



# laetus in praesens

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## Potential for Coherence through Engaging Strategic Poetry

### Memorable cycles of subdivision enabling viable governance

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## Introduction

Ever increasing quantities pose an ever increasing challenge for governance -- its comprehension and its coherence. The matter can be clarified by the following somewhat simplistic exercise.

On the assumption that coherence and comprehensibility are readily associated with a circle or a sphere, if only as symbols, the question can be initially framed as to how memorably these can be subdivided to reflect the quantities in question. The response could be contrasted with the unprecedented historical achievement of global consensus with regard to the desirability and viability of universal vaccination -- together with any expectation of the necessity of such consensus in response to climate change and equivalent challenges.

The quantitative challenge of multiplicity readily invites a mode of organization relying on the configuration of building blocks of some kind -- whether physical or conceptual -- as in architecture down the centuries. Knowledge architecture can be recognized as following this pattern. The vast array of institutions, international or otherwise, can be seen in this light -- ironically echoing past recognition of the angelic and demonic hierarchies, now deprecated by secular society.

The obvious difficulty is the rapid erosion of memorability as the complexity increases -- and consequently the loss of coherence and credibility in practice, especially in a global context. Despite their privileged access to information tools, decision-makers are themselves handicapped in this respect. Any reference to governance "oversight" capacity is then especially ironic given its alternative meaning in relation to blindspots and "overlooking" -- more appropriately understood as "undersight" or subunderstanding (*Magoroh Maruyama, Peripheral Vision: polyocular vision or subunderstanding? Organization Studies, 25, 2004, 3*).

There is then a strong case for radical approaches to mnemonic devices enabling such constraints to be circumvented or transcended -- especially when there is a commitment to wider public comprehension of the challenges by which it is assumed that significant proportions of the population need to be actively engaged (*Time for Provocative Mnemonic Aids to Systemic Connectivity? Possibilities of reconciling the "headless hearts" to the "heartless heads"*, 2018). Climate change offers only one example -- especially now that the inadequacies of COP26 have echoed those of its predecessors (*COP-26: UN SG Blasts Climate Agreement, Information Clearing House, 16 November 2021*).

Is it really the case that the current approach to such challenges is to be upheld as the only way to proceed -- to engage with a challenge which may be as much psycho-social as one of adjusting techno-economic responses? Following 26 "COPs", the widely cited quote attributed to Albert Einstein is appropriate: *Insanity is doing the same thing over and over and expecting different results*. Whether misattributed as claimed, it accords with the aphorism of *George Santayana: Those who cannot remember the past are condemned to*

repeat it. Could COP27 be otherwise? What could be missing in the all-too-familiar preoccupation with the political will to change (*International Organizations and the Generation of the Will to Change*, 1970)?

As variously argued separately, yet to be seriously explored is the complementary role of aesthetics in facilitating insightful engagement with complexity. There are particular merits to song, music and poetry in this respect (*A Singable Earth Charter, EU Constitution or Global Ethic?* 2006; *Poetry-making and Policy-making: Arranging a Marriage between Beauty and the Beast*, 1993). It is especially intriguing how these render complexity comprehensible and memorable through rhyme and rhythm -- even in the case of articulations of epic proportions. Strangely this facility is typically divorced from the recognition of the various cycles by which governance is now challenged.

There is a degree of precedence to such an exploration given the existential role previously accorded to **sacred music** and **martial music** - - most obviously with respect to the controversial role of mobilization. As currently understood, these are now to be deemed of questionable relevance to the challenges of global governance -- other than for ceremonial purposes, or when articulated as a feature of an archetypal war between good and evil.

The concern in what follows is with the form which "strategic poetry" might fruitfully take in the future. Expressed otherwise, it is **the question of whether viable strategy uptake is dependent on its embodiment in poetic form to render it memorable, meaningful and engaging**. Aspects of the question are evident in increasing recognition of the choice of metaphor in framing and eliciting such engagement, exemplified by figures of speech (*Questionable Classification of Figures of Speech as fundamental to the need for powerful rhetoric in governance*, 2016).

This implies a radical contrast from the extremes of the "heartless heads" (exemplified by conventional approaches to strategy) and those of the "headless hearts" (exemplified by a variety of forms of aesthetic indulgence). In either case, such exemplification is curiously dependent on cultivation of simplistic **tone-of-voice** -- itself potentially alienating to many (*Varieties of Tone of Voice and Engagement with Global Strategy: alternating between a requisite variety of voices to engender coherence?* 2020). **By what should the "heads" and the "hearts" be appropriately challenged at this time -- and by what form of "joined-up-thinking" should it be articulated?** Recalling Emperor Nero, each could indeed be recognized as "fiddling" by the other "while the world burns" (Michael Ray, *Did Nero Really Fiddle as Rome Burned? Encyclopedia Britannica; Spike-endowed Global Civilization as COVID-19: humanity 'bristles' as the world "burns"*, 2020).

Strategic poetry could recognize the opportunity seemingly missed in relation to the recent tragic interventions in the Middle East over decades (*Poetic Engagement with Afghanistan, Caucasus and Iran an unexplored strategic opportunity?* 2009; *Strategic Jousting through Poetic Wrestling: aesthetic reframing of the clash of civilizations*, 2009). The same could be true with respect to any confrontation with China, as might be inferred from the study of Susantha Goonatilake (*Toward a Global Science: mining civilizational knowledge*, 1999), as discussed separately (*Enhancing the Quality of Knowing through Integration of East-West metaphors*, 2000).

The more general concern is with the value of poetry-making to global sense-making -- to ensure the coherent presentation of complex decision-making, as previously discussed. This specifically follows from a preceding review (*Comparable Modalities of Aesthetics, Logic and Dialogue -- in the light of correspondences between their polyhedral representation*, 2021). This focused in particular on the curious incidence of patterns of 14-foldness as a means for many to articulate coherence of a higher order (*Pattern of 14-foldness as an Implicit Organizing Principle for Governance? Web resources*, 2021). This is notably exemplified by the standard 14-line sonnet most widely appreciated in the works of William Shakespeare.

Given the increasingly widespread appreciation of the relevance of artificial intelligence to governance, it is most curious to note the potential relevance of an unusual modelling initiative (Alex Woodie '*Deep-Speare*' *Emulates the Bard with AI*, *Datanami*, 1 August 2018; Jey Han Lau, Trevor Cohn, Timothy Baldwin, Julian Brooke, and Adam Hammond. *Deep-speare: A joint neural model of poetic language, meter and rhyme*, *Proceedings of the 56th Annual Meeting of the Association for Computational Linguistics (Long Papers)*, 2018). The approach has been summarized by the authors as *This AI Poet Mastered Rhythm, Rhyme, and Natural Language to write like Shakespeare* (*IEEE Spectrum*, 30 April 2020). It suggests a means of transforming alienating articulations of global strategy into attractive memorable form characterized by higher orders of coherence.

## Conceptual constraints of geometry -- beyond the strategic list?

Given the preoccupation here with poetry, it is curious to recognize that the checklists though which strategies are so reasonably articulated tend to lack any connectivity between the elements as so valued in poetry. Whilst both strategic checklists and poems are composed of "lines", those of poetry traditionally rhyme -- whatever they are held to lack in terms of reason.

**Strategic checklists:** It is of course the case that strategies and sets of principles are most typically articulated in terms of checklists of items. Such checklists could be said to govern the manner in which thinking regarding the strategy as a whole is articulated. The lists may even be nested as hierarchies to cluster sub-topics.

The lists may well be clustered in terms of a preferred number -- effectively a "magic number". There is little attention as to why a given number of items is chosen or how the topics of the individual articles are related systemically to one another to render coherent the strategy as a whole. Examples of 10-fold, 12-fold, 14-fold and 20-fold are cited below.

In each case there is limited capacity to remember the array of elements. Such checklists are not designed to be memorable or to function as mnemonic aids. Iconography may be used in some instances to characterize **one or other** element of a strategy.

More relevant to this argument is the use of iconography to render comprehensible the set of strategic elements **as a whole** -- as a symbol or logo -- whether or not this details the individual elements or their systemic relation to one another. The resulting pattern may be valued from the perspective sacred geometry as implying higher orders of integrity and coherence. Occasional use may be made of a

tabular configuration to highlight interrelationships.

**Circular configurations in 2D:** It can be assumed that recognition of the coherence of the strategy as a whole is usefully associated with a circular configuration -- readily related to a symbol.

Lines subdividing the circle then serve to imply a relationship between the strategies or principles articulated -- such as to be suggestive of systemic coherence. The simplest example of such subdivision of the whole include:

- triangle, as in representations of triadic strategies
- square
- octagon, as with many 8-fold strategies

Into how many parts can a circle then be subdivided by such lines -- in order to represent ever more complex strategies and sets of principles? Clearly there is no limit to the subdivision of a circle in this way but a major constraining factor is how multiplying the number quickly renders the pattern as a whole unmeaningful and unmemorable. The lines can however be organized in various ways to reduce this tendency -- or rather to increase the number which can be encompassed comprehensibly to some degree. Examples can include:

- have the lines all pass through the centre of the circle to opposing points on the circumference
- have lines of equal length arrayed around the centre linking points on the circumference
- have the lines (of the previous case) arrayed symmetrically around the centre -- as with a triangle, square, etc

The use of symmetry clearly reinforces a sense of coherence and comprehensibility -- although whether the symmetrically organized lines can be readily associated with strategic elements is another matter. Labelling can indeed be used, but only to a certain degree and for particular purposes, as with the compass rose.

At what point do comprehensibility, coherence and memorability become tenuous -- except for the dedicated? Are there evidence-based guidelines in that respect? Does any such skill vary between personality types and cultures -- meaning that the complexity of a strategy or set of principles may become meaningless in the absence of that skill or of special training?

**Spherical configuration in 3D:** Similar possibilities are offered by lines linking points across the circumference of a sphere -- with the potential advantage that other symmetry effects come into play to render the pattern as a whole comprehensible. The most obvious examples are offered by polyhedra which are spherically symmetrical or partially so -- and valued for that reason as symbols in some cases, possibly from the perspective of sacred geometry. These include:

- 5 Platonic polyhedra
- 13 Archimedean polyhedra, or more, depending on how definitions are "tweaked", as separately discussed ([Potential psychosocial implications of more complex polyhedra](#), 2021)
- geodesic elaborations of either of the above
- other transformations, notably the *zome* ([From Zoom Organization to Zome Configuration and Dynamics: integrating the doughnut, helix and pineapple models towards global strategic coherence](#), 2020)

Whilst the strategic pattern as a whole may be comprehensible, there is again the challenge of how the strategic elements mapped into that pattern are held to be meaningful in systemic terms -- other than by elusive implication. How are the elements to be distinguished? How does the polyhedron serve as a mnemonic aid?

One difficulty with regular symmetry -- however rich and colourful (if use is made of colour) -- is that it can easily become "uninteresting" in contrast with somewhat irregular patterns. These may then be perceived as more "interesting" and more memorable. (paper mapping \*\*\*), Again however, at what point is such articulation comprehensible as strategic articulation increases in complexity?

The challenge is highlighted by an influential editorial comment on the 169 "tasks" of the UN's Sustainable Development Goals -- clearly beyond the memory constraints of all but the very few.

This raises the interesting question of how certain forms of complex coherence are more readily communicated through polyhedra of somewhat distorted symmetry. What mnemonic aid would be of assistance to 169 tasks -- deemed so vital to global governance? A striking example of a simpler type is offered by the highly distorted Szilassi polyhedron with its unusual properties, raising the question as to what kind of strategic articulation this would be relevant.

**Relevance of higher orders of symmetry -- 4D and more:** Mathematicians have little difficulty in exploring ever higher orders of symmetry of which some may be claimed by physics to be of relevance to comprehension of the fundamental nature of reality. The difficulty is the manner in which comprehension and coherence is then understood, and more particularly by those who have not spent years acquiring the relevant skills required.

There is some irony to the possibility that insights of that order may be of potential relevance to comprehension of the fundamental challenge of global governance. However the fact of the matter is that neither mathematicians nor decision-makers attach any significance to that possibility.

## Transition beyond the adolescence of human civilization

From a cosmic perspective, the astronomer [Carl Sagan](#) has been widely cited as arguing that humanity is currently going through a phase of technical adolescence, "typical of a civilization about to integrate the type I [Kardashev scale](#)" (S. Karan, [Are we technologically that advanced?](#) 12 June 2017). This has been argued otherwise by Colin Grant ([The Adolescence of Humanity](#), *Dalhousie Review*, 52, 1972).

Recognition of such a phase of collective development can be explored in terms of the far greater understanding of the phase of individual development (*The Science of Adolescent Risk-Taking*, Committee on the Science of Adolescence, 2011; Rosalyn M. King, *Adolescence: overview, historical background and theoretical perspectives*, 2004).

As described from the perspective of *The Baha'i Faith*:

Humanity, [the Bahá'í writings](#) explain, has passed through the stage of childhood and now stands at the threshold of its collective maturity. The revolutionary and far-reaching changes occurring today are characteristic of this period of transition -- a time which can be likened to adolescence. In this period, thoughts, attitudes, and habits from humanity's earlier stages of development are being swept away and new patterns of thought and action which reflect its approaching maturity are gradually taking root (*An Ever-Advancing Civilization*)

Framed as *The Great Exodus*, the World Transformation Movement argues for recognition of a succession of stages:

- [The Early Sobered Adolescent Stage of Adolescent Humanity](#)
- [The Depressed Adolescent Stage of Adolescent Humanity](#)
- [Adventurous Early Adulthood Stage of Adolescent Humanity](#)
- [The Angry Adulthood Stage of Adolescent Humanity](#)
- [The Born Again, Pseudo Idealistic Late Adulthood Stage of Adolescent Humanity](#)
- [The last 11,000 years when Imposed Discipline and Religion were developed](#)
- [The final 200 years when increasingly dishonest forms of Pseudo Idealism were developed](#)
- [The arrival of understanding of the human condition and with it the all-exciting and all-satisfying Transformed Way of Living and new civilisation for humans](#)

Described in a section on "teenage civilization", David B. Berman argues:

I hope that, 100,000 years from now, our descendants will look back on those first 6,000 "childhood" years of the Big Bang of civilization as the successful adolescence of humanity: that awkward time when there were many civilizations would be a distant memory. Maybe we will be remembered for somehow overcoming our adolescent delusions of immortality and inane infighting, bringing forward the best of all cultures, and designing a sustainable future together: that we found a way to meet our needs without compromising the ease for future generations to meet theirs. (*Do Good Design: how design can change our world*, Peachpit Press, 2008 p 16-21)

The period of adolescence is however coming to an end, as formally declared by Boris Johnson before the UN General Assembly (*'The adolescence of humanity is coming to an end', declares UK Prime Minister, UN Affairs, 76th session, 22 September 2021*). How this transition is to be archived merits careful consideration (Hanno Scholtz, *Time to Grow Up, after 8000 years: the adolescence of mankind and how to limit its damage*, May 2019).

## Correspondences in collective comprehension of patterns of numbers?

The WHO defines adolescence as the period between 10 and 19 years of age. If only for mnemonic purposes, exploiting the known challenges, dilemmas and transitions of the early years of **individual** adolescence, there is an ironic correspondence potentially to be explored with the existential strategic dramas of the **collective** (*Interrelating planetary and human systems through disease metaphors*, 2010). The following might be distinguished:

- getting beyond 9 to 10
  - understanding of 10-foldness is of course best exemplified by sets of principles promoted by religions such as the *Ten Commandments* (*Habitual use of a 10-fold strategic framework?*). Their recognition and implementation already constitutes a major challenge indicated by limited ability to transcend the continuing levels of conflict
- getting to 11
  - relatively little significance is associated with 11-foldness
- getting to 12
  - 12-foldness has come to represent an unquestionable level of comfort in collective organization (*Checklist of 12-fold Principles, Plans, Symbols and Concepts: web resources*, 2011) -- effectively an "island of cognitive stability" for unexplored reasons .
- getting to 13
  - 13-foldness is variously considered problematic and inauspicious -- as the beginning of the "teen" phase and its dramas \*\*\* betwixt
- getting to 14
  - as separately documented, there is a surprising collective aspiration to 14-foldness across a wide range of domains -- irrespective of ability to give it form in practice (*Pattern of 14-foldness as an Implicit Organizing Principle for Governance? Web resources*, 2021)
  - *Grand Challenges for Engineering in the 21st Century* (National Academy of Engineering)
- getting to 15
  - although variously articulated as a pattern of challenges, the coherence of 15-foldness is a challenge in its own right the **15 global strategic challenges** identified by the **Millennium Project**

- getting to 16
  - 16-foldness has emerged as of major global significance through the UN's [Sustainable Development Goals](#) -- 16 in number but coordinated through a 17th. However these give focus to the question of the extent to which they are systemically integrated or essentially an administrative hodgepodge, as discussed separately ([Systemic Coherence of the UN's 17 SDGs as a Global Dream -- rather than merely an arbitrary outcome of political horse-trading](#), 2021)
  - [Earth Charter; The Next Generation of Emerging Global Challenges](#) (Policy Horizons Canada)
- getting to 17
  - at the threshold of maturity, as framed by the 16 SDGs, how is the coordinating function of 17-foldness comprehended and rendered meaningful in systemic terms?
  - [Global mapping of 17 value-goals alone](#), 2017; [Unexplored cognitive implications of 17 Sustainable Development Goals - through "magic squares"?](#) 2017)
  - [A List Of The 17 Major Environmental Issues \(Problems\) We Face Today](#) (EVACO)
  - [wallpaper groups](#), namely the two-dimensional case for which it has been demonstrated that there are only 17 distinct groups of of such planar symmetries
- getting to 18:
  - [European Convention on Human Rights](#)
- getting to 20:
  - [Requisite 20-fold Articulation of Operative Insights? Checklist of web resources on 20 strategies, rules, methods and insights](#), 2018).
- getting to 30
  - [Universal Declaration of Human Rights](#); note the number of 30-point plans

Arguably, as transitional phases, those of adolescence effectively constitute "glass ceilings" for collective cognition -- a complex sequence of rites of passage and paradigm shifts. The point has been initially argued, effectively for a "pre-adolescent phase", in the much-cited paper by (George A. Miller ([The Magical Number Seven, Plus or Minus Two: some limits on our capacity for processing information](#), *Psychological Review*. 63, 1956, 2, pp 81-97).

Beyond the checklist, as noted above, there lies the possibility of mapping such configurations on polygons and polyhedra to render visually apparent their coherence -- as is typical of the representations of symbols ([Identifying Polyhedra Enabling Memorable Strategic Mapping: visualization of organization and strategic coherence through 3D modelling](#), 2020):

- 12-foldness has evoked many such patterns in 2D, with the dodecahedron a 3D pattern of choice dating back to the Roman Empire ([Roman dodecahedron, Chinese puzzle balls and Rubik's Cube?](#), 2018).
- 13-foldness, typical of the Archimedean solids (as conventionally numbered), can be mapped on the 12 vertices of a cuboctahedron, with the 13th at its centre -- a feature of [closest packing](#) clarified by [Keith Critchlow](#) ([Order in Space: a design source book](#), 1969).
- depending on how the precise definition of the Archimedean solids is "tweaked" (as noted above), the number of "Archimedean solids", could be considered as:
  - 14 (including the pseudo-rhombicuboctahedron / elongated square gyrobicupola, but not the mirror images)
  - 15 (including mirror images of two of the solids only)
  - 16 (including mirror images and the pseudo-rhombicuboctahedron)

Of relevance to this argument is the requisite comprehension of numbers and their significance, as discussed separately -- in the face of potential civilizational collapse ([Comprehension of Numbers Challenging Global Civilization](#), 2014). This includes the following sections:

[Enabling disaster through basic mathematical operations](#)  
[Numbers in play in psychosocial organization](#)  
[Conceptual clustering and cognitive constraints](#)  
[Pattern memorability between symbolic mystification and "stretching" Imaginative depiction of the cognitive challenge](#)  
[Requisite complexification of imagery to embody greater significance](#)

[Creative pretence dissociating numbers from sexuality](#)  
[Significance of "encompassing" the numbers required for meaningful governance](#)  
[Boundary pushing by sport, religion and governance](#)  
[Reframing boundaries to engage with patterns of collapse](#)

## Requisite aesthetic articulation of strategy?

**Aesthetic containers?** As stressed above, there is an erosion of efficacy of the mnemonic devices by which complex patterns can be rendered memorable. Arguably the devices employed as "containers", whether lists, circular configurations, or polyhedra, can be said to be "unfit for purpose" -- given the complexity of the strategies deemed essential at this time. The situation is all the more complex in that there is an expectation that any presentation should be widely comprehensible and appealing to those who are variously expected to engage in it, to subscribe to it and to support it.

This is not to deny that such containers may have a continuing ability to **imply** such relevance -- elusively as symbols, or as instances of sacred geometry. A striking example is offered by the 12-fold circular pattern of stars of the European flag and logo ([Coherent Representation of the European Union by Numbers and Geometry: mapping structural elements and principles onto icosahedron and dodecahedron](#), 2019).

Rather than endeavouring to reformulate the case for aesthetics, reference can be more succinctly made to the following general arguments:

- [Enacting Transformative Integral Thinking through Playful Elegance: A Symposium at the End of the Universe?](#) (2010)

- *Aesthetics of Meaning* (1991)
- *Aesthetics and Informatics: Art of Information for Policy-making and Community-building* (1992)
- *Aesthetics of Governance in the Year 2490* (1990)

Specific concerns discussed include:

- *The unsaid in the arts and aesthetics* -- in sustaining psycho-social community (2003)
- *Aesthetics of harmony* -- design challenge to enable integrative comprehension (2011)
- *Sustaining aesthetics: songlines, leylines and dragon lines* -- from information highways to songlines of the noosphere (1996)
- *Containing discontinuity through aesthetics* -- development as discontinuous societal learning (1982)
- *Urgency: requisite aesthetics for comprehension of new thinking?* (2019)
- *Eliciting coherent comprehension of the challenge through aesthetics* (2009)
- *Salvation enabled by systemic comprehension via aesthetics of magic squares?* (2015)
- *Aesthetics of human understanding through embodiment* (2011)
- *Imagination and aesthetics as vital resources* -- global configuration of hypertext pathways (1996)
- *Embodying complexity through aesthetics of multivocal sung rhetoric* -- evoking Castalia (2016)
- *Imagining future communication integrity enabled by aesthetics* (2014)
- *Aesthetics and the military* -- engagement with Afghanistan, Caucasus and Iran (2009)
- *Radically distinct senses of aesthetics* -- in anticipation of communicating with liens (2000)

**Arts and sciences?** Although at opposite extremes of a spectrum, curiously both science (exemplified by mathematics) and aesthetics (exemplified by poetry) attach particular importance to beauty and its conflation with truth. How the objectivity of the one and the subjectivity of the other are related is quite another matter

The importance of aesthetic dimensions to scientists, and as a guiding consideration in scientific research, is widely documented (*Designing the 21st Century through integration of the arts and sciences*, 1995). It has been said to be essential to adequate theory formulation. Various major initiatives have been undertaken to explore the relevance of aesthetics to science (MIT [Center for Advanced Visual Studies](#), [AlloSphere](#), [Bridges Organization: art and mathematics](#)). This is necessarily fundamental to any integrative outcome of such research -- especially across boundaries. Many theories and models are readily described as "beautiful", even the essence of beauty as it is open to human cognition.

A remarkably insightful case, integrating an aesthetic perspective, has been made by mathematician [Vasily V. Nalimov](#) (*Realms of the Unconscious: the enchanted frontier*, 1982) with respect to a probabilistic theory of truth -- as previously summarized (*Probabilistic vision of the world*, 1995). Insightful overviews from such perspectives are notably summarized by [Martha Senger](#) (*The Iconic Revolution*, 2015).

**Patterns of correspondences:** Of notable interest in this respect are the tantalizing implications of "correspondences", emerging from both a scientific perspective and from the symbolist tradition (*Theories of Correspondences -- and potential equivalences between them in correlative thinking*, 2007).

The significance of this consideration for integrative understanding became dramatically evident in the exploration by mathematicians of [symmetry groups](#), notably the most complex -- such as that nicknamed as a consequence of [Moonshine theory](#)" as the [Monster Group](#) ([Marcus du Sautoy](#), *Finding Moonshine: a mathematician's journey through symmetry*, 2008; [Mark Ronan](#), *Symmetry and the Monster: one of the greatest quests of mathematics*, 2006). That this should be far beyond conventional comprehension invites speculation as to its potential psychosocial relevance (*Potential Psychosocial Significance of Monstrous Moonshine: an exceptional form of symmetry as a Rosetta stone for cognitive frameworks*, 2007).

Is there a need at this time to adapt the mode of thinking on "moonshine mathematics" to "moonshine governance" -- potentially via "moonshine aesthetics"? How is collective meaning to be derived from treatises which require thousands of pages to elaborate? How complex a pattern of information needs to be rendered comprehensible and memorable and to whom? (*Correspondences between Traditional Constellations and Pattern Languages: requisite simplicity for sustainable comprehension of complexity*, 2014)

## Poetry as a mnemonic aid to engendering strategic coherence

Why indeed can poems be so powerful and memorable to people in all walks of life? Clearly reading and writing poetry both engage the senses along with the emotions, making the art form experiential and hugely effective in connecting with the mind. This combination of brevity and detail gives the reader open access to the poet's creative mind and enables the reader to truly connect with the poet. Curiously -- beyond slogans -- there is little concern with the need for equivalent mnemonic devices in the articulation of strategy, especially in the face of controversial crises dividing society.

The following argument is a development of that in *Poetry-making and Policy-making: Arranging a Marriage between Beauty and the Beast* (1993), presented in the following sections:

### Possibilities of a marriage between Beauty and the Beast

- [Prospects for an arranged marriage](#)
- [Overtures of the Beast](#)
- [Overtures of Beauty](#)
- [Voice of the Matchmaker](#)

### Mutual Entrainment

### Marriage Consummation and Progeny

- [Vision of a poetic policy group initiative](#)
- [Proposal for an exploratory international conference](#)
- [Envisioning the policy-making experience of the future](#)
- [Cultivating new conceptual languages](#)
- [Policy discourse through metaphor](#)
- [Inventing reality: "talking it up" through configured](#)

- Poetic configuration of policy guidelines
- Poesis: Enhancement of policy through key poetic insights
- imagery
- Magic, miracles and image-building
- Future role of multi-media technology

Aspects of the argument were subsequently developed from the perspective of music and song (*Structuring Mnemonic Encoding of Development Plans and Ethical Charters using Musical Leitmotifs*, 2001; *Knowledge gardening through music: eliciting patterns of coherence for African management as an alternative to Project Logic*, 2000; *A Singable Earth Charter, EU Constitution or Global Ethic?* 2006).

**Role of number?** There is of course a vast literature commenting on the role of poetry and how it "works". The approach taken here follows directly from the earlier argument *Comparable Modalities of Aesthetics, Logic and Dialogue* (2021), and specifically to the focus on the 170 web resources regarding the role of 14-fold patterns (*Pattern of 14-foldness as an Implicit Organizing Principle for Governance? Web resources*, 2021). Given its acknowledged impact over an extended period, notably reviewed was the role of the 14-line Shakespearian sonnet (*Future challenge of problematic sets for governance -- strategic sonnets?* 2021).

Of obvious relevance to further inquiry is the variety of forms of poetry. A primary source for the following discussion was the remarkably organized database set up by Lawrence Eberhart (*Poetry Forms Index, Poets Collective Multi-site Network*. As of 22 April 2019, this appears to have distinguished some 625 such forms.

Particular attention is given to the *Sonnet Forms* (count as of 21 April 2018 = 179), primarily divided into *Standard Sonnets* (count as of 1/12/2016 = 107) and so-called *Gadget Sonnets* (count as of 1 November 2017 = 70). It is the "standard sonnets" which take the form which is of primary interest to this inquiry, namely a 14-lined pattern.

**Role of rhyme?** A sonnet is a poem consisting of 14 lines (iambic pentameter) with a particular rhyming scheme (Ashley Robinson *The 8 Types of Sonnets and How to Tell Them Apart, PrepScholar*, 14 August 2019). A Shakespearean (English) sonnet has three quatrains and a couplet, and rhymes **abab cdcd efef gg**. Examples of other rhyming schemes include: abba cddc efef gg and abba abba cdcd cd

From the Eberhart database, particular focus was given to those sonnets which follow the Shakespearean pattern of 3 quatrains, followed by a couplet, as indicated in the table below. Missing from the database is however any sense of the number of sonnets written according to a particular rhyming pattern. The 41 items in the table are however one indication of preference for the 3-quatrain/1-couplet pattern. The links in the database (reproduced below) point to detailed commentary. Where the commentary raised complex issues or alternatives, a question mark is appended to the name in the table.

Variety of Rhyming Patterns in 14-line Standard Sonnets of the form 4/4/4/2; namely 3 quatrains with couplet					
4/4/4/2	aaaa aaaa bbbb bb	<a href="#">Teacher-Pupil Equation</a>	4/4/4/2	abab cdcd efef gg	<a href="#">Marshalline Sonnet</a>
			4/4/4/2	abba abba baab aa	<a href="#">Dueces Sonnet</a>
4/4/4/2	aaaa bbbb aaaa cc	<a href="#">Philippine Sonnet</a>	4/4/4/2	abba abba cddc dd	<a href="#">Gloria cum Noynoy Sonnet - Italianic</a>
			4/4/4/2	abba abba cddc dd	<a href="#">PGMA Sonnet</a>
4/4/4/2	aaaa bbbb cccc dd	<a href="#">Philippine Stanza Sonnet</a>	4/4/4/2	abba acca cddc dd	<a href="#">La Germania ?</a>
			4/4/4/2	abba cbbc dbbd bb	<a href="#">Betwixt Sonnet</a>
4/4/4/2	aaaa bbbb cccc dd	<a href="#">Luzviminda Sonnet</a>	4/4/4/2	abba ccDD eeDD ff	<a href="#">Volcanic Fireburst ?</a>
			4/4/4/2	abba ccdd efef gg	<a href="#">Turkey's Delight</a>
4/4/4/2	aaab bbcc cddd ee	<a href="#">Lunatic Sonnet</a>	4/4/4/2	abba ccdd efef gg	<a href="#">Kiwi Pause 1</a>
			4/4/4/2	abba cdcd efge hh	<a href="#">Four Epoch Sonnet</a>
4/4/4/2	aaba bbcb ccac aa	<a href="#">Rubaiyat Sonnet</a>	4/4/4/2	abba cddc eefg gf	<a href="#">Countess' Grief 1 ?</a>
			4/4/4/2	abba cddc efef gg	<a href="#">Bowelsian Sonnet</a>
4/4/4/2	aaba bbcb cdcd dd	<a href="#">Malayan Wave Sonnet</a>	4/4/4/2	abBB ccBB ddBB ee	<a href="#">Volcanic Workshop ?</a>
4/4/4/2	aabb cdcd efef gg	<a href="#">Weaver's Sonnet</a>	4/4/4/2	abca bcab cabc dd	<a href="#">Kindergart Klas Sonnet</a>
			4/4/4/2	abcb acdc aded ae	<a href="#">Salamander's Fireburst ?</a>
4/4/4/2	aaxa bbbx ccxc dd	<a href="#">Polynesian Wave</a>	4/4/4/2	abcb bcde cdad da	<a href="#">Visayan Splash</a>
			4/4/4/2	abcb bcde cded de	<a href="#">Kal's Wondercloth Weave Sonnet</a>
4/4/4/2	abab cdcd efef fe	<a href="#">Tennyson-Tumer's Sonnet</a>	4/4/4/2	abcb bcde cded de	<a href="#">Kal's First Fireburst ?</a>
			4/4/4/2	abcc deff ghii jj	<a href="#">Storm Sonnet</a>
4/4/4/2	abab abab abab ab	<a href="#">Indonesian Sonnet</a>	4/4/4/2	xaxa xbx xcx dd	<a href="#">Chivalric Sonnet</a>
4/4/4/2	abab bbcc cdcd dd	<a href="#">Choi's Sonnet</a>			
4/4/4/2	abab bbcc cdcd dd	<a href="#">American Forte</a>			
4/4/4/2	abab bbcc cdcd ee	<a href="#">American Libre</a>			
4/4/4/2	abab bcbe cdcd dd	<a href="#">Spenserian Forte</a>			
4/4/4/2	abab bcbe cdcd dd	<a href="#">Irish Sonnet</a>			
4/4/4/2	abab bcbe cdcd ee	<a href="#">Spenserian Sonnet</a>			
4/4/4/2	abab ccdd efef gg	<a href="#">Kangaroo Pause</a>			
	abab cdcd efef				

4/4/4/2	gg	English (Shakespearean) Sonnet
4/4/4/2	abab cdcd efef gg	Beymorlin Sonnet
4/4/4/2	abab cdcd efef gg	Sapphic Ode Sonnet

For convenience, the table is reproduced separately in an annex (*Variety of Rhyming Patterns in Standard 14-line Sonnets*, 2021) -- together with two other tables. Extracted together from the same dataset (to enable sorting and selection), these offer a similar perspective on other standard sonnets variously conforming to the 14-line pattern.

A neglected feature of the standard sonnet is evident in masculine/feminine rhyming patterns in some languages other than English (for example), as noted by Susan Tichy (*A Primer on Rhyme, Bouncing Off Walls*). Thus the gender-inflected Romance language include masculine nouns and modifiers *without* vowel endings and feminine ones *with* vowel endings (e.g. *bel/bella, fresc/fresca, blanc/blanca*). In the tables, this is indicated by capitalizing the indicative letter in the pattern (of which one example appears in the table above). The terms are grammatical and have nothing to do with masculine or feminine characteristics, sexism, or gender roles. The front-stressed Germanic languages, including Old English, used alliteration rather than end-rhyme.

- *Strategic Dialogue through Poetic Improvisation: Web resources and bibliography*, 2009)
- *Jarvis Cocker releases surprise 'sustainability anthem' to coincide with COP26*, *Euronews*, 11 November 2021

## Beyond 14-foldness: embodying insight into practice

This exploration derived from a web search of the role of 14-foldness in the articulation of some 170 instances of principled strategic thinking, as noted above (*Pattern of 14-foldness as an Implicit Organizing Principle for Governance? Web resources*, 2021). A commentary endeavoured to clarify "why 14" was seemingly so significant in this way -- and hence the insights from appreciation of Bach's 14 canons and from the meaning so widely associated with the Shakespearean 14-line sonnets.

In going further it would seem that greater consideration could be given to the curious interplay between:

- the original philosophical understanding of *poiesis*
- the further development of it, recognized in the etymology of *poesis*, with its aesthetic implications for poetry, and
- scientific insights, especially of a systemic nature, into *autopoiesis*, as influentially developed by Humberto R. Maturana and Francisco J. Varela (*Autopoiesis and Cognition: the realization of the living*, 1972)

It might then be asked how this curious nexus is associated with the embodiment of insight into practice -- especially as this might apply to strategic articulation, comprehension and implementation.

**17-syllable Haiku:** A point of departure is the significance attached by some prominent decision-makers to *haiku*, and the appreciation for this succinct poetic form by many, as discussed separately (*Ensuring Strategic Resilience through Haiku Patterns: reframing the scope of the "martial arts" in response to strategic threats*, 2006).

Noteworthy is the significance attached to it by [Dag Hammarskjöld](#), who during his mandate as Secretary-General of the United Nations, was especially preoccupied with security issues -- intermingling prose and *haiku* in his only book (*Markings*, 1964). The translation into English was refined by the poet [W. H. Auden](#), who also wrote a foreword. The first "President of Europe" has been presented as a person with considerable skill in achieving a degree of political harmony under difficult circumstances. He is also widely known -- as "Haiku Herman" -- for his writing of *haiku*, as indicated in a tribute by a former poet laureate, [Andrew Motion](#) (*Politics Needs Poetry - so hooray for Herman Van Rompuy*, *The Guardian*, 20 November 2009).

But why do 17 syllables "work" and not 14, for example?

**17 UN Sustainable Development Goals:** As a focal preoccupation of the United Nations in the unprecedented consensual articulation of the goals of humanity, the 17 [Sustainable Development Goals](#) (SDGs) could be seen as framing the question "why 17". The mystery is all the greater in that the very first article of the [Glasgow Climate Pact](#) (November 2021) places curious initial emphasis on: **Recognizes the importance of the best available science for effective climate action and policymaking**. Despite this recognition, there is seemingly no systemic scientific perspective on why it should be composed of 97 articles in 8 sections.

As with the "169 targets" associated with the 17 SDGs, these do not seemingly offer any sense of the pattern of goals in systemic terms -- if pattern there is -- and as such has attracted specific criticism (*The 169 Commandments: the proposed sustainable development goals would be worse than useless*, *The Economist*, 28 March 2015). Given its acclaimed fundamental role for strategic governance, the situation invites exploration otherwise -- in aesthetic terms (*Systemic Coherence of the UN's 17 SDGs as a Global Dream -- rather than merely an arbitrary outcome of political horse-trading*, 2021). This could well apply to the Glasgow Climate Pact.

Why did the pattern of 17 SDGs evolve from the preceding "octave" of 8 [Millennium Development Goals](#) -- with the 97 articles of the new Climate Pact now organized into an "octave" of sections? Will the new Pact prove to be any more coherent and comprehensible than the set of SDGs?

Would 14 SDGs have been recognizably more memorable, appealing and coherent?

**16 Boolean logical connectives?** In terms of comprehension, "access" from one quatrain to another in a sonnet might even be considered in terms of a succession of "glass ceilings" with considerable strategic implication. This might follow from the obvious strategic tendency to focus effectively on the first quatrain -- the challenge -- avoiding or repressing the subtler implications of any subsequent quatrain. As discussed separately by Harold Bloom and Brett Foster with respect to Shakespeare: (*Embodiment of logical*

connectives in sonnet form, 2021):

... in the second quatrain he generally queries or contradicts or subverts his first position (together with its discourse-field). By the third quatrain, he must (usually) advance to his subtlest or most comprehensive or most truthful position (*The Sonnets*, 2009, p. 294).

With respect to such "logical connectives", it is intriguing that the relevant disciplines of science should have determined so definitively a pattern of 16, as noted earlier. This is especially the case given the need to reduce the pattern to 14 for convenience of representation in 3D (*Oppositional logic and its geometry -- 16 minus 2 connectives?* 2021). This precludes consideration of the wider implication of two of them (*From 16 to 14 connectives -- precluding a logical meta-perspective?* 2021). This suggests a particular vulnerability in the current practice of governance dependent on the associated algorithms (*Dangerous loss of connectivity in global modelling and misinformation detection by algorithm?* 2021).

<b>Tentative distinction of 16 logical connectives</b>			
as potentially applicable to the challenging governance discourse of the pandemic and climate change			
	Adaptation of the articulation of Maarten van Wijk (to whom apologies)	Adaptation to discourse relating to the <b>pandemic challenge</b>	Adaptation to discourse relating to <b>climate change</b>
1	Tiger is coming, <b>and</b> I brought a spear	Virus is coming, <b>and</b> I got a jab	Climate change is coming, <b>and</b> I acted now
2	Tiger is coming, <b>but</b> I did <b>not</b> bring a spear	Virus is coming, <b>but</b> I did <b>not</b> get a jab	Climate change is coming, <b>but</b> I did <b>not</b> act now
3	Tiger is <b>not</b> coming, <b>and</b> I brought a spear	Virus is <b>not</b> coming, <b>and</b> I get a jab	Climate change is <b>not</b> coming, <b>and</b> I act now
4	<b>Neither</b> is tiger coming, <b>nor</b> did I bring a spear	<b>Neither</b> is virus coming, <b>nor</b> did I get a jab	<b>Neither</b> is climate change coming, <b>nor</b> do I act now
5	Tiger is coming, <b>and maybe</b> I brought a spear	Virus is coming, <b>and maybe</b> I get a jab	Climate change is coming, <b>and maybe</b> I act now
6	<b>Maybe</b> tiger is coming, <b>and</b> I brought a spear	<b>Maybe</b> virus is coming, <b>and</b> I get a jab	<b>Maybe</b> climate change is coming, <b>and</b> I act now
7	I bring a spear <b>if and only if</b> tiger is coming	I get a jab <b>if and only if</b> virus is coming	I act now <b>if and only if</b> climate change is coming
8	I never have a spear when tiger is coming and when I have one it won't come	I never get a jab when virus is coming and when I have one it won't come	I never act now when climate change is coming and when I act it won't come
9	Tiger is <b>not</b> coming, <b>and maybe</b> I brought a spear	Virus is <b>not</b> coming, <b>and maybe</b> I get a jab	Climate change is <b>not</b> coming, <b>and maybe</b> I act now
10	<b>Maybe</b> tiger is coming, <b>and</b> I did <b>not</b> bring a spear	<b>Maybe</b> virus is coming, <b>and</b> I did <b>not</b> get a jab	<b>Maybe</b> climate change is coming, <b>and</b> I did <b>not</b> act now
11	Tiger is coming, <b>or</b> I have a spear	Virus is coming, <b>or</b> I got a jab	Climate change is coming, <b>or</b> I act now
12	<b>If</b> I have a spear, <b>then</b> tiger is coming	<b>If</b> I get a jab, <b>then</b> virus is coming	<b>If</b> I act now, <b>then</b> climate change is coming
13	<b>If</b> tiger is coming <b>then</b> I have a spear	<b>If</b> virus is coming <b>then</b> I get a jab	<b>If</b> climate change is coming <b>then</b> I act now
14	It is <b>not</b> true that tiger is coming <b>and</b> I have a spear	It is <b>not</b> true that virus is coming <b>and</b> I get a jab	It is <b>not</b> true that climate change is coming <b>and</b> I act now
15	<b>Whether</b> tiger is coming <b>or not</b> , <b>either</b> I have a spear <b>or</b> I do <b>not</b> (always true)	<b>Whether</b> virus is coming <b>or not</b> , <b>either</b> I get a jab <b>or</b> I do <b>not</b> (always true)	<b>Whether</b> climate change is coming <b>or not</b> , <b>either</b> I act now <b>or</b> I do <b>not</b> (always true)
16	<b>Whether</b> tiger is coming <b>or not</b> , I have a spear <b>and</b> I do <b>not</b> have a spear (always false)	<b>Whether</b> virus is coming <b>or not</b> , I get a jab <b>and</b> I do <b>not</b> (always false)	<b>Whether</b> climate change is coming <b>or not</b> , I act now <b>and</b> I do <b>not</b> (always false)
NB: As clarified <a href="#">separately</a> , the set of 16 connectives is conventionally reduced to 14, with the argument that #15 is always true (tautology), and #16 is always false (contradiction). With thanks to <a href="#">Nadia McLaren</a> for reviewing the questionable adaptations			

The alienating schematic articulations above usefully frame the question as to the nature of any hypothetical set of "aesthetic connectives" -- as a necessary complement to "logical connectives". In terms of memorability, the adaptations above can be provocatively contrasted with the widely cited "poetic tale": *Everybody, Somebody, Anybody and Nobody* -- especially when it is adapted to issues of governance (*Responsibility for Global Governance Who? Where? When? How? Why? Which? What?* 2008).

## Beyond the 14-fold pattern of sonnets through rhyme and rhythm

The formal articulation of logical connectives is totally indifferent to the comprehensibility in practice of the result -- despite the implications for computer system operations on which decision-makers and governance are dependent, and their justification in the eyes

of wider society. Ironically, as noted above, this could be caricatured as an institutionalization of "undersight" where "oversight" is expected.

**Rhyme and rhythm:** The poetic form of the sonnet exemplifies use of rhyme and rhythm as devices for transcending the unmemorable constraints of logical articulation -- as is equally obvious in the case of song (Alan Rankin, *What Is the Function of Rhyme in Poetry? Infobloom*). The role of rhyme is succinctly described by Susan Tichy (*A Primer on Rhyme, Bouncing Off Walls*), and notably:

- Rhyme is predicated on semantic difference and phonological identity. One of its functions is to make these two categories more permeable.
- In prosody, **we can think of meter as a horizontal structuring device, rhyme as a vertical one.** Meter tends to move the reading eye or voice forward; rhyme tends to arrest it. How to employ, balance, and manage these impulses is one of the metrical poet's principal artistic skills. *[emphasis added]*

Setting aside the cognitive challenges of "getting from" 10-fold to 12-fold patterns, or from 13-fold to 14-fold (as highlighted above by comparison with adolescence), those of getting from 14-fold to 16-fold would appear to be especially problematic. Rendering comprehensible 16-fold patterns, or any more complex (as with the UN's SDGs or the logical connectives), there would appear to a fundamental problem of cognitive disconnect -- beyond any reference to "glass ceiling".

**Connectivity and complexity:** Since there are indeed poems of greater or lesser structural complexity, the manner in which sonnets are organized to ensure connectivity and memorability merits particular consideration. Examples include:

- 18-line poem: Known as a Heroic Sonnet, this is like the English 14-line Sonnet with the addition of a fourth quatrain (after the third) in alternating rhyme.
- 16-lines or more (Jennifer Stevens, *What Is A 16 Line Poem Called?*):
  - A **caudate sonnet** is an expanded version of the sonnet (Stephen J. Napolitano, *Poetic Form; Caudate Sonnet, All Poetry*, 1 December, 2010). It consists of 14 lines in standard sonnet forms followed by a **coda**. According to the *Princeton Encyclopedia of Poetry*, the form is most frequently used for **satire**, such as the most prominent English instance, **John Milton's *On the New Forcers of Conscience Under the Long Parliament*** (1673). The sonnet portion is iambic pentameter; he tail line is iambic trimeter and the subsequent couplets are iambic pentameter -- rhymed, abbaabbcdcdcd dee
  - Known as a quatern, in its French form, it is split into 4 quatrains (or 4-line stanzas), with each line comprised of eight syllables. It is similar to the Kyrielle and the Retourne. It has a refrain that is in a different place in each quatrain. The first line of stanza one is the second line of stanza two, third line of stanza three, and fourth line of stanza four. A quatern has eight syllables per line. It does not have to be iambic or follow a set rhyme scheme (*Quatern, Shadow Poetry; How to Write a Quatern: understanding quaterns in poetry, MasterClass*, 16 August 2021)
  - A stretched sonnet: This is any poem that has the sound and feel of a sonnet but stretches the boundaries of frame and meter (possibly extended to 16 or more lines, such as those in George Meredith's sequence *Modern Love*). Commonly the reference is to poems that are slightly out of sync with the formal guidelines of the sonnet's 14 lines and iambic pentameter yet still have the sound of a lyrical meditation.
- 15-line poem: Known as a rondeau, it is a French form of poetry, each line of which contains between eight and 10 syllables. Rondeau poems contain a fixed verse form divided into three stanzas: a quintet, a quatrain, and a sestet.
- 13-line poem: Known as a rondel, this is a verse form originating in French lyrical poetry of the 14th century. It was later used in the verse of other languages as well, such as English and Romanian. It is a variation of the rondeau consisting of two quatrains followed by a quintet (13 lines total) or a sestet (14 lines total).
- 12-line poem: Known as a Rondeau Prime, this is a form of French poetry, though it usually consists of a septet (7 lines) plus a cinquain (5 lines).

## Puzzle of the Gordian knot as the strategic challenge (uncompleted)

Reference to the legend of the **Gordian knot** with respect to global governance notably featured in commentary on a session of the World Economic Forum, in which **John Jullens** argues that: *It's as if the global economy is being strangled by a gigantic Gordian knot from which it cannot untangle itself* (*The Gordian Knot of Global Economic Growth, Strategy-Business*, 15 October 2013).

The image has been used by a number of authors (*Mapping grossness: Gordian knot of governance as a Discordian mandala?* 2016). How indeed to engage globally with such apparent incoherence? (*Engaging globally with knots and riddles -- Gordian and otherwise*, 2018).

**Pattern recognition capacity:** Arguably the most evident clue lies in the capacity to recognize pattern in complexity -- where that capacity is enabled and enhanced through recognition of symmetry, possibly associated with rhythm. Arguably again, cognitive engagement with such complexity could be especially dependent on aesthetic sensibility. There is a need to clarify the distinction between the aesthetic appreciation of a visual rendering of the **Mandelbrot set** and the intellectual appreciation of the **Monster group** which does not lend itself to such visualization, despite constituting the highest order of symmetry discovered by mathematics (*Mark Ronan, Symmetry and the Monster*, 2006).

The case of the Mandelbrot set, and its remarkable visual elegance, is discussed separately (*Sustainability through the Dynamics of Strategic Dilemmas -- in the light of the coherence and visual form of the Mandelbrot set*, 2005; *Psycho-social Significance of the Mandelbrot Set: a sustainable boundary between chaos and order*, 2005). The discovery of the Monster group was enabled through a further clue to comprehension of complexity, namely so-called correspondences (*Theories of Correspondences -- and potential equivalences between them in correlative thinking*, 2007). Comprehension of the significance of the Monster is another matter (*Potential Psychosocial Significance of Monstrous Moonshine: an exceptional form of symmetry as a Rosetta stone for cognitive frameworks*,

2007)

Given the focus of this argument, further clues are offered in terms of visualization capacity ([Visual thinking as indicated by Tesla and by consideration thereof](#), 2014). As clarified by Felix Hong (*Tesla and Creativity: Hidden Messages From His Life*. 2010; *Tesla Composed Like Mozart*, 2006). He notes, citing Tesla:

Then I observed to my delight that I could visualize with the greatest facility. I needed no models, drawings or experiments. I could picture them all as real in my mind. Thus I have been led unconsciously to evolve what I consider a new method of materializing inventive concepts and ideas, which is radically opposite to the purely experimental and is in my opinion ever so much more expeditious and efficient.

and then Hong comments:

There is little doubt what Tesla practiced was an extreme form of visual thinking. Few of the rest of us could match him in terms of details, intensity and precision of visual imagery. His method of carrying out an experiment or manipulation mentally not only saved him time and expenses, but also enabled him to capture fleeting ideas, which would have been lost forever otherwise.

Hong continues with a comparison with Mozart and then Gauss:

Let us see whether visual thinking can also be applied to music creativity. In a letter written to an admirer, Baron von P, Mozart claimed to be able to hold an entire music score in his short-term memory so that *[he could] survey it, like a fine picture or a beautiful statue, at a glance*. Mozart's picture metaphor implied that what he had practiced was similar to Tesla's visual thinking except what his mind saw (or, rather, hear) is the entire sound pattern instead of an entire diagram of one's invention. What Tesla and Mozart both practiced was known as [parallel processing](#) in artificial intelligence (AI) jargon. This is evident in the same letter: *Nor do I hear in my imagination the parts successively, but I hear them, as it were, all at once (gleich alles zusammen)*. Here Mozart tried to contrast his thinking style to verbal thinkers' style of one word at a time or one sentence at a time, also known as sequential processing in AI jargon....

One of the mysteries of creativity was highlighted by a remark of mathematical genius, Carl Friedrich Gauss. In referring to a long-standing problem, which he had just solved, Gauss said, *The riddle solved itself as lightning strikes, and I myself could not tell or show the connection between what I knew before, what I last used to experiment with, and what produced the final success*. Tesla also used the metaphor of lightning to describe his sudden discovery, but he then went on to describe the visual image that he had seen in his "mental operations" (thinking). Piecing all these hints together, there is little doubt that Gauss solved his problem by visual thinking and his inspiration came from part of a picture like a lightning flash.

**Daoist insight?** A clue from Eastern traditions is that offered by a famous tale of the Zen butcher, variously translated (*Chuang Tzu: "The Dexterous Butcher"*), or otherwise told (Osho, *A Zen Butcher: Buddhist Spiritual Story*)

Prince Wen Hui's cook was cutting up an ox -- Out went a hand -- Down went a shoulder -- He planted a foot -- He pressed with a knee. The ox fell apart with a whisper. The bright cleaver murmured, like a gentle wind. Rhythm! Timing! Like a sacred dance. Like "The Mulberry Grove," Like ancient harmonies! *Good work!* the Prince exclaimed, *Your method is faultless! Method?* said the cook, laying aside his cleaver. *What I follow is Tao, Beyond all methods!* (Cutting Up an Ox, *The Way of Chuang Tzu*. Translated by Thomas Merton. 1970)

**Flow:** The Zen tale could be said to take a modern form through [flow psychology](#) (Mihály Csíkszentmihályi, *Creativity: Flow and the Psychology of Discovery and Invention*, 1996). This is described as the mental state in which a person performing some activity is fully immersed in a feeling of energized focus, full involvement, and enjoyment in the process of the activity. In essence, flow is characterized by the complete absorption in what one does, and a resulting transformation in one's sense of time.

Flow has been the focus of widespread study (S. A. Jackson and Mihály Csíkszentmihályi, *Flow in Sports: The Keys to Optimal Experiences and Performances*, 1999; C. Mainemelis, *When the Muse Takes It All: a model for the experience of timelessness in organizations*, *The Academy of Management Review*, 26, 2001, 4).

## Interweaving cycles to form a ball -- as a complementary metaphor for 16 SDGs

**Mapping transformative strategic cycles:** The point has been readily stressed that there is little available insight into the manner in which the SDGs interweave in systemic terms, as might be suggested by their representation as a 16x16 matrix for example. This would might well be considered as incomprehensible in its own right, except to the limited extent that complex spreadsheets can be effectively "read" by some. Would it exemplify coherence in the manner which seems to be required at this time, as otherwise argued (*Spherical Accounting: using geometry to embody developmental integrity*, 2004)?

Any focus on the linkages between the individual SDGs at the macro level constitutes a controversial and presumptuous study in its own right. This is in fact a feature of the interlinked databases of the *Encyclopedia of World Problems and Human Potential* (which have notably incorporated the preoccupations of [Agenda 21](#) and subsequent UN strategic articulations).

**Metabolic pathways:** Alternatively there is a case for exploring the use of a aesthetic mnemonic device that has long been adapted to

render into song a coherent pattern of equivalent complexity at the microlevel -- namely the complex set of [metabolic pathways](#) variously represented in metabolic pathway maps as illustrated separately (*Sonification as a mnemonic aid to global sensemaking*, 2020). This recalls the effort to use song as a mnemonic aid to comprehension of the complex pattern of with which the biochemists currently focused on vaccine development are liable to be especially familiar (Harold Baum, *Biochemists' Song Book*, 1982/2003; *The Biochemists' Songbook MP3 Files*). This presents information on the complexities of interweaving metabolic pathways, set to well known songs, as an enjoyable memory aid -- "songs for all". There are complex biochemical diagrams, music notation, and an average of ten informative verses for each song.

The device in question involves the adaptation of biochemical descriptors for features of recognizable cycles forming the array of metabolic pathways -- a process which could be envisaged for the set of SDGs. The appropriateness of this approach was recognized by Franz Josef Radermacher (FAW - Institute for Applied Knowledge Processing, Ulm) in launching a book (*Balance or Destruction: eco-social economy as the key to global sustainable development*, 2002), in association with the [Global Marshall Plan Initiative](#), accompanied by a CD of 12 songs of *The Globalization Saga: Balance or Destruction* (2004)..

19 Songs featured in the <i>Biochemists' Songbook</i>	
Mnemonic songs of biochemical pathways	Popular tunes for the mnemonic songs
<a href="#">The Glyoxylate Cycle</a>	<a href="#">The Lincolnshire Poacher</a>
<a href="#">Photosynthesis</a>	<a href="#">Auld Lang Syne</a>
<a href="#">The Michaelis Anthem</a>	<a href="#">The Red Flag</a>
<a href="#">In Praise of E.M.P.</a>	<a href="#">The British Grenadiers</a>
<a href="#">Waltz Round the Cycle</a>	<a href="#">Waltzing Matilda</a>
<a href="#">Beta-Oxidation</a>	<a href="#">There is a Tavern in the Town</a>
<a href="#">The Battle Hymn of the Aerobes</a>	<a href="#">Battle Hymn of the Republic</a>
<a href="#">The Chemiosmotic Theory</a>	<a href="#">Eton Boating Song</a>
<a href="#">Fatty Acid Biosynthesis</a>	<a href="#">Men of Harlech</a>
<a href="#">We're Here Because Urea</a>	<a href="#">The Bold Gendarmes</a>
<a href="#">Protein Biosynthesis</a>	<a href="#">My Bonny Lies Over the Ocean</a>
<a href="#">Blood Sugar</a>	<a href="#">A Policeman's Lot is not a Happy One</a>
<a href="#">Haem Biosynthesis</a>	<a href="#">The Road to the Isles</a>
<a href="#">Metabolism of Odd-Number Carbon Fatty Acids</a>	<a href="#">Tit Willow</a>
<a href="#">Regulation of Ketogenesis</a>	<a href="#">Clementine</a>
<a href="#">Purine Biosynthesis</a>	<a href="#">Camptown Races</a>
<a href="#">Cholesterol Biosynthesis</a>	<a href="#">Cwm Rhondda</a>
<a href="#">The Pentose Phosphate Shunt</a>	<a href="#">McNamara's Band</a>
<a href="#">A Cautionary Carol</a>	<a href="#">Good King Wenceslas</a>
See also: Jeff Cohlberg ( <a href="#">Biochemistry Songs</a> ); Kevin Ahern ( <a href="#">Wildly Popular Metabolic Melodies</a> )	

## Craft insights from weaving, braiding and juggling -- and play

**Integrity and playfulness?** The song book approach can be taken further by suggesting that **the 16 SDGs so configured then form a ball in which the cycles are interwoven to exemplify their strategic integrity** -- readily recognized as a requisite criteria of the knowledge architecture of global governance. It is then the manner in which the cycles are interwoven which transforms the challenge of memorability and coherence.

The role of a ball as central -- if not fundamental -- to the aesthetics of integrity and playfulness can be readily recognized and explored (*Playfully Changing the Prevailing Climate of Opinion*, 2005; *Humour and Play-Fullness: essential integrative processes in governance, religion and transdisciplinarity*, 2005; *Envisaging a Comprehensible Global Brain -- as a Playful Organ*, 2019).

The role is recognized in the modern jargon reference to "having a ball". This offers a traditional reference to the role of a ball -- as a formal dance -- with all the patterns that may be cultivated in that process.

**Weaving as a hands-on craft of psychosocial significance:** It is curious to note the importance associated with weaving in many cultures around the world. It featured prominently in the promotion of the political initiative of Gandhi. His use of the spinning-wheel raises the question of what might be an equivalent symbol, appropriate to those cultures, that would weave together the threads of insight appropriate to world governance?

As discussed separately modern governance can be seen here as essentially conceived in terms of 'warp' -- the threads of a single directionality -- and every effort is made to avoid designing in 'weft' -- namely threads of a contrasting directionality (*Warp and Weft: Governance through Alternation: world governance as a Gandhian challenge for the individual*, 2002).

That argument points to a kind of reality-spinning radical philosophy that could represent an individual reframing of Gandhi's *swaraj*. Part of the challenge is that, through inability to respond to such cross-cutting issues in the governance of one's personal world, they are projected onto the challenges of world governance (*Warp and Weft of Future Governance: ninefold interweaving of incommensurable threads of discourse*, 2010). The argument raises the possibility of a reinterpretation of Gandhi's *satyagraha* to transcend its implicit polarization -- as a way to engender a different quality of world governance.

It is also useful to recall the role of a weave in holding the story of a traditional culture. Especially intriguing has been its role in embodying treaty relationship between peoples as in the case of [wampum belts](#) -- inviting speculation as to their future development (*Quantum Wampum Essential to Navigating Ragnarok: thriving in crisis through embodying turbulent flow*, 2014).

**Woven balls -- and ball games:** It is in this context that it is useful to note the manner in which a ball may be woven and used in ball games significant to a culture. For example, the game of [sepak takraw](#), a popular form of kick volleyball in Southeast Asia, uses a [woven](#)

ball that, in its simplest form, has 12 pentagonal holes and shows a weaving pattern with 20 intersections, recalling the structure of the regular **dodecahedron**, one of the Platonic solids.

Traditionally made from **rattan**, such a ball may be constructed from six long strips), with five strips defining the pentagonal holes and a sixth strip forming a closed loop that wraps around twice ([video](#)). There are many instructions for weaving a 6 strand ball on the internet. (Sankaraishaya, *6 Strip Woven Ball - an Alternate Method*). A 10-strip version can be constructed (*10 Strip Woven Ball, Instructables Craft*).

Given the argument above regarding the potential relevance to envisaging the 16 SDGs otherwise, it is especially provocative to note a 16-strip version constructed through a combination of the 6-strip and 10 strip techniques (Sankaraishaya, *Starball - a 16 Strip Woven Ball, Instructables Craft*). Each "strip" can then be understood as representing a strategic cycles in some way -- necessarily interwoven with the other 15.

16-strip woven ball (adapted from Sankaraishaya, <i>Starball -- a 16 Strip Woven Ball, Instructables Craft</i> )	
Original image	Indicative attribution of selected abridged SDG titles
	

With respect to the "17th SDG" -- the coordinative goal, seemingly missing from the configuration of the 16, this could be understood as associated with the centre of the ball.

**Braiding and juggling:** The weaving skills, fundamental to the structures above, are a feature of the widespread traditional practice of **braiding**. Both are studied from a topological perspective. More curious is the extent to which processes of governance can be recognized in juggling term (*Governance as "juggling" -- Juggling as "governance": dynamics of braiding incommensurable insights for sustainable governance*, 2018). The new approach of the **Triple Helix** concept of innovation can be understood as one of braiding (*Braiding the Triple Helix and beyond -- as an exercise in juggling?* 2018).

## Recognizing the subtle connectivity of the aesthetic process of organization

As previously argued, it is curious the extent to which an early aesthetic sense of "organ" as a musical instrument has come to be displaced by those of biological, social and material significance. Whilst "organization" does indeed lend itself to interpretation in those terms, carefully dissociated from any aesthetic connotations, the process of "organizing" invites recollection of a dimension now typically understood only through "design". However, given the musical connotation of organ, to what extent is organizing a matter of play -- generically understood (*Envisaging a Comprehensible Global Brain -- as a Playful Organ*, 2019).

From any such perspective, the fundamental role attributed to the entrepreneurs of major corporations suggests that they could be seen as composers and skilled performers, as would otherwise be appreciated in aesthetic terms. Recalling the classical role of such as Bach, are Zucherberg, Musk, Jobs, and Bezos, now to be understood as the influential "**Kapellmeisters**" of an information-based society? The aesthetic dimension is then partially evident in the sense in which they are each recognized as engendering a reality distortion field.

Rather than the emphasis offered by a singular "Kapellmeister", the requisite creative interplay between those engendering any such has been suggestively explored, as with the players of Herman Hesse's *Glass Bead Game* (1943), M. A. Foster's *Game Players of Zan* (1979), Robert Graves' *Seven Days in New Crete* (1949), or Gary Zukav's *The Dancing Wu Li Masters: An Overview of the New Physics* (1979). The latter prefigures the degree of team work now associated with the process.

It is however very curious to note that -- despite frequent references to interdisciplinarity, to multidisciplinary, and even to transdisciplinarity -- there is little sense of the requisite discipline by which any such concern could be engendered, as noted previously (*Integrative Knowledge Project*). There is a degree of mystery to the multiple "ways of looking" which tend to be extensively cultivated in the arts -- if not in the sciences -- as discussed separately (*Variety of "ways of looking" -- binary or otherwise*, 2021; *Improvisation in Multivocal Poetic Discourse*). The pattern is exemplified in the assembly of instruments in an orchestra, a choir, or a musical group. Especially striking is the seemingly undirected choreography of improvisation in such settings -- exemplified in some particular forms of folklore (*Basque lauburu and bertsolaritza as catalysts of global significance*, 2016).

The challenge of interweaving disparate cognitive modalities is rarely addressed -- with disastrous consequences resulting from oversimplification (*Interweaving Thematic Threads and Learning Pathways*, 2010; *Dynamics of N-fold Integration of Disparate*

*Cognitive Modalities*, 2010; *Global Coherence by Interrelating Disparate Strategic Patterns Dynamically: topological interweaving of 4-fold, 8-fold, 12-fold, 16-fold and 20-fold in 3D*, 2019; (*Strategic Dialogue through Poetic Improvisation: web resources and bibliography*, 2009)

## Reading the weave and communicating musicality

**"Reading"**: Faced with an array of strategic challenges and possibilities -- a crisis of crises -- how is the situation to be "read"? What cognitive capacities can be drawn upon? One answer lies in the array of rational tools which have been assiduously developed and deployed -- only to prove less than adequate, if not problematic in their own right.

The argument here evokes the possibility of a more aesthetic appreciation of the challenge -- framing the question as to how any such "reading" is to be undertaken. Understood otherwise, reading can be expressed more subtly as suggested by "reading the weave". Here weave is understood metaphorically as the manner in which problems and strategies weave together -- a metaphorical notion of warp and weft, as explored separately (*Warp and Weft: Governance through Alternation: world governance as a Gandhian challenge for the individual*, 2002).

Far less evident is the meaning to be associated with that mode of reading and how it might be enabled. Further understanding may well call for expression in aesthetic form -- and in modes distinct from those conventionally relied upon.

Clues to reading otherwise are evident in reference to unusual abilities to: "read the land", "read the weather", "read a person" (notably an opponent), "read a card game", "read an animal" whether domestic or wild (exemplified by the *Horse Whisperer*). Clearly a conductor has a special capacity to read the score of orchestral music -- a capacity readily eluding description. A general might have such a skill in reading a military confrontation. A tracker would necessarily have a particular capacity to read a trail.

Even more obscure is the association of such reading with engagement with the liminal (*Living as an Imaginal Bridge between Worlds: global implications of "betwixt and between" and liminality*, 2011). This may be cultivated by poets or of nature now clarified with respect to witchcraft (Charmaine Sonnex, *Flow, Liminality, and Eudaimonia: pagan ritual as a gateway to a life with meaning*, *Journal of Humanistic Psychology*, 2020; *What is Liminal Space and Why is it so Important in Witchcraft?; A Witch's Reflection on the Liminal*).

In the sense of being able to "read sign", it may be more evident in the capacity to read insignia, wampum and quipu -- especially what this may imply for the future (*Quantum Wampum Essential to Navigating Ragnarok: thrive in crisis through embodying turbulent flow*, 2014).

**Communicating musicality?** The related issue is the capacity to communicate what is "read" in that way, potentially calling for a distinctive mode of expression. Valuable emphasis has been placed by the poet *Rainer Maria Rilke* on the requisite "musicality of language" to which many commentators now refer.

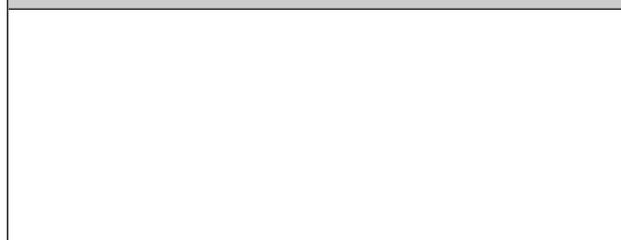
This may well be contrasted with issues raised with respect to the tone of voice employed in the conventional advocacy of strategies (*Varieties of Tone of Voice and Engagement with Global Strategy: alternating between a requisite variety of voices to engender coherence?* 2020).

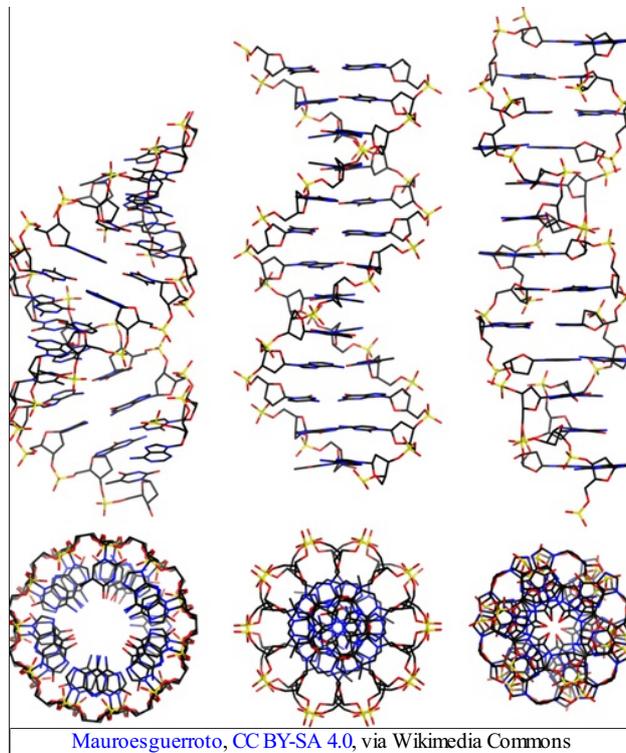
A major difficulty in promoting any complementary aesthetic modality is the uncritical enthusiasm of those upheld as skilled in that mode. Whilst they may be appropriately critical of others, there is little evidence of sensitivity to their own limitations. There is a dearth of appropriately self-critical aesthetics in the face of a crisis of crises long deplored in an aesthetic mode to little effect, as discussed separately (*Poetry-making and Policy-making: arranging a Marriage between Beauty and the Beast*, 1993). A related point has been made by the poet *John Keats* in arguing for *negative capability*.

Of some relevance in that regard is the argument of *Jacques Attali* (*Noise: the political economy of music*, 1985). Attali noted the manner in which the organization of favoured styles of music pre-figures emergent styles of organization and governance more appropriate to changing circumstances of civilization. In its anticipation of an ideal future the remedial possibilities for the present are then far less evident.

**Metaphor**: A potentially useful metaphor to highlight the cognitive challenge of engaging with complexity is the DNA *double helix*. For humans this organizes a coiled coil of some 50,000 protein-coding genes -- clearly far beyond any conventional capacity of comprehension, despite their role in sustaining life. Rather than a **longitudinal view** of such a structure, an **axial view** offers a comprehensible pattern of interlinkages. Arguably any strategic comprehension, aesthetically enhanced by symmetry, rhyme and rhythm, calls for such a cross-sectional perspective -- as a distinctive form of "reading". As illustrated below, the axial view bears a strong resemblance to integrative images such as mandalas and the like (*Eliciting Insight from Mandala-style Logos in 3D: interactive engagement with mandalas and yantras in virtual reality*, 2020).

**Longitudinal and cross-sectional structures of A, B and Z DNA**  
(left to right)





**Conclusion?** Although the DNA metaphor is indicative -- as variously explored separately -- in concluding this argument, it is secondary to the central issue (*Climbing Elven Stairways: DNA as a macroscopic metaphor of polarized psychodynamics*, 2007; *DNA Supercoiling as a Pattern for Understanding Psycho-social Twistedness*, 2004). Similar reservations can be made regarding efforts to design mandala-like structures to enhance cognitive focus (*Concordian Mandala as a Symbolic Nexus*, 2016; *Speculation on Potential Symbolic Relevance of the Concordian Mandala*, 2016; *Reimagining Guernica to Engage the Antitheses of a Cancel Culture*, 2022).

The challenge framed by this argument is however rendering evident the patterns of rhyme, rhythm and symmetry in poetry, song and music in terms of their capacity as "strange attractors". How indeed can they be related to an "axial reading" of remedial strategies to complement the potentially alienating efforts at any "longitudinal reading" of those strategies? How can engagement with remedial strategies acquire an aesthetic dimension, as separately argued (*A Singable Earth Charter, EU Constitution or Global Ethic?* 2006)? As indicated there, mixing metaphors, is it a case that for any strategy: *if one cannot sing it, it will not fly?* This is ironically reminiscent of the dependence on ritual chanting (especially by witches).

As presented here, a vital key to such exploration is the role of numbers in ordering such insight for mnemonic purposes -- as may have been the key to Mozart's and Tesla's skill. A similar case can be made with respect to religious discord (*Mathematical Theology: future Science of Confidence in Belief -- self-reflexive global reframing to enable faith-based governance*, 2011).

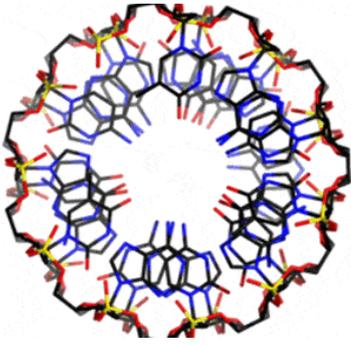
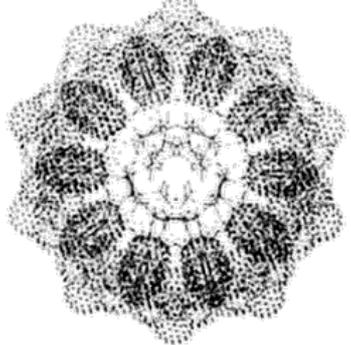
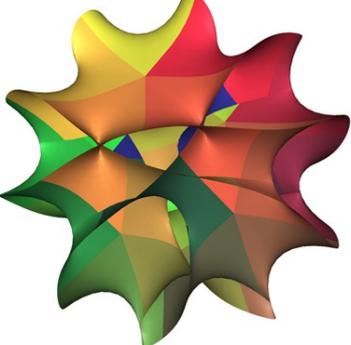
**Longitudinal vs Axial perspectives?** Rather than arguing the case in terms of the collective engagement with the abstraction of a remedial strategy, the possibility may be clarified by reference to individual identity and life strategy. Arguably great efforts are made to present these through devices enabling a "longitudinal reading", such as: a CV, a biography, an eulogy, or an obituary. Corresponding efforts are made to present aspects of them enabling an "axial reading" through which identity can be sensed at a glance, such as: a photograph, an identity card, a medal, an award, an aphorism, or an epigram. For the individual, the first enables exploration of "who am I" in terms of a life journey with its implied sense of destiny. The second only implies or suggests a sense of "who am I" through an aspect or facet -- however much it may be taken as an expression of it, as in the case of a medal.

An individual may however endeavour to articulate a more comprehensive sense of identity through devices which offer a higher degree of integrative cognitive engagement. These could take the form of: a song ("my song"), an image (as with a mandala or a heraldic insignia), a motto, or perhaps by "making a mark" (as in construction of an iconic building). As an "axial" presentation of mnemonic value -- a symbol -- the issue is the degree to which the design holds and implies the variety of dimensions of the strategy with which the individual identifies.

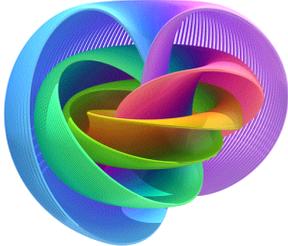
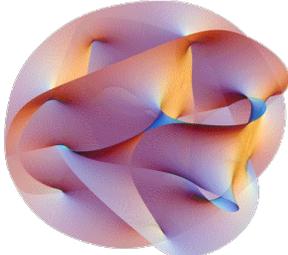
**Compactification of significance?** Intriguingly the challenge is reminiscent of the [compactification of dimensions](#) imagined in the fundamental physics of superstring theory as descriptor of reality. There it is assumed that the [extra dimensions](#) are "wrapped" up on themselves, or "curled" up on [Calabi-Yau spaces](#), or on [orbifolds](#). Physicists offer little guidance on how an individual might engage with such a metaphor in framing any sense of identity. It is however the case that the orbifold framework has been applied to music and its comprehension, notably by [Dmitri Tymoczko](#) (*The Geometry of Musical Chords*, *Science*, 2006; *A Geometry of Music*, 2011), as discussed separately (*Musical implications of orbifolds for comprehension of questioning dynamics*, 2014).

The complexity implied by simplistic representations of the Calabi-Yau manifold (below right) can be discussed in relation to collective strategies of requisite higher dimensionality (*Global Brane Comprehension Enabling a Higher Dimensional Big Tent?* 2011).

Complexification and compactification of significance		
Suggestive animation of 3 contrasting axial views of DNA (from image above)	Composite axial view of DNA (discussed in <a href="#">Comprehending cognitive</a> )	2D slice of a 6D Calabi-Yau quintic manifold

	<i>metabolism</i> , 2012)	
		
Combination of images of <a href="#">Mauroesgueroto</a> , CC BY-SA 4.0, via Wikimedia Commons	Adapted from Reginald Brooks ( <i>GoDNA: The Geometry of DNA</i> , 2001)	<a href="#">Andrew J. Hanson, Indiana University</a> , CC BY-SA 3.0, via Wikimedia Commons

Animation (as below) can be used to enhance the cognitive attraction of such representations -- but without addressing the issue of their cognitive significance.

<b>Animations of visual renderings suggestive of higher-dimensional cognitive osmosis in a global brain</b> (Reproduced from <i>Envisaging a Comprehensible Global Brain -- as a Playful Organ</i> , 2019)		
Hypersphere (Hopf fibration)		Calabi-Yau manifold
	<p>The image on the right from <i>Wikipedia</i>, which originally appeared on the cover of <i>Scientific American</i>, Nov. 2007). Such manifolds are higher-dimensional analogues of <b>K3 surfaces</b> of significance in <b>superstring theory</b>. The extra dimensions of spacetime are sometimes conjectured to take the form of a 6-dimensional Calabi-Yau manifold.</p> <p>The image was previously used in a separate speculative discussion of <i>Global Brane Comprehension Enabling a Higher Dimensional Big Tent? Strategic implication in encompassing nothing and coming to naught</i> (2011).</p> <p>The animation of the original image made use of selected aesthetic possibilities of Photoshop -- of which many others might be employed to improve the suggestive quality of the animation.</p>	

**Sonification of significance?** One response to the massive quantities of data collected by astronomy, and by physics research on fundamental particles, is the use of **sonification** (or auditory display) to enable elusive patterns to be detected through sound rather than the constraints of visual recognition (Clemency Burton-Hill, *The sounds of science: how physics and music can help each other*, *Financial Times*, 19 October 2013; Harriet Jarlett, *Sonified Higgs data show a surprising result*, *CERN News*, 1 April 2016; Sophie Hetherington, *CERN scientists perform their data*, *CERN News*, 3 October, 2014).

It is curious, especially given the controversial collection of quantities of data of psychosocial relevance, that the challenge of its organization and comprehension is not addressed through frameworks of equivalent complexity to that supposedly required for the representation of fundamental physical reality. Their inhibition would seem to be a prevailing naive assumption regarding the relative simplicity of psychosocial reality and any remedial strategies required -- despite the acknowledged complexity of crises and the highly questionable track records of simplistic strategies. Expressed otherwise, there is no social science equivalent to CERN or ITER, although there is every suspicion that such data is manipulated with little concern to its comprehension..

There is already the surprising capacity of AI to compose music held to be of credible quality. Arguably there is the future possibility of using AI to render "verbose" discourse (characteristic of any "longitudinal" perspective) into succinct patterns of sound to enable a debate to be presented compactly for ready comprehension (in "axial" terms), as variously discussed separately:

- *Information Visualization and Sonification: displaying complexes of problems, strategies, values and organizations* (2001)
- *Conversion from tweets to songbites to ensure integrity of communication* (2014)
- *Sonification of Twitter Leadership at the G20: a surprising musical opportunity for Donald Trump to sound a new note* (2017)
- *Enabling meaningful engagement in climate change discourse through sonification* (2019).

One indicative response to the challenge is the organization of sound inspired by string theory (PerMagnus Lindborg and Joyce Koh, *Multidimensional spatial sound design for 'On the String'*, *Proceedings of the International Computer Music Conference*, 2011).

**Completely missing however, with respect to collective strategy, is the cognitive significance purportedly implied and articulated by anthems**, for example, despite the fundamental value accorded to them -- as with the *Anthem of Europe*. (*Reversing the*

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