Cognitive Cycles Vital to Sustainable Self-Governance

The Lord of the Rings as an emergent integrative dynamic

Part 1: The Gaussian Copula, the Kaya Identity, and what else?
-- Introduction
-- Gaussian Copula: investment risk
-- Kaya Identity: emissions
-- Sustainability metric
-- Other fundamental "metrics"?
-- Secret formulae?
-- Metrics: a measure other than human?

Part 2: Relevance of Mythopoeic Insights to Global Challenges
-- Metrics with a "human face"?
-- Neglected geometric "metrics"
-- Mythopoeic insights of relevance?
-- Cognitive drama of the disciplines
-- Human remedial capacity: a ninefold challenge?

Part 3: Cognitive Cycles Vital to Sustainable Self-Governance
-- Cognitive unsustainability
-- Embodiment: how "one" engages with reality
-- Interweaving singular metrics
-- Emergent integrity of a configuration of cognitive cycles -- a "Lord of the Rings"

Conclusion

References

Cognitive unsustainability

Cyclic irrelevance: It is precisely the subunderstanding associated with pursuit of a single way of knowing that transforms the "knower" into a cognitive "wraith" in Tolkien's terminology. Those in possession of such singular knowledge are "doomed to die" in the words of the poem above (in Part 2) -- effectively to lose the immortality conferred upon them by that knowledge.

As noted in framing the Integrative Knowledge Project, the inadequacy and natural limitations of specialized approaches are poorly recognized -- although is however increasingly recognized that it is both inefficient and inadequate to organize research or action programmes as though nature were organized into disciplinary sectors in the same way that universities are.

How, asks Russell Ackoff (1960), is a practitioner of any one discipline to know in a particular case whether another discipline is better equipped to handle the problem than is his? It would be rare indeed if a representative of one of the many disciplines in some way related to the problem in question did not feel that his particular approach to that problem would be very fruitful, if not the most fruitful.

This tendency is also institutionalized, as noted by Hasan Ozbekhan (1969): "This almost subconsciously motivated attempt, that of a sector to expand over the whole space of the system in its own particular terms and in accordance with its own particular outlooks and traditions, compounds the problem by further fragmenting the wholeness of the system. For sectors cannot become systems, they can only dominate them; and when they do they warp them."

On the same point, Ackoff notes (1960): "...few of the problems that arise can adequately be handled within any one discipline. Such systems are not fundamentally mechanical, chemical, biological, psychological, social, economic, political, or ethical. These are merely different ways of looking at such systems. Complete understanding of such systems requires an integration of these perspectives. By
integration I do not mean a synthesis of results obtained by independently conducted undisciplinary studies, but rather results obtained from studies in the process of which disciplinary perspectives have been synthesized. The integration must come during, not after, the performance of the research."

This predictable death in time constitutes a valuable reminder of the "cognitive unsustainability" of any particular mode of knowing -- of any single-factor explanation. Its apparent appropriateness to any given challenge must eventually fade. It effectively falls victim to a generic variant of the incompleteness theorems of Kurt Gödel. The emphasis of Edward de Bono, on the need to shift between modes of knowing, offers a contextual insight into the nature of transdisciplinary insight (Six Thinking Hats, 1985; Six Action Shoes, 1991). This dynamic has been explored elsewhere (Navigating Alternative Conceptual Realities: clues to the dynamics of enacting new paradigms through movement, 2002).

Intelligence and learning: However, as "ways of knowing", these might be understood as "intelligences" -- in the light of the theory of multiple intelligences, initially developed by Howard Gardner (Intelligence Reframed: Multiple Intelligences for the 21st Century, 1999). This set variously includes (or excludes): bodily-kinesthetic, interpersonal, verbal-linguistic, logical-mathematical, intrapersonal, visual-spatial, musical, naturalistic, spiritual, existential, and moral intelligence. Each might be understood as a distinct form of "metric" -- a way of assessing the world and defining a worldview.

Another approach is to consider these modalities as patterns of learning which lend themselves to being "bound together" through a higher form of ordering, as explored separately (Towards a Periodic Table of Ways of Knowing -- in the light of metaphors of mathematics, 2009; Periodic Pattern of Human Life: the Periodic Table as a metaphor of lifelong learning, 2009; Hyperaction through Hypercomprehension and Hyperdrive: necessary complement to proliferation of hypermedia in hypersociety, 2005).

Psychosocial hazard: The drama of The Lord of the Rings emphasizes essential danger -- a significance typically drained from any single metric, no matter the indicator. As noted above, it is therefore fruitful to recognize the nature of psychosocial hazard undermining any fruitful assessment of risk (Overpopulation Debate as a Psychosocial Hazard: development of safety guidelines from handling other hazardous materials, 2009)

Embodyment: how "one" engages with reality

The following discussion uses Tolkien's "rings" and "ring bearers" as metaphors in the light of the interaction between the following arguments:

- the quest for globality -- for oneness -- currently manifested problematically as "globalization", neglect of the global environment, and confusion regarding global understanding (Metaphorical Geometry in Quest of Globality: in response to global governance challenges, 2009; Future Generation through Global Conversation in quest of collective well-being through conversation in the present moment, 1997)

- cognitive externalization, "outsourcing", or projection of psychological functions, subpersonalities and insights into roles, whether represented by conventional categories (sectors, disciplines, arts, etc) or by mythical figures (elves, dwarfs, etc)

- existential embodiment of externalities typically designed out of single metrics (Existential Embodiment of Externalities: radical cognitive engagement, 2009)

- enactivating the pattern that connects, notably through challenging self-reflexivity (Walking Elven Pathways: enactivating the pattern that connects, 2006)

- implication of geometry and topology for thinking and identity, whether individually or of relevance to governance (Geometry of Thinking for Sustainable Global Governance: cognitive implication of synergetics, 2009; Geometry, Topology and Dynamics of Identity: cognitive implication in fundamental strategic questions and dilemmas, 2009)

- recognition of the "monstrous" complexity of the highest forms of symmetry (cf Mark Ronan, Symmetry and the Monster: one of the greatest quests of mathematics, 2006), raisinf the possibility that appropriate comprehension of the governance challenges of "globalization" call for a form of marriage between "beauty" and such a "monster" -- but of a quite unexpected order of complexity? Why is it assumed that the knowledge required is not of such an order of complexity?

- recognition that elaborating significant sets of concepts and categories is a continuing process of psychocultural experimentation, aided and abetted by mathematical insights; any closure is therefore typically premature, rife with confusion and contradictory interpretations (Representation, Comprehension and Communication of Sets: the Role of Number, 1978)

Any pejorative judgements on the dramatis personae (above) are then to be understood as applied to projections and externalizations of the "one" -- as carried by those roles in society.

Cognitive "engagement rings": Tolkien's rings might be fruitfully understood as modes of quasi-sustainable cognitive engagement with reality. Their significance is most readily understood through the psychosocial significance associated with rings and circlets as discussed separately (Engaging with Globality through Cognitive Circlets: Learning/Action cycles, 2009; Designing Cultural Rosaries and Meaning Malas to Sustain Associations within the Pattern that Connects, 2000).

Related insights of potential relevance are associated with:

- the function of rings as great circles interlocking to define a globe -- giving form to the "one", if only symbolically (Spherical...
The strategic implications of sustainability as "psyclically" defined dynamic in Understood dynamically, the metaphor of a cognitive "engagement ring" is pattern-breaking Fellowship interrelated global problems. With the myth of "globality" through sense-making is a feature of the they objectify and factualize. Translate to "verbings" enables mandate for disciplinary invention verbs in order 1968; David A. Cooper, between science and spirituality, as implied ecological, nuclear as argued by In theological terms, such considerations "point" to the possibility of other metaphors through which to communicate across disciplinary boundaries, notably as developed by Peter Jones (private communication) draws attention to the ways in which nouns are "translated" into verbs in order to communicate across disciplinary boundaries, notably as developed by Brenda Dervin (Verbing Communication: mandate for disciplinary invention, Journal of Communication, 43, 1993, 3, pp. 45-54) as part of a Sense-Making Methodology. Sensemaking across disciplines is understood as breaking down when people adhere to their interpretation of the meaning of nouns -- they objectify and factualize. Translate to "verbings" enables people to agree about what is being performed in an activity. An approach to "globality" through sense-making is a feature of the Global Sensemaking group dedicated to helping humanity address complex, interrelated global problems. With the myth of The Lord of the Rings, this might be said to be the polysensorial challenge of the Fellowship of the Ring (Strategic Challenge of Polysensorial Knowledge: bringing the "elephant" into "focus", 2008; Polysensorial pattern-breaking, 2009).

Understood dynamically, the metaphor of a cognitive "engagement ring" is especially relevant to reframing personal identity as a cyclic dynamic in its own right appropriate to the challenge of a turbulent environment (Emergence of Cyclical Psycho-social Identity: sustainability as "psyclically" defined, 2007).

<table>
<thead>
<tr>
<th>Ringwraiths, whirlwinds and twisters</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inherently, a whirlwind does not last through the morning.</td>
</tr>
<tr>
<td>A sudden storm does not last through the day.</td>
</tr>
<tr>
<td>What makes these? The cosmos.</td>
</tr>
<tr>
<td>If the cosmos cannot make even these winds endure,</td>
</tr>
<tr>
<td>How much more is it the case for human windiness?</td>
</tr>
<tr>
<td>(Laozi: Tao Te Ching on the Art of Harmony, from chapter 23, Walking together in a Way, as translated by Chad Hansen, 2009)</td>
</tr>
</tbody>
</table>

The strategic implications of the seeming coherence offered by "human windiness" are especially relevant at the time of writing in the
preoccupation with global warming and the surprising collapse of the global financial system. In both cases meteorological metaphors have been used to frame the processes. Both are notable for the amount of "hot air" to which they have given rise -- suggesting the value of greater attention to their cognitive and strategic implications (Globallooning -- Strategic Inflation of Expectations and Inconsequential Drift, 2009; Conversion of Global Hot Air Emissions to Music: aesthetic transformation and instrumentalization of vaporware, 2009).

"Union" vs "Metrification": The argument above endeavours to highlight the challenges of "harmonization" through "metrification" -- as is typical of many approaches to governance in search of a "silver bullet". At the same time, the multiplicity of single metrics -- each aspiring to be a Theory of Everything -- stimulates the quest for the "One Ring to rule them all"

The challenge of the "union" offered by the "One Ring" would appear to lie in the manner whereby it transcends and reframes such an enterprise -- calling for insight that is both "out of the ring" and "out of the box" (Dynamic Reframing of "Union": implications for the coherence of knowledge, social organization and personal identity, 2007). This is well-illustrated by the simplistic understandings of "union" and "agreement" which pervade global strategic discourse and the outcomes sought -- recently evident in the frustrations of the United Nations Climate Change Conference (2009).

Specifically the challenge would seem to call for a transcendence of simplistic polarized value systems and of the manner in which the "knower" as the "one" engages integratively with "known" reality. This is most evident in the unquestioning commitment to "positive" and the unquestioning rejection of "negative" -- despite the fact that no feedback systems can function without both, nor can light be generated. (Being Positive Avoiding Negativity: management challenge of positive vs negative, 2005).

There is therefore a case for engaging in an exploration of the implications of the reminder of the final phrase of the the core poem of The Lord of the Rings:

One Ring to bring them all and in the darkness bind them
In the Land of Mordor where the Shadows lie.

Darkness where the shadows lie: Clearly reference to "darkness" is exceptionally challenging for those committed to the "positive" -- although many epic dramas achieve enlightening insight and significance through the encounter with that quality. The reference to "shadows" is vital to many psychotherapeutic insights, including the fact that they may indeed "lie". Failure to encounter the "shadow" appropriately, especially one's own, results in its qualities being projected onto others -- as is now so evident in the post-Copenhagen blame game regarding climate change, and as was so evident following the global financial crash of 2008.

As a psychologist, Robert Romanyshyn (Psychology is Useless; Or, It Should Be, Janus Head, Fall 2000) endeavours to combine the traditions of phenomenology and depth psychology, particularly the works of Sigmund Freud and Carl Jung, notably in the light of the poet John Keats’ famed "negative capability" -- "of being in uncertainties, Mysteries, doubts, without any irritable reaching after fact and reason." (1817). It is indeed uncertainties which challenge current global strategic endeavour and the modes of thinking through which tragic suffering is faced, with only limited capability to respond effectively.

Romanyshyn explores Jung's concern late in his life at how much he had sacrificed for the sake of making his work acceptable, namely Jung's question, "Anyway why did it have to be the death of the poet?" (1975) failing appropriately to acknowledge that negative capability, lamenting the death of the poet that he was and was called to be in crafting a psychology in service to Soul and its aesthetic values. Romanyshyn notes the recognition of the extent to which the artist "lies in order to tell the truth". A degree of "lying" may be essential to the art of global governance (Emergence of a Global Misleadership Council: misleading as vital to governance of the future? 2007).

Ironically many would see the challenge of climate change, and other global issues, in relation to earlier lines in the poem:

One for the Dark Lord on his dark throne
In the Land of Mordor where the Shadows lie.

On the other hand there is an elegant symmetry with the "Dark Lord", held to be the most wanted man on the globe (Engaging with Osama bin Laden in Swat, 2009).

It is tempting to associate the reference to "Mordor" with the binding function of mordants -- especially in the context of to "bind them" as applied to the set of "rings" as ways of knowing:

A mordant is a substance used to set dyes on fabrics or tissue sections by forming a coordination complex with the dye which then attaches to the fabric or tissue. It may be used for dyeing fabrics, or for intensifying stains in cell or tissue preparations. A mordant is always a polyvalent metal ion. The resulting coordination complex of dye and ion is colloidal and can be either acidic or alkaline.

Civilization has long been committed to "enlightenment" although, again ironically, this has obscured the insights available from the dark - - including any view of the stars (Enlightening Endarkenment: selected web resources on the challenge to comprehension, 2005). of him. The descent to the underworld is a mytheme of comparative mythology found in the religions of the Ancient Near East up to and including Christianity. The process typically involves the death of a youthful life-death-rebirth deity, mourned and then recovered from the underworld by a consort or mother. Such a visit to the underworld, known as katabasis, has connotations in poetry, rhetoric, and modern psychology (where it may be associated with depression). In mythology most katabases refer to travel to the supernatural underworld.

Romanyshyn points to the learning from the Orphic myth that the "underworld" cannot be dragged into the "upper-world" of ego-
intentions without losing something essential about that underworld (The Wounded Researcher: Research with Soul in Mind, 2007). Research therefore has the character of mourning the impossibility of fully realizing in consciousness what is, inevitably, transcendent to direct, unmediated knowing -- the unsayable and the unsaid. Given the challenge highlighted by John Ralston Saul (The Unconscious Civilization, 1995), the maturity required to navigate with incomplete understanding is relevant both individually and globally (Being What You Want: problematic kataphatic identity vs. potential of apophatic identity? 2008; Unknown Undoing: challenge of incomprehensibility of systemic neglect, 2008; Global Strategic Implications of the "Unsaid": fFrom myth-making towards a "wisdom society", 2003).

Comprehending the "One Ring" through its embodiment: One of the most insightful efforts to clarify the stages of emergence -- beyond the oversimplification and subunderstanding of the insight into the "union" associated with the "One Ring" -- is that of the classic Zen Ten Ox Herding Pictures -- especially the 9th and 10th images. The relevance to global strategic development for humanity -- given any "Shadow of humanity" -- is discussed separately (Progressive integration of the shadow of non-self-reflexivity, 2007). Such progressive emergence may also be understood through the variety of metaphors of "cognitive rebirth" (Varieties of Rebirth: distinguishing ways of being born again, 2004).

Such comprehension might then be understood as enabled by a kind of interference pattern of what Romanyshyn helpfully distinguishes as three complementary "sensibilities" (perhaps to be understood as "elven rings") in his discussion of The Imaginal World and Aesthetic Sensibility (Psychology is Useless; Or, It Should Be, Janus Head):

In this essay I have been exploring a difference between three ways of knowing and being. Keats' notion of negative capability is the abyss at whose edge the poet dwells, and where the psychologist as failed poet belongs. On one side of this abyss is the scientist with his or her facts and measurements. On the other, the philosopher with his or her reasons and ideas.

Poet, philosopher, scientist! This alignment is neither a hierarchy nor a value judgment. I speak of them as types, as different styles of presence, different attunements to the world, and different ways of saying what the world asks of us. They are different sensibilities, and it is this issue of sensibility, of how each type senses the world before he or she makes sense of it, which inspires this essay. The facts which negative capability eschews are generated by an empirical sensibility, and the reasons by a rational one. At the abyss, therefore, the poet, and the psychologist as failed poet, are concerned neither with facts nor reasons. At the abyss, poet, and psychologist as failed poet, are witnesses with an aesthetic sensibility for the moment. For the moment, and not for anything beyond it. For the sense of the moment, for sensing it, and not yet for making sense of it. For the moment in its presence and not yet for any explanation of it.

As discussed separately (Present Moment Research: exploration of nowness, 2001), of related interest is the initiative of Francisco Varela (in many papers) to give an explicitly naturalized account of present nowness based on two complementary approaches: phenomenological analysis and cognitive neuroscience. (The Spacious Present: a neurophenomenology of time consciousness, 1997). He provides a valuable review of Edmund Husserl's extensive philosophical studies of "intimate temporarility", noting Merleau-Ponty's concern that "Time is not a line but a network of intentionality" (1945, p. 479). Varela presents a four-fold model of nowness based on flows and dynamical trends.

With respect to the argument above, Varela's representation of the phenomenological epoché may be fruitfully compared compared to two other representations in the following table (from Present Moment Research: exploration of nowness, 2001).

<table>
<thead>
<tr>
<th>Borromean rings (notable for their topological implications)</th>
<th>Phenomenological epoché (explored by Francisco Varela)</th>
<th>Traditional Celtic knot pattern (and its associations to the mythopoetics of the megalithic period)</th>
</tr>
</thead>
<tbody>
<tr>
<td>suspension</td>
<td>reflection</td>
<td>loting-go</td>
</tr>
</tbody>
</table>

The relationship between the three cognitive "sensibilities" to which Romanyshyn refers -- those of the poet, the philosopher, and the scientist -- are then usefully understood as intertwined or entangled as suggested by these representations. Especially interesting is the sense in which any sense of a "ring" is then better understood as a dynamic or process "cycle" (see also discussions in Psychosocial Energy from Polarization within a Cyclic Pattern of Enantiodromia, 2007; Conditions of Objective, Subjective and Embodied Cognition: mnemonic systems for memetic coding of complexity, 2007).
Interweaving singular metrics

**Three interwoven rings:** In the light of the cognitive challenge (discussed above) of reconciling aesthetics, philosophy and science, the simplest Borromean ring structure explored in knot-theoretic studies may be used to indicate the strategic challenge for global governance.

The diagram uses the Borromean ring structure to suggest both the complexity and the coherence of the relationship between three singular metrics of relevance to the challenges of global governance:

- **degrees of global warming:** This has been the focus of the debate at the United Nations Climate Change Conference (Copenhagen, 2009). The tripartite structure of the diagram, deriving from the Christian tradition and its industrial revolution, highlights the argument central to the debate that 3 degrees is totally unacceptable, and 2 degrees is already too much for many. "Unitas" suggests the desirability of 1 degree, as promoted by the majority of developing countries.

- **children per family:** To the extent that population overshoot is considered to be a challenge, more than 2 children per family ensures continuing population increase (beyond the replacement level). A policy of one child per family has notably been adopted by China -- perhaps appropriately indicated in the diagram by "Unitas". A two-child policy is used for some population groups in China, has previously been used in Vietnam, and has lately been discussed in the Philippines.

- **global hectares per capita:** The global hectare (gha) is a measurement of biocapacity of the entire earth. One global hectare is a measurement of the average biocapacity of all hectare measurements of any biologically productive areas on the planet. It is a productivity weighted area used to report both the biocapacity of the earth, and the demand on biocapacity (the ecological footprint). The sum of the world's biocapacity divided by the number hectares on the earth's surface gives the biocapacity of one average earth hectare. The term "global hectare per person" refers to the amount of biologically productive land and water available per person on the planet.

In 2005 there were 13.4 billion hectares of biologically productive land and water available and 6.5 billion people on the planet, giving an average of 2.1 global hectares per person. Using the Global Ecological Footprint Calculator, the global average footprint is about 21 global hectares (or nearly 50 acres) per capita. Lastest findings suggest that a sustainable footprint is about 15 gha (37 acres) for every person. A List of countries by ecological footprint (in gha/capita) indicates that the majority of
developing countries have a gha/capita less than one, with the more industrialized countries having a gha/capita in excess of 3. This implies that on average humanity has surpassed sustainable ecological limits by about 6 gha per capita. As an example, Australia's Ecological Footprint in the World Wildlife Fund's *Living Planet Report* (based on the *Living Planet Index*, 2008) was 7.8 global hectares (gha) per person, namely 2.8 times the average global footprint (2.7 gha), and well beyond the level of what the planet can regenerate on an annual basis -- an equivalent of about 2.1 global hectares per person per year.

The circumferential ring in the diagram above is indicative of the challenge of the binary debate and the coherence to which "units" refers. Given the slippery dynamics of the debate (much evident in relation to climate change), the following much-cited text of Chinese culture merits attention -- in relation to the nature of any central pivot (as "Lord of the Rings"):

Tao is obscured when men understand only one of a pair of opposites, or concentrate only on a partial aspect of being. Then clear expression also becomes muddled by mere word-play, affirming this one aspect and denying all the rest. Hence the wrangling of Confucians and Mohists; each denies what the other affirms, and affirms what the other denies. What use is this struggle to set up "No" against "Yes", and "Yes" against "No"? Better to abandon this hopeless effort... The possible becomes impossible; the impossible becomes possible. Right turns into wrong and wrong into right - the flow of life alters circumstances and thus things themselves are altered in their turn. But disputants continue to affirm and to deny the same things they have always affirmed and denied, ignoring the new aspects of reality presented by the change in conditions.

The wise man therefore... sees that on both sides of every argument there is both right and wrong. He also sees that in the end they are reducible to the same thing, once they are related to the pivot of Tao. When the wise man grasps this pivot, he is the canter of the circle, and there he stands while "Yes" and "No" pursue each other around the circumference. (*The Pivot from The Way of Chuang Tzu*, interpreted by Thomas Merton, Unwin, 1970)

The challenge of balancing the relationships between the functions represented by the three interlocked rings has previously been explored in the light of Venn diagrams and the architecture of three-dimensional tensegrity structures (Implementing Principles by Balancing Configurations of Functions: a tensegrity organization approach, 1979). Of particular relevance is the minimal requirement for 3 interlocking circles in order to enable the emergence of a viable 3-dimensional structure -- effectively a pattern of sustainability in design terms, potentially significant to the transcendence of disagreement (Groupware Configurations of Challenge and Harmony: an alternative approach to "alternative organization", 1979; Configuring: using disagreements for superordinate frame configuration, 1995).

The Trinitarian origin of the above representation highlights the extent to which principles fundamental to belief systems tend to be represented in geometric form, most notably through the triangle, the square and the circle. Early Christian understanding of the Trinity as challenged by the heretical doctrines of Arianism, was subsequently used to refer by contrast to other nontrinitarian theological systems (Wade Cox, *The Unitarian/Trinitarian Wars, Christian Churches of God, No. 268*). Trinitarian warfare is a topic of continuing religious preoccupation (Gregory A. Boyd, *Satan and the Problem of Evil: Constructing a Trinitarian Warfare Theodicy*, 2001). It is possible that these differences, and their consequences for the separation between Catholic and Orthodox understandings, may offer learnings regarding current challenge of global governance in relating the themes associated with each of the three circles in the diagram, to each other and to the whole. Global governance might even be understood as a "theological" challenge.

Molecular Borromean rings provide an example of a mechanically-interlocked molecular architecture in three dimensions in which three macrocycles are interlocked in such a way that breaking any macrocycle allows the others to disassociate. They are the smallest molecular examples of Borromean rings and are suggestive (in the above context) of the dynamic relationship between interwoven singular metrics.

<table>
<thead>
<tr>
<th>Molecular Borromean rings</th>
<th>Schematic equivalent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crystal structure</td>
<td>Schematic equivalent</td>
</tr>
<tr>
<td>(as reported by James Fraser Stoddart et al. <em>Science</em>, 2004, 304, 1308-1312. It shows a molecular Borromean ring with the grey spheres representing zinc(II) ions)</td>
<td></td>
</tr>
<tr>
<td>(from Wikipedia)</td>
<td></td>
</tr>
</tbody>
</table>

*Five interwoven rings*: Whilst the three-fold Borromean pattern is readily comprehensible -- although more complex than the framing by global governance focused on disparate single metrics -- some knot-theoretic links contain multiple Borromean ring configurations. The question is whether these are in some way of greater cognitive relevance to global governance.

The example below is a rendering of that in the *Principia Discordia*, itself an example of mythopoeisis. It is a Discordian religious text written by Greg Hill (Malakeupy The Younger) and Kerry Thornley (Omar Khayyam Ravenhurst), originally published under the title "Principia Discordia or How The West Was Lost" (1965). The name is intended to signify "The Principles of Strife". The *Principia* describes Discordianism, the Discordian Society and its Goddess Eris.
The mandala is made of five interlaced irregular nonagons (the "Fellowship of the Ring"?), fitted within an overall pentagon. No two nonagons are directly interlinked, but any three adjacent nonagons (for example, yellow, green and blue) are in a Borromean rings configuration. The structure is sufficiently complex to be suggestive of a pattern that might be used to hold the complete set of Polti's 36 plots characteristic of human drama (as mentioned above). These are presumably exemplified by the problematic dynamics of global governance -- effectively the pattern of narrative tunnels through which globality is variously imagined. An epic held to be complete, such as The Lord of the Rings, may then be understood as mapping out in narrative form the complete set of such plots. The extent to which it achieves this may be indicative of its power as an attractor.

Of possible relevance to such explorations are the understandings associated with the classic martial arts text The Book of Five Rings, appreciated in certain approaches to strategic thinking. The five "books" of which the manual is composed refer to five different elements of battle, corresponding to the five different physical elements in life recognized in various Eastern religions: Book of Earth, Book of Water, Book of Fire, Book of Wind, Book of No-thing.

For other examples of linked structures which contain multiple Borromean rings configurations, Wikipedia proposes Image:Borromean-cross.png and Image:Borromean-chainmail-tile.png. As shown below, this highlights the possibility of "zooming" into greater complexity, corresponding to understanding of higher degrees of systemic interlinking.

Emergent integrity of a configuration of cognitive cycles -- a "Lord of the Rings"

The following might be a way of fruitfully and self-reflexively interrelating the 3 sets of "rings" or cycles (3-fold, 9-fold, and 7-fold) and thereby providing a sense of an emergent cycle to integrate and "rule them all" -- the "Lord of the Rings":

- **3-set**: reframing what was noted above as aesthetics, philosophy and science as the "cognitive arts", "natural philosophy" and "technique" respectively, accepting the subtle shifts in interpretation as being characteristic of the generality implied by each. The rings of the 3-set distinguish the complementary styles of knowing needed to understand the dynamic engagement of the 9-set and the 7-set

- **9-set**: the distinct cycles might be usefully understood as modes of attention that are not independently sustainable, whatever the indications to the contrary in the short-term -- hence their "wraith-like" quality. Of greater significance is their implied polarization between an internalized cognitive abstraction and an externalized sense of "reality". The latter organizes the environment in terms of what might be fruitfully clustered as a 9-fold set of "natural" cycles -- hence the "planetary boundaries" (previously discussed) -- perhaps systemic echoed through a 9-fold set of metabolic pathways. The former might be understood as a 9-fold set of cognitive "biases" or "orientations" which are mutually correcting within the set (as with the 2-fold complementarity between the equally "erroneous" wave and particle understandings of light). Explorations of the enneagram are helpful in distinguishing the variety of cognitive modalities.

The challenge with this set -- and for their respective "wraiths" -- is the engagement across the gap between "internal" and "external" modes. It is here that the 3-fold set of understandings is fundamental to the cognitive construction of that "bridge" and
how the internalized "plugs into" the externalized (and vice versa). The cognitive bridge then has the quality of a "correspondence", noting the ambiguity between the older "symbolist" and the more recent "scientific" variants (Theories of Correspondences -- and potential equivalences between them in correlative thinking, 2007).

Using an electrical metaphor, the bridge might for example be understood as operating like a transformer in which there is indeed no tangible "connection" between the wiring carrying one voltage and that carrying another. The bridge then takes the form of electromagnetic induction across the gap between the two circuits -- namely, in this case, between internalized and externalized understandings of reality. The dynamic within the one effectively entrains that within the other. The two understandings are then to be understood as "inductively coupled" (see also discussion in Electrical Systems as a Guiding Metaphor for Stages of Group Dialogue, 2001).

Especially interesting is any experiential dysfunctionality between the sense and behavioral patterns of individuality and the reality of daily life, namely in the form of so-called lifestyle diseases. The suggests the merit of exploring a 9-fold clustering of such diseases as representing behavioural "biases" that call for correction, rebalancing or better integration as a set.

- 7-set: these rings might best be understood in terms of the phases of any cycle in which some form of "work" is done in its most general sense. The emphasis is on the technique and timing through which the integrity of the cycle is sustained. Useful insights into the organization of learning/action cycles are provided in the explorations of Arthur M. Young (The Reflexive Universe: Evolution of Consciousness, 1976).


Musical instruments offer a useful metaphor for distinguishing the ways in which the above sets can be understood and the cognitive roles they play. Such instruments can then be understood as associated with distinct ways of knowing. Appropriately the classification of musical instruments continues to evolve beyond the most common 3-fold set: string, wind and percussion (Musical instrument classification). An orchestra may have a wide variety of instruments that can indeed be clustered into that 3-fold set. For the purpose of this argument, one might image a 9-fold clustering as representative of the spectrum of modes of attention. This is then the requisite variety to achieve a meaningful symphonic opus -- rendering comprehensible and emergent order -- based on a vital combination of musicality and technique.

The musical metaphor provides a context through which to identify the nature of the binding integrity associated with a creative opus -- too readily confused with the composition of the score (as a "metric") or the directing role and understanding of a conductor (as "Lord of the Rings"). The challenge for any form of governance is the subtle nature and expression of that role -- of the "One Ring to Rule them All" -- beyond the inadequacies of the all too familiar simplistic forms of direction and governance. Catalyst, enabler and mediator hold other dimensions that emerge through engagement with the music in that role -- through the cyclic expression of the various "rings". It is this that gives integrative expression to the 3-fold emergence of value, viability and operacy. The necessarily subtle understanding of "rule" is then itself emergent.

The charm of the mythopoeic for anybody in this case is that the "Lord of the Rings" -- the Ringmeister -- is as much oneself as any distant governor of the world. Everyone is then necessarily an emergent "Lord of the Rings" in terms of the understanding of the operation of the "One Ring to Rule them All" -- governing the range of cognitive rings and cycles vital to individual systemic survival. But as the tale illustrates, it is the quality and subtlety of that understanding which is necessarily to be challenged given the possibility of premature closure on dysfunctional rigidity. Identity in that role is essentially dynamic and unexpressible, as previously explored (Emergence of Cyclical Psycho-social Identity Sustainability as "psychically" defined, 2007; Being What You Want: problematic kataphatic identity vs. potential of apathetic identity? 2008). It relates to the exploration of entelechy by the human potential movement (Entelechy: actuality vs future potential, 2000).

In metaphoric terms, the tale may also be understood as a "vehicle" for understanding equipped with various sets of "wheels" to give it traction over varied terrain, to give it motive power, and to enable it to be driven -- namely the sets of rings or cycles. This does not preclude the design of other "vehicles" with other combinations of "wheels" (Metaphors as Transdisciplinary Vehicles of the Future, 1991).

Conclusion

In the quest for a single metric to encompass any (strategic) domain, there is a case for exploring the value of an analogue to the renowned Turing Test -- a "Metric Test". This would be a test of a metric's ability to distinguish between a system in which human factors play a significant role and a simulation of such a system in which humans are reduced to (complex) mathematical objects that do not engage proactively and self-reflexively with their environment -- even, as they do, to the point of challenging the metric itself.

The test would fail if the metric was unable to distinguish a reduced "ersatz" institutional "sustainable" environment (a space colony, a penal colony, an educational institution, etc) from one in which humans found it meaningful to live. The merit of the test would be to distinguish metrics whose adequacy was only evident in simplistic situations -- minimalistic sustainability, to be caricatured as an intensive farm (uncluttered by the richness with which many associate a meaningful life). The strengths and limitations of a single metric, as currently envisaged and applied within a global context, would then call for reflection on how they might be applied to the
cognitive challenges experienced by individuals -- how their significance might be "personalized", in the spirit of "think globally, act locally".

It is most curious that both the Gaussian Copula and the Kaya Identity, metrics of such global significance, were developed by researchers with respectively a Chinese and a Japanese cultural background -- potentially consistent with the predictions of Susanthna Goonatilake (Toward a Global Science: mining civilizational knowledge, 1999). Insights from the western mythopoeic framework offered by The Lord of the Rings could then be fruitfully contrasted with insights into governance and sustainability inherent in the Mahabharata and the Ramayana of Hinduism -- two of the longest epic tales in the world. One indication of the relevance of such a cultural framework are the insights of the Arthashastra (4th Century B.C.) into political economy offered by Kautilya (Balakrishnan A/L Muniapan, Kautilya's Aphorisms in Management, 2007). These appropriately challenge the dominance of conventional western frameworks, as argued by S. Chatterjee (Challenging the Dominance of Western Managerial Models: Reflections from the Wisdom and Traditions of Asia, International Conference on Integrating Spirituality and Organizational Leadership, University of Delhi, India, February 8-10, 2007).

The cognitive challenge of the times is appropriately illustrated by popular European rejection by the younger generation of over 30 songs in the Eurovision Song Contest of 2006 as bland, unimaginative expressions of classical "positive" values -- in favour of historically unprecedented support for a rank outsider in the form of a self-questions, humorous presentation of "satanic" lyrics by a Finnish heavy metal rock group masked as demons. Curiously, in the light of its "demonic success" in 2006, Finland's widely recognized rapid uptake of information technology had been acknowledged in the accession speech of the Finnish President of the European Commission on the New Dimensions of Learning in the Information Society (July 1999) -- by referring first to the influential role of archetypal figures in the Kalevula, the epic poem of Finnish culture (cf Newsweek, May 1999; Wired, September 1999).

The role of drama inherent in mythic representation may prove to be fundamental to social transformation in the 21st century, as suggested by the unforeseen collapse of the U.S.S.R. in 1991 (Gorbachev: Dramaturge ?! Participative Democracy vs. Participative Drama -- lessons on social transformation for international organizations from Gorbachev, 1991). There is, for example, a case for contrasting the grooming and promotion by the Theosophical Society of Jiddu Krishnamurti (1895-1986) as the Star in the East with the hopeful worldwide promotion a century later of Barack Obama as the "Star of the West" -- effectively consecrated in that role by the Nobel Peace Prize Committee in 2009. Both have been heralded as harbingers of a New World Order -- whether understood as a new socio-political order or as the manifestation of a secretive conspiracy to rule the world via world government and globalization. It is within such a context that the function of any single metric merits evaluation.

Given the three-fold pattern of rings discussed above, it is curious to note that it was central emblem to the distinctive flag of the Pax Cultura (or Roerich Pact), an international treaty signed in 1935 by the United States and 20 Latin American nations, agreeing that "historic monuments, museums, scientific, artistic, educational and cultural institutions" should be protected both in times of peace and war. It was intended as a cultural analog to that of the Red Cross for medical neutrality. The treaty was signed by the Soviet Union in 1959; both the Pact, and its instigator Nikolai Roerich, continue to be acclaimed by Russia (cf L. Shaposhnikova, The Necessity of Roerich's Pact in Today's World, Cultura et Vremya, 2005, 4).

The Roerich Pact was superseded by the distinctive marking of cultural property as defined by the Hague Convention for the Protection of Cultural Property in the Event of Armed Conflict (1954). However the relevance of the pattern to global governance (as discussed above), especially its embedding in cultural tradition celebrated in mythopoeesis, suggests the possibility of a "Flag of Sustainable Global Governance" -- systemically based on the three-fold pattern above, with its challenging interwoven metrics for sustainable global governance. All that is required is an accompanying epic poem and song!

The attractive cognitive riches of aesthetic "metrics" offer a path beyond measurement to effective strategic engagement -- avoiding the impoverishment and cognitive trap of any singular narrative (Promoting a Singular Global Threat -- Terrorism: Strategy of choice for world governance, 2002).

If the "Dark Lord" of The Lord of the Rings, commanding the "hideous strength" of C. S. Lewis, is indeed to be understood in terms of "the Beast" of many myths, there would seem to be a case for exploring the pattern of aesthetic associations and resonances through which such bestiality is traditionally "tamed". The case can be made with respect to current challenges of global governance (Poetry-making and Policy-making: Arranging a Marriage between Beauty and the Beast, 1993; A Singable Earth Charter, EU Constitution or Global Ethic? 2006; Poetic Engagement with Afghanistan, Caucasus and Iran: an unexplored strategic opportunity? 2009).

Given the current global focus on Afghanistan as the source of terror, it is perhaps appropriate to recall the establishment by Roerich of the Urusvati Himalayan Research Institute in that region (and now in process of reconstitution). The original Roerich Pact made a case for the manner in which beauty and knowledge contribute to the kind of thinking that may indeed be essential to governance in the 21st century. As stated by Roerich: Wealth in itself does not generate Culture. But broadened and subtler thinking and the sense of Beauty produce that subtly... It is the cognitive implication of aesthetics that may be vital to global governance of the future (Aesthetics of Governance in the Year 2490, 1990).
Role of imagination

C. S. Lewis (The Chronicles of Narnia, 1950-1956) was a close associate of J. R. R. Tolkien during his elaboration of The Lord of the Rings. He also explored imaginatively the nature of monstrosity in society (That Hideous Strength, 1945). Both were members of the Inklings, a group which promoted exploration of a mythopoeic approach.

As noted by Robert Haston Smith, Lewis held that poetic language "is by no means merely an expression, nor a stimulant, of emotion, but a real medium of information, whether (he carefully added) that information be false or true. . . . Though immensely subtler, the human imagination is, in its own distinctive way, just as absolute as are universal moral laws or syllogisms. All are part and parcel of the same underlying reality that is itself inaccessible to the mind through any direct means." (Patches of Godlight: the Pattern of Thought of C. S. Lewis, University of Georgia Press, 1981, p. 136). [see also Ken Myers, C. S. Lewis on Imagination, 2008]

The biologist Gregory Bateson, in explaining why "we are our own metaphor", pointed out to a conference on the effects of conscious purpose on human adaptation that:

"One reason why poetry is important for finding out about the world is because in poetry a set of relationships get mapped onto a level of diversity in us that we don't ordinarily have access to. We bring it out in poetry. We can give to each other in poetry the access to a set of relationships in the other person and in the world that we are not usually conscious of in ourselves. So we need poetry as knowledge about the world and about ourselves, because of this mapping from complexity to complexity." (Cited by Mary Catherine Bateson, Our Own Metaphor: a personal account of a conference on the effects of conscious purpose on human adaptation (1972, pp. 288-9)

References

David Abram. The Spell of the Sensuous: perception and language in a more-than-human world. 1997 [review]
Karen Armstrong. A Short History of Myth. 2005
Richard E. Borcherds. What is the Monster? Notices of the A.M.S., 2002 [text]
Kenneth Boulding:


Edward de Bono:

- Six Thinking Hats. 1985 [summary]
- Six Action Shoes. Fontana, 1991

Kevin Drum. The Gaussian Copula. Mother Jones, 24 February 2009 [text]
Marcus du Sautoy. Patterns that Hold Secrets to the Universe. [text]
Ellen Goodman. The 'human' factor is missing in Copenhagen. The Boston Globe, 11 December 2009 [text]
Susantha Goonatilake. Toward a Global Science: mining civilizational knowledge. Indiana University Press, 1999

Sallie McFague:


Darrell A. Posey. Cultural and Spiritual Values of Biodiversity: a complementary contribution to Global Biodiversity Assessment. 1999


Robert D. Romanyshyn:
- Technology as Symptom and Dream. Routledge, Chapman and Hall, 1989
- Psychology is Useless; Or, It Should Be. *Janus Head*, Fall 2000 [text]

Mark Ronan. *Symmetry and the Monster: one of the greatest quests of mathematics*. Oxford University Press, 2006 [review]

Steven M. Rosen:
- Dimensions of Apeiron: a topological phenomenology of space, time, and individuation. Value Inquiry Book Series, 2004 [text]


Felix Salmon. *Recipe for Disaster: the formula that killed Wall Street*. Wired, 17.03, March 2009 [text]


Christopher Steiner. *Automate This: How Algorithms Came to Rule Our World*. Portfolio Hardcover, 2012


Dave Trimble. *How to Measure Success: uncovering the secrets of effective metrics*. BPR OnLine Learning Center, 2001 [text]


Francisco Varela:


Maurice Yolles: