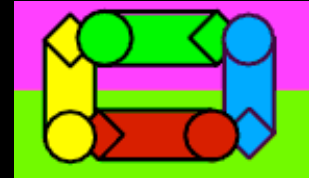


**Alfred Lang**

University of Bern, Switzerland



**Manuscript 2006, Salzburg Biosemiotics Presentation**

**A-Dualistic and Generative Semiotic**

**A Conceptual-Methodological Reconstruction**

**Enhanced Manuscript 2006**

This text is from langpapers.net  
© 1961ff. by Alfred Lang  
Scientific and educational use permitted  
Downloaded 2006.12.18 16:28:02

>>>>Navigation Outline  
>>>>SemEco Outline  
>>>>Glossary of Terms

# **A-Dualistic and Generative Semiotic**

**A Conceptual-Methodological Reconstruction**

**Basic to Semiotic Ecology and Evolution**

**Alfred Lang**

University of Bern, Switzerland

<http://www.langpapers.net>

Biosemiotics Gathering 6, Salzburg, 2006.07.06

Revised version 2006.12.12

A-dualistic or non-dualistic appears to be a negative qualification of what I present here; generative a positive one. Generating or producing something, possibly something new or a replicate something extant, is a constructive accomplishment. By a-dualistic, although it sounds privative, I also want to say something constructive, namely "to advance beyond" the various Cartesian, matter-mind-, matter-spirit-, object-subject-, or related dualisms; not by solving their 2.5 millennia-old and unsolved – obviously insoluble – problems, rather by disregarding or dissolving them. For they lack any public evidence; are metaphysical. My approach proffers to realize something that does not need to presuppose that age-old and heavily loaded, but private and perennially cloned belief or postulation. The methodology I present here to some limited extent is primarily conceptual, yet it includes many theoretical and practical sequels and possibilities of understanding the world and ourselves within it. **Semiotic Ecology**, as I name this set of thinkings about the **Human Condition** in progress, is spanning from basics to ethics; the present paper is restricted to basics with a few outlooks. It does not need to make any presuppositions except one, namely that our world is generically evolutive in the sense that whatever occurs comes into existence by interaction of things extant. This assumption is a very plausible induction from plenty of observations. All the rest is based on observation and conclusion. I propose to look at consequences, this evolutive assumption can produce.

Note that I use the term "**evolutive**" for denoting the generic idea that all things and events or Structures and Processes, are becoming out of encounters of things or Structures extant. So I can reserve the term "evolutionary" for the present understanding of and theorizing about bioevolution after Darwin. "Evolutive" is taken by many people for a non-existing word; however, you don't say nationary for native or actionary for active etc. Why should you not say "evolutive" for everything originating from encounters of things extant?

## ***0. Content***

1. Semiotics OK?
2. Semiosis, Sign, Meaning
3. Causal and Semiotic Relations in are better conceived triadically
4. "Structure"
5. The Semion
6. Interaction, Transaction
7. Structure-Process-Alteration

8. "Autonomy" of Structures
9. Semiosis as Mediation
10. New Meaning of meaning
11. Chains or Nets of Semioses
12. Triadicity
13. Proto-Evolutive Encounters
14. Semiotic Encounters
15. Spatiality, Temporality
16. Memory
17. Memory in Bio-Evolution
18. Memory in Individual Evolutions
19. Memory in Cultural Evolutions
20. Place of Variation/Selection
21. Explanation of the Emblem
22. Semiotic Ecological Function Cycle
23. Horizons
24. Summary and Evaluation
25. Abstract (English und Deutsch)

Note that I relate or expand many ideas, stated rather succinctly in key statements, which are then further elucidated in comments more or less specific to the theses.

Note also that I employ Capitalization of terms that I use specifically to **Semiotic Ecology** or **SemEco**, the name I use for the present conceptual system; e.g.

Structure, Semiosis or Meaning refer to my concepts; semiosis or meaning refer to the common usage.

## ***1. Semiotic — OK? — I think not.***

***1.1. Today's Semioticians comprise a bunch of sect-like fractions existing as sad as hopeful on the fringe of their respective home disciplines.***

*1.2. Semioticians do not at all achieve to play the interdisciplinary integrative role they promise and rightly claim. I strongly regret.*

*Sorry for stating things as candid as simplified. It's a discouraging situation since the Greek; renewals by Locke, Poinsot, Lambert, and others have certainly been greatly improved by Saussure and especially by Peirce and their followers; although substantial, they have remained dualistic and have not gained approval beyond a large group of dedicated devotees. However you and I may evaluate the state of things; it is, unfortunately, without generally accepted enlightenment. The attitude of neglect of semiotics by the large majority of natural scientists as well as by many humanists is simply a calamity in view of the facts. But the present state is, in my opinion, also heavily code-termined by semioticians themselves who are mostly resolved to live in that self created Ghetto. John Deely in his Helsinki Greenbook 2000 paper judged "the impact of semiotics upon philosophy" as "marginal"*

<http://www.helsinki.fi/science/commens/papers/greenbook.pdf>

Deely opines properly: "the action of signs exceeds the boundaries set by the human use of signs, and the human use of signs would not be even possible except in constant collaboration with and on the basis of an action of signs at many levels surrounding linguistic usage and rendering it successful whenever and to whatever extent it does succeed" (p.6) This corresponds nicely to what I undertake here, however more radical my approach may be compared with Deely's. I would only add that the impact of semiotics on the sciences is near zero.

**1.3. *Meaning*, the key issue of interest to semioticians, is an essential feature of *life* (organisms including the dynamics of their parts and their mostly active inter-course with their environment), *psyche* (the formation and exploitation of individual experience making and usage), and *culturality* (building and operating in and beyond the traditions in communicative groups and the exchanges among them).**

**Meaning is too important an issue to be neglected; it cannot be treated by natural science and has been highly constrained by the the humanities' (geisteswissenschaftlicher) approach.**

All animals "know" and favor or evade rightly their food, their friends and foes, their mates and rivals and much more. Selecting or refuting something is not explained by physical or chemical functions. It bases upon an extremely complex and dynamic composition or organization of physico-chemical processes we cannot make manifest as such. In plants, there is an equivalent: plants as well as animals are prepared for specific situations and behave accordingly, e.g. seasons, climates, etc.; and they have acquired the capability to make use of and attract suitable "partners" for moving pollen or dispersing seed etc., etc. Whether animals or plants do all this and what they do with their Umwelt by

semiotics should be capable of bridging, better dissolving the absurd separation between the natural sciences and the humanities, including the respective domains of subject matter, because this has no basic in facts; only in Western cultural habit. Both, natural science and the humanities can enlighten many details, but fail to give a coherent conception of everything that is the case and how it comes about, including ourselves. Both are totally helpless in bridging the gap between the said domains. Just one point of evidence: with the exception of our own private psychical experience (which is rather precarious), we cannot access any psychic world of other except by first translating it into some physical form such as language or other observables. One of the tragic effects of dualism is to split every human being, in particular, in two parts.

I see *bios, psyche, and culturality* different. The latter two base on the former and also play back on it, because the way variation or innovation and selection or evaluation operate in the three domains (see section # 21) differ in such a way that we should speak of the "*Evolution of Evolution*", a phrase John Dewey has used first in his 1920 *Reconstruction of philosophy*. Bios, Psyche and Culturality grew out of three proto- or prebiotic forms of Evolution, the chemical, the cosmic, and the mineral; only the former three being genuinely evolutive, the latter not strictly, nevertheless triadically causative.

I'd place the great transition between what I a bit vaguely call "small" and "large" molecules. That means between those that come about and dissipate under suitable external conditions according to basic chemical principles and those that are and produce a "history" or sequence of singularities; the latter are composed according to some open "program" produced earlier in some "great chain of existence". They are not simply modeled from a paragon, but constructed according to an itself evolving set of "instructions" such as we know e.g. when protein molecules are made under suitable conditions according to "commands" derived from DNA molecules.

**1.4. This state of affairs in today's semiotics is so dissatisfactory because, I think, it is based on the idea of *interpretation* of a very narrow range of so-called *signs* or specific *mediators* instead of *everything in dynamic intercourse reaching beyond the immediately given*. Furthermore, it has almost completely neglected the *generative* for attempts to define the *interpretative* phase of such mediated dynamics. Both are essential phases of everything depending on life and much of life itself.**

There seems to exist some parallel between the notions of sign and of messenger substances in that both notions appear to catch an issue that in fact is much wider than these notions can carry. The problems arisen by defining such categories to the exclusion of further mediation Structures are serious and, I think, insoluble by proceeding on the restricting path; most probably almost everything in the domain of life and its sequels can serve a mediating function in addition to other functions; a distinction between Structures and messengers is un-

feasible. It may be possible to distinguish some messengers more or less clearly. But it is better to pursue the consecutive and often branching phases in the chains of influence in which any mediator Structure or message is first produced and then received. The example of archeology makes clear that artifacts an archeologist uses to describe an antique form of living has not been put into signs or messengers on purpose, but simply been made in ordinary living. Also notions of code are in a similar difficulty except perhaps in cases where they are explicitly designed for very specific purposes. But a late cultural emergence cannot serve as a blueprint or explanation for early bioevolutive ones. In fact, the notion of *Mediation* has been quite important for Peirce (e.g. already around 1875, CP 1.337; for a detailed account see Parmentier, Richard J.: *Signs in Society: Studies in Semiotic Anthropology, Advances in Semiotics*. Bloomington: Indiana UP, 1994); but, unfortunately, he was sticking to his limiting notion of the sign rather than fostering open eyes for Mediators generically. Also, although Peirce has known, that any interpretation of a sign amounts to a production of another sign (CP 8.191, 1904) he did not open his scope from the input to the output and the intern phases of the function cycle.

## ***2. Semiosis; Sign; Meaning***

### ***2.1. Semiotics often begins with a definition of the sign. Clever???***

**Think of Peirce writing more than 100 such definitions, which all dealt with semiosis, and always included sign, object, and interpretant, yet left him dissatisfied lifelong.**

Would not this egress from some sign definition bring in a too great influence of the researcher or agent of understanding upon everything consecutive and so dependent upon those arbitrary definitions? And how could the perceptual system distinguish a sign from a non-sign Structure meeting the item for the first time without any knowledge about it? And how could the relation between sign & object be the same as that between sign & interpretant (all three sensu Peirce), when I is to be a mental event and O a lastly external world thing or event and S both an external and also a mental entity? So I better start with Semiosis and attempt to follow its threads.

***2.2. Does Semiosis not mediate with or by Meaning? — Semiosis relates "things" or has effects from one "thing" upon another "thing", using or changing one of them or generating a third, somehow indirectly (i.e. mediately) instead of directly (i.e. physico-chemically). This path can be followed although the mediation is attained by lastly some very complex physico-chemical process or transformation; it utilizes, makes, and spreads Meaning.***

Semiosis as a mediator implies at least three entities that must be independent or at least partly "autonomous" Structures which enter a triadic Relation: two starting or conditional Structures and one resulting or effect Structure. I come back to that. What I denote here as "things" is a subset of the Structures mentioned in (4. below), a more "technical" or abstract term. Meaning is too important a notion that we can afford to let it unclear. Below in (4. ) I introduce an astonishingly simple understanding based on organization of Structures.

### **2.3. *Meaning, i.o.w. Semiotic, begins, I think, with Bioevolution.***

**Perhaps with large molecules (DNA strings "programming" proteins), certainly at the latest with cells (receptors differentiating or selecting molecules in +/- usable, yet not necessarily by chemical criteria). The receptors appear to mediate between inside and outside, selectively bridging the membrane. I express here my skeptical attitude against the reduction of meaning to any sort of code. In the long run, I think, any Structure originating in genuine Evolutions (biotic, psychic, cultural) can take on that sign character for another suitable Structure; that sign character that makes a difference in comparison to things interacting directly.**

Meaning has traditionally been reserved to humans: yet obviously, animals "know" their food, poisons, enemies, mates and their states etc.; in part by instinct, in part by individual experience. And so they can handle Meaning on either level. Because the Meaning of a poisonous or tasty plant or a friendly or mate-able animal need not be obvious in general. It is thus often Meaning for or to somebody, and sometimes different to others or to the same at different times or occasions. So meaning cannot be general or universal, however similar. Traditional dualistic epistemology obviously cannot handle meaning by separating signs into material sign carrier and "spiritual" or "mental" meaning and ascribe the latter to the sign or thing. Meaning can even vary temporarily for one animal in different states: think of a bee visiting one type of blossoms per day or of a predator hungry or satiated. *So Meaning is neither in the object nor in the (receiving only) Meaner, but arises in the Relation between the Structures* (see section 4), the mediating Structure and the "receiving" or "sending" Structure, so to say. It is also not proper to any Semion (see below, section 5), but only actualized in Semiosis, i.e. in an encounter between Semions. It can certainly be nearly or entirely replicated, when equal Structures encounter; but it can easily change into near only repetitions. In animals, and also in humans, some Meaning processing devices (tropes, taxes, instincts) are inborn, some are learnt habits or inferences. Habits to some extent can transform instincts. So the animal etc. contributes on at least two levels to Meaning: biogenetically and psychically.

**2.4. It appears sufficient to assume that "Meaning" arises in *Interaction of Structures differentiated into surface qualities and latent or hidden potentials*, where the former can be distinguished, recognized, identified or "known" in the largest possible sense by other Structures from their surface qualities, yet *transact* by the *potentials* present in their latent qualities. I name semiotic Interaction in order to distinguish it from mechanistic interaction "Transaction", because here effects arise from some part of the past retained and reach *beyond the immediately present* into past and future, and so are genuinely evolutive, whereas they are direct in simple interaction.**

This is a very simple, yet realistic and highly consequential thesis, in my opinion, for a new foundation of semiotic; it rests upon the differentiation of Structures into surface (+/-)attractors and latent potentials of Structures and has proven its remarkable fruitfulness in its simplicity. It may be seen to be just a manner of speaking; yet it presupposes a process of factual transaction that we can never bring into the open in full detail because brain parts with billions of neurons with several hundred times as many synapses and a few dozens of neurotransmitters are involved the whole of it would be destroyed by attempts to measure their dynamic behavior. Any Structure is organized matter and/or energy; and so are Structures of Structures.

Thus I do not need to invoke anything like Geist or spirit, soul, or mind. And thus no assumption of a dual world is required. Nor is this in any traditional sense materialistic; it simply depends upon the organization of matter and energy of the so differentiated Structure. And so it makes clear that complex physico-chemical processes are and can do more than our modern mechanistic understanding of matter and energy can cover. There is no unorganized matter, except perhaps original Plasma, which is too hot to be organized. My differentiation notion of Structures is obviously a key basis of my new understanding of semiosis and semiotic. Large molecules are Structures and relatively easy to be changed while some of their components, atoms and small molecules, can be very stable. Even more flexible are the dynamic Structures attained in active states of brain systems; and they can be retained in latent potentials to nearly or completely repeat their former states.

The Transaction can result in an expression of latent qualities of either, the Ref's or the Int's potential or of both.

What I call here "knowledge" is based on affinities due to co-evolution and/or individual experience that may contribute in settings that have been genomically fixed yet further evolved by learning, e.g. in transformed instincts.

In contrast, Structures with powerful qualities at their surface such as ions or other strong energetic qualities can interact physico-chemically rather than semiosically; this is not semiotic. However, as soon as the interaction is only



started by attraction from these outer qualities and goes based on the deeper potential of at least one of the Interactants, it is a semiotic Transaction. Naturally, also Transactions and thus Semioses are grounded in physico-chemical processes. Such are often transient and probably too complex to get at methodically.

### ***3. Causal in general and Semiotic Relations in particular are better conceived triadically***

#### **3.1. Should we not better *replace* our common notion of causation: "whenever A, then necessarily B", since we had to introduce exceptions?**

From the Greek philosophers of the 5th century before our date scale zero until today, science is founded on the belief in universal law. Rightly? Evolutionary biologists as well as quantum theorists were forced by their observations to supplement the idea of law by a very opposite to lawfulness: chance and probability; they did it without considering the requirement of arbitration between law and chance. Evidently, chance events are determined events, too; thus it is no explanation to call some events "determined by chance". At least if you can account for them by a particular other factor, by measurement error or by some pointable event. Also, modern state's constitutions and criminal law had to counter universal lawfulness of nature by freedom of human choice. How could we otherwise institute criminal law based on responsibility or explain facts like that humans have recently acquired the capability of destroying themselves and basic life conditions in general? Anyway the latter is an odd implication of universal lawfulness or chance; so nobody expresses this or similar ideas or grounds for reasons why chance and exception of the law could be essential to explanation. I take the universal law notion for a form of wishful thinking and another version of the almighty creator God belief.

#### **3.2. Evoked by Peirce's triadic thinking, yet deviating from his implementation of it, I prefer a new *fundamental notion of causation*: whenever Structures A and B encounter, Structure C comes into being": this is a *triadic and dynamic Relation*.**

Causal Relation in general and Semiotic Relations in particular are better conceived as Triads, two Structures meeting and then generating a third, or changing one of the two. The third can be a replicate, a similar, or a new Structure, depending on the Interactants.

#### **3.3. A dyadic Relation like in (3.1) *can not explain Evolution*; the introduction of a chance factor was and is but a magic word. *In all Evolution determination is total and must be local (in a sense that field effects are included)*.**

It seems to me that only basing our understanding upon encounters between largely independent Structures can account for Evolution, in part or in whole. If Structures are conceived as lawfully related, it is hard to see, how innovation would be possible. Nothing evolves from itself; but rather from exchange with something else; from some general kind of dialog. Both in the Variation and the Selection phases of the evolutive process. Lawfulness, to approach the essentials metaphorically, has adopted an *astronomical metaphor*, Encountering bases triadic thinking upon a *chemical metaphor*. In all Evolutions determination must be local and either be contingent or searched by at least one of the Structures involved in their encounter. Regular phenomena including energy transformations can easily be explained by Interaction of stable Structures, atoms and their parts and simple composites, for example. The more complex the Structures encountering, the less predictable what results from that encounter. Yet it can be determined by both encountering Structures. Determination cannot allow for exceptions.

**3.4. Triadic Relation can at the same time cover both *branching and merging*, divergence and convergence of evolutive streams.**

**3.5 Higher order Relations can at least analytically be reduced to sets of triads; but not to sets of dyads (Peirce).**

**3.6. A welcome consequence of thinking triadically lies in the observation that *no different process logic* is required for Interaction of Structures in the physico-chemical world (Proto-Evolutions) and Transaction in the Semiotic world or world of Meaning (genuine Evolutions).**

Is it not a quite fundamental break of accepted scientific method, to attempt to explain regularities and irregularities in the world by two different principles, regularity by law, irregularity by chance? At the least it's a break of parsimony rules. Here another dualism is in effect that is evoked by attempting to explain some phenomena by material/energetic principle, others by some unclear opposite thereof, that has never been cleared in itself but only in opposition to matter/energy, whatever names are used to denote that unknown.

Of course, there is no known reason, why the logical scheme of Semiosis should fundamentally differ from any other kind of causal Relation. For it is a causal Relation, i.e. a condition-effect connection. Nothing more or less. It is in the Organization of the Structures taking part in the encounter, where we find the difference between direct Interaction and mediated Transaction or Semiosis, not in the Relation or Process proper. We need to understand causation generically. Naturally, as for any Relation, there may be different descriptions.

In any Semiosis is implied a physical form of causation. But the latter's complexity, e.g. processes in a neuro-humoral system, can be so great that there is no hope to specify its functioning neurophysiologically. So we need another

language which should be as precise and realistic as the one we use to describe in less complex ways simple physico-chemical processes. My objections strike both traditions, natural science for missing organization as an important factor and presupposing a closed universe and universal law; the humanities for focussing on symbols only and scarcely distinguishing between symbols with and symbols without observable referents. If any one Structure interacts with several different Structures, ever new Structures can be generated; but if any one Structure interacts with one that is a replicate of or highly similar other Structure to one in an earlier, the same or almost the same resultant Structure is replicated; however, it may result an entirely new Structure from an interaction with a different Structure. So the same type of triadic process account for both diverging innovation as well as stabilizing repetition which in the long run amounts to regularities or innovation. We can thus look at this generative process as constituting Evolution: one generative process leading to one type of event, but to both divergent innovation or to convergent regularity, simply because of the relationships among the Structures transacting. This is a beautiful effect of thinking triadic rather than in the traditional attempts to explain regularity by law and innovation by chance. This happens in any triadic interactive Relation depending on the Structures involved and independent of whether they are simple or semiotic Structures. The random component depends on some amount of "autonomy" or proper action of all Structures, I prefer to name this "contingency"; it is both temporal and spatial; spatial contingency is heavily reduced by neighborhood of strongly related Structures, the ecological moment. The order component is highly furthered by the simple fact that many Structures are related or similar due to their nearness in Evolution; I use the term "affinity" for such encounter furthering relationship due to nearness in evolutive streams.

### **3.6. Another simplification of understanding emerges from the possibility of explaining regularity and irregularities with the same principles.**

It is obviously uneconomical if not against a basic principle to always give an arbitration rule between two consequences possibly effective under one and the same condition. Necessity and chance are two principles basically in contradiction.

## **4. "Structure"**

**4.1. I use the term "Structure" as a very basic concept to denote every-thing, we can discern, infer, or invent and recognize. Static things or Structured Processes; Reals or Symbols,. Brain/mind states, neuronal and humoral are a kind of utterly dynamic Symbols. However, the are private, only mentally accessible.**

Examples for Structures from all types of Evolution are: quarks etc., protons etc., atoms, small molecules; stellar bodies of all sorts, electromagnetic and gravity fields; ordered mineral clusters, crystals; organs and organisms of all kinds, their nutri- and excrements, their positions and postures, movements, expressions, instincts; habits, memories, emotional states expressed; language, symbols, auditory or written, works, communicative systems,... Interestingly enough, this concept of Structure is easily applicable through all Evolutions. It always implies matter and static or dynamic energy and includes also structured Processes that are replicable. In effect, it is an abstraction, but lets intact its inherent qualities that may contribute to recognizability, rather than abstracting from them something into what is called a "substance". Structure abstracts from the kind of material substance, while matter remains there. Structures can be static or dynamic. A river is a Structure in that the form of its bed and flow speed and order constitute a particular form of flow, even when it may change over time and conditions. Real is to me, what has or can have effects. Symbols, of course do not have direct effects like many reals; only via mediators suited to know the Symbols; but they can be effective like reals. Structures in the brain are a kind of Symbols, no matter whether dynamic processes or static traces or paths, that have evolved in a particular history. They are symbolic, in that they are realized historically in a certain way that could as well be different yet have the same end effects. Yet Structures of the brain involving millions or billions of neurons and scores of transmitters can influence other brain or motor Structures directly and very intimately, i.e. down to the last detail. That is why I prefer to give transacting Structures another name: Semions. In an a-dualistic understanding, we can see brain and mind as two access roads, the former publicly but extremely restricted, the latter private only and in parts, yet translatable to some limited extent into public via language, drawings, dream reports, compartment observation.

**4.2. Structures can be less or more complex; the former being mixtures (germ. Gemenge) of Structures of usually little complexity, the latter most often dynamic organizations and alive. Structures may primitively be gathered in Formations that are not themselves Structures, because there is no inherent organization of the part Structures. their dynamics come from outside. Examples are clouds, earth, ...**

Formations are not Structures, because they have no inherent design arrangement, can change continuously or occur in very different forms; you can recognize only the type of thing, so you cannot deal in general with Formations as concrete things. Their parts must be Structures, too.

**4.3. Simple or complex Structures can only combine provided their parts meet or arise in space; many can also be moved or move by inertia and they may interact with suitable other Structures. More complex Structures may move by themselves or "autonomously"; their**

**part Structures do also interact or transact among themselves and with the environs and as wholes they may also transact with their environs or Umwelt by suitable substructures, the substructures thus are often more complexly and dynamically organized, they usually move together and are somehow dependent on each other.**

Obviously Symbols of any kind and other signs that mediate between one and another Structure must also be Structures and can have real effects, too, yet only by mediation of complex animals and humans and/or with clearly defined symbols by their symbolic machines. Brain/Mind states or neuronal and humoral Systems are or imply also Structures; and they are actually Symbols in the strict sense that they could as well be realized differently; yet we are not able to change how they are structured nor to know their Meaning without specific experience. Except our own to some extent. These psychic Symbols are usually rather transient and are often not exactly replicable. So they have both advantages and disadvantages compared to other kinds of Symbols. They are utterly complex yet are both extremely dynamic and can nevertheless be replicated quite well. We will certainly not be able for long to detail these Structures on the physicochemical level, yet can recognize them in some of their precedent and sequel events. They are those symbols of all that have the greatest flexibility of change and an astonishing capability to connect almost anything to almost anything to levels of absurdity, but allow also to enforce all kinds of critical influences.

Spatiality thus is a precondition for encounters; and so is the motion of passive or active of Structures in space. Space firstly is the space in which Structures can change their and have effects on other locations. Space thus is inseparably connected with time, because whenever some Structure is moving, time is also made in addition to space. There is then another meaning of space added when symbolic Structures are sent in space and time in any possible form and are received later in time and at a different location: space-time is then also a symbol space that allows communication beyond the space-time needed to transport the symbol and may be called communicative space independent of the particular means used for communication.

## ***5. The Semion***

**5.1. I call Structures that are differentiated into surface and latent content or Potential and can so enter Semiosis: Semions; an adjective for that potentiality is semionic.**

cf. Semeion in greek pronunciation as a unit of meaning (sem) and as an active attractor or refuser in chemistry (ion), and so bridging the gap between mechanics and meaning.

I am not specialized enough to consider it a task of mine to clear all details in all fields. I only suggest another conception and test it in selected fields.

**5.2. Semions emerge from mineral Structures which first do not show this differentiation. My conjecture is: with early "large" molecules, e.g. perhaps with these precursors that could fulfill both functions of both the DNA and proteins.**

As far as I understand, there are essential requisites for the emergence of life: (a) reduplication with occasional "error" that can be corrected or perpetuated, (b) production by program or instruction; the main example should make it clear: DNA serving as instruction set (not as model) to manufacture proteins. The new feat here is that a first type of Structure is instrumental in constructing an entirely different type of Structure that could not be predicted from the qualities of the first

Ad (a) **Reduplication**: There exists a rather reasonable, however undemonstrated, possibility that crystal formations in clay minerals reproduce random "errors" or alterations when they brake along one layer or dimension (Cairns-Smith, 1986, Clay minerals and the origin of life. Cambridge Univ. Press).

Cairns-Smith claims, that 4 critical conditions for life are present in clay minerals: order for replicative fidelity; disorder providing information capacity; growth in the form of duplication; cleavage for initiation of replication. Some early Semions can present all four conditions.

Ad (b) **Instruction**: Something more than duplication is necessary: the capacity to not only duplicate a structure, but use one structure (e.g. DNA) to produce a completely different structure whose qualities are foreseen oder programmed in the first structure (instructions for making this or that protein) is to my knowledge completely undisclosed so far.

**5.4. In my imagination, Semions abound in the domains of life and its evolutive successors psyche and culture. Almost every Structure if not all in this range can possess that differentiation and thus the capability to transact and so to enter Relations that impart Meaning.**

In my definite opinion, all sciences from biology onwards in terms of evolutive emergences of their subject matter must become Meaning Sciences. Otherwise they certainly miss the essential character of their concern.

## ***6. Interaction, Transaction***

**6.1. My world view thus can be characterized by a *chemical metaphor* rather than the *astronomical* that underlies physics, ...**

These two metaphors are illustrative, not explanatory.

**6.2. I claim that *causative explanations* of the *dyadic* type: whenever A, then necessarily B, cannot cover Evolution, sometimes randomly disturbed. Evolution requires *triadic* causative Relations at least: when A encounters B, then comes about or is modified or activated. Encounters are both *contingent* and *orderly*, in that equal Structures generate equal results. The more complex Structures are, the higher chances that *Inter-/Transactions* produce Singularities.**

It is mostly the following Peirce quote from his later years that probably incited me on the background of his triadic thinking to conceive Semiosis in ways deviating from his own where one interpretation almost completely dominates in the Peirce literature of the 20th century. Over the years of pursuing and perusing my generative conception, I have found it ever more pertinent and astonishingly simple. It's most consequential statement implies in fact the sign character of Peirce's interpretant and thus in some way discredits his separation between sign and interpretant and brings semiosis into the domain of causality:

"No sign can function as such *except so far as it is interpreted in another sign* (for example, in a "thought," whatever that may be). Consequently it is *absolutely essential to a sign that it should affect another sign*. In using this *causal word*, 'affect,' I do not refer to invariable accompaniment or sequence, merely, or necessarily. What I mean is that *when there is a sign there will be an interpretation in another sign*. The essence of the relation is in the conditional futurity; but it is not essential that there should be absolutely no exception. If, for example, in the "long run" [...] there would be as many cases of interpreted signs as of signs, [...] I should say that this 'would be' constitutes a causal relation, even though there were, as there might be, an infinite number of exceptions." (Peirce, 1904, CP8.225n10, Draft of a letter to Paul Carus; AL's underlinings)

**6.3. Whenever encounters involve "surface / latent potential differentiated" Structures, the Interaction is semiotic and thus called a *Transaction among Semions*, because the Transaction's conditions and effects reach beyond the obvious or "mechanical" and at least one of the Structures involved is a Semion.**

This idea, I propose, of surface qualities / latent Potentials differentiation of Semiotic Structures has proven simple, realistic, consequential and thus seems to be a great advance over any known definition of sign, because it is entirely structural and descriptive; it needs no functional or interpretative assumption

whatsoever. I had for long searched for ways of instituting an a-dualistic world view. That the "ghost" sits lastly in this differentiation and can be so simple, is wonderful.

Note that the latent Potentials must eventually function by physico-chemical processes; but considering e.g that probably millions if not billions of neurons as well a thousand times more synapses and dozens of transmitters maybe involved already in simple acts make any perspective for explanations on physico-chemical, i.e. "mechanistic" basis simply hopeless, because we would destroy the system if attempting to measure simultaneously already minor parts of them. We are in need of a descriptive language for Semiosis that bridges this gap. and can both be used to describe Semioses in realistic terms that can imply physico-chemical processes without invoking fictitious entities.

## ***7. Structure--Process--Alteration***

**7.1. Any Structure, Semion or not, is at any given time either involved in Interaction with another Structure or it is in a rest or steady state: in the steady state it is without influence on its environment and functions simply as a generic "memory" (see Section 16). Evolution is memory generation and use.**

Evidently in complexly differentiated Structures such as living organisms, many such Interactions or or patterns of Transactions can occur simultaneously. Most of them can be coordinated more or less hierarchically in neural organizations and/or can be driven oder modulated in largely parallel manner by humoral organization. It is interesting that there are know about one to two dozen transmitting substances, in part with known functions, and also there are, neuro-anatomically known since the 1960s, dozens of microtubuli in both dendrites and axons and passing through the cell body; but neurophysiologically and functionally there one totally dominant conceptions of functioning of neurons as all-or-none process. I am awaiting since those electron microscopic photographs I have seen 1966 at a convention in Montreal for research making clear the function(s) of these microtubuli and transmitting substances.

**7.2. This alteration of two phases is absolutely essential for any genuine evolutive process in that the interactive phase generates new Structures on the basis of the interacting Structures whereas in the passive or latent phase of the two precursor Semions and the resulting Semion are usually retained and capable of further Transactions later in time in similar or different constellations.**

**7.3 Their further involvement so to say amounts to an evolutive evaluation or selection phase. Interactions in the Proto-Evolution's Structures mostly combine and then endure. In the genuine Evolu-**



**tions (Bios, Psyche, Culturality) Transaction disperse into branches of ever new Structures.**

Molecules are built from Atoms. Stars are built from atoms and small molecules; and so are crystals. The second mostly by brute attraction, the latter in line with their valences or electron behavior. Yet the building elements remain there, however built-in.

In a Darwinian variation phase of sexual procreation two individual organisms of different sex encounter and procreate a third, etc. In a Darwinian selection phase one organism encounters many times with parts of its surround; this accumulates or contributes to that organism's well-being or deficiencies which may eventually result in its procreative success or dearth, yet in much greater diversity anyhow.

**7.4. "New" can mean (a) replication of Structures that have been generated before.**

**7.5. "New" can also mean (b) similar but different or totally new Structures that have never been generated before or elsewhere.**

That replication and innovation can emerge from **one** principle, depending only on the interactants, is a great gain in parsimony and elegance of understanding and explanation of the Evolutions.

**7.6. I think, at least analytically, any Interaction can be reduced to strings of triples. So we can think of two Structure *transacting* and thereby generating a third Structure mediated by what we call Meaning in Transaction. *Determination in the Evolutions must be "local"*.**

At least triadic causation is mandatory for explaining Evolution and cannot be reduced to sets of dyads (Peirce); otherwise you have to use different explanatory principles for ordinary courses things and for events. I do not claim that it is in reality possible to reduce all higher order Relations to triples in any case. Analytically, however, it should work. Meaning is always generated in cascades of Triads, i.e. in one Triad and then presented to other Triads in the condensed form of the Presentant entering a new Triad and presenting to the latter somehow at least parts of its history; thus the two precursors and by implication all earlier Structures in its evolutive stream are generating possible future streams determined by every Triad in the chains, however much the chains diverge and converge into nets of Triads. This conception of generic Evolution as sets of connected triads accounts for both vertical and horizontal Relations in time and space or how things are brought about by things already there and how things are related among each other in their existence; the vertical Relations are collaterally constituting time, the horizontal Relations not only constituting space, but also the content relationships that allow a functioning set of order with some irregularities included, the more irksome emergencies however eradicated. Evolu-

tion can never come out of one Structure and its laws alone. In essence, what emerges from itself, is an effect of development; what emerges from encounters, is evolution. Parts of ontogenesis are development, especially in very early and very late years; much of it, however, is evolutive. Another way of saying this is: Determination in Evolutions must be local; cannot be universal. Universal lawfulness would make Evolution impossible.

**7.6. This scheme can account for both, *regularity and innovation*. If the preceding Structures exist in multiple replicates, obviously the same third will emerge, whenever the same Structures or true replicates thereof interact; whenever one or both predecessor Structures are modified Structures by whatever cause, new Structures are generated.**

If A transacts with B, C, D, ..., a branching evolutive stream or increasing divergence results; if A transacts repeatedly with B or with B, B', B'', ..., A being the same, the latter being highly similar Structures, a reduction of diversity or containment thereof results that can lastly attain the opposite of branching, metaphorically spoken: merging or more equals; this amounts lastly to limitations or reductions in diversity or to some convergence. So different degrees of affinity of the Structures inter- or transacting automatically lead to both divergence and convergence of the evolutive streams at all its levels. Note how much this idea of Process-Structure-Alternation, like so many other things in Semiotic Ecology, simplifies conceptuality, because all concepts are defined in one conception rather than each one be itself and then secondarily related to others. Here, memory, for instance, needs no particular definition, but is simply and in its widest possible sense, an outgrowth of the Process-Structure-Alternation. Or the Evolutions keep automatically a balance of divergence and convergence, as long as these Structure Interactions can freely play. Note also that from here I derive the idea of strategic primacy of the Relation or the Process before Structures, because this reduces our, the inquirer's or knower's influence on understanding, when Structures can be to what the Process leads us. This contrasts strongly with the widely common start with definitions of things we discern. I think I need to define only the notion of Structure and to make the general Evolutive assumption and then specify the fundamental process as triadic causation; all the rest is observation of what happens in these terms. Obviously, this alternative basis of science does not imply that all former findings of the sciences would be invalid; but specifications of which of the findings are valid in which ranges are inevitable. Naturally this conceptuality has to meet evidence gathered in the various sciences that may be concerned; I can only draft the concepts and their interconnections.

## **8. "Autonomical" Structures**

**8.1. A prerequisite of encounters is what I call their relative "autonomy", i.e. the Structures really inter-/transacting must be so independent that their chances of entering or missing suitable Inter-/Transactions are entirely "intact". In fact, many simple and complex Structures are prepared for and can actively seek and repel or avoid their "partners".**

My thesis of "autonomy" as a prerequisite of encounters is the very opposite of the widely accepted thesis of universal natural law and chance. But only insofar Structures are relatively autonomical (not completely self-contained, they need other Structures for various reasons; the more complex they are, the more selectivity they will show) my choice of wording on purpose puts the idea near personal autonomy in the human societal domain, for I think the sense of generic "autonomy" pertaining to everything can be considered a precursor of the latter in the human social domain. Do Structures have chances to get into encounters of various kinds and may even be capable to seek or avoid certain Relations. Obviously degrees of personal autonomy form automatically in nearness conditions of Ecotopes. The so-called problem of free will thus disappears to be a problem, because degrees of autonomy may have their proper evolution within the Evolutions and increase naturally with the growing capabilities to present to the organismic System surrounding situations that are not actually present. My thesis does not exclude Structures that have no choice such as ions with their positive or negative charge. But if we do not prepare later autonomy in the personal understanding, we have no chances to bring that idea into the picture without some "*deus ex machina*" thinking, as it has been cultivated over the centuries with, say, the "soul" that is believed to enter the body from nowhere, or language that was long believed to have been given to humans by God. And there are no grounds for such consequences of dualism.

**8.2. Structures exist that have given up their independence for becoming parts of superstructures, their own fate inexorably connected with all Sub- and Super-Structures involved, often to some advantage for all. As long as they can communicate with each other in both directions as in living organisms (in plants and animals or their societies) advantages for any one giving up its independence may be greater than when staying alone, since they can perhaps influence the whole.**

Don't ask for grounds for giving up large parts of autonomy by and for becoming a member of an alliance, symbiosis or total compound such as e.g. cells in an organism. Evolutions happen as they did and do. Only post-hoc can we guess or judge this or that advantage and disadvantage for it; and it's we who judge, not Evolution; we attribute functions. Functionality grounds or explanatory at-

tempts simply should not have any place in evolutive theorizing. Of course, autonomy may be greater for the complex Structures than for their parts. Self-motion is one among other expressions of autonomy.

**8.3. Part of these advantages come from the whole, other parts often from having forever the same familiar neighbors. These principles should be considered in human societies in comparison with the present competition ideology strongly enforced by social Darwinism.**

Considering cultural Evolution it is particularly important, that humans have emerged what we usually call democracy, which is basically some maximization or at least optimization of influence of the lower units on the compound, i.e. the groups, no matter whether village, quarter, city, valley, nation or all people on the planet. At present understanding of democracy and its practice it is safe to say, that we need more influence from below based on better insight at lower levels into the whole, when we humans want to have a chance to stay alive for some time yet. The inclination of people in positions to make use of those that have not much choice, is too great to give them free hands, however clever they can be to the advantage of all.

## ***9. Semiosis as Mediation***

**9.1. Earlier I have asked, whether what we call a sign, did not mediate between Structures, did not relate things: an origin Structure is mediated to a resulting Structure, both real and concrete, singularities as a rule. Let me denote the origin or first Structure, the *Referent*, and the third or result Structure, the *Presentant*, respectively. Both are Semi-ons. The three Structures must have much in common in order to make sure that they can bring something about.**

"Real" and "concrete" Structures: by "real" I simply mean: has or can have effects which we can observe or infer; by "concrete" I mean: Relations cannot be formulated in general or in generals; we must deal with or treat of entities that really have or can have effects; generals may be in our minds or on paper in symbols and can only interact with other symbols by mediation. If we suppose generals to interact, is one or many or all singulars embraced by the general interacting? Obviously none; only the symbol referencing all members of the cal interacts and only as symbol. This must be true of symbols in any sense; for they do not exist or be real apart from some real Structure, whether on paper, in heads, in computers, or in some other form or Structure incorporated in matter and energy; they cannot exist and cannot have effects without some incorporation. Yet their Transactions often presuppose mediating individuals, animals or humans, sometimes machines.

**9.2. This is not a metaphysical or in any way spiritual process; it certainly has an underlying physico-chemical process, often extremely complex, implying matter and energy transformation. What is the mediator among the two? There is a second Semion, the mediating Structure transacting with the first and thereby generating the third, which I call the *Interpretant*, insofar it often sort of interprets the Referent into the *Presentant* under influence from the *Referent's* and the *Interpretant's* own latent qualities (it may have co-evolved or gotten experience with Structures like the first).**

I think it a very great error of Western thinking to assume it possible, that some thing or state of affairs could be truly represented in a concept, and in essence represented in such a way by some terms in such a manner that operations done with the terms could then lead to other terms or symbols that would again represent some possible reality as perhaps observably happened in nature or culture (so described Heinrich Hertz 1884 the most general procedure of science in the preface to his Principles of Mechanics). This is why I avoid the term "representation"; yet most to anything can by somebody or some other suitable instance be presented to somebody in such a way that the presentation "contains" both, something from the original subject matter and something from the presenter. The two aspects may in some cases be distinguished to some extent and security; yet in other cases this might be almost impossible. And so does any perception contain something from what is perceived and something from him/her who perceives, both in general and as an individual.

Note that the process does *not* result in a Representant; the *Pre* presents something of both *Ref* and *Int* and their combination and "packed" into the *Pre*.

**9.3. I use this graph to present the generative mediating Semiosis**



**X→Ref**

**Y→Int**

**Z→Pre**

The above graph gives a processual presentation of generative Semiosis; it always contains a temporal moment and presupposes one common spatio-temporal presence of all three components. I have given in section 11 both the above in a simplified model web and in addition an a-temporal presentation that

only retains the nets of the Relations, accounting only for their temporal seriality (before and after).

## ***10. New Meaning of meaning***

### **10.1. Meaning is not in the things, objects, Structures, Semions.**

Not in the Refs nor the Ints, perhaps in some closer connection with the Pres, but not without context; and what Pre is in fact, can only become manifest in at least one new Semiosis. So mostly in stretches of the history and the potential futures of things. I prefer to say, Meaning is actualized in Semiosis, not given as such, nowhere (see also sections 2 and 10). Meaning cannot be found it is to be made

### **10.2. Meaning is not something given; rather it is something constituted in Semiosis. Probably it is transient. It may be retained or repeated by (nearly) replicating a Semiosis with equal or similar precursor Semions.**

Meaning originates in the Encounters. Different Ints with the same Ref make different Meanings, also vice versa, different Refs with same Int. The same Refs with the same Ints will generate the same Meaning again.

### **10.3. So Meaning is an aspect of the Relation between Structures transacting, often, but not necessarily being aware in very complex Structure (organisms). It is retained when some Presentant can be replicated, it changes when interpreted by another Structure.**

Substantification of the "meaning" of mental or symbols is something like the original sin of scientists, both natural scientists and humanists. Meaning is one of these abstraction, we can make to some extent, but should care greatly to never lose the context of its becoming and of its possible futures.

### **10.4. Both Refs and Ints can contribute and constitute Meaning in varying proportions. These two semiotic precursor roles can lose their difference. Through the Pres Meaning can have further effects. In some sense Refs and Ints can be exchangeable.**

Does an egg or pistil interpret a semen or pollen or vice versa? Yet often something is taken up (a Ref) and changed a bit (in a Pre) by an Int. Because it is often a changed or simply maintained Pre rather than something entirely new, I hold on to the present terminology which does not imply that a Ref is passive and Int active. These are not categories meaningfully applicable to Semiosis.

Since we can approach Meaning either by function and often also in awareness, it is interesting to note that on the basis of the present conception, it appears to be

very easy to conceive of "awareness of something" without the postulation of some instance as is part of conceptions like subject or ego. Since any Presentant can *eo ipso* contain content of the nature of presentation, it is sufficient for understanding "to be aware of X to assume some relatively narrow "awareness-aspect" possible in a large range of semiotic IntrA Processes. Bringing any one or two of the three Semions of all Semioses happening in the complex brain/mind of most "higher" animals and humans to that actualization we experience we can think of the possibility that Semioses, especially new Presentants, can reinforce themselves by taking on that aware-aspect. To be aware may then be just an expression of Presentants feeding back into the rest of the System. I take it for evident that nobody can be aware clearly of more than one thing or idea at one time and perhaps in addition but a bit vaguely of one or two preceding or succeeding notions. That awareness is usually quite narrow is well established; that it is unity is rather a myth. At the least, the awareness-notion gains more clearness in that quality notion of parts of semiotic nets, whereas the "subject" of being aware is more like a metaphor.

### 11. Nets or Webs of Semioses

#### Semiotic Net of Semions

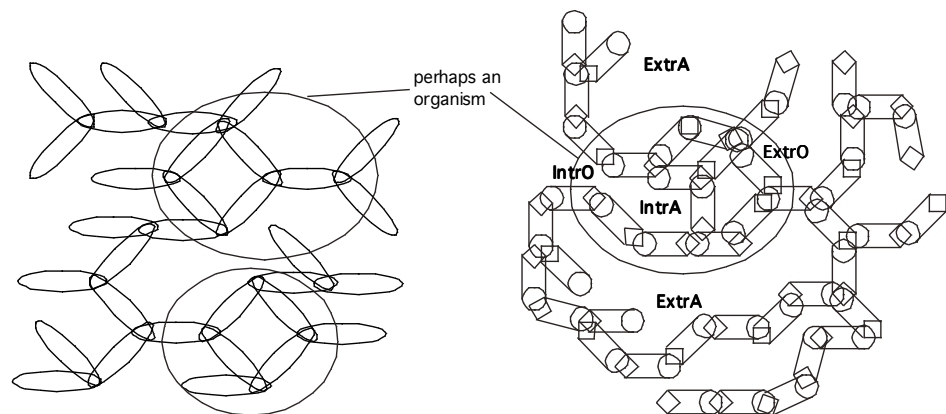
##### **Emphasizing Structures**

generated and generating  
triadic Interaction or Transaction

#### Semiotic Web of Semioses

##### **Emphasizing Processes**

in an Ecosystem building both,  
in the organism and its Umwelt



Triadic Generative Semioses can build nets or webs rather than chains. The above are highly simplified structural illustrations of an ecosystem, i.e. a brain/mind at a given point in time. The Process view at the right retains the temporal sequence Structure of the Semioses in its before/after Relations. The Structural view at the left however abstracts from time and retains only the serialization

aspects of before and after. My main point: Structures in any part of the world are mostly related by relations of origin. Some of these Relations can be activated repeatedly; but generative Relations can result in new or modified overall Structures. The Y-shaped triad contains a huge potential for both innovation and stabilization. Two identical precursors encountering several times will generate the same result and thus contribute to making the system and the world more regular. Encounters where one or two of the precursor Semions have never met before contribute to increasing diversity of system and world. Exact predictions are only possible in the former case. The latter case is truly innovative. Together they can constitute Evolution by one and the same process in both its regular or stable converging and in its innovative diverging aspects.

## ***12. Triadicity***

**12.1. You remember probably Peirce's "obsession" with Triads and his thesis/"proof" that all higher order Relations can (analytically) be reduce to Triads, but not to Dyads.**

**12.2. Evolution demands its basic Process to be of (at least) triadic nature: when A and B encounter, then C.**

**12.3. A world operating on Dyads (when A, then necessarily B) must be finite or repeating sooner or later. Chance exceptions is a pseudo-explanation.**

I think (12.1) is basically an insight of Peirce's. I regret that he did not transfer it to his conception of semiosis and the world evolving, but instead restricted himself to the Intra-phase of Interpretation of signs to say it in my terms. But he also did not take the Idea of evolution serious when he thought the general course of the universe to metaphysically go from Firstness to Thirdness and lastly end in Secondness. The unavoidable consequence (12.2) in my view is (12.3). Events, lawful or unexpected, must also be determined. "Chance", if not specified as observable causation, is no explanation.

**12.4. It is interesting to see that generative Triads can account for both diversity increase (divergence) and diversity reduction (diversity containment) of the Evolutive Process.**

This contrasts well with the unsolved problem that a supposedly necessarily lawful universe is subject to occasional chance events; and no arbiter principle reigning above the two. Science seems occasionally to break its proper holy principles.



**12.5. Equal Refs and Ints produce equal Pres, varying precursors produce Innovations. (So originates the factual in universalistic so-called natural law.)**

Perhaps my denotations of the three roles Semions can enter in Semiosis come from a time when I was working with perception- and IntrO-Processes mainly. My criterion now is more in the idea, that often one of the precursors Semions is more active and the other more passive, but also often they are indistinct in this respect.

More important is here the idea than very stable structures that barely evolve any further, such as most atoms and small molecules may well do the same encounters time and again, readily so as in the atmo- and hydrospheres, to a more restricted extent also in lithospheres; these ubiquitous events may well account for what we think are the basics laws in physics and simple chemistry: the basic transformation processes involving matter and energy

**12.6. Affinities and stabilities greatly reduce the effects of contingency.**

This is in my opinion a great advance over simple chance principles. Indeed, the Evolutions by simply operating provide for stronger and lighter relatedness or affinities of all Structures generated. When some can only deal in many respect with affine others such as plants with animals or vice versa and have the means to seek them out, chance is no longer chance.

### ***13. Proto-evolutive Encounters***

**13.1. The idea of chained and netted Triads leads to the idea that Evolution generically is nothing but *Structure Formation from Structures already present* and their later use.**

Note again that the idea of Structure is neither materialistic nor idealistic. There is no Structure that is not of matter or immediately related to matter such as electro-magnetic or gravitational fields and is not a form specific enough that it can be recognized. And differentiated Structures can Transact and can build their webs through Meaning or Semioses.

**13.2. Proto-Evolutions generate:**

**(a) in the *chemical Evo* progressive cooling of pure energy produces a small number of kinds of *quite stable particles* in very large numbers (say: atoms, binding energy in the form of strong and weak nuclear forces) and some simple combinations thereof (small molecules);**

**(b) in the *cosmic Evo* such particle spread, thus generating space and time, and conglomerate to *stellar bodies and galaxies*, also producing heavier at-**

**oms and more molecules; most important, it generates gravitational forces and essential preconditions for humans on Earth.**

**(c) on planets like Earth further cooling and and movements lead to agglomerations of *minerals in hydro-, litho-, and atmosphere; life appears to originate firstly in the hydrosphere and then spread.***

Of course, all three are not Semioses but base on surface Interactions. In the Proto-Evos we see only encounters of Structures resulting in Structures and Formations that can also to some extent suitably attract or repel each other depending on their electric charges or due to gravitational force. But the chemical and cosmic Evos in essence produces more of the same in relatively few varieties, but huge numbers.

I just want to convey here that causation in the form of triadic Relations attained in encounters of units does already reign in the pre-biotic domains, yet non-semiotic, i.e. based on surface-determined Relations of Structures such as push impulses of atoms or molecules in hydro-, atmospheres, valencies of atoms or ions, or gravitation and inertia motion among stellar bodies, binding forces among molecules in crystal in the lithospheres, etc.

## ***14. Semiotic Encounters***

**14. 1. In the Genuine Evolutions (Bios, Psyche, Culturality) we find surface qualities and latent Potentials of Structures and also inherited or acquired "knowledge" of such surfaces and potentials in some other co-evolved Structures that play a role in attracting or repelling each other (one- or both-sided) and subsequent Interaction or rather Transaction based on potentials of one or both Structures that go beyond.**

It seems to me essential to think in terms of Semiosis and its variations being also evolutive emergences. When we can so easily apply triadic causation in the pro-organic domain and have such simple criterion as surface/latent Potential differentiation of Structures beginning with life, it appears not too difficult to understand the emergence of Semiosis under these conditions and also to assume that the factual process in these situations is of an enlarged physico-chemical nature; it also introduces history in that Process, in that Singularities become essential. The receptor process using stereo-chemical moments, may be an exemplary starting point for specialists to approach simple processes in possible connection. Our situation in in this respect compares to the situation in the later third of the 18th century, when people thought that human language was a gift of God and Herder for one proposed the notion that it may be humans themselves that essentially invented and constructed it in cooperation.

**14.2. The foundation of that "knowledge" or "preparedness for —" can stem from affinities due to co-evolution. Affinities also include "devices" allowing for attractive or avoidance capacities. Contingency is, so to say, chance reduced to spatio-temporal encountering. But, due to affinities and neighborhood, factual contingency is far below simple chance level because of selective attraction and avoidance. In humans in particular and some animals at least the aimed or otherwise attained preparation of suitable conditions in addition to individual experience moves encounters even very far more below chance.**

Affinities of Structures due to co-evolution and heightened chances for encounters in co-evolving species in common biotopes attain a great distance to simple probabilities determining evolutive events. Herein lies a manifestation of what I denote with the terms ecological and ecology.

## ***15. Spatiality, Temporality***

**15.1. Any Structure formed in the evolutive Process by Encounters of Structures at any given time incorporates much of its pedigree Structures; in any of its presences (i.e. Encounters) it results in a series of Interactions or Transactions from its precursor tree, lastly from its converging roots, which presents (as Presentants) in some sense at least parts of their history to their future diverging tree(s) of possible but becoming real successor Structures in factual Encounters.**

This evolutive Process describes both Proto- and genuinely evolutive Encounters, with the difference that in Proto-Evolution no branching of the chains can be observed and the memory function of the genuine Evolutions generals, especially with atoms and small molecules, in that one Structure of a type is exchangeable with any other replicate of the same type, whereas in the genuine Evolutions we are dealing with structural singularities, each having and continuing its proper history in a branching tree. In later proto-periods, the structural types can approach singularities, e.g. in stars, comets, etc. or concrete crystals which however are not replicable.

**15.2. Space is first constituted and later differentiated by the spreading Structures or the totality of their distances of spreading or location Relations (produced originally by some of the primal energy in the plasma that is not bound in Structures like atoms and then relatively reduced by their gathering in Superstructures). Space is a precondition of encounters which in turn necessitate autonomous Structures;**

**15.3. The mutual "distances" in terms of spread and the consecutive difference in probabilities of encounters among Structures in ecological niches and similar settings constitute and differentiate Spatiality.**

Spatiality is an automatic effect of cooling and needs no further explanation. That we can understand spatiality of the universe as a precondition of encounters of Structures and that spatiality in combination with temporality assures their "autonomy" is, in my opinion, an excellent example of those very interesting feats of SemEco's conceiving things in relation to each other from the beginning instead of defining them separately and attempting to relate them secondarily.

**15.4. Encounters of Structures and their sequence relations in turn constitute temporality; obviously, there are evolutive encounters that have nothing in common with other encounters. Thus there can be no general time. Time is necessarily of sets of directly related Structures only. I call temporality the totality of all encounters in their (scalable) before/after Relations.**

I take for granted the hypothesis that the universe has started as an unformed or unorganized extremely hot and dense plasma aggregation that has been differentiated and spread in cooling and has thus constituted spatiality and made possible temporality. But I cannot accept the speculations about the usually given temporal specifications of these events, because the time parameters entering the equations at the base of this conception are arbitrarily chosen and thus cannot imply a basis for one generic dimension of time. Why should time be isochronic except for our calculation comfort?

**15.5. The "distances" in terms of before and after between encounters that form new and similar or replicate Structures thus constitute Temporality in both before/after and duration Relations for each other. To construct one scale of objective time over all Encounters in the world from the worlds origin to its end is then an arbitrary and realistically doubtful endeavor.**

It is understandable yet strange that human theorizing about time and temporality has emphasized the generality of one single time scale for everything, but almost totally neglected the before/after perspective (so important in all languages of the world) of the Relations between events in favor of the countability of equal intervals, and has accepted until recently the reversibility of the arrow of time. There is no good reason for that except that it is highly practical for some purposes however fatal for other things. For each set of directly related Structures makes essentially its own time in so far Inter- and Transactions can rarely be immediate. In addition, some Structures such as complex organisms do well by creating in fact their own temporality within but adjusting it to the

time of some regular events that may be of import to them, such as e.g. the circadian or the tide cycles. But it is simply a fact that no rotation or motion of any stellar body is coordinated in its cycle duration to those of any other such body, because their rotations and other inertial motions obey various other influences than time. Time is never a cause.

As a consequence, we have no good reason to put Earth rotation at a given time or any particular atomic oscillation at the base of time scales as such except that the former is of great import for most inhabitants of the planet Earth and the latter are very exact and technically useful. The fundamental fact of temporality is then that each Structural connection generates its proper temporality which can often be coordinated with other ones to some extent. In other words, I have come to the conclusion that time, like determination, is local, and should be seen as an inevitable outgrowth of the realization of all Inter- and Transactions that cannot be immediate and must follow each other, so that both the before/after Relation of encounters and the process character of all transformation and transportation are the constituents of temporality and time.

Note that a consequence of this conception is that only the Structures and their Interactions, i.e. their Encounters are reals; events are only possible in the presences of Encounters. Any Encounter has or is its presence and can leave its traces. The past can exist only symbolized; yet its traces can be reals. The future exists as well only symbolized as possibilities rather than as traces; seen from any presence the future can promise only possible and impossible Structures and Streams. The effect of any presence is to realize just one of all possible futures; it alone in turn becomes a member of the chain of Causation, semiosis or not, and can be pertinent for future things and Structures. Of all possible futures some may be also symbolized by humans in any of their symbolizing systems; impossible futures may be included. But only one of the possible will realize. So temporality is not a vessel with everything in it at certain points. It is better understood as cascades of events, some of them grouped by the Structures connecting them. It is we who attempt to use one such arbitrarily selected cascade of regularly recurring events to picture everything in relation to it, calling it time.

It is obvious in the above perspective of past and future being symbolized only with past fixed and future referring to scores of possibles that what we call human freedom is not an all or none perspective, but a sequence of possible futures many of which can be driven in this or that direction by human individual or collective actions. All what we can do to the world is then in our responsibility. Not only may much of it have effects back upon ourselves; but much may also concern other parts of the world. We shall be barely or not capable of distinguishing what eventually has back effects; so our responsibility is total. No moral instance is needed; this ethic follows from our role in the world, from our possibility to change so much.

## ***16. Memory***

**16.1. It is obvious that genuine Evolution in all three forms is essentially Memory (in a very wide sense) formation and conservation at one time, and later use of it.**

When I have said above that Evolution is Structure formation and use, I can as well say: Evolution is Memory formation and use.

I think it a very essential insight that Evolution operates as memory building and use by necessarily successive Interaction and Transaction and so constitutes time and presupposes a relative independence or "autonomy" of all Structures and their motions and so constitutes space. The preconditions for this are already attained in the Proto-Evolutions and carried on in the genuine Evos.

Yet in the Proto-Evos memory is primitive and mostly quite stable, no longer evolutive or very slow in many parts of the universe, especially on our planet. Which is essential for the genuine Evolutions which can build upon a quite stable basis.

**16.2. What emerges in the Proto-Evolutions is more primitive; it sure co-determines what can emerge later. But it does not branch into new varieties but rather produces more of the same.**

For example atoms and more of its kind are produced; stellar bodies are formed out of the nebulae and more of their few kinds; minerals are mixed in great varieties with the various components produced in the chemical Evolutions.

**16.3. In all genuine Evolutions the Structures emerged have chances to enter encounters that can branch into entirely new and often infinite variation trees.**

The formation of so many different trees of ever new and different evolutive families as evident in the branching trees of biotic lineages are clearly different from what we can see in the Proto-Evolutions.

**16.4. In Bio-Evolution two emergencies are crucial at start: (a) Structures can replicate "random" Structures or singularities such as in crystal layers breaking and growing with that primary singularity retained; (b) One kind of Structure can co-determine in detail an entirely different Structure such as in the Protein "by" DNA "manufacturing".**

Mainly based on Cairns-Smith 1986. (see section 5)

## ***17. Memory in Bio-Evolution***

**17.1. The biotic Memory and thus the Bio-Evolutive variation is almost exclusively built in the Genome and its parts.**

**17.2. The Genome Memory is instrumental or essential in building the organism with relatively little variation added in this process.**

Epigenetic contributions, of course, take their place, especially in early development; yet do little if at all in bridging generations; little by increasing survival chances in a given Environment by individual learning and by cultural devices possibly compensating for some fitness deficiencies. Obviously especially the latter can also contribute to these deficiencies.

**17.3. All organisms together in some specific selection and together with climatic specifics that come from the mineral Evo are essential in constituting the selection and evaluation of the organisms type proliferation. Life Evo is not only of organisms, but includes their Environments.**

I have the impression that the Evolution of the Environment, formed in large part by organisms of great variety, is often neglected in our understanding by concentration on the origin of species. Obviously, humans, in particular, have so much contributed to their Environments in so many different ways in the different cultures of the world, that this must be considered as a special case. What I mean here primarily is the fact that for any given living being, all or a large part of all other living beings form its Environment, from which those parts, with which it is in proper connection, form its Umwelt.

**17.4. The biotic Memory formation does not only include anatomy and physiology of the organisms, but also the tropisms, taxes, and instincts enabling the organisms to thrive or fail in a given biotope.**

**17.5. Note that the variation and selection functions are realized in two different but heavily related Structures: genome and organism, selection also in the Environment.**

I can here give only a few hints at the possibilities of understanding commonalities and differences among the different Evolutions which the present conception of Evolution opens. Variation and Selection processes are common to all genuine Evos, but how they are attained is different in each one of them. The most obvious characteristic of bioevolution is the separation of the variation and the selection phases in two different points in time and its distribution upon two different Structures: variation is of the genome, selection is of the organism.

I reject explanations of biotic evolution in terms of contemporary Bio-Evolution theory with its heavy functionalism. By functionalism I mean a thinking imply-

ing that a chance determined emergence is retained because it achieves desired or otherwise positive effects for some instance in the range considered. Eventually the interest of the functionalist inquirer him-/ herself will have its contribution. As a rule in nature we can observe that what is one's advantage can be some other one's loss. I cannot accept that being eaten, of plants or animals, can have a function in selection, whether of the eaten or of the eater. It just happens, that's all. Our search for explanations of every detail, often of isolated details, is primarily for our own satisfaction. I am happier with pertinent over-all understanding which will also contain explanations for this and that; but there are things with so complex explanatory factors and among them contributions of our own that we have to prefer understanding. So-called objectivity in dealing with the world and all its parts including ourselves is, in my understanding, mostly illusory; and so often a means of power for domination.

## ***18. Memory in Individual Evos***

**18.1. In most experience-making and -using individual organisms (some monocytotes have been demonstrated to "learn" the biogenetic genome is still important (e.g. in instincts), yet its effects on states and behavior are transformed or over- formed by individual experience or such is independently added.**

**Thus a second form of Memory is built that does modify or rebuild the biogenetic Memory or is realized in other forms.**

Note that I put Individual and Cultural Evolutions in plural. What is often called individual development is in fact an Evolution in each singular Psyche or psychic organization because it is based on Millions of specific Encounters of the given individual with instances and aspects of an Environment, in fact an Individual's Umwelt is constituted by all: the Proto- and Bio-Evolutions, one's own and many other Individuals' Evolutions, the cultural Setting and its Evolution including an important component of the Individual in focus itself; everybody not only selects from and is in many forms selected by that Environment but also contributes heavily to its own making. The same plural form is also justified for the cultural Evolutions, for it is the communicative smaller or larger groups that evolve their proper form of living together.

It is not easy to say what are the cultural groups which evolve their proper Culturality. An important criterion certainly is the intensity of exchange. But Culturality obviously refers to a Process rather than to an object. Thus I avoid the term culture, except in the formula: the cultures of the world. One certainly important moment in forming traditions is language, although there are also many other means such as imitation or works or institutions to attain cultural emergencies. It has been estimated that roughly 8000 clearly distinct languages exist



or have existed on planet Earth. Obviously these would constitute a lower limit for the number of cultural forms of living that have or do exist; many subgroups could also be included. In addition, the exchanges of many single cultural features among these groups have also to be considered.

By emphasizing the nature-nurture opposition psychology has largely disregarded that fact individual acquisitions are often derivatives or modifications or variations of instinct forms.

**18.2. The obvious drawbacks of the individual memory are these: it must be acquired by every individual in a lifelong permanent process of Encounters with aspects and parts of the Environment. However intensive this happens in early or later years, everything is lost at the end of the life of every one individual. Obviously this is observable in animals and humans. But humans "invented" culturality that can carry much over generations.**

It was Johann Gottfried Herder who roughly one century before Darwin has invented the principles of Evolution; he did it mainly on the level of the transition from individual to cultural Evolutions. He had intuitions about biotic Evolution, but has written about rather indirectly; because this could not be openly discussed at his times and he was in the position of a Lutheran equivalent of an Archbishop. He had a rather clear idea of the principles of Innovation (variation) and Evaluation (selection).

Note that in Individual Evos, variation and "selection", i.e. here reception or invention and retention with integration into the existing system is probably within the same system and often at the same time or almost the same time. This contrast clearly with the separation between variation effected in the genome and selection pertaining to the organism in its Environment in Bioevolution.

## ***19. Memory in Cultural Evos***

**19.1. Some rather complex animals such as the great apes, sea mammals, mice, rats, cats, dogs, etc. have added an emergence towards culturality that supplements and enriches individual acquirements, in that adults, especially mothers, can actively train their young, so that the adult's experience is to some extent also available to the younger generation.**

Remember that Christianity in particular has promoted an image of humans that is based on a huge gap to animals that has only recently begun to be diminished by unprejudiced observation and theorizing.

**19.2. Now humans in particular have greatly evolved this rudimentary capacity to transfer their individually acquired habits to their kind, especially**

**the young, with the support of advanced communicative "devices" such as language, tool- other artifact-making, writing, etc. to extents beyond anything seen in animals. This we call Culturality. It enhances greatly what one individual could learn by himself in that the experience from many generations can "live on" in the Traditions in communicative social systems and can be exchanged among them.**

I prefer the abstract term Culturality to Culture, because the latter term treats these traditional emergences almost as objects to the disadvantage of the process and its potentials. Culturality points to various living forms that humans have socially acquired and transfer in smaller or larger groups. The point is that modern scientific achievements have not at all adequately treated Culturality due to lack of understanding and honoring the process. It is a great deficiency that the scientific community has not learnt little to understand culturality as the specifically human emergence.

Note that depending on level of differentiation you can easily identify some 6-8000 cultural groups, as indicated by the number of languages spoken. There may towards 100'000 or more different forms of living together, if you consider more details.

In Culturality, variation and selection, here more aptly called innovation and evaluation, are again in separate context, in that usually an individual or sometimes a smaller group innovates something, presenting it to others who do or do not adopt it and often change it in the course of time to often better, sometimes worse.

Let me add, that cultural evolutions are most important for all groups of humans and for their individual members. Imagine how meagre the "content" of our heads and how scare our skills and faculties would be, if there were no culturality. I contemplate ideas like: a non-en-cultured human is in fact an animal, only enculturated s/he becomes a human. I do not understand that human self definition has gotten heavily biological; even much of our law does little to give culturality its proper p

## ***20. Place of Variation/Selection***

### **Place of Variation/Selection**

<b>Evolution</b>	<b>Variation/Innovation</b>	<b>Selection/Evaluation</b>
<b>Pre-biotic</b>	<b>Genom</b>	<b>Organism &amp; Environment</b>
<b>Psyche</b>	<b>Brain/Mind</b>	<b>Brain/Mind</b>
<b>Culture</b>	<b>Individual, Team</b>	<b>Recipients, Modifiers</b>

### **20.1 Variation or Innovation is attained:**

(Proto) There is neither Variation nor Selection in the sense given in the genuine evolution; new Structures such as atoms, molecules, stellar bodies, crystals, rock formations, mountain ranges, etc. just arise; some of them further interact, some do not. Of course there is formation of new structures by encounters of Structures extant, the latter differing from their precursors; insofar there is direct variation by encounters. But there is no selection phase eliminating some Structures; further encounters produce further Structures of the same kind. In other words, there is no evolutive chain or stream with ever new Structures

(Bio) in the genome,

(Psy) in the IntraSystem mainly (P, yet contributions may also come from the Intro- and ExtrO systems),

(Cult) and are started mostly by individuals, sometimes in small groups or teams (in which variation and evaluation phases can melt).

### **20.2 Selection or Evaluation is happening:**

(Bios) in the Relation between organism and the surrounding Environment,

(Psy) in the same Intra-System and barely distinguishable from the generation of Variation,

(Cult) in the larger communicative groups or the public at large, perhaps initially by leader figures or people near to the variators.

There are no indications presently for separate handling of variation and evaluation in the Psychic system; yet nobody has explicitly searched for such so far systematically. I prefer to think of a highly distributed process for both variation and evaluation in the brain/mind or psychic system, where the two functions are attained together.

## ***22. The Semiotic Function Cycle spiraling through the individual organism and its Umwelt and modifying both***

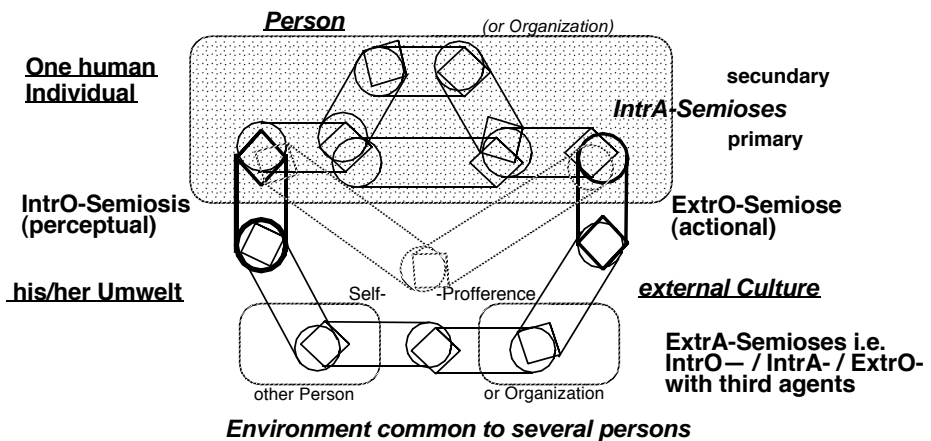
### **Short explanation of the SemEco Function Cycle:**

**22.1. My Diagram below presents the Semiotic Function Cycle for living beings in their Umwelt, humans in their Culture in particular. The Four-Phased Generative SemEco Function Cycle is spiraling through the Individual and its Umwelt lifelong and leaving Memory Traces of all experience and activity or individualized Potentials in both.**

**22.2. The three-part arrows graph the semiotic unit: one Structure (rhomboid square) transacts with another Structure (elongated rectangle) and so a third Structure (round disk) is generated; all three Structures are Semions: Reference, Interpretant, and Presentant, respectively. This is the unit process in all genuine Evolutions.**

**Semiotic Function Cycle** (spiralling through individual and its umwelt, leaving traces, i.e. new or changed structures in both parts of the ecosystem) Phases (IntrO-, IntrA-, ExtrO-, ExtrA-) und relative Levels of Structure Formation by triadic Generative Semiosis.

Primary and secondary levels relative to each other may be built several times, internally and externally (only one internal secondary systems is indicated, well too simplified (Lang, 1993ff.))



22.3. The four consecutive Semioses form consecutive phases, each one basing on the Pre of its precursor Semiosis; together they build one cycle of the Function Cycle; the purple rectangle presents the organism; the green rectangle its Umwelt or aspects of the Environment, for which the respective organism has organs either to sense or to act upon; the large rectangle the individual organism-Umwelt-Ecosystem; the background paper area the Common Environment or (lastly) the world at large (although other organisms are lacking).

22.4. The cycle repeats as long as the organism is alive in spirals through time. In all IntrO- Semioses (yellow) the Umwelt can leave an impression upon the organism, transient or permanent; in IntrA-Semioses (green) the bio-genetically given potential can be overformed and extended as a dynamic individual memory, influences from the lived-in cultures of the world included; in ExtrO-Semioses (blue) the individual can act upon the Environment, eventually changing it and also changing him-/herself in the executive process; in ExtrA-

Processes, semiotic or not, the Environment is changed by Interaction (physical etc.) and Transaction (semiotic) among its relatively independent parts.

22.5. In the genuine Evolutions infinite trees of Semiosis are branching in restrained diversification.

22.6. This emblem presents the Semiotic Function Cycle and is a summary of my transfer of Generative Semiotic into the worlds of the genuine Evolutions: of living beings in their Umwelten and Environments (bioevolution), of individual organisms in their Umwelt (individual or psychic Evolutions), and of communicative groups in their cultural traditions (the cultural Evolutions or Culturality for short).

22.7. Also see slides #12 and #23. The conception of Generative Semiosis is generic enough that its principle is applicable to all of three basic functions of any organism on as well material, energetic and information levels: (a) input or reception; (b) internal processing, no matter whether or how this is differentiated into emotion, affect, cognition, and willing, etc.; and (c) output or activities of various kinds such as humoral or other excretions, movements of extremities, facial or positional expression, acoustic expression, linguistic or otherwise. (d) The fourth phase closing the cycle and bringing it to its next turn may concern semiotic transformations of parts of the environment through other living beings, humans in particular, or non-semiotic, purely physical, mechanical or chemical events or other changes happening in the outer world (from the viewpoint of the organism in focus).

22.8. What I call the Function Cycle is an outgrowth and extension of Jakob von Uexküll's "Funktionskreis" or function circle consisting of the two complementary Merkwelt (receptive domain) and Wirkwelt (active domain) connecting any organism to its Umwelt receptively and actively. The Function Cycle, is conceived genuinely semiotic while the function circle has not been originally conceived so but can easily reinterpreted semiotically. One substantial gain of Generative Semiotic lies in the fact that one simple conception can indefinitely be applied to four phenomenologically entirely different phases of being and becoming in the world of organisms, viz. (1) perception or bringing about changes in the organism, (2) hidden mental including cognitive, emotional and any other so-called "mental" processes in the mind/brain including memory understood dynamically, and (3) all activity bringing about minor or major changes into the world.

22.9. The verb to spiral or the gerund "spiraling" may be a neologism; but picturing the sequence of Semioses that alternately go through the organisms and its Environment, once into either and once within either, and leaving eventually lasting changes in both, so that the Environment embracing many Umwelten of the former and present inhabitants, and as well as any individual organism are making each other by these infinite numbers of Semioses form or build or

change and maintain each other, is an excellent illustration of what happens in the form or organization of life.

22.10. These two qualifications of Evolution, diversity increase and its containment, happen together inseparably and based on one and the same causation, are responsible at the same time for both manifold innovation not too far away from what already exists and stabilization or order of or in the universe. Semiosis conjoins the Semions Referent and Interpretant generating their Presentant. The four phases IntrO, IntrA, ExtrO & ExtrA forming a cycle.

The SemEco Function Cycle is the Core Concept of the operation of Generative Semiosis in the Genuine Evolutions (Bios, Psyche, Culturality). See also the elucidations in section 20.

Structure Formation both within and around the individual organism occurs in four phases of the Function Cycle spiraling through the Ecosystem, the individual and its Umwelt, and changing both, possibly in the course of every one cycle. Each phase is a Semiosis comprising a Referent, an Interpretant, and a Presentant. IntrO- and ExtrO-Semioses build Structures within and around the organism, respectively. They are the basis of what is phenomenally known as Perception or Reception and Behavior or Action. Already for the most primal organism, ExtrA-Processes, whether of semiosic kind or not, are important; the organism have to remain fit for the respective Umwelt and may adjust genetically if the environment changes beyond their capabilities. For more complex organisms gaining and using individual experience, Intro-Processes, mostly of semiosic kind, become increasingly important and supplement or substitute some of their genetically emerged capabilities such as instincts.

There is no doubt that all IntrA- and much of the IntrO- and ExtrO-processes are realized with most complex physico-chemical events in the neuronal/humoral system of the central nervous system of all "higher" animals or in the humoral processes that operate in "lower" organisms including plants. I understand semiotic parlance as manner of speaking about something that is too complex than that it is possible to understand more than a few details of these processes. Millions of Billions of neurons with one approximately one thousand times as many synapses can be involved in one single phase of the Semiotic Function Cycle.

The diagram points to the crucial SemEco insight that all four phases of the cycle are of the same kind, namely Triadic and Semiosic Structure Formation and Change. This allows overcoming phenomenological constriction of inquiry having resulted in the separate treatment of domains like perception and action, thinking, emotion and motivation, etc. In cultural beings, especially, the ExtrA-Processes are also largely of the semiosic kind and are provided by other individuals, actual or earlier in time, nearby or elsewhere in space with effects into the actual scene.

## ***23. Horizons***

**23.1. If you want to detail a Semiosis and its Semions, you see that not all Semions are observable. You have to infer time and again.**

This concerns both, a substantial guess or fact about the probable or obvious vertical organization of organic systems and a methodological principle based upon SemEco:

You can relatively easy observe Semions outside an organism; especially those Refs eliciting a perception and so starting an IntrO-Semiosis; and those Pres resulting from an action or ExtrO. So you can observe little from IntrOs, ExtrOs and nothing from IntrAs, if you want not really relying on immediate experience reports or your own.

**23.2. Most of the Semions you can observe are parts of ExtrA-, IntrO-, and ExtrO- Semioses, almost nothing or highly inadequate is observable from IntrA- Semioses. But you may infer this and that.**

It's a fact that our observational possibilities are limited. Simple positivism make blind and deaf.

**23.3. A great help for inferences about unobservables are Horizons: most Semioses are either compositions of Semioses on a lower level of Horizons to one Semiosis on a super-ordinate level or Horizons are analyzable into Subsemioses.**

I venture some loose hierarchy of level of complexity of Structures in which you might go up and down. A preferred way of making that clear is that very low level semioses happen almost instantly, e.g. neuronal processes or perception or well learnt activities; the higher you go the larger time span the processes cover, e.g. something to learn or to understand thoroughly.

**23.4. I use a methodical rule of thumb: wherever I research, I aim at a target Horizon that presents best, what I want to inquire; this obliges me to do supplementary research also on the two adjacent Horizons: one above and one below of my target Horizon.**

Pure analysis leads to nowhere. Supplement it by synthesis so that some target result find double ground.

**23.5. Without despising exact details I find "comprehensive matching" lastly more important: the more details, we can observe, are fitting together with no contradiction, the better the chances for an adequate understanding.**

Cultivating details or connection is a matter of taste or habit. We cannot forgo either. With 'Stimmigkeit' I do not mean 'harmony'; rather I conceive of some state of affairs where detail known fits to everything else of total knowledge. Hier ist lastly my motive for my rule of thumb to always inquire on several adjacent levels of the complex processes.

## ***25. Summary & Evaluation***

**I have advanced a new conception of Semiosis. It is heavily inspired by Peirce's conception of semiosis, yet it also heavily deviates from Peirce. His and my conception should not be confounded. I offer a different background and a few sequels for a simpler world view and radically new conception of humans in their heavily self-made world. The following list gives only the most important advantages as I see them.**

1. SemEco goes beyond interpretation or input into a mind.
2. SemEco accounts for Semion ("sign characters" generically) production as well as "interpretation, i.e. mediation into a new or known Structure.
3. Being truly triadic SemEco can cover generic Evolution and the Evolution of Evolution: Proto-Evos (chemical, stellar, mineral), Bios, Psyche, Culturality.
4. SemEco is based on contingent encounter and affinity rather than necessity.
5. In SemEco one principle accounts for both diversity increase and containment.
6. Meaning can emerge in SemEco from pre-biotic Proto-Evolutive causation.
7. SemEco can cover semiosic IntraO-, IntraA-, ExtraO-, and Extra-Processes.
8. SemEco relates material/energetic aspects intimately with Meaning.

It's not my task to criticize SemEco, I improve it, continually, the 16 years since I have invented its basics when first reading Peirce. I originally only wanted to introduce culturality combined with methodical rigor into human sciences, psychology. Long before I was clear as to the inevitability of the ecological aspects. Then I saw that Meaning must also play an essential part and got beyond Peirce in introducing generative Semiosis. It has grown much larger into questioning and furthering a long history of thinking, the dualistic understanding of our world and ourselves, forwarding me to drafting a new conceptuality that is simpler and more coherent. There "must be" shortcomings apart from fundamentally breaking old thinking habits.

In consequence of the evolutive conception I gained over some years, I seriously doubt that universalistic natural law conceived as real determinants of what happens rather than as somewhat idealizing descriptions of what happens in an evolutive world. An evolutive world must be determined locally, field ef-



facts included. However, in an evolutive world, where should the laws "sit" and how should they be able to determine anytime and everywhere most to everything? Should the laws exist before the settings wherein they are supposed to have their effects, or should they be evolving too? Peirce had already arisen this question in the 1880; alas, without ceasing to proceed as if the world was following universal law.

What I present in this paper is not a (set of) Theory or Theories; rather this new conceptuality presents another — I dare say simpler and more realistic — manner of looking at things of the world and at ourselves in general and it proposes methodological tools that can work it out. "What evolves is just what happened to happen. (Stanley Salthe (2006, Analysis and critique of the concept of Natural Selection.

[http://www.nbi.dk/~natphil/salthe/Critique\\_of\\_Natural\\_Select\\_.pdf](http://www.nbi.dk/~natphil/salthe/Critique_of_Natural_Select_.pdf))

The goal of scientific endeavors in an evolutive world cannot be prediction. There can be given principles describing on a rather abstract level, how the Evolutions operate; Where Structures as stable as (the lighter) atoms or their major parts or small molecules are operating as they are (such as in energy transformation or basic chemistry, for example), we can expect strong regularity that looks like natural law, but the nature of the evolving principles (in complex and live composita, for example) excludes to predict every step; it is well possible to say what cannot happen and what is more or less probable. But Evolutions do what they do. And to invent reasons or grounds is already counter to their nature.

My radically new conceptuality ascribes those impressive regularities we can observe and those obvious irregularities that are also real to one and the same principles. This is a gain in parsimony and rationality as well as in factuality. I am well aware that most people prefer it otherwise and that there are enormous vested interests in much what makes factual scientific matters fixed, however much improved they could be.

## ***25. Abstract for Salzburg***

**25.1. Abstract.** The contribution presents a new basic conception of Semiosis, that is generic and can describe all known processes of the genuine evolutions in biotic, psychic, and cultural systems as well as the Evolution of Evolution; pre-organic or proto-evolutive Processes work in related manner which enables the genuine Evolutions to emerge from chemical, cosmic, and mineral Structurizations. It is a-dualistic and generative and can cover both input and output branches as well as organism-internal and -external processes of memory formation and use on chromosomal, cerebral and cultural levels. In essence, genuine Evolution is conceived as memory formation and later usage. I think it may not have been a good idea to base semiotics upon some "definition of a sign".

Peirce has written around 100 of them, obviously never satisfying himself completely. If signs of any kind are to be "interpreted", whatever that may eventually mean, they have to be "produced" or generated before. A related misconception appears to underlie the notion that a sign should represent something and could vicariously replace it. Rather than start with a definition of the "sign" and rely upon some rather arbitrary notion of "interpretation", I'd prefer to follow chains of effects of anything that do or can have effects of innovation and maintenance upon something else; and whenever physical or chemical explanations are wanting, I may look for a kind of connection that can be called semiotic. Any structure observable or inferable in the above fields of life and what is built thereupon may then preferably be thought of as a semion presenting something to be taken up by another semion which encounter is generating a third structure, and the same is done again and again, all semions becoming part of the chains of being. Be aware that the present is in no way a theory. It's concepts

**25.2. Zusammenfassung.** Hier zeige ich eine Konzeption von Semiose, welche so allgemein ist, dass sie alle bekannten Evolutionsprozesse und aktuelles Geschehen intra- und interorganismisch wie auch zwischen Lebewesen und ihrer Umwelt im biotischen, psychisch-individuellen und im sozial-kulturellen Bereich sowie deren Hervorgehen aus vororganismischen Proto-Evolutionen beschreiben kann. Sie ist a-dualistisch (keine ontologische Trennung von Stoff und Geist oder Tatsachen und Werten etc.) und generativ und kann die Eingangs- und die Ausgangsprozesse ebenso wie Organismus-interne Prozesse und Gedächtnisbildung auf chromosomaler, cerebraler ebenso wie kultureller Ebene begreifen. Ich halte es für keine gute Idee, die Semiotik auf einer Definition des "Zeichens" aufzubauen. Peirce hat rund 100 solche Definitionen geschrieben; offensichtlich haben sie ihn nie befriedigt. Wenn "Zeichen" erst dann Zeichen sind, wenn sie "interpretiert" werden—was immer das heisst—so müssen sie doch zuerst "produziert" oder generiert werden. Eine verwandte Fehlkonzeption scheint der Idee zugrunde zu liegen, dass Zeichen etwas repräsentieren und stellvertretend ersetzen können sollen. Anstatt mit einer willkürlichen "Zeichendefinition" zu beginnen und auf eine willkürliche Bedeutung von "Interpretation" abzustellen, bevorzuge ich, den Wirkungsketten von Semiosen zu folgen, durch welche innovative und stabilisierende Relationen gebildet worden sind und fortwährend werden, in welchen unsere Welt geworden ist und die durch physische oder chemische Funktionen allein nicht geklärt werden können. Im besonderen achte ich auf Wirkungsketten, die man semiosisch nennt. Jede beobachtbare, erschliessbare oder erfindbare Struktur muss aus Vorläufern entstanden sein und hat ihrerseits das Potenzial, mit begegnenden Strukturen zusammen immer wieder weitere, replizierte oder neue, zu generieren; und all diese Semionen, die in ihrem Insgesamt die "grosse Kette (das Gewebe) des

Seins" bilden. Dies ist keine Theorie; bloss aufeinander bezogene Konzepte in einer Konzeption.