



# *laetus in praesens*

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25 November 2024 | Draft

## **Strategic Paralysis through Ignoring Higher Dimensional Articulation**

### **AI assistance in engaging meaningfully with complexity beyond oversimplification**

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#### Introduction

Humanity's "own goal" as a consequence of strategic paralysis

Insights via AI from biological cell cleavage into comprehension and communication

Embodiment of insight beyond capacity for verbal articulation

From 5-fold to 8-fold and 16-fold patterns -- and beyond

Cognitive insights from 24-fold organization of music

Transformational implications of 6-fold organization in 4D

Intuitive identification of more complex patterns

Global strategic coherence in 5D?

Towards navigation of multidimensional complexity via a "Rosetta Stone"?

Sense of identity within "curled-up dimensions"?

Beyond "flattened" configurations of strategic insights and principles

Memorable and communicable representation through mnemonic resonance

Eliciting comprehensible order of higher dimensionality via geometry

Gamification and transcending the dynamics of particular games

Strategic geometry as "making points", "taking sides", gaining or losing "face" -- or an "edge"

Metaphorical strategic geometry from the perspective of "optics"

Strategic objectivity, metaphorical embodiment, and the observational challenge

Recognition of global strategic diseases -- "blindness", "deafness", "posture", ADHD?

Strategic romance, courtship and seduction

Strategic implications of sexual dynamics and their exciting representation

References

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## **Introduction**

The future may characterize the present period as one of strategic paralysis in the face of a [polycrisis](#). That is not to imply that strategic thinking currently lacks a dynamic or a path of development in the face of

complexity. The inertia derives from the manner in which strategy is apparently locked into simplistic binary patterns. The primary focus is on singular enemies, exemplified by "Russia", "China", or "Hezbollah". This extends to the *dramatis personae* of the global problematique distinguished separately: poverty, injustice, pollution, shortages, unemployment, and the like. As a strategic drama these are held to be appropriately framed by the UN's [Sustainable Development Goals](#) (SDGs) -- which the recent *Summit of the Future* endeavoured desperately to "turbocharge", as discussed separately (*Turbocharging SDGs by Activating Global Cycles in a 64-fold 3D Array*, 2024).

The binary patterns follow from the massive strategic effort to achieve a degree of monopolar hegemony in the face of multipolar trends. These evoke authoritarian repressive measures readily deplored by critics as characteristic of fascism, most notably with the election of Donald Trump. Curiously critics are seemingly handicapped in articulation of any alternative to that of simply "stopping" such repression. The organization of a democratic multipolar world order is proving elusive, however much it is enthusiastically promulgated as a viable ideal in the current context by many "voices" -- themselves characterized by their dysfunctional differences. Ironically even the possibility of "two-state" reconciliation of conflicts is excluded (*Reframing "Two-state" Possibilities*, 2024; *Clarifying a Two-state Pattern Language of 64 Modalities*, 2024).

Rather than seeking insight via AI regarding the current strategic situation, the UN's Summit of the Future focused much of its attention on the articulation of a *Global Digital Compact* as a priority in constraining its use -- demonstrating little ability to comprehend how AI might be of significant benefit in the face of a polycrisis, as discussed separately (*Analysis by AI of Reports of UN Debate on Artificial intelligence*, 2024; *Reframing UN's Global Digital Compact as a coherent memorable pattern*, 2024). There is little capacity to appreciate how AI might enable "re-search" of the world's neglected knowledge resources, gleaned potential insight wherever it may be found -- rather than within the confines of silos which currently authorize constrained conventional research (*Mathematical Modelling of Silo Thinking in Interdisciplinary Contexts*, 2024; *Facilitating Global Dialogue with AI?* 2024).

The question explored here is how AI might enable insights into complex arrays of categories of strategic significance. Given the constraints on human memory and comprehension, a key concern is how such arrays might be coherently configured -- and the clues and metaphors indicative of such possibilities. A strategic urgency is readily stressed (*Time for Provocative Mnemonic Aids to Systemic Connectivity?* 2018). The argument here is the further development of exchanges with AI regarding the strategic potential of higher dimensionality (*Neglect of Higher Dimensional Solutions to Territorial Conflicts*, 2024).

Given widespread preoccupation with the threat of fascism, of somewhat ironic relevance is the capacity of AI (as a threat in its own right) to reframe consideration of the variants of the Swastika in the light of the renowned insights of AI into the patterns associated with chess and the game of go (*Perception of Swastika variants as the epitome of polarization*, 2024; *Relevant integrative perspectives on the swastika from 4D?*, 2024; *Strategic implications of the relationship between incommensurable cognitive modalities*, 2024).

As in the previous experiments, the responses of [ChatGPT 4o](#) are distinctively presented below in grayed areas. **Given the length of the document to which the exchange gives rise, the form of presentation has itself been treated as an experiment** -- in anticipation of the future implication of AI within research documents (Ahmed Salem Bahammam, *Adapting to the Impact of Artificial Intelligence in Scientific Writing, Journal of Nature and Science of Medicine*, 2023). Web technology now enables the whole document to be held as a single "page" with only the "questions" to AI rendered immediately visible -- a facility not operational in PDF variants of the page (in contrast with the [original](#)). Reservations and commentary on the process of interaction with AI to that end have been discussed separately (*Methodological comment on experimental use of AI*, 2024).

Of potential relevance is the ability of readers to present the same questions (possibly revised) to any AI, especially following the further rapid development of such facilities and their access to a wider variety of sources in the future. Especially significant is the ability of AI to interrelate disparate themes in an innovative manner.

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## Humanity's "own goal" as a consequence of strategic paralysis

There is an extensive literature on "strategic paralysis" as applied to warfare, although its relevance to global governance has seemingly not been clarified (Alan Stephens and Nicola Baker, *Strategic Paralysis: strategy as an ideal, Making Sense of War: Strategy for the 21st Century*, 2006; Saridporn Soonthornkit, *Sun Tzu: Strategic Paralysis and Small Nations*, Centre for Air and Space Power Studies, 2001, 4; Richard Newton, *Strategic Paralysis in Irregular Warfare*, *Air Power Review*, 14, 2011, 1; David Fadok, *John Boyd and John Warden Report: Air Power's Quest for Strategic Paralysis*, 1995). With its 3D implications, such studies can be understood as anticipating the challenges of space warfare in 3D

As applied in warfare, the method of strategic paralysis is to attack or threaten selectively those strategic or national level targets that most directly support the enemy's war making ability and its willingness to continue with current behaviour. The strategy has been notably developed by John Warden (*The Enemy as a System*, *Airpower Journal*, 9, 1995, 1) and articulated as a *Five Ring Theory* (Richard Ganske, *Air Power: A Personal Theory of Power: annihilation, attrition, and temporal paralysis*, *The Strategy Bridge*, 2 June 2014; Gary M. Jackson, *Warden's Five-Ring System Theory: legitimate wartime military targeting or an increased potential to violate the law and norms of expected behavior?* Maxwell Air Force Base, 2000).

Depiction of the ring theory has been compared to Sun Tzu's *Art of War* by Jacques P. Olivier (*Nothing New Under the Sun Tzu: timeless principles of the operational art of war*, *Canadian Military Journal*, 14, 2013, 1) and called into question by Mike Pietrucha (*The Five-Ring Circus: how airpower enthusiasts forgot about interdiction*, *War on the Rocks*, 29 September 2015). The ring metaphor recalls the continuing appreciation of the Japanese martial arts classic (*The Book of Five Rings*).

There is considerable commentary by analysts on "strategic paralysis" in relation to various current and recent conflicts. Arguably a primary strategy of NATO has been to impose strategic paralysis on Russia (under the guise of "deterrence") -- now variously recognized to have backfired and subjected the West to strategic paralysis. The UN Security Council is also now recognized as strategically paralyzed in relation to its peacekeeping functions. Possibilities of "escaping" paralysis are now envisaged (Even Hellan Larsen, *Escaping Paralysis: strategies for countering asymmetric nuclear escalation*, *Security Studies*, 33, 2024).

Any argument that global strategy is effectively "paralyzed", whether that of the UN or otherwise, then raises the question of who has applied such a strategy to global governance, or -- more provocatively -- how the global system is applying it to itself as a form of unconscious collective *self-harm*. Unlike individual self-harm, which is often framed in psychological or pathological terms, collective self-harm can manifest through systemic decisions, policies, or behaviours that knowingly or unknowingly cause harm to the collective body of society, the environment, or future generations.

**Question:** Do you have any trace of references to collective self-harm by nations or the global system -- in contrast to individual self-harm

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With respect to any metaphorical "own goal" by humanity, the imminent prospect of global nuclear war can be readily understood in such terms -- aside from the convergence of other issues in the polycrisis.

**Question:** As strategic paralysis is currently defined, in accord with the military doctrine of full-spectrum dominance and the quest for global hegemony by any superpower, could you comment on the vulnerability of humanity to effectively scoring an "own goal". Despite the articulation of Sustainable Development Goals for governance, how might this be a consequence of a failure of root cause analysis in their pursuit and of receptivity to negative feedback from other "voices"

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**Question:** The articulation of strategic paralysis as a military objective by the [Five Ring Model](#) of John Warden seeks to make an enemy incapable of taking any physical action to conduct operations. In framing the "enemy" as a related set of systems, the model calls into question what is defined as an "enemy" -- and how -- with respect to global governance. The question relates to recognition of the problematic characteristics of any system, notably as articulated from a management cybernetic perspective by [Stafford Beer](#) as Le Chatelier's Principle: *Reformers, critics of institutions, consultants in innovation, people in sort who 'want to get something done', often fail to see this point They cannot understand why their strictures, advice or demands do not result effective change. They expect either to achieve a measure of success in their own terms or to be flung off the premises. But an ultrastable system (like a social institution)... has no need to react in either of these ways. It specialises in equilibrial readjustment which is to the observer a secret form of change requiring no actual alteration in the macro-systemic characteristics that he is trying to do something about'* (*The Cybernetic Cytoblast: management itself*, Chairman's Address to the first [International Cybernetics Congress](#), September 1969)

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**Question:** In the light of those responses could you comment on the wider implications of the potentially related insight of "analysis paralysis" as articulated by James Chen ([What Is Analysis Paralysis? Definition, Risks, and How to Fix](#), *Investopedia*, 7 July 2022). The challenges of governance in response to the polycrisis have been the focus of a multitude of studies by academia and think tanks which have arguably avoided dimensions which exacerbate that paralysis

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Of potentially related interest is the recognition of moral stasis, originally noted by Aristotle, as reframed by Ronald Weed, arguing that character deficiencies of a citizenry are the central causes of stasis and indispensable for understanding both the nature of these conflicts and their remedies ([Aristotle on Stasis: a moral psychology of political conflict](#), 2007). For the sociologist C. Wright Mills, moral stasis is the tendency to remain in a state of comfort or contentment despite knowing that changes are needed, namely reflecting resistance to change despite recognizing the need for improvement ([The Sociological Imagination](#), 1959). In an age of fact, people have great difficulty in making sense of the connections between their personal lives and society, in order to see the links between biography and history, self and world. They cannot assimilate all the information and need a "new" way of thinking that Mills called 'the sociological imagination' that would allow them to connect history and biography, to see the connections between society and its structures. The condition can be framed otherwise ([Pricking the Bubble of Global Complacent Complicity](#), 2017; [Patterns of the Past: Christian Complicity in Global Disorder](#), 2013)

The sense of stasis can be related to one of paralysis, described by Oyvind Kvalnes and Arne Carlsen ([Varieties of Moral Agency: overcoming moral paralysis in organizations](#), *Proceedings of the Academy of Management*, 2020, 1). There is however moral paralysis, described as occurring when decision-makers are reluctant to engage in prescriptive moral agency, due to a perceived lack of protection against negative consequences. It is unclear how any such stasis relates to the human values to which reference is so frequently made in the articulation of strategy ([Freedom, Democracy, Justice: Isolated Nouns or Interwoven Verbs?](#) 2011; [Dynamic Transformation of Static Reporting of Global Processes](#), 2013).

## Insights via AI from biological cell cleavage into comprehension and communication

**Question:** You have responded usefully with regard to the swastika in relation to the 64 hexagrams and the 24-cell on which *Wikipedia* provides very extensive commentary [[Relevant integrative perspectives on the swastika from 4D? 2024](#)]. On re-reading that commentary the challenge seems to be how to render comprehensible its rich implications given the geometric complexity which are a joy to mathematicians. My question is how I might formulate a useful prompt to trigger a relatively succinct and coherent account of the

following. It would seem that it is fundamentally misleading to discuss and visualize 4-fold, 8-fold, 16-fold and 64-fold sets of categories in 2D, and possibly even in 3D, when their significance derives from their equivalent as cells in 4D polytopes which are a challenge to comprehension and verbal articulation. I am impressed by the [ZFIN database](#) and its account of the [developmental stages during biological cell cleavage](#): 2-cell, 4-cell, 8-cell, 16-cell, 32-cell, 64-cell. Could you clarify what might then be a useful prompt

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**Question:** Developmental biology describes stages of cell cleavage progressing through 2-cell, 4-cell, 8-cell, 16-cell, 32-cell, and 64-cell phases. This fractal-like growth pattern mirrors the structural elegance of 4D polytopes, such as the 8-cell (tesseract) and the 24-cell. These biological and mathematical processes offer powerful metaphors for organizing cognitive systems, particularly for 4-fold, 8-fold, 16-fold, and 64-fold categories, and for understanding the dynamics between them -- such as those encoded by hexagram line changes in the *I Ching*.

Conventional visual and conceptual representations of these arrays in 2D or 3D may misrepresent their higher-dimensional essence, falling into the trap of misplaced concreteness. How can such structures and their dynamics be more accurately understood as cells within a 4D framework? What tools, metaphors, or strategies could help articulate or visualize their complexity beyond the limitations of 2D or 3D? Finally, how might this analogy deepen our understanding of transitions within cognitive systems, systemic categories, or other domains of complex organization?

Could you endeavour a response potentially meaningful to those with cognitive and strategic concerns

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**Question:** Whilst I appreciate the response, the richness of geometric descriptions of the 24-cell suggests interpretations of cognitive significance which are too readily lost in verbal articulation. There is clearly a communication dilemma reinforcing a cognitive disconnect inhibiting insight development -- with its strategic implications

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## **Embodiment of insight beyond capacity for verbal articulation**

A previous exchange with AI focused on the strategic implications of the relationship between incommensurable cognitive modalities ([Comprehending Connectivity between Logic, Emotion, Intuition and Practice](#), 2024). There is continuing interest in the relevance of [embodied cognition](#), especially in movement (Mark Johnson, *The Body in the Mind: the bodily basis of meaning, imagination, and reason*, 1987; Maxine Sheets-Johnstone, *The Primacy of Movement*. 2011; George Lakoff and Mark Johnson, *Philosophy in the Flesh: the embodied mind and its challenges to western thought*, 1999)

**Question:** Given the 4-fold point of departure (logic, emotion, spirituality, action), the 8-fold [BaGua](#) pattern, the 16-fold set of [logical connectives](#) (with their 3 potential analogues), I am intrigued by the manner in which their verbal description is fundamentally misleading -- given the connectivity implied through 4D polytopes and the irony of a form of biological embodiment in developmental cell cleavage. This suggests that the body "knows" what eludes meaningful comprehension

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**Question:** Biological cell cleavage is notably recognized as passing through the following developmental stages: 2-cell, 4-cell, 8-cell, 16-cell, 32-cell, 64-cell. ([Stages During the Cleavage Period](#), The Zebrafish Information Network). Whilst cognitive and strategic preoccupations are especially characterized by binary divisions (and opposing perspectives), with their potential later (controversial) reframing in quaternary terms, it is only the 8-cell polytope which is framed geometrical terms -- curiously preceded by the 5-cell. Does

geometry not distinguish either a 2-cell or 4-cell from a 4D perspective -- or are these held to be trivial, or otherwise framed, despite their (highly problematic) dynamics.

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## From 5-fold to 8-fold and 16-fold patterns -- and beyond

There is a particular focus on 5-fold strategic articulation and the possibilities of its representation (*Recognition of a 5-fold global strategic focus*, 2024; *Possibility of 5-fold polyhedral configuration of global modelling parameters*, 2024; *Eliciting systemic answers from a 5-fold web of meaning?* 2019; *Possible cognitive implications of 5-foldness*, 2019). The challenge is how to integrate any such framing with other strategic articulations (*Requisite dimensionality: coherence in 4-fold, 5-fold or 6-fold terms?* 2023; *Dynamically interweaving 8-fold, 5-fold, 12-fold, 14-fold and 20-fold strategic patterns?* 2023; *Beyond the 4-fold cognitive modality: integrating the 5-fold, 6-fold and 7-fold?* 2019

**Question:** Whilst a 5-fold pattern is a prominent feature of strategic discourse, as with the Club of Rome's [Earth4All strategy](#) (and its emulation by the UN), an 8-fold pattern is evident in the UN's [Millennium Development Goals](#) (MDGs). An 8-fold pattern is however evident in the influential Chinese articulation of the BaGua, widely presented as a circular array. The MDGs were replaced by the UN's (16+1) Sustainable Development Goals (SDGs), typically presented as a 4x4 tabular array. Given the fundamental cognitive and strategic importance associated with such patterns, the responses above suggest that such presentations may be fundamentally misleading in obscuring recognition of the dynamics between their elements within a 4D context. In that sense the categories distinguished in such patterns call for recognition as "cells" in 4D polytopes -- however elusive may be their coherent comprehension

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## Intuitive identification of more complex patterns

**Question:** It could be argued that a curious form of (typically unexamined) individual or collective intuition is to be recognized in the creative identification of more complex patterns -- and the "goodness of fit" of the framing they offer for conceptual or strategic distinctions. This would appear to manifest in the symbolism or sacred geometry of 24-fold, 48-fold, 64-fold, 72-fold, and 96-fold patterns, for example -- occasionally evident in physical architecture. Their identification and communicability would appear to correspond to the mnemonic value of "magic numbers" especially indicative of balance -- as with relatively stable isotopes of the periodic table. Could that intuition be understood as a form of sensitivity to the coherence of the dynamics in 4D (or more) between the elements so configured.

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## Cognitive insights from 24-fold organization of music

**Question:** With respect to the dynamics implied by the 24-cell in 4D, is music a major accessible aid to intuitive mnemonics, given that there are a total of 24 major and minor keys in Western tonal music -- however this may frame questions regarding the musical organization of other cultures. Potentially of relevance in this regard is the work on orbifolds of Dmitri Tymoczko (*The Geometry of Musical Chords, Science*, 313, 2006, 5). This possibility would suggest the need for strategic articulation in musical form -- and its cognitive interpretation -- beyond the simplification associated with its use in symbolic tokenism

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## Transformational implications of 6-fold organization in 4D

**Question:** Descriptions of the 24-cell highlight recognition of configurations of "great" polygons, notably

squares and hexagons, presumably offering a degree of mnemonic aid to complexity. More challenging are the configurations of polyhedra of which the polytope is composed, whether octahedra or hexahedra (cubes). With respect to the 64-fold pattern of hexagrams, it may be asked how their transformational potential can be understood as associated with a configuration of 6-sided polyhedra

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## Global strategic coherence in 5D?

**Question:** Given the particular enthusiasm for 5-fold strategic articulations, how might cognitive and strategic coherence be more experientially associated with 5D rather than 4D -- especially in the light of research by physicists on the relevance of five dimensional space. Of relevance is the possibility that coherence in 5D might be more intuitively related to the subtleties of the "will to change" than recognition of the pattern of dynamics in 4D. Arguments for a "5th discipline" may be indicative of this as with the metaphorical significance of the steering wheel for a 4-wheel vehicle.

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**Question:** Given assumptions relating to the patterns of change of the challenging configuration of a 64-fold array -- however it may be represented within an 8-cell, a 16-cell, or a 24-cell -- it could be suspected that the cognitive significance of 5D is somehow implied by the binary configuration of  $2^6$

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## Towards navigation of multidimensional complexity via a "Rosetta Stone"?

Arguably there is urgent need for some form of cognitive organization, potentially framed imaginatively by the Rosetta Stone as a metaphor (*Tetrahedral Rosetta Stone of complementary fundamental metaphors?* 2024; *Memorable Packing of Global Strategies in a Polyhedral Rosetta Stone*, 2023; *Polyhedral cosmograms as Rosetta Stones -- cosmohedra?* 2023; *Systemic Crises as Keys to Systemic Remedies: a metaphorical Rosetta Stone for future strategy?* 2008)

Some such possibility is seemingly anticipated or intuited by the traditional form of [mandalas](#) and [yantras](#). Recent breakthroughs by mathematics in the geometrical facet of the [Langlands Program](#) have been framed in such terms (Erica Klarreich, *Monumental Proof Settles Geometric Langlands Conjecture*, *Quanta Magazine*, 19 July 2024).

**Question:** Any quest to encompass strategically or cognitively the 64 conditions of change suggests the further development of that response in that a 6-cube in 6-dimensional space offers 64 vertices with which those conditions might be associated. Whilst appreciating the riches of multi-dimensional mathematics, the more fundamental concern is who could benefit from its exploration and how -- given its potential strategic implications. The formal articulation offered by mathematics is necessarily alien to many who might benefit from its insights -- appropriately selected and reformulated. Arguably the challenge of memorability and communicability could be recognized as one of art rather than science framing a challenge of cognitive embodiment. This is recognized to a degree in the correspondence between the many orthogonal projections of n-dimensional polytopes and the form of yantras and mandalas as a traditional focus of meditation. If the metaphorical commentary of the 64 I Ching conditions is indeed one admirable exercise, are there others more meaningful for some -- whether aided or abetted by AI

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**Question:** Whilst valuable, that response focuses on the 64-fold example -- appropriate from some perspectives. The broader challenge would seem to be more general as one of enabling cognitive navigation of multi-dimensional complexity -- much as there is now familiarity with "zooming" in and out of

geographical maps from a local to a global perspective. Whilst mathematicians may be comfortable with this, the singular solutions that the arts might offer distract from the cognitively facility required to shift dimensional perspective with flexibility. The quest for a cognitive Rosetta Stone might then be more appropriately framed with respect to such a facility

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## Sense of identity within "curled-up dimensions"

The challenge for the future is evident in the meaning to be associated with the so-called [extra dimensions](#) of "reality", as required by string theory (Robert Garisto, [Curling Up Extra Dimensions in String Theory](#), *Physical Review Focus*, 1, 7, 9 April 1998; [How can one imagine curled up dimensions?](#) *Physics Stack Exchange*, 3 April 2012; [Would someone please explain the whole "tiny curled up extra dimensions" thing?](#) *Reddit*; Paul Sutter, [How the universe could possibly have more dimensions](#), *Space*, 21 February 2020). Whilst "curled up" is somewhat credible and comprehensible to physicists, especially intriguing is the possibility that experiential engagement with "reality", together with and any sense of personal identity, is intimately associated an entangled with such dimensions.

**Question:** Part of the difficulty in rendering any such initiative credible is the sense of alienation from abstractions which may only potentially have operational relevance (especially when imagining such possibilities is deprecated by those most skilled in the mathematics). Missing would appear to be greater insight into the sense in which the "higher" dimensions -- typically suggested as "curled up" -- are possibly especially accessible existentially. Rather than abstractions, to what extent are those dimensions intimately associated with the subtle sense of identity, will, and other values -- suggesting that degrees of consciousness are associated with the experience of degrees of dimensionality. This frames the question of how such experience is framed by particular n-dimensional "polytopes" -- however these might be understood otherwise -- as might be characterized by the undocumented imaginings of intuitive mathematicians (for example)

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Arguably there is the ironic possibility that institutional identity, as with NATO, the UN, or the European Union, is more appropriately understood in dimensions beyond those defined by an organization chart -- in 4D, 5D, or more -- especially when promoting complex strategies in response to polycrises ([Envisaging NATO Otherwise -- in 3D and 4D?](#) 2017). Is the "dimensionality" of the UN and the SDGs to be understood as inherently of a higher order -- in contrast with its conventional representation ([Mainstreaming the three dimensions of sustainable development throughout the United Nations system](#), *Sustainable Development Goals Knowledge Platform*, December 2022)? With the possibility of acclaiming the 17 SDGs as "17-dimensional", how does its coherence compare with that of the "17-dimensional" [United States Intelligence Community](#)?

Is such higher dimensionality a key to any possibility of successful [reform of the United Nations](#)?

## Beyond "flattened" configurations of strategic insights and principles

Of considerable irony is the continuing "geocentric" reference to "sunrise and sunset" by science -- effectively a fundamental betrayal of the "heliocentric" articulation of Galileo centuries ago. The irony lies in the effective promotion of "flat Earth" theory and the associated cognitive frameworks -- an archaic theory purportedly disproven by science. Curiously science offers no conceptually appropriate term for the appearance of a rising Sun as a consequence of the [rotation of the Earth](#). Given the lack of embarrassment in the promotion of such fundamental misinformation, it might be asked whether there are indications of such misleading framings with respect to strategic formulations promoted by science. Could many strategies be characterized and understood as "flat Earth" strategies engendered by a "flat Earth mentality"? ([Irresponsible Dependence on a Flat Earth Mentality -- in response to global governance challenges](#), 2008).

**Question:** As variously intimated in those responses, there is a sense in which strategic insights, or articulations of values and principles, are typically represented in what is readily described as a "flattened" form (analogous to the orthogonal projections of n-dimensional polytopes). This may well apply to the [10 Commandments](#) or the 30-fold [Universal Declaration of Human Rights](#), for example. Should the former be understood as a 10-dimensional configuration calling for an appropriate awareness? What of the latter? Does the 5-fold strategy currently promoted by the Club of Rome call for a particular mode of 5-dimensional awareness? What of the many 12-fold articulations? How can people (or groups) recognize intuitively the manner in which they are cognitively entangled in modalities of different dimensionality -- as an expression of their identities? Potentially challenging is how to distinguish any response from the many questionable rankings of initiation as instances of misplaced concreteness

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## Memorable and communicable representation through mnemonic resonance

**Question:** In the light of that response, if comprehension and articulation of global strategic challenges call for more memorable and communicable representation, the question may be how to achieve this succinctly. A major difficulty would then appear to be the avoidance of presentations readily interpreted superficially and tokenistically, despite the intention of the designers. If a mnemonic dimension is fundamental in a world increasingly challenged by erosion of collective memory, could you comment on the challenge in terms of the "art" of rendering comprehensible and coherent the relevant insights of mathematics -- possibly exemplified by the symmetry of particular polytopes and their representation. Could that challenge be framed otherwise

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## Eliciting comprehensible order of higher dimensionality via geometry

The use of geometry indicative of higher dimensionality has long been appreciated in the form of so-called [sacred geometry](#).

**Question:** The difficulty with that response is that it is indeed appropriate but unfortunately reflects many endeavours which have already been so framed -- and duly undertaken with questionable success. Given that AIs have already been trained on relevant mathematical texts -- as with succinct entries in *Wikipedia*, *Wolfram Mathworld*, or other encyclopedias -- how might a prompt be usefully crafted to elicit the forms of succinct memorable coherence which mathematicians have little motivation to frame. What mathematical insights would be appropriate to eliciting higher dimensional order from the 64 primary categories of the [Mathematics Subject Classification](#). Is it probable that AI could improve on that, given the widely cited success with proteins and new materials

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**Question:** The lack of motivation of mathematicians with respect to the memorable organization of mathematics -- the [mathematics of mathematics](#) -- could be usefully contrasted with the many efforts to reimagine the iconic periodic table of chemical elements, and with the studies of its mathematical foundations (D. Rouvray and R. King, *The Mathematics of the Periodic Table*, 1 March 2005). How might the mathematics of mathematics be clarified and represented by AI with respect to the memorability of its coherence and its strategic implications.

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**Question:** Could you comment on how that proposal might fruitfully and imaginatively combine analogues to the creative competition of the [Eurovision Song Contest](#), the [International Mathematical Olympiad](#), and the

*Bridges Conference on mathematical connections in art, music, architecture, and culture.* Such a combination is reminiscent of the elusive suggestion of Hermann Hesse's *Glass Bead Game* in Castalia.

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## Gamification and transcending the dynamics of particular games

The preoccupation with two-sided zero sum games in a period challenged by greater complexity is remarkable, as argued separately (*Destabilizing Multipolar Society through Binary Decision-making: alternatives to "2-stroke democracy" suggested by 4-sided ball games*, 2016). The possibilities are suggested by 3-sided chess and football played by three teams over a hexagonal pitch (Geoff Andrews, *The Three Sided Football Revolution: football's new idea*, *Philosophy Football*, 9 June 2013; Sachin Nakrani, *Three-sided football gives players something to think about*. *The Guardian*, 7 May 2013; *A game of three halves*, *Philosophy Football*; see [video](#) and [video](#) and [d3fc blog](#)). Is global strategy constrained to a 2-sided modality despite such indications?

**Question:** Does the widely documented competence of AI with respect to chess, go and poker translate into competence with respect to games more generally -- informed by studies of the theory of games. Are there traces of games designed by AI of greater cognitive and strategic relevance or "interestingness" -- and by what criteria. In the quest for comprehensible dynamic patterns of higher order is that possibility to be recognized in a degree of correspondence between board-game layouts and the symmetry of yantras, as might be ironically suggested between the Viking game of [Hnefatafl](#) and the [Sri Yantra](#). Do such correspondences suggest a human tendency to become locked into the dynamics of particular games as a form of misplaced concreteness

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**Question:** How do games encode cognitive patterns?

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**Question:** In the light of that response, is there any trace of games which deliberately embody the set of 16 logical connectives -- and by extension any analogous set of emotional, spiritual or action-oriented connectives. How might the dynamics of such games be envisaged

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**Question:** Could you comment on the contrast between games in which significance and empowerment is associated with the pieces (chess) as compared with games in which significance is associated with position in an array (go). An early tafl game [Alea Evangelii](#) embodied a Gospel articulation. More questionable is whether the Viking Game originally embodied runic connotations

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**Question:** Could you comment on the current relevance of the design of a classical board game like [rithmomachia](#) -- also known as the philosophers' game -- with its emphasis on number, harmony and proportion. This may have been an inspiration for Hermann Hesse's famed *Glass Bead Game*. How might such a design compare fruitfully with a two-sided strategy game -- 16 pieces a side -- in which those of one side corresponded in significance to the UN's 16 SDGs, and those of the other to the 16 UDGs, namely the "Unsustainable Development Goals" [*Articulation of the Unsustainable Development Goals of the United Nations?*]. The 17th goal in each case would be the strategic perspective of the observer playing the game and making sense of it. Could you speculate on how the different pieces might "move" across the board -- given their systemic functions.

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**Question:** In the light of that response, and given the widespread popular participation in [massively](#)

[multiplayer online video games](#) (MMOG or MMO) enabling a large number of players to interact in the same online game world, could you speculate on any adaptation of rithmomachia might be developed -- given the elusive inspiration of the Glass Bead Game and the continuing fascination engendered by [Dungeons and Dragons](#).

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Contrasts to binary strategic framings may be envisaged, as discussed separately ([Transcending constraints of binary articulations](#), 2024). "Enveloping" was envisaged there as a contrast to "developing", together with "encycling" as a reframing of "recycling", implied by the concept of a "circular economy" ([Encycling Problematic Wickedness for Potential Humanity](#), 2014).

**Question:** A contrast to linearity in games is evident in "surrounding" (as in the [game of go](#)), emulated in "encircling" as a military strategy (and "circling the wagons"). Could you comment on the strategic implications of what might be described as cognitively "enveloping" (in contrast to "developing") or as "encycling". The latter might be understood in terms of drawing into a cycle, whether problematically (as in cycles of addiction or violence) or beneficially (as in recycling or the cyclic economy).

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**Question:** Could you comment on the apparent linearity bias in board games and ball games, as implied by patterns of moves or movement of a ball. This would appear to contrast fundamentally with recognition of the challenge of a "curved ball" and other curve-related metaphors. Furthermore, little is said of the relationships implied by spherical polyhedra and polytopes -- despite the [Pentagramma Mirificum \[Global Psychosocial Implication in the Pentagramma Mirificum, 2015\]](#). Beyond lines and curves, are there other forms of relationship that invite geometric or topological expression in games

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**Question:** That response makes no mention of the potential implications of the fundamental transformation of linearity in the geometry of polyhedra and polytopes, namely that of duality -- whereby an "edge" is transformed into a "face". How might this morphing transformation be expressed in games -- especially in the light of the metaphorical significance of both "side" and "face", or "gaining an edge". As features of the [Conway Polyhedron Notation](#), these suggest games which might be inspired by such morphing, as ironically suggested by [Conway's Game of Life](#)

# *Show/Hide AI response* #

## **Strategic geometry as "making points", "taking sides", gaining or losing "face" -- or an "edge"**

The future may well consider it extraordinary that strategic discourse and intentions are so heavily invested in "taking sides" and "making points" -- and in the challenge of gaining "face", given any prospect of losing it. Considerable effort is made to achieve a competitive "edge" -- and achieving appreciation on being on any "leading edge". Leadership may be understood as "having an edge" over others. The process of "taking sides" is clearly of fundamental importance in current global dynamics -- but with little comprehension of how "sides" fit together, or much fruitful discussion of the risks to "face" (James E. Harf, et al, [Taking Sides: clashing views on global issues](#), 2009; Rebecca S. Merkin, [Saving Face in Business: managing cross-cultural interactions](#), 2018; David Gurteen, [Losing and Giving Face: the fear of losing face is a significant barrier to open conversation in many cultures](#) 2023).

The strange commitments of leaders, articulated as being "great again", could be seen as reminiscent of the techniques of certain animals to increase their "volume" by puffing themselves up during courtship or in the face of threat. Given the importance of "scoring points", the male sexual connotations are only too evident with the focus on ever larger missiles with ever greater range, as may be tentatively explored from a future psychoanalytic perspective ([Problematic Sexual Paradoxes of Pandemic Response: denial and unconscious](#)

*cover-up in the light of Jung, Freud, and Sabina Spielrein*, 2021; Karen Smith, *What "Make America Great Again" Means: political slogan or statement of grief?* *Psychology Today*, 27 August 2016).

There seems to be little effort to relate such metaphors to the geometry from which the terms are formally borrowed, and in which the articulation of their relationship is very extensively studied. One exercise in recognizing the role of such metaphors in global strategy is discussed separately (*Metaphorical Geometry in Quest of Globality -- in response to global governance challenges*, 2009; *Engaging with Globality -- through cognitive lines, circlets, crowns or holes*, 2009). These explore the cognitive implications in terms of : *Cognitive Realignment: making points and aligning a target*; *Cognitive Circlets: learning/action cycles*; *Cognitive Crowns: all-encompassing, well-rounded experience*; *Knowing Thyself: embodying engagement with otherness*).

A peculiarity of such metaphorical borrowing from a strategic perspective is the focus on the singular with respect to a "point", a "side", or an "edge". The geometry tends to exclude (or deplore) a multiplicity of "sides", whether or not a multiplicity of "points" are made. Potentially most curious is the singularity of "face" -- even though collectives and their leaders may be recognized as "two-faced", "many-faced", or even "faceless" (Michael Schuman, *China's Two-Faced Approach to Gaza*, *Indian Strategic Studies*, 9 November 2023; Patsy Widakuswara, *Trump Accuses Canada's Trudeau of Being 'Two-Faced'*, *Voice of America*, 4 December 2019). Ironically mathematics offers the paradoxical possibility of having a single side, but with the appearance of being two-faced -- in the [Möbius strip](#).

**Question:** Given the major strategic importance associated with "gaining face" (in order to "be great again") in contrast with "losing face" (through disgrace), could you comment further on how such morphing might be embodied more insightfully in "multi-faceted" games. The issue is otherwise relevant with respect to "gaining an edge" or "losing an edge".. Less evident metaphorically is the evolution of a "vertex" into a "cell" -- or the reverse -- except perhaps as illustrated by the game of go

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**Question:** You have commented on the metaphorical depth associated with gaining or losing a "face" or an "edge". For a multidimensional context, similarly represented by polytopes, could you comment on the related significance of the gain or loss of a "point", especially in the context of any game with a focus on "scoring", notably given its sexual connotations. A point may be transformed into a face, or vice versa as a polytope is variously transformed.. Could Conway's Polyhedron Notation be recognized in metaphorical terms as the gaining or losing of face via transformation of points

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**Question:** In the light of the possibility of polytope transformations, and Conway's Polyhedral Notation, that response avoids a fundamental implication from a metaphorical perspective in emphasizing the conventional bias in scoring "points" -- "more points, the better". More symmetrical "simpler" configurations may have fewer points -- although these are then considered metaphorically "more important" (or significant) -- as with the contrast between a many-pointed articulation and that deemed more fundamental.

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**Question:** That response frames the challenge of distinguishing the metaphorical "significance" between a point in a 2D articulation, compared to that in 3D, or in a polytope of higher dimensionality. The apparent comprehensibility of that in 2D contrasts with that in a tesseract (for example), where the point may play a greater role in any pattern of symmetry

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**Question:** That response suggests a curious interplay between an apparently simple point in 2D which may "imply" the existence a complex articulation of points in 3D or more -- especially in the light of metaphorical interpretation. By contrast the "explicit" articulation (by mathematics) of points in a polytope of higher

dimensionality then "implies" the (misleading) simplicity of collapsing it into 2D. Is this a way of understanding the argument of David Bohm with respect to the relationship between implicate order and explicate order.

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**Question:** That multidimensional context suggests that greater clarity is required on the process of "making a point" or that of "ignoring" one -- especially given the possibility of engendering as a sexual connotation and with respect to strategic advocacy. The current global challenges of climate change and biodiversity loss merit particular consideration in that light.

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## Metaphorical strategic geometry from the perspective of "optics"

Metaphorical significance has been given to "optics" in public relations (David Blitz, *The Optics: perception matters more than reality in business*, *Forbes*, 14 September 2020; *Optics Matter: using perception to stay ahead of issues and challenges*, *LinkedIn*, 12 September 2023). This has been extended to global strategy (Rajeev Kunwar, *Global Optics in International Relations: Summitry of G7, NATO and Great Power Relations*, *Diplomatist*, 22 June, 2021), although previously introduced otherwise (Robert O. Keohane, *International Relations and International Law: Two Optics*, *Harvard International Law Journal*, 38, 1997, 2). This reframes the metaphorical geometrical implications in terms of the perceptions of any observer.

Given the regulatory importance associated with "oversight", any optical metaphors frame considerations of the constrained capacity of any observer in terms of visualization

**Question:** Seemingly missing from that response is the sustained confluence of factors which, in metaphorical terms, give credibility to the focus associated with "making a point". Adapting the geometric metaphor to an optical form, "making a point" can then be compared to successful formation of an image -- in contrast with any loss of focus. The metaphor then includes an implication of perception and concentration. The irony that the metaphor then offers in a strategic context is the connotation of the "optics" of the dynamics.

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**Question:** That adaptation of the argument to optics appropriately emphasizes comprehensible issues in 3D. However it might then be asked how successful "focus" and "image" formation might be understood in 4D (with its implication of a strategic time dimension), or any higher dimensionality in which integrative confluence is required -- given the challenges to such comprehension.

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## Strategic objectivity, metaphorical embodiment, and the observational challenge

**Question:** In arguing that higher-dimensional "objects" must be "flattened" into 3D representations, risking loss of nuance, the "objectivity" of both the geometric and optic metaphors are called into question in relation to perception. Arguably the engagement with the complexity of those "objects" is more appropriately achieved if the higher dimensional object is cognitively embodied. Traces of that instinctual or intuitive modality could be recognized in such references as "feeling it in one's bones" (or guts) -- valued occasionally and explicitly by leaders. Recognition of corruption may be similarly framed in terms of "stench". Do you have other traces of such non-objective insights of strategic relevance.

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**Question:** It is curious to note that in numerical terms the articulation of sets of values and principles parallel articulations of physical and geometrical principles -- potentially in terms of "magic numbers" relating to

symmetry and balance, if not cognitively engendered. Such parallels can also be cited in relation to strategic articulations. It could then be asked whether there is a degree of some kind of entanglement, if only in cognitive terms, which merits particular attention -- especially if sets of values and strategies could be enhanced by the creative thinking brought to bear on sets by physicists and mathematicians. Do advances in mathematical insight, and their technological applications, imply the possibility of comparable advances in the articulation of strategies, for example

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**Question:** Could you comment on the curious correspondence in the use of 8 and 16 as evident in: the transition from 8 Millennium Development Goals to 16 (+1) Sustainable Development Goals; Sri Yantra's two rows of (8 and 16) petals, representing the lotus of creation and reproductive vital force; the 16 logical connectives; the 8-fold BaGua pattern; the set of 16+8 attackers in Viking hnefatafl games; the set of 24 Viking runes. Beyond 7 plus/minus 2, these would appear to suggest a degree of intuitive cognitive coherence from very different cultures and cognitive modes. Do you have other examples of this 8, 16, 24 relationship

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## Recognition of global strategic diseases -- "blindness", "deafness", "posture", ADHD?

Whether there is an explicit recognition of any form of cognitive "embodiment", there is extensive borrowing of references to the physical body in metaphorical terms. Institutions and their leaders are readily framed as "blind" or "deaf". More intriguing is the recognition that they may have lost the sense of smell (with respect to the "stench" of corruption), or other sensation capacity, as with frequent reference to being "out of touch" (defined in medical terms as hypoesthesia or dysesthesia). Even more intriguing are the use of disease metaphors with respect to any sense of global connectivity, circulation or imbalance -- (*Comprehensive Pattern of Psychosocial Diseases and the Eases they Imply*, 2015; *Memetic and Information Diseases in a Knowledge Society*, 2008). Countries may themselves be seen as vulnerable to disease, as with global civilization (Jeffrey D. Sachs, *What Ails America – and How to Fix It*, *Other News*, 20 November 2024).

**Question:** In the light of the shared papers, could you comment on metaphorical use of physical pathology in framing constrained global strategic capacity -- namely civilization as diseased (rather than so-called "civilization diseases"). Especially questionable is any probability that increasing incidence of particular diseases may appropriately frame perception of strategic potential to some degree -- as with circulatory issues, autism and ADHD. Could global governance be appropriately -- if provocatively -- diagnosed as suffering from some collective analogue to Asperger's Syndrome?

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## Strategic romance, courtship and seduction

The subtleties of romance are readily articulated in poetic form. As a metaphor, "romance" is readily used as a means of caricaturing international relations (Rana Danish Nisar, *The Conclusion of the Future of India-US Strategic Romance*, *Modern Diplomacy*, 4 October 2019). This could be understood as an adaptation of the various forms of "special relationship" between particular countries. Reference is also made to "courtship" (Anna-Sophie Maass, *EU-Russia Relations, 1999-2015: From Courtship to Confrontation*, 2016; C. Owusu Kwarteng, *Israel, the Arabs, and Black Africa: The Politics of Courtship*, *Towson University Journal of International Affairs*, 26, 1992, 2; David Fergusson, *The Global Courtship: Steering a Cross-Border Deal to the LOI*, *MAA Advisor*). As might be expected, reference is also made to "seduction", if not to its outcome (*Seduction and Diplomacy: the Emergence of European Soft Power*, *ESthinktank*, 24 June 2018; Eva Herschinger, *From Exotic Seduction to Utter Normality: discourse research and international relations*, *Journal of Multicultural Discourses*, 11, 2016; Ernest Lee, *Overcoming Empire's Seduction: Decolonizing International Relations*, *E-International Relations*, 30 June 2020).

**Question:** To what extent is "courtship" (whether in romance or otherwise) already effectively recognized (if only intuitively) as a multi-dimensional interaction which could be far more appropriately acknowledged as such, rather than as a binary (even linear) game (with a focus on "scoring"). How might that recognition be articulated for fruitful translation into collective contexts

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**Question:** As a classic feature of courtship, Gregory Bateson has made the point that "one reason why poetry is important for finding out about the world is because in poetry a set of relationships get mapped onto a level of diversity in us that we don't ordinarily have access to... 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, 1972). That response avoids fundamental issues with regard to any superficial and uncritical "indulgence" in that mode of expression -- notably as a feature of ceremonial occasions -- inviting its disparagement as an exemplification of inauthenticity

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**Question:** Given the insights in that response, could you comment on the tendency to produce unreadable "turgid" prose as the primary articulation of strategic declarations -- notably by institutions which could be otherwise inspired by their values (such as the United Nations). At what stage will the "translation" of such prose be recognized as a credible necessity if the articulation is to evoke the desired uptake. Should a poetic "translation" then be recommended -- into a "language" and modality which has wider appeal. Can the issues be reframed in terms of poiesis as a cognitive underpinning of sustainability -- especially given the sense of autopoiesis.

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## **Strategic implications of sexual dynamics and their exciting representation**

**Question:** Given the fundamental psychological importance of sexual interaction (and its collective implications), do you have any comment on its elusive polyhedral/polytope representation -- despite contributions of Freud, Lacan, Jung, and others -- or potentially that associated with the BaGua depiction

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**Question:** Whilst insightful that response is necessarily descriptive and avoids the manner in which any sense of attraction and potential is embodied in a dynamic of temporal expectation as a fundamental driver. Whether implied by the dualities of a BaGua, its mapping on a cube or a tesseract, or otherwise, the sterility of such representation contrasts with the sense of existential excitement. Why are such representations not perceived as "sexy" -- given the connotations of "making a point" and "scoring". How might a 4D representation (or more) be more appropriate

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**Question:** How could the collective implications of that response be rendered more explicit? How might they relate to enthusiasm for "being great again" -- with the production of ever larger missiles? Could the SDGs be represented in a more "sexy" manner -- potentially in relation to the UDGs ("good" and "evil", etc)? How might this relate to the ever-increasing challenge of unconstrained population increase -- and perhaps, ironically, to "global warming"?

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The future may see as profoundly curious the disassociation between strategies articulated "by the head", and the prevailing reference (through expletives) to reproductive and excretory processes, as separately discussed (*Mysterious Complementarity between Capitalism and Arsenalism*, 2020; *The Coalition of the Willy: musings*

on the global challenge of penile servitude, 2004; *Problematic language for problematic times -- systemic function of "expletives"?* 2020). The expletives may well constitute metaphors crucial to sustainability and the crisis of the times.

**Question:** Whilst those clarifications are much appreciated, could you comment on the fact that the most common expletive in most sectors of society (and especially in broadcast entertainment) is typically suppressed from formal communication (shared document). And yet it is readily applied metaphorically to problematic collective (sexual) engagement with the world -- ironically recalling some mythological references to the engagement of the gods with the world.

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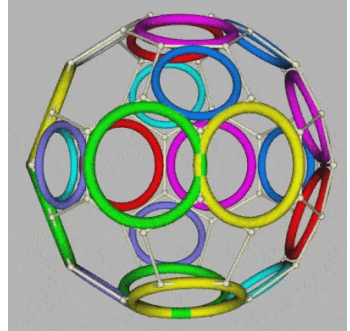
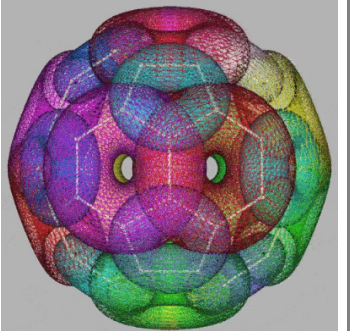
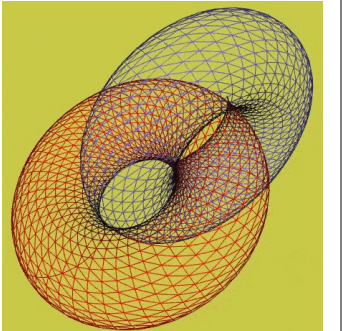
The sides of polyhedra can be understood as holes of a kind -- evoking consideration of what they might then represent (*Cognitive mystery of holes*, 2015; *Cognitive mystery of holes, lacunae and incompleteness*, 2014).

**Question:** This exchange has focused primarily on polyhedra, polytopes and the linearity of their edges. A degree of significance is attached to their approximation to a sphere -- as with geodesics. Mention was made of the global significance of the Pentagramma Mirificum -- and its curvature as a spherical polyhedron. Of relevance to the last responses is the role of "holes" in psychosexual terms -- and the targets of opportunity they represent as "loopholes" and "goals" (from a strategic perspective). It could then be asked how and when the face of spherical polyhedron approximates to a circle -- as a more receptive hole than that defined by linear edges. Their mysterious attraction is the focus of a study by Roberto Casati and Achille C. Varzi (*Holes and Other Superficialities*, 1994). Ironically the most widely recognized spherical approximation is the truncated icosahedron -- namely the association football used in scoring goals.

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It is curious that the challenges and remedies of a "global" society are explored statistically through spreadsheets. Little thought is seemingly given to the possibility of "spherical" accounting in contrast with that "linear" form (*Spherical Accounting: using geometry to embody developmental integrity*, 2014).

As a visualization challenge, the possibility of representing the familiar soccer football (a truncated icosahedron) as a pattern of holes was presented to AIs (firstly to ChatGPT 4o -- and then to Claude 3.5). The question was framed in terms of positioning toroidal circles tangentially to the 32 faces of that polyhedron using the X3D virtual reality protocol to enable the model to be displayed over the web. Although the problem can be precisely defined in geometric terms, the general solutions for all 32 sides was very diligently explored by both AIs were unsuccessful. This is indicative of the constrained development of AI capacities in 3D at the present time -- despite arguments to the contrary. The partial solution enabled by Claude 3.5 required systematic manual tweaking in order to provide the models presented below as a proof of concept which could be variously improved.

Truncated icosahedron with torus tangential to edges of each side (preliminary "proof of concept" designs)		Animation of intertwined tori
Rotation of configuration	Animation of size of torus cross-sections	Indicative engagement with a hole
		

Animations developed using [Stella4D](#) and X3D,  
with the assistance of ChatGPT 4o and Claude 3.5

Kindly developed by Sergey  
Bederov of Cortona3D  
(see [interactive 3D version](#))

The designs explored through those models were seen as an attempt to visualize the dynamics of a configuration of holes such as to highlight their mysterious nature, as noted by Roberto Casati and Achille C. Varzi (*Holes and Other Superficialities*, 1994). Use of the football as a template for that design offers an association to its own global fascination -- and that of "scoring" metaphorically understood. A further association is offered to the astrophysical dynamics of a black hole (and those of the [financial black hole](#) of global indebtedness). There are obvious constraints to designing the animation since the dynamics of the hole as an attractor call for a spiralling motion by which anything is drawn in -- suggested only to a limited degree by increasing the cross-section of the torus dynamically in the central animation.

In contrast with use of the 32-faced truncated icosahedron, a similar approach could be used with respect to the UN's 16 Sustainable Development Goals -- each goal then to be understood as a "strategic hole" evoking a scoring dynamic analogous to the game of football. One such exercise made use of the 32-sided drilled truncated cube (*Polyhedral representation of Sustainable Development Goals including "Own Goals"?* 2022). Future designs could explore contrasting dynamics for systemically distinguished holes (16 SDGs and 16 UDGs), as well as enabling user interactivity in 3D.

Ironically there is little that is obscure about the movement which could be incorporated into the design since it is a feature of wave-like muscular movements in the human body, known by the term [peristalsis](#). This is a progression of coordinated contraction of involuntary circular muscles, essential to digestion, reproduction and excretion (William G. Paterson, *Esophageal Peristalsis*, *GI Motility online*, 2006; Peter K. Sand and Donald R. Ostergard, *Rectal and Vaginal Peristalsis*, 1995; Nienke Petronella Maria Kuijsters, et al, *Uterine Peristalsis and Fertility: current knowledge and future perspectives: a review and meta-analysis*, *Reprod Biomed Online*, 35, 2017, 1). In the case of uterine peristalsis, this is associated with [vaginal contractions](#) of the pelvic muscles surrounding the vagina, generally as an involuntary muscular response to orgasm, but subject to a degree of conscious control as a means of enhancing sexual experience and pleasure for both parties during sexual intercourse. The extensively studied disorders of peristalsis -- if framed in metaphorical terms -- are potentially indicative of systemic global strategic challenges.

Given the fundamental role of such primarily unconscious movements, it is appropriate to consider what strategic implications -- if only metaphorical -- they may have as instances of cognitive embodiment (Federico Boem, et al, *Minding the Gut: extending embodied cognition and perception to the gut complex*, *Frontiers in Neuroscience*, 17, 2023). With respect to cognitive preoccupation with the forms of peristalsis other than that of the gut, the primary indication is the extraordinarily widespread use of expletives explicitly referencing them, as discussed separately (*Mysterious Complementarity between Capitalism and Arsenalism*, 2020). Such references, typically censored from public strategic discourse, curiously frame the global challenges of reproduction and waste disposal, whereas that of the oesophagus could indeed be recognized as framing that of unconstrained consumerism.

Whilst the models on the left endeavour to indicate the mysterious dynamic associated with holes, far less evident is how to engage with them (beyond the systematic use of expletives). The animation on the right endeavours to indicate one such mode -- potentially to be understood as offering a contrast between the *yin* and *yang* modalities so obviously entangled in intercourse. There the red torus has a vortex "smoke ring" dynamic (a more complex design than in the models on the left), whereas the blue torus engages with it in a wheel-like dynamic, as discussed separately (*Imagining Toroidal Life as a Sustainable Alternative: from globalization to toroidization or back to flatland?* 2019). As presented there the "smoke ring" dynamic corresponds to rectal peristalsis, whereas when reversed (as may be seen in the interactive version), it corresponds to that associated with vaginal contraction. It is perhaps profoundly ironical that such a degree of "motility" (the technical term) contrasts to such a degree with global strategic stasis -- other than in the use of the missiles by which one country "rapes" another (*Missiles, Missives, Missions and Memetic Warfare*, 2001).

Such dynamics contrast with efforts to frame the "hole" challenging humanity through the static form of a doughnut -- through [doughnut economics](#), promoted as a visual framework for sustainable development. This can be challenged and illustrated otherwise (*Integrating the doughnut, helix and pineapple models towards global strategic coherence*, 2020).

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