



# laetus in praesens

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## Coronavirus – Global Plan, Doughnut, Torus, Helix and/or Pineapple?

### Zome modelling dynamics allowing for uncertainty in perception of order in governance?

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## Introduction

The presentations here follow from an argument previously made (*Reimagining Coronavirus in 3D as a Metaphor of Global Society in Distress: crowning pattern that connects spiky organisms, satellite constellations, nuclear explosions, and egomania?* 2020). There it was suggested that -- in the urgent quest for "new thinking" -- there were insights to be gained from the form of the coronavirus in 3D. In particular this highlighted the possible **isomorphism** between the configuration of protein spikes on the viral form and psychosocial forms potentially characterized in terms of "spikes". This approach was framed as consistent with the original inspiration of the [Society for General Systems Research](#).

That argument was developed in a subsequent discussion (*Cognitive Engagement with Spike Dynamics of a Polyhedral Coronavirus: alternation between assertive arrays and systemic patterns of comprehensible coherence*, 2020). This frames the current question regarding the appropriate form of global organization and knowledge architecture required in a response to any pandemic -- and any crisis of other crises.

Given widespread urgent calls for a "Global Plan" in response to the COVID-19 pandemic, the argument first challenges the appropriateness of any "plan" in a global context. This is contrasted with the so-called **doughnut model** which has been presented as appropriate to ensuring a safe operating space for humanity. The pandemic is seen as presenting a fundamental challenge to the safety purportedly framed by that model. Consideration is then given to a torus model, of which the doughnut model is an obvious instance -- much favoured in technical and popular imagination with respect to future habitats in outer space, especially if there is a need to transfer humanity safely to a distant planet. That geometry is compared with the strategic framework associated with the helix, most notably the **Triple Helix model of innovation** in interweaving the preoccupations of government, business and academia.

The range of possibilities is then extended by suggesting a "pineapple model" of global governance -- in contrast to the doughnut model, but incorporating its focus on nine **planetary boundaries**, now seen as fundamental to sustainability within a fragile global environment. Approaches to its articulation are then explored in the light of the development of **zomes** -- as inspired by geodesic domes -- thereby incorporating insights from the polyhedra forms previously discussed.

However, rather than stressing the unquestionable superiority of any one of these approaches to "global planning", the argument concludes with an emphasis on **a need to be able to shift flexibly between geometrical frameworks** as lenses. This strategic nimbleness is usefully understood both in terms of game-playing, which has informed policy development for so long, and a degree of playfulness vital to the comprehension, memorability and communicability of any strategy expected to evoke widespread support (*Playfully Changing the Prevailing Climate of Opinion: climate change as focal metaphor of effective global governance*, 2005).

This playfulness is presented as consistent with a fundamental sense of "organizing" in its particular historical association with the organ

as a musical instrument through which harmony is variously explored. There is a degree of irony in this period of crisis in that the enthusiasm for a "global plan" by the highest authorities ignores the current familiarity from an early age with the far greater technically-supported complexity in online gaming (potentially enhanced by musical appreciation).

Such implications follow from recognition that **any future viable global organization is, to an as yet unrecognized degree, an exercise in collective imagination -- if it is to attract widespread popular support**, as argued separately (*Engendering 2052 through Re-imagining the Present*, 2012; *Imagining the Real Challenge and Realizing the Imaginal Pathway of Sustainable Transformation*, 2007; *Imagining Order as Hypercomputing*, 2014).

## Global strategic plan for coronavirus pandemic?

In response to the chaos of coronavirus and its expected aftermath, there is widespread quest for a "plan" (Selman Gebrekidan, *The World Has a Plan to Fight Coronavirus*, *The New York Times*, 12 March 2020; Ari Schulman, *What's the Plan? Yes, the Covid-19 shutdown is necessary -- but it won't work without a vision of how it ends*, *The New Atlantis*, 21 March 2020). This is now being articulated in terms of a "Global Marshall Plan" (Isabel Silva, *A new Marshall plan? MEPs debate coronavirus response*, *Euronews*, 26 March 2020; *Next EU budget should be 'Marshall Plan' for Europe: EU's von der Leyen*, *Reuters*, 2 April 2020). As noted by the latter:

"We know in this crisis that we need quick answers. We cannot take one, two or three years to invent new tools", she told a news conference, adding that the long-term budget, known as the multiannual financial framework (MFF) was its strongest tool. "We want to shape the MFF in such a way that it is a crucial part of our recovery plan... Many are calling right now for something which is called this Marshall Plan. I think the European budget should be the Marshall Plan we are laying out together as a European Union for the European people", she said.

In its focus on "quick answers", the argument is unfortunate given the absence of clarity on the questions to which they are expected to respond. It recalls only too readily the much-cited adage: *For every complex problem there is an answer that is clear, simple, and wrong*. Should the crisis frame new questions to which far more imaginative solutions are required? Or is another management adage appropriate: *Having lost sight of our objectives, we redoubled our efforts?*

Calls are indeed made for joint action and collaboration (*OECD Secretary-General: coronavirus "war" demands joint action*, 21 March 2020). The latter *Commits policy support, saying efforts must have "Ambition of Marshall Plan, vision of New Deal"*. Commentators note that any appeal for a more proactive, unified Europe may already be too late, with each country focused on its own strategy.

Variants of that model have been articulated for the World Economic Forum (Erik S. Reinert (*Why we need a Global Marshall Plan*, 22 April 2015; Robert Montenegro, *Economists propose a Global Marshall Plan for lasting peace through the 21st Century*. *Big Think*, 1 May 2015). Most recently the possibility has been articulated by Henry Kissinger following his earlier promotion of that approach (Mike Whitney, *Henry Kissinger Calls for a New Post-Covid World Order*, *Global Research*, 6 April 2020; Henry Kissinger, *Reflections on the Marshall Plan*, *Harvard Gazette*, 22 May 2015). The best humanity can hope for in the way of "new thinking"?

Such a *Global Marshall Plan* was first devised by former American Vice-President Al Gore (*Earth in the Balance: Ecology and the Human Spirit*, 1992) giving specific ideas on how to save the global environment. A *Global Marshall Plan Initiative* was subsequently instigated as an integrative organizational platform for a "world in balance".

**Spreadsheet thinking?** As in the cited declaration with respect to Europe, the primary possibility is understood to be through use of the *Multiannual Financial Framework*. This necessarily takes the form of a complex *accounting spreadsheet*, namely the means through which planar thinking with respect to a global system is articulated and reinforced. No questions are asked regarding the possibility that such a framework could be seen as a factor in the negligence which resulted in the current strategic disarray, as previously suggested prior to the systemic chaos of 2008 (*Spherical Accounting: using geometry to embody developmental integrity*, 2004).

With respect to *strategic dilemmas*, that spherical perspective highlighted the distinctions made between the "geometry" of:

- "Bottom lines": *double bottom line*, *triple bottom line*, *quadruple bottom line* and *quintuple bottom line* -- understood as nested, but of which little is said in relation to any global Marshall Plan
- Transformation of a spreadsheet to a torus
- Synergetics and tensegrity
- "Sustainability" through "golden mean accounting"?
- Towards a "semantic dome"
- Construction of "semantic shelters" or "memetic vehicles"?

Are the strategies planned and deployed in response to the pandemic to be compared to the much-cited management adage: *If your only tool is a hammer then every problem looks like a nail?*

**Unfortunate homophones?** Given the relation between "marshall" and "martial" as *homophones*, this reinforces the probability of highly unfortunate confusion between "Marshall Plan" and "Martial Plan" when there is already a degree of discussion of martial law, mobilization, conscription and "compliance" (*U.S. combats martial law conspiracy theories as the National Guard assists in coronavirus response*, *The Washington Post*, 23 March 2020; *Corona Coup: Secret military plan to impose martial law and stop civil disturbances if government is crippled by coronavirus*, *The Sun*, 22 March 2020; Stephen Dycus, et al, *Martial Law Would Sweep the Country Into a Great Legal Unknown*, *The Atlantic*, 27 March 2020).

A further concern with the focus on "plan" is the manner in which this has long been associated with the strategic skills developed in "board" games, most obviously chess and go. Can the global strategic challenges be appropriately and comprehensively transformed into

such a 2D framework without highly problematic distortion -- as is indicated by the challenge of [map projections](#) from 3D to 2D (exemplified by the extensive [List of map projections](#) in *Wikipedia*)?

A frequently cited example of homophones is that with respect to "board" and "bored". This potentially justifies suspicions regarding the efficacy of any "Bored of Directors" and the nature of its decision-making, especially given extensive metaphorical use of a "strategic plank". A sobering reflection on the metaphor is offered by the closing verse of a much-cited poem by the American poet [Emily Dickinson](#):

And then a Plank in Reason, broke,  
 And I dropped down, and down -  
 And hit a World, at every plunge,  
 And Finished knowing - then -  
 (*I Felt a Funeral, in My Brain*)

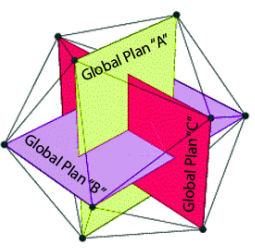
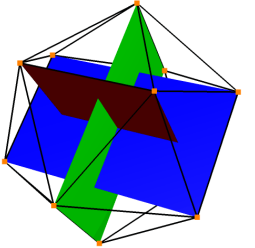
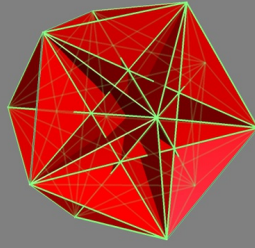
Whilst warfare has long been planned with 2D depictions in situation rooms, from a strategic perspective the point is further emphasized by the exploration of the variants of [Three-dimensional chess](#) (*Millennium 3D chess*) and [3D go](#) (*3D Go Game with AI Player*). Such a framework has already been highlighted in the popular imagination by a depictions of [3D Chess from Star Trek](#) (*Chess Variant Pages*). Such three-dimensionality now has greater relevance with the deployment of [space forces](#) by the USA and Russia. Other complications are evident from [3-player chess](#) variants and [multi-player go](#) as discussed separately (*Destabilizing Multipolar Society through Binary Decision-making Alternatives to "2-stroke democracy" suggested by 4-sided ball games*, 2016).

**Plans within unrecognized polyhedral frames?** The argument above calls into question the cognitive and strategic limitations of thinking in terms of a "plan" as being quintessentially two-dimensional when the challenge is one demanding three-dimensional geometry (or more), if only when understood in "global" terms. The contradictions could even be seen as evident when applicable to a "planet" -- as a little plan? If Christianity is to be understood as reinforcing such a framework, a vital distinction in [comprehension of planning in a global context](#) can be highlighted from a different perspective (*Adhering to God's Plan in a Global Society: serious problems framed by the Pope from a transfinite perspective*, 2014).

The need to handle complex dynamics appropriately from a strategic perspective can be stressed otherwise through the contrast between a planar perspective and the extensive insight into a so-called [complex plane](#). The question is whether any strategic plan is imbued with such insights from complexity theory. The question can be taken further through experimental animations (*Comprehension of Requisite Variety via Rotation of the Complex Plane: mutually orthogonal renderings of the Mandelbrot set framing an eightfold way*, 2019).

The polyhedral models in the earlier paper are indeed helpful in clarifying the challenge in that they are necessarily composed of a configuration of "planes" -- with which a multiplicity of "plans" could be associated as indicative of distinctive perspectives on a larger whole of higher dimensionality (however elusive). This has the potential of addressing the obvious challenge that many alternative plans are already "on the table", each in the guise of a singular "Global Plan" -- but without the slightest effort to consider how they might be interrelated and coordinated. In that spirit there can be only the "One Plan" -- and any failure to adhere to it is to be subject to the severest criticism and condemnation (as with respect to the current global lockdown). As is evident from the multiplicity of sets of global strategies at this time, this could be readily recognized as irresponsible.

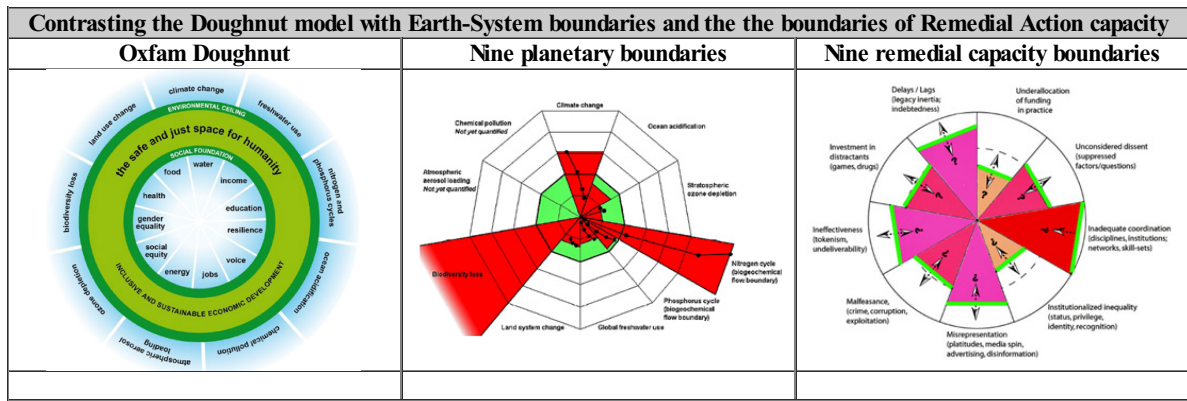
Given the icosahedral form primarily adopted by viruses, the point could be further emphasized that structurally they imply a pattern of interlocking planes (D. P. Wilson, *Protruding Features of Viral Capsids Are Clustered on Icosahedral Great Circles*, *PLoS ONE*, 11, 2016, 4). Are distinctive global plans to be understood as related in that way -- with the vertices of individual planes corresponding to the elements of their corresponding plans? More complex polyhedra would necessarily have planes with higher numbers of vertices. The image on the left below suggests how three "Global Plans" might be quite distinctively oriented with respect to one another, possibly with little recognition from each such framework of the global relevance of the others. Such "mutually orthogonal" plans are explored separately through what might be considered the archetypal variants (*Mutually orthogonal Abrahamic symbols from the perspective of projective geometry*, 2017).

Golden rectangles suggestive of internal coherence of a set of operational insights		
Dodecahedron (20 vertices)	Icosahedron (20 faces)	Icosahedron (15 golden rectangles)
		
Reproduced from <i>Coherence, comprehensibility and credibility of a cognitive toolkit</i> (2018)		

## Relevance of doughnut model to a pandemic?

The geometrical argument can be developed further through the increasing recognition of a so-called [doughnut model](#) ([Kate Raworth](#), *Doughnut Economics: Seven Ways to Think Like a 21st-Century Economist*, 2017). This doughnut-like area is defined by combining the much-debated set of 9 "planetary boundaries" (*Planetary Boundaries: exploring the safe operating space for humanity*, 2009) with a new set of 11 social boundaries, based on the 11 dimensions of human deprivation that emerged from the issues raised by governments in

their Rio+20 submissions, as separately discussed (*Recognizing the Psychosocial Boundaries of Remedial Action: constraints on ensuring a safe operating space for humanity*, 2009; *Exploring the Hidden Mysteries of Oxfam's Doughnut: recognizing the systemic negligence of an Earth Summit*, 2012).

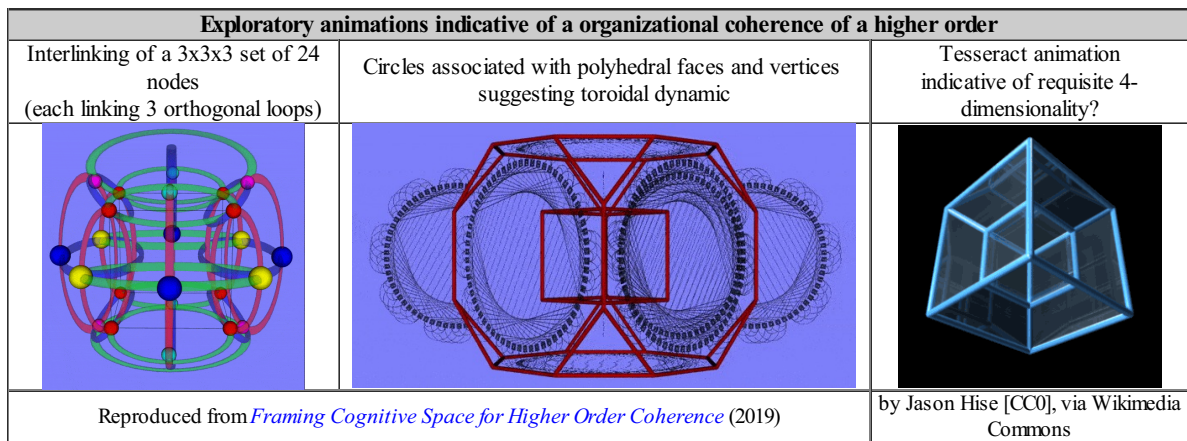


## Torus as a key to strategic knowledge organization?

It is however intriguing to note that, despite evoking the 3D torus form, depictions of the doughnut model are typically in 2D form -- as with the concentric set of planetary boundaries, and any corresponding set of psychosocial boundaries. There is therefore a case for a more explicit 3D framing of any "Global Plan" as argued separately (*Imagining Toroidal Life-- as a Sustainable Alternative: from globalization to toroidization or back to flatland?* 2019).

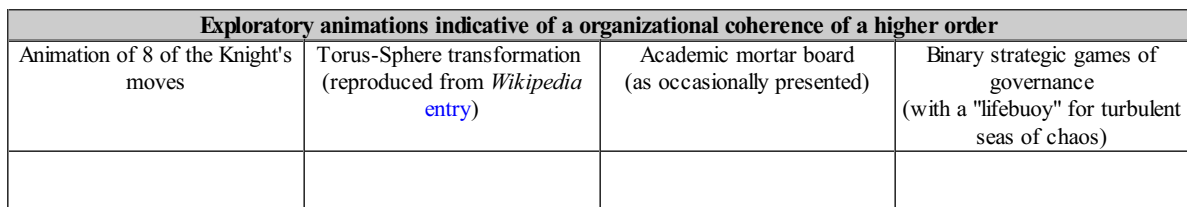
Aside from its role in the [design of supercomputer memory](#), the value of that geometry is exemplified by the [Stanford torus](#) proposed by NASA as the design for a [space habitat](#) capable of housing 10,000 to 140,000 permanent residents -- following the earlier proposal for a [rotating wheel space station](#). The NASA proposal is one inspiration for a current project (Corin Faife, *Scientists Are Contemplating a 1,000-Year Space Mission to Save Humanity*, *OneZero*, 5 December 2019). Far less evident are the relevant psychosocial considerations of that geometry.

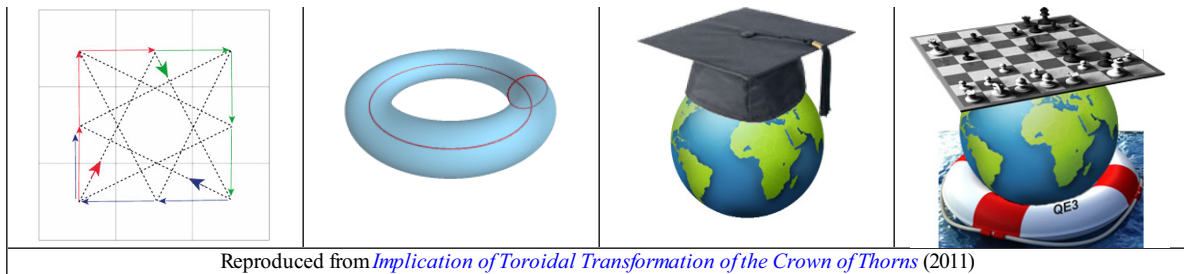
The argument can be related to the development of computers and their implications for knowledge organization (*Imagining Order as Hypercomputing: operating an information engine through meta-analogy*, 2014; *Framing Cognitive Space for Higher Order Coherence: toroidal interweaving from I Ching to supercomputers and back*, 2019;). The following animations from the latter point to the possibility of catalysts for more imaginative thinking on global organization. That on the left is a schematic depiction of [connectivity in supercomputer memory](#).



The spike theme explored with respect to the form of the coronavirus can be usefully seen as related to the [Crown of Thorns](#) traditionally highlighted by Christianity as one of the instruments of employed by Jesus' captors both to cause him pain and to mock his claim of authority -- now to be usefully explored as self-inflicted by a global civilization. This is discussed separately in relation to the form of a torus (*Implication of Toroidal Transformation of the Crown of Thorns: design challenge to enable integrative comprehension of global dynamics*, 2011).

The argument was illustrated by the following. The animation on the left is suggestive of the dynamics of both the blame-game and the decision-making processes of the archetypal Knights of the Round Table -- emulated to a degree by the Board of Directors of any Global Plan (*Predictability and pattern-breaking: the Knight's move*, 2011).





Reproduced from *Implication of Toroidal Transformation of the Crown of Thorns* (2011)

The image on the right is of current significance in the light of agreements and proposals for various "trillion dollar" bailouts in response to the pandemic -- more appropriately understood in technical terms as [quantitative easing](#). Such policies continue to invite criticism, as argued separately (*From Quantitative Easing (QE) to Moral Easing (ME): a stimulus package to avert moral bankruptcy?*, 2010).

## Strategic implications of the helical core of the coronavirus?

With respect to the form of the coronavirus, from which a degree of inspiration is sought here, it is appropriate to note that its primary role is as a vehicle for a viral genome, packaged into long, flexible, helical ribonucleoprotein (RNP) complexes called nucleocapsids or capsids (Ruth McBride, et al, *The Coronavirus Nucleocapsid Is a Multifunctional Protein*, *Viruses*, 6, 2014, 8).

With respect to the case for "new thinking" (as emphasized in the earlier discussion), it is appropriate to note the recent emergence of a [Triple Helix model of innovation](#) as a set of interactions between academia (the university), industry and government, in order to foster economic and social development, as described in concepts such as the [knowledge economy](#) and [knowledge society](#). The triple helix variant has already been extended into [Quadruple and quintuple innovation helix frameworks](#) framing university-industry-government-public-environment interactions within a knowledge economy. This can be readily recognized as in dramatic contrast to the "planar thinking" characteristic of "flatland" (*Irresponsible Dependence on a Flat Earth Mentality -- in response to global governance challenges*, 2008).

Curiously such new thinking is highly reliant on static depictions in 2D of the dynamic interactions with which it is preoccupied. Given what might be described as the devastating "hurricane" of the coronavirus pandemic, other approaches merit exploration (*Psychosocial Learnings from the Spiral Form of Hurricanes: implications of the triple helix and the 3-fold triskelion as "cognitive cyclones"?*, 2017; *Visualization in 3D of Dynamics of Toroidal Helical Coils*, 2016). The experimental animations therein could be considered complementary to those presented above.

## Pineapple model of global governance?

Given the current consideration of a "doughnut model", further thought might be usefully framed by a "[global pineapple model](#)" -- as the basis for communicable insight into future "global" organization. Whilst many may indeed be inspired by the doughnut, many more are likely to be familiar with a [pineapple](#). Intriguingly it embodies a degree of complexity consistent with the argument above and its animations. The "pines" recall the spiked fruit and animals variously depicted in the earlier paper in justification of their consideration as presented here.

Given slang use of "[getting the rough end of the pineapple](#)" (and its less salubrious variants), any problematic use of a model based on that fruit is also usefully held. Curiously the pineapple potentially offers a very fruitful 3D articulation of the Triple Helix model -- one seemingly as yet to be explored.

However, as succinctly stated by artist David D'Ostilio:

Pineapples are mathematical objects that occur in nature. Their growth is dictated by the fibonacci sequence in multiple ways. Fibonacci numbers dictate the number of spirals that appear on the skin of the fruit. There are 8 spirals in one direction, 13 spirals in the opposite direction, and 21 spirals vertically. Each of these numbers appear chronologically in the fibonacci sequence. This pattern of growth determines the iconic diamond pattern found on the pineapple (*Sacred Growth, Fruiting Column: Fibonacci Pineapple*, 2015).

There are various more extensive comments of potential relevance to the future elaboration of any pineapple model of governance (Philip Onedonk, *Pineapples and Fibonacci Numbers*, *The Fibonacci Quarterly*, 1970; Judithlyne Carson, *Fibonacci Numbers and Pineapple Phylloclaxy*, *The Two-Year College Mathematics Journal*, 9, 1978, 3; John McCullagh, *Fibonacci Numbers in Pineapples*, *Newry Journal*, 30 November, 2007) with the latter offering very clear illustrations of the helical patterns. Especially relevant to psychosocial organization is the "work in progress" of Vlado Dimovski and Miha Uhan (*Management from a Natural Perspective: discovering the meaning of Fibonacci numbers for management*, University of Ljubljana).

The form of a torus -- especially as a ring -- is clearly attractive, given its many symbolic associations. It is particularly abstract in comparison with a doughnut -- also a torus -- although the latter is far more readily comprehensible and meaningful as a common focus of consumption. Provocatively it could however be asserted that it is the pineapple which is far more "nutritious" and as such merits particular consideration with respect to the mnemonics of a global model. It is unclear that people could "live on a diet of doughnuts" in contrast with a "diet of pineapples".

## Formalizing a pineapple model of governance through zonagons and

## zonohedrification?

**Polyhedral abstractions?** The insights relating the Fibonacci patterning of natural order to that of the pineapple, and to the implications for governance, are primarily allusive, if not particularly elusive. A valuable clue is however offered by the various procedures for the geometrical transformation of polyhedra. These are notably include truncation, stellation, dualization, compounding, and zonohedrification. Giving rise to [zonohedra](#), the latter is of particular relevance to any formal modelling of the pineapple, as variously presented by George W. Hart (*Zonohedrification*, *The Mathematica Journal*, 7, 1999, 3; *Zonohedrification*).

The faces of a zonohedron take the form of zonagons -- polygons with an even number of equal sides and opposite sides parallel -- which are fundamental to tiling a space and therefore to attribution of territory (Paul Stephenson, *Tiles from Coverings*; István Hargittai, *Symmetry: Unifying Human Understanding*, 2014; *From the Rhombic Enneacatahedron to an All-Kite Polyhedron*, *Robert Loves Pi.Net*, 15 February 2020). Of further relevance to the challenges of governance are particular zonohedra namely the [rhombic dodecahedron](#) and the [rhombic triacatahedron](#) to which particular attention was initially given by Jean J. Pedersen (*Collapsoids*, *The Mathematical Gazette*, 59, 1975, 408).

**Oppositional geometry and logic?** Given the challenge of opposition in governance, the relevance is evident in that these polyhedra feature notably in the issues framed from a logical perspective by [oppositional geometry](#), as discussed separately (*Oppositional Logic as Comprehensible Key to Sustainable Democracy: configuring patterns of anti-otherness*, 2019; *Framing Cyclic Revolutionary Emergence of Opposing Symbols of Identity: Eppure si muove -- biomimetic embedding of N-tuple helices in spherical polyhedra*, 2017). The first is the geometric dual of the [cuboctahedron](#) whose remarkable properties were a particular focus of [Buckminster Fuller](#). The second is a dual of the [icosidodecahedron](#). Both duals are [Archimedean solids](#). Fuller is especially famed for his development of [geodesic domes](#) whose design principles he related to challenges of global management of resources (*Synergetics: Explorations in the Geometry of Thinking*, 1975; *Operating Manual for Spaceship Earth*, 1968).

**"Strategic baskets", basket weaving and swirl patterns?** It is appropriate in this context to recall the importance that continues to be attributed to "strategic baskets" as a model of relevance to governance. Especially significant in this respect has been the role of the The Three "Baskets" of the [Helsinki Final Act](#) of the of the [Conference on Security and Co-operation in Europe](#) (1975), a declaration signed by 35 countries in an attempt to improve relations between the Communists and the West. As described in *Recapturing the Spirit of Helsinki: the OSCE reflects on the past to shape its future* (*OSCE Magazine*, October 2005), this encompassed three main sets of recommendations, commonly referred to as "baskets"(with a fourth that dealt with procedures to monitor implementation, and to plan future meetings):

- The first set ("Basket I") related to politico-military aspects of security: principles guiding relations between and among participating States (the "Decalogue"), and military confidence-building measures.
- The second set ("Basket II") concerned co-operation in a number of fields including economics, science and technology, and the environment.
- The third set ("Basket III") dealt with "co-operation in humanitarian and other fields" -- a formula covering human rights issues under the headings of "human contacts", "information", "co-operation in the field of culture" and "co-operation in the field of education". It also included a specific set of recommendations related to Mediterranean issues

Of relevance is why the traditional form of a basket had such appeal with respect to governance at that critical time. Although its use at the time could be considered simplistic, there is a case for arguing that the intuitive appeal can be related to traditional techniques of basket weaving common to many cultures.

Of particular interest is the technique giving rise to especially attractive patterns of swirl baskets and coiled basketry. A single swirl may indeed curve to the right or to the left (*Sun Swirl Basket, Ten Thousand Villages; Tutorial: Make a coiled raffia basket*; 13 May 2015; Jill Choate, *A Study in Spirals: how to make them happen*, 8 March 2017). Double and triple swirl patterns are characteristic of traditional symbols, notably the Japanese [tomoe](#).and the Western [triskelion](#). These recall the swirling pattern familiar in pineapple spikes.

Basketry offers a much-valued metaphor in traditional cultures (Samuel Suina, *Basket as Metaphor: Weaving the Basket, Indigenous Educational Models for Contemporary Practice*, 2017; Colin Dickey, *Shapes of Native Nonfiction: 'The Basket Isn't a Metaphor, It's an Example'*, *Longreads*, August 2019). The [Commission on Environmental, Economic and Social Policy](#) of the International Union for Conservation of Nature has framed its preoccupations in terms of three [Knowledge Baskets](#), noting that:

The term 'knowledge baskets' is inspired by the Maori tradition of the God Tane's ascent through the twelve heavens to bring back to earth, three baskets of knowledge... For IUCN's work on knowledge baskets and flagship products, the term knowledge basket is a metaphor for working in a holistic way, valuing ethical respectful and reciprocal relationships as well as investing in the human social and cultural dimensions of environmental knowledge. Baskets have meaning across indigenous cultures, almost of all of whom have traditions around using baskets for functional earthly purposes as well as for sacred purposes....

Use of the term 'knowledge basket' marks an important milestone in IUCN, as it involves not only incorporating a traditional knowledge concept into IUCN's policy framework but also provides greater scope for people throughout the global indigenous conservation community to contribute to IUCN's important scientific work.

Clearly missing from use of basket as a metaphor for strategic governance is whether account might be taken of the structuring potential, and aesthetic appeal, of single or double swirl patterns -- in contrast to baskets lacking such features. How, for example, might such swirling have informed *The OSCE Concept of Comprehensive and Co-operative Security* (Organization for Security and Cooperation in Europe, 2009)? The question relates to the conflation at that time between metaphorical "baskets" and metaphorical "pillars" --with the latter metaphor continuing to dominate strategic thinking in Europe (*Coherent Value Frameworks: pillar-ization*,

*polarization and polyhedral frames of reference*, 2008). Such use of questionably coordinated "pillars" can clearly be related to the argument here with respect to "spikes". In basketry an equivalent to pillars is evident as a structural feature, especially in the absence of a swirling pattern -- then resulting in a stack design.

Curiously, but appropriate to the present period, global governance might well now be described as a "basket case" -- as used with respect to an institution or country in a bad condition or difficult situation, whether economically, financially or otherwise (Philippe Legrain, *Europe's No Basket Case, International Economy*, 17, 2004). It was originally used for a soldier missing both his arms and legs, who needed to be literally carried around in a litter or "basket". Given such understanding of a supporting container, does any proposal for a Marshall Plan raise the question of how such a "basket" should be designed?

Ironically, in a period of urgent worldwide quest for a vaccine to respond to COVID-19, "basket design" is employed metaphorically to describe a key methodology for the evaluation of a single drug for multiple indications (Mark Chang, et al, *Innovative Strategies, Statistical Solutions and Simulations for Modern Clinical Trials*, CRC Press, 2019; Kristen M. Cunanan, et al, *Basket Trials in Oncology: a trade-off between complexity and efficiency*, *Journal of Clinical Oncology*, 35, 2017, 3; Jay J. H Park, et al, *Systematic review of basket trials, umbrella trials, and platform trials: a landscape analysis of master protocols*, *Trials*, 20, 2019, 572).

## Zomes as a key to appropriate organizational and knowledge architecture?

**Zome**: Appreciation of the value of a "zonohedron", despite its relative obscurity, has been rendered comprehensible and memorable through its combination with "dome" in a portmanteau term: **zome**. This currently has three distinct but complementary uses: as an **unusual form of architecture** (as was the case with geodesic domes), as an **educational tool kit (Zometools)** enabling construction of forms, and as a **mathematical system** fundamental to such construction. Useful (visual) clarification with regard to zome is offered by George W. Hart and Henri Picciotto (*Zome Geometry: hands-on learning with zome models*, 2001; *Zome Constructions*) and by René K. Müller (*Zome, Simply Differently*). Architectural variants are depicted by Kimberley Mok (*Reclaimed wooden "zome" structures are an expression of nature's double helix*, *TreeHugger*, 26 September 2014).

Of interest to the argument here is the relevance of these complementary uses of zome to cognitive and psychosocial issues of global governance. Although the preoccupations of Fuller implied such concerns, they are implicit rather than explicit, as argued separately (*Geometry of Thinking for Sustainable Global Governance: cognitive implication of synergetics*, 2009). With respect to zome, it might then be asked:

- what kinds of **organizational architecture** and **knowledge architecture** does that framework suggest? Of particular interest, given that zomes can be constructed as aesthetically pleasing habitats, is what implications this might have for individual experience of whatever adaptations are possible for organization and knowledge structures of global significance. How does this relate to the quest for a "safe operating space for humanity" within the nine **planetary boundaries** (as noted above)
- what kinds of educational devices -- mnemonic devices -- would be of value to rendering credible and comprehensible the more complex structures which might be envisaged, proposed or implemented? Of particular relevance is the ability to hold contrasting perspectives -- currently so fundamental to the unfruitful divisive debate undermining any sense of coherence
- what kinds of mathematics merit further elaboration in support of such alternative possibilities, especially when informed by their logical implications regarding opposition (with all its psychosocial implications for disagreement)?

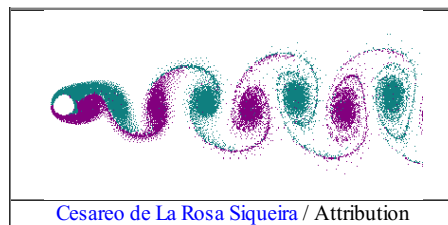
**Swirl**: The curves characteristic of zomes visually echo those described above with respect to swirl basketry. Arguably similar curves are a feature of the interlocking of any depiction of the Triple Helix model of innovation. Swirl is cited in that connection in relation to the Nanatsudaki (seven waterfalls) Model of Andrzej P. Wierzbicki and Yoshiteru Nakamori (*Creative Environments: Issues of Creativity Support for the Knowledge Civilization Age*, Springer, 2007; *Knowledge Sciences and Nanatsudaki: a new model of knowledge creation processes*, *Journal of Systems Science and Systems Engineering*, 16, 2007, 1).

Of some relevance to the governance of psychosocial systems is the metaphorical use of swirl in relation to the dynamics of financial, economic and political communication, especially through reference to the swirl of rumours (in fake news). Such rumours are now only too evident in relation to COVID-19, but typically ignored with respect to strategic modelling, despite their significance in practice. A notion of swirl in psychosocial systems is recognized as an example of how the principle of multiple dimensions works, as argued by Mary Olympia Themis (*The Code of Human (Civilisation)*, Xlibris Corporation, 2016 with respect to conceptual / philosophical swirl, cultural swirl, financial swirl, political swirl, and civilizational swirl).

**Eddies**: Swirling, as **eddy formation**, is extensively studied with respect to the dynamics of fluid flow, turbulence and the formation of vortices. Given the extent to which strategic initiatives may be described metaphorically as vehicles of some kind -- whether ships, planes or otherwise -- the manner in which their movement engenders a "wake" of eddies merits consideration. This is particularly the case when reference is made to the obstacles to change encountered by any "**mainstream**" -- as with current obstacles to universal pandemic lockdown. Whereas mainstream flow -- understood with respect to any dominant paradigm -- is assumed to be free of undesirable turbulence, the effect of obstacles and "downstream" consequences is usefully framed by the dynamics of eddy formation (C. Page Moreau, *The Downstream Consequences of Problem-Solving Mindsets*, *Journal of Marketing Research*, 2016). How is the aftermath of lockdown to be effectively encompassed by current strategic modelling mindsets?

Given the importance of **eddy flux** analysis in the systems of the natural environment, it is remarkable that the insights into such dynamics are not applied to psychosocial systems. There are many available animations of eddy formation and the associated phenomenon of a **Von Kármán vortex street** (as shown below). The flow on opposite sides of the object is given different colors, showing that the vortices are shed from alternating sides of the object

Animation representing the two-dimensional flow patterns behind a rounded obstacle



Citing the flows and eddies resulting from the opening of the disputed islands of the Southern Kurils as an example, Paul B. Richardson notes:

The term "eddy" can capture not just unidirectional movement and flows but also their unpredictable, counter-intuitive, spiral-like, concentric, centrifugal, and centripetal tendencies. Eddy is both natural phenomenon and a spatial metaphor for "human vulnerability and adaptability in times of unprecedented transformation"... Within these flows, vortices appeared, including downward spirals of despair, whereby some residents left in droves after earthquakes, storms, and the collapse of state support and the local economy... At this moment, the islands became a kind of hyper-border—a site which in certain ways had moved “beyond” Russia’s state sovereignty... Through opinion polls and surveys, emerged a series of denials and rejections of a coherent and cohesive national identity amongst islanders on this hyper-border. Yet, such denials simultaneously served to rejuvenate and regenerate the very object that they sought to deny... New distortions and directions appeared with an uplift in nationalist currents.... Vortexes of despair were inverted into up-swells of hope that carried individuals, groups, and financial flows with them. The eddies and ripples over these distant rocks and islands, which had at first seemed to erode sovereignty, became a deluge that secured it. They generated a crisis which reinvigorated infrastructural and ideational flows..(*Eddy, Society and Space: Essays*, 3 March 2019; *At the Edge of the Nation: the Southern Kurils and the search for Russia's national identity*, University of Hawaii Press, 2018): .

The eddy pattern is used in an expected way by [Russell Winslow](#) to describe developmental processes (*Organism and Environment: inheritance and subjectivity in the life sciences*, 2017):

The developmental system is an ecosystem in metamorphosis and given temporal moment of development "transforms into structure" the meaning of the point of equilibrium.... Instead of returning to a state of being, the developing organism returns to a flow in becoming. That is to say, instead of returning to a humanistically derived point on a Cartesian coordinate system that defines the individual, the developing organism returns to the appropriate point in the play performance, the appropriate moment in the developing ecosystem.... The potential energies that constituted the eddy return to the flow: that is to say the morphological difference goes extinct, but the potential energies that made it possible do not. This is a radically different ontological organization than that offered by humanism, which places its faith in the morphological, monogenetic individual. To further extrapolate from this image of an eddy to an individual of a species, the birth of any organism is a concrescence of inheritances that emerges out of the flow of capacities.... Extinction of the species might be described as the eddy in the flow losing its differentiation and returning to the flow (pp. 198-200)

Of relevance to the role of mutation in microbiota (whether or not viruses are included), Winslow remarks: *Nothing represents that flow of capacities than a microbiological system, which seems to be a kind of flowing reservoir of inherited capacities, including genetic capacities.*

Some correspondence is evident in the eddy as a central metaphor to the metaphysical insight of the poet [Samuel Taylor Coleridge](#), as reviewed by Edward Kessler (*Coleridge's Metaphors of Being*, Princeton University Press, 2015).. For the poet, the dynamics of the eddy are intimately related to an understanding of life itself and the marriage of its opposites -- transcending the platitudes of the conventional illusions of unity. The eddies resulting from the encounter of a stream with an obstacle -- an interplay of motion and stasis -- engender a counterforce, with Being as a spirit ever struggling to shape them, and therefore endlessly re-established, not simply stated.

## Perception and uncertainty in global governance – "one model fits all"?

Rather than arguing for the relatively superiority of plan, doughnut, torus, helix pineapple or zome, emphasis could be placed on the fact that **these are better understood as different perceptions of the requisite model of "global" governance**, in the spirit of the argument of the much-cited poem of [Wallace Stevens](#) (*Thirteen Ways of Looking at a Blackbird*, 1917) as separately discussed with respect to ensuring integrity of communication (*Anticipating When Blackbirds Sing Chinese*, 2014).

As argued above with respect to any one "plan", the assumption is all too readily made that the "one plan" -- however it is elaborated and by whatever authority -- should (and must) fit all. Failure to adhere to it is seen as an ultimately form of betrayal of global citizenship -- worthy of the severest condemnation. The reality in the case of "plan", is that there tend to be a multiplicity of extant plans variously proposed and with little consideration of their mutual relationship or relevance. The same could be said for any particular doughnut, torus, helix pineapple or zome model.

More intriguing, and in the spirit of the challenges recognized by fundamental physics, there would seem to be some kind of poorly articulated analogue in the psychosocial domain to Heisenberg's famed [Uncertainty Principle](#) ([Garrison Sposito](#), *Does a generalized Heisenberg Principle operate in the social sciences?* *Inquiry*, 12, 1969, 3). Expressed crudely, the assertive articulation of any substantial model by one authority is called into question as insubstantial by others -- as recognized in the adage "one person's meat is another

person's poison". The dynamics are evident in vain appeals from a given perspective for unity in global governance.

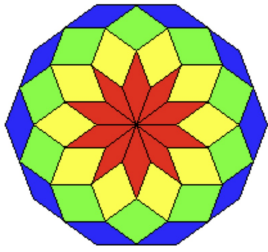
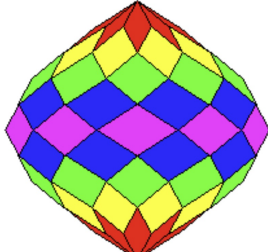
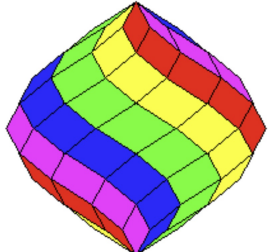
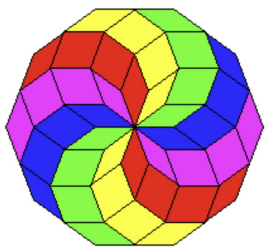
Seemingly the requisite level of complexity at this time calls for a means of switching flexibly and nimbly between perceptual frameworks as "lenses" -- thereby framing the question as to **when is a plan, a torus, a helix, or some other framework appropriate -- namely not whether it is relevant but rather to whom it is relevant and under what circumstances**. The dynamics of such transformation are suggested by the ways in which polyhedral geometry can be transformed (*Changing Patterns using Transformation Pathways*, 2015; *Pathway "route maps" of potential psychosocial transformation?* 2015 ). Given a typical strategic tendency to stress a "point" or a "line" in argument, as geometrical metaphors these can be appropriately seen as a particular focus on parts of a more complex geometry (*Engaging with Globality -- through cognitive lines, circlets, crowns or holes*, 2009).

## Nine-fold configuration of planetary boundaries?

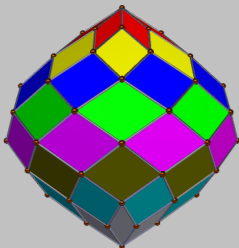
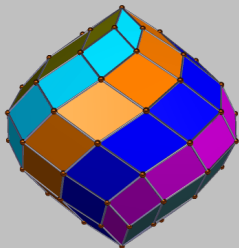
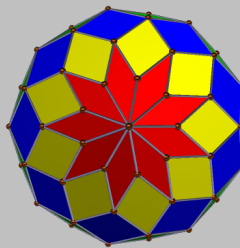
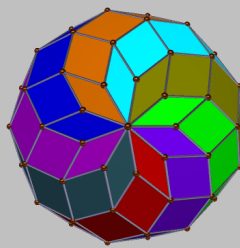
**Symmetry?** For the purpose of developing the argument in relation to governance, the value of a pattern of nine planetary boundaries may be assumed (as noted above). The case for zonohedral model was previously made (*Ninefold configuration in practice and its comprehension constraints*, 2016). There reference was made to:

- A. Jon Kimerling, et al: *Global Scale Data Model Comparison; Comparing Geometrical Properties of Global Grids; Cartography and Geographic Information Science*, 1999): However, we find 9-fold partitioning to recursion levels less than ten to be suitable for comparison purposes, since surface area, compactness, centerpoint spacing, and other metrics are still computable at the rapidly increasing cell densities. However, the computation effort quickly becomes immense at higher levels of recursion and the results may not add significantly to our understanding of the surface tessellation or point grid geometry.
- Indications by Steven Dutch of the *Best Representations of 3-Dimensional Symmetry: Equilateral* (2009), later updated with respect to zonohedra (*Symmetry, Crystals and Polyhedra: zonohedra*, 2018): In the case of a **polar zonohedron**, with polar symmetry, it follows that the edges are all equal and the faces are all rhombi. He offers the following examples of relevance here to the quest for a "pineapple formalization". The faces of a zonohedron can be grouped into zones, namely as an encircling band of faces which share a common edge direction (and length). Note the sine curves formed by the edges.

As presented by Steven Dutch, in geometrical terms, structures such as the following are especially valuable in holding a sense of symmetry in 3D. This help to frame the question of what might be considered desirable in the "symmetry" of any proposed form of global governance. The question follows from the long-standing interest in the relation of symmetry to the elusive unity which it has always been hoped to embody in such governance -- in the face of diversity so readily repressed by any "plan" (István Hargitta, *Symmetry: Unifying Human Understanding*, 2014; Jay Kappraff, *Connections: the geometric bridge between art and science*, 1990).

10-zonohedron (scaled so its polar axis and diameter are about equal)			
Successive rings of rhombic faces are coloured.		Coloured so that faces of a given zone have the same color.	
Polar view	Side view	Polar view	Side view
			
Reproduced from Steve Dutch ( <i>Symmetry, Crystals and Polyhedra: zonohedra</i> , 2018)			

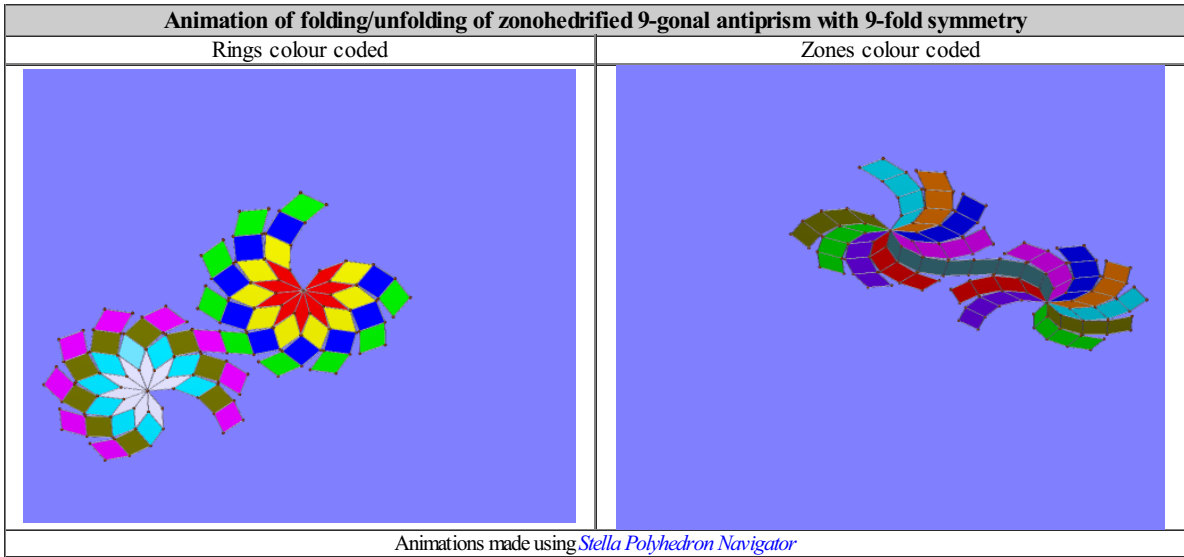
**Nine-fold symmetry?** The earlier exploration of nine-foldness presented the following model of a 9-gonal antiprism. This has 74 vertices (5 types), 72 faces (4 types), and 144 edges (9 types). This combination of 72 and 74 is fortuitous given the animations developed previously with regard to a coronavirus form assumed to have 72 or 74 protein spikes. The wireframe variants below are also helpful in giving a sense of the interwoven sine curves formed by the edges.

Zonohedrified 9-gonal antiprism with 9-fold symmetry (9*2m)			
Side view		Polar view	
Rings colour coded	Zones colour coded	Rings colour coded	Zones colour coded
			



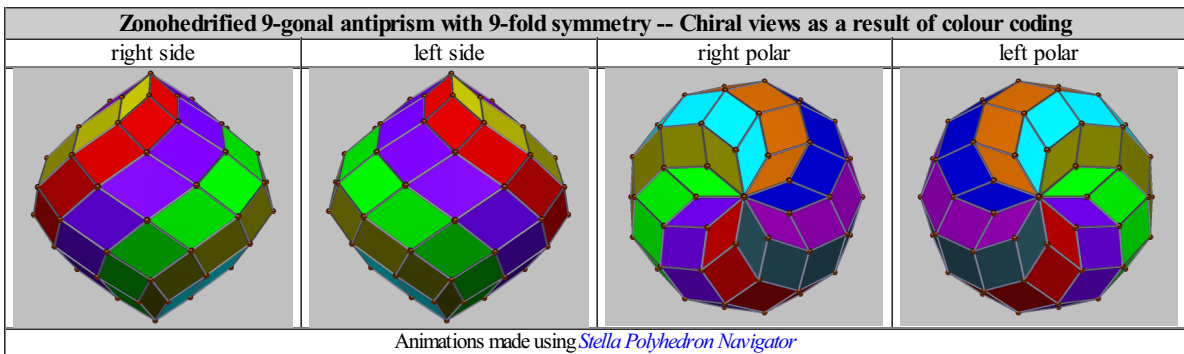
Model and displays kindly developed by Robert Webb from *Stella Polyhedron Navigator*

In endeavouring to get a sense of the coronavirus as a whole, of some value are the following animations in which the two colour-coded variants are presented in a cycle of folding and unfolding. These could be understood as of some relevance to comprehension of the set of nine planetary boundaries, namely how they might be considered interrelated and interwoven in nature -- in systemic terms.



Animations made using *Stella Polyhedron Navigator*

**Chirality?** Although the actual structure of the zono-hedrified 9-gonal antiprism does not exist in distinct right- and left-handed forms, such asymmetric **chirality** is evident when the zones are coloured as shown below. Of particular interest with respect to any mutual entanglement of the nine planetary boundaries is the alternation in perspective according to how the curving patterns of zones are coloured.

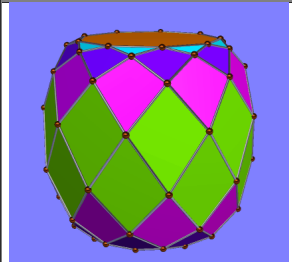
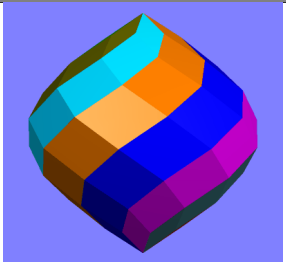
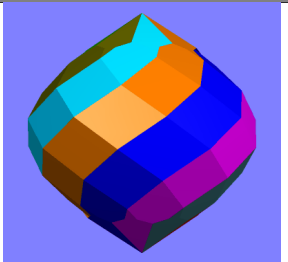
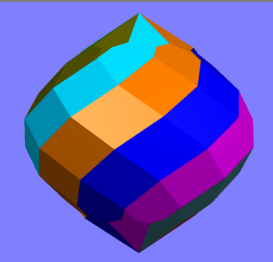


Animations made using *Stella Polyhedron Navigator*

**Morphing between complementary forms -- featuring a "pineapple configuration":** The quest for a means of depicting in 3D the polyhedral form of a pineapple in order to reflect the interlocking helical patterns by which it is characterized (as discussed above) has not been immediately successful. The quest was partially reframed to reflect the pattern of nine planetary boundaries currently upheld as a necessary preoccupation of global governance -- and hence the provisional value of the zono-hedrified 9-gonal antiprism.

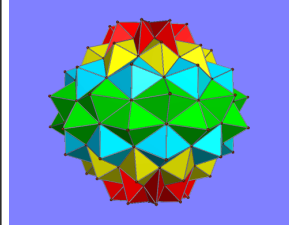
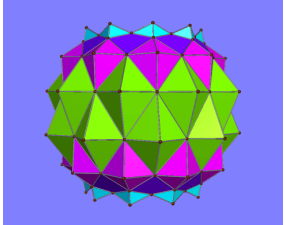
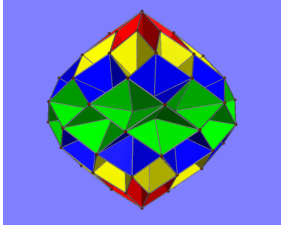
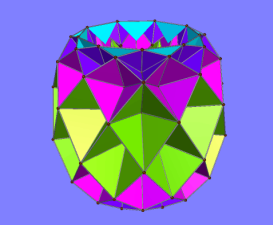
With respect to the quest to reflect the pattern of protein spikes on a coronavirus (as previously discussed), the zono-hedrified 9-gonal antiprism is of some interest given the illustration earlier of 72-fold and 74-fold patterns of such spikes on that virus. As noted the polyhedron (above left) has 74 vertices (5 types), 72 faces (4 types), and 144 edges (9 types). Its geometric dual (below left) has 74 faces (5 types), 72 vertices (4 types), and 144 edges (9 types). It offers a degree of approximation to the pineapple form, whether or not further investigation highlights one in which patterns of pentagonal or hexagonal zones prove relevant.

A challenge to the strategic imagination, if lessons are to be learned from combining insights from both the coronavirus and from a pineapple model, is whether the dynamics between one form and its geometric "reflection" are of particular significance to global governance. To this end the transformation through various methods of **morphing** are indicated in the animations below (Carl Erikson, *Morphing Three Dimensional Polyhedral Objects*, 1994; Robert Webb, *Morphing polyhedron compounds in Stella 5.0*. YouTube, 2012). Such morphing reflects an aspect of the the long-standing consideration of "variable geometry" in institutions (*Alternation between*

Animations of various modes of morphing between Zonohedrified 9-gonal antiprism and its dual (alternation between 72/74 and 74/72 configurations)			
Dual	Morphing by tilting triangles	Morphing by titling to compound	Morphing by titling to rectify
			

Animations made using *Stella Polyhedron Navigator*

**Augmenting the polyhedra with "pine spikes" -- in a further approximation to the form of a pineapple?** The previous discussion focused extensively on global configurations of spikes. The base model and dual can however be modified by spikes (in the form of prisms) on each face -- whether projecting outwards or inwards. The version on the left is slightly tilted with the top face rendered transparent.

Augmenting faces of base model and dual with prisms (projecting out or in)			
Externally oriented spikes?		Internally oriented spikes?	
Base with prisms (288 F; 146 V; 432 E)	Dual with prisms (218 F; 126 V; 342 E)	Base with prisms (234 F; 128 V; 360 E)	Dual with prisms (236 F; 126 V; 360 E)
			

Animations made using *Stella Polyhedron Navigator*

Use of the software to manipulate the spikes on such approximations to a pineapple, recalls the discussion of alternation between an **explicate order and implicate order** by the theoretical physicist **David Bohm** are ontological concepts for quantum theory (*Wholeness and the Implicate Order*, 1980). Imaging such alternation, described by Bohm as a **holomovement**, can be aided to some degree by animating the projection outward and inward of prisms of a given type on the pineapple models above -- and their separation from the model.

The relevance of Bohm's perspective from quantum theory has since become greater with the insights in the extensive study from an international relations perspective by **Alexander Wendt** (*Quantum Mind and Social Science: unifying physical and social ontology*, 2015). Arguably the case for the pineapple model was reinforced by the interlocking helical waves aligning the spikes on the pineapple (following a Fibonacci spiral, as discussed above). Any reference to wave-like phenomena, necessarily extensively discussed by Wendt, emphasizes the degree to which any viable global strategy might fruitfully take account of a form of subtlety typically ignored by strategists. It is of course the case that the appeal of any strategy to the wider population -- as being reasonable -- may well be reinforced by a pattern of connectivity and coherence characteristic of both rhyme and wave-like rhythm, as characteristic of music song and poetry.

The engagement with the coronavirus pandemic may therefore calls for further exploration of such possibilities (*Encountering Otherness as a Waveform -- in the light of a wave theory of being*, 2013; *Being Neither a-Waving Nor a-Parting: cognitive implications of wave-particle duality in the light of science and spirituality*, 2013; *On being "walking wave functions" in terms of quantum consciousness?* 2015).

## Playful transformation between forms of global governance -- "organizing"?

**Global brain?** It might be supposed that in time of crisis any appropriately imaginative response would emerge from a "global brain". This is a fantasy characteristic of techno-optimists anticipating the development of artificial intelligence, more specifically in relation to the tipping point of a **technological singularity**. In response to the current pandemic, it is far from clear that either the technology, or those endeavouring to make use of it through complex modelling, could be compared to a global brain and the neural learning from which it would purportedly benefit. Whilst the current facilities may indeed provide answers, it is useful to ask whether the questions are of an order of subtlety appropriate to the challenge, as explored separately (*Superquestions for Supercomputers Avoiding terra flops from misguided dependence on teraflops?* 2010).

The challenge is further complicated by the probability that other singularities may occur before the technological one (*Emerging Memetic Singularity in the Global Knowledge Society*, 2009; *Jerusalem as a Symbolic Singularity: comprehending the dynamics of hyperreality as a challenge to conventional two-state reality*, 2017). The biological threat, of which COVID-19 may well be a precursor, is but one example. Memetic warfare, of which the fake news crisis is but one example, could be another -- especially in that the applications of new technology are increasingly paralleled or overtaken by spurious claims ("hype") as to their efficacy.

It is in this context that strategic decision-making in response to the pandemic is guided by mysterious sets of experts whose thinking cannot be called into question -- supported by models developed in secret (on the basis of data of low granularity), in contradiction with any case for transparency in a democratic civilization.

**New thinking, "numerology" and pseudoscience?** The argument developed here has focused on the need for "new thinking" taking the form of the coronavirus as a catalyst for the requisite imagination. A degree of emphasis has been placed on the number of protein spikes as offering a metaphor framing the problematic role of various forms of spikes in the psychosocial organization of global civilization. The reference to patterns of 72 and/or 74 spikes can be readily deprecated as pseudoscientific [numerology](#). Such deprecation fails to recognize how patterns of order are governed by numbers, as is so evident in the symmetries of polyhedra and the creations of nature -- much valued by science.

Potentially far more serious, such deprecation omits any consideration of how adequately complex strategic responses are to be rendered comprehensible, memorable and communicable. Such factors are rarely more than implicit in the considerations of experts -- or in the design for global strategies such as the UN's Millennium Goals or its Sustainable Development Goals. Yet it is expected that these will invite widespread appeal even though very few would even be able to list the SDGs from memory. It is systematically forgotten that memory is to a high degree dependent on the patterns of order, governed by number which are characteristic of music and symbols framed by sacred geometry -- of which polyhedra provide remarkable examples. The argument with respect to rhyme can be variously made (*A Singable Earth Charter, EU Constitution or Global Ethic?* 2006; *Participative Development Process for Singable Declarations*, 2006; *Poetry-making and Policy-making Arranging a Marriage between Beauty and the Beast*, 1993). With respect to COVID-19 or any crisis, the latter particularly recalls the argument for aesthetic engagement with any "monstrosity" as featured in various traditions..

Given the problems they are summed to address, it could even be argued that the SDGs constitute "thorny spikes" -- as asystemically and inharmoniously ordered, "[with neither rhyme nor reason](#)". Such a pattern is dramatically configured in the symbol of the Crown of Thorns -- in this case of global civilization. Again, is it proving to be the case that: *If your only tool is a hammer then every problem looks like a nail*? Given the failure to consider the challenge of memorable appeal and uptake, will the future frame the expertise deployed in response to the pandemic as the epitome of pseudoscience?

**Playfulness and "organizing"?** Presented in this way, rather than stressing the unquestionable superiority of any particular approaches to "global planning", there is arguably **a need to be able to shift flexibly between geometrical frameworks** as lenses or automobile gears. This strategic nimbleness is usefully understood both in terms of the game-playing, which has informed policy development for so long as inspired by chess and go -- now the focus of artificial intelligence algorithms, The playfulness is however especially vital to the comprehension, memorability and communicability of any strategy expected to evoke widespread support (*Playfully Changing the Prevailing Climate of Opinion: climate change as focal metaphor of effective global governance*, 2005).

In reflecting on the design of a desirable "global brain" adequate to engagement with the pandemic, imaginative innovation can be seen as fundamentally related to such playfulness in eliciting attractive patterns. This can be presented as consistent with a fundamental sense of "organizing" in its particular historical association with the [organ as a musical instrument](#) through which harmony is variously explored -- now reinvented as an [electronic organ](#) (*Envisaging a Comprehensible Global Brain -- as a Playful Organ: patterns connecting the dots between hemispheres, epicycles and quavers*, 2019). There is a degree of irony in this period of crisis in that the enthusiasm for a "global plan" by the highest authorities ignores the current familiarity from an early age with the far greater technically-supported complexity in online gaming (potentially enhanced by musical appreciation).

Framed in this way, organizing involves the capacity to make skillful use of an extensive array of possible models -- whether plans, toroids, helices, polyhedra, or otherwise. The emphasis being on the capacity to shift playfully between them -- deploying and "redeploying" them (see [antonyms for deploy](#)), attaching to any frame offer and detaching from it-- possibly to be described metaphorically as donning and doffing. The dynamic [medium is the message](#), rather than the assertive imposition of any particular framework (as at present). Such imposition is then comparable to the boring drone of a singular sound -- however melodically it may be presented as a marketing jingle.

Just as playing the organ can require a considerable degree of skill (as well as aptitude and musicality) -- and complementary appreciation from any audience -- exploring the hundreds of interrelated polyhedra through the transformations possible between them is a compositional challenge involving hands-on experience with appropriate software. Use of *Stella Polyhedron Navigator* to produce the animations above made only too evident that a higher order of skill would be appropriate to render comprehensible the range of possibilities and the challenge to eliciting a sense of coherence. Where is the development of that skill enabled?

**Cognitive gear transmission system?** Of interest is then the scope of the organ -- namely the number of models which can be incorporated into an epic narrative capable of framing dynamically the different facets of a crisis and the response. In that respect, of some relevance is the justification for the recent development of a circular keyboard surrounding the instrumentalist, as described and illustrated separately (*Dynamic patterns of play engendered by Homo ludens and Homo undulans?* 2019).

A readily comprehensible metaphor of playing with some such organ is offered by the remarkable range of gears required in a heavy duty truck offers a valuable metaphor -- an extension of the simpler versions with which drivers of non-automatic gear-shift vehicles are familiar. Such a pattern of 18 gears is discussed separately with respect to *Shifting between strategic patterns: transmission systems and gearing* (2019). This forms part of a more general discussion (*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).

Automobiles have a variety of relatively simple [gear shift patterns](#) with which many are familiar. Whilst there is considerable familiarity with shifting between many gears in vehicles of different types, this familiarity would appear to be totally lacking in the case of strategic patterns. It could be imagined that truck drivers have mnemonic aids with respect to learning the complex gear shift patterns, as shown below-centre. Curiously, however, there are many references to the "*Truck Driver's Gear Change*" as descriptive of modulation in music

-- but not as a mnemonic device.

Of interest with respect to the gear metaphor, a bicycle may have **16 to 18 usable gear ratios**. A truck may have 10 or more gears (*9, 10, 13, 15 and 18 Gears - Shifting Theory | Drive Truck, Smart Drive; How to Shift an 18 Speed Transmission like a Pro, Smart-Trucking*, 7 December 2018; *How to use an 18-Speed Roadranger, TruckSales*, 16 August 2018). Is the current global strategic challenge to be compared to this description of driving a 15-speed truck:

Now I'll just touch on what a 15-speed is for a moment. If you get in a truck and it's got a blue button in it, it's a 15-speed. Now this is not a splitter in a 15-speed transmission. This is what is called deep reduction. And the best way to explain deep reduction on a 15-speed is that essentially you've got three tiers of five gears. Five gears way down in the basement, five gears on the main level, and five gears upstairs. Most of the time you're going to drive a 15-speed like a ten-speed. 1,2,3,4,5, flip up the range selector, back over to low - and for those of us who drive 13s and 18s and then get into 15- that's very weird for us to go back to low - but back to low 1,2,3,4,5 shift it like a ten-speed.

Now if you get into a gravel pit or something like that you need deep reduction, the best way to understand deep reduction in a 15-speed is like four-wheel drive low and four-wheel-drive hi. That's the difference. And it's not sequential, so if you're in deep reduction in 15-speed you can't go one, two, three, four, five and then split up to the next gear and go the other five. It's more like up to five in the low low and then up to three on the next level. So it's a little bit strange, but if you ever get into a 15-speed, just kind of play around with it and you'll get use to it. But know that if the splitter is blue it's a 15-speed; if it's red, it's 13; and if it's grey, it's 18. And in this day and age of non-synchronous transmissions, most of them are going to be 18-speeds. (*9, 10, 13, 15 and 18 Gears - Shifting Theory*)

Arguably there is a need for a mnemonic aid to the relationship between N-fold patterns, as is somewhat ironically suggested by the following Christmas song, used over centuries, whether or not it can be understood as having various levels of meaning, as explored by David Emery (*Does "The Twelve Days of Christmas" Have a Hidden Meaning? Liveabouthdotcom*, 18 July 2018). Clearly the pattern in the song on the left (below) would need to be extended from 12 to 20, to encompass the 16-fold pattern of SDGs (below right). The central image offers an indication of the daily reality with which drivers of trucks are obliged to "play".

What appears to be required is some recognition of the value of the set of contrasting "strategic gears" **as a whole** (8-fold, 12-fold, etc). The metaphor is also suggestive with respect to the relation **between** the strategies in any set -- as is so evident in driving a 15-gear truck. Driving in one gear only would be considered ridiculous. The question would then be what are the analogues to enable shifting **between strategic patterns** according to circumstances -- or to shifting between strategies **within any one such pattern** (as suggested below right). There is no simple song like that on the right to interweave the SDGs and render them widely memorable.

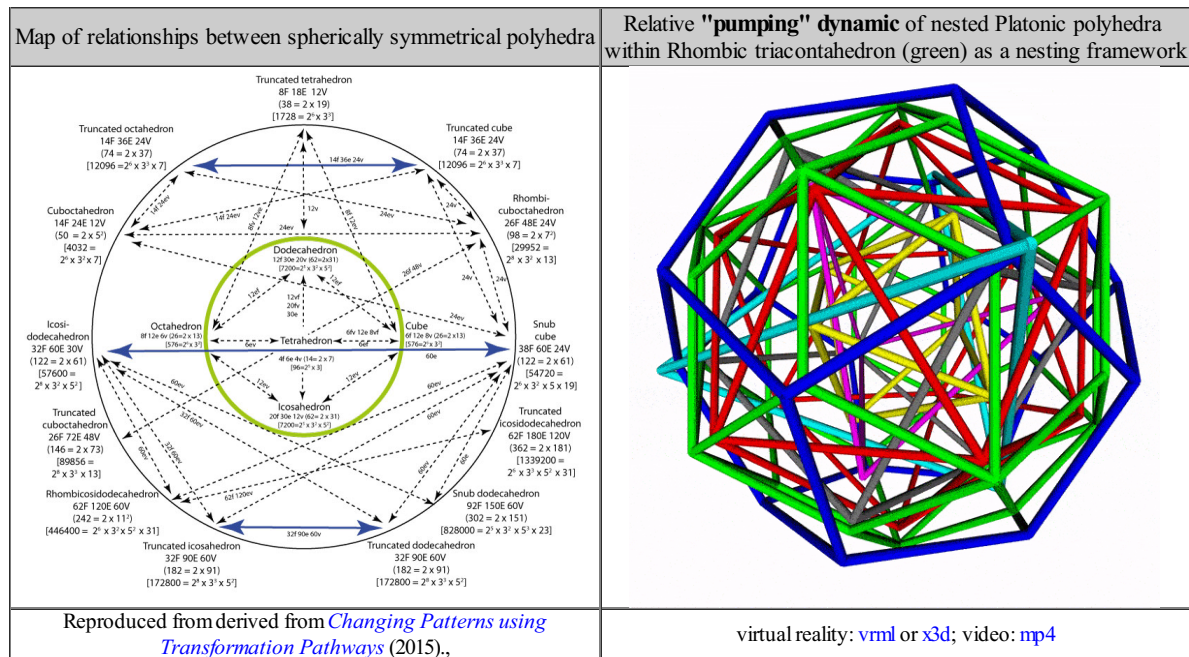
Mnemonic aids to a set of contrasting strategic patterns?		
As suggested by a well-known song?	As suggested by a gear shift pattern in trucks	Single pattern: UN SDGs as "strategic gears" ?
<p>On the 12th day of Christmas my true love sent to me:            12 drummers drumming            11 pipers piping            10 lords a-leaping            Nine ladies dancing            Eight maids a-milking            Seven swans a-swimming            Six geese a-laying            Five golden rings            Four calling birds            Three french hens            Two turtle doves, and            A partridge in a pear tree</p>		<ol style="list-style-type: none"> <li>1. No Poverty</li> <li>2. Zero Hunger</li> <li>3. Good Health and Well-being</li> <li>4. Quality Education</li> <li>5. Gender Equality</li> <li>6. Clean Water and Sanitation</li> <li>7. Affordable and Clean Energy</li> <li>8. Decent Work and Economic Growth</li> <li>9. Industry, Innovation, and Infrastructure</li> <li>10. Reducing Inequality</li> <li>11. Sustainable Cities and Communities</li> <li>12. Responsible Consumption and Production</li> <li>13. Climate Action</li> <li>14. Life Below Water</li> <li>15. Life On Land</li> <li>16. Peace, Justice, and Strong Institutions</li> <li>17. Partnerships for the Goals</li> </ol>

**Strategic coherence enabled by drawing dynamically on modelling resources?** Global civilization has yet to engender consensus on the nature of "unity" -- deemed only too readily comprehensible and well-defined by each religion and discipline, despite the profound disagreements between them. The quest for any adequate comprehension of unity is exemplified by the challenges faced by fundamental physics and cosmology with respect to any such assumption.

Policy-makers have yet to accept that a singular global plan is far from adequate in clarifying the nature of such unity -- preferring instead to impose simplistic patterns inherited from the past, as with the Marshall Plan, condemning any who question their viability. Could this be appropriately termed "dimagination" -- usefully associated in its consequences with **dumbing down** and **psychic numbing**? (David Graeber, *Dead Zones of the Imagination, HAU Journal of Ethnographic Theory*, 2, 2012).

**Strategic unity and self-reflexivity?** If the elusive nature of such unity merits recognition as essentially dynamic, the question is how any models can be understood as transformation pathways circumscribing such understanding. Ironically this capacity has effectively been anticipated in the worldwide enthusiasm for **transformer toys** and the depiction of **transforming robots in movies**. This familiarity is far greater than that with respect to tentative arguments for any "global plan" or international organizations of "variable geometry".

As noted separately with respect to transformational pathways between patterns of N-foldness, it is a "gearbox" which offers an accessible metaphor (*Polyhedral possibilities of interrelating patterns comprehensibly: a "cognitive gearbox"?* 2019). A map of such pathways is suggested by the image on the left below derived from *Changing Patterns using Transformation Pathways* (2015)., Portions of its dynamics are suggested by the animation on the right. Somewhat ironically such a gearbox can be explored in terms of the memorable nesting of polyhedra (*Transformation: changing cognitive gear and pattern shape shifting*, 2015; *Nesting polyhedra to enable comparison of patterns of discourse*, 2015; *Relative movement of nested Platonic polyhedra: pumping and rotation*, 2015)



How many facets of such insight could be usefully seen as a feature of polyhedral geometry -- as faces, vertices, or edges? So framed, do simpler polyhedra serve as simpler scripts suggesting a degree of understanding but only implying a subtler sense of unity? Do more complex polyhedra render explicit more facets, whilst increasing the challenge of comprehending the significance of the patterns they offer? The possibility of "organizing" global governance otherwise is presented separately as an animation of some 120 images (*Engaging Playfully with Coronavirus through "Organizing" Global Governance? Eliciting imaginative new thinking inspired by transformations in 3D of the form of the virus*, 2020).

Does the interconnected array of polyhedra, exemplifying the variety of patterns of order, frame the question of both how they map each other self-reflexively and how this constitutes an insight into higher orders of unity? One exercise to that end animates the association of Archimedean polyhedra with the cuboctahedron, as shown in a video derived from a separate discussion (*Time for Provocative Mnemonic Aids to Systemic Connectivity? Possibilities of reconciling the "headless hearts" to the "heartless heads"*, 2019).

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