ATHROISMATICS

THE LAWS OF AGGREGATION

META TAXIS - LAWS of STRUCTURE

TWO DIRECTIONS NATURES OR ANY THAT WORK find the

ATHROISMATICS: SEARCH FOR STRUCTURE [parameter used to link]

CREATE STRUCTURE [e.g. infrastructures
. data bases for retrieval]

INFRASTRUCTURE TO HOLD ALL EXPERIENCE

MKBT

PATTERNS

LAWS of AGGREGATION

ATHROISMATICS

LAWS OF MODULARIZATION

AGGREGATION AND ENTIFICATION

The Ancient

PARTS AND WHOLES

HIERARCHIES

AUTO-AGGREGATION
SELF-ORGANIZATION
CONSILIENCE
CONTIGUITY consistency
CONTINUITY
IMPERATIVES

RANDOMNESSES
MUTUAL CONTAINMENT ∋C
HOLOGRAPHY

COMBINATIONS
PERMUTATIONS
ARRANGEMENTS
SETS

GENERALIZED SET THEORY

FIND CYBERGS
ZENO

SET THEORY

NODES - LINKS - TRAFFIC - CARGO
VERTICES

Programs > instructions

DIMENSIONS
FRACTIONAL

What are the pieces
How many ways can they be put together?
Levels of Pieces

SYNTHESIS

FRAGMENTATION etc
→ LAWS of CHANGE

ONE and MANY

ALTERNATE WAYS OF CONNECTING THE DOTS

If an aggregate is an ecology, it exists to support its parts
If an aggregate is an organism, the parts exist to support the whole

Politically: Is the state to be an ecology
or an organism?

Does the whole exist for the parts
or the parts exist for the whole?
Comes

or just co-exist?

If Brahma is interested in variations on the theme,
then the whole exists to produce unique parts

Ecologies have longer life spans than organisms

∃? A ZOOM ECOLOGY ⟷ ORGANISM ? SPECTRUM

DIFFERENT KINDS OF SETS

IS AN ECOLOGY ~ ∪ union ?
AN ORGANISM ~ ∩ intersect

∪'s and ∩'s ⇒ discrete

Synecdoche: part substituted for whole
or whole for part

∞ hologram

ATHROISMATICS – A METASCIENCE

Introduction

Athroismatics is defined as the branch of knowledge which deals with the internal and external properties of aggregates. A general theory of aggregates whose elements may be physical particles motivated particles, facts, abstract entotes, black boxes, or other aggregates. Athroismatics is the study of those properties of aggregates elements, and their connecting bonds which are common to all types of aggregates such as those given above. There will be applications in the fields of social dynamics, cyrstallography, cosmology, taxonomy, psychology, coputer technology, urban transportation, etc.

Athroismatics may be considered to be one of the meta-disciplines along with mathematics and cybernetics. A meta-discipline is a branch of knowledge which deals with extracts common to the characteristics and operations of several other branches of knowledge. Thus, for example mathematics is the meta-science dealing with those properties of phenomena which are quantitative and can be extracted from phenomena by the process of measurement. Cybernetics is the meta-science dealing with the organization of structured~~ø/~~ systems. dealing with relationships of flow of energy and information through direct and feedback channels. Athroismatics is a meta-science dealing with those properties of phenomena having to do with extremal principles such as the second lay thermodynamics and those properties relating structure to forces and structure to behavior in an aggregate. Athroismatics is related to both cybernetics and organization theory.

Some of the basic problems in athroismatics deal with the optimum sizes of aggregates and their ~~pyr he~~ hierarchal structures. The synthesis of knowledge and debasis for a scheme of classification of knowledge. Athroismatics leads to the identification of implicit identities and conceptional similarities in aggregates which are obscured by ~~sy~~– semantics. It studies the generation of economies in concepts, structures, and organization. Such phenomena has the laws of thermodynamics turbelence and conflict are special illustrations of general athroismatical theorems.

The proper context of thermodynamics is in the theory of aggregates. Thermodynamics is the expression of certain portions of the theory of aggregates as first encountered in human experience expressed in terms of observables and derived functions. Statistical mechanics is a closer representation considering ~~statistical mechan~~ expressions in terms of parameters which more intimately characterize aggregates. In considering a more general s system of aggregates – be more general than gas molecules, we encounter such aggregates as data an an aggregate of numbers and the extraction of information, etc.

We shall ask what might be extracted from an aggregate. for example what energy can be removed in "useful" form. or what "knowledge" can be extracted from data.

What is meant by useful form? Perhaps this is a form manifested in the next larger member of an aggregate.

We shall ask why do these exist hierarchies of aggregates.

We shall look for the parameters which most naturally characterize aggregates and laws relating – bounding and limiting their behaviors. We shall study special structures and properties which aggregates with special structures may possess for example DNA and RNA and other proteins of special types which possess the ability to replicate themselves.

We shall discuss the invisic and exvisic points of view required to position the observer with respect to the ~~pek~~ phenomena observed and show that invisic and exvisic properties are distinct and non-conversiant gent. and search for transformations allowing an invisic description of phenomena derived from exvisic descriptions and vice versa. Invisic – looking in the direction of the microposm, looking at an aggregage from the outside and from its gestalt properties analyzing its contents. Exvisic – looking in the direction of the macrocosm, studying the elements and bonds and deriving emergent properties.

What, for example, is the most general form of Maxwell's velocity distribution? Is that a special case of an "Internal Readjustment LAw?"

We must imbed aggregates in fields due to other aggregates.

We shall investigate the special properties acquired by aggregates as more and more parameters an acquired by their elements. Set Theory at one extremen and ~~meditated~~ motivated particles and social dynamics at the other.

We shall investigate the evolution of aggregates and the relation between behavion that is temporal structure and spacial structure.

MORPHOLOGY OF AGGREGATES

The initial problem in athroismatics is the establishment of the morphological matrix.

The basic parameters spanning the morphological matrix will include such variables as whether the aggregate is structured or unstructured whether it possesses temporal or spacial structure or both. Whether there exists regressions (hierarchies) whether the aggregate has vertical or horizontal structure (status or non-status structures). Whether the elements are homogeneous or heterogeneous/ whether the temporal structure is invariant or evolving, and when ~~inv~~ evolving, whether cataclysmic or mutative changes are implicit in the organization. The degree of bonding of the structure (solid, liquid, or gases) the degree of complexity of the structure, or organization.

The morphology of the elements of an aggregate will be essentially represented by the same matrix which describes an aggregate. The morpho-elogy of the bonds existing between the elements will possess a distinct matrix.

Questions of basic importance are: What is the minimum degree of complexity of an aggregate which can be self-replicating? And, Which can be taught? Which can evolve? Which can pragment? Which can predict? Which can remember? Which can substain inconsistencies?

The most convenient description of aggregates can be given in terms of triplets. As for example, nuclei - gas - star - galaxy or neurons - men - society or mind - group mind - God.

LAWS2.WPD May 24, 2004

SOME LAWS GOVERNING THE NATURAL ORDER

Traditional thinking, both Eastern and Western has been dyadic, based on such dichotomies as yin/yang, masculine/feminine, good-evil, ...us/them, with us/against us. While dyadic thinking arises properly from the fact that nature is basically structured around symmetries and their corresponding conservation laws, about two centuries ago we became aware of a second category of natural laws: Laws of Change, examples being bio-evolution and the second law of thermodynamics. Then, a third category of laws–dialectics, governing the interactions between contraries and conflicting principles. And a fourth category governing the interactions between the synchronic and diachronic, between the ephemeral and long range, between the temporal and eternal.

FIRST CATEGORY LAWS: THE SYMMETRY LAWS

- Conservation of energy
- Conservation of mass

LEAST ACTION

SECOND CATEGORY LAWS: THE LAWS OF CHANGE

- The Second Law of Thermodynamics
  - Homogenization aspect, Disordering aspect
- The Principle of Plenitude
  - Occupying aspect, Obstructing aspect
- The Law of Hardening
  - Actualization aspect, Convergence aspect
- Evolution
  - Diversity aspect, Complexity aspect
- Growth
  - Multiplicity aspect, Size aspect

EMERGENCE

DIALECTICS

- Departure and Return [Chamberlain and Moulton]
- Thesis/ Antithesis | Synthesis [Hegel] [polarization]
- Action | Option
- Extinction | Radiant
- Fragmentation | Emergence

DIACHRONIC | SYNCHRONIC INTERACTIONS

- Packaging | Depackaging [revolution]
- Can demands DO [Ozbekian]
- Memes and Genes
- Archetypes | Games
- Power | Survival

THE LAWS of Aggregation
Self-Organization

ATHROISMATICS
ENTIFICATION AND AGGREGTION

We shall require a substantially new manner of thinking if mankind is to survive. --Albert Einstein

A real breakthrough is when somebody has sufficient creative imagination, and courage to follow it up --which may be even more important-- to say, "Let us look at the universe in terms of some new kinds of entities, some new kinds of units, or some new way of combining them." --Ralph Gerard

Entities and aggregates, their parts and wholes, have been the subject of scientific, mathematical, and philosophical thought since classical times. Great explanatory progress was made when it was seen that decomposing an entity into parts and investigating the attributes of the parts contributed to the understanding of the whole. The success of this decomposition process and bottom up transmission of attributes became a main stay of scientific investigation under the name *reductionism*. However, for many systems the assumptions of scalar reductionism (small to large) and temporal causality (prior to later) fails to account for emerging properties of the whole.[1] Accordingly, it seems proper at this time to consider alternative approaches to the relationships between parts and wholes, going beyond traditional scale and time decompositions. We here introduce a neologism, *athroismatics*, as a label for the study of the general properties of parts, wholes, and their inter- and intra- relationships. The name is derived from the Greek, *αθροισμα*, meaning to aggregate, gather, or collect

In the 20th century a different species of part-to-whole became apparent with examples of entities possessing the property of "mutual containment", an entity in which the whole not only contains the parts, but the parts also contain the whole. This counter intuitive arrangement was present in the properties of the newly invented hologram, but also in the human body, in which each cell contains the genetic material for replicating the whole. Accompanying mutual containment of certain entities, is the "mutual causality" or duplex nature of certain relationships. Forces create forms and forms in turn direct the forces.[2] Still another species of part-to-whole which has been explored in the 20th century is "regressive entification", nested sets of Chinese boxes, or Russian *matroshka* dolls. Structures of this type have been traditionally associated with hierarchies, but are now being seen as objects best explained as having fractional dimension–*Fractals*, self similar sets manifested at different scales. It is indeed time for a re-look at this classical subject.

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[1]Reductionism was formalized by John Locke, who posited what was smaller in size, prior in time, and visible, constituted ~~all that was~~ the most significant.

[2]J.A. Wheeler gives an example from general relativity: "Matter tells space how to curve, space tells matter how to move."

Rev 03-06-23

ATHROISMATICS
AN ALTERNATIVE TO REDUCTIONISM

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Parts and wholes have been the subject of scientific and philosophical thought since classical times. Great explanatory progress was made when it was seen that decomposing an entity into parts and investigating the attributes of the parts contributed to the understanding of the whole. The success of this decomposition process and bottom up transmission of attributes became a main stay of scientific investigation, acquiring the name *reductionism*. However, for many systems the assumptions of scalar reductionism (small to large) and temporal causality (prior to later) failed to account for the properties of the whole.[1] It seems proper at this time to consider alternate approaches to the relationships between parts and wholes, going beyond the limitations of traditional scale and time decompositions. The invention of the hologram alone, in which each part contains the whole, requires a rethinking of the concepts of part and whole.,

We here introduce a neologism, *athroismatics*, a label for the general study of parts and wholes.

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[1]Reductionism was formalized by John Locke, who held that what was smaller in size, prior in time, and visible was the most significant.

RENTOL.WPG ~~TOOT → ATK DISK~~
Year? From MIX DISK

THE CALL FOR RE-ENTIFICATION

A word about the initial recognition of elements. I like the word, "entitation", the identification of entity. I assert that entitation is vastly more important than quantitation. A real breakthrough would be when somebody has sufficient creative imagination --and the courage to follow it up, which may be even more important--to say, "Let us look at the universe in terms of some new kinds of units or modules, or at some new ways of combining them.

Ralph Gerard, Hierarchical Structures p218

Several fundamental propositions are herewith listed to be used in constructing re-entifications. They will be used as postulates.

1. The important jump that must now be made is from the morphological to the functional, from products to processes, from nouns to verbs. .

> The call for re-entification is the intellectual counter-part of the call for spiritual transformation.

2. We possess both a set of experiences and a set of beliefs. Our experiences shape our beliefs and our beliefs delimit our experiences. We both believe it when we see it and see it when we believe it.

3. A most important dyad is that of quantity and quality. Quantification depends on measurement which in turn depends on regularity and repeatability. Quality is not measureable and is associated with that which is unique.

Traditional Things
Structuralism Relations
Abstractions Processes

REENTIF1.WP6 April 10, 1995, rev April 13, 1995

ALTERNATE WAYS OF LOOKING AT THE WORLD
THE CALL FOR RE-ENTITATION

Entitation is vastly more important that quantitation. It is perfectly meaningless to measure something with higher and higher degrees of precision, if the thing you measure is more or less meaningless....A real breakthrough, scientifically at least, to me is when somebody has sufficient creative imagination--and courage to follow up, which may be even more important to say "Let us look at the universe in terms of some new kinds of entities, some new kinds of units; or, what really comes to the same thing, in some new way of combining units"; because combining units gives a new unit at the superordinate level.

Ralph Gerard--Hierarchical Structures p219-220

IN WHAT WAYS MAY WE RE-ENTIFY?

SOME CANDIDATES:

1) By signification
2) By exploring new units, (Gerard)
3) By interchange of levels
4) By *peri-dia* interchange
5) By the contruction of duals
6) By non-Aristotelean logics
7) By morphological negation
8) By Vajrayana meditation

SIGNIFICATION:

The material world is presented to us by sensory data. However the way it is entified is not an imperative of the data. Experience leads us to significate certain configurations, (patterns of entitation), as important to our successful functioning, ignoring or downplaying other entitations. Thus our world is basically entified by our significations, more in the social order than in the natural order. [include the examples of how frogs and hares significate-entitate the world]. Indeed to entitate and to significate can come to mean almost the same thing.

UNITS:

When we translate our usual unit systems (cgs, SI, English,..) into "natural units", that is those based on the fundamental constants of physics, c,G,$\hbar$... hitherto unnoticed relationships become manifest. For example, the relation between the Planck Particle, (length 10^{-33} cm, mass 10^{-4} gm, time 10^{-42} sec), other fundamental particles, and certain ubiquitous dimensionless numbers.

LEVELS:

Examples could be the exchange of balls and boxes as employed in statistical mechanics, or the exchange of address and content.

PERI-DIA:

This involves the exchange of Synchronicity and Causality.

DUALS:
From projective geometry (flat Euclidian space)

Two points determine a line

EXCEPT when the points coincide, then
No line is determined, but
an infinite number of lines are possible
through the two points

Two lines determine a point

EXCEPT when the lines coincide, then no point is determined, but an infinite number of points are possible on the two lines.

In addition there is also the instance with no dual: Parallel lines.

The interchange of line and point is an example of re-entification by the interchange of nodes with links or of existents with a relations.

[Of additional interest here is exception to the law of the excluded middle. The statement "Two points determine a line" is both true and false, depending on the disposition of the two points.]

LOGIC:
Alternate logical systems, involving A, no-A, not-A, no-not-A, etc.

NEGATION:
Approach as in sculpting, defining through removal of what does not belong.

VAJRAYANA MEDITATION:
The Buddhist notions of illusion come down to mean that the way we entify the world is quite arbitrary. That is that there exist many 'valid' paths across the world map. While Vajrayana meditation by itself does not lead to a re-entitation, it disolves the mind sets that stand in the way of recognizing and creating alternative entitations.

Sometimes the most important entities are invisible. Oftimes we refer to these invisibles as concepts. Only in the 19th century did the concept of **energy** become manifest and only in the 20th century has the concept of **information** become manifest. I feel it is correct to include concepts with entities, even though they are invisible and abstract, for concepts are the primary blocks by which we entify the world.

ESCAPE FROM LINEARIZATION

The real name of the box which entraps our thinking is *linearization.* Linearizing is a special form of organizing to which we seem addicted, (perhaps because it is simpler than most other forms). Our writing is linear, our music is linear, our movements from place to place are linear, and our lives themselves are lived linearly from past to future. We have consequently assumed time itself must be linear, with the corollary that causality is also past to future.

But in the 20th century technology allowed the beginnings of an escape from linearity. Movies, though displayed linearly, employed flashbacks, time could jump from present to past, then back to present, and later TV violated hard sequence by introducing instant replays. The result of all this was that time, though still one dimensional, was released from a single unitary sequence and could be re-organized into alternative sequences. (And this new concept of reorganizing a sequence is now cutting and pasting the human genome).

Following the escape from a unitary sequence to shuffled sequences comes the concept of multiple or parallel sequences. We display and view several subscreens simultaneously on the TV monitor. Kids seem to be able to handle this. They have not been entrained to the culture's traditional sacred notions of time. But even multiple shuffled sequences are still one dimensional. A further, and perhaps next, step out of the linearization box, beyond shuffling and parallel sequences, will be rate variation. Each parallel sequence may run at a different rate and a given sequence, shuffled or not, may alter its clock rate from time to time.

But none of the above makes the real break with linearization. Escape from linearization box will only come when we allow time, like space, to be multi-dimensional.

See Improbability III

Law vs Pattern

Law Metaphorically, a law is a linear set row of data if, then

induction: collecting data that fall in a row

at some level of abstraction, induction is linear

falsification: a dot does not fall in line

Probability $\frac{\text{no of data in line}}{\text{Total \# of data}}$

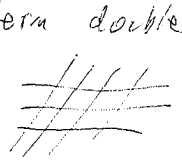
Patterns Multidimensional sets of data

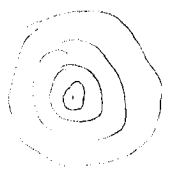
a) that includes a sufficient # of data

b) that posses certain symmetries

c) consistency

Metaphorically, pattern double rows





etc

Laws Linear entity

Patterns multidimensional entity

THE MUTUAL WORLD

We may think of the world as consisting of **nodes** [things, objects, or beings] and **links** [relations, bonds, or forces]. In the realm of human perception, the nodes are visible while the links are invisible, being in general perceivable only through their effects on the visible. Much of the history of religion, philosophy, and science consists in speculations or explorations of the invisible portion of the world, i.e. of the relationships that exist between the objects or things that are visible. The philosopher John Locke ["On Human Understanding", 1689] maintained that it was the visible that was important and meaningful and speculations about the invisible were meaningless. On the other hand, in the 20th century the Structuralist school of philosophy maintains the opposite: Reality is not composed of things but of relationships, and every object has both a **presence** and an **absence.** Therefore it becomes important to explore not only the relationships between objects but relationships between the relationships themselves.

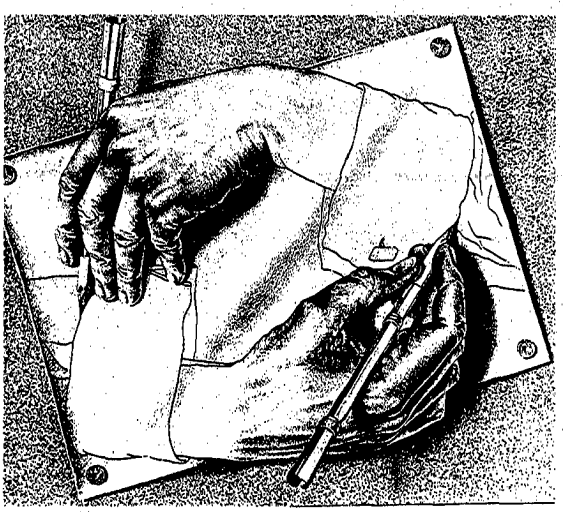
We might distinguish:
Class I relationships: Relationships between objects
Physical forces such as gravity and coulomb forces would be examples of Class I.

Class II relationships: Relationships between Class I relationships
The relationship between gravity and coulomb force would be and example of Class II

But between Class I and Class II there is a "semi" class of a relationships, those between a class I relationship and an object. For example,

The *mutuality*, Force <==> Form.

The question involved is: Is form, being visible, an attribute of objects, or is it also a force? Hence the need for this additional class of "*mutualities*"



Drawing Hands —M. C. Escher

SYMBIOS.WPD JUNE 16, 2001 JULY 9, 2001

MUTUALITY AND BEING

Knowledge Is for Doing;
Wisdom Is for Being.
–Li Kiang

Even some animals apparently have discretionary time. Today I saw some cows resting during a recess from their mandatory hours of grazing. And what do they do with their discretionary time? Rest, yes, but I was surprised to see many egrets in the midst of the reclining cows. Now egrets do not go near anyone, nor do they let anyone approach them, yet the cows and the egrets were enjoying some sort of symbiosis. I had a feeling that both the birds and the beasts were taking time off from doing their own things and just *being*. And when we can just be, we can become symbiotic with anyone. Or maybe it is the inverse: the clue to 'just *being*' is to establish a symbiotic relation with someone or something that is different: A member of the opposite sex, a pet, a foreigner, or an alien; A flower, a tree, a lake, or a mountain. Is it that we *be* when we contain the other and the other contains us? The egrets were in the midst of the cows and the cows were in the midst of the egrets. Or is it better said, When we identify with the other and the other identifies with us? Or, When we belong to the other and the other belongs to us? In any event *being* involves some form of mutuality with another. Indeed, mutuality is necessary in order for both us and the other to be.

Strange that the idea of mutuality has been so long obscured by our uni-directional activities. Causality, the foundation of our philosophies, is uni-directional in time. Reductionism, the foundation of our physics, is uni-directional in scale, Hierarchy, the foundation of our organizations, is uni-directional in power, Ownership, the foundation of our economics, is uni-directional in belonging. Rights, the foundation of our society, is uni-directional in privilege. Yet the world beyond the activities of mankind seems constructed on bi- or multi-directional linkages and influences. Why have we projected our own uni-directional proclivities onto the cosmos at large, and expect to understand the workings of the world in terms of our own biases? Perhaps it is from the same arrogance that created our uni-directional chauvinism in the first place. Why must we overrule the perceptions the world sends to us, with the uni-directional interpretations that we project onto the world? When will we come into a symbiotic relation with the earth instead of uni-directionally trying to subdue it? Egrets and cows have acquired a wisdom we have yet to achieve.

FROM CAUSALITY TO MUTUALITY

The great paradigm shift taking place in Western thinking is that from causality, a one-way street, to mutuality, a two way street or even a multilane super-highway. While the idea of mutual causality has long been fundamental to Eastern thought, its penetration into Western thinking has been slow. Causalism, the past determining the future, has been dogma in Western thinking. The opposite, the future affecting the past, has been viewed as non-sense. But mutuality has crept into western thinking through both politics and economics: Jefferson's view of ultimate sovereignty residing in the people, i.e.democracy, is the mutuality of [people <~~~> government]. And the cornerstone of free market economics has been the mutuality of [supply <~~~> demand].
The curious aspect of this is that physics has been the last stronghold of causalism. But technological developments such as radar [emw out <~~~> emw in] or holograms [part <~~~> whole] have given indisputable illustrations of examples of mutuality. Then with quantum mechanics physics had to succumb. The mutuality of the experiment and experimenter, of the observer and the observed could not be ignored. The illusion of "neutral objectivity" went to the dust bin. And now with bi-directional time being theoretically possible, the mutuality of [past <~~~> future] or [causalism <~~~> finalism] is on the table.

Mutuality has also surfaced in the theory of general relativity. As J. A. Wheeler puts it, "Matter tells space-time how to curve and curvature tells matter how to move.", a form of the mutuality, [mass <~~~> space-time].[1] Einstein says that the [mass <~~~> space-time] mutuality is ontological. If there were no matter there would be no space-time, i.e. the existence itself of space-time derives from the existence of matter. This raises the question, if there is full mutuality, then in what way does space-time contribute to the existence of matter? Must they be mutually sustainable?

Other phenomena that have defied explanation by "causality science" are Jung's *synchronicity* and Walpole's *serendipity*. These are events that happen that in some way needed to happen, species of *deus ex machina*. The visible part of the mutuality is the event itself, the invisible part is some meaning bestowed on the event. It is as though there are mutual exchanges between invisible actors in the event and visible actors in the event. The event itself is visible, the scenario of which the event is a part is invisible. Viewing synchronicity and serendipity as mutualities may give clues to their explanations.

Finally, another phenomenon that may better be investigated from the viewpoint of mutuality, is the phenomenon of *resonance*. Where resonance is defined as the mutual tuning of two vibrating systems to a single frequency or to harmonics of some fundamental frequency. [frequency_1 <~~~> frequency_2]

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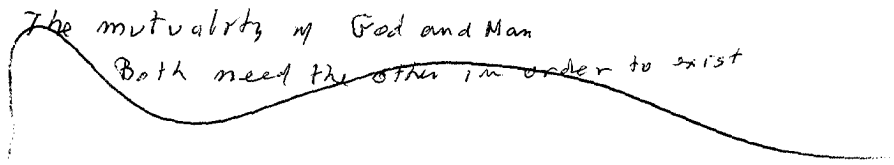
[1] Some explain that general relativity is [dynamics <~~~> geometry], but this may not be so much a mutuality as alternate descriptions of the same phenomena.


The mutuality of God and Man
Both need the other in order to exist

THE UROBORUS OF REALITY

Σθενος Σχημα Form

Σθενοσ <——> Σχημα

FORCE CREATES FORM, FORM DIRECTS FORCE
INTELLIGENCE CREATES KNOWLEDGE, KNOWLEDGE DIRECTS INTELLIGENCE
MATTER TELLS SPACE-TIME HOW TO CURVE, AND CURVATURE TELLS MATTER HOW TO MOVE[1].

Philosophy is the discipline that attempts to answer with words the questions that have been created by words. An epistemology fabricates an ontology, then that ontology supplies the subsequent questions for the epistemology. Physics is the discipline that attempts to solve with observations the problems that have arisen from observations. Physics creates a cosmology, then that cosmology suggests subsequent observations and their interpretations. In general, knowledge limits itself to a uroborus in which it loops. Hence, we cannot fully explore the totality of the world. Our epistemological-ontological loop builds only a sub-cosmos out of the pieces selected by a circulatory process. These **loops** we call reality are created by tools which are then taken over and used by the reality.

Not only knowledge, but existence itself appears to consist of loops. For example, human beings and other organisms are loops, such as phenotype-genotype loops. It has been demonstrated that the definitions of words are loops. Facts generate interpreatations, interpretations direct research There is no such thing as a fact without an interpretation. Or all facts are filtered by our sensory and cognitive apparatus .

The mutuality of force and form. Force is a vector. Form is stored information. Dynamic energy and static information. What is the obverse? Static energy and dynamic information? One form of static energy is GM^2/R, gravitational energy. Another is mass, rest energy, Mc^2 . Dynamic information is a modulated carrier. Information modulating wave energy.

The force **hv/R** and the wave energy **hv** modulated wave energy vs force.

Wind and water erode rocks, the rocks direct the wind and water. [Or the Chinese would say Feng Shui (wind, water) direct the flow of Chi (energy)]

Kairos, the cyclical aspect of time, directs Cronus , history and evolution, the unfolding aspect of time.

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[1] J.A. Wheeler's succinct summary of the general theory of relativity

ATHROIS0.WPD **August 26, 1998, rev November 7, 2000**

ATHROISMATICS
THE STUDY OF PARTS AND WHOLES

We shall require a substantially new manner of thinking if mankind is to survive. --Albert Einstein

A real breakthrough is when somebody has sufficient creative imagination, and courage to follow it up --which may be even more important-- to say, "Let us look at the universe in terms of some new kinds of entities, some new kinds of units, or some new way of combining them." --Ralph Gerard

Parts and wholes have been the subject of scientific, mathematical, and philosophical thought since classical times. Great explanatory progress was made when it was seen that decomposing an entity into parts and investigating the attributes of the parts contributed to the understanding of the whole. The success of this decomposition process and bottom up transmission of attributes became a main stay of scientific investigation under the name *reductionism*. However, for many systems the assumptions of scalar reductionism (small to large) and temporal causality (prior to later) fails to account for emerging properties of the whole.[1] Accordingly, it seems proper at this time to consider alternative approaches to the relationships between parts and wholes, going beyond traditional scale and time decompositions. We here introduce a neologism, *athroismatics*, as a label for the study of the general properties of parts, wholes, and their inter- and intra-relationships. The name is derived from the Greek, *αθροιμα*, meaning a gathering, collection, or aggregate.

In the 20th century a different species of part/whole became apparent with examples of entities possessing the property of "mutual containment", an entity in which the whole not only contains the parts, but the parts also contain the whole. This counter intuitive arrangement was present in the properties of the newly invented hologram, but also in the human body, in which each cell contains the genetic material for replicating the whole. Accompanying mutual containment of certain entities, is the "mutual causality" or duplex nature of certain relationships. Forces create forms and forms in turn direct the forces.[2] Still another species of part/whole which has been explored in the 20th century is "regressive entification", nested sets of Chinese boxes, or Russian matroshka dolls. Structures of this type have been traditionally associated with hierarchies, but are now being seen as objects best explained as having fractional dimension–*Fractals*, self similar sets manifested at different scales. It is indeed time for a re-look at this ancient subject.

---

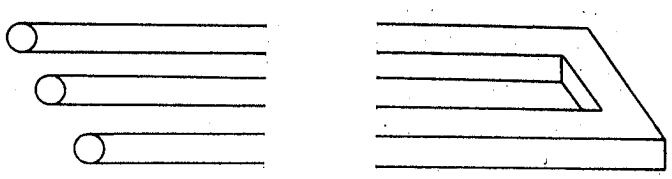
[1]Reductionism was formalized by John Locke, who held that what was smaller in size, was prior in time, and was visible, constituted what was significant.

[2]J.A. Wheeler gives an example from general relativity: "Matter tells space how to curve, space tells matter how to move."

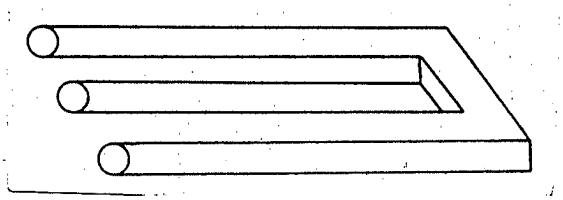
PENROSE2.WPD June 24, 2003

ATHROISMATICS: PARTS AND WHOLES

L R



L + R



CONTIGUITY

Some entities that may indeed exist are excluded in our minds from having existence because our common way of thinking demands logical consistency. We insist that what is inconsistent, what "doesn't make sense" is illusory. Part L above is acceptable, and part R is acceptable, but the whole L+R is inconsistent, and therefore rejected. Gödel's incompleteness theorems state that the entirety of what is implicit in an axiomatic system is not accessible to logic. Does this not infer that wholes do not make logical sense to us, and are therefore excluded from the allowable. It follows that we can logically deal only with parts, but we nonetheless construct "consistent wholes" from these parts. Whatever we may believe about these "consistent wholes", they are not only arbitrary, they are illusory. Our ontologies and cosmologies are not only limited by our experience, but are curtailed by our demand for consistency. Whatever is truncated, so that it makes sense to us, cannot represent the real nature of a whole. It is thus the consistent, not the inconsistent, that is ultimately illusory.

Escher and Penrose: Paradoxical structures
Connecting the points in ~~the~~ ways that violate consistency

PENROSE2 GRAPHICS
PENROSE TEXT

ATHROISMATICS: PARTS AND WHOLES

Some entities that may indeed exist are excluded in our minds from having existence because our common way of thinking demands logical consistency. We insist that what is inconsistent, what "doesn't make sense" is illusory. Part L above is acceptable, and part R is acceptable, but the whole L+R is inconsistent, and therefore rejected. Gödel's incompleteness theorems state that the entirety of what is implicit in an axiomatic system is not accessible to logic. Does this not infer that wholes do not make logical sense to us, and are therefore excluded from the allowable. It follows that we can logically deal only with parts, but we nonetheless construct "consistent wholes" from these parts. Whatever we may believe about these "consistent wholes", they are not only arbitrary, they are illusory. Our ontologies and cosmologies are not only limited by our experience, but are curtailed by our demand for consistency. Whatever is truncated, so that it makes sense to us, cannot represent the real nature of a whole. It is thus the consistent, not the inconsistent, that is ultimately illusory.

CHER.WPD suppl DISK 100 MB

THEMES01.WPD NOVEMBER 22, 2000

SOME BASIC PROBLEM AREAS 1

I CONTAINMENT

I. The Species of Containment:

SCALAR CONTAINMENT (1)
Open Containment (2)
(3) Euclidean Containment: One parameter containment
(4) Matroshka Containment: Iterated one parameter containment ~ regression?
Closed Containment
One Parameter Mutual Containment: ==> Equality
Cross Parameter Mutual Containment:
Self Containment [Self Reference]
Looped Matroshka Containment: "Strange Loops"
Bi-Cross Parameter Mutual Containment

genealogical containment

Each generation as a dimension in B - B

Uroboros of Blake

part-whole polarizations

~~meta-genii~~

NOTES:

(1) *Scalar containment is taken to mean static or time free containment.

(2) *Open containment infers open below and open above, no self imposed bounds

(3) *Euclidean containment is conventional geometric or algebraic containment, A>B .

(4) *Matroshka refers to nested Russian dolls. e.g. modular heirarchies, fractal organization

*Closed containment infers self bounding

Hofstaders genii meta-genii

*Mathematical equality is meaningful only if a single parameter is involved. If a generalized Pauli Exclusion Principle is valid, [no two entities take on identical values for all parameters], then total equality infers non-existence. In between, equality in more that one parameter leaves the mathematical domain of quantity and enters the domain of quality.

exits

*Examples of cross parameter mutual containment would be: genotype containing phenotype and phenotype containing genotype. Holograms, in which the whole contains the parts and each part contains the whole.

*The Pope declaring himself infallible is a self contained or self referential proposition. While such a proposition may have validity within the system, its validity cannot be supported outside the system without additional linkages.

uroboros *The Jeffersonian notion of sovereignty is a closed loop. The executive at the top, below, the levels of national ministers, ...local ministers... down to the people, whose sovereignty loops back over the executive. Time is involved in this loop, and is strictly not scalar. A scalar example is implied in Blake's Augeries of Innocence, "To see a World in a Grain of Sand and a Heaven in a Wild Flower, Hold Infinity in the palm of your hand and Eternity in an hour".

~~Hofstadter~~ ~~Gödel, Escher, Bach~~

*This is very difficult. Could it be what would be meant if Blake's line were rendered, Hold Eternity in the palm of your hand and Infinity in an hour ?

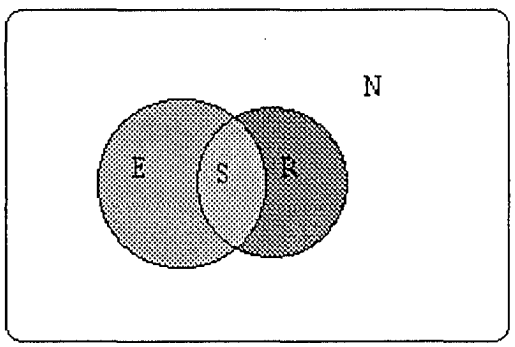
NOTHINTR.WPD February 17, 2000

DRAFT

NOTHINGNESS: THE HIDDEN QUADRANT

The door to NOTHINGNESS is open, but looking through and seeing nothing there we never enter. Instead we toss through the door those perplexing things which we do not wish to encounter. We use NOTHINGNESS as a trash bin for those contradictions and paradoxes we label too absurd to be taken seriously. Yet, paradoxically, NOTHINGNESS hangs albatross like on the necks of all our logics and reasoning. Null sets, apophatic definitions, falsification, "none of the above", and many more concepts reside on the verge between somethingness and nothingness. In the West we have taken refuge in Fortress Aristotle, secure within the walls of the law of excluded middle, allowing us to create the insulated categories of sense and nonsense. But in the East a logic that supports statements that are simultaneously true and false has permitted nonsense to be considered as sense resulting in a penetrating and critical worldview.

Making sense can mean either fitting empirically with sensory experience or fitting logically with prescribed canons of reason, or sometimes fitting both, which case is labeled scientific. Much lies beyond our sensory limits, and as Gödel has shown, much lies beyond our logical limits. And the domain of science is even more restricted, being the intersect of the sensory and the logical. Beyond the union of the sensory and the rational lies Kant's noumena, which, like Schrödinger's Cat being either alive or dead, may be either something or nothing.



E = Experiencable; R= Rational; S= Scientific; N = Noumenal
Intersect = S; Union = ~N

The sensory may be extended to the experiencable, the logical may be extended to the imaginable, but as before beyond their union lies a domain which may be something or nothing. And as some philosophers (like those from Copenhagen) would have it, what lies beyond the bound is both something and nothing (or perhaps neither something nor nothing) until experienced, observed, measured, or axiomatized.

The psychical entities which seem to serve as elements of thought are certain signals and more or less clear images which can be "voluntarily" reproduced and combined... This combinatory play seems to be the essential feature of productive thought - before there is any connection with logical construction in words or other kinds of signs which can be communicated to others... The above-mentioned elements are, in my case, of visual and some of musical type. Conventional words... here to be sought for laboriously only in a secondary stage, when the mentioned associative play is sufficiently established and can be reproduced at will.
--Einstein

THE MOST INCOMPREHENSIBLE THING ABOUT THE WORLD IS THAT IT IS COMPREHENSIBLE. --Einstein

Wittengenstein and Einstein both attempt to achieve operational understanding of why mathematics, language, or any system of symbolic representation, can isomorphically represent the observed world.

There are both composite and primary SPACES. M-SPACE, manifest space, the one we live in, the space of common experience, is a composite space. [The Buddha says that all things that are composite are illusions] We also exist or participate in other composite spaces. But like in reductionist decomposition, composite spaces are to be broken down into primary spaces. [this rather than scalewise reductionism.] The basic athroismatic question is 'what are the primary spaces?'

Candidates are P-SPACE, H-SPACE, AND B-SPACE

In addition to M-SPACE, we exist in G-SPACE [gnosis or cognition space]

There is also A-SPACE Plato's space of archetypes.

The limitations of P-SPACE on associations, especially temporal and causal, and spatial are not shared by G-SPACE the space of thought and imagination. Yet a subset or sub-domain of G-SPACE maps P-SPACE.

ON ATHROIS FLOPPY

EXPLORING SPACES

Having established the concept of SPACES as an alternative mode of entification, next in order is consideration of the relation between the SPACES. Is there primacy among the SPACES, events in one SPACE controling what happens in others? To what extent are the SPACES independent in what happens internally? Does independence and interaction fluctuate with time or is it always the same? These and other questions must be considered in independently between each pair of SPACES and in general among all SPACES.

REGREL1.WP6 SCRAPS March 3, 1995

RELATIONSHIP, RECOGNITION AND BEING

There is an old Persian adage that says there are two kinds of truth: eternal truths that are always there even if never recognized, and those truths which must be supported by constant repetition in order to be true. I believe it is also true that there are similarly two kinds of relationships, and indeed that there are two kinds of existence itself.

I have some relationships that, even though there has been no communication for maybe years, when coming together it is as though we had been talking just yesterday. The closeness and endurance of these relationships are never eroded by time. They indeed exist outside, above, time. A test for any relationship is provided by its ability to persist through temporal absences. Those relationships in our lives that must be sustained by incessant repetitive interactions are ephemeral. And if absence results in erosion then such a relationship does not exist in eternity. It has been said, "Set your love free to go away, and if she does not return it was never meant to be."

But we can go further and discover that a measure of our own portion of eternity can be found in our relationships that endure despite time. These relationships not only contain glimpses of the eternal, but are themselves glimpses of the eternal.

And something similar is involved in recognition. We recognize oftimes even though there is no recollection of previous [in time] encounter or experience. We hear, see or meet something or somebody that we could not have possibly have heard, seen or met before, yet we recognize it or whom. I feel what we can recognize is also a measure of our access to the eternal. That which can be recognized, like certain relationships, exists somewhere outside, above, time.

Our experience with relationship and recognition make clear that we exist both in time and above time. We are both material (existential) and spiritual (eternal). We are both mortal and immortal. Our task here is twofold: to discover who we are and to to sacrilize the world.

ATHROIS3.WPD JUNE 30, 2001

1999 Notebook
I - 26, 43, 44
III - 21

ATHROISMATICS[1]

MUTUALITIES

1) Holograms.
2) The phenotype contains the genotype; the genotype contains the phenotype
3) The planck particle contains the baryon; the baryon contains the planck particle[2]
4) Profundity contains absurdity; absurdity contains profundity.
5) Form contains emptiness; emptiness contains form.
6) Randomness contains order; order contains randomness.
7) We contain God immanent; God transcendent contains us.

MATROSHKAS

Re-entify ⇔ Re-Wire

1) Modular hierarchies
2) Fractals
3) Hofstadter's meta-lamps and meta-genii.

SYMMETRIES

1) Top down | bottom up
2) Existence | counter-existence [or non-existence]
3) Definition | Apophasis
4) Conservation laws [Emmy Noether]
5) One week = 120 x 84 minute gravitational periods = 84 x 120 minute hydrogen periods.[3]
6) Infinity | zero
7) Rhythm | pitch
8) $-X \mid +X$
9) $X^{-1} \mid X^{+1}$

Sekuster

QM ⇒ non-locality in space

evolution ⇔ non-locality in time
template as Brahman

LOOPS

1) Thomas Jefferson's concept of democratic government.
2) All definitions [and arguments] are ultimately circular. They may, however, differ in their chirality

TRADE OFFS

1) The closer you get the slower I go. [Bumper sticker]
2) Nobody goes there anymore, it is too crowded. [–Yogi Berra]

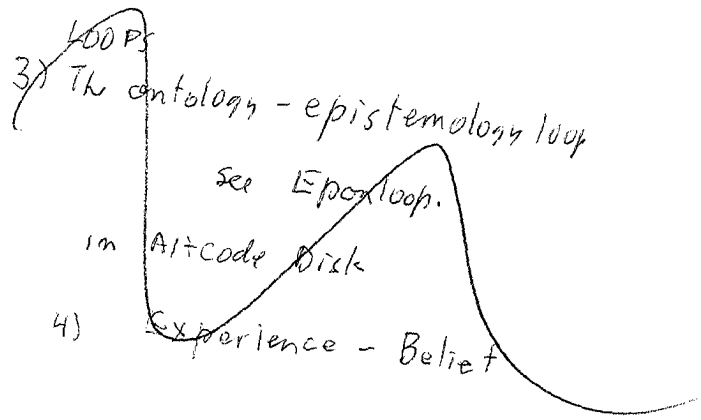
Morphing

---

[1]Look for the fulcrum, looking glass, portal, watershed.

[2]The planck particle is 10^{19} times more massive than the baryon; the baryon is 10^{20} times larger than the planck particle. Yogi Berra saw through this type of relationship: "Mr. Berra, do you want your pizza cut into four or eight pieces?" "You had better cut it into four pieces, I don't think I can eat eight".

[3]Which in turn is equal to seven rotational periods.


LOOPS
3) The ontology - epistemology loop
See Epoxloop.
in Alt-code Disk
4) Experience - Belief

2001 #72

NEOATH01.WPD SEPTEMBER 4, 2001

TOPICS IN ATHROISMATICS

update

PARTS AND WHOLES

The whole = the sum of the parts Classical
The whole > the sum of the parts Emergence
The whole < the sum of the parts Chop Shop
Two species of whole: Loop, Infinite regression
Fallacy of "chalk circle" wholes

NODES AND LINKS

The visible and the invisible
Structuralism, The relations are more significant than the entities
Link as road plus traffic, Traffic as vehicle plus cargo
Carrier wave and modulations

LOOPS AND REGRESSIONS

Mutuality: duplex causality, duplex containment, duplex sustainment [symbiosis]
Matroshkas
Looped Matroshkas
Matroshka of loops

EX-- NIHILO

Symmetries and opposites
Conservation laws
Donuts: holes and wholes
Uroborus

LOGICS

Aristotle and beyond
Four Thought
Logic and Topology
} → COGMITANS

RULES AND BOUNDS

Rules and the auto-creation of bounds [generalizations of Gödel's theorem]

REPETITION, ITERATION, RECURSION

NECESSITY AND CONTINGENCY

Directed random, Iterated random

SPACES
ONE and MANY

2001 #74

NEOATH02.WPD SEPTEMBER 6, 2001

ATHROISMATICS
SOME PRINCIPLES

These statements are paraphrases or generalizations of Gödel's Incompleteness Theorem:

That which enhances in time cross a watershed and become that which inhibits.

Tools, such as rules, allow the realization of only a portion of the system's potential.

Rules not only delimit what activities may take place, but also create unintended boundaries.

No system can realize its full content, much less its context.

No system can understand or explain itself, and no system can know or fully realize itself. [contrary to Socrates' injunction]

Mutuality must replace causality.

Four thought must replace the law of the excluded middle.

Four thought must replace compromise.

The oak contains the acorn and the acorn contains the oak,
but the oak is more than the acorn and the acorn is more than the oak.

A planck particle contains 10^{20} baryons masswise;
a proton contains 10^{20} planck particles sizewise

More-than-everything contains everything and
everything contains more-than-everything.

Every node is a **set** of nodes and links. The **regression** of nodes creates **levels** of links.

There are two species of wholes: Loops and infinite regressions.

A loop may be loop of regressions, and a regression may be a regression of loops.

VARIATIONS ON A THEME OF GÖDEL

Everything is a special case

The theorems of Gödel, Turing, and Chaitin are epistemological theorems. Theorems about limitations on knowing. A basic question is: Might these theorems also be ontological theorems? If so, what would their implications be?

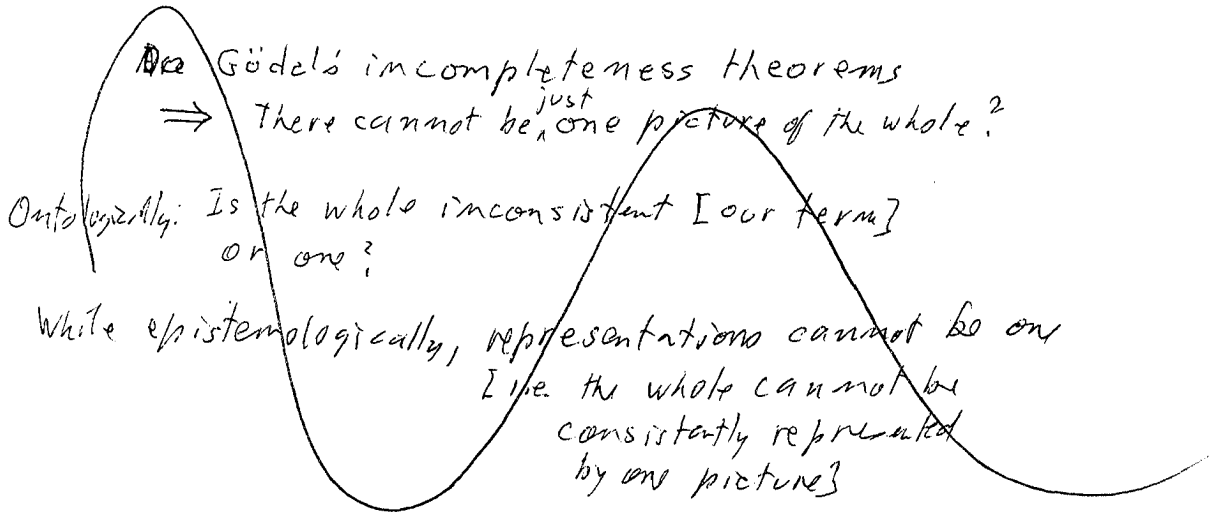
1) The universe is not a single Kingdom. There would be no single set of rules [laws of nature] valid throughout the universe. Every rule and set of rules has a limited domain of validity, which cannot be the domain of the whole. [What about the paradox implied by this rule regarding itself ?] This invalidates such assumptions as the Cosmological Principle and the Perfect Cosmological Principle. It brings into question the relativistic assumption of a "proper time", a single time for the entire universe. All the pieces of the jigsaw puzzle do not make one picture, [Completeness infers inconsistency]. There may be several pictures possible from a portion of the pieces, [Consistency infers incompleteness]. Some pieces may belong to more than one picture. And some pieces may not fit anywhere.

2) Elements belonging to one part would not necessarily fit, be compatible with [cf. matter and anti-matter], nor be consistent with elements of other parts. Nor would diverse parts be able to communicate or even be aware of one another. It is conceivable that diverse parts could occupy the same space and time and co-exist without mutual awareness.

3) Phenomena that may occur regularly in one part of the universe would be uncommon or impossible in a different part of the universe. The meaning of *part* is not to be interpreted solely as a spatial part or a temporal part [different ages] but also includes scalar parts, harmonic parts, differences resulting from frequencies, linkages and other parameters.

4) The non-universality of any rule would support the creation and preservation of variety. No order or structure would be universal. There would be different dimensions, different forces and forms of energy, different periodic [and non-periodic] tables, different organizations resembling what we call life, different consciousness and different intelligence. [and different numbers ?]

But even Gödel's incompleteness theorem, which is an example of a class of structures that are auto-limited, [structures whose rules delimit realization of full potential], is a special case and not universally valid. .



Gödel's incompleteness theorems
$\Rightarrow$ There cannot be just one picture of the whole?

Ontologically: Is the whole inconsistent [our term] or one?

While epistemologically, representations cannot be one [i.e. the whole cannot be consistently represented by one picture]

See also Scraps, 2000, #77, #78

THE IMPROBABILITY CHANNEL PART III

The "formal age" of empirical science may be said to have begun with the publication of Francis Bacon's inductive canon. [Novum Organum] in 1620. Scientific laws were to be established on the basis of the number of observations of the repetitive occurrence of an event or by consistent reproducibility of a result in the laboratory. Since Bacon there have been some epistemological modifications to his concept of induction. Principal among these has been the introduction of the statistical nature of so called "laws". This modification was required in order to incorporate the implications of quantum mechanics. Modified induction allows statistical validity in the face of negative instances, which is to say that probabilistic propositions or laws cannot be falsified, only rendered less probable. Statistical validity in replacing classical induction has replaced the concept of *"truth"* with the notion of *"a probability of one"*.

Elementary probability theory tell us that the probability of repetition of an event equals,

$$P = k^n$$

where k is the probability of occurrence of a single event and n is the number of repetitions that occur without an interruption. For example, in the case of tossing a coin, k = 1/2 [heads or tails] and n is the number of times heads is thrown without a tail occurring.[or vice versa] The inference of this is that for any event that repeats unvaryingly for large values of n, k must be equal to one. Otherwise P tends to zero as n increases. From this it can be inferred that the events in the natural order that unvaryingly repeat over and over possess no alternative but k = 1. Such events either belong to a part of the cosmos that is rigidly deterministic; or they are part of a highly improbable sequence that occurred throughout a certain length of time.

Consider the case where k is a very small number. That is, a great number of options are possible. The greatest probability for the occurrence of such an event is n=1. [The non-occurrence of such an event has the probability of one, i.e. n=0]. The inference is that the more variety and options involved in an event, the more remote its occurrence. [to say nothing of its repetition]. Knowing that a very large number of conditions must be met for the existence of life, we must conclude that its occurrence is highly improbable, unless of course there is some unknown built in parameter that limits the number of arrangements open to a large set of variables.

All of this has been predicated without its embedment in time.

In essence, induction predicates validity on the number of observations of the occurrence of an event. Most commonly, this *validity number* is the total number of independent observations of an event that give a consistent result. The validity number may be taken as the product of the number of occurrences of an event times the number observations of the event. Falsification is concerned with another number, the number of exceptions.

Basic questions that arise in the such an approach include: What is an event? What is an observation? What is meant by independent? and What results should be considered as satisfying the criteria labeled , "expected". These questions have been extensively discussed by many authors, but what is of interest beyond the repetitive and reproducible are the "fringe" cases that may possess high validity in spite of having a very low validity number, that is, those occurrences that may be valid but are extremely rare. How are these cases to be evaluated, in particular what degree of validity is to be assigned to a single occurrence of a unique event? Here the epistemological use of stochastics requires supplementing.

If, when a certain number of improbable events occur, and through some similarity they form a recognizable *pattern,* then, although each event is improbable, the pattern itself may acquire statistical validity. The problem reduces then to "what is the difference between a statistically established *law* and a statistically established *pattern*" First, the occurrence of events indicating the existence of a law must be quite frequent while the occurrence of those events constituting a pattern may be quite rare. Second, the structure of a pattern may be of a more general or abstract nature than the structure of what we commonly consider to be a law. However, the similarities must be readily recognizable in order for there to be a pattern. Third, and most important, the specific incident of an event belonging to a pattern must possess some extremely improbable feature. In fact, paradoxically, it is the very improbability of the feature that supports the events validity! We can then assert, the validity basis of a law lies in the high *probability* of its events; while the validity basis of a what we are calling a pattern lies in the high *improbability* of its events.

One approach to constructing a bridge between time and meaning would be to postulate two worlds each occupying the same space but each operating at its own characteristic frequency. A slow universe and a fast universe, so to speak. [The communication engineers' FDMA, Frequency Division Multiple Access]. Jung has said that there are no such things as "accidents". When what we call an accident occurs, our world momentarily transfers command to the other world . The other world takes over and dilates time and leisurely adjusts causal sequences so that when compressed back to the clock speed of our world the events appear acausal and simultaneous, i.e. a synchronicity is created.

It appears that the "other", or "spiritual" realm, speaks to us through the improbable, while the physical world speaks to us through the probable. However, the improbable does not falsify that which has been inductively established, it only temporally interrupts it. Nor does the probable falsify the improbable. Highly improbable is not the equivalent of false.

ILLEXCTX.WPD MAY 19, 2001

THE ILLUSION OF THE EXCLUDED CONTEXT

I recall on numerous occasions, in many classrooms, in many courses, in many different subjects, the professor beginning his lecture by stepping to the blackboard and drawing a large chalk circle. "Consider the system," he would begin, addressing what was being written inside the circle. When first experiencing this approach, I felt the professor was using the chalk circle to get us to focus our attention on what he was writing in its interior. But somewhat later I began to realize that the chalk circle was a device to magically exclude the effects of everything that existed outside the circle. This made everything so much simpler, allowing us to ignore what we wished regardless of whether or not it could be ignored. The chalk circle approach, inculcated in us by our educational institutions at all levels, has become a basic tool in our mode of thinking about everything from economics to astrophysics. [In science it takes the form of selecting certain parameters to be held fixed, observing the variations of other parameters, and ignoring the rest.] The Illusion of being able to eXclude the effects of Contexts [IXC], together with strict adherence to the Law of the Excluded Middle [LXM] have created wastes, disasters, and absurdities in human society.

> WE SHALL REQUIRE A SUBSTANTIALLY NEW MANNER OF THINKING IF MANKIND IS TO SURVIVE. -Einstein

It is not only the attempt to ignore context, but ignorance of the multi-dimensional nature of context that creates erroneous conclusions. In two dimensions, on the blackboard, we might hold that the chalk circle insulates its interior from the exterior, but in a universe with larger numbers of dimensions than the blackboard, security from context based on a two dimensional insulation is an illusion. Thinking that ignores the context of the past [eg the Balkans], of the future [eg whaling, lumbering, depletion], of the micro [eg genetics], of the macro [eg asteroids], of invisible links [eg cartels, mafias], of secondary forces [eg wind, the Tacoma Narrows Bridge], of ego and arrogance [eg the Titanic], of symmetries [eg tit for tat], and of example [eg violence on TV, White House interns] will not solve problems. Today we see "blackboard two dimensional thinking" in our approaches to energy, health care, education, justice, defense, whatever. Each of these areas are linked to the others, not just through the budget as politicians choose to think, but in their interactions through each of the many contexts.

Many of the disagreements in current society derive from which context should be given priority over the others. These disagreements result in one parameter decisions made by courts, cartels, and congresses, and in response there are counter suits, protests, and terrorists. It happens that there exist algorithms for optimizing multi-parameter systems, no need to select which context, include them all. But employing such algorithms would put lawyers and politicians out of business, and the agendas of special interests would be impeded. .

It ain't gonna happen.

Correction

Politicians put the pre-election context first

A definition automatically excludes certain contexts

Structuralism: Definitions are loops)C

We choose exclusion to avoid being overwhelmed

Language is both to enable e.g. communication
and to inhibit avoid the reality
of ambiguity, flexibility, fluidity, openness
? ? ?

)C We must contain the context

The chalk circle not only pretends the context
plays no role, it oversimplifies the context.
~ the reductionist illusion

Not only do we ignore the effects of context on the interior of the chalk circle we ignore the "side effects" of the chalk circle on the context

Who said, "You cannot do just one thing"
St. Paul said, "This one thing I do"

The Quote from "Lord of the Rings"
You can fence yourself in, but cannot
fence the context out.

SHAMPHYS.WPD MAY 23, 2001

see also 1993 #6 1999 #3

SOME THOUGHTS ON THE 67TH ANNIVERSARY OF KRASNIK

THE PHYSICIST AND THE SHAMAN

In the physicist's toolbox are items called *vectors*. These are mathematical entities consisting of two parts, a magnitude and a direction. A vector, V, is frequently represented by the formula,

$$V = M e^{i\theta}$$

Where M is the magnitude and θ is the direction. For example, if we are in Washington, then the distance to New York is M = dd miles and the direction θ = aa degrees east of north. If the **direction** part of a vector, (θ in the equation), is equal to zero, then $e^{i\theta} = 1$, and the surviving magnitude M, called a *scalar,* is still a useful meaningful quantity. . [The numbers we deal with every day in commerce, finance, construction, politics, etc are scalars. No direction involved.] However, if the **magnitude** part of the vector is equal to zero, then according to the way physicists think, V = 0, that is the vector itself is zero, and θ, whatever its value, also vanishes. In such a "zero vector", direction in the absence of distance retains no meaning.

length magnitude

Counter to how the physicist views the "zero vector", the shaman holds that even if M = 0, the vector still has valid meaning. Indeed, the shaman's practice makes use of the directions implicit in zero vectors. American Indians hold that the various directions, east, south, west, north have special spiritual meanings, there being no need for distances to be involved (M not necessary). Every morning the Hopi shaman goes to the First Mesa and faces the direction in which the sun will rise, to help the day to be born. The distance to the sun is not a factor. When they pray, Muslims face in the direction of Mecca wherever they are. Direction is the essence, distance is not involved. In the past, Christian churches were always oriented so that the high altar was to the east, no distances involved. Some hold that for health reasons we should sleep with our heads to the east. And according to some religions proper burial places the head to the east. And in the Chinese practice of Feng Shui direction (sans distance) is of importance. Shamanism and derivative religious beliefs recognize the meanings that reside in direction independent of any vector magnitudes that may or may not be involved. In fact it is held that only when M = 0, only when the materialistic scalars are out of the way, do the spiritual essences of θ clearly emerge.

It has been found that bees also deal with vectors, with direction and distance. Karl vom Frisch, a Swiss entomologist, studied the ways bees communicate the distance and direction of a pollen source using a dance whose orientation to the vertical gives direction and whose width indicates distance (the narrower the more distant). If the distance to the food source is small, as M approaches zero, the widening of the dance obliterates the direction signal and the bee is confronted with a zero vector in which direction still ~~has~~ is the important information. The bee then switches to a different dance, a "zero vector dance", that gives the direction to the near by source.

Shamans and bees understand that if M = 0, then $V \neq 0$, something physicists and mathematicians may want to rethink.

SELECT01.WPD MARCH 17, 2001; JULY 10, 2001

SELECTIONISM

SELECTIONISM is the name chosen for a philosophical system based on the following premises:

1) An ontology is a representation, model, or picture of the universe. It is not a symbolic homomorphism of the universe, but is at best isomorphic to some facet of the universe.
2) Reality is a term used to designate the particular ontology that is accepted by a general consensus of the current population.
3) The tool by which an ontology is fabricated is called an epistemology. Epistemologies differ in their rules and methodologies regarding how to select those experiences and observations that are to be considered in the construction of an ontology, and on how the collection of selections is to be interpreted and organized [i.e. by theory]. But more basic is the feedback that these rules and methodologies have in determining what experiences and observations become accessible or inaccessible, including the bio-built in cognitive and sensory limitations of the designers of the epistemology themselves.
4) An epistemology consists of two parts: an infrastructure or framework with which to contain and organize the observational or experiential inputs, and the inputs themselves.
5) Order is an attribute exhibited by an ontology, imposed in part by the epistemological framework, in part by the human subjective sense of order, and in part a reflection of the indigenous structure of the universe.

The Epistemological Process Involves:

A) Collecting a set of experiences or observations
   These are selected not created,
   Their selection depending on conscious and unconscious criteria and the cognitive and sensory limitations of the selectors [eg humans]
B) Representing, symbolizing, and simulating the experiences
C) Significating the experiences according to assumed criteria
   Some Signification criteria:
      a) Frequency and regularity of Repetition
      b) Conformity with the picture that has already been built
      This involves a question/answer dialectic, the questions directing future observations derive from the existing picture, directing a deterministic path of evolution
D) Selecting or rejecting experiences on the basis of the significations
E) Organizing the representations into a model or picture
F) Interpreting the picture,
   Testing its correspondence with the previously selected set of experiences

Since the experiences collected are initially "randomly" encountered, it cannot be claimed they are created, except in the sense that they are the imprint of the result of an interaction between the observer [human] and an already existing context. Since humans derive from some initial selections, *pure* creation is pushed back to a "beginning". The above processes do not speak to an ab initio creation, which may be either ex nihilo or per some "mutually causal" dialectic.

03-06-27

Selectionism

Its roles in Evolution — survival
Knowledge
History
Ontology
News

History is selected

The past is both true and false, прошлое не прошло
THE PAST HAS NOT PASSED

Stalin quote, Bush quote re revisionism

The Tolstoy effect

Santana quote

Sealing History: Sealing → Closure → true/false
News
Knowledge
by ritual, repetition, proclamation, "inquisitions"

Type I { The selection takes over from the selector
The Selection becomes the subsequent selector

Type II { Intelligence creates Knowledge
Knowledge directs Intelligence

Both Type I and Type II → closure → T/F

REASON, FEELING, AND RECOGNITION

To suspect the basic canons of thought, to doubt that logic is without error, and to distrust reason itself as a reliable guide to validity alienates us from the foundations of our culture. To fall back on feelings and emotions, on our desires and aversions, on our hopes and fears, is to reject the world that reason and science have built. But when viewed in toto the weltanschauung structured by reason and logic seems as unreliable as any world view built on fear and wish. Then if we are to reject both reason and feelings, to what do we have access that can guide us to validity?

There is, besides reason and feeling, our third *epistemology*, the one called intuition. Which can be defined as the awareness of something that we have always known, something planted or wired into our very being, known without having been experienced. Such knowledge, not derived from personal experience is not remembered or recalled but is recognized. We may speculate whether this knowledge comes from previous lives, as many believe, or from access to a collective mind belonging to all humanity, or somehow to our being mentally isomorphic to the cosmos.

I would like to submit that it is recognition that underlies reason and logic. Logic cannot establish the validity of the premises it assumes, but it can manipulate valid premises to derive other valid premises. Much of the development of scientific knowledge can be traced to an intuitive insight or "hunch" on the part of the researcher. Logic and reason did not produce the insight, but were necessary afterwards to communicate the insight to others.

Using "vertical" and "horizontal" metaphorically, we may say that the vertical communication between the cosmos and the human mind is per recognition, while the horizontal communication of knowledge between humans is per logic and reason. This, having been said, by no means rules out the roles of feelings and hopes in both vertical and horizontal communication, but is to warn us that unless recognition is at the root of the knowledge, skepticism is justified. And the beauty of recognition is it can always be used as a personal test, even in the absence of laboratories and libraries.

RECOGNITION IS THE VALIDATOR OF REASON

Modes of Validation:

- Repetion - Induction
- Reason - Logic - Deduction
- Feeling, hunch, intuition, recognition
- "Signs" Give us a sign
  that which violates probability
  ~cf. synchronicities

Ways of Knowing

- Experience - Sensory - Induction
- Reason - Logic - Deduction : Patterns
- Hunch, intuition, recognition
  Dreams, Feelings. Revelation
  Pipe line to God
- Signs

Only a portion of a pattern can be concealed.

Are they Ontological spin Doctors?
hiding much ontologically from us? - why?
or is this a projection?

IRRECONCILABLE SIMILARITIES

I was walking across a bridge one day, and I saw a man standing on the edge, about to jump off. So I ran over and said "Stop! Don't do it!" "Why shouldn't I?" he said. "Well, there's so much to live for!" "Like what?" "Well... are you religious?" He said yes. I said, "Me too! Are you Christian or Buddhist?" "Christian." "Me too! Are you Catholic or Protestant ? "Protestant." "Me too! Are you Episcopalian or Baptist?" "Baptist" "Wow! Me too! Are you Baptist Church of God or Baptist Church of the Lord?" "Baptist Church of God!" "Me too! Are you original Baptist Church of God, or are you reformed Baptist Church of God?" "Reformed Baptist Church of God!" "Me too! Are you Reformed Baptist Church of God, reformation of 1879, or Reformed Baptist Church of God, reformation of 1915?" He said, "Reformed Baptist Church of God, reformation of 1915!" I said, "Die, heretic scum", and pushed him off. (Emo Philips)

Our civil war was fought over irreconcilable similarities. France and Germany fought three wars over irreconcilable similarities. Japan and the US went to war over irreconcilable similarities. In fact most wars are fought over irreconcilable similarities. This is because the more similar we are the more we compete. We do not compete with cultures or species who are sufficiently different. In fact, war does not occur when differences are sufficiently large, instead trade or some other form of symbiosis occurs. The enemy isn't the different one, the enemy is the similar one. We might surmise that one reason the cold war never became hot, was that Russia and the US were too dissimilar. This suggests that Russia and the US can effect a mutually advantageous symbiosis. [as is happening in space]

If this is indeed a valid observation (premise), then as the world becomes more homogenized and differences disappear, war and violence will escalate. We ordinarily think that the path to peace is through equalization, a level playing field with the benefits of modern technology available to all. But uniqueness and variety are at root more precious to people than equality. People want economic benefits but not at the price of losing their cultural and individual uniqueness. *Non egalite mais difference*. An important factor in the rise of terrorism was not the differences between east and west but the threat of a global homogenization conforming to American values and views. Beyond human preference for individual uniqueness, the fossil record shows that survival of the whole depends on the range of variety (diversity) contained in the whole.

The conclusion is that similarities are more basic to conflict than are differences. And differences are more basic to survival than are similarities. Irreconcilable differences allow each to go to his and her own niche. Irreconcilable similarities force us to struggle with each other for the same niche. As Li Kiang said long ago, "The measure of collective wealth is in the number and variety of options available." Conformity, homogenization, the destruction of difference, all lead to extinction.

Sexual difference leads to marriage,
but irreconcilable similarities lead to divorce

Successful marriages are based on heirs complementary
(and complimentary)

more differences than sexual
but complementary differences

In court they speak of irreconcilable differences
they really are talking about irreconcilable similarities

e.g. 2 acting careers
2 incomes, OK
2 careers, no

PROCESSING EXPERIENCE

VAIRACONA THE SOURCES OF EXPERIENCE INPUTS AND RESPONSE

The source channels may be encountered passively or intentionally. What is called *empirical* is the element of intention included in the following.

Perception: sensory, gestalt perception
Intuition: recognition, revelation
Feeling: emotion, the heart, the spiritual
Imagination: belief

AKSHOBYA THE SELECTION OF EXPERIENCE SIGNIFICATION I

This is about the basis on which experiences are captured, noted, recorded or on the other hand missed, ignored or rejected.

Repetition, multi–occurrence
Multi–sensorial channel
Multi-observer, consensus
The Improbable, so rare as to gain notice, whether cyclical or unique

THE REPRESENTATION OF EXPERIENCE SYMBOLIZATION

This is about the creation of symbols to represent experience. These symbols are elements in the set we call knowledge. It must be emphasized that all representations truncate the experience. The map or the picture is not the same as that which it represents. Although the symbols may participate in that which they represent. Definitions, both direct and apophatic, are cross symbolizations.

Articulation verbalization, words, language
Images
Sounds, music
Models, mathematics

RATNA SAMBHAVA THE ORGANIZATION OF EXPERIENCE

This is about ways or modes of knowing. All of the modes are interlaced in a complex manner. Knowledge is constructed in part by each of these modes. While decisions concerning what is relevant and what is valid are frequently made by *authority*, by the authority of tradition, which is the accumulated experience of a culture, or by the authority of political or ecclesiastical power, or by the obsessions of a particular period of time, our ultimate concerns are:

SIGNIFICATIONS II

What is relevant or irrelevant,	Involves perspective
What is valid or invalid	Involves testing
What is consistent or inconsistent	Involves logic
What is important or unimportant	Involves values
What is right or wrong	Involves laws
What is meaningful or meaningless	Involves feelings

THE ACQUISITION OF CONCEPTS

One of the attributes of humans, differentiating us from other creatures, is our ongoing pursuit of new ways to view and cope with the world. However, we habitually handicap ourselves by assuming that what we experience discloses the actual nature of the cosmos. We extrapolate and generalize to other realms what our senses lead us to conclude from local experience. Although we have succeeded in extending our sensory apparatus with an assortment of instruments–telescopes, microscopes, sensors of the non visual EM spectra, etc., we now know that our natural senses, even extended, give us only a partial snapshot of what may exist. We must now accept that it is illusory to equate the particular world view based on our limited perceptions with any Cosmic Reality.

But it is not only the limitations in our perceptions that have rendered our experience a special case, it is that the feed back from our perceptions on our thought processes has biased our manner of reasoning. Our logic and reasoning have been derived from and molded by our perceptions, and have contributed to our illusions as much as have the perceptions themselves. It follows that an effort to extend our reasoning apparatus could be as useful as the extensions to our sensory apparatus have been.

The enhancing of our thinking is largely through the acquisition of new concepts which extend our basic units of thought. While some of our everyday concepts, such as *saving* and *storage*, date back to pre-antiquity, sometimes the capturing of a basic concept is a matter of centuries. This is because a concept may for years lie dormant in countless anecdotes until a pervasive commonality is noted. When this happens the essence of the anecdotes is abstracted and defined in a phrase or two. And finally, with increasing familiarity, the concept is reduced to a single word. As an example, for centuries a notion of energy was sensed but the concept of *energy* wasn't grasped and explicitly defined until the 19th century. In the 20th century we have discovered that the relative equilibrium of the natural order that has obtained in our times is not absolute. We have learned from fossil records and deposits of rock and ice that major changes and great catastrophes occur from time to time. This realization along with the rapid advance of technology in the 20th century has resulted in a most remarkable rate of acquisition of new concepts: e.g., *catastrophe theory, chaos theory, ecology, genotype/phenotype, information, software/hardware, critical mass,* etc, etc.. Our everyday thinking has yet to catch up with the enrichment, and correction, afforded by these concepts.

We must note, however, that some concepts resist definition and have remained permanently encapsulated in anecdotal form. For example, many of the stories of classical mythology contain basic concepts that have never been reduced to a hard definition. And it may be where there is a richness of interpretation a story is superior to a definition, for to define is to truncate. Our thought processes are more powerful when equipped with both precise concepts, and ambiguous notions. The former to guide our reasoning and the latter to feed our imagination.

SLICING TRUTH

A slice is rewiring and re-entifying what we know, reorganizing our experience in an alternate manner. Such a restructuring of knowledge is predicated on the belief that **truth** is not a single picture. While there may be a single multidimensional **TRUTH**, [say of 26 dimensions], what we consider to be **truth** is but one slice through **TRUTH**. [say 4 dimensions] It has been said no system can explain itself. How then can we discover basically different ways of viewing the world, and how can we discern our limitations and biases in experiencing and viewing the world? Is it possible to get out of our human ontological box and see the world and ourselves from the outside?

In the past we have used many symbols and metaphors to organize our experiences. Our epistemology has had many elements. There has been myth: stories of the Gods their attributes and actions. There has been philosophy: words, with grammar, and logic on how to put them together. There has been mathematics: mapping the quantitative aspects of the world onto number. There has been music: creating sounds isomorphic to the music of the spheres. There have been games: emulating the contesting forces of nature. There has been dance: attempting to feel the movement implicit in the world in our bodies. There has been art: grasping understanding of creation by creating. And there has been silence: becoming one with the world.

While we are still imprisoned in the box of our own nature, we have learned that we are in a box and that the box has a context, perhaps many contexts. So long as we were unaware of the box, we organized its contents as our knowledge. Now in calling for new slices, what are we attempting? We hope by rewiring and re-entifying to make cracks in the box. Various slices through our box may split the box and open us to the contexts. But rewiring may be the right means for the wrong end. Alternate organizations of the contents may be a proper end in itself. But the possible consequence of opening the box and exposing us to the contexts could prove to be disastrous. Those philosophers, mathematicians, and artists, who have peered out of the box have become insane.

Is the box to protect us from the context? Is it a womb, an egg, from which we will emerge when the time is right? Or is the box a prison to protect the context from us? Such ~~Both~~ views have been proposed. Or maybe it is one of many experiments, to see what develops within a box under prescribed conditions and rules. Brahma, the master experimenter, is interested in all the possible variations on his themes. In that case, we would like to be able to see the final report evaluating all the variations and what the recommendations for the next Day of Brahma would be.

VALUE LEVELS

In earlier scraps the notion of attraction/repulsion [or joining/separating] has been applied to various elements, subsets, and sets. In particular, on the level of individual humans attraction/repulsion manifests as like/dislike. On the societal level as important/irrelevant. And on the representational level with respect to the natural order as valid/invalid.[1] And finally on the universal level, there is the notion of Truth, an abstract and absolute ideal but implicitly unknowable..

The interplay of these levels often creates configurations in which contradictions and inconsistencies occur. Society through inculcation attempts to convert the likes/dislikes of an individual into conformity with the importance/irrelevant values of the culture. Those whose likes conform to what the society holds as important are the most likely to succeed in that society. [2] But in turn what a society holds as important may be at odds with what is valid in the natural order. And over a period of time Nature inculcates cultures with what is valid. And those cultures and societies that cannot convert what is important to conform with what is valid do not succeed. In fact, they become extinct. However, our sciences, philosophies and religions in their attempts at representations of validity, can only become valid with experience, which is a part, not with Truth, which is a Whole. And we may surmise that Nature itself must in turn seek to make the validity of its parts conform with the Truth of the Whole.

The interplay of levels expresses itself in such claims as the importance of a discovery. But on its own level there is no importance to a discovery; there is only its extent of validity. Assigning to a discovery a rating of importance has to do, not with its intrinsic validity, but with utility or some other societal value. The discovery of America, for example, had great cultural importance, but little to do with any implicit validity. The validity of the Copernican view of the solar system, was large, but has had little social utility or importance. In short, importance and validity are not interchangeable. Nor are personal preferences interchangeable with importance, nor are local and temporal validities interchangeable with Truth.

In recent years Washington D.C. has become the world's capitol of proclamations re what is important. But Washington seems to be opaque to validity. It assumes, contrary to all experience, that importance overrides validity. And even that Truth is made by proclamation. As noted above, this is the road to extinction.

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[1]Here, representational level refers to verbal, mathematical, or other symbolic representations of human experience, which involve interpretations of facts and the logic used to assemble symbols into theoretical models.

[2]Fritz Zwicky claimed that everyone was a genius. But only those whose genius lay within the set of what the society held to be important were recognized as such.

PRELIMINARIES OF STRUCTURALISM

Structuralist Propositions:

Reality is not composed of things, but of relationships

Every object has both a presence and an absence MANIFEST UNMANIFEST

The total system is present in each of its parts [hologram, cell]

Synthetic a priori truths make perceptual truths possible*

Similarities are to be ~~found~~ sought in the differences rather than in the resemblances [p39-41]

Structuralism is concerned with the symbolic order [Brahman ?]

Structuralism de-emphasizes the individual

Structuralism would support "recognition"

Some Structualists:
- Jacques Lacan
- Ferdinand de Saussure
- Roland Barthes
- Michel Foucault
- Claude Levi-Strauss

{[* Whitehead's repetition is better than synthetic a priori truths]}
{[question of importance of utility vs meaning]}

definitions:
- diachronic = historical
- synchronic = a historical [would that mean cyclical?]

Seals 1998
#7, #8, #55

ATHMATH.WPD December 31, 1999

MATHEMATICS AND ATHROISMATICS

Mathematics is based primarily on various abstractions derived from quantity (number) and measurement (scale and dimension) and their multiple relations to one another. Athroismatics is based on various abstractions of the relations between parts and parts, parts and wholes, and wholes and wholes. While the abstractions derived in mathematics overlap those of athroismatics, there are many distinctive domains.

Some of the areas peculiar to athroismatics include:

Boundaries
- Interfaces
- Verges
- Watersheds
- Limits

Dyads
- Opposites
- Symmetries
- Duals
- Dialectics

polars

Triads
- Nodes, Links, Traffic, cargo

Containments
- Whole ⋑ Parts
- Part ⋑ Whole
- Wholes ⋑ Wholes

Archimedean, Dunne Regression
Matroshkas, Oval Matroskas Mutualistic

⋑ ⊂

Relations
- Horizontal
- Vertical

Processes
- Repetition
- Iteration
- Recursion
- Regression

Logics
- Aristotelean
- Quadric
- Nagajunian

Metatexis
Order, Disorganization

The success of mathematics in being isomorphic to the observed world may be that it is a way of connecting points that allows a very large number of points to be consistently connected

i.e. Math is not isomorphic, it just allows consistent connection of large number of points

MATH01.WPD December 14, 1999

see also 97#7, #8 #52

SOME NOTES RE MATHEMATICS

There are two ur-sources of mathematics: counting and measuring. Counting led to arithmetic, measuring to geometry, and from the marriage of arithmetic and geometry the rest of mathematics was born. Counting was literally digital, it gave rise to the natural numbers or integers. Against the discreteness of the integers, measurement introduced the continuous, leading to the real numbers–every point corresponding to a numerical value. Thus,

DISCRETE	CONTINUOUS
Arithmetic	Geometry
Integers	Real numbers
Digital	Analog
~~Multiplicity~~	~~Diversity~~

...and then came along the offspring, algebra, topology, analysis, ... and theory

The continuous, geometry, was interested in patterns and dimensions, while the digital was interested in quantity and magnitude. It was Descartes, with his analytic geometry, who arranged the ~~invasion~~ learning of shape and pattern with number and scale. But now, Mandelbroit, with his fractals, is arranging ~~the~~ a counter ~~invasion~~ learning of magnitude and scale with dimension and pattern, resulting in discrete patterns and regression.

We can note:

Scale : Dimension :: Value : Attribute

For example, the universe is a fractal in that it exhibits the same patterns on different scales. Thus exhibiting a certain type of symmetry, or even economy. It is the gaps, the nothingness, that give existence to the discrete. The content of non-sameness that gives existence to patterns. Thus the discrete and continuous represent two species of existence, and their marriage creates the world.

In the quadrad: Pattern, Dimension; Scale, Aggregate, both the discrete and continuous appear twice.

Notes 99/09/21, Little America, Flagstaff, AZ

DISK - ATHROISMATICS

ATHROISG.WP6 August 28, 1998

GLOSSARY OF TERMS AS USED IN ATHROISMATICS

ARCHETYPE

An archetype is a primary, Brahman, Sat. It exists independent of any form of self reference, symmetry, or manifestation in any SPACE. A template, on the other hand, is a composite of archetypes, (and therefore illusory). Templates exist in H-SPACE and but only when their manifestation in some second space also exists.

APOPHASIS

Definition by negation.

ATHROISMATICS

The subject of parts and wholes when all conceivable modes of construction, decomposition and restructuring are taken into account.

CARGO

That which is carried by a vehicle, and together with path and vehicle constitutes a link.

COMPOSITE

Composite/primary is a fundamental dichotomy. For example the template/archetype dichotomy. archetype primary! template composite?

DIALECTIC 6 types — def

A Dialectic is a pair of opposing forces or principles, or a dyadic force or principle. Dialectics that operate simultaneously are termed perennial, examples are homogenization/diversification; those that operate alternatively are termed oscillatory, examples are: breathing, two and four cycle engines.

DIMENSION

A dimension is an independent parameter determining the scope of a space.

Geometric Dimension, Fractal Dimension Dimensionality, orthogonality

DYAD

A term for any two-fold entity, such as those possessing bi-symmetry. Species of dyads include: opposites, binaries, polars,

HORIZONTAL

One of two sets of links or relationships. Horizontal linkages connect the domains of a space. Vertical links connect the levels in a space.

ITERATION

LEVEL

A sub-space separated from other sub-spaces vertically as distinguished from a Domain which is a sub-space separated from other sub-spaces horizontally.

LINK

MODULE

An aggregate bound together by forces generated by or indigenous to its elements.

NODE

PACKAGE

PRIMARY

An essence or system that is stable or permanent with respect to all other systems. Brahman, Sat, ... A fundamental set of non-definables whose gestalt effects a system.

RECURSION

REDUCTIONISM

REGRESSION

REPETITION

SCALE

A dimension in H-SPACE that determines relative size.

SPACE

Spaces are of two types: Composite and Primary. Examples of primary spaces are:

P-SPACE, Position or place space
H-SPACE, Form or shape space
B-SPACE, Bonding or linking space

K-Space

Examples of composite spaces are:

M-SPACE, Manifest space, the physical space in which we live in waking consciousness.

C-SPACE, Cognitive space, the space in which mental or thought elements exist.

∃ bonding per similarity

SYMMETRY

Negative bonding by similarity = competition
Positive bonding by difference = Symbiosis [ecological]
Positive bonding by similarity = flocks
Negative bonding by difference = aversion, hatred, intolerance

TEMPLATE

A composite protoform constructed from archetypes.

TRAFFIC

VEHICLE

EP1

IMPROB2.WPD OCTOBER 31, 2000 rev NOVEMBER 29, 2000

See also 2000 #77, 2001 #100

THE IMPROBABILITY CHANNEL PART II

Human Life Is Driven Forward by its Dim Apprehension
Of Notions Too General for its Existing Language.
–A. N. WHITEHEAD

Of equal, or possibly of even more significance than the probable events we tend to classify as "laws of nature", are various kinds of improbable and unique events. These are usually denied or ignored by an epistemology which restricts itself to the frequently repeated and intentionally reproducible. [read the scientific method]. Here we note four kinds of improbable events:

1) Events that are exceedingly rare, but may be re-occurrences of some long term cyclical phenomenon. For the ancients, eclipses would be an example.

2) Improbable events that when taken collectively produce a recognizable pattern. If, when a certain number of such improbable events occur, and through their similarity they form a *recognizable pattern,* then, although each constituent event may be improbable, the pattern itself may acquire statistical validity

3) Synchronicities
Among events of high improbability are those that C.G. Jung called *synchronicities.* These are improbable happenings that intrude into an ordinary sequence of events in a *meaningful* manner. While there may be no visible causal connections, there are meaningful consequences. Synchronicities interact with ordinary probable events in such a way as either to meaningfully redirect them or bring them to an unforeseen but meaningful conclusion.
Among the questions that arise are: What is meant by meaningful? Meaningfulness has to do with subjective expectations regarding fitting a well recognized [hence probable] pattern or archetype. Thus a synchronicity joins the improbable to the probable, the acausal with the causal, and infers that there is innovative creativity continually interacting with what already exists.
A basic feature of a synchronicity has to do with time [as the name suggests]. Synchronicities always involve temporal improbabilities. By definition, a synchronicity consists of a confluence of events, whose separate occurrence may be probable or improbable but taken in toto constitute an improbable coincidence in time. That is, the basic improbability in a synchronicity lies in the improbability of the coming together of the constituent events at the same moment in time. And as Jung defines, a synchronicity in addition always involves meaningfulness, either a meaningful message or an action that meaningfully redirects the course of events. Time, meaning and probability, a curious triad that has traditionally been called either luck, fortune, or fate.

4) Miracles
Another species of improbable event is known as a *miracle.* Over centuries countless so-called *miracles* have been well documented. But since the laws of nature are basically statistical, a miracle need not be taken as either a violation of an inductively established law nor a falsification of a law. From the viewpoint of probability theory, a miracle is but an improbable event. However, when a sufficient number of miracles constitute a pattern, as pointed out before, that pattern acquires far greater statistical significance than any of its improbable components.

In conclusion, we must agree with Hamlet, "There are more things in heaven and earth, Horatio, Than are dreamt of in your philosophies."

With reference to the first event reported in "The Improbability Channel Part I" [Scraps 2000#77], Jung might hold that its significance or validity derives from the improbability of the "presence" *simultaneously* striking two observers. The presence striking more than one observer removes its explanation from being an individual mental event.

As for the second event, Jung might view its significance as residing in the improbability of the *precise timing* of the light with touching the candle. In both events there is an element involving improbabilities in the synchronous timing of presumably independent factors, two humans in the first case, two actions in the second. In fact, considering the rarity of the light's turning bright over a period of months, the probability of this coincidence was infinitesimal. Both of these events readily fit Jung's concept of synchronicity, "a highly improbable event that occurs at the intersection of the physical and the non physical, and is the conveyer of meaning."

STRUCTUR.WP6 January 13, 1995

INTRODUCTION TO STRUCTURE

For a complete discussion of the organization of any body of knowledge or praxis, two complementary approaches are required: 1) The historical approach--describing the actual path by which the present state of knowledge or praxis was arrived at; and 2) The morphological approach--describing all of the possibilites that may be seen from the vantage point, and disdvantage point, of the present. The path of development tells us about process, i.e. how we arrive at our structures and products. The second or morphological approach, in putting together as complete a structure as possible, best shows us where we may go in the future. Both of these approaches underlie the creation of structures.

A further word about process vs. product or recipe vs. blueprint. A given structure may be made by more than one process, but a given process leads to but one structure. or a given place may be reached by many paths but a given path (branches being counted as separate paths) leads to but one place. This basic asymmetry between process and product, path and place, link and node, relation and entity infers the necessity of at least two non-interchangeable, non-dual elementals in the universe. Thus our basic theories must be founded on dichotomous sets. This asymmetry is of importance in relating the historical approach to the morphological approach. We could have ended up at the same place that we find ourselves today, even though we had followed other paths of evolution. The number of possible species (of musical scales, for example) may be quite limited even though the number of possible evolutionary paths is large.

All of this is contained in the relation between the number of nodes and the minimum number of paths linking them. If N is the number of nodes in a network, then the minimum number of essential paths connecting them is N(N-1)/2. It follows that $N < N(N-1)/2$ whenever $N > 3$.

Human creativity is constrained by the basic properties of the natural world, the properties of materials and substances, the laws of chemistry and physics, and the nature of our own beings. Yet within these natural bounds frequently our option space remains too large for our human information processing capacities to cope with. In this event we further restrict ourselves arbitrarily by introducing our own constraints--both,conscious and unconscious. These constraints may be cultural, social, legal, psychological whatever. They are agreed upon either tacitly or by conscious subscription. Artistic creativity usually takes the form of intuitive and systematic exploration of an arbitrarily restricted option space. Its essence is the search for the aesthetic possibilities allowable within the constraints--the variatians on a theme.

We shall thus take as our point of departure the processes and products through which we organize experience.

ORD

SOME THOUGHTS ON STANDARDS AND MIDDLEWARE

Sometimes when consumed with current innovations we fail to take note of precedents having similar patterns which might provide us with useful clues for prediction and guidance. It frequently becomes profitable to look at isomorphisms between different kinds of systems and view new developments in the light of historic parallels. When we back off and look at *standards* in their inclusive context, we find that standards are arrangements that play an important role in holding society together. Without standards communication, commerce and other forms of exchange, all needed for any social order to exist, would be impossible. To introduce the subject, some examples.

First, some examples of *standards:*

- Languages
  Every language is a standard in the locality of its use. French in France, Danish in Denmark, etc.
- Programming Languages
  Similarly, Fortran, C, Basic, Pascal, Algol, Lisp are some of the standard program languages used by various programmers.
- Systems of Measurement
  Feet-pounds-seconds, Systeme Internationale, Centimeters-grams-seconds, are each standards in different laboratories and places of production.
- Currencies
  Dollars-cents, Francs-centimes, Pounds-pence are all standards in their respective countries.
- Operating Systems
  Unix, DOS, Windows, Mac are standards for various computers and systems.

There is a second kind of standard that is currently being given the name *middleware*. These secondary standards are introduced when for some reason it is not possible to institute a single universal standard, and multiple standards must be employed. Middleware is a set of one or more links that enable exchanges between the primary standards. Again, some examples.

Next, some examples of *middleware:*

- A dictionary, such as a French-English dictionary, is middleware in that it "bridges" two standards.
- A measurement conversion table is middleware. Even a sign giving the distance to the next city in both miles and kilometers is middleware.
- Currency exchange rates are (continually fluctuating) middleware.
- CP to Mac conversion software is middleware.
- Stock markets, indeed all markets, are middleware
- The Internet

From these examples we see that whenever there are two or more standards that cannot be merged into a single standard without great cost or trauma, the answer is middleware. Certainly it would be totally unreasonable to insist that French and English be replaced by a single language, therefore dictionaries, translators and interpreters. While serious attempts have been made to make the SI system of units universal, for various reasons a single standard is not always either possible or desirable. European countries are now embarking on a project to install a common currency, but during the process daily exchange rates will persist. Middleware provides an answer both in the case of unmergable multiple standards and during a period of time when a set of multiple standards is evolving toward a single standard.

WHAT IS A STANDARD?

One useful definition is: *A standard is a protocol to which all participating parties or components agree to conform in order to transmit exchanges*. Standards have to do with facilitating commerce, communication, or whatever activity involves exchange. This holds not only for the immediate exchange process itself, but for the production or preparation of anything that is to be exchanged.

As important as the standard itself is the procedure by which the standard is reached. There are many.

- **Evolution:** The process is long and gradual, involving many modifications. It occurs in a climate of intention and willingness to opt for the best, regardless of the source. Primary drivers: all the users.
- **Competition:** Again evolution, but in the climate of strife for dominance in order to protect investment and ego. The resulting standard is determined by who has the deepest pockets, the best lawyers, the smoothest lobbyists. Primary drivers: competing interests.
- **Fiat:** Setting the standard by decree, usually known as regulation. Supposedly managed by a neutral party, or a party representing the majority of users, and/or the future. Primary driver: government
- **Accident:** Sometimes in the process a solution NIH (not invented here) by any party turns up and is accepted by all because ego is not involved. The Japanese call this 'roku'. Primary driver: the dice of God

There are others and combinations of the above. The best standards are those evolved over longer times through some procedure such as 'natural selection'. But when time is of the essence, an ad-hoc committee representing all parties is the weapon of choice.

Standards have their plus side in the facilitation of exchange. But standards also have their minus side, particularly single standards. As an example, it is proposed that a standard curriculum be adopted by all public schools. It is clear that

such a single standard would do more than create a citizenry possessing better communication skills, it would constitute a procedural monopoly and become a powerful tool for manipulation and social control. Such a monopolistic standard leads to creative closure, in having authority over breadth, it stifles variety and localizes depth. It leads to homogenization (which it was designed to do in the first place), limiting choice and options and hence braking creativity and progress. In addition are other exploitive appendages of monopoly such as special privilege and denial of access. All this relevant to single standards.

Multiple standards do not have many of these negative aspects, but their effective use requires they be supplemented with middleware. Hence, an important question that emerges from the above considerations is: When should effort be directed to instituting a single standard and when is it best to settle for multiple standards and introduce middleware?

WHAT IS MIDDLEWARE?

Whenever, because of technological, economic, or organizational difficulties, multiple standards cannot be replaced by a single standard, a middleware net can be set up to allow the various standards to communicate and thus allow universal exchange between clients. In this sense middleware is a "meta-standard", not linking clients but linking standards. The distinction, then, between standards and middleware lies in the entities that are linked. Standards link the nodes of a network, middleware links networks.

We have noted some of the negative aspects of single standards. The hierarchical organization of standards (or networks) introduced by the use of middleware eliminates most of these. The evolution of barter into monetary exchange illustrates the recognition of the superiority of a middleware organization of trade. We are currently faced with solving universal exchange of data (communication), that was solved for universal exchange of goods (commerce) by the middleware called money. But before trade there was language, the first standard allowing communication between individuals of their needs and wants. Can we find a middleware that will bridge all our linguistic standards?

SOME ARGUABLE CONCLUSIONS

1) Whenever two or more standards co-exist, middleware is a better solution than instituting a single standard.
2) There may exist sets of standards for which there is no middleware.
3) What starts as middleware may itself evolve into a single standard.
4) Standards require an increase of intersect and therefore a diminution of union. Translation: Networks and standards promote homogenization at the price of options and creativity.

THEO also Epicentology

VERTMIT.P51 DISK:GTDIALECTIC March 23, 1991

Creation of the Other is by vertical not horizontal mitosis

VERTICAL MITOSIS
A CYBERNETIC METAPHOR

In the beginning was is the error signal. Something is wrong, there is pain, there is longing, there is yearning, there is even despair and suffering. There is bewilderment, a wish to know, to understand

Next comes a self-referential examination of the ambient condition. An attempt is made to construct the "is" of the situation.

Thirdly, an idealized "ought" condition is visualized, and the error signal is assumed to be attributable to ("ought" - "is").

At this point the Buddha correctly pointed out that separation from the visualized ought is not the source of the pain. While the pain may be due to separation from some "true source", what that true source is is not knowable, and it is best to abandon all visualized oughts, i.e. remove the error signal by abandoning all desires.

The Western view has been to establish and deify an idealized ought and seek to reduce the error signal by moving toward that ought. It is even a postulated property of the ought that it assists us to reach it.

So long as we fail to reach the ought, we may sustain the model and the validity of the ought. However, when we near the visualized ought and the pain continues, we begin to question the model and the ought. This situation arises because the sought ought must be far beyond any realizable situation. The model can only be sustained by postulating a new higher ought.

This model assumes that through a sequence of higher oughts the "true source" will eventually be reached and the error signal set to zero.

The idea of vertical mitosis is that our pain results from an internal mitosis process that includes a splitting or separation between our "is" condition and an "ought" condition which somehow arises in us. Without this pain and despair, we would forever remain as animals. Vertical mitosis is what makes us human, it is the essence of the human condition.

03/23/91

If the error signal is the antecedent to both God and Man, we have something closely akin to the Anthropic Principle.

03/24/91

The name of the Error Signal is Will

03/23/91

The error signal is like the fault line or seam in ONTAPHI.WP5. God and Man must be separated in order for aught to exist. either

TOPICS

KINKO

HIEROUT3.WPW DISK: ~~INTED~~1 September 2, 1993
September 29, 1993

HIERARCHY AS AN INTEGRATIVE THEME

Ever since the first conference on hierarchy, held in 1968 in Huntington Beach, California, there have been questions concerning how many things we are talking about when we use the term hierarchy. The conference was called on the premise that hierarchical structures, which occurred in many natural and artificial contexts, on some level of abstraction possessed a commonality which was the result of some deeper physical or informational principles. The conference adjourned with this suspicion confirmed for some of the organizations we call hierarchies, but also with the disturbing question of "to how many sets do what we conventionally call hierarchies belong." We have been left with the task of cataloguing the various species of hierarchies, before we can hope to penetrate more deeply into what optimization principles may be involved in their origin. After a quarter of a century the subject is still open and since no one has been able to write the "second sentence" on hierarchies, interest in the concept has subsided.

An educational project has recently been organized around the idea of integrative themes. Among themes proposed--structures common to various areas of science, hierarchy promptly came to mind. But is hierarchy an integrative theme or unifying schema? With the term used to refer to so many different things it is possible that the only commonality is semantic. This is patently not so, but specifically what are the commonalities and what forms do they assume?

1So what are hierarchies? Let us see if we can classify them.
2 The term 'hierarchy' has many meanings, but in most modern usage it designates a structure or organization involving discrete levels.

2.1 Some examples or species of hierarchies

2.1.1 Dominance hierarchies--for purposes of control, influence

2.1.1.1 Government
2.1.1.2 Military
2.1.1.3 Corporations
2.1.1.4 Church Heavenly Hierarchy, Heiros

2.1.2 Taxonomic hierarchies--for classification and retrieval

2.1.2.1 Animal and plant taxonomies
2.1.2.2 Library decimal systems
2.1.2.3 Outlines
2.1.2.4 Structural trees

2.1.3 Ranking hierarchies--for ordering Hindu Caste System
- 2.1.3.1 Biological scala
  - 2.1.3.1.1 proterzoa, viruses,... scala are non-branching trees
- 2.1.3.2 Geological ages and strata
  - 2.1.3.2.1 archeozoic, proterozoic, paleozoic,...
- 2.1.3.3 Physical particles
  - 2.1.3.3.1 quarks, baryons, atoms, ...
- 2.1.3.4 Astronomical bodies
  - 2.1.3.4.1 meteoroids, planetessimals, planets,....
- 2.1.3.5 Computer software
  - 2.1.3.5.1 ROM, operating system, applications,...
- 2.1.3.6 Numbers and dimensions in mathematics
  - 2.1.3.6.1 integers, rationals, irrationals, ...

2.1.4 Modular hierarchies--for economy
- 2.1.4.1 Social groupings clusters groups aggregates
- 2.1.4.2 Cosmological clustering

2.1.5 Miscellaneous hierarchies
- 2.1.5.1 Fractals [continuous hierarchies]
- 2.1.5.2 Looped hierarchies [Hofstadter]
- 2.1.5.3 Zipf's Law [rank vs. log(size)]
- 2.1.5.4 Pyramid sales schemes
- 2.1.5.5 Chain letters
- 2.1.5.6 Russian dolls

2.2 Problems with the term 'hierarchy'
- 2.2.1 Political associations with oligarchy and tyranny
- 2.2.2 Social associations with elitism and authoritarianism
  - 2.2.2.1 Anti-democratic, anti-egalitarian
  - 2.2.2.2 Widespread impression that all hierarchies are dominance hierarchies

2.3 Problems with the concept of hierarchy
- 2.3.1 The concept is too general
  - 2.3.1.1 Loosely and variably defined
  - 2.3.1.2 Not all ordering or nesting schemes are hierarchies
  - 2.3.1.3 Hierarchies confused with networks
- 2.3.2 Opposition to the notion of levels and multi-levels
  - 2.3.2.1 Philosophical dogmas re one level reality

Hierarchies for multiple independent explanations

3 Attributes or features of hierarchies
  3.1 Ordering or ranking in discrete levels
    3.1.1 Discontinuous or discrete 'vertical' structure
    3.1.2 Existence of gaps
  3.2 Progression across levels in at least one common parameter
    3.2.1 Levels are self similar but distinct
    3.2.2 Levels must be homomorphic (many to one) not isomorphic (one to one)
  3.3 Upper levels have powers or capabilities beyond those implied by parametric progression (emergence)
4 Functions of hierarchies: Why do they exist?
  4.1 Advantages
    4.1.1Only structure supporting unity with diversity (E Pluribus Unum)
      4.1.1.1Permits heterogeneity, parallelism and pluralism
    4.1.2 Economies of control and information diffusion
      4.1.2.1Reduction of retrieval and dissemination paths
      4.1.2.2 Economies of repetition (subroutines)
    4.1.3 Supports emergence
  4.2 Disadvantages
    4.2.1 Complex, no good theory, no real understanding

Not only the term hierarchy, but the term level is ambiguous. If any attribute is common to the concept level, it is discreteness. Levels occupy discrete positions in a continuum, like the integers in the field of real numbers. Levels are separated by gaps and are thus in some sense isolated from one another. We might appropriately then look at the species of isolation in trying to get a handle on the species of levels, and hence on hierarchies.

SOME SPECIES OF ISOLATION:

1. Orthogonality as isolator.
2. Distance as isolator.
3. Frequency as isolator.
4. Speed as isolator.
5. Walls as isolators.
6. Reduced linkage or communication as isolator.
7. Designation, self reference, as isolator.

PACKAGE1.WP6 August 28, 1997

See 95 #92
96 #43
#45
#61

PACKAGING

Religion uses several approaches to a single subject.
Science uses a single approach to several subjects.
---Li Kiang

Both religion and science do 'packaging'. Religion packages morality, psychology, and cosmology into a bundle tied together by the teachings (scriptures, gospels, dharma, etc.) of a particular teacher (Moses, Jesus, Buddha, etc). Science packages astronomy, physics, chemistry, biology, ... into a bundle tied together with a single epistemology called the 'scientific method'. In both cases consumers are forced to buy packages and are locked into sets of associations that in many instances violate experience, create areas of dispute, avoidance, and unapproachability.

The tradition of packaging is so inbred that we no longer realize that the parts could be put together in alternative ways. Much of knowledge has frozen into a 'solid state' impervious to any restructuring. Our 'fundalmentalist' way of thinking refuses to be selective. It insists on eating the whole thing, taking it all together or else. While everything may be related to everything, and the world at some level may truly be monistic, it is not necessarily organized the way we think it is. While the pieces, the parts, may be valid, our picture of the whole may not be. This we suspect when so many pieces have to be left out in order for the present view of the whole to fit together.

I recall an interesting example of a viable scientific alternative. Dr. Clemence, director of the U.S.Naval Observatory, in discussing the compilation of the American Ephemerides noted that the computer calculations of the time were based on a Ptolemaic view of the solar system rather than a Copernican view. From a computer's point of view epicycles were simpler than elipses. In seeking the simplest structure, [Occam's Razor, an intrinsic ingredient of the scientific method], we must realize that what is simplest is an anthropocentric subjective view and may be quite different from the 'ortho- structure' underlying the system. We, of course, want to get to the 'ortho-structure', but how can we **recognize** it except by Occam's Razor?

Assuming there are some who wish to buy only portions and not have to purchase the whole package, how is this to be done? How can we cut the cords tying together the package without losing or damaging the contents? The answer lies in that packaging is done by institutions, religious institutions, scientific institutions, groups whose interest is primarily power and control. To escape packaging abandon institutionalism! As one stand-up comedian put it. "Everywhere people are abandoning the church and going back to God".

REPACK1.WP6 September 11,1997

RE-PACKAGING

The **cultural** business of the 21st Century will be de-packaging and re-packaging, and the **cognitive** business will be de-entifying and re-entifying. By this is meant that, assuming the elements or modules of experience have been adequately validated, the traditional groupings or manner of linking these modules, is very much open to question and revision. An example from astronomy: The ancients noted certain patterns or arrangements of the stars in the sky. They grouped stars which were in proximity on the sky together into packages called constellations and gave them labels such as, Aries, Orion, the Pleiades, etc. These groupings were endowed with certain astrological attributes and felt to possess physical and metaphysical reality. Over time it was found that apparent proximity was a poor clue to the way stars were actually grouped. Many groupings on the sky were seen to be illusory when the distances to the various stars had been determined. Some groupings, however, such as the Pleiades were real, being clusters of stars at the same distance, with the same motions, and of the same age. Other real clusters were found that consisted of stars that were not in close proximity in the sky, but had other physical parameters in common. It was found that to check our perceptions regarding the reality of an entity, more than one parameter had to indicate grouping. Aside from astronomy, there are many examples of our assuming a package of modules or events is a real entity when in fact it is only a 'constellation'. It is important that we escape these illusions, but of equal, if not greater importance, is detecting entities that exist but have so far been overlooked because of the way we customarily do our packaging.

In the 20th Century we have been treated to a deluge of ad hoc packagings. In war time the enemy is packaged with every real and projected evil. The advertising industry is continually packaging various products with success and happiness. Smoking, for example, has been packaged with sophistication and glamour, whereas its real package is with heart and lung disease. Certain ethnic groups have been packaged with certain proclivities, the Scotts with thriftiness, the Germans with methodicalness. Some societies suffer with packages that other societies do not have. The Chinese, for example, are struggling with what should be packaged with socialism. Dong Fureng, top economic advisor to the Communist Party, in order to facilitate privatization and modification to a market economy, insists "Socialism means seeking social equality, not that the state has to keep a majority stake in every industry". But perhaps the most difficult re-packaging facing those who would re-entify lies in the structure of language itself.

THEO/REL

REENTIF1.WP6 April 10, 1995, rev April 13, 1995

ALTERNATE WAYS OF LOOKING AT THE WORLD
THE CALL FOR RE-ENTITATION

Entitation is vastly more important that quantitation. It is perfectly meaningless to measure something with higher and higher degrees of precision, if the thing you measure is more or less meaningless....A real breakthrough, scientifically at least, to me is when somebody has sufficient creative imagination--and courage to follow up, which may be even more important--to say "Let us look at the universe in terms of some new kinds of entities, some new kinds of units; or, what really comes to the same thing, in some new way of combining units"; because combining units gives a new unit at the superordinate level.

Ralph Gerard--Hierarchical Structures p219-220

IN WHAT WAYS MAY WE RE-ENTIFY?

SOME CANDIDATES:

1) By signification
2) By exploring new units, (Gerard)
3) By interchange of levels
4) By *peri-dia* interchange
5) By the contruction of duals
6) By non-Aristotelean logics
7) By morphological negation apophasis
8) By Vajrayana meditation

SIGNIFICATION:

The material world is presented to us by sensory data. However the way it is entified is not an imperative of the data. Experience leads us to significate certain configurations, (patterns of entitation), as important to our successful functioning, ignoring or downplaying other entitations. Thus our world is basically entified by our significations, more in the social order than in the natural order. [include the examples of how frogs and hares significate-entitate the world]. Indeed to entitate and to significate can come to mean almost the same thing.

UNITS:

When we translate our usual unit systems (cgs, SI, English,..) into "natural units", that is those based on the fundamental constants of physics, c,G,$\hbar$... hitherto unnoticed relationships become manifest. For example, the relation between the Planck Particle, (length 10^{-33} cm, mass 10^{-4} gm, time 10^{-42} sec), other fundamental particles, and certain ubiquitous dimensionless numbers.

LEVELS:

Examples could be the exchange of balls and boxes as employed in statistical mechanics, or the exchange of address and content. e.g. Gurdieff's cosmogony
information template ⇄ its material manifestation

PERI-DIA:

This involves the exchange of Synchronicity and Causality.

Serendipity

DUALS:
From projective geometry (flat Euclidian space)

Another Example: Hierarchy & Multiplexing (97/02/20)

Two points determine a line

EXCEPT when the points coincide, then
No line is determined, but
an infinite number of lines are possible
through the two points

Two lines determine a point

EXCEPT when the lines coincide, then no point is determined, but an infinite number of points are possible on the two lines.

In addition there is also the instance with no dual: Parallel lines.

The interchange of line and point is an example of re-entification by the interchange of nodes with links or of existents with a relations.

[Of additional interest here is exception to the law of the excluded middle. The statement "Two points determine a line" is both true and false, depending on the disposition of the two points.]

LOGIC:
Alternate logical systems, involving A, no-A, not-A, no-not-A, etc.

Alternate Spaces e.g. Hamming

NEGATION: Apophasis, Via Negetiva
Approach as in sculpting, defining through removal of what does not belong.

VAJRAYANA MEDITATION:
The Buddhist notions of illusion come down to mean that the way we entify the world is quite arbitrary. That is that there exist many 'valid' paths across the world map. While Vajrayana meditation by itself does not lead to a re-entitation, it disolves the mind sets that stand in the way of recognizing and creating alternative entitations.

Sometimes the most important entities are invisible. Oftimes we refer to these invisibles as concepts. Only in the 19th century did the concept of **energy** become manifest and only in the 20th century has the concept of **information** become manifest. I feel it is correct to include concepts with entities, even though they are invisible and abstract, for concepts are the primary blocks by which we entify the world.

abstract ⇔ {macros}
"
truncations

MANIFEST.WPD July 3, 2003

THE RE-ENTIFICATION MANIFESTO

"Entitation is vastly more important than quantitation. Let us look at the universe in terms of some new kinds of entities, some new kinds of units; or, what really comes to the same thing, in some new way of combining units, because combining units gives a new unit at the superordinate level " –Ralph Gerard November 1968

Four Perspectives

Entity, the particle view
Resonance, the wave view
Pattern, the dimensional view
Fractal, the level view

Every entity has a presence and an absence, a manifest aspect and an unmanifest aspect.

Manifest: [sensory], material, nodes, Nuclei
P-SPACE, position in space and time
H-SPACE form, shape, scale
Unmanifest: [feeling] vibratory, links, Cells
B-SPACE bonds, forces, resonance

Four Species of Entities

Things: inanimate, rocks, artifacts
Aggregates of multiplicity: crystals, flocks, schools, sponges
Aggregates of diversity: ecologies, societies
Organisms: lives of their own, reproduce, mortality, subvert the 2nd Law

Multiplicities contend, diversities converge, i.e. Flocks fight, ecologies emerge
Each of the four species may be multi-level, i.e. a fractal
At what level does intention, will, purpose enter?
Which species may be "holographic"?
Function vs Pattern
Are wholes always loops?
Standardization vs Specialization
Are storms, fires, wars organisms?
{[cf. "The Empty Quadrant", Entity and Architecture]}

Units

Planck system based on the fundamental constants: **c, G,** and $\hbar$
Physical Dimensions:

Length: extension and separation
Time: duration and interval
Mass: energy and information

REENTIFY.WP6 APRIL 28, 1998

RE-ENTIFICATION

Creation ab initio is the province of the gods. Human creativity is restricted to re-combining and re-permuting what the gods have created. The basic operation available to humans is cutting and pasting, discriminating and clumping. Hence we are modifiers, not creators. The gods have written the theme, our task is making the variations on their theme.

This task begins with perceived wholes and parts. We modify by cutting apart wholes, from trees to DNA, and pasting the parts together in a new way. Human creativity is expressed in the myriad novel ways that this can be done beginning with any existing wholes or entities. However useful some restructurings may be, a special few cuttings and pastings come up with something whose new whole is greater than the sum of the parts. Genius in art or science is in juxtaposing and pasting together those parts that make a whole which is greater than the sum of the parts. Newton pasted a falling apple to a falling moon result: gravity. Einstein pasted mechanics to geometry result: general relativity. Unfortunately, there is no recipe for success.

If we give the label **invention** to the kind of modification that consists of cutting and pasting perceived wholes, we must allow a second kind of modification which we label **discovery**. This second kind of modification occurs when we are able to modify our cut+paste perceptions themselves; to see what the gods have created in a new way; to see the same world as put together with parts and wholes different from those usually perceived. This is not achieved by cutting and pasting but by epistemologies of silence and meditation. Here we see that the gods did not compose only one theme, but other themes equally and more beautiful. And here we can find new opportunities to write our variations on their themes.

MINDEYE.W52 DISK:EPIONTOLOGY February 14, 1994

ON ENTITATION

Ralph Gerard Quote

This morning all is covered with frost. On the porch is a clean plane of smooth even frost. But from this 'ground' of frost emerges a 'figure' of glistening particles. These figure highlights form patterns, like the constellations formed by the stars in the night sky. Like the constellations, these patterns in the frost have only an apparent reality, for when I move slightly to a new position, the patterns disappear and new ones emerge. These patterns force themselves on us, not because of any intrinsic significance, but because our eye is caught by their brightness. This is a case in which the 'world' which emerges from the sunyata of the frost is filtered by our eye, selected by our mind.

A new world comes from moving your head, from metanoia

If it is true that our minds select a particular world [pattern] from a plethora of possible worlds [patterns], then does our particular selection have any special cosmic significance? Rather than worry about the answer to that question, it seems more important to explore the set of patterns available to us. Then from that set we may begin to see something of the nature of the cosmos itself. So the question becomes, how do we find the members of the set available to us.

All is ground until experience, an interaction with the sunyata [frost plane] generates (or selects) a figure. Using a sonic metaphor, all is noise until experience generates (or selects) a signal. What then, leads to the emergence of figure? The sources of figure seem be sensory <u>contrast</u> (as the glisten patterns in the frost), relative <u>motion</u>, and <u>recognition</u>. (~ something familiar) ∴ repetitive

In the case of the patterns in the sky, at first significance was attributed to the different constellations. But when it was realized that the pattern depended on the position of the observer, these significances disappeared. Then it was realized that some patterns might have some significance after all. Close groupings of stars, e.g. the Pleiades, might indicate a entity more 'real' than just a two-dimensional high density area in the sky. The problem of the reality of clusters was only settled when an additional observational parameter also displayed clustering. (Usually spectral type or line of sight velocity.) Thus significance, and hence entification, came to be built on the number of sensory or observational parameters that were detectable. We must add then to the three above mentioned sources of figure, the enhancement of figure by <u>multi-parameter correlation.</u>

THE GENERAL UNIQUENESS PRINCIPLE

Once we talked about why Brahma created the world and asked what he had in mind in doing it. Of course, from where we stand, we cannot read Brahma's mind or ascertain his purposes. All we, who are imbedded in his world, can do is look at what is and what happens and try to figure it out. If it is true, as has been said, that we were created in his image, then we should be able to think it out the way he did. Anyway, keeping in mind it is always speculation, let's give it a try:

Since Brahma knew the algorithms he laid out and their consequences, what could he learn from running the program? Maybe he just enjoyed it as some sort of game, but then if all were determined, the outcome was known in advance, so why? It seems as though the answer to this may lie in Brahma was looking for something not known beforehand. He set up and knew the initial conditions and boundary conditions--the theme, so to speak, but he was interested in the details, the variations on the theme that might occur. The boundaries were fixed, but what could happen within those boundaries could take countless paths and forms. It was these possibilities that fascinated Brahma. And if variety was what Brahma sought, then in some way he had to include in his algorithms a way to protect it.

But as we look at the world, it seems that the algorithims threaten variety. We have observed a tendency toward homogenization, which we have labeled the second law of thermodynamics. Over time all seems to come to the same temperature, to reach a condition where no more exchanges take place. Exchanges can occur only between modules that are different, and every exchange reduces differences. So in time, when the modules become the same they have nothing to say to each other. Eddington has said that uniform sameness is the equivalent of non-existence. So a completely homogenized world would cease to exist.

But besides the second law of thermodynamics, other algorithms exist. One of these was noted by Wolfgang Pauli, and is called the Pauli Exclusion Principle. This says that no two atoms can be in exactly the same state. Their defining parameters must always assume different values.
This kind of exclusion reminds us of a very common exclusion observed on the macro level: No two material objects can occupy the same space at the same time. Here the parameters are space and time. Perhaps these two exclusion principles are part of a more general, more comprehensive exclusion principle: **No two entities in the universe are allowed to be exactly the same.** [We shall call this the General uniqueness Principle or GUP]

But here we seem to have algorithms in conflict. The second law tending toward homogenization and the general uniqueness principle [GUP] opposing it. What happens when these opposing principles interact? When two entities, after many exchanges are down to but a single difference, and when one additional exchange would make them the same, and thus come into violation of the GUP, then they could combine and the two become one, an unique entity that did not exist before. Thus the interaction of the second law and GUP effects morphogenesis. The refuge of entities about to suffer the fate of Eddington's principle is to build complexity !

But preservation of uniqueness alone would not assure Brahma of having his variety. It is also necessary that something new be created.

CONTIGUITY AND CONTINUITY

The discontinuous and finite are the modes by which God accomplished His task. The continuous and the infinite are the modes resorted to by our intellects, which are incapable of investigating the gaps in nature and of imagining the excessively numerous accumulation of its building blocks. –Arnaud Denjoy[1]

The perceptual box, which we call reality, has been defined by a ~~sense of~~ contiguity and continuity that we project on the world.. Using the popular metaphor of "connecting the dots" to create a picture, what we have done is linked together our experiences of the world employing the continuous parameters, space and time. While this mode of linking appears self consistent and has created for us an endurable reality, it obscures the basic non-contiguous, non-continuous linkages by which the **essences** underlying our experiences are connected. In other words, the contiguous-continuous links have led us to replace the ~~fundamental~~ connections of **meaning** with the ~~illusory~~ connections of **cause**.

There is an incipient awareness of this illusory perception on many fronts. Scientists are beginning to suspect that the real nature of space is granular rather than continuous. And Hoyle has made a case for discreteness in the nature of time. Space has a binary aspect, consisting of extensions separated by gaps of nothingness; and time has its binary aspect consisting of durations separated by gaps of nothingness. But the real conceptional revolution lies in the possibility of there being alternative sequences between extensions and durations. It is being asked, Are there more fundamental sequences than the causal-temporal and more fundamental topologies than the spatial-topographic? And of course the ancient Buddhist question of, what are the species of nothingness?

It is not only in physics and cosmology that alternatives to the contiguous-continuous world are being considered, but as is usual the first explorers of such alternatives are the artists.

---

[1]Quoted from "Great Currents of Mathematical Thought (p 195)

Jung's synchronicity, Poets connecting the same dots in different ways.
Glimpses, Painters and photographers isolating an element from its context destroying contiguity
extractions, selections,

interruptions breaking continuity Lehrs quote Discontinuity of sleep-wake, dreams
Chuang Tzu's question re reality

departure and return breaking continuity, Migration to break contiguity

In order that spiritual continuity may be maintained within the coming and going multitudes of nature's creations, the physical stream must suffer discontinuity at certain intervals.

–Ernst Lehrs

The mathematical concept of measure

Cf. Functions of a Real Variable

Photo Albums
alternate with - contiguous
non-continuous
ways to connect selected dots

Is selection an extraction from continuity?

Museum

Selections from the continuous - contiguous
our granularizations

Abstraction
- a way of linking
→ set, naming the set

Generalization
a way of linking
by → a set

Is abstraction a "vertical" set?
generalization a horizontal set?

ATHROIS3.WPD JUNE 30, 2001

ATHROISMATICS[1]

MUTUALITIES

1) Holograms.
2) The phenotype contains the genotype; the genotype contains the phenotype
3) The planck particle contains the baryon; the baryon contains the planck particle[2]
4) Profundity contains absurdity; absurdity contains profundity.
5) Form contains emptiness; emptiness contains form.
6) Randomness contains order; order contains randomness.
7) We contain God immanent; God transcendent contains us.

MATROSHKAS

1) Modular hierarchies
2) Fractals
3) Hofstadter's meta-lamps and meta-genii.

SYMMETRIES

1) Top down | bottom up
2) Existence | counter-existence [or non-existence]
3) Definition | Apophasis
4) Conservation laws [Emmy Noether]
5) One week = 120 x 84 minute gravitational periods = 84 x 120 minute hydrogen periods.[3]
6) Infinity | zero
7) Rhythm | pitch
8) $-X \mid +X$ 10) Fourier Transforms
9) $X^{-1} \mid X^{+1}$

LOOPS

1) Thomas Jefferson's concept of democratic government.

TRADE OFFS

1) The closer you get the slower I go. [Bumper sticker]
2) Nobody goes there anymore, it is too crowded. [–Yogi Berra]

---

[1]Look for the fulcrum, looking glass, portal, watershed.

[2]The planck particle is 10^{19} times more massive than the baryon; the baryon is 10^{20} times larger than the planck particle. Yogi Berra saw through this type of relationship:
"Mr. Berra, do you want your pizza cut into four or eight pieces?" "You had better cut it into four pieces, I don't think I can eat eight".

[3]Which in turn is equal to seven rotational periods.

ATHROISMATICS

[Update]

PARTS AND WHOLES

The whole = the sum of the parts Classical
The whole > the sum of the parts Emergence
The whole < the sum of the parts Chop Shop
Two species of whole: Loop, Infinite regression
Fallacy of "chalk circle" wholes , excluded contexts

NODES AND LINKS

The visible and the invisible
Structuralism, The relations are more significant than the entities
Link as road plus traffic, Traffic as vehicle plus cargo
Carrier wave and modulations

LOOPS AND REGRESSIONS

Mutuality: duplex causality, duplex containment, duplex sustainment [symbiosis]
Matroshkas
Looped Matroshkas
Matroshkad Loops

EX-- NIHILO

Symmetries and opposites
Conservation laws
Donuts: holes and wholes
Uroborus

LOGICS

Aristotle and beyond
Four Thought
Logic and Topology

RULES AND BOUNDS

Rules and the auto-creation of bounds [generalizations of Gödel's theorem]

REPETITION, ITERATION, RECURSION

NECESSITY AND CONTINGENCY

Directed random, Iterated random

ATHROISMATICS
SOME PRINCIPLES

That which enhances will in time cross a watershed and become that which inhibits.
That which inhibits will in time cross a watershed and become that which enhances.

The oak contains the acorn and the acorn contains the oak,
but the oak is more than the acorn and the acorn is more than the oak.

A planck particle contains 10^{20} ~~baryons~~ protons masswise;
a proton contains 10^{20} planck particles sizewise

More-than-everything contains everything and
everything contains more-than-everything.

Every node is a **set** of nodes and links.
The **regression** of nodes creates **levels** of links.

There are two species of wholes: Loops and infinite regressions.

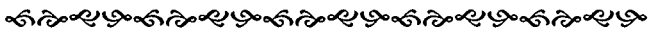
Tools, such as rules, allow the realization of only a portion of the system's potential.*

Rules not only delimit what activities may take place, but also create unintended boundaries.*

No system can self-realize its full content, much less its context.*

No system can understand or explain itself, and no system can know or fully realize itself. * [contrary to Socrates' injunction]

* cf Gödel's incompleteness theorem



Some Injunctions:

Mutuality must replace causality.

The law of the excluded middle must be transcended.

Four thought must replace compromise.

ATH

ONPATERN.P51 DISK: EPIONTOLOGY 10/22/87

O N P A T T E R N S

A pattern is a distribution in space of a set of nodes. If viewed with low resolving power, the various linkages connecting the nodes are invisible, and even more invisible are the various traffics that flow along the linkages from node to node. If viewed with high resolving power, the pattern may not be perceived at all, and its existence demonstrated only by a step by step process, node by node. *

The recognition of pattern is a fundamental cognitive operation, where the key word is 'recognition'. In order for a pattern--whether static or dynamic--to be recognized it must belong to the class of previously perceived and remembered patterns. But perception of a pattern does not automatically take place in response to the occurrence of the pattern. Only certain patterns are perceived or remembered. Which ones? Generally, in order to be remembered the pattern must either posses a simple structure or a high frequency of occurrence. That is to say that the greater the information content of the pattern the more repetitions are required for its perception and registration in memory.

How does a pattern cross over the threshold to perception and recognition? We tautologically say we recognize the familiar. What makes something familiar? One thing is frequency of occurrence. The more common and ubiquitous a pattern, the more likely we are to encounter it and the more readily become familiar with it. Certain simple patterns, linear patterns like triangles and squares and patterns possessing symmetries like circles are most apt to be recognized. Do we recognize them because they are simple or do we label them simple because they are so common and hence familiar?

Complex, subtle, and shimmering patterns are usually unpercieved or ignored as useless. Only simple and universal patterns are accepted because these are the species of pattern that are accessible to all. These are the patterns recognized by the epistemology of science--which emphasizes repeatability and ubiquity. But the ease of perception or recognition of a pattern may have little to do with its basic importance or significance. Science may assume that the more ubiquitous the pattern, the more important, but we may take the occurrence of genius in human populations as a counter example. The deepest effects may result from complex shimmering patterns that only momentarily "tune in" but set up brief and powerful resonances with far reaching consequences. No statistical tests would convince us of their importance or even of their existence. These patterns lie beyond the ken of the scientific method.

* Science operates in this fashion

ATH

PATTERNS

PATERNO3.P51 EPIONTOLOGY November 13, 1992

Our mode of interacting with the world may be described as the search for, and the creation of, patterns. The patterns we discern in nature and the patterns we create constitute a multi-dimensional spectrum with a twilight zone wherein we are unsure which patterns we have perceived and are indigenous to the world and which patterns we have ourselves constructed and projected onto the world.

At one extreme there is a school that holds all patterns are of our own construction. The world is a great void capable of receiving and incorporating whatever we project on it. At the other extreme is the obverse school that holds the world is a great smorgasbord from which we select all patterns. It consists of myriads of patterns only a small subset of which we can recognize and assimilate. This school holds we create nothing only select what preexists.

> In his *Accent on Form* L. L. Whyte regards pattern as the dynamic idea of the science of the future, just as number, space, time, atom, energy, organism, mind, unconscius mind, historical process and statistics have each in turn been the dynamic ideas of the past, serving as he says, "directly as instruments for understanding the universe. To understand anything, one must penetrate sufficiently deeply towards the ultimate pattern. Only a new scientific doctrine of structure and form, i.e. pattern, can suggest the crucial experiments which can lead to the solution of the master problems of matter, life and mind."
>
> See Diagram by Keith ALbarn and Jenny Miall Smith p137

See also MYSTCONG.WPW 93-40

A?H

ORGAPRCH.WP6 April 3, 1997

AN APPROACH TO ORGANIZING

First we collect and assemble a pile of documents, files, numbers, experiences, whatever. After the pile reaches a certain size we find we can no longer link each item with its location, this is because in our heads the locations are linked to one another through random associations which were derived in a different ways, some by source, some by date, some by an attribute, etc. Humans, having finite informational processing capabilities, reach the limit of their ability to cope with a set of random associations after the set reaches a certain size. This is manifested to us by the difficulty of retrieval of particular items. At this point we are forced to **organize.**

And what does this mean? What does it mean to organize?

In assembling the pile we **pre-organized** by taking the mental step of associating each item with a location. But to organize we must now go beyond these [item-address] links. We must build an [address-address] set of linkages. That is the addresses them selves must be ordered in a more regular way than exhibited by our original set of random associations. This requires an abstract infrastructure possessing certain symmetries. (Since symmetries have the property of simplifying an arrangement to our perceptions.) After we have put together such an ordered address infrastructure, we can then link each item to an appropriate address. We thus see that organizing has two operations: A) The construction of an infrastructure, and b) the mapping of the items onto the infrastructure.

And how do we go about making an infrastructure?

A man who had observed some Buddhist monks, asked what do you monks do? A monk answered saying, "We eat, we sleep, we walk, we sit". The man replied, "So what? I eat, I sleep, I walk, I sit". The monk said, "Yes, but when we eat we are aware we are eating, when we sleep we know we are sleeping, and when we walk we know we are walking. That is the difference". In organizing at each step we must be aware of what we are doing.

One way to create an infrastructure is 'bottom up'. This involves beginning with the items themselves. Items are put in juxtaposition with one another and commonalities and differences are recorded. After much re-juxtaposing, the records will point to 'commonality clusters'. These clusters or categories must then be given labels. Items are then given a surname which is that of the category cluster to which they belong. But the process must be iterated. The items within each cluster are again discriminated and sub-clusters formed. The sub-clusters are labeled and these labels become the second name of the items. The process is continued as far as resolving power permits. The result is an infrastructure known as a tree. An outline is a common example.

ATU

Properties of the discontinuous

FRACDIM1.P51 DISK:MATH June 10, 1991

INTRODUCTION TO MEASURE AND FRACTAL DIMENSION

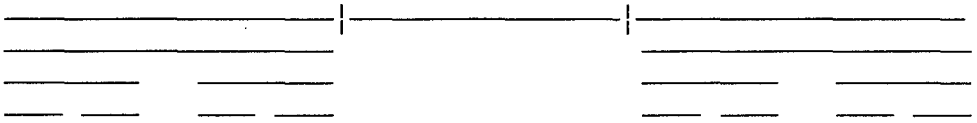
It has been a matter of much amazement on the part of philosophers from the Greeks to Einstein that the structures of pure thought we call mathematics appear to be isomorphic to the physical world. That mathematical constructs can be successfully used to explain and predict physical phenomena is itself a phenomenon that up to the present has eluded explanation. However, there are hiati in the successful representations of the world by mathematics. In particular several difficulties arise when treating the infinitely large and the infinitesimally small. While the geometry of Euclid, for example, has been most useful in the solution of myriads of problems, its sizeless points, diameterless lines, and thickless planes frequently lead to singularities and non-sensical conclusions. When mathematical thinking turned to the paradoxes implicit in the infinitely large and small, it opened new regions to the successful mathematical representation of the physical world.

There have been many approaches to these paradoxes. Some, which should be mentioned, are Cantor's studies of transfinite sets, Hausdorf and Besicovitch's dimension, Lesbegue's theory of measure, and Mandelbrot's fractal dimension. Also related to this area are the finite difference calculus and some of the work of Buckminster Fuller. All are concerned with bridging the gap between the sizeless elements of classical geometric thought and the finite elements of physical experience.

The development of the concept of fractal, pioneered by Mandelbrot, has led to new isomorphies between the formulae of mathematics and the laws and patterns of nature. Complex patterns in nature, such as shore lines and mountain contours, always considered too complicated to be mathematically treated, have suddenly been made accessible through relatively simple expressions. At the present time not only are unexpected new isomorphies being generated, but reexamination of classical models in such areas as geology and astronomy has led, through the fractal approach, to new and deeper insights.

THE CANTOR SET

What are the ways in which the sizeless species of thought can be rendered useful to the representation of the finite elements of physical experience? Let us begin with the example known as Cantor's Set. Take a line segment of length L, divide it into three parts and remove the middle section. Iterate this process each time removing the middle section of the remaining line segments.



#TH

FRACDIM1.WP6 DISK:MATH June 10, 1991, rev April 4, 1996

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In addition to the sizeless points of Euclid vs. the finite atoms of nature, there is the continuum vs the discretum: the continuousness of geometry vs. the discreteness of arithmetic and algebra; the analogue vs. the digital; in space, extension vs. separation; and in time, duration vs. interval. There are two worlds to be brought together.

ATH

What are the advantages of the discrete? the continuous?

ANALDIG1.P51 DISK:COSNUM September 4, 1991

ANALOG AND DIGITAL

The dyadic distinction of analog and digital, or continuous and discrete, is a reflection of two basic modes of reality and organization of existence. Our fundamental infrastructures of space and time operate in both of these modes. Many of our conceptual problems in science and philosophy, such as causality and action at a distance, arise from difficulties with accepting the validity of both modes. Contiguity, continuity, and neighborhood are generally thought of as belonging exclusively to the analog mode. However, each of these concepts have validity in the digital mode. Intensity of relationship may be obscured by gaps in space or time. Camelots and Brigadoons reflect our recognition of the discrete in time, (cf peri-time and dia-time), but we must relegate them to the mythic and unscientific. Many of our problems in the understanding of time have to do with sorting out the continuous and the discrete. Another aspect of all of this requires putting in order the quantum concepts of local and global, the everywhere and nowhere in one world and the here and now in another. (What transformation, not a fourier, is involved here?)

In the analog mode we can invert the world through the use of devices such as the fourier transform. What is continuous in the original is discrete in the transform: time and frequency, integers and real numbers. But there is more. The sounds that we have always generated in various analog ways may be synthesized digitally. What are the transforms of digital objects?

Another aspect of this has been pointed out by Tony Rothman. Only those systems obeying Maxwell-Boltzman statistics are subject to the second law of thermodynamics. Systems obeying other statistics seem to be immune. Maxwell-Boltzman goes with analog, Einstein-Bose and Fermi-Dirac reside in other modes. On the one hand, digital codes may readily be restored, similar in ways to holograms, while the analog, preserved from decay only by continual amplification, is always subject to information loss.

Maxwell-Boltzman
Distinctrons
Individualism
Decay - 2nd Law

Fermi-Bose
Indistinguishability
non-local
permanent

Cf the Persian Aphorism on Truth
The analogue must be continually repeated to survive.

Other terms for discrete:
digital
corpuscular
granular
atomicity
integral → ? integrity

Diaphantus, the first digitizer

continuity ⇒ reality

ATH

BNDRIES1.P51 DISK:COSNUMBERS November 4, 1991

In the Twentieth century the human mind has dared to venture forth into new territory, but everywhere it explores it seems to encounter boundaries. It is as though we have been living for centuries inside a corral, and suddenly we find the gate open and venture into the fields outside. But in whatever direction we go we encounter more fences. Some of the fences do not hide the existence of further fields beyond. Some of the fences are opaque walls, allowing only speculation and theory as to what lies on the other side. The oldest boundary of this sort in human experience is death, and it has generated an aversion deep in the human psyche to all boundaries and limits, from speed limits to Olympic records.

Some of the boundaries.

In physics alone there are several twentieth century discoveries: In the theory of special relativity there was the boundary to the velocity of propogation of electromagnetic waves. In the general theory of relativity, the Schwarzschild Limit to gravitational potential. In quantum mechanics the (still to be ascertained) boundary between quantum systems behavior and classical systems behavior. In chaos theory, a demarcation boundary between the evolution of linear and non-linear systems. In aerodynamics the boundary between sub-sonic and super-sonic velocities.

In psychology there appear to be fences between the various altered states of consciousness, with an additional complementarity property that no two states can be experienced at the same time. of Physical Reality and P-SPACE

In reviewing the different species of boundaries, we find that all appear to be but fences, and death alone remains as a wall.

Science, philosophy, theology are all basically motivated toward effecting an "end run" around the information barrier we call death.

The boundary of the boundary is = zero
- wheeler

ATH

LEVEL01.WPW DISK:KINKO August 28, 1993
September 30, 1993

See also
Vertical Mitosis
Scraps 91, # 31
VERTMIT.P51

ON LEVELS AND HIERARCHY

Both the terms hierarchy and level are used with many different meanings so the concepts are ambiguous. However, it is possible to abstract certain features common to general usage, allowing us to say that:

Hierarchies are representable by two dimensional arrays in which one dimension (the vertical) is discrete and the other dimension (the horizontal) may be either discrete (a matrix) or continuous. The discrete or vertical dimension is a scala which consists of occupied levels separated by empty gaps.

As to levels, if any attribute is common to the concept level, it is discreteness. Levels occupy discrete positions in a continuum, like the integers in the field of real numbers. Levels are separated by gaps and are thus in one sense or other isolated from one another.

- Very generally, levels must possess both similarities and differences.
- More specifically, the occupants of each level must be related to those of other levels by at least one parameter which represents a common property but which has a different value at each level. Sometimes the parameter is measurable, as when it specifies, size, number, age, mass, etc. But in these cases the distribution must be discrete, which is to say there must be some isolation of the levels. For other examples, the common property may not be measurable, such as levels of abstraction, complexity, etc. When not measurable, simple ranking is substituted for a parametric value. Levels may also be distinguished by being related to one another by containment or control.
- Levels maintain their similarity through form (eg. fractals), through function (eg. control), through horizontal internal organization (eg. organisms), etc.
- Levels maintain their discreteness by differing in such parameters as scale, time rates, energy content, communication capability, access scope, etc. And by forbidding vertical movement to certain commerce that is allowed horizontal movement.
- While levels must represent at least one common property that progresses discretely from level to level, the degree of discreteness may lie in the resolving power used in the description.

ESSENTIAL
RELATIONAL
ISOLATION
ITERATION

FOUR SPECIES OF LEVELS & HIERARCHY

SPECIES OF LEVELS

WHERE DOES NESTING BELONG:
RUSSIAN DOLLS
RELATIONAL

- ESSENTIAL DISCRETENESS RANK, ORDER
One class of levels is discrete because the levels are mapped onto the positive integers. As remarked, the integers are an example of a discretum embedded in a continuum, in this case the continuum of the real numbers. The discreteness of the integers depends on their intrinsic properties, not upon the action of external isolators. The concept of rank derives from its isomorphic relation to the ordinal integers, for rank is always mapped onto the positive integers. Hence, one class of level, that involving rank, finds the origin of its discreteness in the discreteness of the positive integers themselves. Another example of levels having essential discreteness are dimensions. The addition of a dimension to a system creates another level in the system. Orthogonality is an intrinsic property of dimension that effects discreteness independently of outside isolators. (Orthogonality itself as an isolator is discussed below.)

- RELATIONAL DISCRETENESS CONTAINMENT, CONTROL, DOMINANCE
A second class of level derives not from ordering alone but from additional relational features among the levels. Examples include actual containment or nesting and actual dominance or control. The ordering of levels depends on some essential physical or informational property.

- DISCRETENESS BY ISOLATION INHIBITORS, ISOLATORS
A third class of level depends on some variety of isolator to account for the gaps that isolate the levels from one another. This class occurs when the possibility for continuity exists.

related to rank above
rank a special case?

- GROUPING, CLUSTERING, DISCRETENESS BY ITERATION

First a laundry list of some isolators:

1. Walls and fences
   Tariffs
   Change of density
   Change of medium or state
2. Distance
3. Relative motion and speed
4. Temporal period
5. Frequency
6. Degree of linkage
6. Orthogonality as an isolator.
7. Self reference as an isolator.

But wherein lies unity?

Entitation and Isolation

8. Any Difference (Hamming Space distance)

A(H

See also 1996#40

FIGRND2.WP6 April 6, 1996,
rev: April 10, 1996
rev: June 5, 1996

FIGURE AND GROUND

Figure/Ground constitutes an important sub-class of dyads and four subclasses of figure/ground are identifiable:

1)	Figure and Ground are dual	Fig <---> Grd
2)	Ground supports Figure	Fig <---- Grd
3)	Figure supports Ground	Fig ----> Grd
4)	Figure and Ground are independent	Fig || Grd

The following are cited as examples:

CLASS	FIGURE (CARGO)	GROUND (VEHICLE)
1	MATTER/ENERGY	SPACE-TIME
2	BALLS:STATISTICAL MECHANICS	BOXES:STATISTICAL MECHANICS
2	MOTION TIME	DENSITY TIME
2	MEASUREMENT	UNIT
2	AGE	DATE
2	TALL	HIGH
2	SENSATION	STIMULUS
2	SIZE	SCALE
1	PARTICLE	WAVE
2	SIGNAL or FORM	NOISE
1	LIFE	CONSCIOUSNESS
3	MANKIND	GOD
3	EXPERIENCE	EPISTEMOLOGICAL SCHEMA
1	EPISTEMOLOGY	ONTOLOGY
2	L,M,T	h,G,c
?	h,G,c	α,μ,S
2	FAST SYSTEM	SLOW SYSTEM
4	POINTS	LINES, AREAS, OR VOLUMES
2	PERCEPTION	EXISTENCE
3	ENERGY-MATTER	INFORMATION
3	NUCLEI	CELLS

? Sensory Experience — Recognition
Quantitative — Qualitative
PHYSICAL PROPERTIES — NUMBER
INTERPRETATION — FACT

see 1996#13
See WHYMATH1.WK 96/05/18
in Epistemology Notebook

ATH

FIGRND1.WP6 June 12, 1996

see also 1996 #24

FIGURE AND GROUND

Figure is not perceptable by figure without both having the same ground.

Figure is continuous and mortal, ground is granular and immortal.

Ground is Parmedian, i.e. changeless. It lies outside time.

Figure is illusory in the sense that it changes depending on the ground that supports it.

Paradox: Figure cannot exist without ground for figure seeks to exist for itself. Only that which does not exist for itself can be self existent. Such requires no ground for it is ground.

Figure has many names. Ground has many names. Urground is nameless.

A symbol is a figure that represents ground.

There exists a species of auto-grounds that interact to produce figure. e.g. white noise.

An auto-ground is Urground, ~~or~~ SAT. or Brahman

Vehicle & Cargo

We have Observer
Figure
Ground
Urground

Camelot
granularity ↔ immortality
continuity ↔ mortality

FOR EVERY FIGURE THERE MUST BE A GROUND

QUESTIONS AND COMMENTS:

1] In each case there is always the question, which is the figure, which the ground?

2] And to which of the above four sub-classes does a pair belong?

3] A figure without the organization and information supplied by the ground is but noise.

4] SAT is the ultimate ground, supporting all figures yet having an independent existence. Only that which exists for others without the need of others is SAT.

5] SAT is involved in subclasses 2 and 4.

6] The śunyata is SAT.

7] Only SAT does not require repetition to continue to exist. All non-SAT figures must be continually 'refreshed'.

8] The premise adopted here is that not only perception but existence itself hinges on there being two levels, the level of figure and the level of ground. Pythagoras claimed that one (of anything) cannot exist. Eddington held that uniform sameness is the equivalent of non-existence, that is, a uniform or blank ground in the absence of an accompanying figure is neither perceptable nor existent. SAT is the exception to this two level law of existence.

9] Measurement is connecting a figure with a ground.

10] An example of energy-matter vs information is the Moon Illusion.

11] The existence of eigenvalues (or discreteness) in the figure infers finiteness or boundedness of the ground.

12] What is the horizontal connectivity of Figure and of Ground? Are figures and grounds continuous or granular? Two granularity constants may be required: Planck's $\hbar$ and superstring theory's α' or $(\alpha')^2$.

13] All may be granular. Granularity becomes continuity as scale decreases and becomes repetition as scale increases. It is a matter of resolving power.

14] Two Laws of Perception:
1) The Weber-Fechner Law (or some related power law)
2) We perceive only in the Eddington-Whitehead Zone, i.e all phenomena lie in the E-W Zone, all else is noumenal.
3) we retain only where we possess a code-book

15] The figure/ground concept is also of use in fractal dimension and in the chain-letter or Amway situation.

16] Fractal dimension is a mediator of figure and ground (cf measurement and measure)

17] Are other uses of log scales also mediators? Richter, pH, decibels, Weber-Fechner,...

18] The Great Dialectic or Antiphon is an example of sub-class one.

19] Li ☲ The Will of Heaven I Ching by Wu, p126

Li = Depends or rests on something else

Li stands for nature in its radiance

"Everything that gives light is dependent on something to which it clings in order that it may continue to shine." p 126

cf. St. John 1:1-5

and The light was the life of men

ATT

1990
See ITERREP, p51 #14
Jun 10, 1990

August 31, 1995 see 1997#21 1995#05

SOME SCRAPS ON RECURSION

- Recursion has to do with wholes and parts.
- The universe set aside part of itself to reference itself including the part set aside. This leads to an infinite regression of successive mappings.
- OM MANI PADME HUM What does HUM mean?
  It means OM MANI PADME HUM
- Gödel's Theorems show that there is always more than can be constructed from any base. An inverse of recursion.?
- Sense data alone do not provide what is needed for their own interpretation. --Hume This is related to Gödel's results. (Morrison p.18)
- In a hologram the whole is mapped onto every part. But in recursion it is required that the whole be mapped onto only one part.
- Recursion differs from Repetition and Iteration in that a part can iteratedly stand for the whole.
- Recursion along with Recognition and the Ontological Spectrum are keys to transcendent understanding.
- The boundary of the boundary is zero. This is a rapidly terminating recursion with a null attractor.
- The result of white noise modulating white noise is a gaussian. and recursion sharpens the gaussian to a Dirac function attractor. OR Central Limit Theorem
- There are as many points between 0 and 1 as there are between 1 and ∞, for each number can be isomorphically mapped onto its reciprocal. But here there is a duality unless a different mapping is used for < 1.

- CONTINUED FRACTIONS

So whether it is HUM or HUME (the two species of recursion) there is a part-whole homeomorphism (many to one)

Recursion Non-Dyadic

Recursion, the process by which a function or procedure calls itself in order to streamline the performance of special kinds of repetitive tasks. —Defn from TurboBasic p15

GENGODEL.WPD 2001-09-05 2001-12-28

VARIATIONS ON A THEME OF GÖDEL

Everything is a special case

The theorems of Gödel, Turing, and Chaitin are epistemological theorems. Theorems about limitations on knowing. A basic question is: Might these theorems also be ontological theorems? If so, what would their implications be?

1) The universe is not a single Kingdom. There would be no single set of rules [laws of nature] valid throughout the universe. Every rule and set of rules has a limited domain of validity, which cannot be the domain of the whole. [What about the paradox implied by this rule regarding itself ?] This invalidates such assumptions as the Cosmological Principle and the Perfect Cosmological Principle. It brings into question the relativistic assumption of a "proper time", a single time for the entire universe. All the pieces of the jigsaw puzzle do not make one picture, [Completeness infers inconsistency]. There may be several pictures possible from a portion of the pieces, [Consistency infers incompleteness]. Some pieces may belong to more than one picture. And some pieces may not fit anywhere.

2) Elements belonging to one part would not necessarily fit, be compatible with [cf. matter and anti-matter], nor be consistent with elements of other parts. Nor would diverse parts be able to communicate or even be aware of one another. It is conceivable that diverse parts could occupy the same space and time and co-exist without mutual awareness.

3) Phenomena that may occur regularly in one part of the universe would be uncommon or impossible in a different part of the universe. The meaning of *part* is not to be interpreted solely as a spatial part or a temporal part [different ages] but also includes scalar parts, harmonic parts, differences resulting from frequencies, linkages and other parameters.

4) The non-universality of any rule would support the creation and preservation of variety. No order or structure would be universal. There would be different dimensions, different forces and forms of energy, different periodic [and non-periodic] tables, different organizations resembling what we call life, different consciousness and different intelligence. [and different numbers ?]

But even Gödel's incompleteness theorem, which is an example of a class of structures that are auto-limited, [structures whose rules delimit realization of full potential], is a special case and not universally valid. .

Logos

We exist at the interface between two zones of non-existence/nothingness. These two kinds of non-existence/nothingness are representable by **ZERO** and by **ONE.**

ZERO represents both Alpha, the beginning, the Shunyata or nothingness of infinite potential; and Omega or the nothingness that is completely devoid of potential, which is the end point of all dialectical processes. **ZERO** fragments arithmetically, that is it creates existence by the process, [ex nihilo]

$$-1 \leftarrow 0 \rightarrow +1$$

→ symmetry

and it terminates existence by the process,

$$-1 \rightarrow 0 \leftarrow +1$$

Here [0] represents non-existence, [+1] represents somethingness, and [–1] represents nothingness. Thus for something to exist, nothing must also exist.

But paradoxically, **ONE**, [+1], is also a form of nothingness, in the sense of diversity or difference being a prerequisite of somethingness. **ONE** is unstable, it fragments into the myriads of entities having differences and therefore "something", [perceptible] existence. **ONE** fragments and combines exponentially. That is it creates existence by the process,

$$a^{-1} \leftarrow 1 \rightarrow a^{+1}$$

→ inversion

and destroys existence by the process,

$$a^{-1} \rightarrow 1 \leftarrow a^{+1}$$

When an entity becomes absolutely unique it ceases to "somethingly" [perceptibly] exist because it has become **ONE**, lacking all difference.[1] Multiplicity alone does not assure existence. Variety, diversity, variation, deviation, difference is necessary.

---

[1] **ZERO** to **ONE**, Vairacona; **ONE** to many, Akshobya.

Date ?
1997 ?

LogoS

There are two kinds of non-existence, these are representable by One and Zero. One is unstable. It is the Sunyata, the container of all potential. It is Alpha, the beginning. It fragments into the myriads of entities that acquire existence, yet all the while conserving a set of intrinsic values. Zero is stable. It is Omega, the end point of all dialectal processes. It is completely devoid of potential.

One fragments and combines geometrically. It creates existence by the process, $1 \rightarrow a$ and a^{-1}. The uniqueness generating principle is contained in One.

Zero fragments and combines arithmetically. It relates to existence through the process $+a$ and $-a \rightarrow 0$.

If an entity is purely unique it ceases to exist because it is One. On the other hand, homogenizing dialectical processes lead to non-existence by converging many elements to One. Existence lies in the mixed zone between total uniqueness zone of non-existence and the total homogenization zone of non-existence.

ATHROIS

THE SPECIES OF MULTIPLEXING

Multiplexing is the sharing of a channel. This can be done 1) through sending messages on different frequencies, 2) locating in different areas, 3) sharing time, and 4) by encoding. In communication technology these four methods of multiplexing are sometimes labeled:

1	FDMA	FREQUENCY DIVISION MULTIPLE ACCESS
2	ADMA	AREA DIVISION MULTIPLE ACCESS
3	TDMA	TIME DIVISION MULTIPLE ACCESS
4	CDMA	CODE DIVISION MULTIPLE ACCESS

All sharing involves multiplexing in one form or another. Bathrooms are time multiplexed, beds are area multiplexed, kitchens are code multiplexed (in the sense that two chefs will not be preparing the same foods), and furniture is frequency multiplexed (in the sense of its rates of movement compared with ours).

It has been argued that we share the world with other beings through different modes of multiplexing. For example, we share with wild animals through area multiplexing, with tame animals through code multiplexing, and with short lived insects, long lived trees, and the rocks and hills through frequency multiplexing.

THERE IS ALSO SCALE MULTIPLEXING [Part of ADMA?] Humans + Ants

In the spirit of science fiction, ~~addition~~, we can imagine beings that share our world through frequency multiplexing by racing through our cities with such speed that we do not even perceive them. And beings of such different form (code multiplexed) that we do not recognize them as beings. And lastly, through time multiplexing we may share the world with beings of whom we are not even aware, ~~we~~ taking turns with them of being on stage and off stage, i.e of existing and not existing.

We must also ask the question, "Are there other modes of multiplexing than the four presently recognized?"

EDMA
Epistemology DMA } selects a facet of the world

SDMA
Scale DMA cf. wavelet theory
we share space with stellar systems, galaxies ...
just as we share a kitchen with ants

Add Scale
SDMA

MDMA - a drug

ATHROC

SHARING4.WPD MAY 23, 2000

FOUR MODES OF SHARING

In a gestalt view the universe seems to be a foam, a mass of bubbles each pushing out against its neighbors seeking for itself as much space as possible. That may be the big picture, but when viewed with higher resolution, we perceive that entities interact with one another in other ways than pushing and devouring, in fact they have learned various ways in which to *share.* While the concept of sharing, may be an anthropocentric view of how parts relate to wholes, it at least appears to describe very well how living organisms operate within their ecosystems. Is it possible that the concept of sharing in some generalized forms could aid our understanding of the organization of the cosmos as a whole?

In the past few decades communications engineers are the ones who have been busy working on generalized forms of sharing. This is because communications networks involve being accessible to random numbers of users at random times for random lengths of time. The engineers have come up with four different "modes of sharing" These modes have been designated by the acronyms: ADMA, TDMA, FDMA, and CDMA.
When decoded they become:

Area Division Multiple Access
Time Division Multiple Access
Frequency Division Multiple Access
Code Division Multiple Access [1]

While a communications network may not be homomorphic with the cosmos, there are many commonalities. Let us begin by putting these modes into juxtaposition with the familiar ways humans and animals share the world.

First, ADMA: The basis of this mode of sharing lies in defining portions of turf by setting boundaries. Wolves and other canines mark out their territory with an olfactory fence spray painted with urine. Humans have also set up turf boundaries, but use fences and lawyers instead of urine to mark their turf. The common factor in this mode is the concept of private ownership. And eternal vigilance, analogous to the outward pressure of the cosmic bubbles, is required to protect ownership. (Some expansive bubbles like cancer cells or ego driven CEO's not only seek to take everything over but also to homogenize it into their own likeness.) Since there are many today who derive their personal identity from what they own and possess, we may expect ADMA, the mode of the ego bubbles, to continue to be an important mode of sharing for some time to come. insert SDMA

Second, TDMA: This is the basis of sharing that we learned in kindergarten – taking turns. In the course of social evolution, there developed the idea of a *commons,* a bit of turf that was to be shared in time. This was a significant sharing development for humans, but even animals proved themselves capable of respecting a specific time for each species to have access to the water hole. While the basic idea in ADMA is personal ownership, the basic idea in TDMA is

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[1] For a technical description of each of these modes see Scrap 19xx #yy.

creating a commons or package which is jointly shared over time. Experience has demonstrated that making reservations for the ball game or opera, had certain advantages, such as reduction of conflicts which were inevitable before God invented time to keep everything from happening at once. We note that it has been only a century since the nations of the world finally agreed that the high seas were a commons. Britannia no longer owns or rules the waves. (But some nations still contend they own all the outer space above their turfs. It is not clear how far out) However, the spread of TDMA created difficulties for the ego driven who could not detach their identities from their possessions. They solved the problems implicit in time by pushing to be first in line (or *the* first on the block).

Third FDMA: Up to now we have been primarily concerned with the sharing of space and things. But as our cultures have become absorbed with movement and increasingly mobile, new conditions requiring sharing have emerged. These requirements have been met through the apportioning of particularly sharing through using different rates or frequencies. While frequency or rate sharing [2] has long been everyday for network engineers, it has only recently become visible to the hoi polloi who are beginning to glimpse this form of sharing in their freeway driving experiences. Perhaps the earliest example of FDMA was the introduction of express trains. One track for the local that stopped at every station and a second track for the express that stopped only at key stations. Multiple tracks or multiple lanes on a freeway are like a communication channel using multiple frequencies. Traffic in each lane is moving at a different rate, that is, operating at a different frequency. So long as these rates are distinct and sufficiently different the sharing of the freeway is optimized. Difficulties in sharing movement occur, however, whenever the rates or frequencies are not sufficiently different. As the rates in each lane become the same, the freeway operates like a single lane with a single rate. This happens when cars abreast in each lane are traveling at the same speed. Blockage also occurs when the rates are only slightly different and passing takes so long as again to create blockage. [3]

In addition to rates, another aspect of sharing introduced by motion is what is sometimes called "platooning" or packaging. This is the sharing of a vehicle or the device which is in motion. Instead of everybody owning their own ship or railroad car, space on each was for a period of time shared–a commons in motion. However, with the coming of the automobile the *ownership* syndrome of ADMA overcame the *commons* syndrome of TDMA. While FDMA was able to adjust to this, it was found that when automobiles themselves were "platooned" movement was enhanced. Both diversity of rate (FDMA) and packaging into a temporarily shared commons (TDMA) are important when motion is to be shared. As society becomes more mobile and complex, we see that these two forms of sharing are playing an increasing role.

Standing back, we can see that humans share the world through FDMA. The universe

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[2]Strictly speaking frequency and rate are not dimensionally identical. However, if we think of cyclical rather than linear motion, as say a car doing laps around a race track, then the rate at which a car travels when converted into laps per minute is the equivalent of frequency.

[3]This illustrates the advantages of digitalization. If the rate difference between each lane was 10mph or more, such blockage would not occur. The digital (discrete) has many powers denied to the analog (continuous).

itself seems to operate at several frequencies. Here on earth the clouds come and go in a few hours, they are transient phenomena to humans, just as we humans are transient phenomena to the mountains. And thankfully the furniture in our homes does not move about with the same frequency that we do. All of these differences of frequency permit sharing.
Fourth, CDMA: Here the mode of sharing takes us beyond everyday experience and introduces us to non-localism. In separating our identity from possession, position, location, and rank, we are well on the way to becoming what we essentially are. Our essence can be simultaneously in many places and taking many paths. We are held together not by space and time, but by a label or code that identifies each part of who we are and enables the parts to be reconstructed into the whole when the destination is reached. Ego is gone, but self remains. If what can be presently accomplished with messages on networks could also be done with humans in societies, an unimaginable transformation would occur. Is CDMA a metaphor for how we really share the world?

Each of the four approaches is predicated on the preservation of identity. But the successive approaches liberate self from the excess baggage not needed to preserve identity. The successive approaches represent increasing maturity. [4] But beyond the four comes the *altering* of identity. Through exchange comes symbiosis and the construction of an ecosystem, but possible only after modification of identity. Then comes the level of emergence, the creation of entirely new identities. Then follows selection and the altering of the whole, the society, the ecosystem, the world.

[A fifth mode has recently appeared (having to do with communication, but not with communication engineering). This is MDMA, Mental Delusion Multiple Access, a drug known as "ecstasy". What is communicated is the illusion of multiple access,. It operates through the lottery, giving out a minute share of the abundance (the Thatcher Policy), and supports the great bi-modal distribution of wealth in the world. MDMA is sharing by illusion.]

MDMA = methylene dioxy methamphetamine
M D M A

This drug induces memory loss.

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[4]This is illustrated by the examples of drivers: 1) I own the road, keep out of my way. 2) I know how to take turns. 3) I am a team player. 4) I perceive the situation and operate egolessly to correct it.

COMPSUB.WP6

PARAGRAPHS FROM SUBSCRAPS ON COMPLEXITY

DATE[06-18-97
NUMBER[27
SUBJ[COMPLEXITY
NOTE[
NUMBER[
SUBJ[EVOLUTION
NOTE[Several modifications in our thinking about evolution have been proposed by Stephen J. Gould in his book, Full House.

One of these is the discarding of 'progress' as playing any role in evolution. Gould points out that the species that successively occupy the most advanced (in the sense of complexity) tail of the Poisson distribution representing the totality of species at any time, are not descendants of one another. The tail is successively taken over by diverse species having different evolutionary paths. To view the occupants of the extreme tip of the tail as evolving from one another, as progress does, is an illusion. Gould holds that the concept of 'progress' is an anthropocentric input into evolution in order to preserve our special most favored postition in the universe. [Man, made in the image of God.] {< We have had to come up with answers to Copernicus and Darwin, both of whom displaced us from the pinacle. >}

A second point emphasized by Gould is that diversity or variety, not complexity, is the measure of the advance of the life complex. My question here is what role does variety play in the increase of complexity. Does greater variety lead to more rapid increase of complexity? that is, How does increasing the height of the curve also increase the variance, extend the tail?

]DATE[06-18-97
NUMBER[25
SUBJ[COMPLEXITY
NOTE[McShea, quoted by Gould, Full House, p 203, defines complexity as a function of both the number of parts in the system, and the degree of **irregulatity** of their arrangement. Thus complexity is in opposition to order. {<This leads us to the paradoxical conclusion that the second law of thermodynamics, which increases disorder, plays a role in the increase of complexity. Is entropy, then, a measure of complexity? And here introducing Szilard's views of information as negentropy we have the more complex the system, the less its information content. This is certainly counter intuitive! Perhaps the number of parts component is the overriding factor. >}

~~17~~ 20.

COMPLEXITY

ALIENINT.WPW March 5, 1993

See also # 3-93

For several decades there have been afoot projects designed to search for extra-terrestrial intelligence. Most of these are predicated on the premise that what we are looking for is very much like us, derived from an anthropocentric notion of intelligence. The logic says, We belong to the class Intelligent, Those who belong to this class must therefore belong to the class human-like. This is of course nonsense. The class intelligent is bigger than the class humans and human-like. We cannot say that all that lies within the class intelligent must also lie within the class human-like.

like our gods

In practice, the SETI (Search for Extraterrestrial Intelligence) people are not looking for alien intelligence, they are looking for alien radio engineers. Further, there are alien intelligences here on earth. These range from plant life to teenagers. We would do well to encounter and communicate with the local aliens before searching for extra-terrestrials.

What are some general clues to use in a search for extraterrestrial intelligence (as contrasted with such anthropocentric specifics as they will use the 21cm band).

- ☐ Whereas the cosmos itself may be intelligent, we are looking for <u>local</u> intelligences. This means we are looking for local anomalies, departures from structures and processes that seem to be global, which we call the laws of nature. We are looking for the existence of local complexities (or simplicities) that appear to be at variance with natural or global phenomena. For example, we are looking for localities where the Second Law of Thermodynamics seems to be subverted. Or since the natural order appears to be built on the infrastructure of 1/f noise. Local departures from 1/f patterns either in the direction of simplicity or complexity could suggest the presence of local intelligence, something besides nature alone operating.
- ☐ Higher forms and complexity seem to occur along the interfaces of two regimes. On the surface of density discontinuities, along fault lines, along sea shores, wherever two diverse domains juxtapose. We should therefore expect anomalies such as life and intelligence to occur in the interstices.

edge

The Cosmological Principle: "what is local is global"

If not true, refutes the above

We only see our own local in the cosmos

LEVEL01.WPW DISK:KINKO August 28, 1993
September 30, 1993

See also
Vertical Mitosis
Scripps 91, # 31
VERTMIT.P51

ON LEVELS AND HIERARCHY

Both the terms hierarchy and level are used with many different meanings so the concepts are ambiguous. However, it is possible to abstract certain features common to general usage, allowing us to say that:

Hierarchies are representable by two dimensional arrays in which one dimension (the vertical) is discrete and the other dimension (the horizontal) may be either discrete (a matrix) or continuous. The discrete or vertical dimension is a scala which consists of occupied levels separated by empty gaps.

As to levels, if any attribute is common to the concept level, it is discreteness. Levels occupy discrete positions in a continuum, like the integers in the field of real numbers. Levels are separated by gaps and are thus in one sense or other isolated from one another.

- Very generally, levels must possess both similarities and differences.
- More specifically, the occupants of each level must be related to those of other levels by at least one parameter which represents a common property but which has a different value at each level. Sometimes the parameter is measurable, as when it specifies, size, number, age, mass, etc. But in these cases the distribution must be discrete, which is to say there must be some isolation of the levels. For other examples, the common property may not be measurable, such as levels of abstraction, complexity, etc. When not measurable, simple ranking is substituted for a parametric value. Levels may also be distinguished by being related to one another by containment or control.
- Levels maintain their similarity through form (eg. fractals), through function (eg. control), through horizontal internal organization (eg. organisms), etc.
- Levels maintain their discreteness by differing in such parameters as scale, time rates, energy content, communication capability, access scope, etc. And by forbidding vertical movement to certain commerce that is allowed horizontal movement.
- While levels must represent at least one common property that progresses discretely from level to level, the degree of discreteness may lie in the resolving power used in the description.

Two species of fractal
those with gaps — — $\rho \downarrow$
those with no gaps $\sim\!\!\sim$ $\rho \uparrow$

ESSENTIAL
RELATIONAL
ISOLATION
ITERATION

FOUR SPECIES OF LEVELS + HIERARCHY

SPECIES OF LEVELS

WHERE DOES NESTING BELONG?
RUSSIAN DOLLS?
RELATIONAL

- ESSENTIAL DISCRETENESS — RANK, ORDER
  One class of levels is discrete because the levels are mapped onto the positive integers. As remarked, the integers are an example of a discretum embedded in a continuum, in this case the continuum of the real numbers. The discreteness of the integers depends on their intrinsic properties, not upon the action of external isolators. The concept of <u>rank</u> derives from its isomorphic relation to the ordinal integers, for rank is always mapped onto the positive integers. Hence, one class of level, that involving rank, finds the origin of its discreteness in the discreteness of the positive integers themselves. Another example of levels having essential discreteness are <u>dimensions</u>. The addition of a dimension to a system creates another level in the system. Orthogonality is an intrinsic property of dimension that effects discreteness independently of outside isolators. (Orthogonality itself as an isolator is discussed below.)

- RELATIONAL DISCRETENESS — CONTAINMENT, CONTROL, DOMINANCE
  A second class of level derives not from ordering alone but from additional relational features among the levels. Examples include actual containment or nesting and actual dominance or control. The ordering of levels depends on some essential physical or informational property.

- DISCRETENESS BY ISOLATION — INHIBITORS, ISOLATORS
  A third class of level depends on some variety of isolator to account for the gaps that isolate the levels from one another. This class occurs when the possibility for continuity exists.

related to rank where rank is special case?

- GROUPING, CLUSTERING, DISCRETENESS BY ITERATION

First a laundry list of some isolators:

1. Walls and fences
   Tariffs
   Change of density
   Change of medium or state
2. Distance
3. Relative motion and speed
4. Temporal period
5. Frequency
6. Degree of linkage
6. Orthogonality as an isolator.
7. Self reference as an isolator.

But wherein lies unity?

Entertainment and isolation

8. Any Difference (Hamming Space distance)

PROPERTIES OF ISOLATORS

1. Walls and fences
Fences and cliffs as isolators depend on dimensionality A fence or cliff may isolate domains in a two dimensional world but is meaningless to birds who live in a three dimensional world. Walls and jungles are examples of isolating barriers effected by a change in density. Moats, rivers, deserts, (and also jungles) are barriers created by a change in medium. Ice, a change in state. Electric fences, a change in potential. A tariff is a fiscal cliff, not an obstacle to smugglers who operate in a third economic dimension.

2. Distance in space
Inverse square laws of force and inverse distance laws of potential underly the effectiveness of distance as an isolator. Both result in the diffusion of linkages. However, for humans distance is an isolator due to the time of travel necessitated by finite speeds.

3. Relative motion and speed special relativity

Total uniqueness as isolation
and ∴ non-existant?

ON COMPLEXITY

Simple systems are characterized by:

- Predictability
- Few interactions and feedback loops
- Centralized decision making (or control)
- Decomposability (reductionism)
- Linearity (substitutions)
- High imbalance in system-context interaction
- There exists the possibility of being objective, ie. discounting the influence of the observer.

Complex systems are characterized by:

- Unpredictability
- High level of interaction with the context (The number of components in the system is far less important than the degree on interaction of the components).
- Distributed decision making and control
- Non-decomposability
- Non-linearity
- Balance in system-context interactions
- Large role of the subjective

SURPRISE-GENERATING MECHANISMS

MECHANISM	SURPRISE EFFECT
Logical tangles	Paradoxical conclusions
Catastrophes	Discontinuity from smoothness
Chaos	Deterministic randomness
Uncomputability	Output transcends rules
Irreducibility	Behavior cannot be decomposed
Emergence	Self-organized patterns

from Complexification by John L. Casti

LEX1.WPG 95/05/03

THE THREE COMPLEXITIES

The first complexity is discrimination. Slicing, inclusion and exclusion, this and not this, here and elsewhere, before and after, us and them, inside and outside, dyads, and G. Spencer Brown's crossing. Dynamically are the dialectics, departure and return, TDMA, breathing in breathing out, taking and sending, etherialization and materialization, genotype and phenotype, extinction and radiant, crucifixion and resurection, bread and wine. All based on the operations of repetition and iteration, with the directionality of fragmentiation and the increase of variety.

The second complexity is integration. Joining, clustering, lumping, associating, linking, finding commonalities. Dynamically based on synthesizing, standardizing, juxtaposing, and homogenizing. All with directionality toward uniformity, increase in complexity and decrease in variety and uniqueness.

The first and second complexities dialectically support or oppose one another, effecting an engine that produces variety, complexity, or extinction.

The third complexity is hierarchy. Multiple levels, map and terrain, figure and ground, archetype and manifestation, object and representation, decisions and their criteria, organism and environment, address and content, and G. Spencer Brown's naming. The dynamics of FDMA and CDMA, 'as above so below and as below so above'. Utilizing the operations of containment, recursion, and regression, effecting knowledge and explanation.

What lies beyond the three complexities? Innovation, emergence, synchronicity, action at a distance, delayed feedback, enablement, do this so this can happen, trans-causality, purpose, meaning, and understanding.

What are the advantages of the discrete? the continuous?

ANALDIG1.P51 DISK:COSNUM September 4, 1991

ANALOG AND DIGITAL

The dyadic distinction of analog and digital, or continuous and discrete, is a reflection of two basic modes of reality and organization of existence. Our fundamental infrastructures of space and time operate in both of these modes. Many of our conceptual problems in science and philosophy, such as causality and action at a distance, arise from difficulties with accepting the validity of both modes. Contiguity, continuity, and neighborhood are generally thought of as belonging exclusively to the analog mode. However, each of these concepts have validity in the digital mode. Intensity of relationship may be obscured by gaps in space or time. Camelots and Brigadoons reflect our recognition of the discrete in time, (cf peri-time and dia-time), but we must relegate them to the mythic and unscientific. Many of our problems in the understanding of time have to do with sorting out the continuous and the discrete. Another aspect of all of this requires putting in order the quantum concepts of local and global, the everywhere and nowhere in one world and the here and now in another. (What transformation, not a fourier, is involved here?)

In the analog mode we can invert the world through the use of devices such as the fourier transform. What is continuous in the original is discrete in the transform: time and frequency, integers and real numbers. But there is more. The sounds that we have always generated in various analog ways may be synthesized digitally. What are the transforms of digital objects?

Another aspect of this has been pointed out by Tony Rothman. Only those systems obeying Maxwell-Boltzman statistics are subject to the second law of thermodynamics. Systems obeying other statistics seem to be immune. Maxwell-Boltzman goes with analog, Einstein-Bose and Fermi-Dirac reside in other modes. On the one hand, digital codes may readily be restored, similar in ways to holograms, while the analog, preserved from decay only by continual amplification, is always subject to information loss.

Maxwell-Boltzman
Distinctions
Individualism
Decay - 2nd Law

Fermi-Bose
Indistinguishability
non-local
permanence

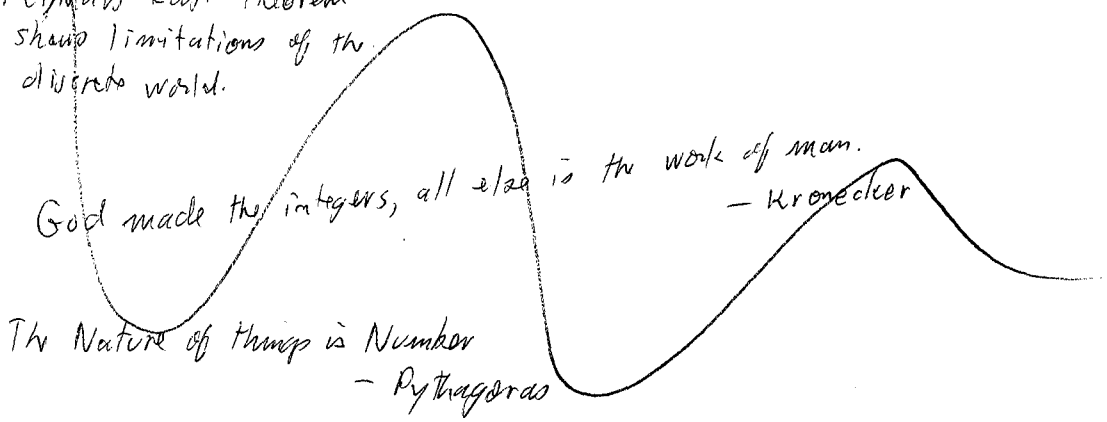
cf the Persian Aphorism on Truth
The analogue must be continually repeated to survive.

Other terms for discrete:
digital
corpuscular
granular
atomicity
Integral → ? integrity

Diaphantus, the first digitizer

continuity ⇒ reality

Fermat's Last Theorem
shows limitations of the
discrete world.



God made the integers, all else is the work of man.
— Kronecker

The Nature of things is Number
— Pythagoras

RECORDING EXPERIENCE

The media in which we record our experiences is not only the message, but determines the **permanence** and the **changeability** of the message. When oral recording was replaced by writing, permanence increased and changeability decreased. As papyrus replaced stone, permanence decreased and changeability increased. But more is involved. The media we use also influence **what we record** and **how we organize** the record. This is becoming increasingly apparent as we move from the age of printed records to the age of electronic records.

The modules that make up most of our records are either **events, commentaries** on events, **propositions, prescriptions** or **proscriptions.** Traditionally events are tied together through time linkage into stories or history; commentaries like essays or poems are usually free floating without any essential linkage; and propositions are usually connected through logic linkage into theories or whole disciplines. While the organization of prescriptions such as recipes and definitions must fall back on alphabetical or numerical listings; proscriptions, like law and manners, end up with a multi-parameter organization that is a mix of subject, priority, precedent.

In the age of print, the bulk of books have been classifiable into one or other of the above groups: Those that tell a story, like the Odyssey, trace the events in the life of a protagonist through **time;** those that teach or guide a discipline, like a mathematics textbook, build ascending complexity through **logic;** those that are a collection of items, like a telephone book, order **alphabetically;** In the first case, that of a story, it helps to know what preceded in order to understand what follows. In the case of a textbook, it is absolutely essential to know what precedes in order understand what follows. In the case of a book of poetry or telephone numbers, one can enter on any page with no need to have mastered what was on the preceding pages. The organization of these items has no need for either time or logic.

Independence of linear sequences of time and logic is also manifest in today's newspapers. With the content of newspapers being mostly events and commentaries on events, the expected organization would be temporal. But news reporting has become increasingly free of both time and logic linkages. The focus is on **now**, not on what led up to now, nor where now is likely to

take us. Even more than with newspapers, TV is designed free of time and logic linkages. TV programs are constructed so you can tune in to any performance at almost any moment and resonate with what is going on without any knowledge of what has gone before. In fact, this is becoming the hallmark of electronic media, differentiating it from traditional written media. All modules, events, commentaries, propositions, whatever are to be free floating. The linear age is dead.

What lies in the future is structuring of the modules according to several diverse parameters, (but including time). This requires an n-dimensional matrix, where n is the number of parameters involved. The present plethora of disconnected modules is a necessary transitory state to go through in order to become free of the confines of traditional linearism. True multi-dimensional record making and communication will not occur until such matrix structuring has succeeded. The important change will be the multiplicity of possible matrices (according to parameterization) and the selection of patterns occurring within each matrix. Up to now we have sought the correct way to look at the world. In the future we will seek all of the correct ways to look at the world. (The vision of Fritz Zwicky)

The story is no longer a sequence it is a module. Geometrically speaking all lines have become points. sound bites, photo opts. Not only point modules, but those limited in time and subject. There is no room for links. Somewhat paradoxical as the world is becoming interlinked through the internet. People, sources are being linked. The content of messages are becoming unlinked. Addresses are linked, content is random, still a matrix will allow retrieval on the basis of address, But there is hypertext which is message linking. What we are really seeing is step one the destruction of linearization. Hypertext will be the basis of the coming structure.

The manifestations of an archetype are not linked through a temporal sequence, but through a tree like linkage to the archetype which is itself on a transtemporal level

ORGAPRCH.WP6 April 3, 1997

AN APPROACH TO ORGANIZING

First we collect and assemble a pile of documents, files, numbers, experiences, whatever. After the pile reaches a certain size we find we can no longer link each item with its location, this is because in our heads the locations are linked to one another through random associations which were derived in a different ways, some by source, some by date, some by an attribute, etc. Humans, having finite informational processing capabilities, reach the limit of their ability to cope with a set of random associations after the set reaches a certain size. This is manifested to us by the difficulty of retrieval of particular items. At this point we are forced to **organize.**

And what does this mean? What does it mean to organize?

In assembling the pile we **pre-organized** by taking the mental step of associating each item with a location. But to organize we must now go beyond these [item-address] links. We must build an [address-address] set of linkages. That is the addresses them selves must be ordered in a more regular way than exhibited by our original set of random associations. This requires an abstract infrastructure possessing certain symmetries. (Since symmetries have the property of simplifying an arrangement to our perceptions.) After we have put together such an ordered address infrastructure, we can then link each item to an appropriate address. We thus see that organizing has two operations: A) The construction of an infrastructure, and b) the mapping of the items onto the infrastructure.

And how do we go about making an infrastructure?

A man who had observed some Buddhist monks, asked what do you monks do? A monk answered saying, "We eat, we sleep, we walk, we sit". The man replied, "So what? I eat, I sleep, I walk, I sit". The monk said, "Yes, but when we eat we are aware we are eating, when we sleep we know we are sleeping, and when we walk we know we are walking. That is the difference". In organizing at each step we must be aware of what we are doing.

One way to create an infrastructure is 'bottom up'. This involves beginning with the items themselves. Items are put in juxtaposition with one another and commonalities and differences are recorded. After much re-juxtaposing, the records will point to 'commonality clusters'. These clusters or categories must then be given labels. Items are then given a surname which is that of the category cluster to which they belong. But the process must be iterated. The items within each cluster are again discriminated and sub-clusters formed. The sub-clusters are labeled and these labels become the second name of the items. The process is continued as far as resolving power permits. The result is an infrastructure known as a tree. An outline is a common example.

APPROACHES TO ORGANIZATION

The stages of arriving at an ontology:

- Creating an epistemology or organizational infrastructure.
- Collecting experiences
- Placing the experiences in the proper boxes of the infrastructure.

This process is cyclically repeated over and over as new experiences are collected. However, multiple epistemologies should be employed so as to disclose facets of REALITY, each ontology being but a facet of REALITY.

The stages in the apophatic approach:

- Start with dyads and generate as many parameters as conceivable.
- Extend each parameter to as many values as possible, thus generating as many models as possible.
- Systematically falsify the models.

This approach is based on going beyond "an" and "the" to "all". It is Zwicky's morphological matrix subjected to Popper's falsification. Mathematics is an example. It is the task of mathematics to generate as many constructs as possible. It is the task of science to decide which of these constructs contains the observed world.

The stages of synthetic development:

- Juxtaposition for consilience = finding the commonalities contained in the juxtaposed elements.
- Juxtaposition for symmetry = finding the symmetries contained in the juxtaposed elements.

Although imagination goes beyond experience, it is nonetheless based on and therefore limited by experience. In other words the horizon of imagination extends beyond the horizon of experience but is nonetheless a horizon beyond which we do not conceive. The horizon of experience is the horizon of perception, the horizon of imagination is the horizon of conception. Both are horizons beyond which we are unable to go.

Rad

BEXISTS.WP6 MAY 2, 1998

BELIEVERS AND KNOWERS

I have never cared for the use of the terms "believer" and "non-believer". I believe they must have been coined by a non-believer. And as illustrated here in the first two sentences the word *believe* has multiple meanings in English and is a precarious word to use if the goal is philosophical understanding. The story is told that when asked whether he believed in God, Carl Jung replied, "I don't believe, I know". And that is why I believe that "believer" is a misnomer. Some of those called *believers* are really *knowers*. So perhaps a more important and useful dichotomy would be that of "knower" and "non-knower" What then is a knower? A knower is one who through some direct personal experience has had a glimpse of another reality, and in addition has the courage to trust and stand by that experience against the forces of cultural skepticism.

At the heart of the difficulty is the matter of continuity. What we commonly call reality, the reality conveyed to us by our senses through our data processing filters, is continuous in time. Experiences of non-sensory realities lack continuity. They come in "glimpses" that occur only at certain moments in time. We tend to measure the "validity" of a reality in terms of its continuity and consistency. For example, most dreams, having neither continuity nor consistency, are labeled unreal. But there are experiences, while lacking continuity, that have a high level of consistency. These form the class of experiences which knowers hold to be valid realities. But a very large sub-class of such experiences is common to almost all knowers, just as the sensory reality is common to almost all humans. It is in the interpretation of these non-sensory realities that knowers divide among themselves. The experiences are common to all, the interpretations are arbitrary constructs. Many answers have been given to what lies behind the experiences, ...by Zarathustra, Moses, Buddha, Jesus, Mohammed,... The same is true of the sensory reality. The movements of the planets are observed as the same by all observers. Interpretations of what lies behind the movements vary, ...Ptolemy, Copernicus, Newton, Einstein...

But what is most important is the effect of the experience of a "glimpse". What a glimpse tells is that something exists! There is a momentary view of a distant mountain range of overwhelming beauty. Knowing that such a place exists, there is a undeniable urge to reach it and climb its peaks. It is the knowledge of "it exists" that differentiates a knower from the rest of us. It is the never turning back commitment of the knower to the search that inspires us and makes us ask, perhaps we, not they, are the crazy ones. What are we missing out on?

THOUGHTS.WPD MARCH 28, 2000

SOME THOUGHTS ON THE MORNING OF A WESTERN SOLSTICE

November 4, 1998: Today is the day each year that the sun reaches its western most position, a western solstice. After moving to the west since the 29th of July the sun now begins to move eastwardly. This western solstice marks Samhain, the time the ancient Celts felt that our world was in closest proximity to the world of spirits. Indeed, if we stand back, we can feel the "specialness" of these days. Whether their mystique is due to the motion of the sun or to some inner emotion of our psyche, we are free to choose. The Samhain season is marked with days of cyclical origin: Halloween, the Day of the Dead, the Christian All Saints and All Souls. It is also marked with days having historical origin: Guy Fawkes, Soviet Oktyabr, Kristalnacht, and the Armistice of World War I.

Maybe our thoughts during the season of Samhain may also be of some special significance. Certainly mine this morning have been somewhat unusual. I woke up recalling something Fritz Zwicky said after one of his meetings with Einstein. He said that Einstein had the most remarkable talent of seeing the implications of any physical proposition in all its contexts. Tell him of a research result and he could immediately point out its affirmations or contradictions in other areas of physics, and suggest its implied hypotheses. What kind of different thinking did Einstein use? This same man who called for us to find a new way of thinking or risk extinction. If we look for some commonalities between this thinking mode of Einstein and the thinking of Newton, we note in both thinkers the imaginative ability to put normally unassociated events in juxtaposition: The falling of an apple and the path of the moon; the force of gravity and the geometry of space. Certainly to escape from our conditioned associations is one key to seeing the world in a new way, the way it might really be instead of the way we habitually think it to be. And the method of systematic juxtaposition is a powerful tool for this escape.

> A paradox is when your idea of how the world is differs from how the world really is – Richard Feynman

We particularly need to escape from the notion that a temporal sequence is a causal sequence. Linear time is a framework by which experience is organized by humans. The order in which events are experienced by human beings may have little to do with causality. Archetypes, for example, may manifest themselves as events in an order that has little or nothing to do with temporal sequence. "Camelots", for example, may appear at various intervals in historic time, caused by a "Camelot Archetype", not by a sequence of intervening temporal events. An archetype may manifest through of a set of events distributed in time in an apparently unordered way, but organized in some transcendent manner unperceived by humans. The so-called laws of physics may be the manifestations of the most probably occurring archetypes. The high frequency of their occurrence leads to an illusion that they are inviolable laws. The sequences they manifest are contained in the archetype. We impose on the sequences the concepts of temporality and causality.

> A human being is a method of organizing experience. – Lama Kunga

~~My~~ My next reincarnation will be in the ~~past~~ future.
My past reincarnation ~~have all~~ been in the future.

Connie S C - on AOL

CONTIGUITY AND CONTINUITY

The discontinuous and finite are the modes by which God accomplished His task. The continuous and the infinite are the modes resorted to by our intellects, which are incapable of investigating the gaps in nature and of imagining the excessively numerous accumulation of its building blocks. –Arnaud Denjoy[1]

The perceptual box, which we call reality, has been defined by a sense of contiguity and continuity that we project on the world.. Using the popular metaphor of "connecting the dots" to create a picture, what we have done is linked together our experiences of the world employing the continuous parameters, space and time. While this mode of linking appears self consistent and has created for us an endurable reality, it obscures the basic non-contiguous, non-continuous linkages by which the **essences** underlying our experiences are connected. In other words, the contiguous-continuous links have led us to replace the fundamental connections of **meaning** with the illusory connections of **cause**.

There is an incipient awareness of this illusory perception on many fronts. Scientists are beginning to suspect that the real nature of space is granular rather than continuous. And Hoyle has made a case for discreteness in the nature of time. Space has a binary aspect, consisting of extensions separated by gaps of nothingness; and time has its binary aspect consisting of durations separated by gaps of nothingness. But the real conceptional revolution lies in the possibility of there being alternative sequences between extensions and durations. It is being asked, Are there more fundamental sequences than the causal-temporal and more fundamental topologies than the spatial-topographic? And of course the ancient Buddhist question of, what are the species of nothingness?

It is not only in physics and cosmology that alternatives to the contiguous-continuous world are being considered, but as is usual the first explorers of such alternatives are the artists.

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[1]Quoted from "Great Currents of Mathematical Thought (p 195)

Jung's synchronicity, Poets connecting the same dots in different ways.
Glimpses, Painters and photographers isolating an element from its context destroying contiguity
extractions, selections,

interruptions breaking continuity Lehrs quote Discontinuity of sleep-wake, dreams
Chuang Tzu's question re reality

departure and return breaking continuity, Migration to break contiguity

In order that spiritual continuity may be maintained within the coming and going multitudes of nature's creations, the physical stream must suffer discontinuity at certain intervals.

–Ernst Lehrs

THOUGHTS.WPD March 20, 2004

SOME THOUGHTS ABOUT HUMAN LIMITATIONS

The world we know through our physical sense perceptions appears to be continuous in time and contiguous in space. But continuity and contiguity may be illusions, and their logical offspring, consistency, may limit our view of reality to but a small portion of the real nature of the cosmos. Freud once said that a measure of maturity is the ability to live with ambiguity, which involves both uncertainty and inconsistency. If we accept this measure then we are all still very immature. But perhaps the time has come for us to grow up and begin to accept that the world is far richer than the one delimited by the restrictions we choose to impose on it.

A beginning in this direction was made by Kurt Gödel when he demonstrated that the propositions which can proved within an axiomatic system were only a portion of what was valid within that system. While this may be true of any axiomatic system it is also true for a set of axiomatic systems. In other words, no single approach to describing the world will ever produce an isomorphic model. And all approaches together will not produce a homomorphic model.

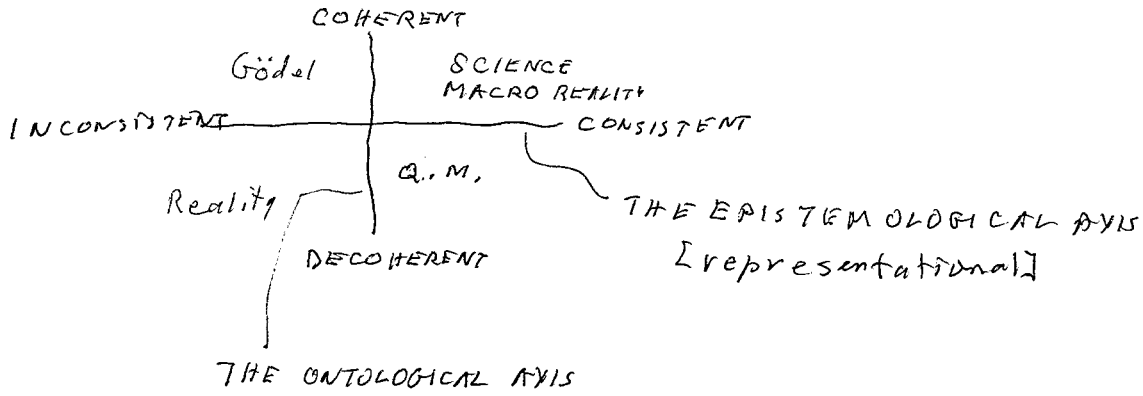
Granting Gödel's incompleteness theorems are true, what strategy should be adopted by science, philosophy, theology, and other "self-consistent" approaches, to optimize their models? Perhaps we might first attempt to construct as many additional self-consistent approaches [axiomatic systems] as possible, recognizing that they will all probably be inconsistent with each other. [We have already witnessed this in the inconsistency of science and theology]. Then we naturally would try to build bridges between the different inconsistent approaches in order in some manner to unify them, that is to create a *coherent picture.* . But what logical bridges are there that can unify the inconsistent? We already know that the answer is **none**. Our way of organizing thinking called logical won't bridge.

We might note here that philosophy likes to think of itself as the approach that can bridge all approaches. But philosophy has long since abandoned consistency. ["On the other hand"] It has achieved a sense of "unity" by giving divers and inconsistent aggregates of ideas a common name. That is, the unity in philosophy is not in consistency, the only unity is in the label philosophy.

The word *coherent* has popped up. Does coherent differ from consistent, if so in what way? Can the world be inconsistent yet coherent? Perhaps so, consistency is a restriction imposed by our logic. Everything in the world could be connected and operate coherently but not in a way we would perceive as logical or consistent. This means that a self-consistent approach to reality, such as the scientific method, won't work. And as to the word *picture.* A picture is a pattern that resembles something we have encountered in our experience. If we *recognize* the pattern as something familiar we can call it a picture. But there is no assurance that the larger patterns of the universe have much to do with our special brand of experience. [But we ~~must~~ still assume that they do].

In summary: We try to encapsulate the world in the net of our particular human way of experiencing it. This results in our insisting on its being consistent with our logical criteria of consistency. We require that it must in some way be a unity, whether describable by a "theory of everything" or unified under the direction of a monotheistic deity.

The quantum world is decoherent
only the macro world is [or appears to be] coherent



NOTE08.WPD July 25, 2004

see also 2004 #30, 31

ONTOLOGICAL ALTERNATIVES [1]

1) Our modes of perception, whose products we call facts, are limited to but portions of a few of the many dimensions and layers that constitute the **world.**

2) Our modes of thinking which are primarily dyadic, reduce concepts and propositions to dyads such as: true//false, exists//not exists, here//there, subject//object, us//them,....and on to such dichotomies as phenomena//noumena, diachronic//synchronic, etc. This way of thinking, while probably a derivative of our two hemisphere brains, imposes an avenue to reality that precludes access to numerous alternative possibilities. ORIGINAL EXISTENCE IS DUAL

3) Our modes of processing and organizing experience have projected a contiguity and a continuity onto the world that may be illusory. The result is a *monoveritas* world view that the world is one self-consistent coherent whole. For example, space and time may not be contiguous or continuous, but contiguity and continuity are imposed on them in order to unify and simplify our experience of reality. Or space and time may have no existence except as human mental stage settings constructed in order to fabricate a reality consistent with our modes of perception and thinking.

monochrome

limited

4) Our cultural, societal, and political organizations reflect our monoveritas world view. For science there is One Truth expressible by a "theory of everything"(eventually). For religion there is One God, (one for each religion). For political structure there is Ein Volk, Ein Reich, Ein Führer; beside the importance of being Number One.

aside fro

Recently a crack has developed in the walls of humanity's cognitive monolith. This in the form of the concept of "multiverses" to replace our traditional universe. Both quantum mechanics and cosmology are having difficulties trying to package everything into one self-consistent bundle. Hence Parallel Universes are postulated to account for critical improbabilities in a one universe picture. But this difficulty was recognized millennia ago by ancient Hindu sages. They did not, however, come up with the idea of parallel universes, but with the idea of Serial Universes, expressed in terms of the Lifetime of Brahma, the creator. Brahma and the universe he creates live for one hundred Brahma years, then at the end of that time Brahma dies and his world disappears to be replaced by a new Brahma and a new universe. When we do the arithmetic, it turns out that the lifetime of a Brahma is 156×10^{12} earth years. With this yardstick and our current estimate that the universe is now 136×10^{8} years old, we are stuck with this world for another 155.9×10^{12} years.

VSB

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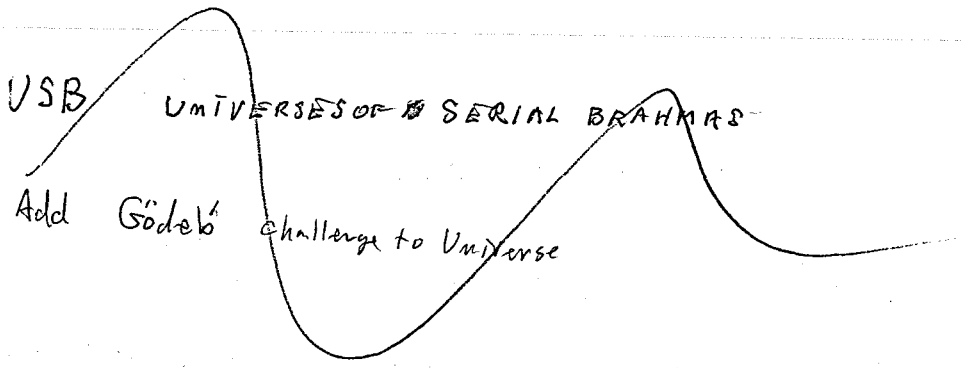
[1] It is not necessary in this speculative essay to rigorously define terms that are used interchangeably in ordinary discourse: We shall not differentiate between such terms as reality, world, cosmos, and universe... Although there may not exist anything corresponding to our concept of "a whole", we here use the term **world** to designate such a hypothetical whole.


USB UNIVERSES OF SERIAL BRAHMAS
Add Gödelé challenge to Universe

NOTE17.WPD October 11, 2004

CONTIGUITY AND CONTINUITY

See 2004#75
1998#28

We perceive the world as contiguous and continuous. However, this is an illusion, in part a matter of the resolving power of our senses, and in part a simplification imposed by our limited cognitive powers. We perceive spatial and temporal nodes, but not the spatial and temporal gaps between those nodes in which, hidden from us, myriads of relationships, links, and connections reside. While we are vaguely aware that there exist overreaching interconnections between all parts of the cosmos, both our perceptions and conceptions restrict our version of reality to knowledge of but a small fraction of the interconnections that actually exist. Not only are our perceptions and conceptions limited, but even our imaginations barely penetrate the narthex of total existence.

An important implication of a contiguous and continuous reality is that it is singly organized. That is, the universe is a unique organization, self consistent and self coherent. In current scientific parlance we feel there can be "a theory of everything", or in traditional theological parlance the inference is monotheism. However, certain modern experiences have brought into question the notion of the universe as a single organization. For example, the discrete nature of reality as evidenced by quantum mechanics, the implications of parallel universes in certain astrophysical data, and the incompleteness theorems of Kurt Gödel, all point to the possibility, if not the necessity, of alternate organizations within the cosmos. But these modern disclosures only reflect and affirm ideas proposed by ancient sages and savants that the world is constituted of multiple realities and organizations.

To contemplate that there are alternative intersecting realities is threatening to us. So we persist that, even if there are multiple worlds, we exist in only one, and our job is to live in and understand the one to which we belong. This is one assumption. However, some have the feeling that our species may exist in more than one of these multiple realities. Indeed, we may serve as bridges or links between two or more such parallel worlds. To explore such an hypothesis should be as much our responsibility as it is to explore our common world.

Put in the terminology of logic, we note that our common world is the ***intersect*** world of human experience. The new challenge is to explore the alternative realities that are manifested in the ***union*** of human experience. This violates political correctness, all men are created equal, etc. But, equal or not, humans have both common and unique experiences. Many of these unique experiences possess commonalities that infer they are not just pathological. These commonalities constitute a ***sub-intersect*** of experience that permit the application of some of the tools of the scientific method. However, every reality or ontology requires its own epistemology. The challenge ahead will be to develop the new tools and the new epistemologies required for the exploration of these alternative realities.

We organize experience within
a continuous time
and a contiguous space

We are warned against this

NOTE33S.WPD November 15, 2004

ONTOLOGY 101

CONTIGUITY AND CONTINUITY

[REF: BEXISTS.WP6, 1998#28; NOTE17S.WPD, 2004#65]

We live in a "solid state" reality. Our perceptions of the world are that it is contiguous and continuous like solid state matter, while "real reality" may be more akin to a liquid or to a gas having occasional contiguities and broken continuities. But our perceptions and experience have convinced us that contiguity and continuity are the "cement" of reality. (And derivative of our percepts of contiguity and continuity are our concepts of causality and consistency.) But against centuries of sensory evidence by billions of humans, the results of certain experiments in the 20th Century have indicated that we may have had it wrong.

General Relativity tells us that space and time exist only in the presence of matter. The curvature of space and the clock rate of time are functions of the local density of matter. The inference of this is that space and time are not basic attributes of the cosmos, but are only properties of material objects. And since the distribution of matter in the cosmos is not continuous and contiguous, it follows that neither space nor time is contiguous or continuous. But this view not only contradicts common sense, it violates earlier scientific dogma. Newton held that space and time were "absolutes"; they were the essential infrastructure needed to give location to all objects and events. While this traditional view has been superceded, it still permeates our thinking because it fits everyday experience. How can we all be so wrong?

Observations support Bell's quantum mechanical predictions of non-locality. No longer is an object either here or there, it can be both here and there. While this has been observed space-wise, it has yet to be observed time-wise, but if true, an object could exist both now and then. If true, Avatars, Brigadoons, Camelots, Once and Future Kings, would no longer be fantasies, but plausible possibilities. The basic connections between entities, and even within an entity, are not spatial contiguity and temporal continuity, but invisible connections of a non-material nature. Without contiguity, who is my neighbor? Without continuity, who are my colleagues? Is it a synchronicity that the internet has come along at just this time to give us new answers to these questions as the old definitions based on contiguity and continuity break down?

With perspicuity beyond contiguity and continuity, the old cliche of connecting the dots has to be upgraded. There has always been some sort of a "Newtonian" table to hold the dots. But now the table exists only in the immediate vicinity of each dot. What does this do to our logical infrastructure? How do we upgrade our logic and thinking to fit spatial and temporal non-locality? It appears that our traditional rational processes are too limited, but Gödel has already demonstrated this to be so.

From Spring Lake, 05-08-10 9:00 am

It appears that communication engineers invented ontological concepts that philosophers and metaphysicians never thought of, viz: ADMA, TDMA, FDMA, CDMA.

Contiguity and continuity are a sub-species of links or connections. In a TDMA reality manifested events could appear to have continuity (and causality) but be separated when measured with respect to some "primal" time. That is, the events would be experienced as continuous according to our own clock, but in prime-clock time would alternately exist and non-exist. It may be that what we sense, see, hear, etc, exists only for a few nanoseconds out of every hour of diachronic--clock time, but appears to us to have temporal continuity. But thousands of other realities may sequentially share in that hour of diachronic-clock time. Indeed, it is possible that the sum of all our history from the Big Bang may be included in some nanosecond of a great diachronic clock.

That is to say, in a TDMA ontology we can think of ourselves as being actors appearing in a play. But our play must share the stage with other actors in other plays. That is, many plays are running on the same stage, taking turns an act at a time. But is it possible that some of the same actors are participating in several of the plays and that some plays might even be sharing some acts?

In music at some point there is a switch from beat to pitch; time converts, or rather inverts, to frequency. And perhaps at some diachronic point, sequentially existing TDMA realities switch to coexisting FDMA realities, plays being played simultaneously on the same stage but at different frequencies or speeds. And perhaps intersecting from time to time. [eg Clock rate in globular clusters vs. diachronic clock rate for expanding universe.] Thus in addition to sequences of repetitive realities, as in TDMA, there could be intersects and verges between such realities creating even further realities, or there could be modulated realities in FDMA.

The same considerations could hold with reference to space in an ADMA reality. Places would appear to be contiguous in a particular space, but be non-contiguous in a more comprehensive and extensive space. And certain non-contiguous places in one space would appear to be contiguous in a different space. Parallel universes could be one form of ADMA.

Perhaps what has been said of continuity for TDMA and contiguity for ADMA could be said of consistency with reference to CDMA realities. While we can give metaphors and specific examples for some realities. What metaphor or specific example is can be made for CDMA realities?

Our "glimpses" of other realities could be the result of some momentary "phase shift" with respect to realities of any species, ADMA, TDMA, FDMA, or CDMA, that is momentary phase shifts in place, time, frequency, or code.

The reality we perceive is filtered both by the spectral limits of our sensory channels and by the special way our brains are wired. {Also conditioned be cultural consensus, but that is another subject} This filtering confines what may be experienced to a particular range of temporal frequencies and to a limited range of spatial resolving powers. And certainly to limited information processing capacity.

August 12, 2005

Based on GNB Spring Lake 05-05-22 8:30 am

Having had glimpses of many things that lie outside our conventional reality, how do we explore beyond this present reality? One attribute to tune in on is the power of place. Why is it some places have a certain magic? And what is it that these magic places have in common? It is not contiguity! They seem to give us some special energy or insight, they empower us. But since these experiences are not intentional, we cannot reproduce them, and they fall outside our canons of scientific investigation. In fact, while improbable, they are not unreasonable, they resonate with something within us that we rarely exercise, we do recognize them. And recognition is our ultimate validator, both for the repetitive, the scientific, and the probable, and for the rare, the unscientific, and the improbable.

But it is not only place, there are also special times that have magic, give us special energies and empower us. And there are also special events, not only those in which we participated, but those recorded in history in which we could not have participated. (Or could we have?) And special historical persons with whom we readily identify. No continuities and no logical connections. What links us to these places, times, persons, and events? And what links them to one another. Certainly not continuity, not contiguity, not even consistency. There are strands of connectivity that interlace our reality and other realities, that we can sense but cannot comprehend. We ask what are the greater contexts in which all is embedded?

From Spring Lake 05-03-16 August 12, 2005

A human being is one device for organizing events. –Lama Kunga

Einstein's space-time possesses contiguity and continuity and is therefore a special case.

Sacred groves do not have contiguity in P-SPACE, but do have contiguity in some other SPACE.

Let us postulate an "M-SPACE" in which other species of connections and linkages exist. I can claim that my being has contiguity and continuity in P-SPACE and in H-SPACE, but lacks continuity (and contiguity) in M-SPACE. But the magic moments themselves are contiguous and continuous in M-SPACE

From GNB 04-11-01 (All Saints Day) August 12, 2005

The organization of reality in terms of its sensory contiguities and continuities delimits and degrades life and vision. To escape the mind set of reality defined by continuity and contiguity is the first step needed in order to perceive Reality (with capital R).

From GNB 04-10-28 August 12, 2005

There exist continuities and contiguities in other dimensions than space and time. Places a thousand miles apart may be joined by memories, by experiences, by a person, by a feeling.

Archetypes are patterns in time with similar plots, scripts, characters. Their occurrences have little to do with contiguities in space or continuities in time. Their link is an abstract similarity, not contiguity nor continuity.

Sometimes continuity is destroyed, but contiguity (and other links) remain.
Sometimes contiguity is destroyed, but continuity (and other links) remain

There exist many abstract continuities and contiguities that connect events, other than those of time and space. [There also exist links of a totally non-contiguous, non-continuous species] There are archetypes and synchronicities. We are connected with loved ones whether or not there is geographical contiguity. All Temenos are connected by some non-spatial contiguity, All Kairos are connected by some non-temporal continuity. There are some connections far more intense and profound than spatial and temporal contiguities and continuities.

Death brings certain discontinuities, but does not erase other continuities. Memory and records preserve certain continuities, lose others .

A ridge is a place where two realities have contiguity, earth and sky meet.
Samhain is a time when two realities have contiguity, indeed, intersect.

The world is discrete, not continuous. All that exists is separated by what does not exist. There are gaps of nothingness in every parameter. Continuity and contiguity are illusions, except as perceived as bridges across the gaps. But the gaps are not nothingness, they are differences in the values of one or more parameters from the non-gaps [perhaps frequencies]. Indeed, what we may consider to be nothingness may well be where the values of several parameters are opposite to those of existence. The inference is that non-existence as well as existence involves many parameters. There may be as many species of non-existence as of existence. As many values to zero as there are positive integers. [at least as many values of zero as there are Cantor's alephs.]

There exists a domain of many parameters, each with a range of values which contains our ability to experience. Our reality is bounded by this domain. Our sensory and cognitive [brain wiring] apparatuses select and connect the dots found in this domain to construct our reality. Our resolving powers obscure the gaps and project continuity and contiguity onto our reality.

Much of the suffering in life lies in our illusory contiguity / non-contiguity and continuity/non-continuity world view. A better metaphor than contiguous-continuous space-time for the nature of reality is membership in various abstract sets and subsets. (Kaross) With separation, non-contiguity, we suffer; with death, non-continuity, we suffer. How can a set theory view change this?

When we can realize that we are one in certain sets, and live eternally in other sets.