



Laetus in praesens

30th May 2008 | Draft

Towards Polyhedral Global Governance

complexifying oversimplistic strategic metaphors

- / -

Also available in a [PDF version](#) for printing convenience. Previously distributed under the title: *Global Complexification of Classic Hellenic Metaphors: transcending the Euro-centric "pillars" of institutional architecture and strategy*. The theme has been further developed in associated papers: [Polyhedral Pattern Language: software facilitation of emergence, representation and transformation of psycho-social organization](#) (2008), [Configuring Global Governance Groups: experimental visualization of possible integrative relationships](#) (2008) and [Polyhedral Empowerment of Networks through Symmetry: psycho-social implications for organization and global governance](#) (2008)

[Introduction](#)

[Strategic geometry](#)

[Strategic "pillars"](#)

[Configuring pillars](#)

[Polygons, poles and axes](#)

[Strategic "footnotes to Plato"](#)

[Configurations of attractors](#)

[Engaging with the cognitive challenge of global governance: operationalization](#)

[12-fold Modalities for "heavy duty" global governance?](#)

[Indicative implications for global governance](#)

-- [Communication interfaces](#) | [Polyhedral ordering of complexity](#) | [Polyhedral decision-related strategies](#)

-- [Identifying polyhedral configurations](#) | [Negotiating tables](#) | [Interlocking roundtables](#)

-- [Options for institutional reform](#) | [Recognition of degrees of disagreement](#)

-- [Metaphors of spherical symmetry](#) | [Spherical organization of institutional governance](#)

-- [Multi-faceted organizations and strategies](#) | [Eliciting polyhedral structures from complex strategic meetings](#)

-- [Multi-faceted polyhedral world parliament](#) | [Union of intelligible associations](#)

[Mnemonic aids to the challenge of global governance](#)

-- [Re-membering the Dodekathion](#)

-- [Engaging with popular astrology](#) | [Engaging with popular games](#)

-- [Mnemonic association of global systemic functions with pantheons of deities](#)

-- [Systematic ordering of belief systems fundamental to the challenge of governance](#)

-- [Moving symbols and evocation of psycho-social energy](#)

[Polyhedral coherence of sustaining narratives](#)

[Transformational challenge of global governance: "changing gear" and "development"](#)

[Challenging mechanistic thinking: contribution of complexity sciences](#)

[Mediterranean Union: a symbolic challenge](#)

[Gaia: default global governor of "last resort"?](#)

[References](#)

Introduction

This exploration develops one possibility in response to the impoverishment of metaphors sustaining current approaches to governance and strategy. This has been argued elsewhere ([Governing Civilization through Civilizing Governance: global challenge for a turbulent future](#), 2008) on the occasion of the 3rd Annual Conference organized by the [Global Governance Group](#) of the Club of Athens (Theme: *Making Global Governance Work: Lessons from the Past. Solutions for the Future*, Athens, 2-5 April 2008).

The argument is illustrated here by the common use of "pillars" in articulating institutional strategies for Europe. Metaphorically these are seen here as a trace of their use in the temple architecture of classical Greece and Rome, through which distinct values and functions were celebrated as deities -- values now variously associated with configurations of "pillars". Following the lead of Charles Handy (*Gods of Management; who they are, how they work and why they will fail*, 1979), who used Greek deities to characterize the different styles of management, the challenge of asystemic governance is explored here in terms of the dysfunctional role of deities as isolated metaphors.

The approach taken is to complexify the geometry of "pillars" into distinct three-dimensional polyhedral structures, themselves understood as appropriately configured to hold the many-sided challenges of global governance. Metaphorically a pantheon of deities -- understood as the strange attractors of complex dynamic systems -- may then be associated mnemonically with a polyhedral array appropriate to the requisite complexity of any global strategy. Polyhedral structures are seen here as a valuable means of configuring the seemingly incompatible "sides" of any strategic understanding into a structure of global integrity based on their complementarity -- rather than by seeking consensus through the elimination of all but one "side".

"Polyhedral" is therefore also understood here as "many-sided", in the political sense basic to governance of multiple distinct agendas. "Global" is also understood in an integrative sense, beyond its purely geo-political application to the world as a whole, as argued elsewhere ([Future Generation through Global Conversation: in quest of collective well-being through conversation in the present moment](#), 1997).

Strategic geometry

Previously the possibility had been explored of a new "language" through which policies, programmes and institutional structures could be articulated.

In the conventional language, it is typical to see "points" made in a "line" of argument about a subject "area". Such points may be enshrined in policy principles, in programme mandates, or in the departmental structures of organizations intended to implement them. Normally such nested point structures are embedded in linear text (possibly with the aid of an outliner on a text-processor). Typically the only organization structure expressed in graphic form is the hierarchical (pyramidal) organization chart, with all that that has implied. ([Geometry of Organizations, Policies and Programmes](#), 1992 / [La Transdisciplinarité et les Volumes: l'articulation des relations entre les disciplines à l'aide des propriétés des polyèdres](#), 1992)

That exploration highlighted the possibility of:

expressing points and lines in geometric form on the assumption that a coherent policy or organization takes a coherent geometric form. By extending the language beyond "lines", to "areas" and "volumes", it is hoped to enrich the range of possibilities that can be clearly distinguished and discussed. It is also hoped to introduce an extra degree of rigour into understanding of debate, especially where it is common for people to "go on and on" without contributing to the articulation of a larger strategic vision.

With the emergence of a knowledge society, clearly the "volume" metaphor extends both to the notion of a "body" of knowledge and to the "volume" of discourse.

Strategic "pillars"

Curiously a very common strategic metaphor in European institutional architecture is the "pillar". It is commonly associated with a schematic representation of classic Hellenic architecture in which a series of pillars, constituting a [colonnade](#), support an entablature -- intrinsic to an [Parthenon](#)-like structure, echoed in much classic Roman architecture. Such a structure was a primary feature of temples in classical Greece and Rome, and earlier in ancient Egypt -- and as such a focus of the celebration of their values. As a schematic image it is common to the logos of a number of key organizations, most notably including UNESCO.

Isomorphic Representation of Columned (Value) Structures?



Given the challenges of global governance, a case could be made to revisit the metaphoric implications of pillared structures to determine whether more complex institutional architectural metaphors could be derived in a similar manner. The cognitive implications of such metaphors have been explored in a classic study (George Lakoff and Mark Johnson, *Metaphors We Live By*, 1980).

In an earlier study, a detailed checklist of use of "pillars" in international institutional discourse was provided, with the suggestion that strategic understanding was subject to "pillar-ization" (*Challenge of "soullessness" -- beyond the "pillar-ization of Europe"*, 2004). The pillars detailed there are clustered as follows:

- in EU Community parlance people often refer to the **three pillars** of the EU Treaty [[more](#)]. The European Union was created through the Maastricht Treaty in 1992 (EU Treaty). This Treaty has since come to symbolize the political roof resting on three pillars.
- the EU is also described as consisting of **four pillars**:
- the Maastricht Treaty was based on **four pillars**:
- the EU's enlargement policy that has evolved since 1989 is built on **four pillars**:
- the EU Social Policy and EQUAL (EU strategy promoting new practices in the fight against discrimination and inequality) operates within 8 themes directly linked to the **four pillars** of the European Employment Strategy (EES) (plus a ninth covers the specific needs of asylum seekers):
- EU Common Fisheries Policy has **four pillars**
- EU Common Agricultural Policy rests on **four pillars**:
- the European Commission consultation on youth has had **four pillars**:
- the European Court of Auditors (ECA) bases its analyses on **four pillars**
- the **four pillars** of the European Security and Defence Identity (ESDI)
- the UN Mission in Kosovo (UNMIK) which brought together **four pillars** under UN leadership:
- the new partnership agreement between the European Union and the ACP countries (Cotonou, 2000) is based on **five pillars**:
- the joint initiative of the Geneva Association (Four Pillars Research Programme), the Club of Rome (European Support Centre), and the Risk Institute (Double Helix Research Programme) is based on the concept of four pillars:
- the **six pillars** of development policies (Statement on Development Policy in 2001)

Edward de Bono, famed for his advocacy of "lateral thinking", is in process of establishing a [World Centre for New Thinking](#) in Malta -- to be housed in a building tentatively represented in the same pillared classical style. His architectural preference is somewhat curious given the common association of "pillars" with "linear" -- and, by extension, with "linear thinking". Corridors of parallel pillars are also used to ensure progress in a particular direction -- as in the classical [stoa](#). "Agoras" appropriate to future dialogue are also symbolized with the use of such imagery (see [Institute for 21st Century Agoras](#)).

Configuring pillars

Perhaps the earliest configurations of pillars of symbolic significance to the development of western culture are the concentric rings of pillars at the famed [Stonehenge megalithic site](#) (dating from 3100 BC), and those nearby at [Woodhenge](#). The astronomical alignments embodied there have been echoed down the century in those of pillared cathedrals. Considered to have been significant to governance of the peoples of the time, notably enhancing the authority of the governors, the configurations are especially significant as forms of closure maintaining a distance from those of lesser standing restricted to the outer circles. These were inhibited in their capacity to see what occurred within the innermost rings. Despite its apparent openness, such restrictive geometry might also be considered a feature of contemporary organizational assemblies -- despite advances in communication technology. Problematic mystification might be seen as one reason for the alienation of European peoples from the EU reform process -- as evidenced when they are allowed to vote.

Outside Europe this strategic focus on "pillars" could be understood to have reinforced, and been reinforced by, institutional architectural

preferences -- notably in the major institutions in Washington DC, for example. The question is what is the extent of this implicit influence. A related question is to be found in the preoccupation with "stakes" and "stakeholders" -- a metaphor inspired by an even more primitive form of construction, as with their use in stockades.

An interesting case can be made for strategic metaphors associated with the common use of two pillars alone, effectively functioning as a gateway. Elsewhere attention was drawn to their importance in Chinese philosophy as symbolizing a [gateless gate](#). More curious is the strategic metaphor associated with the very common single pillar -- especially as now "operationalized" as a rocket for military purposes.

The earlier exploration raised the question of whether it was possible to configure pillars in more fruitful ways, notably in order to "animate" any understanding of institutional architecture, to imbue it with a dynamic -- thereby counteracting the sense of alienating soullessness typical of institutional strategies ([Animating the Representation of Europe: visualizing the coherence of international institutions using dynamic animal-like structures](#), 2004). Again, this question might also be applied to any understanding of how stakeholders might more fruitfully configure themselves in support of more complex strategic initiatives.

The need for new strategic thinking and institutional forms, more appropriate to the increasing complexity of the global problematique, has been widely recognized, as noted elsewhere ([Consciously Self-reflexive Global Initiatives: Renaissance zones, complex adaptive systems, and third order organizations](#), 2007). Leroy White (*Effective governance' through complexity thinking and management science*, *Systems Research and Behavioral Science*, 2001) argues that, if governance has supplanted management as an issue for the management sciences, a new or different language is needed to "re-present" the problems.

In the case of Edward de Bono (*New Thinking for the New Millennium*, 1999), it might however be argued that his promotion of contrasting "hats" and "shoes" is indicative of an exceptional recognition of the necessary complementarity of different "sides" of any strategic question ([Six Thinking Hats](#), 1985; [Six Action Shoes](#), 1991). The question, in this context however relates to the cognitive constraints imposed by his advocated focus on "six" and whether this precludes subtler and more complex sets of complementarities. On the other hand, the "hats" and the "shoes" might at least be considered as constituting a larger set of "twelve" -- a theme pursued below.

The Parthenon is imaginatively considered to be a symbol of the cradle of western democracy. Given the large number of pillars from which it is constituted as an elegantly ordered pattern, it might be asked how the present "jumble" of European strategic "pillars" might be otherwise ordered. Does the number of pillars of the Parthenon imply a degree of order which construction methods of the time could not achieve? In other words is it a construction of lower dimensionality than what it represents -- as the lost values originally associated with the individual pillars in the set? Are their complex polyhedra implied in the alternative ways in which the Parthenon's pillars could have been configured -- together constituting the "lost dream" of western civilization? Is it the faint echoes of this cultural dream that are reflected in the present "jumble" of European "pillars"?

The current challenge of governance, in embodying such dreams, may lie in the difficulties of constructing strategic configurations of requisite complexity -- an issue addressed elsewhere ([Polyhedral Pattern Language: software facilitation of emergence, representation and transformation of psycho-social organization](#), 2008).

Politicians and policy-makers are typically highly resistant to complex arguments articulated in lengthy texts. They favour simple articulations of options for debate. Curiously they are most surprised, if not offended, that their populations are similarly resistant to complexity and obfuscation -- even when the complexity of the situation calls for a complex and lengthy articulation (as with the 300-page [EU Reform Treaty](#)).

Polygons, poles and axes

Polygons: In discussing the so-called "geometry" of international affairs, significant use is made of various polygons as metaphors, whether explicitly or implicitly:

- **triangle:** this is used in naming some business groups, social fraternities and other initiatives. Examples include the Central American [Northern Triangle](#) (Guatemala, Honduras, El Salvador), the [Black Triangle](#) of highly-polluting countries of Central Europe (Germany, Czech Republic, Poland), the [Coral Triangle](#) countries (Indonesia, Malaysia, Papua New Guinea, Philippines, Solomon Islands, Timor Leste), the [Weimar Triangle](#) (Germany, Poland, France). The term "[golden triangle](#)" is applied to various geographical areas; it has been used to name a deal between three political factions which locks out one or more other factions of an organisation (typically done during elections). The term "[triangular trade](#)" was notably used as a description of the shipping route

associated with the slave trade.

- **pentagon:** this is most commonly associated with the HQ of the US Department of Defense, named as the [Pentagon](#). It is also used to name the [geographical centre](#) of Brussels
- **hexagon:** [Hexagone](#) is a commonly used epithet of France, owing to the shape of its European mainland.

Polygons may be most evident in the layout of negotiating tables where two or more parties meet. The dodecagon is for example implicit in the archetypal roundtable (of Arthurian knights). The polygonal terminology fades into the use of "group" with gatherings of larger numbers ([Group of 15](#), [Group of 24](#), [Group of 30](#), etc).

A strategic metaphor related to the "pillar" is that of the "pole". Superficially it is of the same order of complexity as the "stake". However in its strategic uses, it implies another dimension around which international actors and initiatives may be configured or move in some way.

As noted by Derek Kelly (*Unipolar and Multipolar World Orders Are Unworkable*, 2005), some have argued for the complexities of a [multipolar world order](#), whereas the US has argued for [unipolarity](#) (*The National Security Strategy of the United States of America Report*, 17 September 2002) even though it is expected that "multipolarity will come in time" (Charles Krauthammer, *An American Foreign Policy for a Unipolar World*, 12 February 2004). Metaphorically the use of "pole" of course reinforces tendencies to "polarization" -- without offering any guidance to resolution of the divisive dynamics evoked thereby. These might even be understood as taking the form of a collective [bipolar disorder](#) -- with its alternation between manic and depressive conditions.

Curiously use is also made of the geometrically related metaphor of "axis" (implying forms of symmetry in three dimensions as discussed below), but specifically in the pejorative and problematic connotations of the [Axis Powers](#) (of World War II), the [Axis of Evil](#) (countries supportive of terrorism) and the emerging [Axis of Oil](#). Exceptions include proposals for an [Axis of Peace](#) (as in the case of Dafur), occasional reference to the Coalition of the Willing as the "axis of the willing", and reference to the Latin American New Left countries (Venezuela, Cuba, Bolivia, Ecuador and Nicaragua) as the "axis of good". Geometrically an axis is that around which the symmetry of a polygon is defined, and is fundamental to any (possibly intuitive) sense of the coherent dynamic of the group as a whole. Presumably the pejorative connotations are associated with circular movement in the "wrong" direction, as with the two variants of the [swastika](#). There is a question of appropriate [chirality](#).

A two-party "special relationship" does not constitute a polygon in the above sense, although the term "axis" has been applied to describe such relationships ([Russia-China: Axis of Convenience](#), or the [Franco-German Axis](#) as the "motor of Europe").

Alternative metaphors of uni-polar global governance	
Pogo-stick?	Maypole?
<p>Can the pursuit of unipolar, axial approaches to global governance be fruitfully understood in terms of ensuring balanced progress by use of a pogo-stick? How is it that the political "left" is so terrified by the disastrous implications of the political "right", and vice versa? And yet the art of walking, using the left and right foot, is something with which most are familiar -- especially the flexibility of their alternation in response to various situations typically challenging for a pogo-stick.</p> <p>It is curious that many "lower" animals are able to coordinate four feet, some insects manage six, with arthropods managing eight -- or even hundreds (centipedes and millipedes) -- numbers typical of global governance groups and plenary assemblies. Despite such evolutionary learnings, global governance excuses inaction if strategic unity and coordination are not achieved through application of pogo-stick skills.</p>	<p>Traditionally a tall wooden pole, sometimes with several long coloured ribbons suspended from the top -- possibly festooned with flowers and greenery. The maypole is a common feature of many Germanic countries and has roots in Germanic paganism -- and even in Babylon.</p> <p>Typically the maypole is associated with a maypole dance in which people (often children) perform dances around it, each holding a ribbon, in order to create striking patterns.</p> <p>Given its traditional role in many countries of Europe, and consequently in the USA, it perhaps offers an interesting metaphor for the dynamic of participants in unipolar governance. Like space rockets, maypoles have been associated with phallic symbolism -- traditionally with celebration, community, youthfulness and the arrival of summer.</p>

Strategic "footnotes to Plato"

It has long been recognized that much philosophy could be understood as "footnotes to Plato". In the light of the above examples, the question might be asked whether much strategic thinking could be understood as similarly inspired by classic Hellenic architectural principles -- as "footnotes" to such principles.

Platonic solids: As argued elsewhere ([Governing Civilization through Civilizing Governance: global challenge for a turbulent future](#), 2008), it may be recalled that Plato is primarily known to geometers for his association with the five [Platonic solids](#), which only take form in three dimensions (as opposed to two) -- and when more than three sides are presented and appropriately configured. Many of them have many more sides and the configurations are quite complex -- although aesthetically and intuitively appealing.

One challenge for strategic thinking is the universal tendency to depend on agreement on a single strategy, implying the need for consensus building processes to eliminate any alternatives. Without such agreement, increasingly difficult to achieve, it is assumed that coherent action cannot be taken -- and must therefore be postponed until agreement is indeed achieved. This focus is universally institutionalized in voting procedures which allow only for agreement, opposition or abstention.

"Sides": As a consequence, strategies at present can have only one "side" (the right one with which all are expected to "side" after "deciding") -- and are therefore appropriately described as "one-sided". Perhaps the process should be termed "de-siding" in that the essence of agreement is that there should be no "sides". In three dimensional configurations, however, an "opposite" side may have a necessary structural function, as with those at various angles to it -- then understood to be complementary. In practice most agendas are promoted by coalitions of forces with different perspectives and are therefore more realistically recognized as "sides" -- even if they are not "opposing". Clearly government in a democracy is also obliged to integrate opposing sides in some fruitful manner.

It is difficult to side with a pillar, although one can be more attached to one than another. On the other hand, it is one thing to "take sides" across a simple boundary; it is quite another to seek to do so with respect to a polyhedron.

These seemingly simplistic issues have their fundamental significance in that governance is notably concerned with defining the boundary within which it has responsibilities. Such a boundary is then typically defined by a "line", also typically associated with a map of some territory. On the ground however, such a line is frequently marked by fencing that defines the sides of the line in an extra dimension -- thus an inside (for the community of "us") and an outside (for "them"). Governance is then primarily focused on a community that is implicitly "walled-in" and may not even be conceived as "gated". Such a boundary may also be dynamic rather than spatial ([Dynamically Gated Conceptual Communities](#), 2004).

In their commitment to closure, debates on institutional reform typically preclude the emergence of a set of complementary (but possibly incommensurable) strategies that may constitute the requisite strategic variety capable of responding effectively to the complexity of the problematique. There is also the awkward question of what is to be done with those who disagree and oppose the strategy, whether passively or aggressively. The strategy may even seek to marginalize, criminalize or eliminate them -- supposedly for the good of the whole.

"One Side Fits All"?

Democracy is presented as a process through which debate occurs between "the government" and "the opposition" for the benefit of the whole. The process is held to be undermined when the views of only one "side" are presented or are imposed. Curiously however much is made of the value of "competition" in the economic sectors and in research of any kind -- and of the need to promote it and to counteract unfortunate tendencies to undermine it. In this sense competition must presumably be understood as necessarily polyhedral for reasons that have not been fully accepted in the case of the strategies of governance.

"Polyhedral strategies": Arguably there is a challenge to global strategic thinking to escape from (numerically challenged) "linear thinking" and "strategic flatland" -- into the third dimension (at least). The need for such escape is highlighted by the widely acclaimed book by [Thomas L. Friedman](#) (*The World Is Flat*, 2005) as reviewed elsewhere ([Irresponsible Dependence on a Flat Earth Mentality: in response to global governance challenges](#), 2008). The challenging shift in perspective has long been a theme of mathematical fiction (*Flatland: a romance of many dimensions*, 1884) and has recently taken the form of an animated version (*Flatland*, 2007).

With the 13 complementary [Archimedean solids](#), the two series together suggest a periodic table of institutional and strategic opportunities

that call for exploration as enabling metaphors -- where "sides" are indicative of distinct (if not commensurable) strategic perspectives. More generally, including forms of more than three dimensions, this potentially rich institutional architectural repertoire includes the [regular polytopes](#).

Given the challenges that global strategic thinking is expected to address, there might be said to be a desperate need for some strategic and institutional "Platonic solids" to emerge credibly and sustainably from any Socratic dialogue process on global strategy. It might even be said that it is the dynamic of such dialogue, as a [complex system](#) involving many "sides", which engenders such solids as a form of [standing wave](#) pattern. Such structural "footnotes" may indeed be fundamental to significant institutional architecture in the future.

"Voluminous thinking" by configuration of "lateral thinking": Again, with respect to Edward de Bono's concern with "lateral thinking" and his 6-fold sets, a case might be made to move beyond two dimensions and think "voluminously" (*From Lateral Thinking to Voluminous Thinking*, 2007). The six might then be conveniently mapped onto a [cube](#) as its six sides. "Cubic thinking" might however also be seen to have the limitations so evident in conventional architecture and "in the box" thinking. Using other Platonic solids, the six might alternatively be mapped onto the edges of a [tetrahedron](#) or onto the apices of an [octahedron](#). If the strategic "hats" and "shoes" are to be combined, then 12-fold mappings become relevant as considered below.

There may even be a case for "geodesic" institutional and cognitive structures, metaphorically inspired by [geodesic domes](#) -- as implied by arguments of [R. Buckminster Fuller](#) (*Synergetics: explorations in the geometry of thinking*, 1975/1979) and as explored elsewhere (*Transcending Duality through Tensional Integrity: from systems-versus-networks to tensegrity organization*, 1978; *Implementing Principles by Balancing Configurations of Functions: a tensegrity organization approach*, 1979).

Inspired by Fuller, the concept of a self-organizing geodesic democracy has, for example, been developed in a series of documents by [Roan Carratu](#) (*The Geodesic Direct Democratic Network; Structure; Process; Modes; Finances; General Archives; Projects; Growth; Details of Specific Procedures*, 2005) and on an associated website on [geodemocracy](#). He summarizes the structure as follows:

The Geonet is a concept for a structure that is self-organizing, totally individual driven, and small close group oriented. Most meetings have agendas, that is, a set of concerns or subjects which are to be taken up by the meeting and resolved. The Geonet is an agenda driven set of small meetings where the agendas form the structure, with the subjects in those agendas being flexible and chosen by the individuals involved rather than an leader or someone elected to a position. The positions are not elected, but are rotating, so all will eventually have each position at some time, for the same amount of time as all others. The number of subjects have limits, but the subjects themselves do not. All decision making is in the hands of each individual, and the Geonet allows those individuals who wish to do something together, to do it together, with the assistance of all the knowledge and wisdom found in any group.

To the extent that organizations, strategies and methodologies increasingly claim the need to be "multi-faceted" in the face of complexity, it is appropriate to ask at what stage this necessitates shifting beyond identification of such facets as bullet "points" or budget "lines" -- if any coherence is to be recognized. Presumably the identity of such an undertaking can then only be effectively expressed "voluminously" by appropriately configuring the facets in three dimensions. The alternative is to endeavour to present them as a tiling or tessellation -- a jig saw puzzle. This reflects the challenge of globalizing integrative [mind maps](#) to respect their finite but unbounded nature.

Expressed otherwise, is there a case for recognizing a need for shifting strategic thinking from the "surface" over which it is conventionally assumed to be deployed into other dimensions -- whose cognitive challenges are highlighted in the fictional explorations well-known to mathematicians, namely from *Flatland* (1884) to *Sphereland* (1965), their [animated versions](#) (2007), or even to the hyperdimensionality of a [hypersphere](#)? The latter is perhaps to be recognized as a requisite "hyper-response" to global strategic "hyperconfusion", especially since it is so essential to any understanding of reality by the physics through which technological development is now sustained (*Hyperaction through Hypercomprehension and Hyperdrive: necessary complement to proliferation of hypermedia in hypersociety*, 2006).

Unipolarity: regression to the cognitive innumeracy of some traditional cultures?

"One, Two, Many" perhaps to be understood in approaches to global governance as the "One Too Many" characteristic of antipathy to alternatives from a unipolar perspective?

Metaphoric "upgrade": Such a geometric context, including the [regular polytopes](#) in more than three dimensions, points to the possibility and the potential of a "metaphoric upgrade" that remains compatible with the original Hellenic inspiration, as an extension of it. That such an upgrade is necessary in a governance-challenged world is perhaps well-illustrated by the comment of [John Joe Lakers](#):

The Hellenic metaphors which depict the reality we experience in everyday interactions with the world around us is a bounded universe and a cosmic order. (*Reflections: personal, philosophical, theological*, 2006)

As has been illustrated by the construction complexities of modern architectural forms, new kinds of computer-designed templates are required for organizational architecture before their emergent integrity ensures that they constitute a stable configuration. The same is to be expected in the design of the information/communication protocols and algorithms that would catalyze and support the emergence of "Platonic solid" configurations from the electronic amorphousness of "social networking" and "networks of excellence". This has been partially envisaged by management cybernetician [Stafford Beer](#) (*Beyond Dispute: the invention of team synteegrity*, 1994) in relation to his use of the icosahedron.

If truth is many sided
should governance necessarily be polyhedral?

Configurations of attractors

An earlier exploration focused on the implications of insights from the complexity sciences with regard to the the human values fundamental to strategic thinking (*Human Values as Strange Attractors: coevolution of classes of governance principles*, 1993). A subsequent exercise explored the need to interrelate the strategic concepts of problematique and resolutique (as promoted by the Club of Rome) with an "irresolutique" and an "imaginatique" (*Imagining the Real Challenge and Realizing the Imaginal Pathway of Sustainable Transformation*, 2007).

Here the "irresolutique" is associated with the kinds of game-playing, influence-peddling and "corruption" at every level that typically undermine strategic initiatives. The "imaginatique" is then the set of corresponding (compensatory) distractions typically promoted by media and faith-based processes in imagining any desirable strategic outcome -- and as an alternative to the alienating nature of strategies so often proposed. All four may be usefully considered as strange attractors in their own right -- and intrinsic to any global strategic undertaking.

These attractors were represented visually there in two dimensions, although deliberately mapped onto a non-Cartesian variant of the [complex plane](#) (with its real and imaginary axes). Alternatively, they might be explored as the four roots of the unity which they together constitute, the unity upheld as a desirable strategic outcome for humanity -- roots expressed mathematically as $+1$, -1 , $+i$ and $-i$, where i is the square root of -1 (Peter Collins, *Key Elements and Mirror Structures*).

In the light of the argument above regarding the potential merit of moving beyond such a planar representation, the question here is whether such a four-fold configuration of attractors could be fruitfully represented tetrahedrally in three dimensions -- by the most basic Platonic solid, namely a [tetrahedron](#). Each of the "attractors" is then to be understood as "touching" each of the three others.

[R. Buckminster Fuller](#) (*Synergetics: explorations in the geometry of thinking*, 1975/1979) has developed an extensive range of arguments for the tetrahedron as the most fundamental system. Perhaps these arguments could be usefully extended both to a fourfold system of attractors and to their systemic relevance to global governance.

In terms of the cognitive challenges of global governance, it may be that such a "closest packing" of attractors is to be fruitfully associated with global strategic coherence -- essential to the current challenge of "getting the global strategic act together". There is a degree of "cognitive resonance" with the fact that any such tetrahedron can be circumscribed by a sphere, tangential to each of the four component attractors -- implying some global understanding of the whole. In the previous two-dimensional representation (*Imagining the Real Challenge and Realizing the Imaginal Pathway of Sustainable Transformation*, 2007), it was argued that the circumscribed circle could be fruitfully associated with any sense of "identique" (in Club of Rome parlance) as later emphasized (*Elaborating a richer "global identique"*, 2008). The complex interlocking of four attractors reinforces understanding of the requisite coherence.

In what sense might the global identique be considered a "strange attractor"? The remark of [Kenneth Boulding](#), author of *Image* (1956), is relevant:

Our consciousness of the unity of self in the middle of a vast complexity of images or material structures is at least a suitable metaphor for the unity of group, organization, department, discipline or science. If personification is a metaphor, let us not despise metaphors -- we might be one ourselves. (*Ecodynamics; a new theory of social evolution*, 1978).

With respect to the dynamics of any identique, whether "individual" or "collective", Boulding's statement might be fruitfully rephrased as:

Our consciousness of the strange attractor associated with any sense of identity in the middle of a vast complexity of other attractors, is at least as suitable an image for the unity of group, organization, department, discipline or science -- themselves usefully characterized as attractors. If the global identique is to be understood as a strange attractor, let us not despise attractors -- we might be but a feature of its dynamic.

Engaging with the cognitive challenge of global governance: operationalization

Whilst the tetrahedral representation of the cognitive challenge may have some merit as a **description**, as such it might be said to be inadequate in responding to the **operational** challenge of global governance. It is both insufficiently articulated and effectively excludes the cognitive functions of any "operator" -- whether individual or collective -- expected to embody the governance process. The challenge of embodiment may indeed be understood as implying a cognitive challenge for governance (cf [George Lakoff](#) and [Mark Johnson](#), *Philosophy In The Flesh: the embodied mind and its challenge to Western thought*, 1999). This engaged operational capacity has been stressed by Edward de Bono as "operacy".

This operational inadequacy might be seen as well-represented geometrically by the non-viable nature of the space between the four attractors at the centre of the tetrahedron -- where non-viability might be understood as the operational instability or meta-stability of an inscribed [insphere](#). Viable embodiment is then better represented by the [circumsphere](#), circumscribing the tetrahedron of four attractors -- the global identique. Arguably, it is around this that a requisite variety of other modulating attractors or modalities needs appropriately to be configured.

There is of course a tradition of reflection over centuries on the significance of the Platonic forms for any coherent understanding of the world. Various approaches offer insights in this context:

- the four attractors might be individually associated with the four other Platonic forms positioned tetrahedrally, as indicated above, around a central tetrahedron
- the four other Platonic forms might be configured concentrically such as successively to envelope the tetrahedron and each other, with the most complex on the inside; this configuration has been variously explored in centuries past, notably by Johannes Kepler (*Harmonices Mundi*, 1619) with respect to the harmony and congruence in geometrical forms and physical phenomena, which together with Kepler's (*Mysterium Cosmographicum*, 1596) -- constitutes a possible pointer of future relevance to any understanding of the cognitive challenge of global governance at different degrees of complexity

In operational terms, such configurations might be understood as approaches to the design of a "cognitive gearbox" through which to engage globally with reality and its challenges for governance. It might be compared to a "cognitive transmission system". But as with the contrast between the gearbox of private automobiles and that of heavy duty vehicles, many more "gears" are required in the latter case for the loads that have to be moved under different terrain conditions. Similarly one might expect that governance needs more than the 4-fold gearbox of the private automobile -- whatever the private preferences of any leader.

12-fold Modalities for "heavy duty" global governance?

Geometrically again, the most coherent and compact such configuration is termed the [closest packing](#) of 12 spheres:

- each of the 12 being tangential to the sphere of the central, global identique -- the inner sphere, thus "internalized"
- each of the 12 touching some neighbouring spheres -- as complementary modes essential to the management of the whole system

Aside from the geometrical niceties, what is to be understood as the cognitive significance of these 12 distinct but complementary modes? There are a number of pointers:

- as strategically sensitive dimensions, calling for a particular style of strategic thinking; this is in line with Edward de Bono's 6 "hats" and 6 "shoes" taken as a set
- as complementary modes, individually more readily comprehensible, through which the whole may be experienced / managed, each taking on particular memetic combinations of qualities
- as 12 distinct attractors with which individuals or groups variously feel affinity, or the opposite
- as 12 strategic "languages" through which it is possible to engage with the future as explored elsewhere ([12 Complementary Languages for Sustainable Governance](#), 2003), building on the work of Edward de Bono.

- as 12 phases in a learning/action cycle as extensively explored by [Arthur Young](#) (*Geometry of Meaning*, 1978) and experimentally adapted to various governance-related challenges (*Characteristics of phases in learning / action cycles*; *Typology of 12 complementary strategies essential to sustainable development* and to *Typology of 12 complementary dialogue modes essential to sustainable dialogue*)

Of particular interest in any adaptation or development of Arthur Young's thinking is the complexity he was addressing as developer of the Bell helicopter. He was concerned with the distinct but complementary functions required of the "governor" of the helicopter, namely the pilot. These functions exceed in complexity and interrelationship those normally associated with other "piloting" metaphors that have been an inspiration to governance (eg driving a car, steering a vessel, piloting a conventional aircraft).

The significance of these cognitive challenges might be further understood through a recent study by George Lakoff with Rafael Núñez (*Where Mathematics Comes From: how the embodied mind brings mathematics into being*. Basic Books, 2000). Other leads have been explored elsewhere (*Functional Complementarity of Higher Order Questions: psycho-social sustainability modelled by coordinated movement*, 2004) notably in the light of the categories of non-western cultures (*Navigating Alternative Conceptual Realities: clues to the dynamics of enacting new paradigms through movement*, 2002).

A potentially valuable means of understanding and configuring 12 such modalities is through the [Archimedean polyhedra](#), as envisaged elsewhere (*Union of Intelligible Associations: remembering dynamic identity through a dodecameral mind*, 2005). In an earlier exploration of *Patterns of Conceptual Integration* (*Annex 18: Polygons and polyhedra*, 1984), the 13 distinct Archimedean polyhedra were described as similar arrangements of regular, convex polygons of two or more different kinds meet at each vertex of the polyhedron [which can itself be circumscribed by a tetrahedron, with 4 common faces]. Such semi-regular polyhedra are defined by the fact that all their vertices lie on a circumscribing sphere.

[Keith Critchlow](#) (*Order in Space*, 1969) configures 12 of them, within their circumscribing spheres, in a closest packing configuration around the circumscribing sphere of the 13th -- a truncated tetrahedron -- as shown below. The truncated tetrahedron is the only semi-regular solid with 12 independent axes passing through its vertices from its centre. Removal of the central sphere allows the 12 other spheres to close into a more compact icosahedral configuration.

In his description of *Omnidirectional Closest Packing*, R Buckminster Fuller (*Synergetics: Explorations in the geometry of thinking*, 1975) notes:

In omnidirectional closest packing of equiradius spheres around a nuclear sphere, **12 spheres will always symmetrically and intertangentially surround one sphere with each sphere tangent to its immediate neighbors**. We may then close-pack another symmetrical layer of identical spheres surrounding the original 13. The spheres of this outer layer are also tangent to all of their immediate neighbors. This second layer totals 42 spheres. If we apply a third layer of equiradius spheres, we find that they, too, compact symmetrically and tangentially. The number of spheres in the third layer is 92.

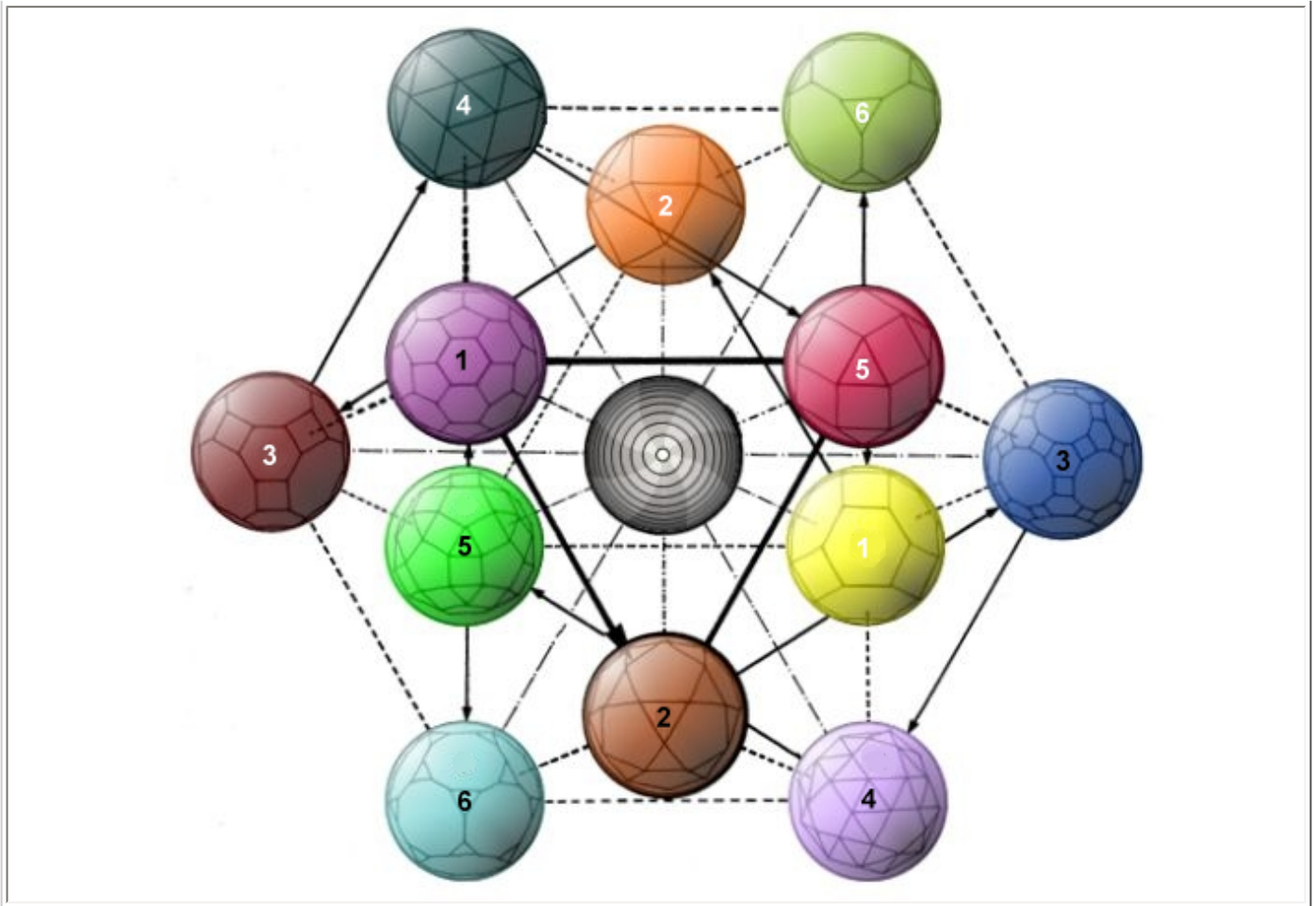
Archimedean polyhedra

(Union of Intelligible Associations: remembering dynamic identity through a dodecameral mind, 2005)

Successive truncations of <u>octahedron</u> 2, 3, 4-fold symmetry	Successive truncations of <u>icosahedron</u> 2, 3, 5-fold symmetry
1. truncated octahedron (14 polygons: 4 / 6 sided) 2. cuboctahedron / vector equilibrium (14: 3 / 4) 3. truncated cuboctahedron (26: 4 / 6 / 8) 4. snub cube (38: 3 / 4) 5. rhombicuboctahedron (26: 3 / 4) 6. truncated cube / hexahedron (14: 3 / 8)	1. truncated icosahedron (32 polygons: 5 / 6 sided) 2. icosidodecahedron (32: 3 / 5) 3. truncated icosidodecahedron (62: 4 / 5 / 10) 4. snub dodecahedron (92: 3 / 5) 5. rhombicosidodecahedron (62: 3 / 4 / 5) 6. truncated dodecahedron (32: 3 / 10)

[truncated tetrahedron](#) (8 polygons: 3 / 6 sided)

Arrangement of the 12 Archimedean polyhedra in their most regular pattern, a [cuboctahedron](#), around a [truncated tetrahedron](#) (from Keith Critchlow, *Order in Space*, 1969, p. 39). Arrows indicate the succession of truncations from 1 to 6 in each case. (*Clicking on a polyhedron links to a spinning image*)



Indicative implications for global governance

Communication interfaces: If it is assumed that each of the 12 conceptual modalities necessary for coherent governance might be modelled by one of the polyhedra, then the facets and points of contact between them are suggestive of vitally distinctive communication interfaces that could be fruitfully explored with distinctive electronic protocols (cf [Patterning Archetypal Templates of Emergent Order: implications of diamond faceting for enlightening dialogue](#), 2002).

Each facet is effectively one of the "windows on the world" from that particular modality or organizational perspective. Note that "facet" is a technical term in the discipline of knowledge organization -- notably in relation to [faceted classification](#). Such facets might for example, be significant for communication between distinct functional units (as in the case of complementary government ministries) or with "associated" organizations or concepts. As noted above, aspects of this have been explored by management cybernetician [Stafford Beer](#) (*Beyond Dispute: the invention of team synteegrity*, 1994) [[more](#)]. Team synteegrity is understood by Beer as the "intelligent design" for managing complexity (cf J. Truss, et al. [The Coherent Architecture of Team Synteegrity: from small to mega forms](#)).

An associate of Beer, Markus Schwaninger proposed, to the 47th Annual Meeting of the International Society for the Systems Sciences, the use of neural and polyhedron research as a method for design of democratic management and for heterarchy ([What Can Cybernetics Contribute to the Conscious Evolution of Organizations and Society?](#) 2003). In Gunter Nittbaur's presentation of his work ([Stafford Beer's Synteegration as a Renaissance of the Ancient Greek Agora in Present-day Organizations](#), *Journal of Universal Knowledge Management*, 0, 2005, 1), he notes:

Synteintegration is a structured, non-hierarchical process for highly effective and efficient dialogue that leads to much faster, much more informed outcomes and aligns people behind the resulting decisions, messages and action plans with a high chance for implementation.

Polyhedral ordering of complexity: There would appear to be an intuitive recognition of the value of polyhedral orderings as indicated by their metaphorical use in various contexts:

- The ability to make polyhedral use of the pillars of local information - data relating to space (the property register, land divisions), people and businesses - will make for a thorough reengineering of management processes. (Xavier Marcet i Gisbert, [Local Authorities in the Digital City](#))
- The polyhedron nature of the cultivated illegal interests and the capillary-like diffusion of the Nigerian presence in the world, guarantee a competitive potentiality and the rapid possibility of using the illegal instrument in favour of the most remunerative business in the current economic situation. ([The Nigerian Mafia between Voodoo and the Computer](#), *Gnosis: Rivisita Italiana di Intelligence*, 2, 2005)

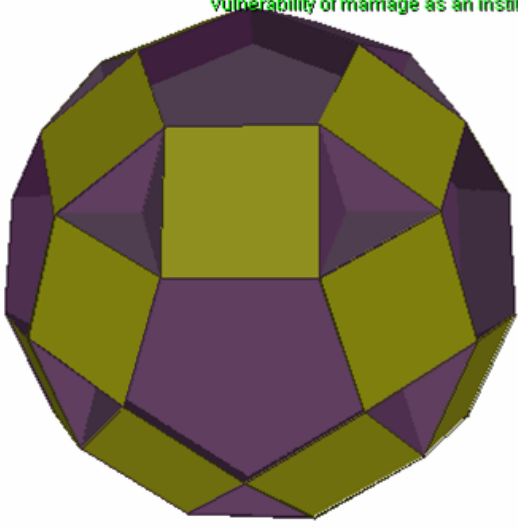
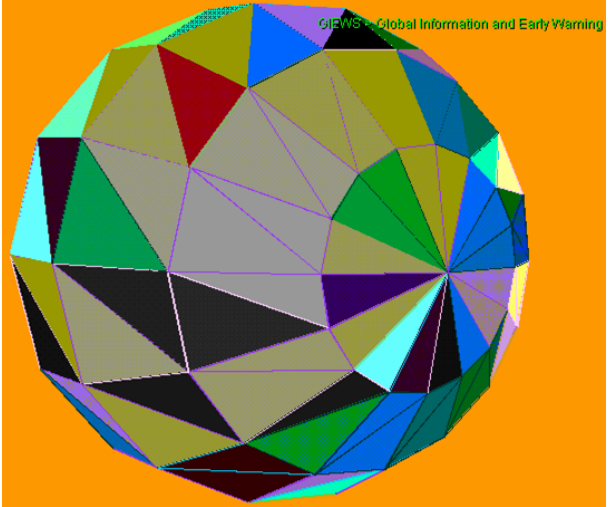
Polyhedral decision-related strategies: So-called "polyhedral strategies" are mentioned in literature with varying degrees of potential relevance to governance and global decision-making:

- Choice-based conjoint analysis is used widely in marketing for product design, segmentation, and marketing strategy; a new test, using a "polyhedral" question-design method has been proposed that adapts each respondent's choice sets on the basis of previous answers. (Olivier Toubia, et al. [Polyhedral Methods for Adaptive Choice-Based Conjoint Analysis](#), 2003)
- In the two-person zero-sum case it has been shown that the set of "good" strategies of a player is a convex polyhedral subset
- [Nash bargaining games](#) with quadratic concave utility functions and polyhedral strategy sets
- František Turnovec (*One Class of Polyhedral Games*, Proceedings: Arbeitstagung Spieltheorie, Institut für Höhere Studien and Wissenschaftliche Forschung, Wien, 1967).

Such explorations raise the question of the advantage of any isomorphism between them and any configuration of global governance strategies.

Identifying polyhedral configurations: In an online experiment within the framework of the Union of International Associations, an algorithm was used to select a polyhedron onto which relationships from a problem (say) were projected. Each facet thus becomes the interface to another problem. The polyhedron as a whole is thus a configuration of facets representing the problem as it interfaces with related problems. Clicking on the facets brings up the corresponding text profile. In that version, the selection of polyhedron is crude and the colouring was random. The virtual reality browser enabled the user to manipulate and explore the polyhedral structure [[more](#)]

This is a viable project within current web-based knowledge processing, as more simplistically illustrated in mapping institutional systems onto the facets of a polyhedron as shown below.

Mapping of problems and organizations onto selected polyhedra in virtual reality (extract from Exploring Intelligible Associations: Integrative modes and metaphors , 2006 as presented to the German Research Centre for Artificial Intelligence)	
Selected issues relating to "discrimination against women"	Selected components of the "EU system"
	

Such an experiment could be readily extended to configurations of strategies, organizations or values -- especially in the light of the data now available on corresponding networks and the challenge of pattern recognition to elicit more integrative understanding.

Negotiating tables: Another approach to comprehending the interrelationship of 12 governance modalities is through recognition of the challenge in practice of the "geometry" of any negotiating "table" designed to ensure appropriate communication between the stakeholders. This challenge may be transformed into three-dimensional geometry in terms of the "closest packing" of spheres (cf Bill Lauritzen, [Closest Packing or Gravitational Gathering of Spheres](#); Paul Bourke, [Waterman Polyhedra](#), 2004; Russell Z Chu, [Mapping the Hidden Patterns in Sphere Packing: Lattices, nets, tensegrity structures and synergy](#), 2003). Closest packing arrangements lead to higher density structures -- which might be understood as an analogue to more highly integrated governance teams.

Interlocking round tables: Elsewhere ([Spherical Configuration of Interlocking Roundtables: internet enhancement of global self-organization through patterns of dialogue](#), 1998) it was argued that many issues and remedial responses are articulated through specialized thematic conferences and dialogues, whether face-to-face or electronically. Such events may usefully be termed "roundtables". It is characteristic of such events that they tend to make little reference to roundtables on related or contrasting themes. In this sense the roundtables are thematically "local" (in a non-geographical sense) and beg the question as to how their insights are to be integrated within a thematically "global" (or conceptually comprehensive) context. Aspects of this local/global question have been articulated in a separate paper ([Future generation through global conversation](#), 1997).

This challenge of the global configuration of specialized dialogues had previously been explored as an exercise for the Inter-Sectoral Dialogue on the occasion of the Earth Summit (Rio de Janeiro, 1992). The approach is summarized in a document on [Strategic ecosystem: configuring strategic dilemmas in intersectoral dialogue](#) (1992). There it was shown how the issues relating to sustainable development could be configured around a [sphere projected onto a flat surface](#), that could then be folded back into spherical form. Zones on the surface of the sphere could then be understood as "local" dialogue arenas together encompassing the "global" concern.

There is an interesting question as to the degree to which relatively isolated dialogues are themselves "sustainable" and can effectively discuss "sustainability" in a strategically meaningful way. The challenge of dialogue sustainability is discussed in [Sustainable dialogue as a necessary template for sustainable global community](#) (1995). A related issue is the necessary [Varieties of dialogue arenas and styles](#) (1992).

In this context it is therefore interesting to note that the ACP-EU Joint Parliamentary Assembly ([Report on Sustainable Management and Conservation of Natural Resources in ACP Countries](#), ACP-EU 3590/03/fin., 11 October 2003), referring to Rio+10 in Johannesburg, notes:

The value added of the WSSD Implementing Plan adopted in Johannesburg lies precisely in the endorsement by world leaders of a multi-dimensional concept of sustainable development, by incorporating poverty eradication and environmental conservation, as well as the rest of Millennium Development Goals, by considering the problems related to trade liberalisation and the issue of good governance in developing countries. The main rationale behind the suggestions being submitted today for consideration are based on this multi-dimensional concept of sustainable development, in which poverty eradication, trade liberalisation, economic growth and good governance are inextricably linked to the reversal of environmental loss, all being inseparable facets of a polyhedron.

Options for institutional reform: At the governance level, the challenge of institutional reform is typically framed in terms of the number of "seats" at a table -- and in what way this can be rendered more appropriate in response to various pressures. The UN Security Council is currently a much debated case in point. The question is whether new insights and options emerge for more coherent global governance through reframing the challenge in terms of sides of a polyhedron rather than seats around a necessarily flat table. This opens the possibility for more explicit consideration of:

- complementarity between "sides" represented
- requisite variety, namely critical number
- axes of symmetry
- necessary opposition
- ensuring vital communication pathways to maintain integrity
- options for variable geometry through transformation to alternative configurations
- integrity of the whole in the light of the polyhedron onto which the structure can be mapped (especially with any additions)
- relationships to other structures, whether more or less complex, more fundamental or less (usefully mapped onto concentric polyhedra)

The following table points to possibilities worth exploring in the light of [Examples of Integrated, Multi-set Concept Schemes: Polygons](#)

[and polyhedra](#) (1984).

Possible mapping of governance bodies onto polyhedra (<i>indicative</i>) (see other possibilities exemplified by G8 and G20)				
Body	Members	Sides (faces)	Vertices	Edges
UN Security Council (perm.)	5	trigonal prism	-	-
UN Security Council (elect.)	10	-	-	-
G8 countries	8	octahedron , hexagonal prism	cube	-
Group of 10	10	-	-	-
Group of 15	15	-	-	-
Group of 20 (industrial)	20	icosahedron	dodecahedron	-
Group of 20 (developing)	20	icosahedron	dodecahedron	-
Group of 24	24	snub cub , truncated cube	truncated octahedron , rhombicuboctahedron	cuboctahedron , rhombic dodecahedron
NATO	26	-	-	-
EU	27	-	-	-
Group of 30	30	-	icosidodecahedron	snub tetrahedron
OECD	30	-	icosidodecahedron	snub tetrahedron
UN ECOSOC	54	-	-	-
Group of 77	130	?	?	?
UN General Assembly	192	?	?	?

It is possible that the ability, or inability, to map global governance groups onto polyhedra may in some way be an indication of their degree of integrity, coherence and viability -- especially where the polyhedra are regular or semi-regular. The question has notably been explored by management cybernetician Stafford Beer with respect to the icosahedron in teams of people; Leroy White (*Effective governance' through complexity thinking and management science. Systems Research and Behavioral Science*, 2001) has adapted that process to work with other polyhedral arrangements, most effectively the octahedron and the cube. Efficient communication patterns are also a concern in social network analysis.

Analogous considerations apply, for example, in the configurative organization of computer memory for communication efficiency (cf F. Quilleré, et al. *Generation of Efficient Nested Loops from Polyhedra*, in: *International Journal of Parallel Programming*, 2000, 28, 5; F. Quilleré, et al. *Optimizing Memory Usage in the Polyhedral Model*, in: *ACM Transactions on Programming Languages and Systems*, 2000, 22, 5). As explained by Fabrice Baray, et al (*Federating Polyhedral Tools*, 2004):

Present-day tools for embedded system design have trouble handling loops. This is particularly true for logic synthesis systems, where loops are systematically unrolled (or considered as sequential) before synthesis. An efficient treatment of loops needs the polyhedral model.... The polyhedral model is now widely accepted... Most of these are research projects, but the increased involvement of industry... is a favorable factor.

The polyhedral approach is basic to supercomputers. For example, the [STAR-CCM+](#) contains "the revolutionary new polyhedral-based finite volume solution approach, which is both robust with respect to automatic meshing and accurate solution of very complicated

geometry and faster than other methods for even the largest problems being attacked in industry today".

Clearly, from the above, the G8 and G20 would then exhibit greater integrity than other bodies. Questions might however be fruitfully asked about the viability of the UN Security Council as a current focus of global governance.

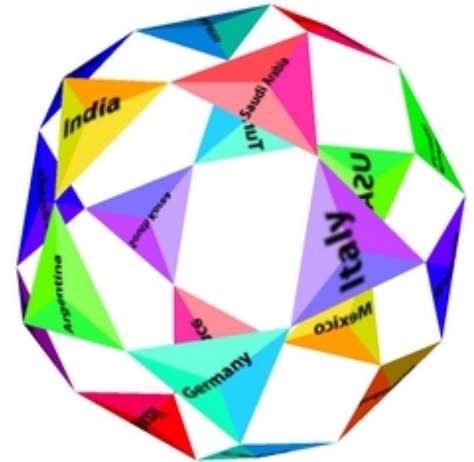
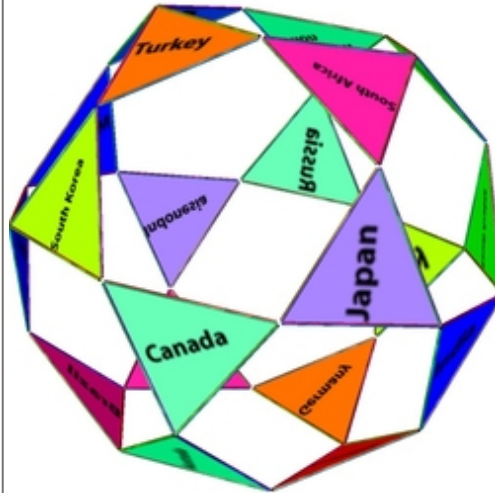
**Mapping of the G20 Group of 20 industrial countries onto an icosahedron
then complexified to an icosidodecahedron**

with subsequent morphing to a yet more complex form

suggesting increasing challenges (and possibilities) of communication and integration amongst the set of countries so mapped

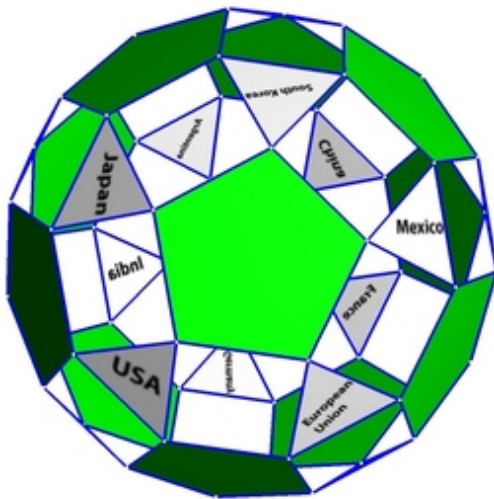
(mapping and exploration done in virtual reality in *Stella* as described in

Polyhedral Pattern Language: software facilitation of emergence, representation and transformation of psycho-social organization)

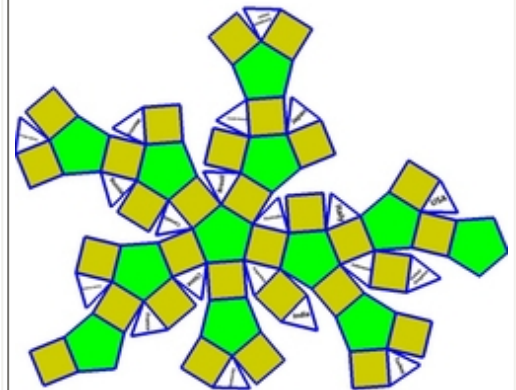


Further complexification of the G20 Group below onto a rhombicosidodecahedron

(with representation of the unfolded polyhedral net)



Again the 20 country groups are mapped onto the 20 triangles of the spherical polyhedron figure. In this case the pentagonal faces are coloured green (instead of transparent as above), and the additional square faces are rendered transparent. The triangular, square and pentagonal areas raise useful questions about different types of 3, 4 and 5 party dialogues between countries. The net diagram highlights the possibility of interlocking "roundtables" if only virtually..



Such an exploration could also be undertaken with respect to the Group of 20 developing countries

Curiously, whereas games of various kinds elicit a well-understood need to "make-up" a team (a "fourth" in bridge, for example), no such need has emerged in relation to the challenges of global governance -- a greater game by any standards, and with more at stake. Clearly the configurations currently considered appropriate for such governance are based on a less complex understanding of the necessary operational feedback loops (well-noted by Stafford Beer). Typically the focus is more simplistically on ensuring that there is a "quorum", if such is required -- without any sense of the communication pathways which particular numbers of members render possible in ensuring the greater integrity of the group.

Of potential interest is the possibly unsuspected integrity of groups of larger number -- appropriately selected, with the implied

complementarities and communication pathways. There are many such [polyhedra](#), less regular in structure, suggesting other possibilities for governance (see George W. Hart, [Virtual Polyhedra: The Encyclopedia of Polyhedra](#), 2000; Marcus J. Wenninger, [Polyhedron Models](#), 1974). The variety of such structures -- and their various degrees of relationship to each other -- is suggestive of the need to explore their relative advantages (singly or appropriately configured together) in institutional design and reform. Such imaginative exploration should be facilitated by software enabling their construction (Robert Webb, [Stella: Polyhedron Navigator](#). *Symmetry: Culture and Science*, 11, 2000, 1-4, pp 231-268, with a 4D variant: [Stella4D](#)).

It is possible that the ultimate challenge and opportunity of global governance is represented in some way by the most complex example of group symmetry, the so-called [Monster group](#) ([Potential Psychosocial Significance of Monstrous Moonshine: an exceptional form of symmetry as a Rosetta stone for cognitive frameworks](#), 2007).

Recognition of degrees of disagreement: There is a dangerous tendency to focus on consensus formation and to mask degrees of disagreement that might be indicative of the need for more complex structural arrangements. Thus John Beatty ([Masking Disagreement among Experts](#), *Episteme: A Journal of Social Epistemology*, 2006) explores why scientific experts may mask disagreement and endorse a position publicly as "jointly accepted", notably in the case of technically difficult issues, but also in matters of social and political importance. Assessing "degrees of disagreement" was the purpose of an opinion poll on the important issue of climate change (Fergus W. M. Brown, et al., [Is there agreement amongst climate scientists on the IPCC AR4 WGI?](#), 2007) Speaking on the [Future of Transatlantic Relations](#), with respect to Iraq, the Chairman of the Committee on International Relations (U.S. House of Representatives) noted:

While the approaches and strategies needed to accomplish our common or individual national agendas have been the subject of much discussion and varying degrees of disagreement, I certainly do not believe that Americans and Europeans are in effect from two different and distinct planets.

The question with respect to the configuration of "sides", to constitute a polyhedron, is whether any "degree of disagreement" can be usefully correlated with the geometry of the angle of one side to another. Such an approach could shift understandings of consensus beyond "masking" of disagreement whilst avoiding implications of a degree of dissociation consistent with "different and distinct planets". The approach not only offers a visual representation of the relationships between perspectives but also provides the basis for initiatives based on complex partial agreements, possibly especially appropriate to the complexity of the governance challenge..

Metaphors of spherical symmetry: In transcending the use of "pillars" as the architectural foundation for strategic thinking, it is clear that global governance necessarily involves calls for spherical symmetry to reflect a degree of cognitive resonance with the global challenge -- a form of isomorphism. Such symmetrical organization of categories, functions, institutions and patterns of communication constitutes a design that matches its integrative function ([Spherical Configuration of Categories to reflect systemic patterns of environmental checks and balances](#), 1994). The constraints on such design, implicit in whatever polyhedral models are used, are such as to preclude the dysfunctional accumulation of lego-like institutional units, that fails to take account of the numbers critical to coherence and to requisite variety. Such spherical organization has potential implications at the most basic institutional level ([Spherical Accounting: using geometry to embody developmental integrity](#), 2004).

The extremely well-documented transformational relationships between the polyhedra suggest that considerable insight relevant to global governance is both readily available and relatively comprehensible. Despite strategic concerns with "harmonization", a similar argument might be made for the musical theory of harmony -- itself supportive, through the theory of numbers, of insights through the polyhedra.

Spherical organization of institutional governance: Given the challenges of institutional governance and its reform, there is a case for exploring configurations of directorates distinct from those inherited from the past -- even if any "reform" is focused primarily on the organization of the flows of electronic communications so as to achieve greater integrity and coherence ([Coherent Policy-making Beyond the Information Barrier: circumventing dependence on access, classification, penetration, dissemination, property, surveillance, interpretation, disinformation, and credibility](#), 1999).

Pointers to such possibilities include the examples provided by such as Magnus J. Wenninger ([Polyhedron Models](#), 1974; [Spherical Models](#), 1979) or Robert Burkhardt ([A Technology for Designing Tensegrity Domes and Spheres](#), 2007). As noted above, such imaginative exploration should be facilitated by software enabling the construction of such models ([Stella: Polyhedron Navigator](#)).

It might be said that it is most curious that -- in a time of major institutional challenge -- seemingly no effort is made to harness the extensive explorations into new structural forms at the forefront of the architecture of buildings, computer memory organization, or aesthetic imagery. It is even more curious in that such explorations are enabled by advances in topology and social network analysis -- and

are fully supported by computer software. Strangely none of these focus on the design of communication pathways that would catalyze the self-organization and emergence of such forms from the multitude of (social) networking interactions via the web -- despite current moves towards the visualization of such networks and the fundamental strategic importance attached to [network-centric warfare](#) (cf [Preliminary NetMap Studies of Databases on Questions, World Problems, Global Strategies, and Values](#), 2006).

In contrast to the language used in institutional reform discussions for purposes of governance in response to complex challenges, it is interesting to note the language employed by the UK Ministry of Defence ([MOD Architectural Framework Technical Handbook](#), 2005) with respect to network-centric warfare:

1. An 'effects based approach' to military operations demands that we combine military capabilities in time and space, to an ever increasing tempo, in order to achieve the desired outcome. To achieve this, we must master the complex interaction of weapons, platforms, sensors and people, in order to maximise their combined strengths and to minimise any potential weaknesses. We seek to do this through our adoption of Network Enabled Capability, integrating existing capabilities into an increasingly coherent System of Systems.
2. At the same time, perpetual pressure on Defence spending means that we must seek maximum return on our investments and drive inefficiency out of our operations.
3. Our greatest enemy in this regard is complexity and we must find effective ways to overcome it. One key to achieving the simplicity we seek is to focus on the decision-making process and the information flows that must support effective decision making and subsequent action.
4. The MOD Architectural Framework (MODAF) offers invaluable assistance in our struggle for simplicity, as it provides a common language and common formats for the capture and shared use of trusted data.

That handbook points to the use graphical displays of key milestones and interdependencies between multiple projects that constitute a programme. Mention is even made of the use of regular polyhedra for their comprehension.

It would seem as though advances in governance and institutional reform are entirely in the hands of those who are distinctly challenged by such possibilities -- irrespective of the engagement they evoke from younger generations and the military for whom they are purportedly responsible.

Multi-faceted organizations and strategies: As noted above, there is a case for any recognition that an initiative is "multi-faceted" to be matched by the configuration of those facets in a third dimension rather than as bullet points or line items. The possibilities are highlighted by a thought experiment with respect to any such "many sided" initiative at the present time:

- assume that the results of a survey of the varied perspectives of its members, the initiative could be represented preferably by polygons (triangles) rather than data points or lines -- and that these could be configured as a polyhedron
- assume that one such polyhedron could be constructed for their values (imaginative), another for their preferred strategies (resolute), another for their preferred institutional delivery vehicles (its game-playing irresolute), and one for the preferred problem-focus (problematic).
- assume that portions of the polygon-covered (say triangulated) surface could then be associated together to form zones of compatibility/coherence contrasting with other more distant (complementary) zones having other perspectives (namely the other "sides") -- associating those which had some degree of mutual correlation, perhaps 4-6 such larger zones (say)
- this would then provide an interesting way of representing the initiative as a whole -- that could feature on its website to offer a non-linear, integrative, symbolic representation of its identity
- assume then that the above polyhedra were rendered concentric -- one within the other -- Russian doll style. This would highlight the challenge for the initiative in getting its "eyes" in front of their "holes" (to employ a common metaphor) in order that values, strategies, vehicles and problematic corresponded in some way.
- as with any optical system, the various polyhedra might have to be "rolled" in relation to each other to get some coherent, image-forming, distortion-free throughput.

Stafford Beer and Gordon Pask went some way in this direction in an [experiment with participants](#) at the Silver Anniversary International Meeting (London, 1979) of the Society for General Systems Research (SGSR).

Eliciting polyhedral structures from complex strategic meetings: Efforts to come to terms strategically with the global problematic, in meetings of requisite complexity, currently use techniques which do not seek to benefit from technical evolution in what might be termed "cognitive prosthetics". The result is a haze of "bullet points" which might metaphorically be understood as resulting in a degree of "collateral damage", possibly even from "friendly fire". Additionally many struggle from within their own knowledge base to make vital points, repeatedly circling a pathway of valid argument, without recognizing the degree to which their movements resemble those of a

caged animal unable to engage with a larger context. A major consequence is the inability to capture insight such as to appropriately integrate its various relevant parts as the basis for a coherent global strategy that engages resources for its implementation.

The question is whether there are other, non-invasive, ways of holding the insights expressed and configuring them in ways that may evoke larger patterns of insight. The challenge has been highlighted using one software application ([Preliminary Netmap Studies of Databases on Questions, World Problems, Global Strategies, and Values](#), 2006) related to a proposal for a real-time insight capturing process that indicates a range of such tools ([Complementary Knowledge Analysis / Mapping Process](#), 2006).

An early real-time experiment in this direction was made by [Stafford Beer](#) and Gordon Pask, on the occasion of a conference on *Improving the Human Condition: Quality and Stability in Social Systems* of the Society for General Systems Research (see [Metaconferencing: Discovering people / viewpoint networks in conferences](#), 1980). A different approach was taken with respect to the strategic dilemmas articulated at the 1992 Earth Summit ([Configuring Globally and Contending Locally: shaping the global network of local bargains by decoding and mapping Earth Summit inter-sectoral issues](#), 1992).

Multi-faceted polyhedral world parliament: There is increasing recognition of the need for some form of world parliament through which to articulate the issues of global governance. This poses issues of representativity, communication coherence and seating arrangements. The more complex polyhedra, with hundreds of facets, offer a geometrical language:

- through which many interesting options can be explored and compared, notably through a more fruitful mix of face-to-face (physical) gatherings and those thereby enabled virtually ([The Challenge of Cyber-Parliaments and Statutory Virtual Assemblies](#), 1998)
- offering the possibility of alternative polyhedra based on one facet (side) per representative or one per faction, collapsing (or expanding) the representation from one to the other
- with the advantage that the configuration as a whole (or in part) can be represented visually to the electorate (in contrast with complex voting formula and seating schematics)
- offering a more interesting and comprehensible means of communicating voting patterns on particular issues and over time (by colouring facets appropriately), thereby increasing transparency
- allowing such structures to be associated with various specific patterns of electronic communications vital to the coherence of the whole (and responding to the challenge for elected representatives of information overload and information underuse)
- through which significance can be usefully associated with portions of the faceted pattern (perhaps distinctly coloured) to reflect factions of contrasting tendencies, in the light of axes of symmetry and the understanding they offer of necessary complementarity
- offering insights into nondisruptive transformations between different configurations (ensuring a degree of invariant dynamic identity) in response to different challenges
- enabling the facets, represented virtually and specifically, to be linked to supporting documentation, blogs, videos, etc such as to improve the interface between the component parts and the world represented through the parliament

Potentially the challenge of global geopolitical representativity could be explored in the light of Buckminster Fuller's "[dymaxion map](#)". This is a projection of a global map onto the surface of a polyhedron, which can then be unfolded to a net in many different ways and flattened to form a two-dimensional map which retains most of the relative proportional integrity of the globe map. More interesting however is the use of such an approach to reflect both population numbers and the variety of perspectives that need to be appropriately represented for global governance. Such an approach could also be relevant to the many challenges of any parliament of the world's religions ([Learnings for the Future of Inter-Faith Dialogue](#), 1993).

Union of intelligible associations: The coherence required of global governance is a three-fold challenge:

- to map out the relevant intelligible associations, as suggested by relating such associations to the links rendered explicit in polyhedral nets such as those above
- consideration of the sets of such intelligible associations, as suggested by the (transformational) relationships between the set of polyhedra
- the comprehension of the "union" of such disparate forms, as explored elsewhere ([Union of Intelligible Associations: remembering dynamic identity through a dodecameral mind](#), 2005)

This polyhedral approach to "union" accords with the concern with causal multiplication as understood by [Michel Foucault](#), published in a work appropriately sub-titled "studies in governmentality":

This procedure of causal multiplication mean analysing an event according to the multiple processes which constitute it....

As a way of lightening the weight of causality, eventization thus works by constructing around the singular event analysed as process a 'polygon' or rather a 'polyhedron' of intelligibility, the number of whose faces is not given in advance and can never properly be taken as finite. One has to proceed by progressive, necessarily incomplete, saturation. (*Questions of method*, in: Graham Burchell, Colin Gordon and Peter Miller, *The Foucault effect: studies in governmentality*, 1991).

Mnemonic aids to the challenge of global governance

As noted in the earlier paper ([Governing Civilization through Civilizing Governance: global challenge for a turbulent future](#), 2008), there are major cognitive challenges to global governance:

- for specialists in comprehending them through different disciplines that have major difficulties in integrating their perspectives in a coherent manner, especially when extensive use is made of the mathematical subtleties of complexity theory
- for those in policy-making or leadership roles in comprehending the longer-term interdependencies whilst faced with short-term pressures to demonstrate credibility
- for wider publics (electorates), for whom the credibility of both experts and leaders is increasingly challenged, and who are forced to seek coherence within frameworks that have not been authorized and authenticated by such authorities -- and may well be deprecated by them

These factors collectively exacerbate the contextual challenge of the erosion of collective memory, evoking the spectre of civilization threatened by an analogue to Alzheimer's disease ([Societal Learning and the Erosion of Collective Memory](#), 1980).

A principal strategic challenge to global governance is that different constituencies typically each have a strong commitment to a particular strategy effectively incompatible with others. The focus is on the many answers to the challenge, promoting that preferred, and eliminating all others. This is subject to the widely quoted constraint: [There is always an easy solution to every human problem -- neat, plausible, and wrong](#) (H L Mencken, *The Divine Afflatus: A Mencken Chrestomathy*, chapter 25, p. 443, 1949) -- also commonly (mis)quoted as: *For every complex problem, there is an answer that is clear, simple -- and wrong*. Unfortunately the current focus is not on identifying better questions as a means of eliciting more appropriate answers, as illustrated elsewhere ([Sustaining the Quest for Sustainable Answers](#), 2003; [Engaging with Questions of Higher Order: cognitive vigilance required for higher degrees of twistedness](#), 2004).

The representation of different modalities by polyhedra of different complexity helpfully points to the varying degrees to which globality may be approximated by each of them. If a truly "global" response is to be represented by a sphere, then each polyhedron approximates to different degrees to a sphere. Geometrically, the more the number of facets, the closer the approximation -- but equally the greater the complexity of that modality. In this sense, whilst the Platonic forms may be simpler in offering an understanding of globality, this simplicity obscures the degree to which each offers an understanding that is much less global than that offered by the Archimedean polyhedra -- which are less readily and less intuitively understandable.

Hence the need for assistance from various mnemonic devices, notably discussed in relation to the dynamic relationships between problematique, resolutique, imaginative and irresolutique ([In Quest of Mnemonic Catalysts -- for comprehension of complex psychosocial dynamics](#), 2007). **As with all mnemonic devices, it is of less significance whether they reflect some kind of "truth" than that they should offer a degree of coherence and engagement, even if this evokes continuing vigorous discussion.** Such devices may even be understood as alternative languages through which many prefer to engage with their reality. Where such is the case there are advantages in using such articulations rather than requiring that their users learn to communicate in other languages that may have their own inadequacies.

(a) Re-membering the Dodekathéon

Pantheons of classical religions, such as those of Greece and Rome, offer an interesting set of mnemonic aids -- which were clearly accessible to all in those times. Such pantheons raise the very interesting question as to whether the deities in the set might be usefully associated with particular polyhedra -- given the contrasting qualities of which they were held to be the expression, and the different modes of intercession associated with each. More generally how might any divine cosmology suggest that the succession of gods, and their fundamental qualities (notably in relation to values) and dramatic roles (in relation to each other) be positioned with respect to each other.

In the case of the Greek pantheon, the 12 deities of the [Dodekathéon](#), this raises the particular question of how the 12 deities might be interrelated by the polyhedral configuration presented above. Plato argues, for example, in *Timaeus* that the Universe was built by "the first begotten" on the [dodecahedron](#) in accordance with geometrical laws. As an example, in two dimensions and for the Hebrew tradition, Stephen M. Phillips explores polygonal form of the inner Tree of Life as two identical sets of seven enfolded, regular polygons,

associating them with the Godnames assigned to the ten Sephiroth of the outer Tree of Life ([The '120 Polyhedron' and the '144 Polyhedron' as the Exterior and Interior of the Inner Tree of Life](#)).

It might be asked whether different international institutions already have an implicit association with particular Greek or Roman deities through their preferred symbols and terminology: UNESCO with Athena? FAO with Ceres?. etc. In what sense have such symbolic associations been held to "work"?

Is the set of UN Specialized Agencies then to be understood as a crude modern approximation to the set of deities of the Dodekathion? Unfortunately there has never been any attempt to represent the set of such agencies as a coherent system of governance -- memorable as such in their entirety rather than an alienating chart of hierarchical dependencies. The challenges of the [United Nations System Chief Executives Board for Coordination](#) over decades are confirmation of this. As with the deities in classical times, each agency is "worshipped" and "celebrated" in isolation or according to immediate need. The same pattern may be seen with regard to the set of national government agencies -- of which the intergovernmental set is a reflection. (Note: In a [subsequent paper](#), as an exercise, 12 UN Agencies were mapped onto a dodecahedron -- itself transformed into an icosidodecahedron to illustrate the communication challenges to emergent integrity).

Ironically the current focus on configurations of strategic "pillars" might be fruitfully seen as an attempt at simplistic "petrification" of the complex dynamics -- the strange attractors -- with which the deities were variously associated in times past. Perhaps even more ironic is the extent to which such a configuration then constitutes a kind of megalithic [Stonehenge](#) through which global governance is now attempted -- complete with policy-makers as druidic priesthoods duly arrayed in semi-circular parliamentary arenas for appropriate rituals! It might be said that such a "side-less" Stonehenge provides no shelter from the "elements" in an increasingly turbulent environment.

The challenge of such asystemic governance is conveniently illustrated by the dysfunctional role of deities as isolated metaphors. In an earlier exploration of [Governance through Metaphor](#) (1987), reference was made to the widely quoted study by [Charles Handy](#) (*Gods of Management; who they are, how they work and why they will fail*, 1979) who used four Greek deities to characterize the different styles of management. The four gods (and the associated organizational styles) are: Zeus (club), Apollo (role), Athena (task) and Dionysus (existential). He notes:

Each of the four gods gives its name to a cult or philosophy of management and to an organizational culture. Each of these cultures has also got a formal, more technical name, as well as a diagrammatic picture. The names, picture and Greek God each carries its own overtones, and these overtones combine to build up the concept I am trying to convey. They also help to keep the ideas in one's memory. These names and signs and Gods do not amount to definitions, for the cultures cannot be precisely defined, only recognized when you see them... It is important to realize that each of these cultures, or ways of running things is good - for something. (pp.25-26).

As he stresses, the problem is to know how to choose which god for which circumstances. It is the constraints and opportunities of the process of choosing that need to be embodied in metaphor and which call for further investigation. Essentially the Dodekathion needs to be "re-membered" -- an ironic requirement after two millennia.

Citing Handy, Martin L. Bowles (*The Gods and Goddesses: personifying social life in the age of organization*, 1993) argues that:

All social life is underpinned by the activation of archetypal processes. These processes are understood here as representing the gods and goddesses, as they have been conceived by mankind since antiquity. This is not a religious but a psychological account of those energies which emerge from the collective unconscious and dictate the form of the world as we understand it. The pantheon of gods and goddesses as found in Greek myth is used to describe the representation of 'divinities' as they are 'worshipped' in the age of organization. Those gods and goddesses who seldom appear on the corporate Mt. Olympus, but who are sorely needed to address a staleness in the experience of organizational life, are briefly reviewed.

Using a similar approach, Linda S. Henderson ([Reflecting on Athens 2004: what we can learn about modern project management from ancient Olympian archetypes](#), 2005) explores the juxtaposition of Olympian archetypes alongside project management processes that were endemic to the 2004 Summer Olympic Games in Athens. She focuses on the deities Demeter, Artemis, Athena, Hestia, Hades, Apollo, Hephaestus, and Hermes from the viewpoint of their qualities and proclivities for project work

Perhaps more sadly ironic is that most of the names of the Greek and Roman deities have now been appropriated as brand names for articles of human clothing ([Politicization of Evidence in the Plastic Turkey Era](#), 2003). The challenge is whether such misplaced appropriation of humanity's cultural heritage obscures the extent to which any effort to appropriate the qualities of those deities as a form of "cognitive clothing" has thereby been completely inhibited. It might be said that the value of such "cognitive clothing" is well-

recognized by Edward de Bono ([Six Thinking Hats](#), 1985; [Six Action Shoes](#), 1991).

More problematic is the effort to copyright and franchise potentially vital conceptual developments, based on particular metaphors, patterns or even polyhedra ([Future Coping Strategies: beyond the constraints of proprietary metaphors](#), 1992). Examples, specifically based on polyhedra include that of [eidetics](#) (Henry Evering, et al. [Eidetic organizational development: image, motivations and systems research](#), *Canadian Journal of Marketing Research*, 1990) and that relating to Stafford Beer's "[team syntegrity](#)". As with genetics, memetics is likely to have its [Craig Venter's](#). More intriguing, to the extent that polyhedral "sides" are recognized as the cognitive "territory" open to future occupation, are issues relating to the relativity of such perspectives within a more fundamental dynamic framework of which any polyhedral form is but an instance ([Einstein's Implicit Theory of Relativity -- of Cognitive Property? Unexamined influence of patent office procedures](#), 2007).

(b) Engaging with popular astrology

Whatever the scepticism and scorn with which astrology is viewed, it is unfortunately the case that the perspectives deprecating its significance have yet to demonstrate any capacity to respond to the cognitive challenges of global governance -- let alone to the articulation of strategies adequate to its current challenges or those which seem imminent.

It is repeatedly documented that astrology is meaningful worldwide to people of every level of society ([Twenty facts about astrology](#), *Telegraph*, 12 December 2002; Trish Hall, [There in the Crystal Ball, Forecasters Are Thriving](#), *New York Times*, 29 April 1992). As has always been the case, this is most notable among the leaders responsible for governance of large populations (including Ronald Reagan, Indira Gandhi, John F Kennedy, and Adolf Hitler). This cannot be said of many of the sophisticated techniques otherwise advocated.

Like it or not the traditional "zodiac" continues to offer a more integrative cross-cultural framework for many than modern constructs such as "global models", "global plans" or the "international community". It notably highlights a dynamic array of qualitative distinctions of personal significance with which people can engage (whether playfully, speculatively or otherwise). This governance has yet to achieve, other than through the importance attached to personality cults or the caricatures of such personalities in cartoon strips. Futurists, as the modern version of traditional astrologers, have yet to communicate significance in a manner that evokes cognitive participation to the degree that their predecessors achieved. Curiously, however, the predictions of [futurists](#) are framed by governance in a manner similar to those of astrologers of the past -- whether as cause for optimism or cause for pessimism, to be upheld or neglected -- according to political expedience.

Perhaps more important within astrology is the comprehensible representation of the underlying framework of complementarities between seemingly incompatible qualitative modalities whose significance is echoed in systems at all levels. General systems research continues to seek such coherence and the relevant learning pathways meaningful to others -- despite adapting the traditional language of correspondences promoted by astrological thinking ([Theories of Correspondences -- and potential equivalences between them in correlative thinking](#), 2007). Such correspondences notably highlighted relationships of potential systemic relevance, if only as mnemonic aids, between tangible phenomena and abstractions whereby they were interrelated -- whether polyhedra, deities or features of the human body. Science has been much challenged to make systemic relationships meaningful -- reinforcing the weaknesses of governance in that respect. [Agenda 21](#), arising from the UN Earth Summit on sustainable development (Rio de Janeiro, 1992) provides a striking example of an asystemic document.

A case may therefore be made for developing an interface between sophisticated articulations and astrology, if only for mnemonic purposes. In contrast with the set of UN Specialized Agencies, or the disciplines claiming relevance to governance, the elements of the astrological system (and its dynamics) are familiar as an integrated whole of significance to many in providing a global understanding of the future -- and of the strategic implications of special conditions. Whilst the commitment of astrology to the whole may indeed sacrifice the niceties with which specialized and informed understanding is concerned, it is surely for the latter to develop significant interrelationships that can be more meaningfully communicated worldwide. How healthy is the suspicion of many regarding the value of new "models" compared to the superstition with which astrology is condemned by their proponents?

If it were possible that communication of the urgent challenges of governance might be more meaningfully and memorably achieved through the language of astrology -- "horrorscopes" as an adaptation of "horoscopes" -- would such explorations not be considered credible, appropriate and instructive to many?

(c) Engaging with popular games

Given the widespread apathy of many, especially the young, in relation to the challenges of global governance as formulated by policy-

makers, there is also a case for exploring the possibility of a cognitive interface with the metaphoric expressions of complexity above. This approach has been argued in more detail elsewhere ([Playfully Changing the Prevailing Climate of Opinion: climate change as focal metaphor of effective global governance](#), 2005).

In this context it is however interesting to note the degree to which mythology has been reactivated, and associated with use of polyhedral dice as a decision-making device, in board-based [role playing games](#) such as [Dungeons and Dragons](#) -- estimated to have some 20 million users. A web-based interactive version also exists ([Dungeons and Dragons Online](#)) and is regularly upgraded, as one of the [massively multiplayer online role-playing games](#) (MMORPG). These include such games as [Everquest](#) and [World of Warcraft](#), the latter with some 10 million online players. The revenues associated with such virtual worlds now exceed those of the movie industry and are expected to double within four years.

It has been remarked that the use by the military of similar games for training purposes (and to communicate the attractions of military life to the young) blur into the use of similar software in the emerging reality of high-tech battlefield situations. Decision-making challenges in such stressful contexts have focused attention on the challenges of "cognitive fusion", namely how rapidly to configure and focus large quantities of relevant information -- suggesting the possibility of a more fruitful exploration ([Enactivating a Cognitive Fusion Reactor Imaginal Transformation of Energy Resourcing \(ITER-8\)](#), 2006).

Of interest in this context is the mindset cultivated by games such as [Monopoly](#) in the absence of the significance that can be attributed to "polypoly". This has not given rise to a popular game but is a well-explored concept in economics and has been evoked with respect to proportional voting systems (Keith Rankin, [Parliament: Polypoly or Duopoly?](#) 2001). The argument here would be for the creation of a game that might be called *Polyhedrally*, whose design might be partly inspired by the popular game [Tetris](#). Of course "mono-poly" is an economic analogue to the single, uni-polar "pillar" metaphor, whilst "poly-poly" is an economic consideration of a more complex configuration of such "pillars".

It is appropriate to note the explicit emergence of strategic insights in such online gaming contexts -- for which teams are trained. It is to be expected that the organization of the "guilds" using such strategies within these games, will evolve into polyhedral forms, if there is competitive advantage in any more complex strategies associated with these formations. [Guild creation](#) and [guild management](#) are already the focus of specialized websites, as with [guild strategies](#). Polyhedral organization might thus emerge and evolve far more rapidly in such contexts than in conventional contexts focusing on "governance"

(d) Mnemonic association of global systemic functions with pantheons of deities

It is appropriate to recognize pantheons as the systemic articulation of a set of interconnected functions through which engagement with reality was defined in eras past. The problematic systemic phenomena of today (drought, disease, etc) were then recognized "through" the complex dynamics of the set of deities interrelated through the pantheon. International agencies may be understood as partially performing an intercessionary function with respect to problems of the present -- although how they are interrelated remains a mystery to many.

"Beneficent" functions (<i>indicative</i>)	Greece (Dodekathion)	Rome	(UN) agencies (<i>indicative</i>)	"Problematic" dysfunctions (<i>tentative</i>)
justice	Zeus	Jupiter	ICJ, ICC	storms, lightning
marriage, motherhood	Hera	Juno	UNICEF, UNIFEM	divorce, miscarriage?
sea	Poseidon	Neptune	IMCO, ISA	earthquakes, tsunamis
nature, agriculture, fertility	Demeter	Ceres	FAO, UNEP, WFP	aridity? barrenness?
home, hearth	Hestia	Vesta	UN-HABITAT	homelessness?
love, beauty, fertility.	Aphrodite	Venus	UNFPA	childlessness?
healing, arts, prophecy, truth	Apollo	Apollo	UNESCO, WHO	ignorance?
war, violence	Ares	Mars	(NATO, SHIRBRIG)	.
hunting	Artemis	Diana	FAO	.
wisdom, crafts, strategy	Athena	Minerva	UNESCO	stupidity?

fire, metallurgy.	Hephaestus	Vulcan	UNIDO	volcanic eruptions.
commerce, theft, trade.	Hermes	Mercury	WTO, ITU, UNTAD, UPU	corruption?
death, wealth	Hades	Pluto	IMF, IBRD	.

Note that although Hades featured as part of the "first generation" of the Olympian deities, he is not considered part of the Dekatheon. Various other deities have been associated with the Dekatheon at different times. There are of course many more deities, just as there are many more intergovernmental agencies. Both deities and agencies have regional variants. As archetypes, the deities have been extensively studied by depth psychologists as indicators of a complex set of psycho-social functions -- which might usefully be related to the challenge of governing complex systems.

(e) Systematic ordering of belief systems fundamental to the challenge of governance

Global governance must necessarily draw on an array of disciplines associated with different fields of knowledge. It must necessarily also respond to faith-based constraints and value systems, notably those articulated by the religions. There is a long history of efforts to order and classify the associated knowledge. This is especially significant in that the proponents of particular modes of knowledge typically have little incentive to reconcile their understanding with that of others -- thus exacerbating the challenges of governance dependent to some degree on such disparate insights.

One interesting approach to the organization of modes of knowing -- potentially of requisite complexity -- is suggested by the [periodic table of chemical elements](#). This has been explored elsewhere ([Tuning a Periodic Table of Religions, Epistemologies and Spirituality: including the sciences and other belief systems](#), 2007).

With respect to any exploration of polyhedral global governance, of special interest are the characteristic correspondences of polyhedral crystal structures with particular portions of the periodic table of chemical elements. There is therefore a case -- if only for mnemonic purposes -- of giving further consideration to this relationship with respect to the systemic functions noted above.

(f) Moving symbols and evocation of psycho-social energy

Under conditions of social fragmentation within a globalizing society, support for any global identitque calls for more powerful symbols of fundamental integration. Many symbols valued for this purpose in the past have been essentially static. The question is whether new technologies enable the emergence of dynamic symbols and how these are to be understood as evoking and focusing psycho-social energy ([Moving Symbols: radical change in psycho-social energy possibilities?](#) 2008; [Reframing Sustainable Sources of Energy for the Future: the vital role of psychosocial variants](#), 2006).

Especially interesting in this context is the contrast with the mandala-like symbols of the past, including cathedral [rose windows](#). These in part derived their evocative power from the play of light through them. The challenge of the present might be more fruitfully compared to encompassing the complexity of a [kaleidoscope](#) in which the parts of the rose window, for example, merge into and separate from each other -- as frequently represented on computer graphic displays.

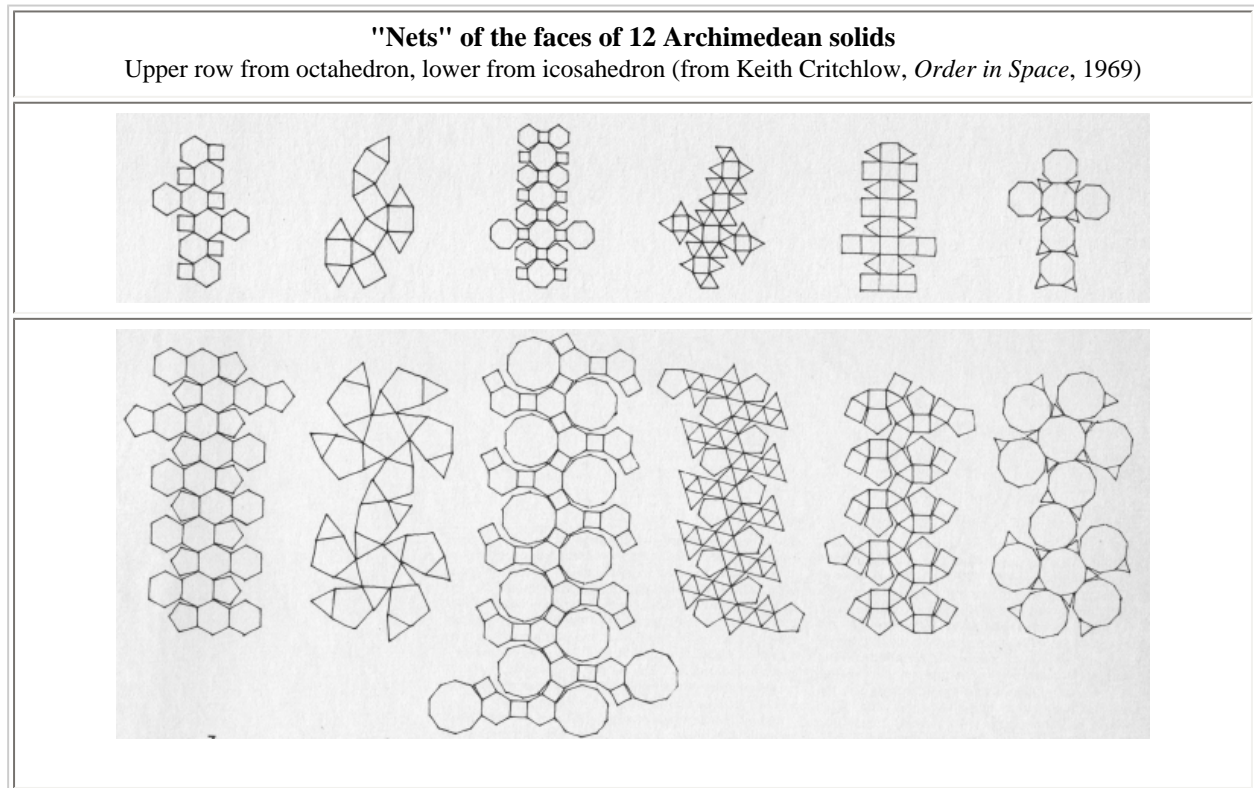
The changing relationships between the set of polyhedra discussed above might then be understood optically -- each polyhedra being a form of [optical lens](#) of different properties, filtering information of different "colours". The kaleidoscopic effect to be encompassed and integrated -- by the governors and the governed -- is then the flow of information through such a set of lenses shifting in relation to each other (see [Archimedean Kaleidoscope](#) applet). As demonstrated in computer displays, it is the cycling patterns that are the key to such integration and the dynamic global identitque ([Emergence of Cyclical Psycho-social Identity: sustainability as "psychically" defined](#), 2007).

The value of any such set of distinct cognitive lenses with different properties is confirmed by Magoroh Maruyama ([Peripheral Vision: polyocular vision or subunderstanding?](#) *Organization Studies*, 25, 2004, pp 467-480) as argued elsewhere ([Cyclopean Vision vs Poly-sensual Engagement](#), 2006). Given the extent to which the "vision" metaphor is universally exploited in relation to governance and future strategy, there is merit in exploring it further -- especially since so many who use it are bespectacled policy-makers and futurists who do not envisage the need for any corrective lens for possible defects in their cognitive near-sightedness or far-sightedness.

More intriguing is the complexity and sophistication of optical systems in telescopes and microscopes employing multiple lenses to process light -- moving some lenses to achieve the necessary focus. This suggests the merit of exploring concentric polyhedra, as envisaged by Kepler (see above), to focus cognitive "information" through various stages -- to form a coherent, distortion-free image. There is even a case (as noted above) for understanding the "information" associated with the imaginatique, the resolutique, the irresolutique and the problematique as appropriately brought into focus through a succession of such concentric polyhedra -- thereby corresponding successively to the value/ethical domain, the strategic domain, the institutional domain, and the complex of problems. This points to an interesting way of interrelating "information", of relevance to governance, understood as wisdom, knowledge, information or data.

Polyhedral coherence of sustaining narratives

Whether or not mnemonic use is made of pantheons, astrology or games, there is a case for exploring each of the polyhedra as a distinct "system" (in Buckminster Fuller's terms). Each polyhedron may be understood as a network of narratives or "lines" of argument that together sustain the "points" that distinguish the cognitive operation (and area of discourse) with which they are associated.



As noted above such mapping onto a polyhedron was done in relation to the issues of the Earth Summit ([Strategic ecosystem: configuring strategic dilemmas in intersectoral dialogue](#), 1992). In principle the enabling discourse of each individual Specialized Agency could be mapped onto one such polyhedron as a form of coherent visual index (with hypertext links) to its structural features and dynamics -- as illustrated above. Together they are indicative of the challenge and potential of what might be termed the "songlines of the noosphere" ([From Information Highways to Songlines of the Noosphere: global configuration of hypertext pathways as a prerequisite for meaningful collective transformation](#), 1996). More specifically they are indicative of configurations of peer-to-peer links in peer-to-peer networks that the [P2P Foundation](#) seeks to enable.

Whilst this can be done as an exercise in systems analysis, it could also be undertaken as an exercise in mapping sustaining narratives. This would be especially interesting in the case of traditional bodies of knowledge in the form of comprehensive sets of wisdom stories ([Jataka Tales](#), [Nasreddin Tales](#), etc). As cultural resources, recognized as a source of insight to be called upon in elaborating appropriate attitudes and responses to challenges, they merit attention given the respect in which they are widely held -- in comparison with many conventional tools for global governance.

The challenge would then be how any correspondence might be found between analytical approaches to governance and such traditional tools of governance ([Theories of Correspondences -- and potential equivalences between them in correlative thinking](#), 2007).

Given the challenge of a "global identique", this approach relates to the challenge of identity in a multicultural context, as explored by Núria Gorgorió and Núria Planas ([Cultural distance and identities-inconstruction within the multicultural mathematics classroom](#), *ZDM*, 2005, 37, 2) who note:

- However, we consider any classroom to be a multicultural one, since we understand the student's culture as something polyhedral, having many facets, of which we, teachers and researchers, can only see some.
- There should be room in classroom discourse for negotiation of meanings and cultural interaction in order to build up, as a joint construction, the classroom culture. In this way, the classroom culture, which is one of the factors that contribute to shaping individuals' polyhedral identities, could include all and every individual, minimising or avoiding cultural distance through negotiation of conflict.

It is interesting to reflect on the communication "footprint" or "signature" by which each of the above polyhedral structures might be distinguished in light of the development of the "net" of polygons of which each is constituted. It suggests a notion of "valency" (vertices?), or "channel capacity" (sides?) characteristic of each -- perhaps even an alternative configuration of a negotiating table. Such characteristics may exert constraints on the viability of the cognitive sets that can be formulated, and on the complexity of multi-point policies these might then be able to sustain (cf [Representation, Comprehension and Communication of Sets: the Role of Number](#), 1978).

Such geometrical explorations are of course a focus of "sacred geometry" (Robert Lawlor, *Sacred Geometry: Philosophy and Practice*, 1989). It is perhaps useful to consider that the sense of the "sacredness" (and "holiness") of such geometry may be associated in large part with a sense of its capacity (as "wholeness") to carry communications of a higher order of integrative complexity (cf Russell Chu. [An Introduction to Synergetic Crystallography](#) 1998). Such possibilities are notably of relevance in conference communication (cf [Energy Patterns in Conferences: a context for higher levels of integration](#), 1988) and the organization of the emergent semantic web (cf [Sacralization of Hyperlink Geometry](#), 1997).

Transformational challenge of global governance: "changing gear" and "development"

The above configuration of the 12 Archimedean polyhedra together is once again a **description** which raises the **operational** challenge of how to shift, according to need, between the distinct operating framework that each represents -- without losing cognizance of the whole. As with the gears of a vehicle, it is typically a mistake to go from "first gear" to "fourth gear", for example. There are transformational pathways between the operating frameworks that each polyhedron represents.

The above configuration of the 12 circumscribing spheres as a cuboctahedron points to the importance of this structure as highlighted by R Buckminster Fuller (*Synergetics: Explorations in the geometry of thinking*, 1975). Also referred to as the "vector equilibrium" or "jitterbug", its dynamics suggest a range of possibilities for organizational transformation (cf [The Vector Equilibrium and its Transformation Pathways](#), 1980). This has the merit of stressing the possible dynamic characteristics of any viable global "union".

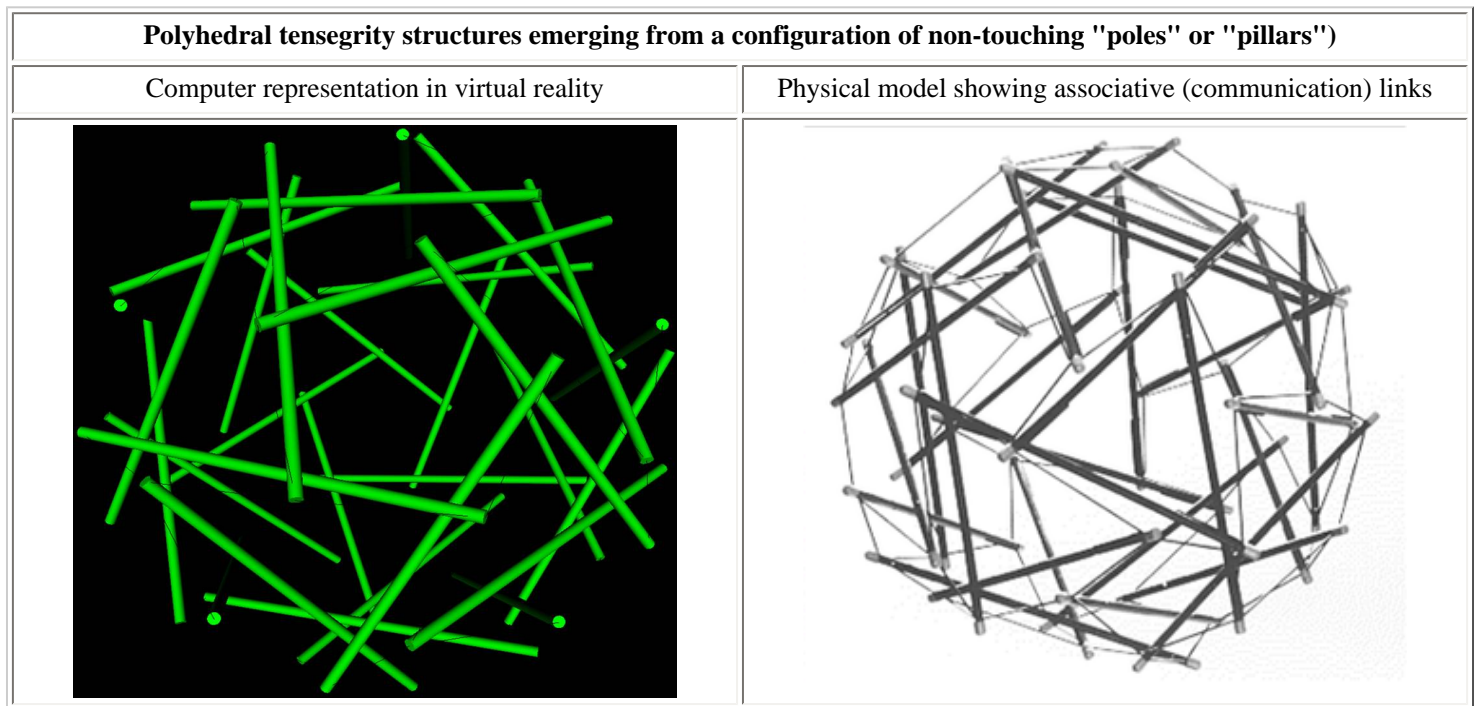
The jitterbug is widely distributed as a toy (a "[vector flexor](#)"). This has been used to illustrate the processes of team syntegrity (cf J Truss, et al. [The Coherent Architecture of Team Syntegrity: from small to mega forms](#)). A number of illustrative [movies](#) demonstrate the stages in its transformation and their relationship to a related structure whose significance was extensively explored by Fuller, namely the [tensegrity](#) (see Gerald de Jong. [Tensegrity Jitterbug](#); Robert W. Gray, [Jitterbug Defined Polyhedra: the shape and dynamics of space](#), 2001) [[more](#)]. Regarding these transformations, Bonnie Goldstein DeVarco ([Invisible Architecture: the nanoworld of Buckminster Fuller](#), 1997) notes:

In a closest packed group of 12 spheres around one, a vector equilibrium can be inscribed. Fuller called his simple vector equilibrium, when made out of flexible hubs and struts, a "jitterbug" because it twisted to exhibit, while in continuous motion, a series of shapes which accommodate and transform into one another. In its most open stage, it is the cuboctahedron. If it is twisted and contracted, it will become an open icosahedron with six struts missing and with one more contraction it will become the octahedron. It can then be folded down further into a tetrahedron and finally to a simple triangle. Then, simply unfold, untwist and the jitterbug pops back to its original shape, the cuboctahedron or, in Fuller's dynamic system, the Vector Equilibrium.

An excellent mathematical study of the stages of this transformation has been made by Robert W. Gray ([The Jitterbug Motion](#), 2002).

Beer in fact focused his initiative on the icosahedron as a basis for team communication. This choice obscures the value of exploring the broader set of communication protocols (cf [Transcending Duality through Tensional Integrity](#), 1978) -- of which the icosahedron is the

underlying structure for only 6 of them (through one set of truncations).



Challenging mechanistic thinking: contribution of complexity sciences

The above discussion in terms of geometrical forms readily encourages understanding of polyhedra as models -- configured together here as a kind of mega-model, possibly to be understood as a meta-model. This would be to forget the complexity of the global attractors that were the point of departure: the problematique, the resolutique, the imaginatique and the irresolutique -- and the challenge of the global identique.

The understanding of "union" as a polar contrast to the variety of "associations" may be usefully explored in terms of the boundary between order and chaos. The Mandelbrot set (M-set) fractal is a mapping of the simplest nonlinear function -- but is also as complicated as a fractal can get. It distinguishes the simplest boundary between chaos and order. It is recognized as the simplest non-trivial example of a holomorphic parameter space. In the search for solutions to complex equations, experiments with iterations by computer have highlighted intricate global properties related to nonconvergence and the stability of convergence.

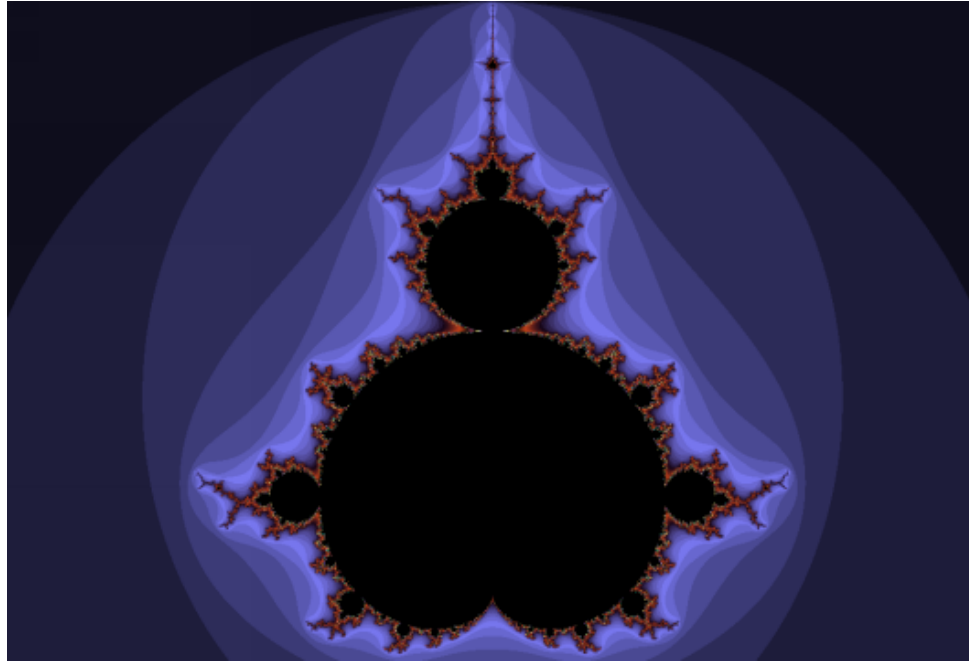
The early confidence that complexity studies would have much to offer governance of complex systems appears to have largely dissipated -- without fully exploring their potential, except perhaps by the intelligence services. There has been a reversion, in relation to complexity, to what Edgar Morin (*Pour Sortir du XXe Siecle*, 1981) described as mono-factor thinking (cf [Promoting a Singular Global Threat -- Terrorism: Strategy of choice for world governance](#), 2002). In particular the M-set offers a surprising higher order pattern that reconciles the challenge represented by the incommensurability of "real" and "imaginary" dimensions -- exemplified by [complex numbers](#) and their positioning on the real and imaginary axes fundamental to the visual representation of the M-set (see Fig. 6).

Dissipative systems, and the M-set, indeed offer a language through which to explore and identify viable patterns of sustainable relationship between essentially incompatible modes of behaviour or anti-thetical modes of thinking -- "union" vs "associations". It is these which are typically fundamental to the strategic dilemmas in psycho-social systems -- whether intrapsychic, interpersonal or intergroup. It is the continuing search for the resolution of these dilemmas that characterizes the dynamic of such systems (cf [Configuring Strategic Dilemmas in Intersectoral Dialogue: Summary of analysis on the occasion of Earth Summit](#), 1992)

As discussed elsewhere (cf [Sustainability through the Dynamics of Strategic Dilemmas: in the light of the coherence and visual form of the Mandelbrot set](#), 2005), this approach offers a pattern language to explore the complexities of the periodic resolution to strategic dilemmas -- the space of "not-this, not-that" (the *neti neti* of Sanskrit). The emergent patterns there are those which characterize a multitude of dynamically stable experiential resolutions of strategic dilemmas. These dynamic resolutions can be depicted (through the M-set) as characteristic patterns of great variety. The set of all such patterns (the M-set as a whole) is of a coherent form that is reflected in many ways (isomorphically) in its detail.

Fractal representation of Mandelbrot set

NB: Conventionally the complex plane is represented with the x-axis as the real dimension and the y-axis the imaginary dimension [[more](#)]. Here that representation is rotated 90 degrees so that the negative portion of the real axis is at the top



Generated by [Xaos: realtime fractal zoomer](#)

Mediterranean Union: a symbolic challenge

Previously proposed as the Mediterranean Union, the [Union for the Mediterranean](#) is to be established in July 2008 -- following considerable controversy -- to associate the countries of different continents that border on the Mediterranean. The controversy has meant that the "union" will necessarily imply a lesser degree of integration than had originally been envisaged.

In this context however the potential of such a union takes on special significance since many of the countries have been at the root of the historical elaboration of the geometrical metaphors that sustain strategic integration and understandings of "union" at this time. The challenge for the future of global governance is in effect epitomized by the capacity to revisit the manner in which such metaphors emerged in the Mediterranean region, and were cultivated there, in order to apply more complex variants to the unresolved territorial issues of Israel/Palestine -- specifically with regard to Jerusalem and all it symbolizes. Presentation of strategic possibilities through arrays of "bullet points" might be recognized as inherently counter-productive ([Enhancing Sustainable Development Strategies through Avoidance of Military Metaphors](#), 1998)

From a purely mathematical perspective, it can be argued that there are transforms between the patterns that have sustained strategic metaphors derived from Hellenic geometry and those that have been otherwise expressed in Islamic architecture ([And When the Bombing Stops? Territorial conflict as a challenge to mathematicians](#), 2000). Indications of one such bridge are offered by the work of Keith Critchlow (*Order in Space: a design source book*, 1969; *Islamic Patterns: an analytical and cosmological approach*, 1976).

Possible explorations, if only as thought experiments or fruitful metaphors, might include:

- recognition that the situation around Jerusalem is an epitome of cognitive chaos and confusion, with each focus (Judaism, Christianity, Islam) perceiving itself to be a source of clarity and coherence, with the others exacerbating the confusion and facilitating the cycle of violence
- recognition that each understands that location as an epitome of "holiness" (reflected in their understanding of sacred geometry), of considerable relevance to any associated challenges of governance
- recognition that the "triangle" of the three, viewed from a "scientific" or "gnostic" perspective, then together constitute a tetrahedron of mutual attraction-repulsion in the light of the delusions that each sees as associated with the others (and to which the respective governors and governed subscribe)
- recognition that each perspectival node might be separately configured as a polyhedron whose global geometry reflects the

structure of its most fundamental beliefs, notable challenges being:

- appropriate configuration of the [Sephiret](#) and the [Tree of Life](#)
- appropriate configuration of Islamic patterns embodied in the [Dome of the Rock](#)
- appropriate configuration of the Christian communities within the [Holy Sepulchre](#)
- transformation of mutual understanding through introduction of further (secondary) facets into each polyhedron in order to hold a richer variety of perspectives associated with each faith and the complementary views of its various adherents
- consideration of the possibility of presenting the set of four polyhedra concentrically and exploring geometrical transforms between them, whatever such possibilities might be held to signify -- if only as pointing to potential lines of communication

If there is the remotest possibility of a fruitful topological reframing of this challenge, towards a new and richer understanding of "union", it is worth investigating -- unless the undeclared strategic commitment is to perpetuate cycles of violence, notably in the Middle East, in support of some larger agenda ([Dysfunctional Cycles and Spirals: web resources on "breaking the cycle"](#), 2002).

In a world in which faith is of great significance to viable governance strategies, clearly any such geometrical configuration of the Mediterranean religions could be fruitfully extended to include other religions, as with a corresponding tetrahedron of Hinduism, Buddhism, Taoism and Animism. As one possibility, this would suggest configuring the two sets together as an octahedron, with each of the belief systems associated with one side. Many more complex and inclusive configuration are of course possible -- the purpose being to hold the totality of integrative beliefs as a whole as suggested above (cf [Tuning a Periodic Table of Religions, Epistemologies and Spirituality: including the sciences and other belief systems](#), 2007).

Gaia: default global governor of "last resort"?

The challenge of global governance has been variously understood and articulated in many settings. Many international institutions are variously engaged in response to that challenge, especially after having reduced it to particular priorities framed by their respective mandates.

It is increasingly clear that the array of institutions and networks is far from responding to the challenge in a timely or adequate manner. The requisite variety of approaches, in cybernetic terms, has either not yet emerged or is severely handicapped in its ability to act globally in a coherent manner. In a sense there is as yet no "global identique" or any operational understanding of what it requires of global governance. The relevant analyses are those of [Jared Diamond](#) ([Collapse: How Societies Choose to Fail or Succeed](#), 2005) and [Thomas Homer-Dixon](#) ([The Upside of Down: Catastrophe, Creativity, and the Renewal of Civilization](#), 2005).

There is a saying in French: *si on ne s'occupe pas de la politique, la politique s'occupera de vous*, which could be translated as: *if one does not concern oneself with politics, politics will concern itself with you*. The question might be asked with respect to the subtleties of global governance of a complex system.

Taken as strange attractors, the pantheon of deities presented as metaphors above, might be understood as calling for "due regard". What is the due regard variously expected by the gods? At a time when the need for constraints on human proclivities is increasingly recognized, what are the specific "sacrifices" which each dynamic system requires for its stability? Of particular interest with respect to the global system as a whole, with which the deity Gaia has been tentatively associated, is how the above saying might be rephrased -- perhaps as:

If one does not concern oneself with Gaia, Gaia will concern herself with you.

What then is the due regard expected by Gaia? Much has been written about this by the environmental movement. It is clear from the accelerating depredation of the environment, that the response is not only inadequate but that nothing in the global strategic pipeline is likely to offer more than a token response. The current fashionable focus on "climate change" can be seen as merely a device for avoiding the issues of "unchecked population expansion" and "unsustainable economic growth" which will continue to aggravate that depredation. Many cultural traditions have stories regarding the attitudes of the gods to merely token regard.

With respect to "deity", there is a delightful irony to the exposure given to the controversial study by scientist [Richard Dawkins](#) ([The God Delusion](#), 2006). With respect to the deities discussed here as strange attractors, any delusions with regard to them, or to Gaia, are irrelevant to the dynamics that they can engender -- however humanity chooses to take cognizance of them or not.

The point to be made here is that the attractors represented by deities in a pantheon are essentially impersonal in their dynamic operation -- however intimately they may appear to be related to particular values. Those values are then best understood in terms of systemic health rather than the health of particular individuals, collectivities, species or ecosystems.

As clarified in many traditional tales, due care and attention is appropriate to the complex dynamic systems with which deities may be associated for mnemonic purposes. Those deities may indeed then give the appearance of responding "benevolently" -- ensuring a life of abundance and plenty. There is a charming irony to the manner in which supposedly ignorant peoples superstitiously associate "deities" with their households, ponds or fields -- given that this elicits the kind of due regard which ensures the appropriate maintenance of complex systems. Deities may then indeed be understood as "peaceful", following the Tibetan terminology. The challenge of global governance is to ensure that appropriate attention is paid to the complex systems with which the deities have been associated -- preferably to ensure the emergence of a system of higher negentropy.

It appears however to be of relatively little significance to Gaia whether human global governance gets its act together in dancing with the various strange attractors that constitute the dynamics of the globe. Gaia is indeed the default governor of last resort and is completely capable of activating dynamics that will overcome any constraints on the emergence of a system of a different order. Humanity is free to be part of the problem (which Gaia will solve) or part of the solution.

The challenge for humanity is that if it does not understand how it is part of the problem, it is necessarily challenged in understanding the nature of the solution that may then be required -- with the intervention of Gaia. There is indeed an elegance to the manner in which Gaia can conscript dysfunctional human agendas -- such as those exacerbating illness -- to constrain the impact of humanity on the system as a whole. Thus "climate change" is merely one of Gaia's devices for correcting systemic imbalance.

It is in this sense that the "peacefulness" or "wrathfulness" of the deities (of the [Tibetan Book of the Dead](#)) is truly an illusion in the Buddhist sense rather than in that offered by Richard Dawkins. The [Wrathful Deities](#) are really the Peaceful Deities in disguise, their dark and seemingly "malevolent" side manifesting as a consequence of humanity's inappropriateness. The complex attractors of the pantheon, through which due regard may be paid to Gaia, can readily shift into that slightly different mode -- should humanity fail to dance appropriately with them. It is humanity that effectively evokes such malevolence through systemic neglect.

It is in this sense, following the intuitive prophecies of many traditions, that Gaia is effectively now being called upon by humanity to intervene as global governor of last resort -- given the evident systemic incompetence of humanity in that respect. It is in this sense that the deities will shift into a "wrathful" mode. The prophesied "Four Horsemen" of the Apocalypse might then be understood as strange attractors functioning otherwise -- possibly to be usefully represented by particular polyhedra ([Spontaneous Initiation of Armageddon: a heartfelt response to systemic negligence](#), 2004; [Towards a Logico-mathematical Formalization of "Sin": fundamental memetic organization of faith-based governance strategies](#), 2004).

As the deities shift into their wrathful mode, there are learnings to be derived from the systemic patterns that sustain their distinct coherence. As mapped by the polyhedral nets, these may be wisdom narratives or vital systemic feedback loops. These may become clearer in their negative manifestation than in their positive form. As is well-recognized on death row, there is nothing like imminent painful demise to sharpen the mind.

See an [extensive comment](#) on the above from the perspective of the complexity sciences, by [Chris Lucas \(The Complexity & Artificial Life Research Concept for Self-Organizing Systems\)](#)

References

John Beatty. Masking Disagreement among Experts. *Episteme: A Journal of Social Epistemology* 3.1 (2006) 52-67 [[text](#)]

Stafford Beer. *Beyond Dispute: the invention of team syntegrity*. Wiley, 1994

Mohammed Belkhatir, Philippe Mulheim and Yves Chiaramella. Integrating perceptual signal features within a multi-faceted conceptual model for automatic image retrieval. *ECIR 2004 : European conference on IR research* No27, 2004, vol. 2997, pp. 267-282 [[abstract](#)]

D. Bloor. Polyhedra and the Abominations of Leviticus: Cognitive Styles in Mathematics. in: M. Douglas (Ed.), *Essays in the Sociology of Perception*. London, Routledge & Kegan Paul, 1982, pp. 191-218

Martin L. Bowles. The Gods and Goddesses: Personifying Social Life in the Age of Organization. *Organization Studies*, 14, 1993, 3, pp 395-418

Ulrich Brehm and Egon Schulte. Polyhedral Maps. In: Goodman, J. E. and O'Rourke, J. (eds.), Handbook of Discrete and Computational Geometry, CRC Press, Boca Raton, New York, 1997, pp. 345-358 [\[text\]](#)

Robert Burkhardt. A Technology for Designing Tensegrity Domes and Spheres. Cambridge MA, Tensegrity Solutions, 2007 [\[text\]](#)

Roan Carratu. The Geodesic Direct Democratic Network (Structure; Process; Modes; Finances; General Archives; Projects; Growth; Details of Specific Procedures), 2005 [\[text\]](#)

Keith Critchlow:

- Order in Space: a design source book. Thames & Hudson, 1969
- Islamic Patterns: an analytical and cosmological approach. Thames & Hudson, 1976

Peter R. Cromwell. Polyhedra. Cambridge University Press, 1997

Edward de Bono:

- New Thinking for the New Millennium. Viking, 1999
- Six Action Shoes. 1991
- Six Thinking Hats. 1985 [\[summary\]](#)
- The Use of Lateral Thinking. 1967

Jared Diamond. Collapse: how societies choose to fail or succeed. New York, Viking Books, 2005 [\[summary\]](#)

Douglas G. Flemons. Completing Distinctions. Boston, Shambhala, 1991

Michel Foucault. Questions of method, in: Graham Burchell, Colin Gordon and Peter Miller, The Foucault effect: studies in governmentality. Chicago: University of Chicago Press, 1991

R. Buckminster Fuller with E. Applewhite:

- Synergetics: explorations in the geometry of thinking. Macmillan, 1975
- Synergetic 2: further explorations in the geometry of thinking. Macmillan, 1979

Jerome Clayton Glenn. Linking the Future; Findhorn, Auroville, Arcosanti. Cambridge, Mass., Hexiad Project, 1979

Charles Handy:

- Gods of Management: who they are, how they work and why they will fail. London, Pan, 1979
- Gods of Management: the changing work of organisations, London, Souvenir Press, 1985 [\[summary\]](#)

George W. Hart. Virtual Polyhedra: The Encyclopedia of Polyhedra, 2000 [\[text\]](#)

Oleh Havrylyshyn. Globalization Options for the Western CIS: Triangles, Polyhedron West, Polyhedron East, or All Three? (Paper for an international conference co-sponsored by the Canadian Institute of International Affairs in Toronto, January 2006. Theme: *The Slavic Triangle: Between the EU and Eurasia*)

Linda S. Henderson. Reflecting on Athens 2004: what we can learn about modern project management from ancient Olympian archetypes. *Organization Development Journal*, Winter 2005 [\[summary\]](#)

Thomas Homer-Dixon. The Upside of Down: catastrophe, creativity, and the renewal of civilization. Toronot, Knopf, 2006 [\[summary\]](#)

Anthony Judge:

- Governing Civilization through Civilizing Governance: global challenge for a turbulent future, 2008 [\[text\]](#)

- From Lateral Thinking to Voluminous Thinking: unexplored options for subterranean habitats in dense urban areas, 2007 [[text](#)]
- Animating the Representation of Europe: visualizing the coherence of international institutions using dynamic animal-like structures, 2004 [[text](#)]
- Spherical Accounting: Using geometry to embody developmental integrity, 2004 [[text](#)]
- Evoking Authenticity through polyhedral global configuration of local paradoxes, 2003 [[text](#)]
- Patterning Archetypal Templates of Emergent Order: implications of diamond faceting for enlightening dialogue, 2002 [[text](#)]
- Using disagreements for superordinate frame configuration, 1992 [[text](#)]
- Spherical Configuration of Categories to reflect systemic patterns of environmental checks and balances, 1994 [[text](#)]
- Configuring Strategic Dilemmas in Intersectoral Dialogue Summary of analysis on the occasion of Earth Summit, 1992 [[text](#)]
- La Transdisciplinarité et les Volumes: l'articulation des relations entre les disciplines à l'aide des propriétés des polyèdres, 1992 [[text](#)]
- Geometry of Organizations, Policies and Programmes, 1992 [[text](#)]
- Metaphoric Revolution: in quest of a manifesto for governance through metaphor, 1988 [[text](#)]
- Vector Equilibrium and its Transformation Pathways, 1980 [[text](#)]
- Representation, Comprehension and Communication of Sets: the Role of Number, 1978/1979 [[text](#)]
- Implementing Principles by Balancing Configurations of Functions: a tensegrity organization approach. 1979 [[text](#)]

George Lakoff and Mark Johnson:

- Philosophy In The Flesh: the embodied mind and its challenge to Western thought, 1999.
- Metaphors We Live By. University of Chicago Press, 1980

George Lakoff with Rafael Núñez. Where Mathematics Comes From: how the embodied mind brings mathematics into being. Basic Books, 2000

A. Leonard. Team Syntegrity: a new methodology for group work. *European Management Journal*, 14, 1996, 4, pp 407-413

Gunter Nittbaur. Stafford Beer's Syntegration as a Renaissance of the Ancient Greek Agora in Present-day Organizations. *Journal of Universal Knowledge Management*, 0, 2005, 1 [[text](#)]

Stephen M. Phillips. The '120 Polyhedron' and the '144 Polyhedron' as the Exterior and Interior of the Inner Tree of Life (Article 23) [[text](#)]

J. Truss, C. Cullen and A. Leonard. The Coherent Architecture of Team Syntegrity: from small to mega forms. Team Syntegrity Inc. (Paper at World Congress of the Systems Sciences, 2000; theme: *understanding complexity in the new millennium*) [[text](#)]

Robert Webb. Stella: Polyhedron Navigator. *Symmetry: Culture and Science*, 11, 2000, 1-4, pp 231-268 [[text](#)]

Magnus J. Wenninger:

- Polyhedron Models. Cambridge University Press, 1979
- Spherical Models. Cambridge University Press, 1979

Leroy White. 'Effective governance' through complexity thinking and management science. *Systems Research and Behavioral Science*, 18, 2001, 3, pp 241-257 [[abstract](#)]

Yu Xiao. Negotiating Polyhedral Identities and Plurality through Ethnic Law and Policies: a legal ethnography of Miao, Tujia and Han life stories in West Hunan, China. (Paper for the XV International Congress on Legal Pluralism, Universitas Indonesia, 2006)

Bernard P. Zeigler. Multifaceted Modelling and Discrete Event Simulation. San Diego, Academic Press Professional, Inc. ,1984



This work is licensed by Anthony Judge
under a [Creative Commons Attribution-NonCommercial-NoDerivs 2.5 License](https://creativecommons.org/licenses/by-nc-nd/2.5/).