



# laetus in praesens

Alternative view of segmented documents via Kairos

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## Cognitive Navigation of the Elements as Indicative Strategic Metaphors

### Engagement via technomimicry with global entanglement of Earth, Air, Fire and Water

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## Introduction

Much is made of the possibility of being a part of community and of society more generally. Hence the many references to participation. The facilities of social media encourage this in many ways, as do esports. Being part of a family or group is a common aspiration. Nations may well aspire to being a part of the [international community](#), irrespective of the extent to which its nature may be called into question (*International Community as God or Sorcerer's Apprentice?* 2015)

These examples all suggest that the process of being a part of a larger context, as currently understood, is held to be adequate to the viability of a global society. Arguably this is far from being the case in an increasingly fragmented society. With "whole" as the complement to "part", the viability of wholes of many kinds is widely challenged or suspect as totalitarian. This may well translate into the problematic experience of a person, and hence the widespread concern with the extent of the mental health crisis -- and the challenge to any integrative processes and aspirations.

Rather than the elusive nature of a "whole" and the experience of participation in it, the possibility anticipated here is the sense of a "wave" as a better articulated complement to "part". This follows from the distinctions between wave and particle in physics, most succinctly indicated by Heisenberg's [Uncertainty Principle](#). Whilst identity may indeed be framed and understood through the particular, the question is how it might be more fruitfully comprehended as a wave.

The question is whether, as imagined, the shift in perspective is radical enough -- if only as a means of reframing individual experience. As famously argued by the physicist Niels Bohr: *We are all agreed that your theory is crazy. The question which divides us is whether it*

is crazy enough to have a chance of being correct. My own feeling is that it is not crazy enough (1922). Irrespective of inter-personal or inter-group relations, the challenge is coming rapidly "to a head" -- to coin a phrase -- in relation to climate change and the environment. Is that primarily a challenge of "re-cognition"? Ironically any focus on "part" evokes recognition of the challenge to "partnership" in the present times.

Humans may indeed conceive themselves to be part of the environment in which they are embedded. The question is whether this understanding addresses the need for a transformation of that relationship, as separately argued with respect to radical cognitive engagement with environmental categories and disciplines (*Existential Embodiment of Externalities*, 2009). Ironically a case can be made for revisiting the framing offered by the **classical elements** of the environment -- categories which have been so influential in the past: **Earth, Air, Fire and Water** (and later **Aether**).

Rather than being abstruse and obscure -- as an intellectual abstraction -- the argument here is that this shift is readily accessible, even immediately and familiarly so. Rather than understood as a radical change in a pattern of categories, it is a process of apprehending experience otherwise. Any framing by categories is then itself a direct inhibitor of that experience -- or potentially so. The inhibition of this experiential mode is then to be understood as a misleading consequence of systematic labelling of the environment. Its features are thereby reified through the categories labelled in this way -- and not otherwise. Even more problematic is the effort to achieve a form of closure by and within such a pattern of categories.

The insight has been expressed otherwise by the work of **Mihály Csikszentmihályi** on the somewhat elusive experience of **flow** (*Finding Flow: the psychology of engagement with everyday life*, 1996). Understood otherwise, the concern here is with psychosocial analogues to the widely recognized process of "achieving lift-off" in the light of well-recognized insights from helicopter development and the subsequent explosion of interest in practicalities of quadcopters and the like (*Combining Clues to 'Ascent' and 'Escape'*, 2002).

The argument is inspired by the development of the familiar helicopter, and the more recent extremely rapid development of multi-rotor drones: tricopters, quadcopters, hexacopters and octocopters. Some of these are now allegedly of great significance in military strategy in Ukraine (David Hambling, *Small Quadcopters Rule The Battlefield In Ukraine*, *Forbes*, 29 April 2022; Dan Sabbagh, *'They're starting to die': fears Ukraine's drone supremacy may soon be over*, *The Guardian*, 10 April 2023; Jason Sherman, *Drone-on-Drone Combat in Ukraine Marks a New Era of Aerial Warfare*, *Scientific American*, 3 April 2023).

The question here is however whether and how the quality of thinking regarding multi-rotor drones offers insights into the development and viability of 2-fold, 3-fold, 4-fold, 5-fold strategies, and the like -- especially when the "five turnarounds" of the Club of Rome's Earth4All initiative are deemed to be a key to the survival of humanity. It is however intriguing that drone development is also now a popular focus of hobbyists -- in striking contrast to the contexts within which global strategies are now developed.

## Constrained experience defined by categories and labels?

Use of categories and labels may indeed offer advantages for many purposes. However it is better understood as an option. Dependence on that option alone, or by preference, is potentially a source of the fragmentation now so characteristic of society. As noted above, there is an obvious challenge in that an argument like this cannot be presented without using labels and categories. This has been partially addressed by **Alfred Korzybski** (*Science and Sanity: an introduction to non-Aristotelian systems and general semantics*, 1994), specifically with respect to the problematic assertive use of "is".

As discussed separately, it could be said that there is great familiarity for many in switching from an indirect mode of experience through categories to a direct mode avoiding dependence on them (*Cognitive Osmosis in a Knowledge-based Civilization*, 2017). This highlighted the interface challenge of inside-outside, insight-outsight, information-outformation. The relation between the modes might indeed be compared to the distinction made by physics between particle and wave recognition -- although any associated experience is rendered abstruse by any focus on the framing through those categories. Many years of education may be considered necessary to handle such categories appropriately. The point is ironically made by the title of **Pablo Triana** (*Lecturing Birds on Flying: can mathematical theories destroy the financial markets?* 2009).

The direct experiential alternative could be understood as offering a form of cognitive "lubrication" to any use of categories -- given the difficulties of interrelating them coherently as conceptual building blocks. This can be explored in terms of the global implications of "betwixt and between" and **liminality** (*Living as an Imaginal Bridge between Worlds*, 2011). There is every reason to consider that such an articulation is best understood as **complementary** (to be valued under certain conditions only) rather than as a preferable **alternative** (upheld as applicable under all circumstances). This ambiguity, or duality, is consistent with arguments developed separately (*Being Neither a-Waving Nor a-Parting: cognitive implications of wave-particle duality in the light of science and spirituality*, 2013). There is of course the paradoxical difficulty that it is seemingly through those building blocks that a degree of communication is possible -- however problematic this may be.

## Entrapment in squares and boxes?

One approach to this argument is recognition of the extent to which the conventions of engagement with the world cultivate box-like frames in many domains. Ironically this is increasingly evident in movie depictions of the manner in which AI presents visually its framing of individuals under surveillance. Each person is framed by a rectangle as they move along streets -- with associated labels and supplementary information also presented within rectangles. Variants are evident in heads-up displays for pilots -- and in the virtual reality presentations expected.

Curiously this can be understood as an evolution of the manner in which people and objects are labelled without AI. Text information, especially personal profiles, is presented on rectangles of text -- as with identity cards -- possibly within rectangular drop-downs and pop-ups on computer screens. The structure of organizations is displayed in organization charts with people and departments typically in

rectangles. This is similarly the tendency with systems diagrams and concept maps, although occasional use may indeed be made of spheres and ovals.

The tendency most obviously extends to the grid layout of towns and cities, whether in 2D or 3D. Again innovative design may occasionally provide for circular configurations -- parks and roundabouts. However it is relatively rare for non-rectangular forms to feature in residential or institutional structures. They are recognized to be a less efficient use of materials -- only justified in promotional designs.

The tendency is especially evident in the main financial tool, namely the spreadsheet -- as can be speculatively called into question (*Spherical Accounting -- using geometry to embody developmental integrity*, 2004). It is similarly evident in the tool for the management of time, namely calendars -- in striking contrast to non-digital watches with circular dials. Curiously it is circular dials which tend to feature in the control of manufacturing processes and which are a common feature of automobile and airplane dashboards.

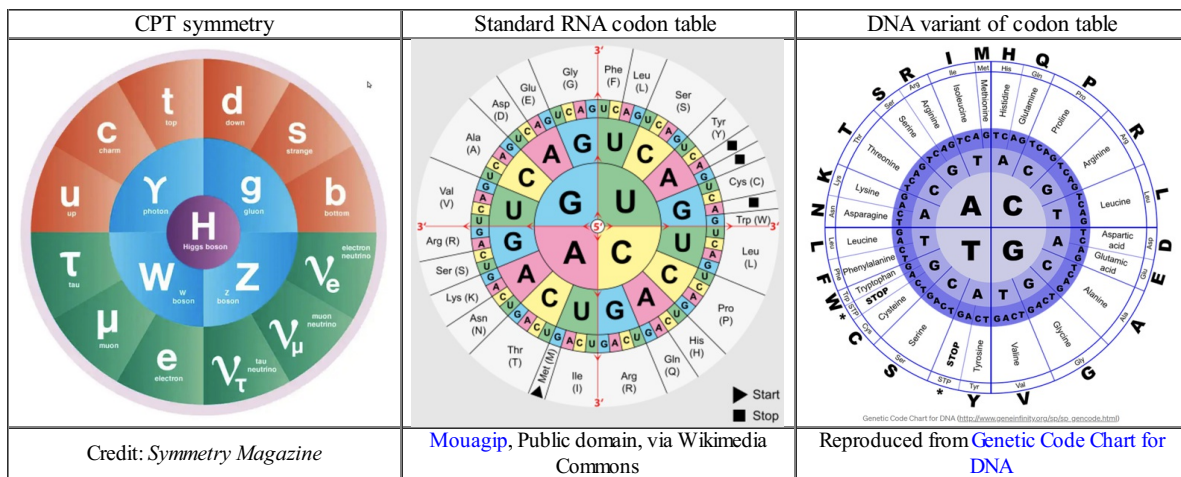
## Patterns of comprehensive organization

**Pattern recognition:** The focus here is on the [recognition of patterns](#), most recently highlighted by the major study by Jeremy Lent (*The Patterning Instinct: a cultural history of man's search for meaning*, 2017), as separately reviewed (*Patterning Intuition with the Fifth Discipline*, 2019). With the strategic emphasis given to the political slogan -- *It's the economy stupid* -- and its adaptations, does the focus on patterns invites yet another adaptation: *It's the pattern, stupid?* Paradoxically any implication of "stupidity", through failure of pattern recognition, is itself necessarily problematic in a cancel culture.

Somewhat remarkably consideration is however already given to implications of that adaptation (*It's the Pattern, Stupid! Elite Trader*, 12 November 2015; Tuomas Liisanantti, *Big, Bigger, Big Data*, *Nordic Business Forum*, 13 April 2015). It is however not surprising when those involved are most at risk -- with more "skin in the game" in the terms of Nassim Nicholas Taleb (*Skin in the Game: hidden asymmetries in daily life*, 2018). The relevance has also been recognized with respect to software development (*Rapid Learning Tips*, *GoF Design Patterns*) and self-development (George Dutch, *When it comes to career change, it's the pattern, stupid! SelfGrowth*)

In focusing on patterns, the concern here is not however with the specific concepts and processes which may be indicated by distinctive labels, or coding of the features of a pattern, but rather with what its elements imply (*Patterns, their visualization and their comprehension*, 2019). Perhaps appropriate in strategic terms, the pattern considered here resembles that of a common target, as discussed separately (*Reframing a fundamental attractor as a target*, 2014; *Health and sustainability misleadingly framed as target acquisition*, 2012). However, as discussed further, the pattern is not a target -- a reframing potentially offered by the philosophical reflection of Eugen Herrigel (*Zen in the Art of Archery*, 1948).

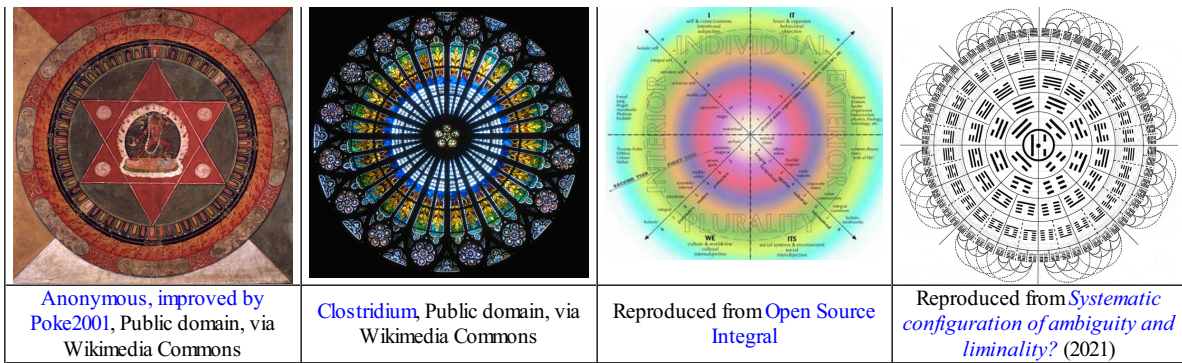
**Fundament patterns of the natural sciences:** Ethan Siegel *The Universe's most unbreakable symmetry*, *Big Think*, 9 February 2023)



**Fundamental patterns of the psychosocial sciences:** As an exercise there is therefore a case for using the binary coding system to articulate the array from a central circle through rings with 2, 4, 8, 16, 32 to 64 distinctions -- a total of 126 or 127 (*Systematic configuration of ambiguity and liminality?* 2021). The hexagrams of the *I Ching* highlight a further challenge to comprehension deriving from the direction in which they are "read", whether "bottom-up" or "top-down" and the significance which that distinction may imply. This can be discussed more generally (*Unquestioned Bias in Governance from Direction of Reading? Political implications of reading from left-to-right, right-to-left, or top-down*, 2016).

Given that perspective it is useful to consider the following distinctive orientations of the augmented circular array of hexagrams -- highlighting the contrast with that traditionally presented as indicative of the highest human values.

Tibetan mandala of the Naropa tradition	Rose window of Strasbourg cathedral	AQAL Map of integral theory	Example animation of circular array of nested coding patterns



## Systemically analogous patterns of functional mobility: biological and otherwise

The emphasis here on technomimicry is presented as an extension of the well-recognized inspiration to innovation that is offered by biomimicry -- most notably with respect to the development of airplanes and controlled flight (Mostafa Hassanalain, et al, *Wing shape design and kinematic optimization of bio-inspired nano air vehicles for hovering and forward flight purposes*, December 2016). Biomimicry has also offered insights into the design of robot all-terrain vehicles. A summary in tabular form of the following patterns is presented separately (*Patterns of N-foldness: misleading implications of cyclic comprehension?* 2019).

**Multi-limbed animals:** Given the sub-division of many organizations into departments, it is appropriate to explore these as "limbs", "fins", or "wings". This raises the question of the number of limbs, fins or wings appropriate to engagement with the environment, whether understood as land, within water, or in the air -- given the viable examples offered by nature. Animals which could be considered multi-limbed include:

- **bipeds:** Several groups of modern species are habitual bipeds whose normal method of locomotion is two-legged.
- "tripeds": seemingly absent from nature (Tracy J. Thomson, *Three-Legged Locomotion and the Constraints on Limb Number*, *BioEssays*, 18 September 2019; Andy Fell, *Why are there no animals with three legs?* *Phys.org*, 2 October 2019). 3-legged "plants" have been a feature of science fiction portrayals (John Wyndham, *The Day of the Triffids*, 1951).
- **quadrupeds**
- "pentapods": five-armed starfish; kangaroos, given its use of a tail (*Meet the only animal with five legs*, *New Scientist*, 2 July 2014)
- **hexapods:** comprising most species of arthropods, including the insects as well as three much smaller wingless groups. Robots have been designed with such a configuration (Volker Dürer, et al, *Integrative Biomimetics of Autonomous Hexapedal Locomotion*, *Frontiers in Neurobotics*, 13, 2019)
- "heptapods": seemingly absent from nature, although extensively discussed with respect to the hypothetical language of heptapod aliens in a science fiction movie (*Story of Your Life*, 1988).
- octapods: *Octopodiformes* is a superorder, comprising the octopuses and the vampire squid. all with eight arms, either lacking the two tentacles of squid (as is the case in octopuses) or modifying the tentacles into thin filaments (as in vampire squid). Robots have been designed with such a configuration (Konstantinos Karydis, et al, *A Switching Kinematic Model of an Octapedal Robot*)
- "nonapods": seemingly absent from nature
- **decapoda:** an order of crustaceans, including many familiar groups, such as crabs, lobsters, crayfish, shrimp and prawns.
- **millipedes:** a group of arthropods that are characterised by having two pairs of jointed legs on most body segments; Each double-legged segment is a result of two single segments fused together.

As remarked above with respect to the kangaroos, the understanding of "limbs" may be extended to include a tail, thereby shifting the pattern of occurrences. Including wings and antennas has a similar consequence (notably in the case of 4-winged insects), as with inclusion of a beak in the case of birds. Such inclusions would also apply in the case of the arms of **legged-robots**.

**Multi-brained animals:** More intriguing is any corresponding implications for brain organization of the animals in question, with the further implication for the institutional organization of any "global brain" charged with global strategic governance. Multi-brained animals include: leeches (32 brains), silkworm moth (11), octopus (8, plus one central brain), gastropods (3), squid (3), mosquitoes (3), cuttlefish (3), grasshoppers (3), bumblebee (3) (Patricia Greene, *10 Animals with Multiple Brains*, *Wildlife Informer*).

The question has acquired new significance with the emerging challenges and possibilities of the role of (possibly "multi-modal") artificial intelligence in that regard -- as implied in the case of robots. Is **unicameral organization** to be understood as viable in the light of examples from nature? Is there a need for **bicameral organization**, as curiously replicated in some legislative assemblies? Does nature offer analogues to controversial proposals for **tricameral organization**? Recognized in terms of **multicameralism**, institutional examples have existed of four chambers and of five.

**Multi-wheeled vehicles:** Obvious examples include the transitions from monocycle, to bicycle, tricycle, quadbike, and to many-wheeled trucks. In metaphorical terms it might then be asked with how many "wheels" a strategy is endowed, and are they appropriately designed and configured, speculatively transcending vain hopes of squaring the circle in global decision-making (*Reframing the Square Wheels of Global Governance*, 2017).

**Multi-cylinder engines:** These range from the 2-stroke engine, through the V-8, to more complex configurations. Of relevance to this argument are the cognitive analogues which such design options imply (*Cognitive analogues of mechanical transmission systems?* 2022; *Alternatives to "2-stroke democracy" suggested by 4-sided ball games*, 2016).

**Multi-rotor "copters":** Whereas the abstract considerations above are distant from the preoccupations of many, it is extraordinary to note the widespread, "hands-on" familiarity with model drones, most notably in the form of accessibly-priced quadcopters. This follows from the familiarity of many with helicopters and the challenge of piloting them. The familiarity is evident in the following interrelated contexts:

- *Flight simulation:* Experience of the challenges of flying helicopters, and other multi-rotor systems, is offered by readily available simulators running on personal computers. Curiously, by contrast, few simulations are offered of governance of alternative strategic configurations -- their uptake, or their capacity to achieve "lift-off"
- *Construction by hobbyists:* In addition to extensive innovation of multi-rotor systems in institutional contexts, there is widespread engagement of hobbyists with readily available "make your own" construction kits. These encourage experimental adaptations to produce more complex multi-rotor systems. Again it is curious to note that little encouragement is offered to those who might otherwise experiment with alternative configurations of strategies. Any such consideration may well be deprecated or severely condemned.
- *Recreational drone-flying:* This is increasingly replacing earlier engagement with [kite-flying](#). It is appropriate to ask how this may evoke new insights comparable to the influential role of kite-flying for the philosopher [Ludwig Wittgenstein](#), as presented by Susan G. Sterrett (*Wittgenstein Flies a Kite: a story of models of wings and models of the world*, 2005)
- *Comparative exchanges between hobbyists:* The engagement with this innovative process encourages development of fora through which hobbyists explore the possibility of alternative approaches to the design of multi-rotor systems -- and their various constraints. Again it is noteworthy that any such fora with respect to strategic governance are primarily preoccupied with promoting one alternative over any others..

It is appropriate to note (in passing) a degree of confusion with respect to puzzles when searching for "multi-rotor" systems. This appears to derive from the technically related preoccupation with the design of "twisty puzzles". These are exemplified by Rubik's Cube and its many more complex variants, indicative of another approach to engaging otherwise with what people find meaningful (*Interplay of Sustainable Development Goals through Rubik Cube Variations*, 2017).

**Symbols as "psychopters" of a kind?** Patterns as value-carriers of considerable psycho-social significance may well take the form of symbolic stars, whether 3-, 4-, 5-, 6- pointed, or more. These are a common feature of national flags and other insignia (*Symbolic Insignia Indicative of Global Health*, 2021). They can be understood as effectively "raising" or "elevating" the focus of attention -- ensuring "lift-off" -- understood as a feature of psychopters (as discussed below).

Whilst the stars in their entirety may be appreciated as a focus -- effectively functioning as "psychopters" in elevating collective concern -- little attention is accorded to the distinctive significance of the individual points of which they are composed in doing so. This negligence extends to the relationship between the points -- problematically emphasized as **static** rather than **dynamic**. This invites reframing otherwise (*Necessary cognitive twist: star symbols as bladed propellers -- for propulsion in 3D?* 2018; *Imagining the Flag of Europe otherwise?* 2018).

**Multiple ways of looking:** As noted above, the 4-fold pattern of Earth, Air, Fire and Water has offered an influential framing in the past -- although now deprecated as naive and obsolete, despite their significance in a world of archetypal environmental crises to which governance is proving inadequate. It is indeed potentially intrinsic to the symbolic organization of any Rosetta Stone of meaning (as discussed below).

The suggestion here is that as classical categories they may be more fruitfully understood as subtle pointers to strategic modalities -- indications of cognitive modalities whose nature is conventionally obscured by **misplaced concreteness**. The argument might be usefully clarified by reference to the widely-cited 8-fold pattern presented by [Gareth Morgan](#) (*Images of Organization*, 1986), whose current relevance has been subsequently explored (Matthew J. Lambert III, *A review of Images of Organization, Complicity: An International Journal of Complexity and Education*, 6, 2009, 2).

Morgan specifically distinguishes images of organization as (1) machines, (2) organisms, (3) brains, (4) cultures, (5) political systems, (6) psychic prisons, (7) flux and transformation, and (8) instruments of domination. The approach merits adaptation to the strategic lenses through which a crisis is framed and perceived (*Interrelating Multiple Ways of Looking at a Crisis*, 2021; *Ways of looking at ways of looking -- in a period of invasive surveillance*, 2014; *Towards a Periodic Table of Ways of Knowing*, 2009).

## Insights into creative governance from technomimicry

**Psychopter design?** The challenge can be seen as one of eliciting meaning and coherence within a global information society of fragmenting knowledge and relationships (*Eliciting a Universe of Meaning*, 2013). As discussed there, the argument can be taken further in the light of the explorations of [Arthur M. Young](#) (*The Geometry of Meaning*, 1976). Following his original experiments on helicopter design, Young continued these within the context of the [Bell Aircraft Company](#). The first test flight of [Bell Helicopter's](#) prototype Model 30, of which he was the designer, occurred in 1943. He invented the stabilizer bar used on many of Bell's early helicopter designs. The company received Helicopter Type Certificate H-1 in 1946, namely the world's first commercial helicopter, the [Bell Model 47](#).

Young became profoundly disturbed by the development of nuclear weapons at the end of World War II, later satirised by the cult movie (*Dr. Strangelove or: How I Learned to Stop Worrying and Love the Bomb*, 1964). This reframed the Cold War fears of a nuclear conflict between the Soviet Union and the United States -- an issue of relevance at this time. Young decided that humanity needed a new

philosophical paradigm. In August 1946 Young recorded in his notes the idea of the "psychopter" -- the helicopter as the "winged self", a metaphor for the human spirit (*The Bell Notes: a journey from physics to metaphysics*, 1979, p. 67, 106)

He sought to generalize the innovative insights into the control of the flight of a helicopter by its pilot. These he framed metaphorically through 12 standard physical "measure formulae" -- in the quest for the design of a "psychopter". It could be argued that the quest of global governance for sustainability bears comparison with the challenge of getting the psychosocial system "off the ground" and enabling it to "fly" -- as with any psychopter (*Clues to "Ascent" and "Escape"* -- in *Navigating Alternative Conceptual Realities: clues to the dynamics of enacting new paradigms through movement*, 2002).

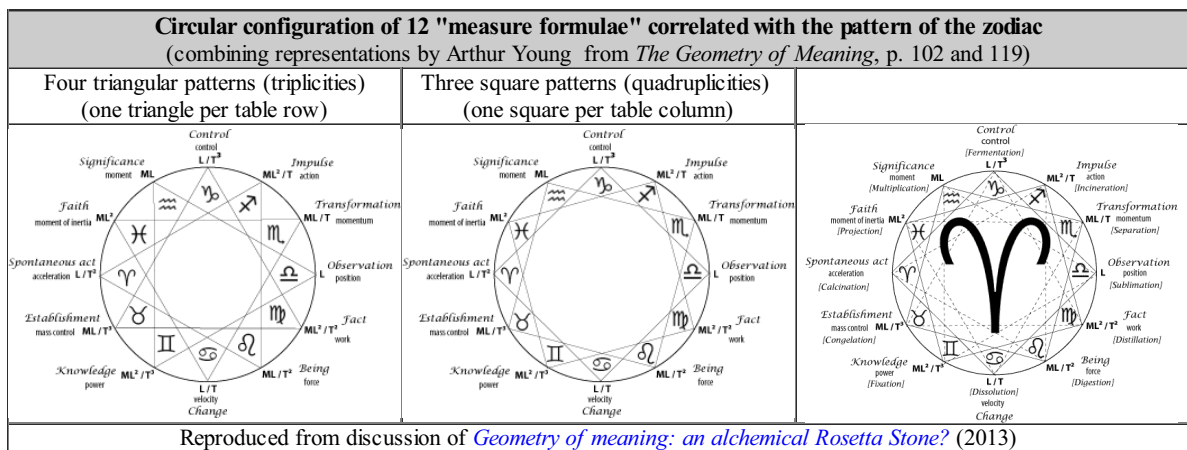
12 "measure formulae" distinguished and clustered by Arthur Young (reproduced from <i>The Geometry of Meaning</i> , p. 102)		
Actions	States	Relationships
Position -- L	Moment -- ML	Power -- $ML^2/T^3$
Velocity -- L/T	Momentum -- ML/T	Inertia -- $ML^2$
Acceleration -- $L/T^2$	Force -- $ML/T^2$	Action -- $ML^2/T$
Control -- $L/T^3$	Mass control -- $ML/T^3$	Work -- $ML^2/T^2$

Young indicates with respect to this table: *The last column is displaced one place.., in order to have the three members on each line 120 degrees apart* (p. 102) ... in the circular configurations presented below

As part of his study of the *Geometry of Meaning*, Young configured the 12 measure formula in a circular pattern (*The Rosetta Stone of Meaning, Mind Fire*, 1976). One later clarification is offered by Martin K. Jones (*The Rosetta Stone of Arthur M. Young, Equivalent eXchange*, 27 January 2019).

In the development of his argument in *Geometry of Meaning*, Young associated the traditional symbols of the zodiac with the 12-fold pattern, given their psychological and symbolic significance, as he later discussed (Arthur M. Young, *Zodiac: an analysis of symbolic degrees*, 1982; *Science and Astrology: the relationship between the measure formulae and the Zodiac*, 1988).

The alchemical processes as alternative metaphors can also be associated with that pattern. Adaptations of Young's circular configuration pattern are presented below. The animation on the right is suggestive of the alternative cognitive modalities between which it is necessary to switch in navigating a variety of "terrains".



**Technomimicry:** Young's approach might also be framed in terms of technomimicry, as separately discussed (*Engendering a Psychopter through Biomimicry and Technomimicry: insights from the process of helicopter development*, 2011). It is through insightful "mimicry" of the technology that innovation essentially takes place -- mysteriously eliciting new meaning from nothing (Robert Romanyshyn, *Technology as Symptom and Dream*, 1989).

The widely acknowledged mysteries of the creative process have implications for the development of this argument in that it recognizes a complex of potentials and constraints indicated by apophysis and autopoiesis. This is consistent with the aversion of innovators to "explaining" the process and progress of their "work". The implications go further in the case of alchemy. They suggest another interpretation of the work of Nikola Tesla, as argued separately (*Reimagining Tesla's Creativity through Technomimicry*, 2014).

The essentially controversial intention of Young can be usefully framed in terms of the repudiated alchemical endeavour of "transmuting base metals into gold". He chose as his "base metals", a set of 12 standard formulae of physics, those most ironically characteristic of "Newtonian mechanics". The cognitive "transmutation" through which a "winged self" is engendered could be framed in terms of what is readily termed "generalization". It could be better understood in musical terms as "transposition of key" (*Paradigm-shifting through Transposition of Key: a metaphoric illustration of unexplored possibilities for the future*, 1999). Douglas Hofstadter "played" with such a musical metaphor in his original work (*Gödel, Escher, Bach: an Eternal Golden Braid*, 1979). He has developed the implications in his most recent work with Emmanuel Sander (*Surfaces and Essences: analogy as the fuel and fire of thinking*, 2013).

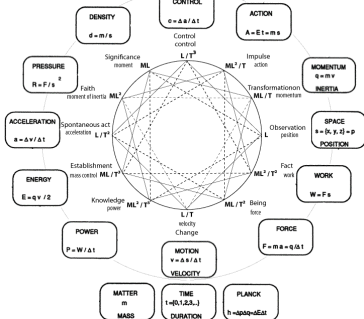
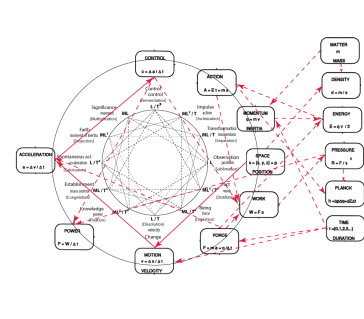
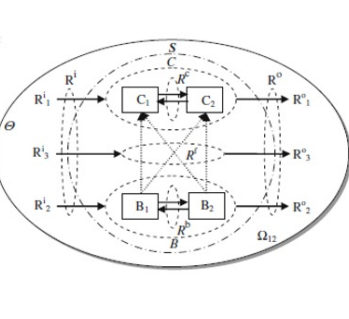
As argued by Myriam Wares, by imbuing enormous vectors with semantic meaning, we can get machines to reason more abstractly -- and efficiently -- than before. (*A New Approach to Computation Reimagines Artificial Intelligence*, *Quanta Magazine*, 2023).

Irrespective of the circular configuration, as emphasized by Young, the 12-fold pattern of measure formulae invites tentative interpretation in terms of learning cycles (*Characteristics of phases in 12-phase learning-action cycle*, 1998). These can also be adapted

to a *Typology of 12 complementary strategies essential to sustainable development* and to a *Typology of 12 complementary dialogue modes essential to sustainable dialogue*.

**Sociophysics?** The approach of Young can be related to those of the disciplines of **sociophysics** and **psychophysics**. These use mathematical tools inspired by physics to understand the behaviour of human crowds, most notably and controversially with respect to the analysis of social phenomena with "big data". Contrasting interpretations of sociophysics are offered by Paris Arnopoulos (*Sociophysics: cosmos and chaos in nature and culture*, 2005) and Serge Galam (*Sociophysics: a physicist's modeling of psycho-political phenomena*, 2016), and usefully summarized by Frank Schweitzer (*Sociophysics, Physics Today*, 71, 2018). With respect to technomimicry it may be asked whether there are *purportedly objective configurations with potentially subjective implications* (2021).

As with the image (below centre), the image (below left) is tentatively augmented with the 15 fundamental concepts of Paris Arnopoulos (*Braiding the Triadic Codex and Triple Helix: the sociophysics of nature-culture-nurture and academy-industry-polity*, 2000). Note that 3 of the latter's concepts have been set below, arguably because they do not lend themselves to direct experience in the same manner as the other 12.

Suggestive examples of circular configurations of systems		
<p>"Rosetta stone of meaning" of Arthur Young supplemented by fundamental concepts of sociophysics</p>	<p>Tentative preliminary amendment of the dodecahedral configuration</p>	<p>Hyperstructural model of abstract systems</p>
		
<p>Using both Arthur Young (1976) and Paris Arnopoulos (2000)</p>		<p>Reproduced from Yingxu Wang (2015)</p>

As discussed with respect to *Associating significance with a dodecahedron* (2018), Young's amendment highlights a progression in temporal **reciprocation** (or inversion) which features in his appropriately titled subsequent study (*Nested Time*, 2004). He successively distinguishes: production capacity (effectively timeless as a product of 1/T0); change over time (as a product of 1/T1 or T-1); rate of change (as a product of 1/T2, or T-2); and a measure of control (as a product of 1/T3, or T-3).

A commentary of relevance to Young's presentation features in the work of Paris Arnopoulos (*Sociophysics: Cosmos and Chaos in Nature and Culture*, 1993):

Since power is the rate of applying force, controlling this rate is of utmost importance. Control has been identified as the capacity to modify the rate of change, ie to speed it up or slow it down. Therefore, power control is a necessary ingredient of any orderly social change. The mathematical definition of power, and its algebraic equivalents show that:

$$P = W/t = Fv = ma(s/t) = m(s/t^2)(s/t) = ms(s/t^3) = msc$$

This last parenthesis (s/t<sup>3</sup>) has been defined by Young as control (c), and translates as the rate of change of acceleration. It will be recalled that since v=s/t and a=s/t<sup>2</sup>, control becomes the third derivative of velocity....

Since power is directly proportional to the rate of energy conversion or information flow, dynamic systems require a great degree of control. As people become more energetic or informed, they tend to get out of control; so in order to avoid that, dynamic societies must become more regulated. It may therefore be said that the kind of government that a system has depends on the amount of power it disposes. (p. 82)

He develops the argument otherwise as a means of engaging with the **Triple Helix** model of innovation thesis (*Braiding the Triadic Codex and Triple Helix: the sociophysics of nature-culture-nurture and academy-industry-polity*, 2000). There he notes:

... this short paper interfaces with the triple helix paradigm by weaving its triadic social focus-locus with the power-wealth-data flows among its state-market-school centers. In this way we can concentrate on the most significant influence-finance-science transactions of the polity-industry-academy triangle.... In doing any job, force performs work:  $W = Fs = mas = mv^2$ . This means that some work must be done in order to bring about social change. If that change is needed fast then one must exert a lot of power:  $P = W/t = mav = Fv$ . By this mathematical transformation, we have arrived at this crucial notion of power politics as well as physics. Social power however, unlike physical power, does not move inanimate objects but human masses to act far and fast.... Informative societies are negentropic because they increase systemic organization and decrease environmental degradation. Accumulating human knowledge also improves social control ( $C = a/t$ ), since it regulates social change in a more enlightened manner. For that reason the exercise of responsible social power requires strict political control ( $P = mSc$ )....

Unusually Arnopoulos presents a synoptic overview in schematic form (p. 84) of the interrelationship between 15 fundamental concepts deriving from a triadic hypothesis (space-time-existence) correlating space curvature, material density and universal time (p. 5).

These suggest an interesting relationship to Young's 12-fold Rosetta stone of meaning, as depicted above (especially if 3 are omitted or conflated in some way). Otherwise it would take the form of three pentagons, thereby suggestive of arguments in relation to the Chinese understanding of the 5-fold *Wu Xing* (*Cycles of enstoring forming mnemonic pentagrams: Hygiea and Wu Xing*, 2012) and to the 15 transformations of Christopher Alexander, as discussed separately (*Tentative adaptation of Alexander's 15 transformations to the psychosocial realm*, 2010).

Of relevance to the triadic hypothesis articulated by Arnopoulos is the subsequent argument of T. N. Palmer (*The Invariant Set Hypothesis: a new geometric framework for the foundations of quantum theory and the role played by gravity*, *Electronic Notes in Theoretical Computer Science*, 2011).

Also calling for integration with such insights is the extensive work on **systematics** by **John Bennett** (*The Dramatic Universe*, 1955-66), as introduced by **Anthony Blake** (*Systematics, Diversity*), notably with respect to 12-fold sets (*Overview of 12 Systems*).

**Deprecated legacy perspectives?** There is a curious form of arrogant righteousness to the manner in which perspectives of the past are deprecated from those of the present -- declared to be simply "wrong" or "deluded". This is most obvious in the case of astrological framings adapted by Arthur Young -- despite the relevance he perceived with respect to psychological navigation in the light of his development of helicopter design. Deprecated to an even greater degree is the framework articulated by **Paracelsus**, a physician, alchemist, lay theologian, and philosopher of the German Renaissance. There is irony to the fact that the writings of Isaac Newton, as an icon of science, dealt extensively with "alchemy" -- especially since access to them has only recently become possible through the efforts of **The Newton Project**.

It is then appropriate to ask to what degree the framing by Paracelsus of the cognitive significance of the elements is of relevance to the challenge of their "navigation". Curiously access to his work and its derivatives -- the *Archidoxis magica* -- has long been variously accessible, although deprecated as a dangerously deluded preoccupation with "magic". His presentation of a set of "*sigils*" could well be understood as an early form of systems diagram relevant to the "containment" of what tend now to be held by the policy sciences to be "*wicked problems*" (*Evil loops and sigils as a pattern language*, 2016; *Hyperbolic reframing of the Demonique and Angelique of tradition*, 2016). The challenging insights of Paracelsus have been highlighted from a psychoanalytical perspective by Carl Jung (*Foreword to Paracelsus: Selected Writings by Jacobi*, *Carl Jung Depth Psychology*, 30 September 2020; *Paracelsica: zwei Vorlesungen über den Arzt und Philosophen Theophrastus*, 1942; *Paracelsus as a Spiritual Phenomenon*, *Alchemical Studies*, 1968, chapter 3).

Current deprecation of traditional insights from the perspective of science can be appropriately challenged in the light of the very limited capacity of science to respond effectively to the psychosocial dimensions of the challenges of global governance (*Recognizing the Psychosocial Boundaries of Remedial Action*, 2009; *Challenges of Science Upheld as an Exclusive Mode of Inquiry*, 2021; *Knowledge Processes Neglected by Science*, 2012).

## From helicopters to quadcopters and more: psychopter implications through technomimicry

As noted above, insights from helicopter development by Arthur Young have been the inspiration for this argument. The many helicopters that have been designed, and are currently in operation, are usefully summarized separately (*World helicopters (and other rotorcrafts)*). The following sections distinguish the multi-rotor models which have since emerged -- notably as drones -- especially in the light of their potential implications for strategic governance.

The focus in what follows is **the implication for strategic governance which could be elicited from the quality of thinking evident in consideration of multi-rotor vehicles** -- if the technical issues and designs can be "repurposed". Possibilities of technomimicry are seen as a matter of adapting patterns explicit in multi-rotor design and viability to those of governance understood as one of navigating a strategic "vehicle".

The emphasis here is less on the contrasting designs and more on the implication for the control of such vehicles. Rather than the objective insights elicited and inculcated during pilot training, the emphasis is on the much-valued instinctual understanding in experiential terms. This has frequently been described by the phrase "flying by the seat of the pants" (*Aviation Innovation: "Flying by the Seat..."*).

The question is how this translates into the realm of governance. One indication is the capacity described as "muddling through" by Charles Lindblom (*The Science of "Muddling Through"*, *Public Administration Review*, 19, 1959, 2). This has been widely reviewed and discussed (Andrea Migone, et al, *Charles E. Lindblom, The Science of "Muddling Through"*, *The Oxford Handbook of Classics in Public Policy and Administration*, 2015; R. J. Scott, *The Science of Muddling through Revisited*, *Emergence: Complexity and Organization*, 12, 2010, 1)

**Monocopters and 1-fold strategic governance:** As indicated below with respect to the traditional helicopter, this is not viable without a counteracting rotor, whether incorporated into a single coaxial design or operating orthogonally at the end of a tail boom.

The challenge of viable operation can perhaps be usefully compared with that of riding a **unicycle**. In attempting to deal with complexity, simplistic "mono-factor" thinking is notably criticized by **Edgar Morin** (*Pour Sortir du XXe Siecle*, 1981), as discussed separately (*Beyond single-factor strategy development*, 2008). Such problematic thinking is typically cultivated with the unquestioned assumption that "one model fits all" (*Adhering to God's Plan in a Global Society*, 2014; *One Plan for One Planet, One Planet Network*, 18 May 2018). It is currently typical of the quest to ensure global hegemony by the United States.

Inspired by his work on the helicopter, Young's circular "Rosetta Stone of meaning" (as presented above) could indeed be understood as

the archetypal monocopter. Young intended it to embody the design principles of a psychopter. As discussed below, the question is whether and how a response to the challenges of psycho-social torque have been "designed in" such as to render it viable.

A response to those challenges may indeed be implicit, as may well be the case with any initiative to conceive of a singular framework -- "One Plan" thinking. The use of such a framework to achieve strategic lift-off in practice may however require a more explicit embodiment of a countervailing dynamic. Failure to do so elicits an only too obvious opposition with a countervailing perspective -- condemned as "dissidence".

**Twin copters and 2-fold strategic governance:** Clearly it is the 2-rotor variant with which there is greatest familiarity (Rinson Raj, *Twincopter*, Scribd; K Likith, et al, *Design and Development of a Telescopic Twin-copter*, IEEE Explore, 2021). In the case of governance, this is most evident in the pattern of government-and-opposition -- or in bicameral parliamentary systems.

Somewhat ironically such governance invites comparison with the bicycle and the skill required to ride it successfully -- initially exemplified by the "penny-farthing" and the elusive possibilities of **bipartisanship**. The constraints are suggested by those of the "two-stroke engine", as noted above.

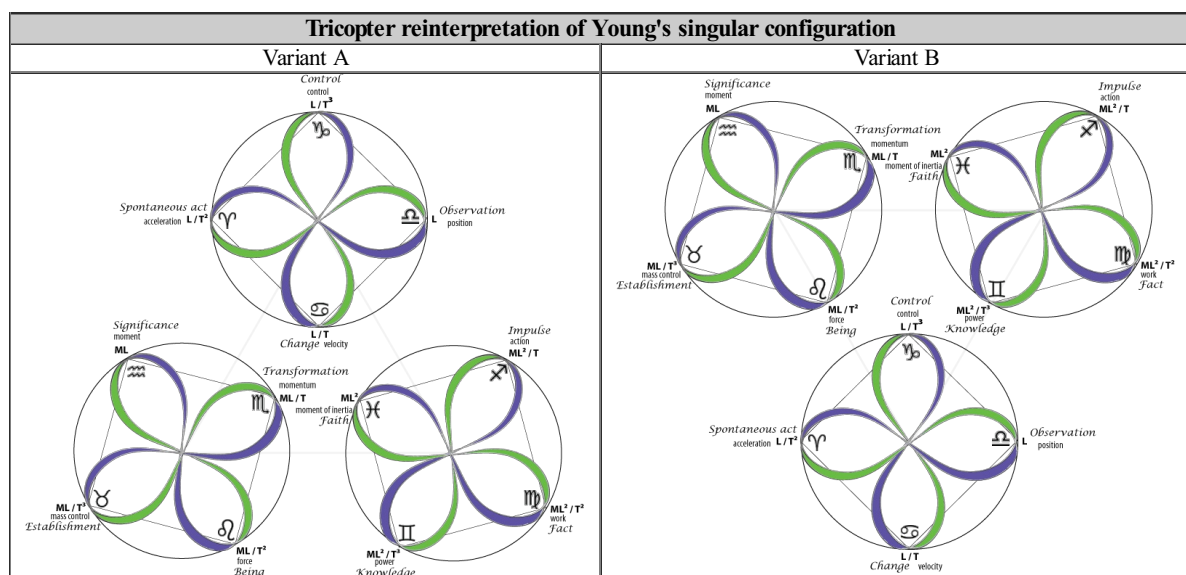
It can be usefully asked whether the current difficulties of 2-fold governance are comparable to the difficulties of learning to ride, or even to walk (*Transcending duality as the conceptual equivalent of learning to walk*, 1994). The occasional use of an adversarial **Red Team** -- to challenge the unquestioned assumptions of a **Blue Team** -- is an indication of how insights from the strengths and weaknesses of both may be sought.

Complementary dynamics could be derived as two counteracting circular configurations from Young's single circle -- most obviously as those distinguished as positive and negative. The argument is developed further below through deriving a 3-fold configuration, or more (*Alternatives to "2-stroke democracy" suggested by 4-sided ball games*, 2016)

**Tricopters and 3-fold strategic governance:** In the development of **rotorcraft**, those propelled by three lift-generating rotors (namely triicopters) have been a significant focus of attention as the simplest in the range of **multicopters**. Variants are readily available to hobbyists (*Best Tricopters for Fun and Pleasure: Review and Comparison*, Best Advisor, 9 February 2023). Guidance for their construction is similarly offered (*Build Your First Tricopter*, Make Magazine; *The CW Tricopter*, RC Airplanes Simplified; Shay Sackett, *Tricopter*, Project Portfolio, 2015; *Make Your Own Tricopter*, Autodesk Instructables).

A **Flike** (a portmanteau of fly and bike), developed as a manned personal tricopter (similar in concept to a **hoverbike**), achieved its first manned flight in 2015. The question is what such vehicles might suggest for strategic governance.

Two variants of a 3-fold pattern may be derived from Young's singular configuration, as shown below. The challenge of torque and viability could then be understood in terms of the feedback loops between the 4 experiential perspectives within each pattern. There is some irony to the traditional enthusiasm for **4-leaf clover** as an auspicious indication of some kind of uplift. This extends to a degree of appreciation of triadic symbols and logos (*Cognitive Implications in 3D of Triadic Symbols Valued in 2D*, 2017).



Such configurations frame a challenge to any 3-fold strategic framework or set of principles -- and potentially to conceptions of "third way" governance, or **tripartisanship** (Crystal Williams, *The Triadic Strategies: An Overview*, Oneop, 22 September 2021). There are many fundamental sets of principles held to be 3-fold. Far less obvious is the articulation of those principles to render the pattern strategically viable -- especially in terms of their necessary relationship to one another.

Ironically notable is the focus of the Pentagon on this 3-fold framing:

- **Nuclear triad** as a three-pronged military force structure (*Nuclear Triad*, US Department of Defense)
- *Mapping the Third Offset: Australia, the United States and Future War in the Indo-Pacific* (United States Studies Center, 5 December 2017)
- Peter Dombrowski: *America's Third Offset Strategy: new military technologies and implications for the Asia Pacific* (S. Rajaratnam School of International Studies, June 2015)

- John Garnaut: *US unsettled by China's 'three warfares' strategy: Pentagon report* (*The Sydney Morning Herald*, 11 April 2014)

Given the typical theological importance of such a configuration through mystical allusion, it is especially interesting to note the analysis of how **Dante Alighieri** describes the three rings (*tre giri*) of the Holy Trinity in *Paradiso* 33 of the *Divine Comedy* (Arielle Saiber and Aba Mbirika, *The Three Giri of Paradiso XXXIII, Dante Studies*, 131, 2013, pp. 237-272). That remarkable interdisciplinary exploration combines insights from speculative theology, geometry and knot theory, as discussed separately (*Borromean challenge to comprehension of any trinity?* 2018).

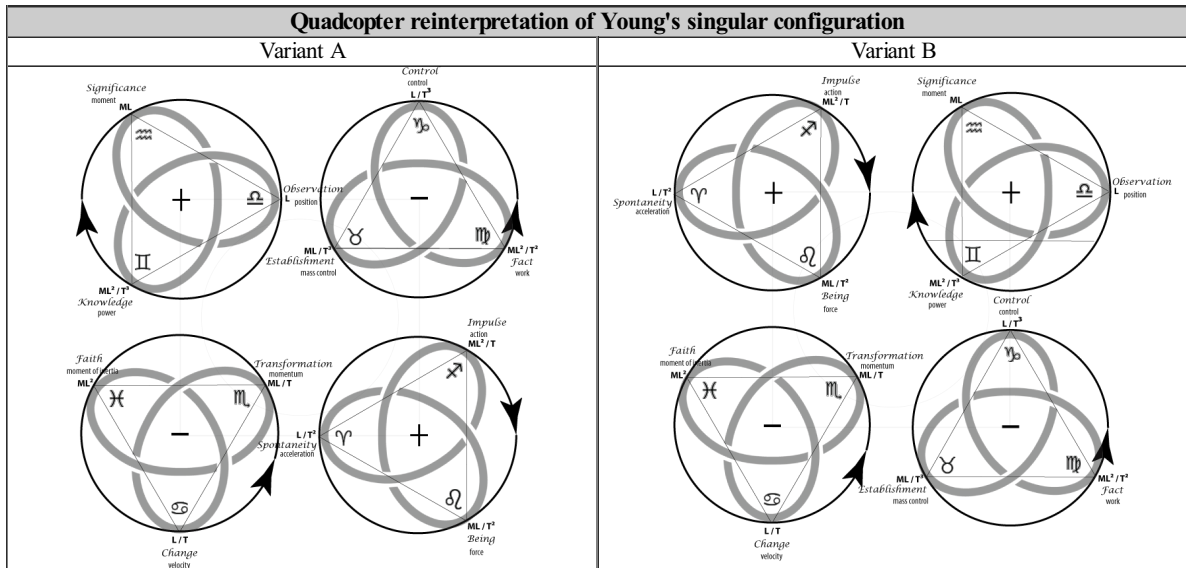
The cognitive implications of a 3-fold conceptual configuration can be explored otherwise (*Triangulation of Incommensurable Concepts for Global Configuration*, 2011; *Reframing the Dynamics of Engaging with Otherness: Triadic correspondences between Topology, Kama Sutra and I Ching*, 2019; *Triadic combination -- the dynamics of the attractor*, 2007). Paris Arnopoulos (*Braiding the Triadic Codex and Triple Helix: the sociophysics of nature-culture-nurture and academy-industry-polity, Third Triple Helix International Conference*, 2000). The latter is a contribution to the **Triple Helix model of innovation**.

In contrast to the limitations of the binary Red Team / Blue Team process (noted above), of relevance is occasional mention of a 3-fold variant (Daniel Meissler, *The Difference Between Red, Blue, and Purple Teams*, 12 August 2021; Sharon Shea, *Red team vs. blue team vs. purple team: What's the difference?* *TechTarget*, November 2020)

**Quadcopters and 4-fold strategic governance:** Considerable research is evident with respect to **quadcopter** design and their viability:

- G. Hoffman, et al: *Quadrotor Helicopter Flight Dynamics and Control: Theory and Experiment* (*Conference of the American Institute of Aeronautics and Astronautics*, 2007)
- Jesse Stafford: *How a Quadcopter works* (University of Alaska, 2014)
- J. G. Leishman: *Principles of Helicopter Aerodynamics*. Cambridge University Press, 2000)
- *5 Best Quadcopters* (*Best Reviews*, January 2023)

Again consideration can be given to the possible adaptation of Young's approach, as indicated below.

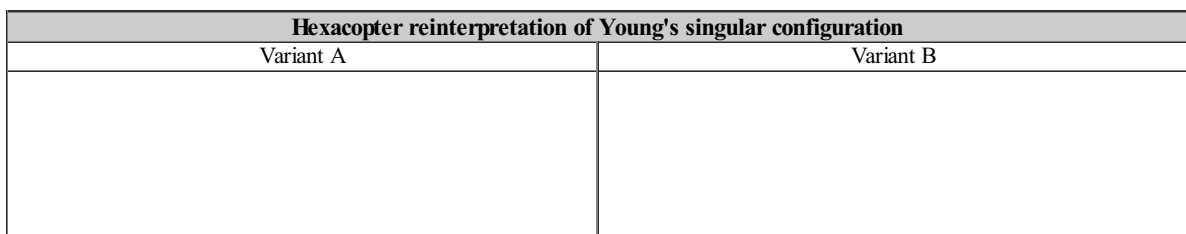


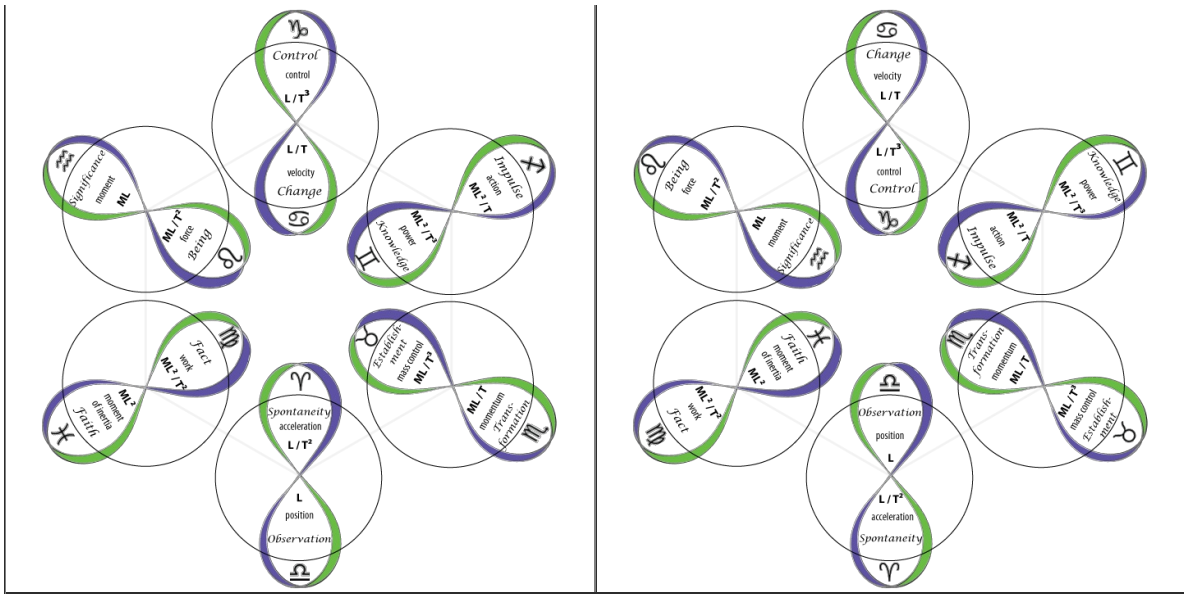
The relative complexity of a 4-fold pattern is more evident in the subtleties of the psychosocial realm, notably as addressed by C. G. Jung with respect to a 4-fold pattern of disparate **psychological types**. Further examples include:

- Maud van Lier: *Introducing a four-fold way to conceptualize artificial agency* (*Synthese*, 201, 2023, 85)
- G. Venkatesh: *Sustainable Development: the four-fold path for governance* (*Problemy Ekorozwoju*, 8, 2013, 2)
- *Obama sketches 4-pronged strategy for Europe, sees EU consensus* (*Reuters*, 22 May 2012)
- *Four-fold CIO Strategy for a Truly Digital Enterprise* (*Newgen*)
- *Four-Fold Concept Development Strategy* (*TPSConnect*)
- *Our Four Fold Strategy In Lifting Children to New Life In Christ* (*Child Beyond International*)
- *A 4-Fold Strategy for Making Disciples (That Really Works)* (*Replicate*)

**Hexacoverters and 6-fold strategic governance:** A degree of attention is given to **hexacovertor** design (*Hexacovertor Drone, Armed Assault Wiki; Best Hexacovertor Drones for Sale, Drones for Sale; Top 10 Best Hexacovertor Drones, Filmora*, 1 September 2022).

The adaptation of Young's model might then take the following form.





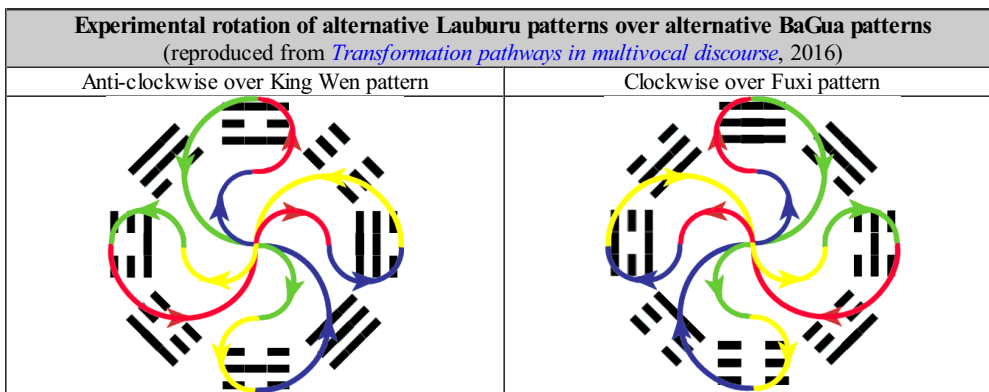
Examples of 6-fold strategic thinking are far less evident, and primarily associated with Eastern perspectives:

- Masood-Ur-Rehman Khattak: *Indian Strategic Thinking: a reflection of Kautilya's Six Fold Policy* (Eurasia Review, 29 March 2011)
- Leon Du Preez: *A Six-Fold Ministry?* (YouTube)
- *Chanakya's Six-fold policy and its relevance for diplomacy in the emerging world* (Samvada World, 2021)

**Octocopters and 8-fold strategic governance:** A seemingly lesser degree of attention is given to **octocopter** design (Paul Posea, *Top 5 Octocopter Drones 2023: Compared and Reviewed*, Drones Gator, 2023; *3 Best Octocopter Drones*, Drones for Sale, 2019; Svetoslav Zabunov, et al, *H-Airframe Based Octo-Rotor Ummanned Helicopter* November 2014).

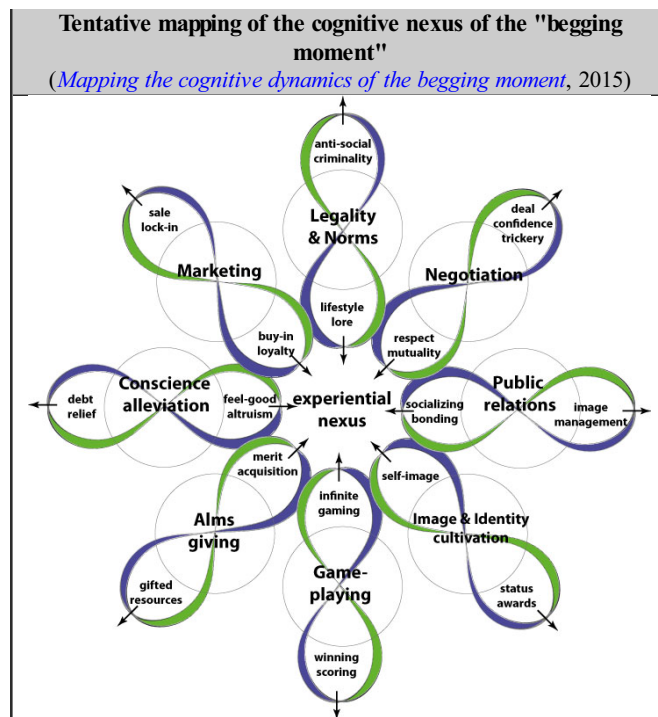
With respect to governance, most evident has been the traditional references to the **Noble Eightfold Path** of Buddhism and various "emulations", as with the **eightfold path of policy analysis**. Of greatest relevance globally has been the UN's 8-fold set of **Millennium Development Goals**. Also noteworthy is *The Deloitte and Eightfold Alliance*, comprising an Intelligence Platform to identify the skills and capabilities for all talent at scale.

The alternative presentations of the classical Chinese *Ba Gua* pattern reflect another recognition of the 8-fold (as shown below). Superimposition of **lauburu** and BaGua mirror: Given the manner in which the heart pattern was elicited from the construction of the lauburu, and the suggested correspondence with the *BaGua* mirror, there is a case for exploring the indications they offer with respect to feedback loops from the animations below.



The complexification of the above schematic (as presented below) endeavours to:

- give central focus to the subjectivity of the begging moment and its confusion, especially in evoking intangible values
- highlight the ambiguity associated with the different threads in terms of the contrasting manner in which they are experienced from an internal perspective and portrayed externally from a collective (objective) perspective -- using a set of Möbius strips to hold both that ambiguity and the paradoxical limitations on conventional definitions
- offer both an apparent internal locus within each Möbius strip and an apparent external locus -- labelled to indicate contrasting preoccupations (however illusory)
- tentatively present an 8-fold configuration of "dimensions" (recognizing those other distinctions might be made to amend and enrich the mapping) which could arguably be collapsed/conflated to a:
  - 6-fold configuration: combining conscience-alleviation/alms-giving and public relations/image and identity cultivation
  - 5-fold configuration: combining marketing and negotiation
  - 4-fold configuration: combining game-playing within marketing/negotiation



**Decacopters and 10-fold strategic governance:** There is some interest in the possibility of decacopters (*Decacopter is that available?* (ArduCopter - ArduPilot Discourse; *NASA's 10-Rotor UAV Hovers Like a Helicopter, Flies Like an Airplane Drone*, Discover, 5 May 2015; *Open Source Decacopter Drone*, Open Source Ecology, 2017).

Given the fundamental importance attached to the *Ten Commandments*, it is perhaps not surprising that this has engendered a number of corresponding 10-fold "emulations":

- Richard Coates: *"10 Commandments" of Business Strategy* (WhiteCap, 17 June 2019)
- Kimball Norup: *The 10 Commandments of Effective Growth Strategy* (ICMO, 1 February 2021)
- John Thwaites: *The ten commandments of influencing government* (Water Sensitive Cities)
- *The Ten Commandments of Management* (Knowledge at Wharton, 9 January 2008).
- *10 Commandments of a risk manager according to ChatGPT* (Wolters Kluwer, 11 April 2023)

Less evident, as with any checklist, is how any one "commandment" relates to the others in a systemic sense. Otherwise the pattern seems only occasionally to have acquired significance (*The Ten-Fold Way*, *The n-Category Café*), notably in the application to *Ten-fold Engineering*. The systemic perspective is far more evident in 10-fold *cross-validation* (Isaac Kofi Nti, *Why most machine learning applications use 10-fold cross-validation*, University of Energy and Natural Resources, 20 May 2021; *Why is 10 considered the default value for k-fold cross-validation?* Data Science, 2021).

**Dodecacothers and 12-fold strategic governance:** As with the decacopter, references to the dodecacothers are relatively limited:

- Sahin Yildirim, et al: *Modelling and Control of Proposed Two Dodecacothers Systems* (International Journal of Applied Mathematics Electronics and Computers, 8, 2020, 2)
- Svetoslav Zabunov, et al: *Innovative Dodecacothers Design – Bulgarian Knight* (January 2018)
- Muhammad Lut Liwauddin, et al: *Development of A Dodecacothers using Pixhawk 2.4.8 Autopilot Flight Controller* (IEEE 5th International Symposium in Robotics and Manufacturing Automation (ROMA), 2022)
- Mairim Nieves Nevárez, et al: *Dynamic Modeling and Control System Design for a Passenger Coaxial Dodecacothers* (Polytechnic University of Puerto Rico)

Arguably it could be recognized that 6-rotor hexacothers could be considered dodecacothers -- when each rotor is coaxial, with one set of blades rotating clockwise and the other counter-clockwise.

**Question to ChatGPT as to why there are no viable dodecacothers:**

There is no inherent reason why a dodecacothers, or a 12-rotor drone, would not be viable. However, it is important to note that the design and operation of multi-rotor drones, including dodecacothers, involve complex aerodynamic and control challenges. As the number of rotors increases, the complexity of the system also increases, making it more difficult to control and stabilize the drone. Additionally, the weight of the drone, the power requirements, and the maneuverability can also become more challenging as the number of rotors increases.

Furthermore, the use of dodecacothers or multi-rotor drones in general, is often limited by regulations and safety concerns, as they may pose a risk to other aircraft and people on the ground. Overall, while there is no fundamental reason why a dodecacothers would not be viable, designing and operating a 12-rotor drone presents significant technical and regulatory challenges that need to be carefully considered and addressed.

With respect to strategic governance, a 12-fold pattern is potentially particularly interesting in the light of the widespread preference for this articulation, as noted separately (*Checklist of 12-fold Principles, Plans, Symbols and Concepts*, 2011). This was an inspiration for

the exploration of how a 12-fold pattern of governance might "work" in practice, notably given the archetypal significance associated with 12-fold roundtables:

- *Eliciting a 12-fold Pattern of Generic Operational Insights: recognition of memory constraints on collective strategic comprehension* (2011)
- *Enabling a 12-fold Pattern of Systemic Dialogue for Governance* (2011)
- *Clarifying the Unexplored Dynamics of 12-fold Round tables: visualization of patterns of sustainable discourse between 12 systemic archetypes* (2019)
- *Topological Clues to a Memorable 12-fold Systemic Pattern* (2011)
- *12-fold Modalities for "heavy duty" global governance?* (2008)

Rather than bicameral or tricameral arrangements, provocatively it might be asked whether effective governance calls for a dodecameral configuration of decision-making (*Necessity of encompassing a "hole" -- with a dodecameral mind?* 2018).

**Vodocopter (12 + 6 rotors):** With respect to the quality of thinking to ensure the viability of 12-fold governance, of particular interest is the successful development by Vodocopter of the **Volocity** air taxi (*Electric air taxis being developed for Paris Olympics in 2024, The Guardian*, 22 March 2023). As indicated in the image below, this has an array of 18 rotors in an outer ring of 12, with an inner ring of 6.

In relation to the UN's 17 **Sustainable Development Goals**, this usefully frames the provocative question as to whether that initiative could have been more viably designed with 18 Goals -- a cluster of 12 relating to a cluster of 6 -- in order to ensure "lift-off" (*Requisite 12-fold organization implied by the 17-fold articulation of value goals -- as its "stellations"?* 2017). With respect to metaphorical insight into the "aerodynamics of governance" in relation to any assumed viability of the 12-fold, it is appropriate to note other strategic patterns of this order of complexity (*Pattern of 14-foldness as an Implicit Organizing Principle for Governance? Web resources*. 2021; *15 Global Challenges of the Millennium Project; The Next Generation of Emerging [16] Global Challenges, Policy Horizons Canada*, 19 October 2018).



## Odd-numbered strategic patterns as pentacoverters and heptacoverters?

**Pentacoverters:** Operating designs are far less evident, as indicated by the following:

- Philipp Lenski: *Design, Construction and Operation of a Pentacoverters* (*Technische Hochschule Würzburg-Schweinfurt*, March 2017)
- Rohan Munasinghe: *Pentacoverters* (*YouTube*, 2022), but as an augmented battery powered quadcoverters with an engine powered propeller at the centre .
- *Foxtech Screamer 250 Racing Pentacoverters Flight Test* (*YouTube*, 2017)
- *Pentacoverters* (*RCCGroups*, 7 September 2011)
- Max Donen: *What happened to the pentacoverters?* (*Quadpunk*, 8 November 2018)
- *Flying with only 5 motors on a hexacoverters* (*DIY Drones*, 17 January 2013)
- *Why are there tricoverters, quadcoverters, hexacoverters, octocoverters, and so on, but no pentacoverters (drones with 5 propellers)?* (*Quora*)

From a strategic governance perspective, the two classical health patterns below are based on use of the pentagram in Western and Eastern cultures:

- **Hygieia:** The **Pythagoreans** developed an understanding of health which they associated with the form of the **pentagram** and the Greek goddess Hygieia (also Hygieia or Hygeia) -- the personification of health, cleanliness and sanitation, and the origin of the term "hygiene" [[more](#)]. The name of the goddess is alleged to have been used as their primary greeting (perhaps, speculatively, to be considered an origin for "hug"). The snake encircled **Bowl of Hygieia** has long been used as one of the symbols of pharmacy (see below). *Hygieia Internationalis* is now the official journal of the International Network for the History of Public Health.
- **Wu Xing:** This ancient Chinese mnemonic pattern in the form of a pentagram of five phases, or five elements, is widely known in East Asia. It is traditionally associated with **Chinese medicine**, **acupuncture**, **feng shui**, and **Taoism**. The pattern is recognized as highlighting a cyclic relationship between the five constituent elements: fire, earth, metal, water and wood. It is the vectors of the "overcoming" or "controlling" cycle which are typically represented as a pentagram. Generative and destructive cycles are shown as clockwise and counter-clockwise circular motion

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Phases of the cardiac cycle	Hugieia Pentagram of Pythagoreans	Chinese 5-phase Wu Xing cycle	
Reproduced from <i>Wikipedia with further details and animations</i>	Reproduced from <i>Hugieia</i> entry in <i>Wikipedia</i> (G. J. Allman <i>Greek Geometry From Thales to Euclid</i> , 1889, p.26) with labels added	Adapted from <i>Wu Xing</i> entry in <i>Wikipedia</i> <b>Interaction arrows:</b> black=generating; white=overcoming	Reproduced from <i>Wikipedia</i>

Given the challenges to the design of a viable pentacopter, it is useful to query assumptions about the viability in practice of 5-fold strategies of governance.

Of particular interest at this time (as depicted below left) is therefore the focus of [Earth4All](#), a new Club of Rome initiative promoting a strategy of "5 turnarounds" (Jorgen Randers and David Collste, *The Earth4All model of human wellbeing on a finite planet towards 2100*, Club of Rome, 16 September 2022). The turnarounds are presented in the light of the best of economic expertise required to rethink capitalism, move beyond GDP, and bring societies on a safe pathway to wellbeing for all. Whilst focusing on the economic, it is questionable whether appropriate account is taken of psychological dimensions potentially vital to achieving the desired "lift-off" and "turnarounds" in the light of subtle constraints on ensuring a safe operating space for humanity (*Recognizing the Psychosocial Boundaries of Remedial Action*, 2009).

Curiously relevant to this argument are the "5 dimensions" promoted as the focus of the Inner Development Goals initiative (*Inner Development Goals: Background, method and the IDG framework*). These are potentially to be understood as complementary and interrelated as shown below centre. This is a research-based framework presenting 5 categories with 23 skills and capabilities, critical to success in sustainable transformation. The categories create a comprehensive framework which indicates the need to develop both cognitive, emotional and relational skills to succeed in working with complex challenges.


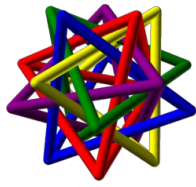
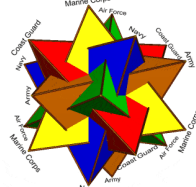
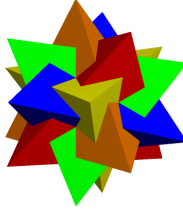
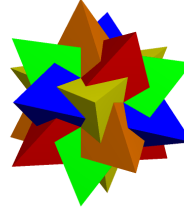
5-fold strategic initiatives	Inner Development Goals	
Earth4All: 5 turnarounds	Inner Development Goals	
		<p>Being: <i>Relationship to Self</i></p> <p>Thinking: <i>Cognitive Skills</i></p> <p>Relating: <i>Caring for Others and the World</i></p> <p>Collaborating: <i>Social Skills</i></p> <p>Acting: <i>Driving Change.</i></p>
Reproduced from Earth4All	Reproduced from Mannaz	

For purposes of speculative comparison, the 5 branches of the [United States Armed Forces](#) (a sixth, the Space Force, being recognized as part of the Air Force) are presented (below right) as the [Pentagon](#) in which they are headquartered. All six armed services are among the eight [uniformed services of the United States](#). Of some relevance, a preliminary reflection on that 5-fold significance is offered by Joshua Scacco (*Power in Numbers: the semiotic meaning of the Pentagon*, *Gnovis Journal*, 17 March 2010).

From a 5-fold perspective, it is appropriate to note the fundamental global strategic importance of the Pentagon (as headquarters of the US Department of Defense) with respect to global security -- understood in terms of [full-spectrum dominance](#). It is widely recognized as a focal symbol for US authority and of the strength and resilience of the U.S. military and its commitment to national defence. Ironically appropriate to any discussion in terms of the classical elements (Earth, Air, Fire, Water), it is of course the case that The Pentagon configures the 5 branches of DOD, namely Army, Navy, Air Force, Marine Corps, and Coast Guard, as indicated below left -- each with their "fire power".

There is therefore a case for extending the above exploration in terms of the 5-fold symmetry of that body as a symbol. This was framed in relation to a discussion of *Envisaging NATO Otherwise -- in 3D and 4D?* (2017) -- with NATO represented by a 4-fold strategic symbol. It was shown how that symbol could take the form of 5 tetrahedra in 3D, one of which is central to the configuration.

Possible 5-fold implications of the Pentagon in 3D were presented there through combining 5 such tetrahedra, in what is known otherwise as a [tetrahedron 5-compound](#) (with 20 faces, 30 edges and 20 vertices) (*Reframing NATO and The Pentagon?* 2017). Two forms of that configuration are presented (below centre). Can The Pentagon be usefully recognized as a pentacopter? There is potentially considerably irony to the ever increasing importance of what is recognized as "spin" in ensuring full spectrum dominance.

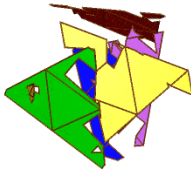
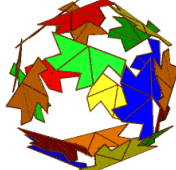
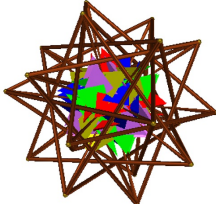


Symbolic reframing of The Pentagon -- and its implications for comprehension of full spectrum dominance?				
US DOD: 5 branches (2D map)	Compound of 5 tetrahedra		Morphing transformation of tetrahedra-5	
	Faces transparent (static)	Tetrahedra labelled (animation)	by truncation	by augmentation
				
Adapted from Earth4All image	Reproduced from Wikipedia	Animations prepared with the aid of <i>Stella Polyhedron Navigator</i>		

Technically the vertices of the compound then form the 20 vertices of a [dodecahedron](#). It is one [stellation](#) of the regular [icosahedron](#). The compound is unusual in that the dual figure is the [enantiomorph](#) of the original. If the faces are twisted to the right, then the vertices are twisted to the left. The compound has been extensively studied by geometers, notably as a geometric illustration of the notion of [orbits and stabilizers](#); it is one of five regular polyhedral compounds. Two such [tetrahedron 5-compounds](#) of opposite [chirality](#) combine to make a [tetrahedron 10-compound](#) (with 40 faces, 60 edges, and 20 vertices).

Given the organizational complexity of DOD, whose coherence is readily lost and unmemorable in conventional 2D representations, various transformations of the structure merit attention, as with the morphing dynamics and rotation in 4D (illustrated below right). These are suggestive of the kinds of "[wriggle room](#)" which The Pentagon is able to exploit strategically -- consciously or inadvertently.

The geometry of polyhedra and their transformation (notably into [polychora](#) and 4-polytopes), allows their configuration in 4D to be projected into 3D representations as shown below. The relevance can be emphasized by the strategic importance of the time dimension typically associated with 4D and discussed separately ([Enhancing Strategic Discourse Systematically using Climate Metaphors](#), 2015). This notably explored the following themes:

- [Four-dimensional requisite for a time-bound global civilization?](#)
- [Comprehending the shapes of time through four-dimensional uniform polychora](#)
- [Five-fold ordering of strategic engagement with time](#)

Indicative complexification of representation of the Pentagon (with projection of some 4D renderings of the above into 3D)				
Degrees of "uncoordination" of tetrahedra-5 in 3D	(Un)folding of tetrahedra-5 in 3D	Example of 4D tetrahedra-5	Animations of 4D rotation of tetrahedra-5 (examples)	
				
Animations prepared with the aid of <i>Stella Polyhedron Navigator</i>				

Arguably relatively simplistic 5-fold depictions, such as those of Earth4All and Inner Development Goals, call for such exploration in 3D and 4D, if they are to be expected to complement the aspirations to full spectrum dominance by the DOD. This is especially the case if such strategies indicate a "turnaround" dynamic over time -- essentially unmemorable in 2D, and even in 3D.

With respect to this argument for achieving strategic "lift off" and "uplift" in the light of multi-rotor "psychopters", experiments with the Pentagon structure are therefore indicative of possibilities for Earth4All and the like. How do psychopters operate in 4D? Is it through comprehension of 4D and 5D configurations that artificial intelligence will formulate responses to the strategic challenges of the future -- beyond the preferred focus and capacity of human decision-makers, and their ability to communicate possibilities successfully to the public?

The importance of such pattern recognition is a feature of the *magnum opus* of [Jeremy Lent](#) ([The Patterning Instinct: a cultural history of man's search for meaning](#), 2017). Its inherent 5-foldness was highlighted in a critical review of its conclusions ([Patterning Intuition with the Fifth Discipline](#), 2019). Lent has subsequently offered another 5-fold configuration ([The Five Real Conspiracies You Need to Know About](#), 1 October 2020).

The challenge with respect to psychopter operation and "lift-off" would appear to be how to attribute significance to more complex configurations -- despite general satisfaction with their simplistic representations in 2D. The following are indications of 5-fold cognitive configurations and the challenge recognizing their interrelationships ([Beyond the 4-fold cognitive modality: integrating the 5-fold, 6-fold and 7-fold?](#) 2019; [Insights into Dynamics of any Psychosocial Rosetta Stone: standing wave understood dynamically rather than statically](#), 2016; [Dynamics of N-fold Integration of Disparate Cognitive Modalities](#), 2021).

Challenges to 5-fold strategic comprehension in achieving pentacopter "liftoff"		
Configuration of a 5-fold pattern language (with those of the psychosocial realm above the dotted line)	Problematic pentagram	Pentagram of concord
Experimental mnemonic aid to reconcile "pro" and "con"		
Reproduced from discussion in <i>Patterning Intuition with the Fifth Discipline</i> (2019)		

With strategic challenges typically explored through game theory, there is a case for recognizing how artificial intelligence may respond to sets of otherwise incommensurable cognitive modalities, as exemplified by the classic "scissors-paper-stone" game (below left), as discussed separately (*Engaging globally with knots and riddles -- Gordian and otherwise*, 2019). There it was noted that the metaphor has been extended to 5-ring and 7-ring Borromean configurations (Marc Chamberland and Eugene A Herma, *Rock-Paper-Scissors meets Borromean Rings*, Grinnell College, 2014).

Borromean Rings understood as weapons in a "Rock-Paper-Scissors" Game			
The Game	Discordian mandala	5-fold Borromean rings	7-fold Borromean rings
Reproduced from <i>Wikipedia</i>	Reproduced from Chamberland and Herma (2013)		

As with the 3-ring game, the authors argue the case for 5-part and 7-part games with contrasting "weapons", noting that the number of such "games" has been extended to 13. Of relevance to this argument is whether the "weapons" are nations, as with the Group of 5 Permanent Members of the UN Security Council, the Five Eyes intelligence alliance, the Group of 7, or sets of mutually overriding strategic priorities of governance. Do 3-fold groups invite similar insight (Trilateral Commission, Trilateral Cooperation Secretariat)? What then of the viability of any cartel or crime ring, most notably triads?

**Heptacopter and Septacopter:** There are few references to such a possibility:

- *If the DragonFly flies as a Tricopter, could a Septacopter be made also?*
- *Design and development of atypical multicopters with application to heptacopter*

This could be considered surprising given the widespread focus on 7-fold committee and strategic organization. This may suggest unexplored constraints on the readily assumed viability of 7-fold organization in practice.

**Enneacopter?** There are seemingly no references to a 9-rotor vehicle. This is somewhat curious given the importance attached to the enneagram and its potential relation to individual "liftoff" -- effectively as a psychocopter (A. G. E. Blake, *The Intelligent Enneagram*, Shambhala, 1996; Joshua N Hook, et al, *The Enneagram: a systematic review of the literature and directions for future research*, *Journal of Clinical Psychology*, 77, 2021, 4). It could also be considered surprising in the light of its identification by management cybernetician Stafford Beer (*Beyond Dispute: The Invention of Team Syntegrity*, 1994; *Platform for Change*, 1995). Some possibilities are highlighted separately (*Visualization of enneagram in 3D and its icosahedral embedding*, 2019).

## Torque and its potential implications for psycho-social "liftoff"

A major concern in the design of helicopters, or multi-rotor systems, is compensating for the challenge of torque. The helicopter fuselage tends to rotate in the direction opposite to the rotor blades through which lift is achieved. Torque is the capability of a force to produce change in the rotational motion of the body. Just as a linear force is a push or a pull, a torque can be thought of as a twist to an object around a specific axis. Compensation for torque in the single main rotor helicopter is commonly accomplished by means of a variable pitch antitorque rotor (tail rotor) located on the end of a tail boom extension at the rear of the fuselage. (Paul Cantrell, *Torque, Helicopter Aviation*).

A single coaxial rotor eliminates the need for a tail rotor (Trevor English, *The Perfect Helicopter: understanding coaxial rotor design*, *Interesting Engineering*, 2 February 2020). Contra-rotating rotors have been used in the design of military helicopters for the better part of the last 75 years. Unfortunately synchronisation of the timing of the rotors turning in opposite directions is vital, otherwise the aircraft becomes unstable. Additionally coaxial rotors tend not to be as responsive as a single rotorcraft.

**Torque as a systemic metaphor?** Following the above argument and the 12-fold presentation of Young, a systemic correspondence might be assumed between rotation around a single axis through which a psychopter achieves lift-off. Given the challenge of torque to that lift-off, it might be assumed that the necessary counter-acting or countervailing force is provided by the opposite rotation of the six properties deemed positive and the six deemed negative. The implication is then that it is the coaxial nature of the central axis that calls for recognition -- in the case of a monocopter.

In the quest for strategic lift-off in global governance -- exemplified by the quest for sustainability, global harmony, and the like -- it is therefore curious that the extensive insights into torque and its compensation are not explored as systemic analogies for the resistance to such lift-off in psycho-social systems. It is typical of any proposal for positive change ("lift-off") that it is subject to negative commentary and opposition. Arguably the role of any opposition party in a legislative assembly is then effectively functioning as an anti-torque "tail rotor". Curiously advocates of "lift-off" see no merit in this and imagine that their advocated strategies would fly most effectively without any anti-torque facility -- contrary to the insights from helicopter operation. This assumption is also made by the opposing faction in anticipating their achievement of power. In both cases, resistance and opposition are deemed unfortunate and undesirable -- from a systemically naive perspective.

**Torque psycho-social metaphors?** Despite its dramatic importance to governance at all levels of society, curiously little (if any) effort is made to recognize deprecated resistance to change as torque. One curious exception is offered by discussion of *Torque In Poetry* (*Mathematical Poetry*, 9 March 2007). The blog in question promotes the use of mathematical equations to express poetic metaphor.

The challenge of recognizing what amounts to "philosophical torque" has been clearly stated by [Nicholas Rescher](#) in concluding his study of philosophical divisiveness:

For centuries, most philosophers who have reflected on the matter have been intimidated by the strife of systems. But the time has come to put this behind us -- not the strife, that is, which is ineliminable, but the felt need to somehow end it rather than simply accept it and take it in stride. To reemphasize the salient point: it would be bizarre to think that philosophy is not of value because philosophical positions are bound to reflect the particular values we hold. (*The Strife of Systems: an essay on the grounds and implications of philosophical diversity*, 1985).

The AQAL pattern of integral theory (presented above) is specifically associated with the spiral dynamics of lift-off. It could be argued that, as with the helicopter, these call for articulation of a countervailing anti-torque dynamic.

A separate discussion considered the potential relation between torque and the [torc](#) as variously worn, which may be spelt in the same way (*Cognitive torque and fruitful associations*, 2009). Of potential relevance to unconscious recognition of the value of torque is the widespread tendency to wear some form of ring following body piercing.

**Torque in hegemonic systems?** Especially relevant however is the study of race classification under apartheid by Geoffrey C. Bowker and Susan Leigh Star (*Sorting Things Out: classification and its consequences*, 2000) as extensively reviewed by Stefan Helmreich (*Torquing Things Out, Science, Technology, and Human Values*, 28, 2003, 3). The insightful review focuses on one chapter of the study (*The Case of Race Classification and Reclassification under Apartheid*), noting that:

[the authors] hold that the contradictions constitutive of racial categorization had a particular effect on the racially subordinated: their life trajectories were wrenched out of alignment, subjected to what Bowker and Star [2000] term "torque"... I ask after some of the analytical and moral assumptions embedded in Bowker and Star's articulation of torque, and I ask what torque can and cannot tell us about the lived category of race.... Bowker and Star ...&&

- introduce the force metaphor of "torque" to describe the process that unfolds when "the 'time' of the body and of [its] multiple identities cannot be aligned with the 'time' of the classification system" (p. 190).
- argue that torsion results when the temporalities of classification and lived experience slide out of sync. Individual biographies are twisted into tortured shapes that materialize in the negative space that opens up when powerful classification schemes do not line up with the local logic of everyday life... .
- argue that the torque that results from a biography like this flows out of the conflation of Aristotelian and prototypical classifications in a circumstance of radical social inequality...
- write, "The architecture of classification schemes is simultaneously a moral and an informatic one" (p. 324), and they maintain that in many cases classification systems are tools of power used to constrain and contain people who do not fit into dominant categories of privilege

Arguably apartheid sought to install a system of white racial hegemony -- of [cultural hegemony](#). Rather than that particular case, it is appropriate to ask whether classification into patterns more generally should evoke similar questions -- notably given the hegemonic aspirations of the dominant religions and particular superpowers.

**Universal knowledge classification:** The concern of relevance to the argument here can be expressed otherwise -- given the fundamental patterns of classification presented above. Is human cognition able to conceive of a universal pattern -- namely one that is both unquestionably hegemonic in nature and viable? Any such comprehensive patterns purportedly enable a form of cognitive lift-off to a metasphere -- a new frontier of perception -- as discussed separately (*Future Global Exodus to the Metasphere*, 2022).

Missing however is recognition of the challenge to such lift-off by cognitive torque and its manifestations in resistance. Ironically this would appear to be recognized in human efforts to articulate the organization of heaven. Is the typically explicit provision made for the corresponding organization of hell then to be understood as an antitorque rotor? For example, [gnostic cosmogony](#) generally presents a

distinction between a supreme, hidden God and a malevolent lesser divinity. Do presentations of sustainability and global governance require similar provisions -- rather than bewailing the resistance to the transformation envisaged? (*Ensuring Dynamics of Sustainability by Appreciative Recognition of Evil*, 2022).

The underlying concern of this argument is the identification of aids to comprehension of complexity and coherence, as previously argued (*In Quest of Mnemonic Catalysts -- for comprehension of complex psychosocial dynamics*, 2007). From that perspective the relation of the rotor engendering lift to its compensatory antitorque rotor is especially interesting. In the familiar helicopter the two rotors are mutually orthogonal, with the former operating horizontally and the latter operating vertically.

**Monopolar and multi-polar global governance:** In international relations, power may be understood as distributed within the international system in terms of **polarity**: unipolarity, bipolarity, and multipolarity for three or more centers of power (Karl Deutsch, et al, *Multipolar Power Systems and International Stability*, *World Politics*, 16, 1964, 3). Aspiration to **full-spectrum dominance**, as a characteristic of hegemony, is associated with monopolarity (Nathan A. Sears, *China, Russia, and the Long 'Unipolar Moment': how balancing failures are actually extending U.S. hegemony*, *The Diplomat*, 27 April 2016; *How America wasted its unipolar moment*, *The Economist*, 11 September 2021).

Modelled in terms of the stability of multi-rotor aircraft, unipolarity can be usefully recognized as inherently unstable -- as with monopolarity in other contexts. So framed it requires at least a second rotor. Lacking insight into torque, this unfortunately translates into engendering an "enemy" in global governance terms -- and recognition of the need for one (Andre Chavez, *The United States' Need for an Enemy: a study of the form, function, and evolution of the necessity of opposition since 1765*, *Grin*, 2014)

**Torque in 3D?** Following the previous point, and from a more abstract perspective it might then be asked how such rotors might be related in a 3D framework, assuming that strategic navigation in higher dimensional space is of relevance. A visualization is suggested separately (*Mandelbrot sets rendered in a mutually orthogonal configuration of 3 complex planes*, 2007). Some consideration of torque in 3D is variously discussed (*Calculating torque in 3D? Physics Stack Exchange*; *Torque in 3 dimensional coordinates*, *Physics Stack Exchange*).

The implications are of potential relevance when the 2D mandala-style "universal" logos are considered from a 3D perspective (*Eliciting Insight from Mandala-style Logos in 3D*, 2020).

**Torque and the helical models of innovation?** In terms of this argument, innovation can be understood as a form of "lift-off". Innovation helix framework theory was first developed by Henry Etzkowitz and Loet Leydesdorff (*The Triple Helix of University-Industry-Government Relations*, *SSRN Working Paper Series*, February 2012). It is used in innovation economics and theories of knowledge, such as the knowledge society and the knowledge economy, each sector is represented by a circle (helix), with overlapping showing interactions. The **triple helix model of innovation** has been subsequently extended to **quadruple and quintuple innovation helix frameworks**. These describe university-industry-government-public-environment interactions within a **knowledge economy** (Yuzhuo Cai, et al *Triple Helix or Quadruple Helix: Which Model of Innovation to Choose for Empirical Studies?* *Minerva*, 60, 2022, 2)

Creativity can indeed be experienced in helical terms, as separately suggested (Charlie Sweet, et al, *The Double Helix of Critical and Creative Thinking*, *The National Teaching and Learning Forum*, 27, 2018, 6). From the perspective of the above argument, it is appropriate to ask how any form of "torque" constrains innovation framed in helical terms. Presented otherwise, the question is the nature of constraints on innovation, as variously recognized (Greg Smith, *Creative Constraints: how limitations can fuel creativity*, *Medium*, 28 May 2020; Oguz A. Acar, et al, *Why Constraints Are Good for Innovation*, *Harvard Business Review*, November 2019; Scott Barry Kaufman, *Does Creativity Require Constraints?* *Psychology Today*, 30 August 2011)

**Experiential otherness as "torque"?** It is appropriate to consider that in progressing according to some well-defined plan -- deemed appropriate -- any sense of "otherness", **alterity** or contrariness could be explored as an instance of "torque", more generally understood (Zuleyka Zevallos, *What is Otherness?* *The Other Sociologist*, 14 October 2011). This offers a way of reframing what is commonly experienced as "off-plan", "out-of-line", "out of sync", heretical, or contrary to what is framed as the "one plan". It can be understood as offering new insight into resistance (Mikael Baaz, et al, *The ABC of Resistance: towards a new analytical framework*, *Journal of Political Power*, 16, 2023, 1).

As argued by Simone de Beauvoir (*The Second Sex*, 1949): *Otherness is a fundamental category of human thought. Thus it is that no group ever sets itself up as the One without at once setting up the Other over against itself.* Understandable in that respect is the distinction between "heaven" and "hell", as provocatively suggested by the philosopher Jean-Paul Sartre: *Hell Is Other People* (No Exit, 1944).

The more general framework can also be explored in terms of "anti-otherness", as argued separately with respect to the instances of anti-science, anti-spiritual, anti-women, anti-gay, anti-socialism, anti-animal, and anti-negativity (*Anti-otherness, anti-alterity, anti-diversity and anti-consensus?* 2018). There is some relevance to the argument regarding the emerging promotion of misinformation/disinformation studies as a complement to mainstream perspectives (Toby Roger, *How anti-corporate agnotology studies got swamped by pro-corporate misinformation studies*, 22 February 2023).

## Operability, comparability and reconfigurability of multi-rotor systems

It is abundantly clear that there is a very extensive range of research into multi-rotor systems, their operability and their relative viability. **The question is whether and how the nature and quality of such innovative thinking "translates" into consideration of the design and viability of N-fold strategic configurations** -- especially in the light of the perspective of **general systems theory**.

The emphasis here is on the strategic metaphors offered by "Earth, Air, Fire and Water" and any form of "all-terrain" cognitive navigation -- perhaps ironically comparable to the military doctrine of "full-spectrum dominance" (*Cognitive Embodiment of Nature "Re-cognized"*

Systemically, 2018).

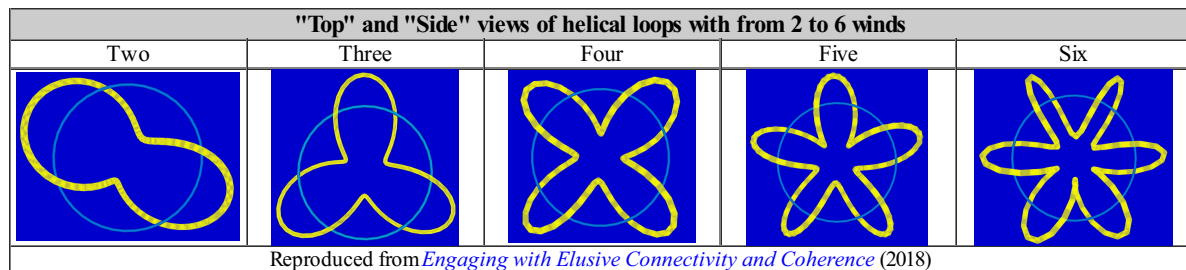
In terms of operability, the thinking deployed addresses issues of aerodynamics, perhaps ironically to be compared with the metaphorical challenges of "hot air" and "emissions" (*Sins of Hot Air Emission, Omission, Commission and Promission: the political challenge of responding to global crises*, 2009). A related challenge is presented by "water" (*Enabling Governance through the Dynamics of Nature: exemplified by cognitive implication of vortices and helicoidal flow*, 2010).

Indications of how multi-rotor systems "work" are, for example, offered by Jeremy T. Epps (*Rotor-Rotor Interactions in the Design of Unmanned Aerial Systems*, Georgia Tech, 28 July 2022), by Benjamin Haller (*How Control-Allocation for Multirotor Systems Works*), and by Paul Posea (*How Do Drone Propellers Work? (Complete Beginner's Guide, Drones Gator, January 2023)*).

The "translation" challenge is usefully illustrated by issues relating to:

- torque, namely the question of "strategic torque" and its relation to "dissidence" and "contrarianism" (as discussed above)
- vortices, and their problematic effects on viable control of a strategic vehicle
- rotors and how they are to be understood in enabling "lift-off" in a strategic context -- partially framed and constrained by "spin":
  - rotors as values, with values as experiential vortices?
  - disparate rotors, and their relation to forms of disinformation?
- rotor blades as the principal device ensuring "lift-off" (through their speed of rotation) and directional control (through their orientation). A key question is the significance of the number of blades on each rotating shaft -- whether 2, 3, 4, or more
- spiral dynamics -- originally associated with the "heli" of helicopter. This is of particular significance in the light of their increasing amount of research on the [Triple Helix Model](#) of innovation and its analogues (*Quadruple and quintuple innovation helix framework*).

There is a case for recognizing that underlying these issues is the challenge of addressing cognitive "knots" in strategic terms -- if not a Gordian Knot, as noted above (*Engaging globally with knots and riddles -- Gordian and otherwise*, 2019). The strategic relevance of knots to comprehension of sustainability has been discussed separately (*Cyclic Representation of Coherence as Knots and Otherwise*, 2018). Especially intriguing are the implications of the strategic promotion of star symbols (*Necessary cognitive twist: star symbols as bladed propellers -- for propulsion in 3D?* 2018).



**Comparisons:** Relatively absent from the strategic literature is any comparison between 2-fold, 3-fold, 4-fold, and N-fold strategies, as implied by references above. By contrast there is extensive research into the relative merits of different multi-rotor configurations, including:

- Ashish Mishra: *Different Types of Drone Frames: Monocopter to Octocopter*, *Circuit Digest*, 27 December 2021)
- Şahin Yıldırım, et al: *Experimentally Flight Performances Comparison of Octocopter, Decacopter and Dodecacopter Using Universal Uav* (*Measurement*, 213, 2023, May, 112689)
- R. Niemiec, et al: *A comparison between quadrotor flight configurations* (*Semantic Scholar*, 2016)
- Nourhan Elmeseiry, et al: *A Detailed Survey and Future Directions of Unmanned Aerial Vehicles (UAVs) with Potential Applications* (*Aerospace Engineering*, November 2021)
- *Tricopter vs Quadcopter vs Hexacopter: a comparison* (*Droney Bee*)

**Reconfigurability:** There is less evidence of studies on the reconfiguration of strategies -- despite the striking reconfiguration of the UN's 8-fold *Millennium Development Goals* initiative into the 17-fold *Sustainable Development Goals* initiative. By contrast there is a degree of interest in the reconfigurability of multi-copter designs:

- R. Niemiec, et al: *Control and Performance of a Reconfigurable Multi-Copter* (*Journal of Aircraft*, 55, 2018, 5)
- Sahin Yildirim, et al: *Design and trajectory control of universal drone system* (*Measurement*, 147, December 2019)
- *Reconfigurable unmanned aircraft system* (*Google Patents*, US20160159472A1)

## Engaging cognitively with modalities of earth, air, fire and water -- and "aether"

As categories, earth, air, fire and water are paradoxically subject to the criticism indicated above as questionable legacy categories. This is especially the case since they constitute a traditional pattern now deprecated as inherently outmoded, especially with the late addition of aether. Worse still, as such, they feature in current disciplines which are condemned as superstition and pseudo-scientific. It is of course the case that there are "earth sciences", "air sciences", and "water sciences", variously defined and articulated in specialized disciplines approved as being appropriate to the challenges of the future. Is it appropriate to assume that these disciplines are responding appropriately to the strategic challenges of the times?

As indicated by the example of the Pentagon, military forces are explicitly configured in terms of challenges on land, air and water -- and with whatever may be associated with fire. To these it is now understood that "aether" may be effectively added (*Pentagon Officials*

*Rethinking Cyber's Role in National Defense Strategy*, Nextgov, November 2021; *The Pentagon's Cyber Strategy: What's New and What it Means*, *The Cyber Brief*, 20 September 2018)

Despite the deprecation with legacy categories, there is also great irony to the effective articulation of many of the UN's 17 Sustainable Development Goals in such terms:

- "Earth": Life on land (Goal 15)
- "Air": Climate action (Goal 13)
- "Water": Clean water and sanitation (Goal 6); Life below water (Goal 14)
- "Fire": Affordable and clean energy (Goal 7)
- "Metal": Industry, Innovation and Infrastructure (Goal 9) -- with inclusion of the fifth such category, following the Chinese *Wu Xing* pattern (noted above)

Such correspondences suggest the merit of reflection on more fruitfully comprehensible ways of articulating global strategies, as explored separately (*Eliciting Potential Patterns of Governance from 16 Sustainable Development Goals*, 2022). This explored Goal 17 through a polyhedral compound of 16 tetrahedra in 3D, notably presented as an interactive virtual reality model (*Experimental interactive animation of a 16-tetrahedra complex of UN SDGs in 3D*, 2022). The potential correspondence between cognitive internalization and collective strategic articulation also merit consideration (*Imagining Partnership of the SDG Goals as Phases of the Cross*, 2022).

In the absence of a viable global "12-rotor strategy", the unusual design of the Vodocopter (as presented above) suggests a way of reframing those strategies numbering more than 12 elements. As with the Vodocopter, those in excess of 12 could be seen as an inner ring of strategies -- as with 6 such rotors of the 18-rotor Vodocopter. For the UN's 17 SDGs, the case may well be made through the distinction of some (Marcio Viegas, *Sustainable Development Goals: the five "most important" SDGs and what to do about them*, *LinkedIn*, 13 September 2016). The "most important", as an inner configuration, might well then correspond, if only metaphorically, to the classical elements (with aether) -- and the "5 turnarounds" of Earth4All.

The challenge is the necessary systemic perspective in identifying "important" (Siqi Yang, et al, *Prioritizing sustainable development goals and linking them to ecosystem services*, *Geography and Sustainability*, 1, 2020, 4; Isabel DeMarco, *Which is the Most Important Sustainable Development Goal? DoGoodEverywhere*, 23 October 2020).

It is however the case that people are necessarily required for their survival to engage with "earth", "air", "fire" and "water", as variously experienced (and even to the inclusion of "aether", as a reframing of cyber-reality). Only a few would do so through the disciplines currently approved as professions. The question meriting exploration is how people engage otherwise with the distinctive experiences evoked by such "categories" -- as "non-categories". The suggestion is that there is great familiarity with a variety of processes deemed appropriate -- quite independently and unconditioned by conventional disciplines. Widespread understanding of climate suggests a mode of engagement with potential strategic implications (*Enhancing Strategic Discourse Systematically using Climate Metaphors*, 2015). Speculatively this invites a play on words of relevance to future directions of governance (*Weather Metaphors as Whether Metaphors*, 2015).

Of some relevance to the problematic constraint of an "earthy" perspective alone -- potentially exemplified by the Club of Rome's "Earth for All" initiative -- is the argument of Edward de Bono (*From Rock Logic to Water Logic*, 1968; *Water Logic*, *McQuaig Group Inc*, 1993) *Between a rock and a hard place in the logic of water governance*, *Fresh Water Governance*, 1 May 2012).

What might be the distinctive cognitive implications of engagement with such disparate modalities -- a form of radical cognitive engagement with environmental categories and disciplines? One imaginative way of framing a response is offered by science fiction in speculating on the use of artificial intelligence to enhance and reframe cognitive experience in the exploration of the subtle complexities of hyperspace. The suggestion is that if the pilot sensed that the complexity had a water-like quality, information would be presented to the pilot enabling a swimming modality with the use of "fins". Similarly, if the complexity was assessed to be air-like, a flying modality with "wings" would be enabled. (*Existential Embodiment of Externalities*, 2009; *En-minding the Extended Body*, 2003).

With or without the future implications of artificial intelligence, is it appropriate to recognize how people may now "fly", "swim" or "burrow" through the complexities of the world as they experience it -- switching between modes according to the "terrain"? (*Enactive engagement in conceptual shapeshifting and deep ecology*, 2003; *Secret sharing, Shapeshifting and Embodiment: reintegration of a remaindered world*, 2011).

The question is how to enable such possibilities to a higher degree, especially in response to concerns about environmental challenges. This is discussed separately as a form of radical engagement with an increasingly surreal reality (*Cognitive Embodiment of Nature "Re-cognized" Systemically*, 2018). Themes explored include:

Indications in place of reasoned argument	Intercourse with the environment as cognitive "shapeshifting"
Nature as a cognitive exoskeleton for humanity?	Potential cognitive speciation understood otherwise
Renaissance of the environment and psychology of sustainability	Humanity as epiterrestrial "psiors" rather than extraterrestrial
Potential cognitive embodiment of other species: "re-cognized" in "cyborgs"?	
a global context?	Embodying the universe as a strategic opportunity

The exploration above of the array of multi-rotor vehicles endeavours to highlight the very active exploration of designs enabling "lift-off". Emphasis has been placed on the corresponding need for exploration of designs appropriate to strategic "lift-off" -- given the marked tendency of strategies to fail "to get off the ground" (as with experimental airplanes of the past), despite pretence in that respect. From the perspective of technomimicry, particular attention is required to the metaphoric analogue to the design of propellers, the number of blades, and their rotation. How might strategic propulsion be understood otherwise?

# Future strategic communication patterns enabled by artificial intelligence?

The impact of AI on strategic thinking is currently a matter of extensive speculation -- extending to its potential "curation" of mainstream discourse (*Governance of Pandemic Response by Artificial Intelligence*, 2021). The latter explored the control of human agents unconscious of AI-elaboration of communication scripts.

**Gaming:** Of particular interest is the potential of AI to transcend conventional patterns of categories "creatively" -- to make meaningful connections which have been ignored or deprecated by science. How such offerings may relate to popular frames of reference remains to be discovered. The activation of the significance of traditional mythology by *Dungeons and Dragons* provides one example (Steffan Powell, *Dungeons and Dragons: why Hollywood is keen on a 50-year-old game*, BBC, 29 March 2023).

Whether in the form of video games (esports) or movies, the intimate relationship between Hollywood and the Pentagon has been extensively reviewed as a feature of the military-entertainment complex (Georg Löffmann, *Hollywood, the Pentagon, and the cinematic production of national security*, *Critical Studies on Security*, 1, 2013, 3). It is intriguing to imagine how the relevance of the mythological battles of *D and D* is understood by the Pentagon in relation to the future of **memetic warfare** and **cognitive warfare**.

**Stargates?** Popular psychology, through media science fiction series like *Stargate*, has been imaginatively influenced by the possibility of so-called "stargates" and their potential (*Future Global Exodus to the Metasphere*, 2022). The latter envisaged their role in enabling mass migration of humanity to a new cognitive frontier. . Aspects of their future role and functioning were explored separately (*Post-Apocalyptic Renaissance of Global Civilization*, 2018) in the following sections of relevance: to this argument:

Engaging the imagination through metaphorical "stargates"  
Configurations of fundamental values as "stargates"  
Getting to the "stars": understandings of how a "stargate" might work?

Complementary features of "stargate" de-sign and functionality?  
Cognitive challenge of a "stargate": paradox, twist, riddle?  
A "stargate" of higher dimensionality -- the Renaissance as a Gateless Gate?

The concept can be explored in terms of modes of travel (*Noonautics: four modes of travelling and navigating the knowledge "universe"?* 2006) which included the question of how they might be "embodied" (*Embodying a universe of "stargates"?* 2006; *People as Stargates*, 1996). The latter envisaged an alternative perspective on human relationships in space-time.

**Mandalas as maps of "multi-rotor" dynamics?** The many traditional forms of mandala are valued from some religious and psychological perspectives (Anjali Alloria, *Mandalas: Transcending Beyond Circles and Symmetry to Psychology*, *Medium*, 9 November 2019). They may specifically recall the pattern of traditional elements -- in the light of their cognitive implications. Of great potential interest is whether versions of AI can design alternative mandalas -- of richer and more accessible forms, meaningful to distinctive audiences.

Particularly intriguing is the development from static configurations, in which the cognitive dynamics are only implied (if at all), to dynamic forms with which cognitive dynamics can be more explicitly associated, as tentatively illustrated separately (*Eliciting Insight from Mandala-style Logos in 3D*, 2020). The conventional segmentation of mandalas suggest that these may be understood as cognitive vortices resembling the vortices engendered by the rotors discussed above. Mandalas can indeed be recognized as operating as the psychopters mentioned above.

**Rotary sails?** The argument above explored the possibilities of "lift-off" in the light of multi-rotor coptors. It is appropriate to note the potential relevance of the thinking now applied to what are termed **rotary sails** and **turbosails** on ships and yachts -- most obviously in terms of horizontal movement, whether or not variants are developed for space travel. These depend on the **Magnus effect**, namely a force acting on a spinning body in a moving airstream, which produces a force perpendicular to both the direction of the airstream and the axis of the rotor.

Further speculation is suggestion by the rotation of **Möbius strips** (Z. Z. Nie, et al., *Light-driven continuous rotating Möbius strip actuators*, *Nature Communications*, 12, 2021, 2334).

**Wave-based reality?** The argument here follows from earlier approaches, in anticipation of their development (*Encountering Otherness as a Waveform -- in the light of a wave theory of being*, 2013; *Being a Waveform of Potential as an Experiential Choice: emergent dynamic qualities of identity and integrity*, 2013; *Being Neither a-Waving Nor a-Parting -- considering both science and spirituality*, 2013).

The possibility and urgent need for a radical transformation of perspective -- a paradigm shift -- is variously articulated, as featured in arguments of **Alexander Wendt** from an international relations perspective (*Quantum Mind and Social Science: unifying physical and social ontology*, 2015). Wendt argues for recognition that people may be understood as "walking wave functions", for example (*On being "walking wave functions" in terms of quantum consciousness?*, 2017).

**Repurposing weapons research?** The response to a question to ChatGPT concluded with the following summary statement: *Overall, repurposing weapons research for social benefit involves identifying the potential civilian applications of military technologies and investing in research and development to adapt these technologies to meet civilian needs. This can help promote sustainable development, human well-being, and peace, while reducing the reliance on military applications of technology.*

Arguably this misses the kind of thinking required to identify the possibility and to understand how the adaptation might be achieved. Such thinking is inherent in the discipline of general systems research which recognizes the similarity between seemingly disparate patterns. With pattern recognition as a skill purportedly associated with artificial intelligence, yet to be highlighted is how AI can enable both identification and adaptation -- as exemplified by innovative biomimicry and technomimicry.

With the focus of the argument above on a hypothetical "psychopter", the response by ChatGPT to the following question is an indication

of current limitations, variously avoiding the insights into the "sociophysics" emerging from helicopter development, as articulated by Arthur Young and noted above..

### Question to ChatGPT: How could a psychopter be designed?

Based on my research, Young envisioned the psychopter as a metaphorical vehicle that could help individuals or groups achieve new levels of consciousness, awareness, or understanding.

While the psychopter was never actually designed or built, it is possible to speculate on how such a device could be created based on Young's writings and ideas. Here are some possibilities:

1. **Virtual Reality Platform:** One possibility for a psychopter could be a virtual reality platform that would allow users to experience simulated environments or scenarios that help facilitate psycho-social lift-off. This could be accomplished through immersive experiences that challenge users to confront and overcome their fears, biases, or preconceptions.
2. **Biofeedback System:** Another approach could involve the use of a biofeedback system that measures physiological responses such as heart rate, brain waves, and skin conductance. By providing real-time feedback on these responses, users could learn to regulate their own emotional and mental states, leading to increased awareness and control.
3. **Meditation or Breathwork Aid:** Young was interested in various spiritual practices such as meditation and breathwork that could help individuals achieve psycho-social lift-off. A psychopter could be designed as a device that facilitates these practices, for example by providing guided meditations, breathing exercises, or sensory stimulation.

Overall, the concept of the psychopter is quite abstract and open to interpretation. The design of such a device would likely depend on the specific goals and intentions of its creators, as well as the needs and preferences of its users.

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