



laetus in praesens

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Experience of Cognitive Implication in Fundamental Geometry

Unexamined metaphoric framing of strategic discourse

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Introduction

The question raised here is why particular geometrical forms are widely "felt" to be cognitively appropriate in the articulation of certain patterns of psychosocial action. Why are these simple forms borrowed metaphorically in this way and, since this is the case, why is similar use not made of more complex geometrical forms -- potentially in more appropriate response to the complexities of psychosocial challenges? This forms part of a more general discussion, where relevant references are located (*Way Round Cognitive Ground Zero and Pointlessness: embodying the geometry of fundamental cognitive dynamics*, 2012; see alternative [table of contents](#)).

It is useful to recognize the metaphorical use of these forms as somehow providing convenient templates for attention and its "deployment". They somehow enable attention to be appropriately configured under particular circumstances. Whilst these are often of a very practical nature, it is clear that in their use in symbols they offer a means of anchoring subtleties and abstractions.

The approach here follows from the pioneering efforts of cognitive psychologists [George Lakoff](#) and [Mark Johnson](#) (*Metaphors We Live By*, 1980; *Philosophy in the Flesh: the embodied mind and its challenge to western thought*, 1999). The focus on geometrical forms can be understood as related to the later explorations of George Lakoff and [Rafael E. Núñez](#) (*Where Mathematics Comes From: how the embodied mind brings mathematics into being*, 2001).

The following argument develops themes previously explored, notably in the light of the work of [R. Buckminster Fuller](#) (Synergetics: explorations in the geometry of thinking, 1975-1979) as discussed in *Geometry of Thinking for Sustainable Global Governance: cognitive implication of synergetics* (2009) and elsewhere (*Metaphorical Geometry in Quest of Globality*, 2009; *Engaging with Globality: through cognitive lines, circlets, crowns or holes*, 2009; *Geometry of Organizations, Policies and Programmes*, 1992). This is partially inspired by the emphasis on geometry in the work of [Christopher Alexander](#) (*The Nature of Order*, 2003-4).

The concern here is how understanding is framed and molded in discourse by appropriation of a particular geometrical form as a template for a thinking process. This preoccupation is of particular concern with regard to the articulation of the [draft agenda](#) and outcome of the forthcoming [United Nations Conference on Sustainable Development](#) (Rio de Janeiro, 2012) in the light of the original [Earth Summit](#) (Rio de Janeiro, 1992) and its asystemic action plan in the form of [Agenda 21](#).

The question raised is whether the widespread advocacy of the languages of "literacy" and "numeracy" needs to be enriched and completed by what might be understood as "formation", namely insight into the manner in which form emerges and is recognized -- especially with respect to the frameworks through which strategy is articulated. In addition to the more general emphasis of Lakoff and Johnson on *Metaphors We Live By* (1980), there would appear to be a need for a more cognitively radical focus on the *Metaphors We Organize By*, or even the *Metaphors We Govern By*, than that suggested by [Paul Holmström](#) (*Metaphors We Organize By, Management Unplugged*, 11 November 2007).

Comprehension framed by "Point"

This section is a development of arguments made previously (*Cognitive Realignment: making points and aligning a target*, 2009).

Point of view: "Point" is readily used in discourse to characterize a "point of view" -- possibly understood as a "point of reference". A "strategic point" in a competitive situation may be understood as one which affords to its possessor an advantage over an opponent. However ready reference to the "point of view" of an "external" other precludes recognition of the "internal" experience of identification with such a viewpoint -- an integrative insight unique to the holder or originator of it. This is a characteristic of the challenge of an "objective" framing in relation to a "subjective" one (*¿ Defining the objective ∞ Refining the subjective ?! Explaining reality ∞ Embodying realization*, 2011).

People can of course be challenged to state their "viewpoint" -- effectively "where they are coming from" -- or be requested to clarify the "point" they are making, if it has not been understood. The challenge may be framed as "come to the point" or as a process "getting to the point". This also applies with respect to a "point of interest" -- and strategically to a "selling point" or a "point of attack". When the challenge is expressed in terms of "what is your view", this necessarily implies a "point" from which the "view" is obtained. A distinction may be made between "a viewpoint", as a useful complementary perspective, and "the viewpoint", as being fundamental to a particular worldview -- perhaps to be framed as a "point of principle" (to be contrasted below with value "pillars").

The concern fundamental to the dynamics of society is of course whether people share the same fundamental "viewpoint" or have a different one. The latter may signal a "misguided" perspective, possibly held to be totally unacceptable and worthy of the severest of sanctions. This is exemplified by the relation between religion and science, between the belief systems claiming to be religions, and between the disciplines that claim to be sciences, as discussed separately (*Guidelines for Critical Dialogue between Worldviews*, 2006).

Multiple views: Curiously certain forms of tourism focus on the quest for particular "views" acclaimed as outstanding. Any tour may take in a succession of such "views", variously to be appreciated, and with some necessarily hidden from others by the topography of the land -- "hidden valleys" offering "views" to which greater value may be attributed. This pattern is indicative of the assumptions associated with a given "point of view" regarding social or other issues, and the nature of any disagreement between them.

Groups in dialogue necessarily strive to elicit the viewpoints of participants -- a process during which many points may be made. This may raise the question of their connectivity through a pattern of higher order and the manner in which an "important point" is to be distinguished, notably on an agenda.

The possibility of multiple "views" is however typically considered questionable under other circumstances, even deprecated and condemned as "misguided relativism" in the case of fundamental "viewpoints" -- even though some may appreciate and cultivate "hidden valleys". The implicit "viewpoint" associated with any preferred "worldview" may however be unclear, with further confusion arising from the [many-worlds](#) case made in quantum mechanics -- suggesting a way of thinking (and a geometry) allowing for multiple worldviews.

The elusive sophistication of such cosmological reflection is perhaps highly appropriate to the sense in which a "point" is essentially an "unbounded distinction" -- if only to the maker of it. The nature of the "space" in which the "point" is made calls for consideration of the forms discussed below. The cosmological framework offers a reminder of the challenging current debate on how to frame the emergence of a "universe" from "nothing".

Point-making: Common use of "making a point", as readily expressed in a sentence or line of text, similarly obscures the creative process by which the "point" is engendered and by which it may be sustained and experienced as significant -- possibly understood as a "seed thought" in the language of disciplines of meditation. How is "raising a point" to be understood, especially a "point of order"? Within what "space" is this understood to be possible?

In a competitive environment, as in many games, "point-making" is related to the process of "gaining a point" -- or in "making a point" held to be of greater relevance in discourse. Again the formal indication on a scoreboard is unrelated to the cognitive implications for whoever gains or loses. Curiously scoring in this way may then be used to frame the more fundamental process of sexual conquest -- often described by the jargon expression as "scoring". Ironically, it is of course through this process that new life may be engendered -- as a "point" at the moment of conception.

Whilst the process of making a point can be comprehended as a simple matter, as in games, the subtlety of so doing in a creative process is quite another matter. How is a unique "point" engendered in any creative process -- perhaps through some confluence of ideas offering an "Ah ha" sense of a new perspective? A process of consummation? How is a "point of interest" to be distinguished from any other point? How is "accepting a point" to be understood? How do others recognize that a point has been made -- and whether it is "valid" or "inappropriate"? Again, within what "space" is it made?

Understood as a 0-dimensional feature of geometry, how is it experienced as emerging -- "bubbling up" -- and from what? From what is a point "raised"? How can a "point" be developed? How is something of 0-dimensions then experienced when communicated to others -- if it can be communicated? What is lost when it is represented for that purpose by a "bullet point"? With what form is the identity of the point-maker associated?

Evanescence of a point: Also intriguing is the process of making a succession of points in discourse -- points which may "exist" only momentarily in that flow, to be subsequently left behind and lost as the discussion moves on. In what "space" may such points be understood to "exist" or to have "existed"? How is a viewpoint sustained? Again this is suggestive of efforts to conceptualize a [multiverse](#) in which many "universes" are held each to have been engendered from a distinct "point".

Comprehension framed by "Line"

This section is a development of arguments made previously, as mentioned above (*Cognitive Realignment: making points and aligning a*

[target](#), 2009).

Alignment: Although a line is clearly defined in geometry as a set of "aligned" points, again the manner in which this "alignment" is experienced cognitively in relation to any such points is readily obscured. As noted above, strategies are typically articulated by a set of "bullet points" which may well be physically aligned in their editorial presentation. Far less evident is how the consistency of that alignment is experienced as providing coherence to the strategy as a whole -- especially when a sense of continuity between them is implied. What is then implied by pursuing a particular "*strategic line*" or a "*line of attack*"? How is this related to a "[storyline](#)" -- by which the "points" may be connected in a presentation through the media?

Line of sight: On the occasion of the World Economic Forum (Davos, 2012), it was noted that *The youth has lost a line of sight to the future* (Tim Weber, [Davos 2012: Youth unemployment 'disaster'](#), *BBC News*, 28 January 2012). Kevin Roberts of Saatchi and Saatchi urges: *Use unorthodoxy to get a direct line of sight to the future* ([Making It In Today's Post Catastrophic World](#), March 2010).

What is implied cognitively by a "*line of sight*" with respect to such a vital issue (cf Consumer Scene Investigation, [A Line to the Future](#), Goals and Decision Making, 2006), especially when offered software support ([Strategic Line-of-Sight: software for enterprise planning and execution](#))? In the case of those gathered at Davos, and in the light of their own disastrous global leadership record, one might wonder at the viability of any "*line of sight to the future*" that they believe they had found. In the light of the insight of Roberts, one might also wonder whether creative "unorthodoxy" was allowed or advocated.

Especially significant in this connection is the sense in which any articulation of a strategic "vision" necessarily implies a "*line of sight*" -- unless there is some attention to the possibility of "seeing" around obstacles or the globe, of which orbiting satellites offer a metaphor of the unrecognized cognitive challenge. This question might be seen as fundamental to the strategic "vision" which introduces the [draft agenda](#) of the strategically important [UN Conference on Environment and Development](#) (Rio de Janeiro, 2012). Can global governance now rely on inherently "linear" strategies? The concern might be further clarified in the light of recognition of major strategic "black holes", exemplified by the financial crisis and the level of public debt. Given understanding by astrophysicists of the capacity of massive objects to "bend light", it might be asked in what way strategic issues of the greatest gravity are capable of bending any associated "*light of sight*".

Especially relevant to use of this linear metaphor is the sense in which what cannot be seen is necessarily in a cognitive shadow realm -- as clearly illustrated by the relation between sunlight in ensuring both "day" and "night". What might be the blindspots of global governance as currently "envisaged" (from Davos, etc) by use of the vision metaphor? Is their existence necessarily indicative of a clearly defined pattern of denial? Where are the cognitive tools for "night vision" or a more global vision encompassing the "dark side"?

Line of argument: This question is equally evident in developing a "*line of thought*" or a "*line of argument*". In formal argument, the focus is on the logical consistency of the points made in support of that line. Again however, a "childlike" understanding (as discussed in the [main paper](#)) may be able to entertain other senses of consistency -- as partially indicated by [non-classical logics](#) ([fuzzy logic](#), [intuitionistic logic](#), [paraconsistent logic](#), [many-valued logic](#)), or suspension of judgement regarding consistency. This process is notably evident in humour and when "*spinning a line*". It is also evident in the sense of "correspondences" ([Theories of Correspondences -- and potential equivalences between them in correlative thinking](#), 2007).

Discussion "thread": Metaphorical reference to "thread" may substitute for "line", notably in relation to discussion topics in internet fora. This is of course consistent with traditional means of delineation using a stretched thread.

Potentially of great interest is the manner in which "*thread*" has itself been metaphorically appropriated as the fundamental feature of the [string theory](#) reconciliation of quantum mechanics and general relativity.

Line of action: A course of action may be understood in terms of pursuing a particular "line", then to be associated with a particular direction or orientation. The sense of a "line" becomes of fundamental importance in collective endeavours when "*holding a line*" may be considered essential to the coherence of the endeavour -- and even a threat to it in the case of those "*stepping out of line*". Hence the implied importance of a "*line of authority*", a "*line of command*", and maintaining a "*line of communication*" -- although all such uses raise the question of their adequacy in isolation, in the light of the manner in which they are subsumed metaphorically into the more complex forms discussed below.

The sense in which a line of action implies the projection of a point, through a succession of points, is readily associated with one-pointedness, especially in striving to achieve a particular end. For the individual the line may then be associated with a "*career path*" or course of development -- evoking phrases such "*what's your line*" (of business). A related sense is offered by the phrase "[stringing someone along](#)", meaning to deceive them with respect to some "line" of action -- again, possibly through "*spinning a line*".

Axis and axiology: A contrasting sense of the dynamic associated with a "line" is offered by its role as an "axis" -- effectively engendering a dynamic "around" it or with reference to it. Strategically this is evident in the recognition of various such axes: [axis powers](#), [axis of evil](#), [axis of good](#), [axis of democracy](#), etc. A related sense is evident with respect to use of "*straight arrow*" and "*upstanding*" as personal characterizations. Both the collective and individual cases raise the question of the experiential significance giving rise to such perceptions. The magical implications of a line continue to be cultivated in the collective consciousness by images of "*riding a broomstick*" -- as in the [Harry Potter](#) series, where they explicitly echo those of riding a motorbike.

"Songlines": Several of the aspects noted above with respect to "line" are to be found in the importance variously attached to lines that are traditionally walked, as with the [songlines](#) (or Dreaming tracks) of Australian Aborigines, pilgrimage routes, and the [marching routes](#) of the Orange Order in Northern Ireland. There is also a sense in which a line of song (or poetic verse) may carry meaning which might otherwise have been expressed in a line of text. Development of the tweet by users of Twitter may be understood in this sense.

Polarization: Where a "point" is in dispute, or an alternative "viewpoint" is presented, together these can be understood as a "*polarization*" of the discourse, effectively giving rise to a "line" (as discussed below).

Boundaries: The use of "line" is commonly associated with a sense of boundary. Whilst the latter may be related to physical territory and ownership of property, of interest is the manner in which this is borrowed metaphorically as in phrases such as "*crossing the line*" and "*drawing a line*". A sense of strategic appropriateness is offered through its use as a prudent constraint in "[bottom line](#)", "[double bottom line](#)", and "[triple bottom line](#)".

Existence of a line: As in the case of a single "point", a "line" may have only a momentary "existence" -- perhaps best recognized in the case of a trajectory (*Cognitive Ballistics vs. Derivative Correlation in Memetic Warfare*, 2009). This is evident in a process of persuasion when various "lines" may be tried -- most characteristically in flirtation and courtship. From a longer-term perspective this is well-characterized by the famous quote in the *Rubāiyāt of Omar Khayyām*: *The moving finger writes, and having writ moves on* -- itself a "line" in a verse.

Timeline: Time is readily understood as linear through use of the term "[timeline](#)" as a means of presenting a chronological sequence. This necessarily precludes experience of other ways of engaging with time, notably circular or cyclical time.

Comprehension framed by polygons: "Triangle", "Square", etc

Intersecting lines: In situations involving several "lines" of action, these may well be totally isolated from one another, or held to be so. There may however be a sense in which some intersect or share a common "point" -- perhaps a point of origin or of termination. A line in isolation does not create a bounded space within which -- or on which -- anything can be constructed.

Even if a line of action or argument intersects another, a bounded space of significance only emerges through the formation of a polygon by multiple intersection. It acquires and carries that significance as a consequence of the lines lying in the same plane -- offering a very particular understanding of "co-ordination", given that a shared coordinate system is then used for the geometry. An implied central "point" of significance (the "origin" of the coordinate system) only becomes apparent if the configuration is symmetrical, however that symmetry is to be understood -- complementary arguments, actions, etc.

Curiously, in contrast to the implications of a "*line of attack*" (mentioned above), a "*line of defence*" tends to imply the presence of a boundary across part of which the defence is undertaken.

Interlinkage: A "line" is a common way of depicting and understanding a bond or link between people or other bodies. People may well be variously connected together by such "lines" -- as with a family or group of friends. Whilst such sets of links can be very complicated, justifying use of "network", of more immediate interest to this argument are the simpler patterns, such as a triangle -- for example, mother, father, child, or reference to the "eternal triangle" of a romantic dilemma. Somewhat more complex patterns are evident in the case of teams and games -- for example a set of four bridge players, forming a square. How is a "point" then to be understood as shared?

Implicit in strategic discourse regarding any "plan" may be the square pattern of a spreadsheet through which the plan is ordered and articulated. Tabular representations may be fundamental to the models on which they are based.

Although distinct from the geometric forms explored here, a related form of intersection between lines is that of a weave, notably significant metaphorically with regard to "*threads of discourse*" and the "*fabric*" of society (*Warp and Weft of Future Governance: ninefold interweaving of incommensurable threads of discourse*, 2010; *Interweaving Thematic Threads and Learning Pathways*, 2010). Understood as a "net", such a weave may be of considerable strategic significance as in its relevance to discussion of a [social safety net](#).

Emergent polygons: Whilst any such pattern can be described in static geometrical terms (notably in the longer term), this tends to obscure the dynamics amongst those involved (especially in the shorter term). The question then becomes towards what kind of "triangle" or "quadrilateral" the pattern tends as a result of those dynamics. Whilst the form may be asymmetrical under particular conditions, possibly with especially significant proportions ([golden rectangle](#), etc), there may be a marked tendency towards a more symmetrical configuration -- as in the case of the emergence of the characteristics of a "team".

It is indeed the triangle and the square which are the geometric forms most frequently used in metaphor (cf *Triangulation of Incommensurable Concepts for Global Configuration*, 2011). A triangle is the simplest form by which a closed 2D space is ensured. Of special interest in relation to polyhedra (discussed below) is the insight of R. Buckminster Fuller (*Synergetics: explorations in the geometry of thinking*, 1979):

This triadic concept is exclusively planar -- ergo, nonexistent. What is inadvertently omitted is the observer of the planar triad, whose observer position marks the fourth corner of the tetrahedron, the minimum system." (II. 542.01)

Use of "square" is widely associated with recognition of correctness, as in acknowledging a balancing of accounts ("*all square*"). A related understanding is evident in the masonic sense of being "[on the square](#)". Restrictive correctness is recognized in the pejorative sense of "[being square](#)". Squared boards are used to define the space within which a variety of board games can be played.

Of particular interest is the implication of metaphorical use of a tabular presentation in French through the phrase *grille de lecture*. This suggests a grid pattern through which any set of issues can be fruitfully viewed -- thus reminiscent of the polygonal gridwork screen through which ladies in a harem were able to view the activities of men of the house and their guests.

Use of the pentagon or hexagon in this way is rarer -- with the interesting exception offered by the integrative implications of [The Pentagon](#). However more complex symmetric forms, possibly involving multiple triangles and/or squares may be valued in symmetric symbols, as with the [Star of David](#). Together these may express more complex polygonal symmetry, as in 12-fold patterns (*Checklist of 12-fold Principles, Plans, Symbols and Concepts*, 2011).

An evident use of polygons of relevance to strategy elaboration is in the delicate matter of the design of tables for diplomatic negotiations. Each delegation may sit at a particular side of an explicit polygon, unless a circular table is used -- with the seats positioned to imply such a polygon

There is an interesting transition from the "explicit" metaphorical use of more complex polygons in the spoken word (and text) to their cognitively "implicit" use as visual metaphors embodied in architecture, notably as central floor mosaics of the foyers of buildings in which it is implied that complex strategies are implemented. Christopher Alexander is especially attentive to the patterned order embodied in carpets (*A Foreshadowing of 21st Century Art: the color and geometry of very early Turkish carpets*, 1993). Polygons may notably figure on flags designed to provide focus to collective endeavour -- most evidently in inspiring support in a conflict. Embodiment of such complexity -- beyond comprehensible verbal articulation -- raises the question of the nature of its "appeal".

A banner with a strange device... for Davos?

*The shades of night were falling fast,
As through an Alpine village passed
A youth, who bore, 'mid snow and ice,
A banner with the strange device,
Excelsior!*

(Henry Wadsworth Longfellow, *Excelsior*, 1841)

Symmetry and integrity: The sense of integrity in any such symmetric pattern may be fruitfully understood as a kind of intuitive anticipation of the geometry of the circle (discussed below), without as yet giving form to it -- especially when the circularity of this pattern is only confusedly recognized (as is typical of many feedback "loops"). The tendency towards greater symmetry is then to be understood as a degree of progressive approximation to the circle -- as in the case of a triangle, a square, or a more complex symmetrical polygon, whether this form is recognized in the moment or as being stable over time.

Comprehension: Much more complex polygonal patterns are a characteristic feature of symbolic architecture, notably the mosques of Islam. These then raise the question of the nature of cognitive engagement with such patterns -- as is the case with the patterns of [rose windows](#), [mandalas](#) and [yantras](#). It could readily be argued that in implying the possibility of a much higher sense of articulated integrity (effectively beyond ordinary capacities of comprehension), they anticipate what is implied by the circle -- possibly avoiding the challenge of how it might be most appropriately understood. This could be understood as somewhat reminiscent of the dubious cognitive implications of the [Peter Principle](#).

Comprehension framed by "Circle"

This section is a development of arguments made previously (*Cognitive Circlets: learning/action cycles*, 2009).

Valued goals: Recognition of the circular form of the Sun has naturally evoked a multitude of symbolic connotations in many cultures. Such use is notably related to depictions of a halo around people esteemed as holy -- thus indicative of a higher degree of integrity.

This form is characteristically used to indicate a target or goal towards which (linear) action should aim -- and by which it may be envisaged as a coherent outcome. Physically this is exemplified by the dartboard or the basketball ring. Virtually it is evident in the use of "goal", as with the UN [Millennium Development Goals](#), for example.

Associated with this is the use of the circle as a "virtual container" to hold that achievement thereafter -- perhaps to be represented as a medal, however that is appreciated by the recipient ([Edward de Bono](#), *The Six Value Medals: the essential tool for success in the 21st Century*, 2005). As a target, the "future" is implicitly framed in this way in the quotation above on the occasion of the World Economic Forum (Davos, 2012): *The youth has lost a line of sight to the future.*

Integrity: As noted above with respect to polygonal symmetry, the experience of the "empty" circle may imply a greater degree of undifferentiated integrity than is held by polygons, however symmetrical or complex. This has been succinctly expressed in the *Tao Te Ching*:

*Thirty spokes share the wheel's hub.
It is the centre hole that makes it useful,
Shape clay into a vessel;
It is the space within that makes it useful.
Cut doors and windows for a room;
It is the holes which make it useful.
Therefore profit comes from what is there;
Usefulness from what is not there.
(Lao Tzu: *Tao Te Ching*)*

Virtual circle: Intriguingly, the "bullet points", with each of which an explanatory line of text is associated in framing the objectives of a strategic endeavour, might be understood as the points at which those lines could be represented as variously tangential to the circle (rather than as spokes in the above quote). This is partially evident in certain forms of circling or encirclement, as with a protective

circular encampment (*Circling the Wagons Around Enron; risks too great to let trader just die*, *The New York Times*, 22 November 2001) or a defensive air combat tactic such as the *Lufbery circle*. Of related interest is the sense in which a virtual circle is the path (or orbit) followed around the central point (of interest) -- most obviously in predator/prey relationships, prior to "going in for the kill". This may of course apply to marketing, and to courtship and stalking behaviour.

Elusive centre: However the central "point" of the endeavour tends to remain elusive -- even as a central axis of intentionality. Especially intriguing is the manner in which the central "point" (in terms of which it is defined, and by which it can be understood to have been engendered) is not necessarily explicit and is typically invisible. The "existence" of such a point may even be denied in consideration of psychosocial manifestations of a circle -- as with a *social circle*, a "circle of friends" (now embodied in Google+), a "*circle of trust*", or an "*inner circle*" (as with the *Inner Circle* of Sigmund Freud). A sense of "*pointlessness*" may then result from a vain quest for an explicit "point" -- notably in response to the challenge "what's the point". Further efforts to elicit an answer to "what's the point" may be considered unacceptable and even threatening.

As discussed previously (*Evolutionary influence of the absent*, 2011), with respect to the argument of Terrence W. Deacon (*Incomplete Nature: how mind emerged from matter*, 2011), a key factor with respect to the emergence of knowledge may be intimately associated with what is missing -- as suggested by the implicit "point" in the argument above. This is succinctly implied in the contrast between the print and online summaries of his argument (*The importance of what is missing*, *New Scientist*, 26 November 2011; *Consciousness is a matter of constraint*, *New Scientist*, 30 November 2011). For Deacon:

... have we been looking in the wrong places for clues? ... brain researchers and philosophers of mind have focused on brain processes, neural computations and their correspondences with the material world. But what if we should be focusing on what is not there instead? ... I believe that in order to overcome this stalemate **we need to pay more attention to what is intrinsically not present in everything** -- from life's functions and meanings to mind's experiences and values. [*emphasis added*]

Implied third dimension: As used, reference to a circle may well imply another dimension and access to it (as discussed below with respect to a cylinder). This extra dimension follows from its recognition as the culminating target of a line of action which may be understood as an (intentional) axis out of the plane of the circle itself. This is naturally evident in the case of the pattern of concentric circles formed by a succession of drops of water onto a pond.

Mirroring: From a cognitive perspective, a circle is especially associated with the use and experience of a mirror. In offering a reflected image of the perspective (and its holder) by which it is viewed, this engenders a "speculative" dynamic regarding origin and destination, past and imagined future -- "*down the line*". Thus (solar) values associated with the circular Sun may be an inspiration for action projected into a target or goal. Folk tales cultivate the capacities of "magic mirrors", which merit consideration given the role of the vision metaphors in strategy articulation (*Stepping into, or through, the Mirror: embodying alternative scenario patterns*, 2008).

Of interest in this respect is the cognitive coherence that might be associated with the *incircle*, or a *circumcircle* of a symmetrical polygon. (Unlike the case of a polyhedron, a "*midcircle*" of two given circles is the circle which would invert the circles into each other) Of particular relevance is the *three circle exercise / diagram* used by recovering addicts to describe and define behaviors which lead either to a relapse into or recovery from addictive behaviors.

- *Inner circle:* Behaviours in which the addict wants to stop engaging. Engaging in any of these "inner circle" or "bottom-line" behaviours would result in a loss of sobriety for the addict.
- *Middle circle:* Behaviours which may or may not be appropriate but lead to the bottom line behaviours identified in the inner circle.
- *Outer circle:* Healthy behaviours leading the addict away from the objectionable behaviour identified in the inner circle.

Comprehension framed by "Cylinder"

Holes: Just as a circle constitutes a strange boundary for a space whose contents may be cognitively under-defined -- even understood as "nothing" -- a cylinder, as a linear succession of circles, may be similarly challenging. As a form of cylinder, the mysterious nature of "holes" has been explored by Roberto Casati and Achille C. Varzi (*Holes and Other Superficialities*, 1994). As such they are associated with the vital function and symbolism of wells in many cultures -- and by extension a sense of health as a source of "well-being". The curious nature is notably evident in confrontation with one end of a tunnel, as exemplified by "*Down the Rabbit Hole*", namely the first chapter of the classic by Lewis Carroll (*Alice's Adventures in Wonderland*, 1865). A related sense is evident in use of phrases such as "*down the plughole*" or "*down the tube*" -- perhaps to be given added significance in the light of the recognition of strategic "*black holes*" (as noted above). Equally problematic is the recognition of deprecated "*silo thinking*".

Portal: Where the ("line" of) action involves a succession of goals, each may be understood as a form of portal or gateway to another dimension. This sense is also recognized in obligations imposed as a form of gatekeeping by authorities on people required to "*jump through hoops*" in their quest for certified achievement. Rather than the implied 1-dimensionality of a career path, the latter may be better understood as the axis of the cylinder -- a career "tunnel" with the prospect of "light" at the end of it.

Orifice: In any implication of another dimension, a circle (as one end of a cylinder or hole) may evoke significant biological connotations as an "*orifice*" -- even extended to imaginative insights into a *wormhole* and its operation in hyperspace. As with a medal, these offer anticipation of reward or satisfaction -- exemplified most fundamentally by the orifices significant in consumption/excretion, sexual attraction and intercourse. In the sense of being a target for impact or penetration, dynamics associated with a (strange) attractor may be engendered.

Birth: Whilst the biological experience of a tunnel and its orifice may be a matter of daily muscular experience (*peristalsis*, etc), its more fundamental psychological connotation lies in any unconscious memories of the process of being born, namely the passage through the

birth canal. This may be recalled metaphorically in other understandings of the birth process (*Varieties of Rebirth: distinguishing ways of being born again*, 2004). These may in turn offer associations to the passage from the mythical "Garden of Eden", namely the **Fall of Man** -- ejected from a timeless "now" into a time-bound condition. Significance was attached in classical Greece and Rome to entry into a netherworld through tunnel-like so-called **Gates of Hell**.

Value pillars: Perhaps curiously, "*pillars*" are often used in the articulation and configuration of strategic and organization principles, as described separately (*Holders of value configurations -- and their "pillars"*, 2008). Pillars of symbolic significance are widely used to mark gateways of various kinds. Even more curiously the cylindrical form is closely associated with "*stakes*" (as in **stakeholders**), as visually evident in the ordered piles of **gambling chips** at casino tables.

Comprehension framed by polyhedra: "Tetrahedron", "Cube", etc

Cube: Metaphoric use is more rarely made of symmetrical polyhedra, and then only of the simplest. Perhaps this is most evident in use of the "cube", not as such but with reference to a "*box*" -- as in the case of thinking "*in the box*" or "*out of the box*". It could be said, for example, that people are born in a box, live in a box, are educated in a box, work in a box, may be incarcerated in a box for a criminal offence, tend to die in a box, and are buried in a box. One example is discussion with respect to the **Sepher Yetzira** (*Metapsychology of the Cube of Space*):

The Cube of Space is a multi-dimensional model of psychological space and an integrated framework for the metaphors of embodied and situated experience. The directions of the Cube are psycho-spatial and symbolic and represent centers or spheres of emotional consciousness which leave their imprint on our neurology, our cognitive processing, our symbolic thought and expression, and our experience. Metapsychologically, the Cube is a description of "the underlying conditions of possibility for the formation and existence of human reality as it's experienced by the psyche" modeled in 3-D virtual psychological reality.

One blogger discusses *The Rubik's Cube Metaphor* (2011) to the effect that the problems of life and the world are like an unsolved **Rubik's Cube**. A cubic metaphor is used in the design of the *CubicExplorer* file manager facility. Clearly the geometry of the cube has fundamental cognitive implications as a consequence of its use in architecture of every kind.

Pyramids: It might be assumed that the **tetrahedron**, as the simplest polyhedron, would have similar cognitive implications. However the symbolism of the **square pyramid** has proven to be of more significance to many cultures.

Metaphorical use of the tetrahedron is however made as an ordering device, notably in some computer applications (Julian Rowan, *Tetrahedral Modelling: art/science metaphors for order in space*, *Leonardo*, 17, 1984, 4, pp. 253-268; Juan Miguel Gómez, et al., *The Semantic Web Services Tetrahedron: achieving integration with semantic web services*, 2004; Peter Mahaffy, *Moving Chemistry Education into 3D: a tetrahedral metaphor for understanding chemistry*, *J. Chem. Educ.*, 2006, 83)

Metaphorical use is made of the pyramidal form in reference to so-called **pyramid schemes**, namely a non-sustainable business model whereby participants are promised payment or services, primarily for enrolling other people into the scheme, rather than supplying anything in return.

Embodiment in organizing protocols: As in the case of more complex polygons, the explicit metaphorical use of complex polyhedra is rare. Rather than being embodied in the architecture of buildings however, they tend to be embodied as fundamental to the organization of computer memory and programming algorithms -- with such use possibly described as "metaphor".

An interesting exception is the use of the icosahedron as fundamental to the organization initiatives developed using the "syntegration" process following the work of **Stafford Beer** (*Beyond Dispute: the invention of team syntegrity*, 1994)

Integration: The progressive complexity of symmetrical polyhedra raises the question as to the nature of the integrative insight and coherence they may successively enable, and the challenge of engaging with it effectively (*Coherent Value Frameworks: pillar-ization, polarization and polyhedral frames of reference*, 2008; *Polyhedral Empowerment of Networks through Symmetry: psycho-social implications for organization and global governance*, 2008).

Of particular relevance is the sense in which such progressive complexification approximates increasingly to the form and cognitive implications of a sphere. However, whilst the polyhedral form offers articulation of complexity with the explicit challenge of comprehension, the sphere implies a degree of integrative comprehension -- but without suggesting that there is any such challenge (*Dynamics of Symmetry Group Theorizing*, 2008).

As is the case of polygons, of interest in this respect is the coherence that might be associated with the **insphere**, **midsphere** or a **circumsphere** of a polyhedron.

Comprehension framed by "Sphere"

This section is a development of arguments made previously (*Cognitive Crowns: all-encompassing, well-rounded experience*, 2009)

Globalization: This form is clearly of the most fundamental importance to any discussion of the world or its "globalization" -- with all the cognitive challenges that this implies with respect to understanding of the diurnal rhythm, the seasons or time zones. It is curiously contrasted with efforts to define the world as flat (*Irresponsible Dependence on a Flat Earth Mentality -- in response to global governance challenges*, 2008).

Domain of influence: The form is most notably used in recognition of a "**sphere of influence**", typically with respect to the foreign policy of states, but also evident in that of other collectivities, whether social or ideological. Academic disciplines may be understood in

terms of their sphere of influence, notably in institutional contexts and with respect to their contribution to the articulation of strategy. Curiously there is no question of any cognitive challenge corresponding to "seasons" or "time zones", in fact it is quite unclear in what "space" the "sphere" is influential or what dynamics of the sphere merit consideration.

Such a sphere may be sensed with respect to the power of an individual in any psychosocial context. It may then be reflected in the experience of "home" and through the process of "home-making", whether understood physically or in psychosocial terms (J.R. Miller, *Home Making*, Presbyterian Board of Publication, 1882). It may be understood as a "cocoon". This is indicative of the manner in which a sphere is associated with a cognitive comfort zone -- necessarily more all-encompassing than the circle.

Completion and fulfillment: It is the sense of the possibility of an even more encompassing comfort zone that is offered by insights regarding the nature of a "Garden of Eden" and "Heaven" -- even of a Theory of Everything. The credibility of a more integrative "container" is reinforced by any unconscious memories of the comforts of the womb from which all have been ejected (as noted above). As suggested above, the sense in which such a sphere encompasses everything is reminiscent of efforts to conceptualize a multiverse -- whether it is of spherical, toroidal or other form.

Ball games: The future may see a fundamental irony in the currently much-challenged governance of global civilization co-existing with a deep and widespread attachment to **ball games** (tennis, golf, football and basketball, etc) -- all involving the dynamics associated with controlling movement of a sphere, notably amongst members of a team or between competitors. In the development of children, this may well be preceded by a focus on **marbles**. Those dynamics are of course far more intensively and systematically studied -- and widely communicated comprehensibly -- than is the case with respect to the dynamics of global governance.

To improve their competence, players are notably encouraged to explore their "inner game". There is a further irony to the fact that the ball may be constructed according to a polyhedral pattern (*Understanding Sustainable Dialogue: the secret within Bucky's Ball*, 1996). The future may explore the extent to which the world was effectively "kicked around like a ball" -- a collective projection into games with balls or marbles of intuited possibilities of more appropriate understanding of the challenges of "global" governance.

It remains a matter of speculation the extent to which cognitive engagement with a ball is influenced by the early encounter of sperm and ovum. The successful outcome may be explored in terms of the metaphorical significance of **invagination**, as discussed separately (*Engendering Invagination and Gastrulation of Globalization*, 2010).

Comprehension framed by "Torus"

This section is a development of arguments made previously (*Knowing Thyself: embodying engagement with otherness*, 2009)

The significance of the form is most widely associated with the wheel, whether as used in transportation or in its symbolic connotations. The form as such, but not the term, is widely recognized in personal decoration -- as with bracelets and torcs. As headgear of special significance may be associated with its use to form a crown (*Implication of Toroidal Transformation of the Crown of Thorns*, 2011). Although used in certain games (quoits, etc), unlike the ball, this has not given rise to cognitive connotations. Of particular interest is any recognition of a circlet of "prayer beads" or "worry beads" as a form of torus, given their role in practice, as separately discussed (*Designing Cultural Rosaries and Meaning Malas to Sustain Associations within the Pattern that Connects*, 2000)

It is primarily from the toroidal dynamics observable in nature (whirlpools, hurricanes, etc) that cognitive implications are drawn. This to be seen in the metaphorical use of those phenomena in relation to psychosocial phenomena (financial hurricane, whirlpool of activity, etc). (*Complexification of Globalization and Toroidal Transformation*, 2010). The dynamic is poignantly depicted in the the famous poem, especially the much-quoted last lines, of William Butler Yeats (*The Second Coming*, 1919), which starts:

*Turning and turning in the widening gyre
The falcon cannot hear the falconer;
Things fall apart; the centre cannot hold;
Mere anarchy is loosed upon the world,
The blood-dimmed tide is loosed, and everywhere
The ceremony of innocence is drowned;
The best lack all conviction, while the worst
Are full of passionate intensity.*

Conclusion

The argument above is an invitation to a much more systematic treatment. This is consistent with the argument of Christopher Alexander for an approach based on geometric adaptation (*Harmony-Seeking Computations: a science of non-classical dynamics based on the progressive evolution of the larger whole*, *International Journal for Unconventional Computing*, 2009) as discussed separately (*Harmony-Comprehension and Wholeness-Engendering: eliciting psychosocial transformational principles from design*, 2010).

Possible implications are discussed in the development of the argument in the main paper which provides a context for the above exploration (*Way Round Cognitive Ground Zero and Pointlessness: embodying the geometry of fundamental cognitive dynamics*, 2012). Issues developed there include: implication of identifying with particular forms; role of forms with respect to "world-making" and a sense of property; and transformation between modes of "thoughtful identification" with such forms. Of potential significance are the possibilities -- already evident in design -- of development beyond the conventional usage noted above, as discussed there with respect to:

- **polyhedra:** *Towards Polyhedral Global Governance: complexifying oversimplistic strategic metaphors*, 2008; *Topology of Valuing: psychodynamics of collective engagement with polyhedral value configurations*, 2008; *Polyhedral Empowerment of*

Networks through Symmetry: psycho-social implications for organization and global governance, 2008; *Global Street Twimming in Polyhedral Configurations*, 2009.

- **toroidal and spiral forms**: *Enabling Governance through the Dynamics of Nature: exemplified by cognitive implication of vortices and helicoidal flow*, 2010; *Adaptive Hypercycle of Sustainable Psychosocial Self-organization*, 2010
- **paradoxical forms**: *Strategic Complexity ∞ Attracting Consensus: Klein is beautiful ∞ Sustaining identity in time*, 2011; *Transcending One-eyed Global Modelling Perspectives*, 2010

As indicated, the metaphorical use of the geometric forms above suggests the need for a focus on a "language" complementary to that of "literacy" and "numeracy", namely one that might be termed "**formation**". This would be a "language" offering insight into the manner in which form emerges and is recognized -- especially with respect to the frameworks through which strategy is articulated. Faint echoes of this are to be found in preoccupation with "**formation flying**" and in **military formations** -- both being ironically characteristic of parades -- as with the formations characteristic of some team sports.

It is curious that "points" remain the focus of agreement and disagreement in strategic discourse. Metaphorically there is a strange relationship between the "key points" of such discourse and the "notes" taken to record it in the "minutes" of the meeting -- in the light of an implicit shift to the use of musical metaphors. In a quest for "harmony", emphasis is placed on the "tone" of the meeting, possibly enabled by a "keynote speaker" -- but without any recognition of the forms supportive of that "harmony" and meaningful to the "audience". This justifies Alexander's argument for more extensive geometry-based *Harmony-Seeking Computations* (2009) -- and for exploration of the relation of geometrical insight to the sense of order carried by music, as separately discussed (*A Singable Earth Charter, EU Constitution or Global Ethic?* 2006; *Enabling a 12-fold Pattern of Systemic Dialogue for Governance*, 2011).

Many are faced with the question of "what's the point" of the current approach to global governance strategies based as they are on demonstrably outmoded mindsets. The concern here is what is indeed the "point" about which that question is asked.

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