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Sustaining a Community of Strange Loops

Comprehension and engagement through aesthetic ring transformation

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Introduction

This is a development of an argument in an earlier document (*Warp and Weft of Future Governance: ninefold interweaving of incommensurable threads of discourse*, 2010) with regard to the juxtaposition of the 3-fold interweaving of the argument of [Jennifer Gidley](#) (*A Macrohistorical Planetary Tapestry: the fascinating integral narratives of Steiner, Gebser and Wilber*, 2007) in relation to that proposed by [Douglas Hofstadter](#) (*Gödel, Escher, Bach: an Eternal Golden Braid*, 1979). Gidley's text forms part of her exploration of *The Evolution of Consciousness as a Planetary Imperative* (2007).

The commentary here relates specifically to Hofstadter's subsequent articulation of the cognitive challenge (*I Am a Strange Loop*, 2007) and the question it raises with respect to community governance and collective identity. Namely, **is humanity to be understood in some way as a strange loop?** Or, framed otherwise, **perhaps any interpersonal relationships are better understood as a set of strangely interlocking loops?**

References are to be found in the earlier document of which this is effectively an annex. As noted there, the cognitive implications of loops as rings benefit from the studies of "ring composition" in literature, as reviewed by [Anthony Blake](#) (*Decoding the Past: ring composition and sacred number*), notably with respect to the work of anthropologist [Mary Douglas](#) (*Thinking in Circles: an essay in ring composition*, 2007). The argument has been further developed in a subsequent paper (*Enabling Governance through the Dynamics of Nature: exemplified by cognitive implication of vortices and helicoidal flow*, 2010).

Mythopoetic articulation

Gidley (2007) makes a case for an aesthetic dimension to integrative exploration:

I enact a deepening of integral evolutionary theory by honoring the significant yet undervalued theoretic components of participation/enactment and aesthetics/artistry via Steiner and Gebser, as a complement to Wilber.

In an appendix she endeavours to "hold an aesthetic lens to the evolution of consciousness through examples from the genealogy of writing" (*Literacy Unveiled: Art as Language from a Palaeoaesthetic Perspective*, 2007).

In previous discussions the possible use of myth in support of global governance was explored (*Relevance of Mythopoetic Insights to Global Challenges: cognitive integration implied by the Lord of the Rings*, 2009; *Cognitive Cycles Vital to Sustainable Self-Governance: The Lord of the Rings as an emergent integrative dynamic*, 2009). The latter paper cited the comment on the relevance of the poetic form in explaining why "we are our own metaphor" -- as presented by the biologist [Gregory Bateson](#) to a conference on the effects of conscious purpose on human adaptation:

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*

The merit of such an approach is also to be found in the work of [Kenneth Boulding](#), an instigator of general systems methodology, who was wont to summarize the insights of academic conferences in poetic form (*Ecodynamics: A New Theory of Societal Evolution*, Sage, 1978). General systems notably highlighted characteristic isomorphisms between disparate systems.

A more general argument with regard to the relevance of poetry-making to governance is presented elsewhere (*Poetry-making and Policy-making: arranging a marriage between Beauty and the Beast*, 1993). This has since been used with respect to reframing strategic preoccupations (*Ensuring Strategic Resilience through Haiku Patterns: reframing the scope of the "martial arts" in response to strategic threats*, 2006), most notably with respect to crises in the Middle East (*Poetic Engagement with Afghanistan, Caucasus and Iran: an unexplored strategic opportunity?*, 2009).

The concern may be differently expressed as one of *Imagining the Real Challenge and Realizing the Imaginal Pathway of Sustainable Transformation* (2007) -- or perhaps *In Quest of Mnemonic Catalysts -- for comprehension of complex psychosocial dynamics* (2007). Many authors have variously articulated the fundamental importance of image and imagination as a means of engaging creatively with the future (Kenneth Boulding, *The Image: knowledge in life and society*, 1956; Fred Polak, *The Image of the Future*, 1973; Colin Wilson, *The Strength to Dream: literature and the imagination*, 1961). Interestingly, Thomas Homer-Dixon raises the question as to whether human capacity in this respect will be adequate to the challenge (*The Ingenuity Gap*, 2000).

As noted above, the argument of Douglas Hofstadter for an individual being "a strange loop" raises questions about how collectivities, notably communities, might then be understood in terms of strange loops -- especially through the manner in which understanding is itself called into question. Hofstadter has chapters on "entwinement" (referring to multiple strange loops in one brain) and on "how we live in each other", with an extensive discussion of "multiple simultaneous locations of self". Given Bateson's argument, reinforced by that of Gidley, there is then a case for experimenting with suggestive poetic expressions of the complexity implied by such strange loops in a collective context, notably in relation to the cycles essential to sustainability. Whether simple or trivial, one illustrative example is:

*If I am a strange loop
Could you be one too?
Stranger still the community
That might sustain us two?*

Experimental "poetic" development of systemic insights

The question in what follows is whether more can be made of this approach as a means of facilitating comprehension and engagement. The experimental approach to "forms of presentation" follows from work associated with an initiative, instigated by Johan Galtung, of the Goals, Processes and Indicators of Development (GPID) project of the United Nations University (*Forms of Presentation and the Future of Comprehension*, 1984).

Myth: An exemplar of the mythopoetic genre -- of worldwide contemporary significance -- is the epic tale of J. R. R. Tolkien (*The Lord of the Rings*, 1954). This might be understood as a celebration of the significance and power of "rings" in a cognitively complex system. Its scenario is classically synthesized in poetic form:

Mythical rings
*Three Rings for the Elven-kings under the sky,
Seven for the Dwarf-lords in their halls of stone,
Nine for Mortal Men doomed to die,
One for the Dark Lord on his dark throne
In the Land of Mordor where the Shadows lie.
One Ring to rule them all, One Ring to find them,
One Ring to bring them all and in the darkness bind them
In the Land of Mordor where the Shadows lie.*

In the earlier paper (*Relevance of Mythopoetic Insights to Global Challenges: cognitive integration implied by the Lord of the Rings*, 2009) this mythopoetic scenario was used as a template to hold issues relating to global governance.

Strange loops: The above pattern may be further transformed through allusions in relation to strange loops, as previously discussed (*Warp and Weft of Future Governance: ninefold interweaving of incommensurable threads of discourse*, 2010).

Strange loops
*Three Loops for the Mages under the sky -- Steiner-Gebser-Wilber?
Seven for the Dwarf-lords in their halls of stone -- Gödel-Escher-Bach and others?
Nine for Mortal Men doomed to die -- through their dysfunctional behaviour?
One for the Dark Lord on his dark throne
Ruling humanity's Unconscious Civilization where the Shadows lie?
One Loop to rule them all, One Loop to find them
One Loop to bring them all and in the darkness bind them
Through the strange connecting loop via the Netherworld?*

In the above variant:

- the iconic exemplars of comprehensive integrative understanding of the development of human consciousness, as identified by

Gidley (2007) -- Steiner, Gebser and Wilber -- are appropriately substituted for the "elven kings", given the subtlety of their preoccupations in contrast with those of ordinary mortals. Use of "images", if not "I-Mages", offers an allusion to their focus on the evolution of consciousness of the "I", to the role of "images", and to that of the ego (to which reference is made below). The cognitive relevance of such reference to "magic" can be fruitfully associated with:

- Douglas Hofstadter's *Metamagical Themas*, an eclectic collection of articles written for *Scientific American* during the early 1980s, and subsequently published together in book form
- Arthur Clarke's [third law](#): *Any sufficiently advanced technology is indistinguishable from magic*
- the sense in which "magic" remains the ultimate accolade of qualitative experience (performance art, dining, interpersonal relationships, tourism, etc)

Such implications can be further discussed (*Magic, Miracles and Image-building: Poetry-making and Policy-making*, 1993). Given the reliance by governance on image and "spin", there is a case for recognizing the "I-magic" associated with any strange loop.

- the "dwarf lords" can then be fruitfully understood as relatively diminished through their cognitive specialization, whatever their stature in their own realms -- as with those identified by Hofstadter (1979), namely Gödel, Escher and Bach, together with other exemplars defining the fundamental spectrum of disciplines and modes of knowing. As "faculties" these may be understood as ensconced in their academic "halls of stone" with the latter then offering a delightfully appropriate reinterpretation of elegant "dry stonewalling" and the cognitive and procedural rigidity this reinforces in the problematic practice of other established institutions. Perhaps to be understood as the "stonehalling" so typical of the "corridors of power"?
- the fatal destiny of "mortal men" is then usefully associated with their problematic patterns of behaviour, most notably manifesting as lifestyle diseases in their various forms (*Cognitive Implications of Lifestyle Diseases of Rich and Poor*, 2010; *Patterns essential to individual and global health?* 2010; *Implication of Personal Despair in Planetary Despair*, 2010)
- the "unconscious civilization" theme has been articulated by John Ralston Saul (*The Unconscious Civilization*, 1995), also explored by Carl Jung in psychoanalytic terms as the collective unconscious and the "shadow"
- the related role of the psychological netherworld has been separately explored (*Designing Global Self-governance for the Future: patterns of dynamic integration of the netherworld*, 2010).

Systemic cycles: The pattern might be further transformed by substituting "cycles" -- common in ecological and economic discourse -- rather than the feedback "loops" (more generically understood in cybernetics). Both forms are however recognized in usage such as "vicious loops" and "vicious cycles", especially with reference to violence (*Dysfunctional Cycles and Spirals: web resources on "breaking the cycle"*, 2002) .

Cycles of sustainability

*Three Cycles for the environmental systems of Air, Water and Fire?
Seven for the disparate Eco-scientists in their halls of stone?
Nine for Mortal Men doomed to die -- through ignoring Cycles of Sustainability?
One for the Dark Lord on his dark throne
Embodying Uncertainty and the shadowy Unknown?
One Cycle to rule them all, One Cycle to find them
One Cycle to bring them all and in the darkness bind them
Namely the Adaptive Cycle integrating the cognitive Netherworld?*

In the above variant:

- the three environmentally vital cycles of Air, Water and Heat, might indeed have been appropriately symbolized by distinct "elven kings", although subtler entities of mythologies and traditional knowledge systems around the world might offer less anthropomorphic entities with more trans-sexual associations
- as the natural complement to Air-Water-Fire, "Earth" is then implicit in the "land" and the essentially "frozen categories" with which the "eco-scientists" are variously preoccupied -- whether "eco-nomists" or "eco-logist"s. This then alludes to the possibility that their rigidity might be unfrozen (*Framing the Global Future by Ignoring Alternatives: unfreezing categories as a vital necessity*, 2009). Commonly associated phonetically with the "eco" prefix is the problematic challenge of the "ego" factor as it relates to the *Cognitive drama of the disciplines* (2009). In a similar vein is the extent to which the eco-disciplines may be "economical with the truth".
- with respect to the humans "doomed to die", a ninefold pattern has been explored with respect to the boundaries of planetary ecosystems and the constraints on human response (*Human remedial capacity: a ninefold challenge?*, 2009)
- the strategic issue of "Unknowns" has been notoriously highlighted by the US Secretary of Defense, Donald Rumsfeld (*Unknown Undoing: challenge of incomprehensibility of systemic neglect*, 2008). It may be fruitfully related to the manner in which strategies are designed with the "unconscious" omission of a key insight (*Lipoproblems: developing a strategy omitting a key problem*, 2009).
- navigating that shadowy world might fruitfully be understood as a necessary phase in the adaptive cycle (*Adaptive Hypercycle of*

Sustainable Psychosocial Self-organization, 2010; *Enlightening Endarkenment: selected web resources on the challenge to comprehension*, 2005).

Knowledge cybernetics: As a further transformation, a more systemic general language might be used.

Cybernetics of human knowing

*Three strange attractors to be fruitfully interwoven
Seven disparate ways of knowing to be artfully integrated
Nine fatally problematic human behaviours to be reconciled
One unconscious blindspot to be self-reflexively re-cognized
One enactive insight to embody the connecting pattern*

In the above variant:

- the first line recognizes both the the nature of values as "strange attractors" and the minimum threefold interlocking, clarified by R. Buckminster Fuller, as necessary to an emergent system (*Human Values as Strange Attractors: coevolution of classes of governance principles*, 1993; *Spherical Configuration of Interlocking Roundtables: Internet enhancement of global self-organization through patterns of dialogue*, 1998).
- with regard to the disparate "ways of knowing", reference may be made to various efforts to distinguish them and the constraints on the capacity of human resolution of distinctions (*Systems of Categories Distinguishing Cultural Biases*, 1993). Beyond "vision", this relates also to "re-cognizing" the range of possibilities of integrative "union" (some yet to be discovered) and the potential need for polysensorial modes of knowing (*Dynamic Reframing of "Union": implications for the coherence of knowledge, social organization and personal identity*, 2007; *Strategic Challenge of Polysensorial Knowledge: bringing the "elephant" into "focus"*, 2008).
- as noted above, the issue of "problematic human behaviours" has been reviewed (*Human remedial capacity: a ninefold challenge?*, 2009).
- aside from the "unconscious" issue articulated by Saul (1995), as noted above, that of self-reflexivity has been separately explored (*Consciously Self-reflexive Global Initiatives: Renaissance zones, complex adaptive systems, and third order organizations*, 2007). Consideration can also be given to the aperspectival argument of Jean Gebser and of Alec Schaerer (*A General Methodology for Reconciling Perspectivity and Universality*, 2008)
- with regard to the "enactive insight" in the final line, this has been discussed separately (*En-minding the Extended Body: enactive engagement in conceptual shapeshifting and deep ecology*, 2003; *Walking Elven Pathways: enactivating the pattern that connects*, 2006; *Existential Embodiment of Externalities*, 2009).

Riddles and puzzles: In the light of Gidley's case for "post-formal" discourse, there is a strong argument for further transformation through reframing the assertions of conventional "kataphatic" discourse. Possibilities including formulation in terms of questions or as a form of puzzle -- even the traditional riddle with which leaders of the past have been confronted in myth and legend. Enthusiasm for this mode is evident in the appeal of *The Da Vinci Code* (2003), its imitators and software requiring creative engagement (such as *Myst* and its imitators).

Questions: In the following transformation, use has been made of the classical set of 7 WH-questions (what, how, which, why, when, where, who). These are also interesting because of their possible relationship to the set of catastrophes noted by catastrophe theory (*Conformality of 7 WH-questions to 7 Elementary Catastrophes: an exploration of potential psychosocial implications*, 2006).

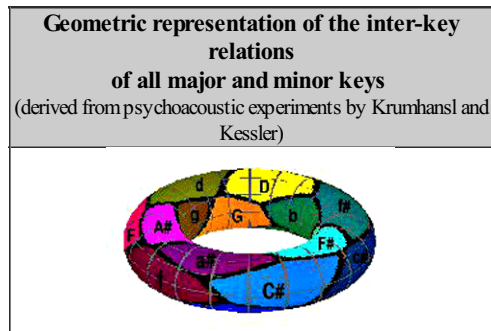
Strategic riddles for the future

*What three strange qualitative attractors should one seek magically to intertwine?
How to integrate the requisite variety of which seven disparate modes of knowing?
Why are nine systemically counterproductive behaviours such a challenge to recognize?
When and where will the disastrously unforeseen next emerge?
Who is the enactor of the connecting pattern to be most fruitfully embodied?*

Reframing the question-answer dynamic: Such a set of questions -- a ring of questions -- might be further transformed by rethinking their formulation in the light of the traditional Zen *koan*. The issue is how to shift from the conventional question-to-answer mode to one in which the question evokes reflection on itself such as to transform the answer into a new modality (*Am I Question or Answer?* 2007; *Clustering Questions of Existential Significance*, 2010).

In that sense the *koan* process can be understood as a fundamental educational process -- eliciting evolution of consciousness.

Cognitive implications of music: The transformation might also be taken further in the light of the epistemological arguments regarding the cognitive role of music. Such explorations are facilitated by the work of Dmitri Tymoczko (*The Geometry of Musical Chords, Science*, 2006). As noted separately, music has always been associated with tanatalizing insights into the "circulation of the light" (*Circulation of the Light: essential metaphor of global sustainability?* 2010). As mentioned there, it is therefore of considerable interest to note the results of psychoacoustic experiments by C L Krumhansl and E J Kessler (*Tracing the dynamic changes in perceived tonal organization in a spatial representation of musical keys*, Psychological Review, 1982) of the inter-key relations of all major and minor keys can be represented geometrically on a torus -- as shown by Benjamin Blankertz, Hendrik Purwins and Klaus Obermayer (*Constant Q Profiles and Toroidal Models of Inter-Key Relations -- ToMIR*, 1999) in the following image.



Further implications have notably been developed by [Antonio de Nicolas](#) (*Meditations through the Rg Veda*, 1978) regarding the use of languages based on tone in his study of the four complementary conceptual languages of the *Rg Veda* considered necessary to hold the complexity of insights and experience. His explorations were associated with the musical theory of [Ernest G. McClain](#) (*Myth of Invariance: the origins of the gods, mathematics and music from the Rg Veda to Plato*, 1976) and offered the following insight relevant to the nature of cognitive embodiment.

A Singer as a Strange Loop?

Therefore, from a linguistic and cultural perspective, we have to be aware that we are dealing with a language where tonal and arithmetical relations establish the epistemological invariances....Language grounded in music is grounded thereby on context dependency; any tone can have any possible relationship to other tones, and the shift from one tone to another, which alone makes melody possible, is a shift in perspective which the singer himself embodies. Any perspective (tone) must be 'sacrificed' for a new one to come into being; continuity, and the 'world' is the creation of the singer, who shares its dimensions with the song.

In ancient times, the infinite possibilities of the number field were considered isomorphic with the infinite possibilities of tone...*Rg Veda* man, like his Greek counterparts, knew himself to be the organizer of the scale, and he cherished the multitude of possibilities open to him too much to freeze himself into one dogmatic posture. His language keeps alive that 'openness' to alternatives, yet it avoids entrapment in anarchy. It also resolves the fixity of theory by setting the body of man historically moving through the freedom of musical spaces, viewpoint transpositions, reciprocities, pluralism, and finally, an absolutely radical sacrifice of all theory as a fixed invariant.

(Antonio de Nicolas, *Meditations through the Rg Veda*, 1978, p. 57)

This was cited in the argument for *A Singable Earth Charter, EU Constitution or Global Ethic?* (2006).

Implication of strange loops for governance -- from fiction

Written long before the study of strange loops by Hofstadter, a remarkable description of their cognitive implications is implied in a collective situation by Nobel Laureate [Doris Lessing](#) (*The Making of the Representative for Planet 8*, 1982). Its relevance to governance, as the fourth book in the *Canopus in Argos* series, lies in its description of the fate of an endangered planet, under the care of the benevolent galactic empire Canopus. The book includes an *Afterword*, commenting on the series as a whole, in which she concludes with the statement:

It seems to me that we do not know nearly enough about ourselves; that we do not often enough wonder if our lives, or some events and times in our lives, may not be analogues or metaphors or echoes of evolvments and happenings going on in other people? -- or animals? -- even forests or oceans or rocks? -- in this world of ours or, even, in worlds and dimensions elsewhere.

In the challenging tale itself Lessing offers a description of the progressive psychosocial transformation and mutual cognitive entanglement -- surprisingly consonant with the arguments of Hofstadter -- associated with the traumatic pressures to which the population was subjected by the planetary crisis:

...we saw how those old bodies of ours inside their loads of hide were losing their shapes, how the atoms and molecules were losing their shapes, how the atoms and the molecules were losing their associations with each other, and were melding with the substance of the mountain. Yes, what we were seeing now with our new eyes was that all the planet had become a fine frail web or lattice, with the spaces held held there between the patterns of the atoms. But what new eyes were these that could see our old home thus, as interlocking structures of atoms, and where were we, the Representatives -- *what* were we, and how did we seem to those who could watch us, with their keener finer sight? For, certainly as we changed eyes and ways of seeing so that every moment it seemed that we inhabited a different world, or zone, or reality, it must be that others could watch us, see us -- but see what?... if we had lost what we had been, then we were still something, and moved on together, a group of individuals, yet a unity, and had to be, *must* be, patterns of matter, matter of a kind, since everything is.... These were the web and the woof and the warp of our new being.... and our minds were telling us that we were still a tenuous though strict dance, just as our old minds had told us what we were, though we had not had eyes to see what we were.

The cognitive entanglement has been noted by various authors (David Abram, *The Spell of the Sensuous: perception and language in a more-than-human world*, 1997; Gregory Bateson, *Mind and Nature: a necessary unity*, 1979; Henryk Skolimowski, *The Participatory Mind: a new theory of knowledge and of the universe*, 1995; Warwick Fox, *Toward a Transpersonal Ecology: developing new foundations for environmentalism*, 1995; Theodore Roszak, et al., *Ecopsychology: restoring the Earth, healing the mind*, 1995). This entanglement is appropriately explored in the literature on cognitive embodiment as separately discussed (*Existential Embodiment of Externalities: radical cognitive engagement with environmental categories and disciplines*, 2009; *En-minding the Extended Body: Enactive engagement in conceptual shapeshifting and deep ecology*, 2003). This is a challenge to conventional governance of western inspiration (George Lakoff and Mark Johnson, *Philosophy In The Flesh: the embodied mind and its challenge to western thought*, 1999).

In another volume in the series, Lessing has also addressed the challenge of comprehension in a devastating commentary on communication of insight by a galactic agent with a representative of those facing planetary disaster:

To say that he understood what went on was true. To say that he did not understand -- was true. I would sit and explain, over and over again. He listened, his eyes fixed on my face, his lips moving as he repeated to himself what I was saying. He would nod: yes, he had grasped it. But a few minutes later, when I might be saying something of the same kind, he was uncomfortable, threatened. Why was I saying that? and that? his troubled eyes asked of my face: What did I mean? His questions at such moments were as if I had never taught him anything at all. He was like one drugged or in shock. Yet it seemed that he did absorb information for sometimes he would talk as if from a basis of shared knowledge: it was as if a part of him knew and remembered all I told him, but other parts had not heard a word. I have never before or since had so strongly that experience of being with a person and knowing that all the time there was certainly a part of that person in contact with you, something real and alive and listening -- and yet most of the time what one said did not reach that silent and invisible being, and what he said was not often said by the real part of him. It was as if someone stood there bound and gagged while an inferior impersonator spoke for him. (*Re: Colonised Planet 5 - Shikasta*, 1979, pp. 56-57).

This was originally cited as offering a striking parallel to the many attempts by the UN Secretary General to communicate to world society the urgency of the present human situation (*Societal Learning and the Erosion of Collective Memory*, 1980). Reference was also made there to learnings relevant to any collectivity to be obtained from current insights into the pathology of individual memory (*Collective Memory Personified: an Analogy*, 1980; *Pointers to the Pathology of Collective Memory*, 1980).

Conclusion

The above exercise is essentially a failure -- and perhaps necessarily so -- when contrasted with the intriguing simplicity of the introductory verse in relation to the challenge of strange loops for collective identity. In terms of the musical metaphor, "stepping through" a set of isomorphisms may be understood as an effort to demonstrate the possibility of "transposition of key" as previously explored (*Paradigm-shifting through Transposition of Key*, 1999).

Collective identity: The exercise raises various questions meriting consideration:

- whether such an approach is capable of eliciting possibilities for improvement, namely aesthetic improvement reconciling "Beauty" (vital for comprehension and engagement) with the "Beast" (of strategic necessity).
- whether, a "form of presentation" (as originally envisaged) might be variously associated with methodological phases isomorphic with the adaptive cycle by which humanity may be obliged to navigate the crises of governance to come
- whether the approach is helpful in highlighting the process of normative and prescriptive "emptying" (the ineffectual assumptions associated with the rationale of *Quod Erat Demonstrandum*) such as to open up possibilities for more appropriate questions for the future
- whether there is a case for collective effort to engender a cultural epic corresponding to the *Mahabharata* or the *Kalevala* -- and the significance associated with it in relation to humanity's future -- appropriately adapted to the challenges of governance and sustainability. In this respect the initiative of Franz-Josef Radermacher merits attention.

Integrative reframing of the whole: Of particular interest are:

- the merit of composing a mnemonic "ring of associations" rather than leaving elements simply as a "set" of purely logical significance in formal discourse
- other possibilities of framing such a pattern of associations as a whole, possibly in terms of:
 - magic squares as a traditional means of ordering sets
 - games of varying degrees of complexity, notably as ordered by patterns such as the Fibonacci series (*Tao of Engagement -- Weaponised Violence and Beyond: Fibonacci's magic carpet of games to be played for sustainable global governance*, 2010; *Cardioid Attractor Fundamental to Sustainability: 8 transactional games forming the heart of sustainable relationship*, 2005). With respect to such games, a valuable distinction may be made between finite and infinite games as argued by James P. Carse (*Finite and Infinite Games: a vision of life as play and possibility*, 1994)
 - reconciliation of the Fibonacci series with a toroidal representation, given the use of that series -- as embodied in the marine *nautilus* -- as the symbol of *The New Zealand Curriculum Framework*. With respect to governance, its symbolism is a key to the Pacific-based *Nautilus Institute for Security and Sustainability*.
- possibilities of fractal organization of the content of such verses, consistent with their relevance to strange loops (*Psycho-social Significance of the Mandelbrot Set: a sustainable boundary between chaos and order*, 2005)

With respect to future organization of any university -- aspiring to be the epitome of integrative reflection -- how might the cognitive organization and dynamics of strange loops be embodied such as to enable transdisciplinarity relevant to the modes of knowing required by the future? (*Metaphors as Transdisciplinary Vehicles of the Future*, 1991). What might be the design specifications of a "University of

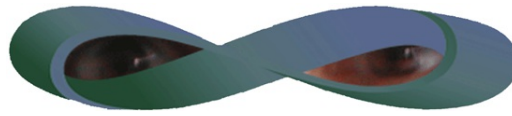
Earth" (*Towards a University of Earth?* 2010).

Necessary "cognitive twist": Cognitive entanglement, embodiment and engagement, as facilitated by aesthetic appreciation and correspondences, raise questions regarding the conventional instrumentalization of care in respond to the needs of "others". Such instrumentalization is of course fundamental to the organization of initiatives of governance as currently conceived.

Seemingly missing is what has been discussed elsewhere as a "cognitive twist" -- characteristic of entanglement in strange loops. It can be understood as intimately associated with the process of enantiodromia through which "one" takes on the characteristics of the "other" -- however they may have been deprecated (*Psychosocial Energy from Polarization: within a cyclic pattern of enantiodromia*, 2007; *Enantiodromia: cycling through the "cognitive twist"*, 2007). This may also be understood in terms of mirroring (*Stepping into, or through, the Mirror: embodying alternative scenario patterns*, 2008). The implications of the associated "mirror test" of self-consciousness may be used metaphorically, in the spirit of Lessing's galactic tale, as a device for imagining the future evolution of human consciousness (*Self-reflective Embodiment of Transdisciplinary Integration (SETI): the universal criteria of species maturity?* 2008).

With the arguments of Hofstadter, the cognitive challenge of strange loops goes further with that of comprehending their fractal nature through their powerful aesthetics (*Imagination, Resolution, Emergence, Realization and Embodiment: iterative comprehension ordered via the dynamics of the Mandelbrot set*, 2005). However such mnemonic possibilities are creatively explored -- combining musical, mythical and other aesthetic associations -- a major design consideration is how to embody strange loops into the outcome.

Given the extent to which the coiling of DNA may be understood as a strange loop fundamental to the reproduction of human identity, and the current preoccupation with genetic engineering, the question may be how to embody such formal complexity into memetic forms which ensure the reproduction of human cultural identity (*DNA Supercoiling as a Pattern for Understanding Psycho-social Twistedness*, 2004; *Climbing Elven Stairways: DNA as a macroscopic metaphor of polarized psychodynamics*, 2007).



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