Embodying Values Dynamically through Alternation

Integrating sets of polarized static values through indicative metaphor

Introduction

This is an exercise in response to the ambiguities of articulation and comprehension of values, whether individually or collectively -- and their strategic implications.

A notable feature is its self-reflexivity -- and consequently its inherent uncertainty as a necessarily tentative articulation. Partly for that reason, the arguments are presented in indicative and metaphorical form rather than being developed "linearly" at any length.

The challenge is understood to be one of dealing flexibly with cognitive challenges, especially in the light of their strategic implications with such topics as "extremism", future uncertainty, precautionary initiatives, and individual and collective engagement in change, notably in relation to "sustainability". Contextual preoccupations are those articulated by Jared M. Diamond (Collapse: how societies choose to fail or succeed, 2005), Thomas Homer-Dixon (The Upside of Down: catastrophe, creativity, and the renewal of civilization, 2006) and Nassim Nicholas Taleb (The Black Swan: the impact of the highly improbable, 2007).

The exploration follows from work relating to the Human Values and Wisdom Project, most recently as a contribution to a Panel on Ethics and Policies for Sustainable Futures (Hyderabad, 2008) of the World Academy of Art and Science (In Quest of Engaging Values: context of the Human Values and Wisdom Project, 2008), especially a concluding section on Topology of Valuing: psychodynamics of collective engagement with polyhedral value configurations (2008). The following is effectively a summary of that multi-paper exploration. The argument has also been presented in poster form In Quest of a Strategic Pattern Language: a new architecture of values [also available in PDF].

This exploration is associated with related studies of the relevance of "polyhedral" structures to governance (Towards Polyhedral Global Governance: complexifying oversimplistic strategic metaphors, 2008; Polyhedral Pattern Language: software facilitation of emergence, representation and transformation of psycho-social organization, 2008; Configuring Global Governance Groups: experimental visualization of possible integrative relationships, 2008).

Argument-1

Values: The challenge of values as articulated in value-charged words is their multiple connotations, whether interpreted in polarized terms as constructive (positive) values or destructive (negative) values. This challenge may be addressed by ordering these words in terms of value polarities through synonyms and antonyms. The value polarities may in turn be clustered as a matrix. Names (as categories) may be attached to the matrix cells into which the polarities are clustered.
The problem with this approach to ordering values is related to the increasing degrees of abstraction -- and consequently to the disassociation and disengagement with the resulting set. Furthermore, especially when clustered, the value polarities in any cell tend to imply a more generic form of simple polarity capable of capturing the implied significance of that cluster as a whole. This then implies a potentially greater capacity to hold the full relationship between the polarized extremes than any single term applied in naming the cell cluster. However, any attempt to apply such a term, or to articulate a more generic polarization for the cell, immediately falls victim to the challenging ambiguity of multiple connotations initially addressed.

Hence the merit of an apophatic approach, unsaying or unnaming the cluster. More generally, hence the merit of the classical Sanskrit adage Neti Neti (Not this, Not that).

**Configuration**: A further step towards cognitive engagement may however be explored by configuring the polarities, rather than holding them:
- in a checklist (whether or not nested)
- clustered in cells in a matrix, for which particular significance is attached to rows and columns

An effort may then be made to transform the matrix to introduce a degree of curvature indicative of a form of integrative closure. Possibilities include:
- a two-dimensional spoked wheel (a symbol favoured by Hinduism and Buddhism) in which the polarities are assumed to act:
  - either as spokes
  - or as elements defining the circumferential rim
- a three-dimensional spherically symmetrical polyhedron in which the polarities are assumed to act:
  - either as edges, as rendered explicit in a tensegrity structure
  - or as sides

Any such configuration raises issues of
- the minimum, or optimal, number of elements required to sustain the configuration
- the requisite variety of elements, as indicated by their different orientation
- the cognitive analogues to the triangulation between elements, interrelating them -- associated with the transition from linear to curved structures

Such issues have been addressed by R Buckminster Fuller (Synergetics: explorations in the geometry of thinking, 1975). The related question of engagement has been addressed elsewhere (Evoking Authenticity -- through polyhedral global configuration of local paradoxes, 2003).

**Paradox and inherent cognitive uncertainty**: It is appropriate to recognize the ambiguity and uncertainty involved in such choices in representational design. This may relate to the possibility of a form of cognitive uncertainty principle (Garrison Sposito, Does a generalized Heisenberg Principle operate in the social sciences? 1969; Gerald Holton, The Roots of Complementarity, 1970). The point to be stressed is that there is necessarily also an argument for the alternative representation appropriately considered to be complementary.

Both paradox and uncertainty have been presented by Kinhide Mushakoji (Global Issues and Interparadigmatic Dialogue, 1988) in terms of the logical quadrilemma: A, not-A, A-and-notA, neither-A-nor-notA.

This might be usefully represented in the following pattern of codes.

```
A
neither-A-nor-not-A
A-and-not-A
not-A
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The challenge of articulating integrative principles, in contrast with those based on polarization (or N-fold articulations) has been the subject of a specific experiment (Distinguishing Levels of Declarations of Principles, 1980). This highlighted the manner in which comprehensiveness could best be achieved through the ambiguity of implicit indication, and that the clarity achieved by explicit articulation created the challenge of comprehending increasingly larger sets of more disparate content. This alops makes evident the challenge of satisfactorily naming such content in that the more definitive the name the less its capacity to encompass the content.

Another polarity would see the above as the interplay of "fixed" and "mutable". This might then be understood as a way of articulating the insight of Edward de Bono (I Am Right, You Are Wrong: New Renaissance: From Rock Logic to Water Logic. 1990).

**Alternation**: It follows that there is a cognitive need for alternation between complementary (mutually contrary) perspectives which might be fruitfully understood metaphorically as providing a "stereoscopic" insight. This necessity has been explored by Magoroh Maruyama (Polyocular Vision or Subunderstanding? 2004). This approach has been explored with respect to strategy and policy (Policy Alternation for Development, 1984; Metaphors of Alternation: their significance for development policy-making, 1984) and more generally (Documents relating to Alternation, Dynamics, Movement).
As an essentially dynamic configuration, this alternation holds:

- the capacity of a 2-dimensional wheel to be partially deformed in contact with a surface as it rotates, essential to its ability to support a load through the axle
- the dynamics of a spherically symmetrical tensegrity in constant stability-seeking oscillation around an equilibrium, especially in response to disturbance
- the possibility of morphing a symmetrical polyhedron into its dual, in which nodes become sides and sides are reduced to nodes

Given the importance of alternation in navigating any vehicle (including a cognitive one) between alternatives, the art is to avoid entrapment by one or other alternative. This challenge is well represented metaphorically by the challenge of avoiding plasma quenching in nuclear fusion through its contact with the sides of the containing vessel. This challenge may be compared with an analogous one relating to cognitive fusion (Enactivating a Cognitive Fusion Reactor: Imaginal Transformation of Energy Resourcing (ITER-8), 2006)

**Definition and credibility:** It follows from the challenge of uncertainty and necessary alternation that:

- closure runs the risk of being premature and therefore a misleading distortion, whilst necessary in practice and in particular instances:
- tentativeness may not be appropriate when a decision is required, despite the dangers of premature closure,

This raises the questions of appropriate degrees of:

- closure and lightness of touch, perhaps to be understood metaphorically as the "hardness" or "stickiness" imputed to evidence
- credibility, notably in the light of an extreme case disconnection (Potential Psychosocial Significance of Monstrous Moonshine: an exceptional form of symmetry as a Rosetta stone for cognitive frameworks, 2007)
- approximation, however potentially misleading:
  - as a representation or model
  - in the construction of such a model

Such issues may be expressed in practice, especially within any social group, in terms of polarities such as:

- agreement vs disagreement, namely the degree of elicited agreement, if any
- attachment vs detachment, namely the degree of attachment to a particular formulation
- knowing vs not-knowing, namely the conviction that an insight has been adequately grasped

**Enclosure and emptiness in representation of the whole:** These arguments point to both:

- the need for enclosure, as implied by some degree of definition
- the role of emptiness, or the undefined, in enabling necessary flexibility -- and hence the representational value of a wheel or a centro-symmetric polyhedron

The representational process designs and defines a cognitive "space" appropriate to the uncertainty and underdefinition necessary for cognitive "dancing" to avoid the sterility of overdefinition and conceptual rigidification. The challenge of closure has been fruitfully discussed by Hilary Lawson (Closure: a story of everything, 2001). The need for such a space may be related metaphorically to the need for shelter from the elements and the efforts to construct such a protected space.

**Indications and coding systems:** Whilst the representation proposed above is essentially geometrical, the corresponding logical challenge of indication has been extensively explored by George Spencer-Brown (Laws of Form, 1969/1994). This work resulted in the development of a calculus of indications (Louis H. Kauffman, Virtual Logic: the calculus of indication, Cybernetics and Human Knowing: a journal of second order cybernetics and cyber-semiotics, 1998).

In this context it is fruitful to recognize the original value of "calculus" as a means of handling mathematically the challenge of relating linear representations as approximations to curves, and its special significance in "integration" to (**calculus: indications / circle, how many pieces for circle integration?**)

The concern with logic, and appropriate indication of understanding of the components of a whole, may be fruitfully explored in terms of the classical Chinese coding system of 8-trigrams of binary elements configured as a circle to constitute the BaGuA. This might be succinctly described as the minimal formal codification of differences such as to highlight degrees of polarization and complementarity -- avoiding problematic use of words and their confusing connotations (which are separately articulated through metaphor). As such it constitutes a pattern of associations of requisite systemic complexity.

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**Alternative arrangements of trigrams (BaGuA)**

<table>
<thead>
<tr>
<th>Earlier Heaven Arrangement</th>
<th>Later Heaven Arrangement</th>
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<tbody>
<tr>
<td><img src="image1.png" alt="Earlier Heaven Arrangement" /></td>
<td><img src="image2.png" alt="Later Heaven Arrangement" /></td>
</tr>
</tbody>
</table>
William Huff (Homonym, Homonym and Homonym, and Other Word Pairs, 1992) has made creative use of the 8 trigrams to distinguish 8 types of word pair (such as "peace" and "piece") according to meaning, pronunciation and spelling. However, his system of associating meaning with the lowest line in the trigram has been reversed (to the highest), although his coding of same (unbroken line) and different (broken line) has been retained. He has extended his work to interlingual word pairs.

Categories and cognitive engagement through topoi: As noted above, value-charged words may be held to carry significance (peace, love, justice, etc.). However, when recognition is accorded to the ambiguity of their dynamic context through polarization, and such polarities are then clustered, the degree of abstraction is fundamentally alienating. Cognitive engagement with such abstractions is highly inhibited.

Centro-symmetrical configuration may elicit a degree of engagement -- as with the psychoactive function of mandalas. However these typically require enhancement through emotionally charged symbols -- the topoi of mnemonic techniques. Use of "topoi", is helpfully contrasted with "topics" as the essentially neutral derivative through which effort is (vainly) made to engender the "political will to change". Typically topics, as arrayed for consideration by a conference for example, are presented as checklists (or in multi-track tabular programme schedules). As with values treated in this way, they are indicative of the challenge of cognitive engagement.

Mnemonics of re-membering: The topoi of mnemonic techniques provide sustaining coherence which enables a disparate array of elements to be "re-membered" (Frances Yates, The Art of Memory, 1966). This process is highly dependent on aesthetic resonance between the topoi -- exemplified by the relationship established between themes in a poem, colours in a design, or melodies in a symphony. It is such "harmony", however aesthetically "coloured" by discord, that enables and sustains comprehension of a whole and the integrated variety of its parts (Conditions of Objective, Subjective and Embodied Cognition: mnemonic systems for memetic coding of complexity, 2007; In Quest of Mnemonic Catalysts -- for comprehension of complex psychosocial dynamics, 2007).

This process contrasts with the "scientific" or "logical" approach to remembering patterned systems of elements -- as perhaps exemplified by the use of songs to "re-member" complex metabolic pathways (Harold Baum, Biochemists Songbook).

It has been argued elsewhere that such mnemonic and aesthetic considerations have not been applied to arrays of values and strategic initiatives supposedly fundamental to collective social organization (A Singable Earth Charter, EU Constitution or Global Ethic? 2006; Structuring Mnemonic Encoding of Development Plans and Ethical Charters using Musical Leitmotifs, 2001). Put briefly, if people cannot sing it, how are they to remember it and appreciate its coherence as a basis for collective action? It is curious that authorities bemoan their incapacity to enable appropriate change in terms of their inability to engender the necessary "political will to change" -- whilst simultaneously extolling the merits of the art and music essential to their cultural identity.

Comprehension and (un)learning: Implicit in this argument is the role of metaphor in enabling and sustaining comprehension. Hence the use of the wheel and polyhedral metaphors. Hence the extensive classical Chinese metaphorical commentary on the trigrams of the BaGua.

The uncertainty as to the appropriate representation, and disagreement regarding relevant connotations, is indicative of the fundamental challenge of learning -- of the known in contrast with the (as yet) unknown (or already forgotten). Ignorance is a necessary reality as is the lack of awareness of that of which one is ignorant -- and its implications in a global knowledge society subject to information overload and information underuse. The collective implications have been explored by John Ralston Saul (The Unconscious Civilization, 1995).

The challenge lies in the acceptance of such ignorance and the need for decision-making under the conditions of uncertainty central to risk management (by business, government and the military). However, as implied above, there may be a strong case for a more creative acceptance of ignorance as implied by arguments for "negative capability" and apophasis in contrast to kataphasis (Being What You Want: problematic kataphatic identity vs. potential of apophatic identity?, 2008)

Self-reflexivity: The more geometrical approach is consistent with related arguments concerning assumptions made regarding the appropriateness of the medium on which distinctions are made, as notably developed by the implication for articulation of more appropriate understanding through "writing" text on more complex topological surfaces as admirably articulated by Michael Schiltz (Form and Medium: a mathematical reconstruction, Image [&] Narrative, 6, 2003) in relation to that calculus of indications. Schiltz notes that form/medium is "the image for systemic connectivity and concatenation", as described by Humberto Maturana and Francesco Varela. Schiltz notes, that the notion of "space" is the key to reflexivity appropriate to any discussion of form and medium. He draws attention to the additional value of making such distinctions on a toroidal surface to take into account issues of self-reflexivity, as discussed elsewhere (Comprehension of Requisite Variety for Sustainable Psychosocial Dynamics: transforming a matrix classification onto intertwined tori, 2006).

Another relevant critique is that provided by Steven M. Rosen (Topologies of the Flesh: a multidimensional exploration of the lifeworld, 2006). Especially in an earlier work (Dimensions of Apéiron: a topological phenomenology of space, time, and individuation, Value Inquiry Book Series, 2004) he highlights the manner in which the richness of psychosocial engagement with the world has been completely undermined by formal discourse -- an "eclipse of the lifeworld" in his terms.

Questioning and answering: Several of the processes highlighted above, however expressed, might be understood as the pursuit of definitiveness through answering questions or avoiding them (Question Avoidance, Evasion, Aversion and Phobia: why we are unable to escape from traps, 2006):

<table>
<thead>
<tr>
<th>Comparable cognitive polarities: question vs answer?</th>
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<tbody>
<tr>
<td><strong>Question</strong></td>
<td><strong>Answer</strong></td>
</tr>
<tr>
<td>Uncertainty</td>
<td>Certainty</td>
</tr>
<tr>
<td>Disagreement</td>
<td>Agreement</td>
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The argument is however that any "answer" is ultimately inadequate, except within a process of alternation involving both "attachment" to it and "detachment" from it -- as exemplified in physics by the complementarity of wave and particle theories of light and in the earlier experiment (Distinguishing Levels of Declarations of Principles, 1980). A 4-segment diagram is suggestive of the challenge (Sustaining the Quest for Sustainable Answers, 2003). The cognitive challenge may also be expressed in terms of inappropriate "grasping" (Beyond Harassment of Reality and Grasping Future Possibilities: learnings from sexual harassment as a metaphor, 1996).

This process extends to indicative self-reflexivity, namely to the implication of the questioner in the process. (Functional Complementarity of Higher Order Questions: psycho-social sustainability modelled by coordinated movement, 2004). The unsustainability of such "grasping" may become evident through "cognitive catastrophes" (Cognitive Feel for Cognitive Catastrophes: question conformity, 2006; Conformality of 7 WH-questions to 7 Elementary Catastrophes: an exploration of potential psychosocial implications, 2006).

<table>
<thead>
<tr>
<th>4-fold expression of selected polarities using the quadrilemma</th>
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<tbody>
<tr>
<td>neither-Knowing-nor-Not-Knowing</td>
</tr>
<tr>
<td>neither-Questioning-nor-Answering</td>
</tr>
<tr>
<td>neither-Agreeing-nor-Disagreeing</td>
</tr>
<tr>
<td>neither-Closure-nor-Openness</td>
</tr>
<tr>
<td>Not-Knowing</td>
</tr>
<tr>
<td>Questioning</td>
</tr>
<tr>
<td>Disagreeing</td>
</tr>
<tr>
<td>Art</td>
</tr>
<tr>
<td>Openness</td>
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</tbody>
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This presentation might be compared with that of the 4-quadrant AQAL system of Ken Wilber's integral movement, except that the emphasis above is on modes or dynamics of self-reflexive "knowing", whereas the AQAL system is primarily concerned with statically-defined domains within which knowing takes place.

The challenge of appropriate questioning and answering is only too evident in the (mis)match between problems, strategies and values (Generating a Million Questions from UIA Databases: Problems, Strategies, Values, 2006; Preliminary Netmap Studies of Databases on Questions, World Problems, Global Strategies, and Values, 2006).

**Argument-2**

Cyclical alternation: However the seeming chaotic nature of this alternation dynamic acquires a degree of coherence when understood as taking place within a learning cycle of some kind -- perhaps metaphorically to be understood as a cognitive "dance" of engagement and disengagement with any "other". The BaGua pattern offers helpful indications regarding the nature of that dance -- the distinct forms of engagement and disengagement, for example, and their various degrees of complementarity. It is in this respect that its trigrams might be understood as specifically indicative as ideograms of certainty and uncertainty, for example again.

Metaphorically such a cognitive dance is usefully clarified as the various forms of (dance) step or "gait" that is possible in animal locomotion. Indeed the movements in the martial art form of BaGua (Baguazhang) were partially inspired by animal movement.

Contrasting movements include:

- **bipedal**: exemplified in walking (see human gait) and between democratic alternatives, namely alternation between polar extremes,
- **quadrupedal**: exemplified in the movement of many animals (see dog or horse gait; Quadrupedal Locomotion: musings about running dogs and other 4-legged creatures, 2006) or of a human climber using four limbs (or a dancer over crossed swords), namely alternation between the four conditions of the quadrilemma (A, not-A, both-A-and-not-A, neither-A-nor-not-A)
- **hexapedal**: exemplified in the walking of many insects [more]
- **octopodal**: exemplified in the movement of arachnids [more | animations], namely alternation between the 8 conditions of the BaGua, possibly to be understood as transactional games with any "other" (Cardioid Attractor Fundamental to Sustainability 8 transactional games forming the heart of sustainable relationship, 2005).

Analysis of various forms of gait is currently of great interest to the design of robots and the associated artificial intelligence required for their control including that of an octopodal spidermants for extraterrestrial exploration. An analysis by Oricom Technologies (Analysis of Multi-Legged Animal + Robot Gaits, 2003) notes, with respect to of cross-species similarities, that species all across the animal kingdom use legs together in certain combinations that produce analogous results - namely, "... 1 human leg works like 2 dog legs, 3 cockroach legs and 4 crab legs ...". In the most basic gait, a human steps from 1 leg to the other, a dog or horse from 1 diagonal to the other, a roach or beetle from 1 tripod to the other, and a crab or scorpion from 1 tetrapod to the other. Raibert found a similar result relating quadrupod gaits to a virtual biped gait. Different structures can work together in functionally-equivalent ways. Although we did not specifically find it in the literature, it is easy to see how the wave and ripple gaits of the hexapod shown above can be extended to 8 [or more] legs.

Of related interest are the insights from tensegrity into robot design (John Rieffel, et. al., Mechanism as Mind: what tensegrities and
caterpillars can teach us about soft robotics, Artificial Life, 2008). Despite the title of that study, the focus is on robots with few if any rigid parts, able to substantially deform themselves in order to flow around, and even through objects. It could however be argued that the principles being explored might well be applied to the design and operation of "cognitive vehicles" -- or even "cognitive cyborgs" -- appropriate to the exploration of the complexities of knowledge space.

But for a biped, for example, the options of each "foot" in octapedal movement may be engaged in (or disengaged from) as in a dance. Complex dances may be effectively prefiguring or reinforcing modes of understanding that cannot otherwise be successfully articulated - as with the frustration of describing a spiral staircase without an image. The relationship between human gait and cognition is currently of interest in medical research (Pamela L. Sheridana, et. al., The Role of Higher-Level Cognitive Function in Gait, Dementia and Geriatric Cognitive Disorders, 2007; Jeffrey M. Hausdorff, Gait Variability: methods, modeling and meaning, Journal of NeuroEngineering and Rehabilitation, 2005).

The gait metaphor raises the question of distinct "cognitive gaits" and their relationship to personality types (such as the Myers-Briggs Type Indicator), the mindscapes of Magoroh Maruyama (Mindscapes, social patterns and future development of scientific theory types. Cybernetica, 1980) and the cognitive habits of Antonio de Nicolas (Habits of Mind: an introduction to the philosophy of education, 2000). The metaphor also raises questions regarding useful understanding of how a body of knowledge "progresses" or "advances" -- the collective "cognitive locomotion" that may become significant to a global knowledge society.

### Indicative encoding of distinct forms of comprehension and apprehension

A study by B. Svarog (The basic symmetry of I Ching) is helpful in clarifying the generative operations of such patterns, notably with the aid of diagrams. With respect to the suggested cognitive encoding by sonification, through the notes of the octave corresponding to the trigrams of the BaGua, it is appropriate to note that from the BaGua were derived the BaYin, the “eight sounds” -- with which has been associated a Chinese classic Book of Eight Sounds or Book of Eight Tones (Qi Lin Bayin). These sounds seem not to have been understood cognitively, although central to the Chinese cosmology, except perhaps metaphorically as the eight categories of natural materials out of which musical instruments were constructed. It was believed that all such categories had to be represented in ritual music in order to produce music in harmonious accord with nature. The BaYin system remained the basis for categorizing instruments in China until the 20th century. Such considerations point to the possibilities of a form of "cognitive synaesthesia" (John G. Gammack, Synaesthesia and Knowing, 1999) envisaged by the composer Alexander Scriabin as the next stage of human evolution -- which he sought to enable through a musical work (Mysterium).

Given the importance attached to 12-fold patterns, further exploration might suggest the addition to the above pattern of four further distinct codes in the corners of the above outer ring -- perhaps corresponding to the understanding of "cardinality" in astrological typing, or to 4 of the 12 phases in the learning-action cycle explored by Arthur Young (The Geometry of Meaning, 1976) and discussed elsewhere (Characteristics of phases in 12-phase learning-action cycle, 1998; Typology of 12 complementary strategies essential to sustainable development, 1998).

In classical China, a theoretical system of 12 pitches per octave was generated by Lu-lu pitch pipes (as from the period of Pythagoras) and considered fundamental to the harmony of the state. The first frequency of the system was called Huangzhong “Yellow Bell” which served as the primal generator of the whole series of twelve. The first of each pair was considered yin or “generating,” the second as yang or “generated”.

Given the discussion of the metaphorical use of "pillars" as an indication of values, whether reflected in architecture or not, the musical association is of interest in that it has been discovered that some pillars in sacred architecture around the world were specifically "tuned" or placed to enhance (psychoactive) auditory effects (Ancient Hindu temples had musical pillars, 2008). Stonehenge has been studied from that perspective. Arguably designers of modern configurations of pillars could usefully broaden their perspective.

Curiously however, as illustrated at the time of writing, the conventions of "political parties" (especially of the greatest democracies) now value highly the contribution of music and song to the process of giving form to their value-charged manifestos, eliciting their acceptance and enabling their dissemination. But, in the process of government itself, such considerations are considered totally alien -- despite
increasing public apathy and antipathy to that process -- especially when there is the expectation that everyone will "sing from the same hymn sheet". The future may understand matters differently (Aesthetics of Governance in the Year 2490, 1990; Martin Morris, The Aesthetics of Democracy: cognitive mapping of mind and culture, 2008).

**Knowing about knowing:** In the above pattern, the upper line of the trigram of the BaGua (the outer ring), might be understood to indicate a condition of either knowing (unbroken line) or not-knowing (broken line) the inner 4-fold condition from which it was generated. This encodes an indication of self-reflexivity. In that context "knowing" may also be indicative of a potentially problematic degree of closure in contrast to a degree of openness associated with "not-knowing".

Curiously -- especially in relation to current evaluation of what was then so confidently "known" -- there is an indication of aspects of this understanding in a poem of US Secretary of Defense, Donald Rumsfeld (as articulated at a Department of Defense news briefing, 12 February 2002):

```
The Unknown
As we know,
There are known knowns.
There are things we know we know.
We also know
There are known unknowns.
That is to say
We know there are some things
We do not know.
But there are also unknown unknowns,
The ones we don't know
We don't know.
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**Cycling and identity:** The argument for alternation may be further extended in recognition of its cyclic nature, cycling through the phase extremes of alternation -- possibly necessarily associated with different degrees of knowing and attachment -- as suggested by the learning/action cycle of Arthur Young (The Geometry of Meaning, 1976). Indeed challenging complexity may only be comprehensible through recognition of the cycle as a whole rather than through "spastic" recognition of its parts, caricatured metaphorically by bipolar disorders. To the extent that engagement with these phases is important to the mnemonics of "re-membering", identity may come to be associated with the cyclical pattern rather than any of the particular phases in it (Emergence of Cyclic Psycho-social Identity: sustainability as "psychically" defined, 2007; Am I Question or Answer? 2006; Development as Discontinuous Societal Learning: cyclic transformation of the global answer economy, 1982).

The cycle as a form of "work cycle" may then be fruitfully understood as generative of value, as suggested by the classical taoist text on such a cycle as a process of internal alchemy (The Secret of the Golden Flower). Of particular interest is the cognitive twist in this process, appropriate modelled in 2-dimensions by the paradox of the Möbius strip (Psychosocial Work Cycle: beyond the plane of Möbius, 2007) or in 3-dimensions by the Klein bottle (Melanie Purcell, Imperatives for unbiased holistic education: the Klein bottle, a universal structure: an archetypal image, 1999).

Of even greater potential interest and immediate significance is the metaphoric correspondence between the BaGua trigrams and the notes in a musical octave (as partially explored in the use of music to accompany movement in Baguazhang and Tai Chi). Such a context highlights the manner in which cognitive engagement with any "other" takes place through various forms of musical resonance -- whether singly or through combinations that may be harmonious (or dissonant) in the moment or over a cycle of time.

The polyhedral representation, a product of interlocking cycles of different orientation, may then be associated with the integration of complementary value generating cycles (Spherical Configuration of Interlocking Roundtables: Internet enhancement of global self-organization through patterns of dialogue, 1998; Spherical Configuration of Categories -- to reflect systemic patterns of environmental checks and balances, 1994).

**Environmental engagement: from bullet points to topoi**

Values are denatured as "bullet points" (as in the ubiquitous Power Point presentation), however much it is assumed by the empowered that the unconvinced can be profitably and powerfully "targetted" by such means (Enhancing Sustainable Development Strategies through Avoidance of Military Metaphors, 1998). In a global knowledge society it is appropriate to suspect that how we adjust psychologically to apprehension of problems in "reality" -- as an imbalance of values -- may engender biological illness psychosomatically, especially if that adjustment is unconscious or denied.

Inequality, injustice, impoverishment and life-threatening conditions of others far away -- even including other species -- may well be engendering illness in those who believe they are well insulated from their implications.

Conversely it is possible that balanced cultivation of complementary values in the apprehension of "reality" may enable self-repairing processes -- whether psychosomatically or in the environment encountered psychoactively -- thereby sustaining the "pattern that connects" (Psychology of Sustainability: embodying cyclic environmental processes, 2002; Hyperspace Clues to the Psychology of the Pattern that Connects, 2003). The array of value-engendered "memetic diseases" may have a degree of systemic isomorphism with the array of biological diseases (Mnemonic and Information Diseases in a Knowledge Society: speculations towards the development of cures and preventive measures, 2008).

Rather than "topics", similarly denatured as "bullet points", there is an unexplored opportunity to engage with the array of topics in the manner originally implied by the *topoi* of mnemonic techniques. It is the associated sense of coherence and psychoactive engagement
that will give strategic significance to the environment -- through its personal meaning rather than through the abstractions of "climate change", for example (Playfully Changing the Prevailing Climate of Opinion: climate change as focal metaphor of effective global governance, 2005). This of course accords with the views long expressed by indigenous peoples as documented for the United Nations Environment Programme by Darrell Posey (Cultural and Spiritual Values of Biodiversity: a complementary contribution to Global Biodiversity Assessment, Intermediate Technology, 1999).

**Conclusion**

There is a curious symptomatic confusion between "values" as recognized:

- by science in quantitative measurement
- by business and economics in terms of imputed financial worth fundamental to exchange
- by art in qualitative appreciation
- as fundamental to the basis for social organization

Each domain is however variously challenged by the ethical implications of values. The confusion is all the more curious given the conflation of "value" with "virtue" and the implications of the latter in recognition of economic dematerialization and the increasing significance of the "virtual" -- including "virtual warfare" (Review of the Range of Virtual Wars: a strategic comparison with the global war against terrorism, 2005; Theodore F. di Stefano, Cyberattacks: Are Virtual Wars Next?, E-Commerce Times, 22 June 2007).

The argument endeavours to indicate the merit of shifting the approach to values and ethics from simplistic checklists and "pillars" that are the currently favoured structural basis for strategic initiatives and governance. In the quest to contain and embody elusive values, a fruitful shift might explore a combination of:

- transforming "pillars" to "feet", with their implication for coordinated movement of a coherent "body" (of values)
- recognizing that whilst truth is indeed valued, its nature is many-sided, as is the case with other fundamental values, and therefore indicates the merit of a polyhedral configuration of values
- recognizing the manner in which two-dimensional "pillars" and "poles" call for a form of enclosure in three dimensions to create a (many-sided, polyhedral) body enclosing a sheltered, "unoccupied" space
- embodying polarization in such a configuration so as to provide a container for the paradoxical relationship between complementary values in practice
- understanding any such body or configuration of values as a form of cognitive vehicle appropriate to the exploration of knowledge space
- recognizing dynamic modes of alternation in the operation of such a body-vehicle to hold and interrelate incommensurable (value) perspectives and other forms of disagreement -- as is implied by the ideal of alternation in democratic governance
- using other than vision-based metaphors to sustain the coherence of the set of contrasting perspectives -- notably metaphors based on music as a language more widely meaningful across cultures for that purpose

To the extent that values may be understood as of an order of complexity comparable to the attractors and repulsors of the complexity sciences, this argument suggests that, as individual topoi with which people are deeply engaged in some psychoactive manner, the challenge is then how to give significance to viable, coherent configurations of such attractors -- with which people can engage as a whole. Hence the focus on the potential of topology -- to be usefully contrasted with the problematic value "knots" into which society binds itself. **What indeed makes for the coherence of a set of polarized attractors/repulsors?**

In an analysis of the articulation of the campaign positions of Barack Obama and John McCain, George Lakoff (Don't Think of a Maverick! 2008) offers valuable insights into the disadvantage in relating to the electorate of focusing on policy "issues" versus that of engendering "frames". The latter might be fruitfully understood as corresponding to "topoi", in contrast with "topics", in that topoi have a quality of strange, psychoactive attractor/repulsors. For policy coherence eliciting engagement and support however, the challenge is how to configure a set of such of subtle frameworks.

Description of complexity has much higher probability of being meaningfully understood if it is embodied in dynamics and topology which the brain is better able to integrate. It is such forms of psychoactive resonance which would appear to be the key to eliciting "internal" engagement with the challenges of the "external" reality. The "pattern that connects" the disparate challenges is in all probability a dynamic pattern in which the correspondences bridging credibly between the disparate domains are more tenuous than convention habitually requires (Theories of Correspondences -- and potential equivalences between them in correlative thinking, 2007).

This argument therefore suggests a combination of polyhedral configuration, with an associated dynamic appropriate to a cyclic system, to be comprehended through musical cues (as separately argued in A Singable Earth Charter, EU Constitution or Global Ethic? 2006; Reframing the EU Reform Process -- through Song: responding to the Irish challenge to the Lisbon Treaty, 2008 ). The basic point being that if a set of values is not singable, it is neither comprehensible nor memorable and is therefore incapable of sustaining strategic initiatives in a democratic society. Furthermore, music implies an engagement with "harmony" that is also fundamental to fruitful association of consonance and dissonance in the response to strategic dilemmas.

Given the classical role in China of the Yellow Bell in ensuring the harmony of the state with the environment, it is ironic how widespread is the current use of "keynote speakers" to elicit collective harmony amongst topics and perspectives at any collective gathering. However...

Given the number of keynote speakers on vital strategic issues, why can we not hear the music they elicit?
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