



laetus in praesens

Alternative view of segmented documents via Kairos

7 April 2014 | Draft

Now as the Ultimate Cognitive Strange Attractor

A continuing invitation "down the rabbit hole"?

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Annex to *Being neither Dead nor Alive: but how to know now?* (2014)

Introduction

The main paper clarifies understandings of "feeling alive" and "feeling dead" in this strange period, and the associated ambiguities, as a means of framing the strange experience of "now". That argument concluded with sections on:

- [Quest for life -- and feeling alive](#)
- [Quest for death -- and the significance of closure](#)
- [Excessive complexity engendering collapse](#)
- [Sensing personal "world lines" and identifying with their convergence](#)
- [Being alive through centering?](#)

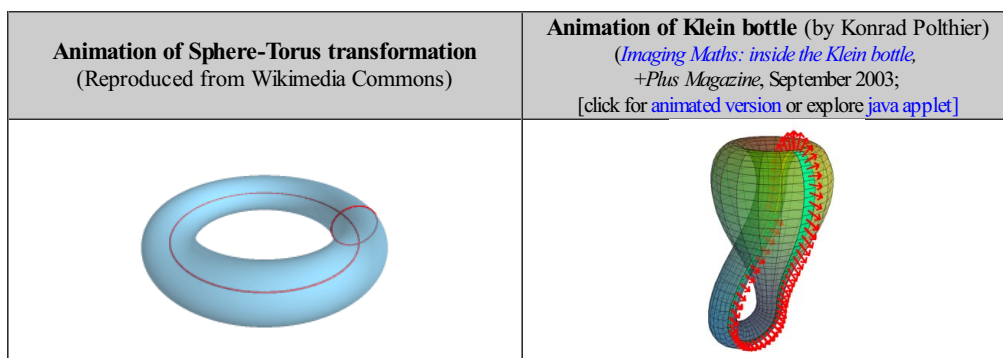
The latter section drew attention to the existence of unusual geometric forms which could serve metaphorically as "containers" for cognitive engagement with "now" -- and to the challenge of their comprehension. This was seen as a key to enabling and enhancing the sense of "feeling alive".

This argument is developed further here by reframing "centre" as a curious form of "hole" which, like the [black holes](#) of astrophysics, functions cognitively as a [strange attractor](#). As such, in the moment, the experience of "now" is a continuing invitation to "go down the rabbit hole" -- as framed for children by [Charles Lutwidge Dodgson](#) under the pseudonym [Lewis Carroll](#) (*Alice's Adventures in Wonderland*, 1865). Dodgson was a mathematician and logician (*The Game of Logic*, 1887).

Entering a "rabbit hole" has been understood as framing a period of chaos or confusion -- appropriate to the current condition of global civilization and the challenge of individual response to it. The phrase has featured as the subtitle of a DVD version of the much-cited film *What the Bleep Do We Know!?* (2004), *What the Bleep! Down the Rabbit Hole - Quantum Edition* (2006), following a book version *What the Bleep Do We Know!? Discovering the Endless Possibilities of Your Everyday Reality* (2005). This combines documentary-style interviews, computer-animated graphics, and a narrative that posits a spiritual connection between quantum physics and consciousness - framed as the foundation of future thought.

Challenging conventional understandings of centre

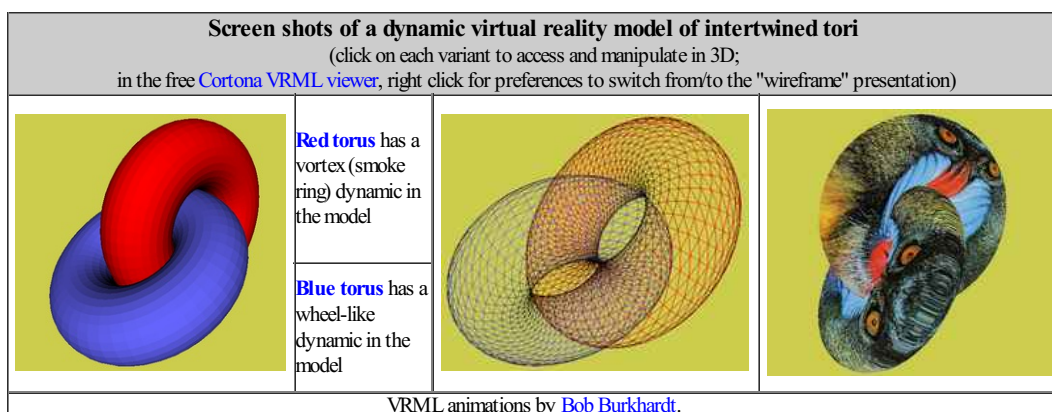
The following images serve as an introductory illustration of some alternative framings of "centre" in relation to "hole". They derive from arguments presented separately (*World Introversion through Paracycling: global potential for living sustainably "outside-inside"*, 2013).



The implications of the toroidal features of the images above have been developed separately and more specifically in:

- *Comprehension of Requisite Variety for Sustainable Psychosocial Dynamics: transforming a matrix classification onto intertwined tori*, 2006
- *Enabling Wisdom Dynamically within Intertwined Tori: requisite resonance in global knowledge architecture*, 2012
- *Experience of Cognitive Implication in Fundamental Geometry: unexamined metaphoric framing of strategic discourse*, 2012
- *Implication of Toroidal Transformation of the Crown of Thorns: design challenge to enable integrative comprehension of global dynamics*, 2011

The images below -- intertwining two tori -- are suggestive of the implications of "going down" any "cognitive "rabbit hole".



Experiencing "now" through questions rather than answers

The importance of "now" is a theme explored by several authors (Eckhart Tolle, *The Power of Now: a guide to spiritual enlightenment*, 1997; Peter Russell, *Spirit of Now*; Peter Senge, et al, *Presence: human purpose and the field of the future*, 2008). Potentially more relevant to the sense of "feeling alive" for many, it is the principal theme of [many songs](#) -- characterized to a remarkable degree by WH-questions aroused by romantic relationships. The issue here is how focus is given through questions on the nature of "now" in feeling alive. The potential of questions in this respect has also been considered separately in relation to "enlivening" organizations (*World Futures Conference as Catastrophic Question: from performance to morphogenesis and transformation*, 2013). There is a case for exploring "now" as a question rather than an answer.

Physics frames reality objectively in terms of a complex known as [space-time](#) -- combining space and time into a single interwoven continuum. This essentially fails to address the question of how it is possible to feel alive within this context. The argument can however be developed by recognizing that "space" implies the question "where" and "time" the question "when" -- both being questions significant to the immediate sense of being alive. This suggests the merit of recognizing the role of other key questions vital to that experience. Commonly recognized are the so-called WH-questions, of which (as discussed below) there are possibly seven: *where, when, what, which, who, why, and how*.

Some possibilities are indicated by the following:

- *Strategic Implications of 12 Unasked Questions in Response to Disaster*, 2012
- *Generating a Million Questions from UIA Databases: Problems, Strategies, Values*, 2006

Cognitive catastrophes and their associated questions?

Catastrophes? Questions can be compared to "cognitive catastrophes" through the existential disruption with which they are associated. As separately argued (*Cognitive Feel for Cognitive Catastrophes: Question Conformality*, 2006), a sense of the characteristics of such cognitive feel for discontinuity or disharmony may be obtained from personal recollection of the joy (or agony) occasioned by the following common WH-questions:

- **When:** When will he/she telephone? When will we have a child? When will I have a relationship? -- *When am I authentic / real / sincere?* -- **When is the discontinuity apparent?**
- **Where:** Where will I get a job? Where will I find shelter / food / help / security? Where can I get a drink / "fix"? -- *Where am I at home?* -- **Where is the discontinuity apparent?**
- **Which:** Which object should I purchase? Which partner should I choose? Which job should I accept? Which restaurant / party / cafe should we go to? -- *Which person am I?* -- **Which approach mitigates the discontinuity?**
- **How:** How should I achieve my goal? How should I protect myself? How should I express myself? -- *How am I?* -- **How can the discontinuity be handled and navigated?**
- **What:** What does it mean? What to do? What to say? What to believe? -- *What am I? What are you?* -- **What is the discontinuity evoking the question?**
- **Who:** Who to contact? Who to trust? Who is coming? Who is going to leave? -- *Who am I? Who are you?* -- **Who engendered the discontinuity evoking the question?**
- **Why:** Why am I doing this? Why did I do that? Why do I want this? Why did this happen to me? -- *Why am I (alive)?* -- **Why is a discontinuity apparent?**

The Who and What variants notably reflect the self-reflexive challenge to the objective certainty assumed in the typically external focus of Which and How. The latter readily assume Who and What to be knowns in any decision-making context -- ignoring (existential) uncertainties potentially addressed by Who and What.

Semiophysics: Understood as catastrophes, there is a case for exploring the sense in which they may correspond to the 7 so-called "elementary catastrophes" of catastrophe theory, as elaborated by René Thom (*Structural Stability and Morphogenesis*, 1972). The possibility was explored separately (*Conformality of 7 WH-questions to 7 Elementary Catastrophes: an exploration of potential psychosocial implications*, 2006) and gave rise to the following table.

Thom's later work highlighted the possibility of "semiophysics" as a general theory of intelligibility (*Semiophysics: a sketch*, 1990; Jean Petitot, *La Semiophysic: del a physique qualitative aux sciences cognitives*, 1994; Peeter Mürsepp, *Semiophysics as a Theoretical Basis for Scientific Creativity*, 1998; F.T. Arecchi, *Complexity and emergence of meaning: toward a semiophysics*, 2001)

WH-questions in relation to the "elementary catastrophes" of catastrophe theory (adapted from René Thom, with addition of tentative cognitive correspondence to WH-questions)							
Singularities "catastrophes"	Organizing centres	Physical examples (substantives)	Dynamics	Archetypal morphologies		WH-questions	
				Destructive	Constructive	Question	Property
Fold	$V=x^3$	Edge, end; refraction of sunlight by raindrops to form a rainbow	Being	Ending	Beginning	When	<i>Time</i>
Cusp	$V=x^4$	Fault; geological fault; transitions from flight to fight, love to hate, and anxiety to calm in man and animals	Becoming	Capturing, Separating, Breaking	Engender, Uniting, Becoming	Where	<i>Location</i>
Swallowtail	$V=x^5$	Slit, crack; behavior patterns in some human nervous disorders; structural stability and buckling	Agitate	Rejecting, Tearing, Splitting	Crossing, Knitting	Which (Whether)	<i>Distinction</i>
Butterfly	$V=x^6$	Pocket, shell; structural stability and buckling	Give	Sending, Scaling, Exfoliating	Receiving, Giving	How	<i>Dynamic</i>
Hyperbolic umbilic	$V=x^3+y^3$	Arch; collapse of bridges; development of sonar devices	Cresting wave	Collapsing, Breaking (wave), Breaking down	Covering	What	<i>Typology, Taxonomy Nomenclature</i>
Elliptic umbilic	$V=x^3-3xy^2$	Needle, hair; flow of fluids	Penetrate	Piercing	Filling, Annihilating	Who Whom Whose	<i>Identity, Nomenclatura, Authenticity</i>
Parabolic umbilic	$V=x^2y+y^4$	Fountain, mushroom, mouth; atmospheric fronts; problems in the field of linguistics; elastic stability	Eject	Lancing, Pinching	Linking, Opening	Why Wherefore	<i>Reason, Symbolism, Auspiciousness Value Aesthetic</i>

Variety of questions: Clearly both the number of "WH-questions" and their association with catastrophes could be challenged. The association does however suggest a means of clarifying the distinctions between the questions. The number cited seems to vary in the literature. The Wikipedia entry on the *Five Ws*, adds a single "H", but offers an extensive discussion (with valuable historical references) which could extend or limit the array. It could be argued that the distinctions are subject to the strictures of the much-cited paper of George Miller (*The Magical Number Seven, Plus or Minus Two: some limits on our capacity for processing information*, *Psychological Review*, 1956). Identification of key questions could extend to criminal investigation and intelligence gathering.

Useful indications are offered by the following contrasts:

- MediaCollege.com: *How to Write a News Story: The Five "W"s and the "H"*, arguing that this is the crux of all news: Who? What? Where? When? Why? How?

- Douglas Gilbert: *WH-questions: Who, What, Where, Why, Which, When or How, Activities for ESL Students*, 1997
- *7 Key Questions: Who, What, Why, When, Where, How, How Much? Consultants Mind: thinking through the problem*, 7 March 2013
- Lifehack.org: *Who? What? When? Where? Why? Questions to Ask BEFORE Asking "How" to Live Your Life*, 31 December 2013
- Englishpedia.org: *WH-question Words: what, where, when, why, who, whose, which, how*.
- The Right Questions: *From Crisis Management to Organisational Development: what are the right questions?* 24 September 2012

Arguments favouring 5 Ws (with an H) tend to conflate "what" and "which" from the array of 6 Ws (with an H).

Inappropriate variety? This argument, as with previous discussion, therefore focuses on 7 WH-questions with the potential implication that omission of any one of them may be indicative of a degree of questioning inadequacy in relation to the experience of "now". For example, any tendency to omit "which", notably by journalists, would be indicative of a failure to address a fundamental challenge of decision-makers confronted by a variety of options (elicited and distinguished by "what?").

The argument can be developed through considering how the consequence of intelligence gathering (of relevance to "how") may be variously distorted by omission of one (or more) of the WH-questions in the array. More problematic, what is the consequence of deliberately designing one (or more) questions "off the table", as variously explored separately (*Lipoproblems: Developing a Strategy Omitting a Key Problem*, 2009; *Strategic Implications of 12 Unasked Questions in Response to Disaster*, 2013; *Systematic Gerrymandering of Declared Threats and Legality of Response*, 2013).

The issue can be explored from a cybernetic perspective through the following question: **what is the requisite variety of questions to sustain a meaningful sense of "now"?** With respect to the viability of any whole, this could be framed as the variety required to avoid some form of "cognitive paraplegia".

The Teaching of Learning Center of the University of Nevada notes that: *Research on the questions teachers ask shows that about 60 percent require only recall of facts, 20 percent require students to think, and 20 percent are procedural in nature (Question Types)*. In providing guidance for interviews, the Student Success Center of the Western Student Services of Canada distinguishes: behaviour-based questions, situational/hypothetical questions, skill-testing questions, problem-solving questions, case based interviews, traditional questions, and illegal questions (*Types of Questions*). A communications training website asks: *Do You Ask a Variety of Questions or the Same Old Ones?* Irene Koshik explores how questioning may be essentially rhetorical, designed to make assertions rather than elicit new information (*WH-questions used as challenges, Discourse Studies*).

Of particular interest is the possibility that there are other forms of WH-question considered significant in other languages and cultures -- beyond the set of seven noted above (L. L.-S. Cheng, *On the Typology of WH-Questions*, 1991; Gabriela Soare, *A Cross-linguistic Typology of Question Formation and the Antisymmetry Hypothesis, Generative Grammar in Geneva*, 2007). What is the consequence of neglecting them in discourse intended to be of global import? Unfortunately the extensive literature has a formal preoccupation and is only incidentally concerned, if at all, with any unusual experiential relevance of such questions.

Expressed otherwise, how might a much larger array of questioning modalities be "collapsed" into an array of a particular size (such as 7, plus or minus 2) -- or "expanded" to a larger array? What then is the consequence of the loss of the variety inherent in the larger array, or its associated loss of the focus provided by a smaller set? Such questions suggest that any array of WH-questions might be fruitfully and self-reflexively applied to its own elaboration. Can it be said that new varieties of question have been discovered, of a kind implying cognitive processes ignored in English -- questions with strategic implications in the moment?

Answers as assumptions: Another approach might be to consider how the condition of "now" could be framed by unasked questions, namely by answers implied or assumed, rendering questioning unnecessary and inappropriate. This has notably been considered in terms of Max Weber's vision of an "iron cage" of rationalization, and Michel Foucault's *carceral archipelago*. This too might have cultural implications. These are usefully suggested by languages which have relatively few words to distinguish those colours considered quite distinct otherwise -- through their names in other languages. What kinds of answers are considered unquestionable? Assumed answers -- to who, when, where, what, which, why and how -- then effectively provide a cognitive container rigidly defining aspects of "now". What ("iron") containers go unchallenged by questions, since "now" is then an effectively "frozen" category -- and possibly then of wider concern (*Framing the Global Future by Ignoring Alternatives: unfreezing categories as a vital necessity*, 2009)?

Configuration of question-pairs

Multiple WH-questions: Use of **space-time** as a continuum is a highly significant pairing for fundamental physics, together with the related understanding it offers of **world lines**. This suggests the value of pairing **where-when** and the other WH-questions. Literature of some relevance considers "multiple WH-questions" within the same phrase (Catherine Rudin, *On Multiple Questions and Multiple WH-fronting, Natural Language and Linguistic Theory*, 1988; Marina Stoyanova, *The Typology of Multiple WH-questions and Language Variation*).

As discussed in the main paper, world lines may be understood as having personal experiential implications, suggesting that question-pairs are potentially indicative of their cognitive implications and "feel". Within one's own world, such "lines" might fruitfully be understood as associations and correspondences by which imagination is transported "globally". With any reference to "capturing the imagination", the imagination is then usefully understood to be captured by (complex bundles) of such world lines.

So paired, the the 7 WH-questions give rise to the 42 pairs in the following table. These are reduced to 21, if (for example) when-where and where-when are treated as a single pair. The 21 are then in the portion of the table beneath the diagonal below).

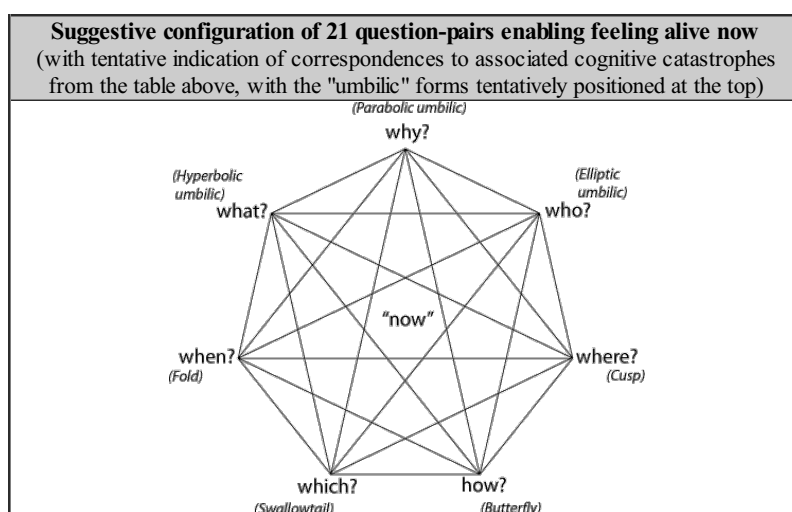
Enabling question-pairs in feeling alive						

	when?	where?	which?	how?	what?	who?	why?
when?	--						
where?		--					
which?			--				
how?				--			
what?					--		
who?						--	
why?							--

The set of 21 pairs provides a context, perhaps to be understood as a strange form of cognitive container -- a dynamic frame for the sense of feeling alive "now" through the active, moment-by-moment engagement with these questions. As such they offer an immediate challenge to any definitive answer implying closure, as highlighted by the Sanskrit adage *Neti Neti* -- not this, not that.

The resulting dynamic could be construed as a form of "science" based on questioning rather than one preoccupied with the closure of answering. This is perhaps to be understood as creative ignorance ("nescience"), following the style of *apophatic discourse* with its particular implications for identity (*Being What You Want: problematic kataphatic identity vs. potential of apophatic identity?* 2008).

Configurative container: The nature of the container is suggested by the following configuration.



Uncertainty implicit in question pairing: The implication of the Heisenberg *Uncertainty Principle* have long been accepted with respect to a fundamental property of reality as framed by quantum systems, however this may be confused with arguments relating to observation of that reality. The principle relates to the uncertainty of knowledge of position in space and time -- knowledge of one rendering uncertain (to some degree) any precise knowledge of the other.

Having associated the question-pair where-when with space-time, there is a case for recognizing that the principle applies in some measure with respect to questions relating to the dimension with which the pair is associated. The argument may then be applied to the other dimensions with which the other question-pairs are associated -- as presented schematically above. Some form of "uncertainty principle", more generally understood, may apply in each case.

- **when** in relation to:
 - where: as argued above
 - what, who, which, how, and why -- by extension of the case with respect to where
- **where** in relation to:
 - when: as argued above
 - what, who, which, how, and why -- by extension of the case with respect to when
- **how** in relation to where, when, what, who, which, and why, especially in the light of typical challenges to any proposed methodology in terms of appropriateness of context
- **what** in relation to where, when, how, who, which, and why, especially in the light of typical challenges to any answer to "what" in terms of definition, understanding and appropriateness -- most notably when what is of an unforeseen, surprising nature, fitting readily within no conventional categories
- **who** in relation to where, what, when, how, which, and why, especially in the light of challenges to identity and uncertainty in that regard, whether on the part of the questioner or for whoever is framed by a possible answer
- **which** in relation to where, what, who, when, how, and why, especially in contexts rendering the process of decision-making (regarding choice of "which") problematic, or subject to challenge -- as in many political processes
- **why** in relation to where, what, who, when, how, and which, especially in contexts characterized by lack of clarity as to any justification or explanation

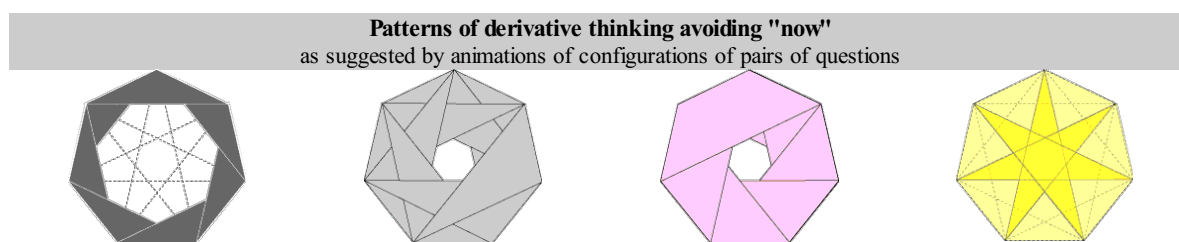
The challenge is all the more evident if the question-pairs are understood as unidimensional -- as the lines in the schematic above suggest. The argument is well-made in speculative consideration by mathematicians of entities living on a line in a linear reality -- and their interaction with two- and three-dimensional entities. Whilst this may clarify the where-when case of space-time, the issue here is how analogous insights might apply to the other cases indicated above. Arguably many have direct experience of the uncertainty and

ambiguity characteristic of the situations framed above. There is no lack of reference to the challenges of uncertainty at this time (Jonathan Fields, *Uncertainty: turning fear and doubt into fuel for brilliance*, 2012; Susan Jeffers, *Embracing Uncertainty: breakthrough methods for achieving peace of mind when facing the unknown*, 2004; M. Granger Morgan, et al, *Uncertainty: a guide to dealing with uncertainty in quantitative risk and policy analysis*, 1992; Dennis V. Lindley, *Understanding Uncertainty*, 2006; C. Namwali Serpel, *Seven Modes of Uncertainty*, 2014). There is clearly a case for confronting the distinctions made in the latter with those highlighted in relation to questions.

Patterns of questions indicative of the subunderstanding of now

The configuration above is of interest in that the relational lines could be used to distinguish a pattern of outlying zones (perhaps to be variously shaded in the image, as shown below). These would be indicative of a focus of partial attention, less intimately related to a more integrative sense of being alive "now". Following the argument of the main paper, they could be explored in terms of degrees of "feeling dead" in that the dynamic associated with particular questions is ignored -- perhaps through dependence on particular answers and the assumption that they should not be "called into question".

The four animations are based on 3 or 4-fold configurations of distinct pairs of questions from the image above. They might be understood as different ways of avoiding "now", or of forms of the "subunderstanding" of concern to [Magoroh Maruyama](#) (*Polyocular vision or Subunderstanding? Organization Studies*, 2004). The animations offer a sense of different styles of the derivative thinking discussed separately (*Vigorous Application of Derivative Thinking to Derivative Problems*, 2013). Rather than "derivative", such thinking might be described as "peripheral" to that required to enable and enhance a sense of "now".



The elements of the animations could of course be "woven" together into a single more complex animation, phasing the dynamics in a variety of suggestive ways, as argued more generally (*Interweaving Thematic Threads and Learning Pathways*, 2010).

If only for mnemonic purposes, there is a case for exploring the 21 pairs of questions as corresponding in some way to "cognitive vitamins" -- given arguments for correspondences between the pattern logic of the *I Ching*, the genetic code, and the amino acid vitamins essential to human life (Martin Schonberger, *I Ching and the Genetic Code*, 1992), as discussed with respect to *Enhancing the Quality of Knowing through Integration of East-West metaphors* (2000). The configurations above could then be understood as "cognitive vitamin complexes", thereby associating "cognitive vitamin deficiency" with Maruyama's subunderstanding.

Polyhedral configuration of questions

The 2-dimensional configuration above naturally raises the question as to how the pattern might be configured in a more integrative manner in a 3-dimensional representation. For it to be "more integrative", the relations between the question-pairs need to be held in ways which offer memorable insight into mutually reinforcing links -- readily lost in 2 dimensions. The concern would then be whether the 3-dimensional configuration constitutes a more appropriate container for the sense of "now" in the process of "feeling alive". The emphasis is on the identification of more appropriately facilitative mnemonic aids, as separately discussed (*In Quest of Mnemonic Catalysts -- for comprehension of complex psychosocial dynamics*, 2007).

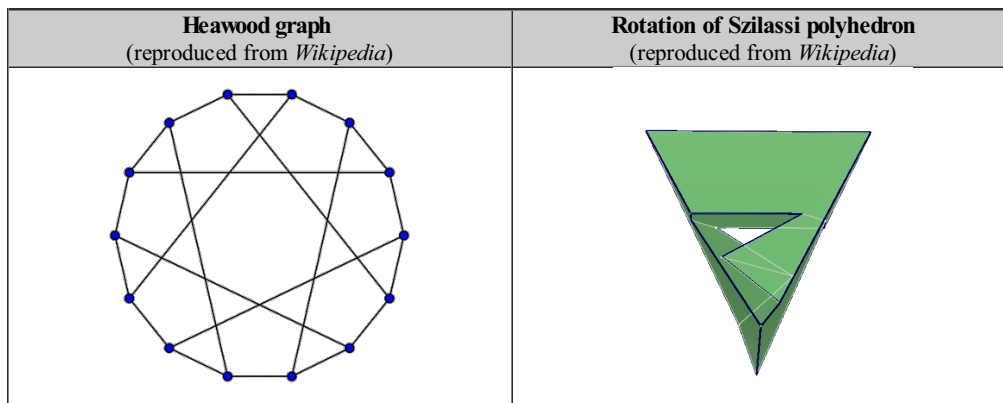
There is a certain irony to the arguments in the main paper regarding emergence of a cognitive "container culture" -- potentially well-framed by Max Weber's above-mentioned "iron cage" of rationalization -- given the typically polyhedral rectangular form of conventional containers and the global dependence on them. In terms of this argument, are their 6 sides, 12 edges and 8 vertices indicative of an overriding preference for a particular mode of organization and mapping -- with unexamined cognitive implications. The issue here might be framed in terms of **how to design more appropriate containers with more fruitful cognitive implications**. Also of relevance is the question as to why this is not considered?

As is evident by inspection, the configuration above can be understood as embedded in what is known as the [Heawood graph](#) (portrayed below). This is an [undirected graph](#) with 14 vertices (of 7 types) and 21 edges (of 12 types). It is a [toroidal graph](#), namely it can be embedded without crossings onto a [torus](#). As shown in the animation below, one embedding of this type places its vertices and edges into three-dimensional [Euclidean space](#) as the set of vertices and edges of a nonconvex polyhedron with the topology of a torus: the [Szilassi polyhedron](#) (one of the [Stewart toroids](#)). [*Thanks are due to Heiner Benking for triggering research into this possibility and its relation to previous discussion of orbifolds (see below)*]

Rather than associating each WH-question with a **vertex** (as in the 2-dimensional configuration above), each of the 7 WH-questions could then be associated with one of the 7 hexagonal **faces** -- of which there are 4 types (all of irregular shape). The [tetrahedron](#) and the Szilassi polyhedron are the only two known polyhedra in which **each face shares an edge with each other face** -- of significance to [graph colouring](#) and [map colouring](#). Its relatively comprehensible complexity, and the toroidal form, then offer a richer and more integrative framing of "now" in the light of the above argument. The **dual** to the Szilassi polyhedron is the [Császár polyhedron](#), which has no diagonals; every pair of vertices is connected by an edge.

Although seemingly obscure, the Szilassi polyhedron figures as one of the works of monumental art -- with the Mobius Strip -- in

[Reconciliation Place](#) (Canberra). This is located between the National Library and High Court of Australia, as a tribute to the Indigenous people of Australia.



A readily accessible interactive version of the Szilassi polyhedron is available (Lajos Szilassi and Sándor Kabai, *The Parametrized Szilassi Polyhedron*, Wolfram Demonstrations Project, 2008).

Musical implications of orbifolds for comprehension of questioning dynamics

The Heawood graph is a basic feature in discussion of the subtleties of [orbifolds](#) (for "orbit-manifold") in the mathematical disciplines of topology, geometry, and [geometric group theory](#). An orbifold is a generalization of a [manifold](#). It is a topological space (an "underlying space") with an orbifold structure. Seemingly incomprehensible to most, orbifolds have been applied to music theory, notably by [Dmitri Tymoczko](#) (*The Geometry of Musical Chords*, *Science*, 2006; *A Geometry of Music*, 2011). Given the above argument, the abstract is suggestive of the possibility that the distinctive cognitive feel for the WH question-pairs might be associated with chords:

A musical chord can be represented as a point in a geometrical space called an orbifold. Line segments represent mappings from the notes of one chord to those of another. Composers in a wide range of styles have exploited the non-Euclidean geometry of these spaces, typically by using short line segments between structurally similar chords. Such line segments exist only when chords are nearly symmetrical under translation, reflection, or permutation. Paradigmatically consonant and dissonant chords possess different near-symmetries and suggest different musical uses.

Engagement with music in the moment might be understood as the "art of now" -- a theme otherwise variously discussed (Jay Dixit, *The Art of Now: six steps to living in the moment*, *Psychology Today*, 1 November 2008). Music activates integrative associations and correspondences in the moment across the variety of modes of cognition. In framing "now", the "dimension" associated with any question-pair as a polarity might then be explored in terms of basic musical theory (*Polarities as Pluckable Tensed Strings: hypercomprehension through harmonics of value-based choice-making*, 2006).

A related study of potential relevance is that of [Guerino Mazzola](#) (*The Topos of Music: geometric logic of concepts, theory, and performance*, 2002). In eliciting a sense of "now", of particular concern is whether and how the "music" is capable of sustaining interest. The question could be considered a musical metaphor of the challenge of sustaining the sustainability which is the quest of global governance -- especially its cognitive sustainability. This is significant given the risk of its obsolescence, meaning how innovative concepts undergo a career of stages or phases, a life-cycle in other words -- as noted by [Johan Galtung](#) with respect to "concept careers" within the UN system (*Processes in the UN system*, 1980). Ironically the issue also relates to traditional implications of heavenly music and its eternal nature -- the music of immortality?

Given the widespread popular appeal of music to all sectors of society, the vulnerability of the current global civilization to catastrophic (over)simplification (discussed in the main paper), merits discussion in musical terms. Music and poetry offer means of encompassing complexity, as argued by [Gregory Bateson](#) in explaining why "we are our own metaphor" to a conference on the effects of conscious purpose on human adaptation:

One reason why poetry is important for finding out about the world is because in poetry a set of relationships get mapped onto a level of diversity in us that we don't ordinarily have access to. We bring it out in poetry. We can give to each other in poetry the access to a set of relationships in the other person and in the world that we're not usually conscious of in ourselves. So we need poetry as knowledge about the world and about ourselves, because of this mapping from complexity to complexity. (Mary Catherine Bateson. *Our Own Metaphor*, 1972, pp. 288-289)

Some possibilities have been discussed separately:

- *Being a Poem in the Making: engendering a multiverse through musing*, 2012
- *A Singable Earth Charter, EU Constitution or Global Ethic?* 2006
- *Poetic Engagement with Afghanistan, Caucasus and Iran: an unexplored strategic opportunity?* 2009
- *Poetry-making and Policy-making: arranging a marriage between Beauty and the Beast*, 1993

However both music and poetry also lend themselves to over-simplification inappropriate to the cognitive challenges of the time.

Hypothetically, what factors ensure that "heavenly music" -- the [music of the spheres](#) -- does not become boring in an eternal context?

With respect to a poetic approach to the set of questions, they have been famously memorialized for children by [Rudyard Kipling](#) in the following poem -- by implication in relation to combat in the Afghanistan arena. The decision-making emphasis of "Which" is notably absent.

<i>I Keep Six Honest...</i> by Rudyard Kipling from the <i>The Elephant's Child</i> , one of the <i>Just So Stories</i> (1902)	
<i>I keep six honest serving-men (They taught me all I knew); Their names are What and Why and When And How and Where and Who. I send them over land and sea, I send them east and west; But after they have worked for me, I give them all a rest.</i>	<i>I let them rest from nine till five, For I am busy then, As well as breakfast, lunch, and tea, For they are hungry men. But different folk have different views. I know a person small- She keeps ten million serving-men, Who get no rest at all!</i>
<i>She sends'em abroad on her own affairs, From the second she opens her eyes- One million Hows, two million Wheres, And seven million Whys!</i>	

Kipling's poem, more specifically regarding Afghanistan (*The Young British Soldier*, 1895), has recently been rewritten in the light of experience there (Ryan Kisiel, "[When you're lying alone in your Afghan bivvy...": British soldier re-writes Rudyard Kipling poem in damning attack on conditions](#), *Mail Online*, 4 August 2009).

Questions undermining integrative insight and initiatives

The seemingly obscure indication of catastrophes acquires considerable significance (as with the associated questions) in considering the preoccupations of those who most obviously exemplify a sense of being alive "now" -- namely those engaged in the visibly complex manoeuvres of extreme acrobatic sports ([snowboarding](#), [skateboarding](#), [skiing](#), [freestyle BMX](#), and [inline skating](#)).

The argument could be extended to certain [martial arts](#) and to the skills of [improvisation](#) (*Multivocal Poetic Discourse Emphasizing Improvisation: clarification of possibilities for the future*, 2012).

The sense of "now" in being alive is necessarily associated with an integrative cognitive dynamic, as is evident in the case of those sports and skills, and in the appreciation of music. In an earlier exercise a set of question-pairs was used to focus on the manner whereby any proposed integrative framework tends to be undermined -- effectively to collapse the associated potential.

Questions of confidence to which deficient integrity is vulnerable (reproduced from <i>In-forming the Chalice as an Integrative Cognitive Dynamic: sustaining the Holy Grail of global governance</i> , 2011)				
	where?	when?	which?	why?
who?	accredited where? <i>"unrecognized" institution?</i>	accredited when? <i>too new? too old?</i>	which school of thought? <i>a deprecated perspective?</i>	usual suspects? <i>other agendas?</i>
how?	impractical there? <i>facilities? know-how?</i>	premature? <i>too little, too late?</i>	how to decide? <i>how to reconcile alternatives?</i>	why that way? <i>how to know why?</i>
what?	appropriate there? <i>where to do what?</i>	appropriate then? <i>when to do what?</i>	which is appropriate? <i>what is best?</i>	why that? <i>what for?</i>

These may be considered variants of the fundamental concern at this time: *why should we have confidence, in what, and as proposed by whom?* This suggests that the configuration above can be explored as a container of confidence with which feeling alive is intimately associated. (*Primary Global Reserve Currency: the Con? Cognitive implications of a prefix for sustainable confidality*, 2011)

Implications of question configuration in practice

Framed by the above argument:

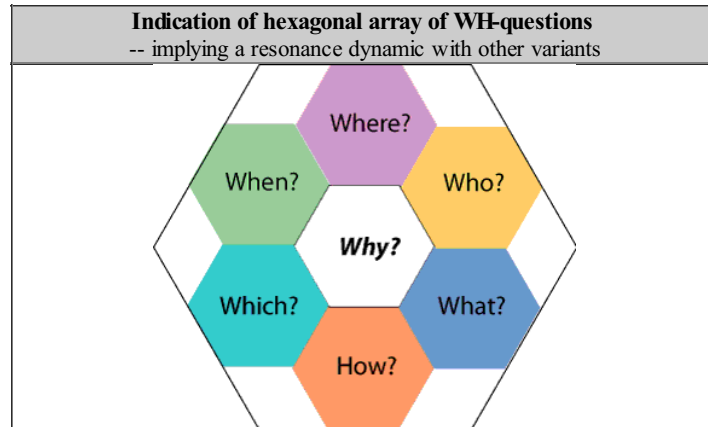
- the quest for **feeling alive "now"** recalls the symbolism (discussed in the main paper) of the quest for any pearl of truth or the Holy Grail, also explored separately in relation to cognitive catastrophes (*Interrelating Cognitive Catastrophes in a Grail-chalice Proto-model: implications of WH-questions for self-reflexivity and dialogue*, 2006). The associated symbolism of the chalice also merits consideration (*In-forming the Chalice as an Integrative Cognitive Dynamic: sustaining the Holy Grail of global governance*, 2011)
- challenges of **governance** are highlighted by the skills coordinated in the moment in the practice of extreme sports, as suggested with respect to the martial arts (*Ensuring Strategic Resilience through Haiku Patterns: reframing the scope of the "martial arts" in response to strategic threats*, 2006).
- preoccupation with **sustainability** merits exploration in terms of the dynamic associated with "now" and the potential loss of associated potential -- heralding collapse. This challenges:
 - the current emphasis on understandings of sustainability which depend primarily on growth (as in any [Ponzi scheme](#)), potentially to be caricatured by the attributes of aphrodisiacs (sustaining permanent "economic orgasm" and mitigating

- against "political erectile dysfunction").
 - the implicit tendency to envisage sustainability as primarily designed to favour human reproduction -- as the primary guarantee of permanent growth
 - the current framings of immortality, in the absence of any consideration of the "feeling alive" it might hope to sustain.
- the pattern of questions active in the moment, and thereby framing "now", can also be understood in terms of **ensuring focus** -- the forms of concentration necessary in extreme sports, for example. The experience of "feeling alive" then bears some resemblance to engaging in a cognitive dynamic usefully described by such terms as roiling and writhing. Some remarkable pointers to the achievement of such focus -- and of sustaining it -- are offered by the challenges of governing the dynamics of plasma (controlling the "snake") in a toroidal nuclear fusion reactor, as argued separately (*Enactivating a Cognitive Fusion Reactor: Imaginal Transformation of Energy Resourcing (ITER-8)*, 2006)
 - the curiously paradoxical role of emptiness and **nothingness** as characterizing a central point of reference. This suggests a poorly recognized relationship between the importance of nothing to (astro)physics, the existential nothingness characteristic of depression and despair, and the mystic preoccupation with emptiness (*Emerging Significance of Nothing*, 2012; *Import of Nothingness and Emptiness through Happening and Mattering*, 2008; *Paradoxes of Engaging with the Ultimate in any Guise: living life pefully*, 2012). The argument is well-made in the following quatrain by the polymath **Omar Khayyám**, as the famed author of the *Rubáiyát of Omar Khayyám*:

*And if the Wine you drink, the Lip you press,
End in the Nothing all Things end in -- Yes --
Then fancy while Thou art, Thou art but what
Thou shalt be -- Nothing -- Thou shalt not be less.*

Mapping of WH-questions with question-pairs onto a memorable polyhedron (a football)

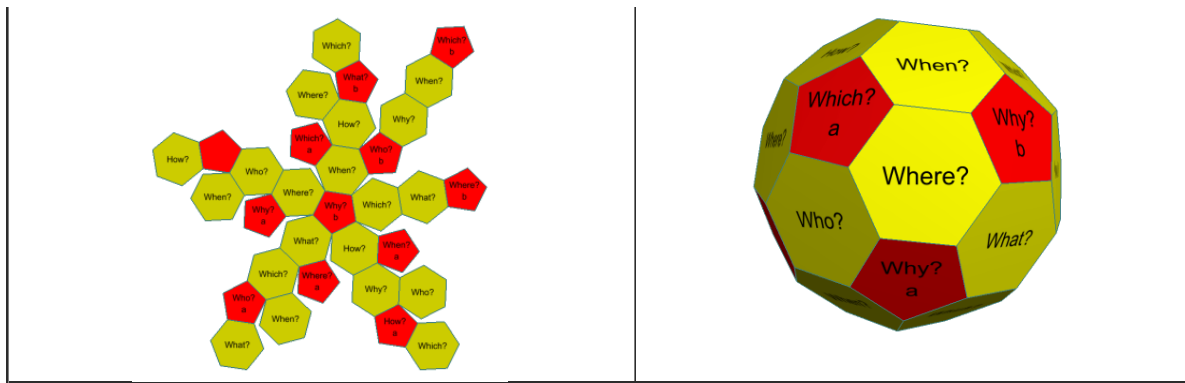
In the quest for ways of mapping WH-questions, and their pairing, one approach -- illustrated below -- is to configure 6 questions as hexagons. The contiguous edges then allow for mapping the question-pairs. However, the hexagonal metaphor privileges a single question -- the seventh at the centre. This suggests that this mapping is only useful if each question can take up the central position -- namely a dynamic mapping, rather than a static one. This could be valuable as a framing for the "now" which it is argued that the pattern of questions provides..



The possible dynamic would then be better understood by configuration in three dimensions as a polyhedron. One widely recognizable form, which lends itself to the hexagonal patterning, is the **truncated icosahedron** -- most commonly recognized in the pattern of stitching of a football. It has 20 hexagonal faces and 12 pentagonal faces. Attribution of 20 questions to the hexagonal faces recalls the spoken parlor game **Twenty Questions**, which encourages deductive reasoning and creativity.

In that case however, the different hexagonal patterns (each with a central WH-question) is separated from the others by pentagonal shape. The result is illustrated in the image and animation below. A preliminary assumption is made that each WH-question can figure twice at the centre of a hexagonal pattern -- hence the indication of "a" and "b" variants. The two variants may well distinguish orderings of the hexagons around of different significance around each pentagon -- within the pattern as a whole.

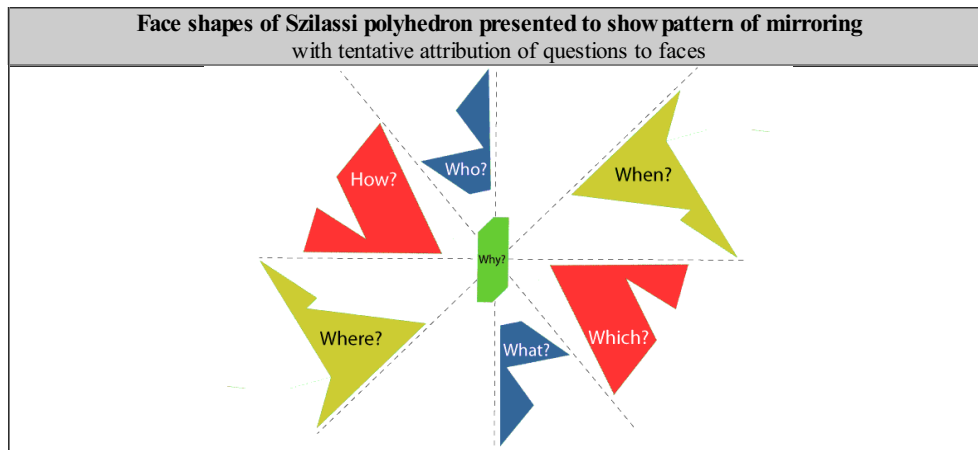
Preliminary exercise in mapping WH-questions onto faces of a truncated icosahedron	
2-dimensional unfolded net presentation	Animation of polyhedron



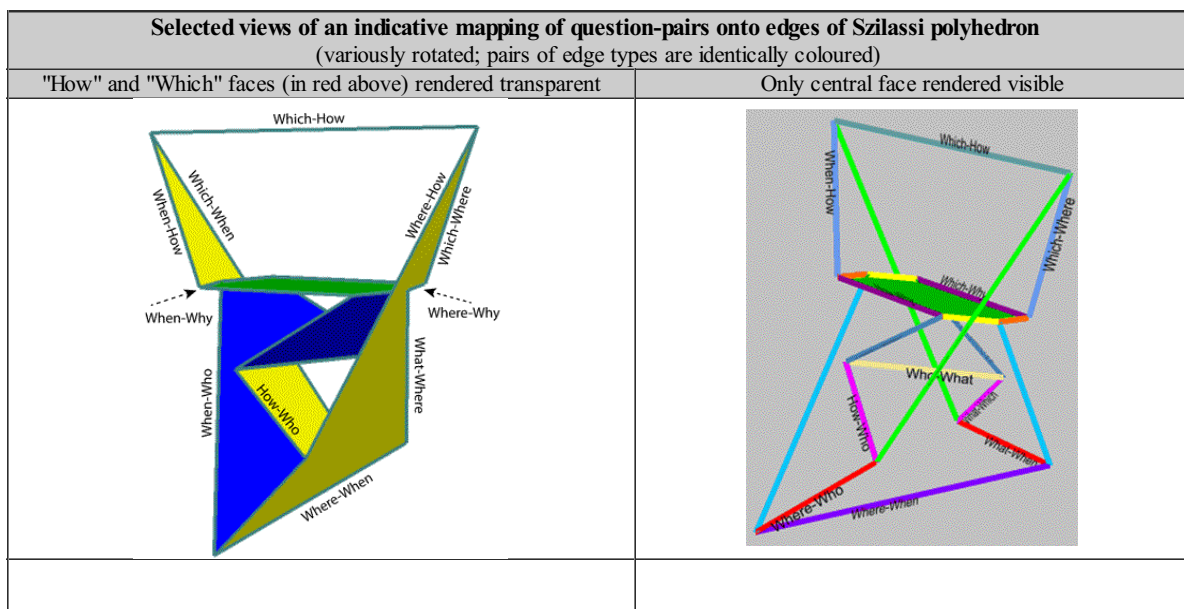
These are **tentative exercises** which contain problematic conditions on inspection. They may call for "adjustment" as with manipulation of a [Rubik cube](#).

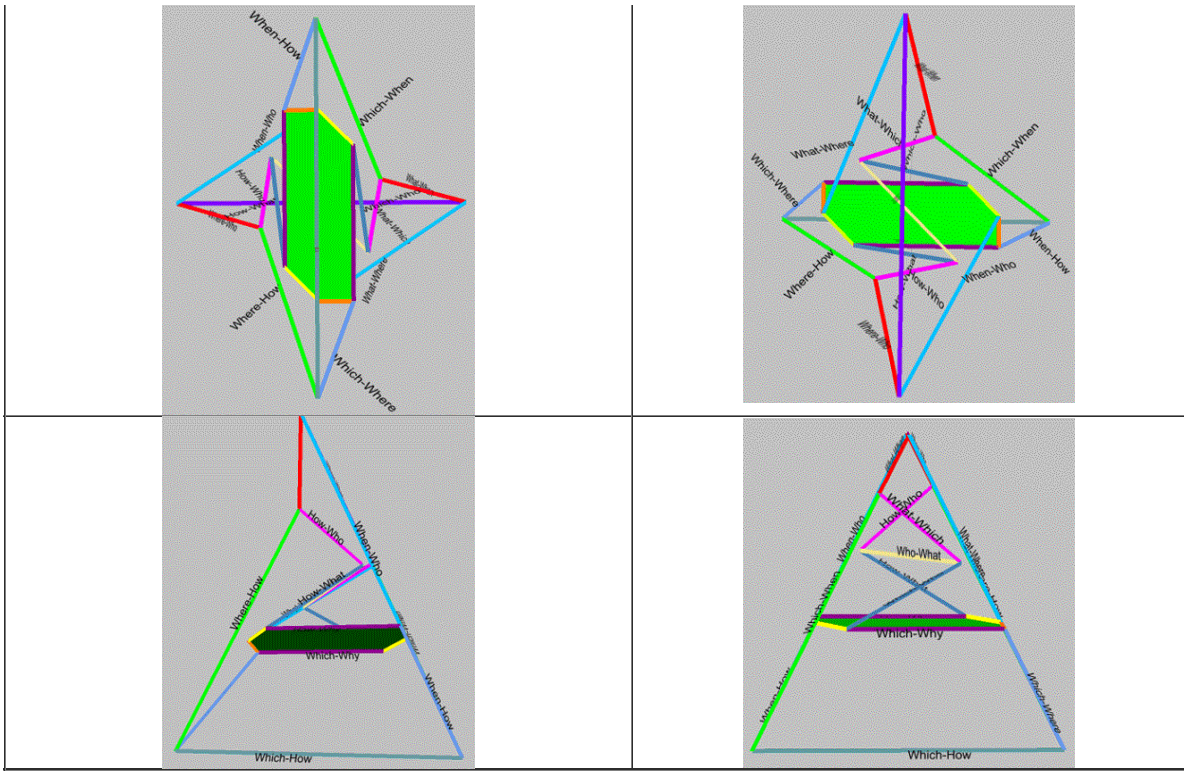
Mapping of WH-questions with question-pairs onto the Szilassi polyhedron

Mirror pairing: As a more appropriate mapping surface, the Szilassi polyhedron (presented earlier as an animation) is indicative of its challenge to comprehension. However the symmetry of that polyhedron, facilitating its comprehension, is evident from the image below through the manner in which the shapes of 6 faces are paired as mirror images. Only one of the 7 faces is unpaired. As a preliminary exercise, each of the WH-questions is arbitrarily mapped onto a face. The following **images and animations have been prepared with the aid of the remarkable Stella: Polyhedron Navigator software**, produced by Robert Webb (*Stella: Polyhedron Navigator, Culture and Science*, 2000).

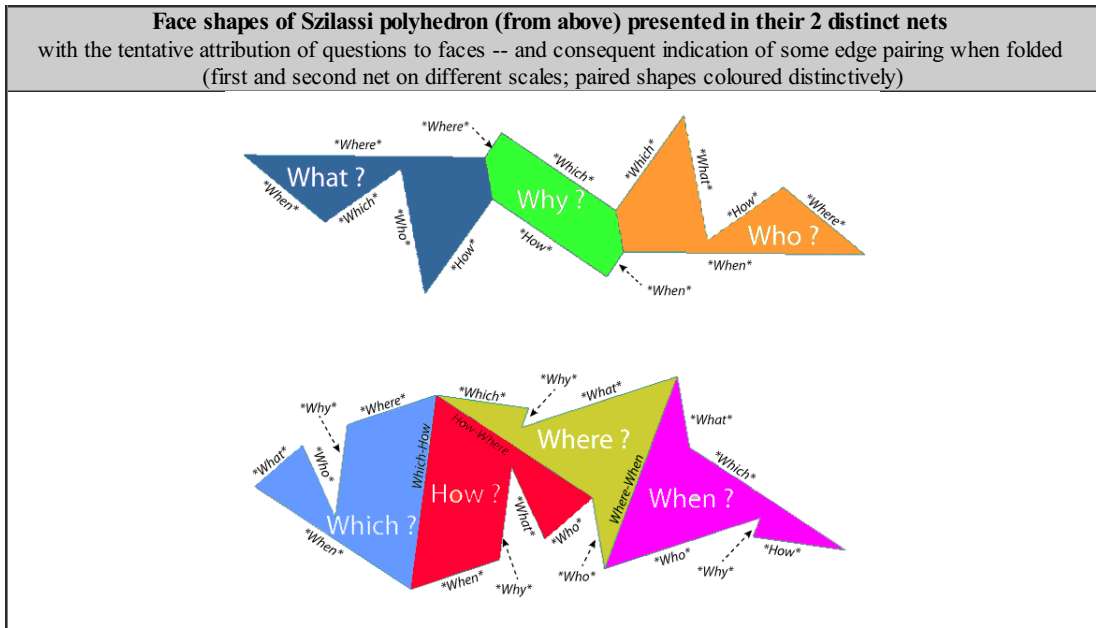


Question-pairs: The association of question-pairs with the edges of the configuration is somewhat clearer from the following image. Again the space-time dimension of physics can be considered as associated with the where-when question-pair. The other question-pairs can be explored as associated with a variety of intangibles fundamental to decision-making in the moment.



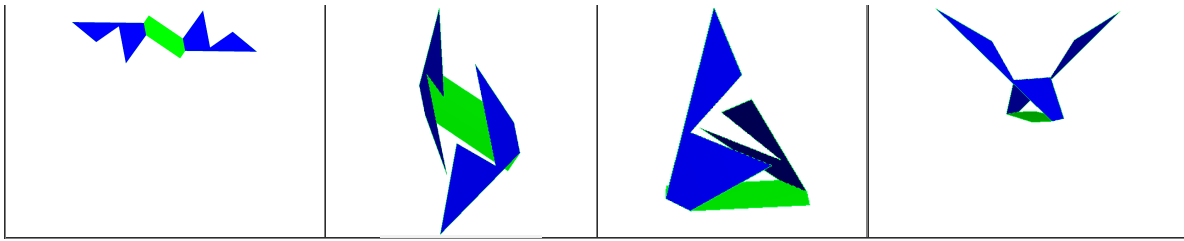


Nets and folding: The Szilassi polyhedron, when unfolded into 2-dimensions, can be understood as being composed of two distinct nets, as presented below. These offer a sense of how the 6-sided faces bind together when folded -- each face being in contact with each of the 6 other faces. Each edge is then a question-pair (as discussed above). These correspond to the contiguous faces. This is clearer in the case of each net separately. It is however vital to emphasize that, like the space-time of fundamental physics, each edge is a continuum. This may be more meaningful in experience in the moment than it is through any formal description. Association of the 3 umbilic catastrophes to the smaller net merits future reflection in the light of semiphysics.



A sense of how the two nets are folded separately into three dimensions is given in the following two sets of images. It is appropriate to note that the software by which these forms have been explored permits the 2-dimensional nets to be output on paper with tabs, permitting them to be folded and glued into 3-dimensional models. Paired shapes are coloured the same (below), in contrast to the distinct colouring of all shapes in the net presentation (above).

Stages in folding first net of the Szilassi polyhedron (images at various scales to facilitate representation; ; paired shapes coloured identically)			
Flat (as above)	Slightly folded 1	More folded	Completely folded



With the completed folding of the second net (final image below), it is then possible to get a sense of how the folded first net "fits" within it. This is of course much clearer in the animation which follows below.

Stages in folding second net of the Szilassi polyhedron (images at various scales; ; paired shapes coloured identically)			
Flat (as above)	Slightly folded	More folded	Completely folded

It is potentially significant that comprehension is facilitated through manipulation of the 3-dimensional form -- in contrast to the expectations and assumptions of what might be termed a "flat Earth" mentality dependent on a 2-dimensional representation. The point has been specifically argued with respect to a more complex polyhedron (Carlo H. Séquin and Jaron Lanier, *Hyperseeing the Regular Hendecachoron*). The need for "hypercomprehension" can be explored more generally (*Hyperaction through Hypercomprehension and Hyperdrive*, 2006).

Animations of Szilassi polyhedron (paired shapes coloured identically)	
Folding together of both nets indicated above (some phases illustrated in screen shots above)	Rotation of polyhedron (variation on version presented above)

Toroidal hole: As a toroidal structure, further insight may be obtained from consideration of the central "hole". Remembering that the attribution of questions to the surface of the structure has been basically arbitrary, associating "why?" with the central platform as the unpaired shape has a degree of justification.

Detailed views through the toroidal "hole" of the Szilassi polyhedron	
View from one side	View from second side

As being potentially indicative of the dynamic experience of "now":

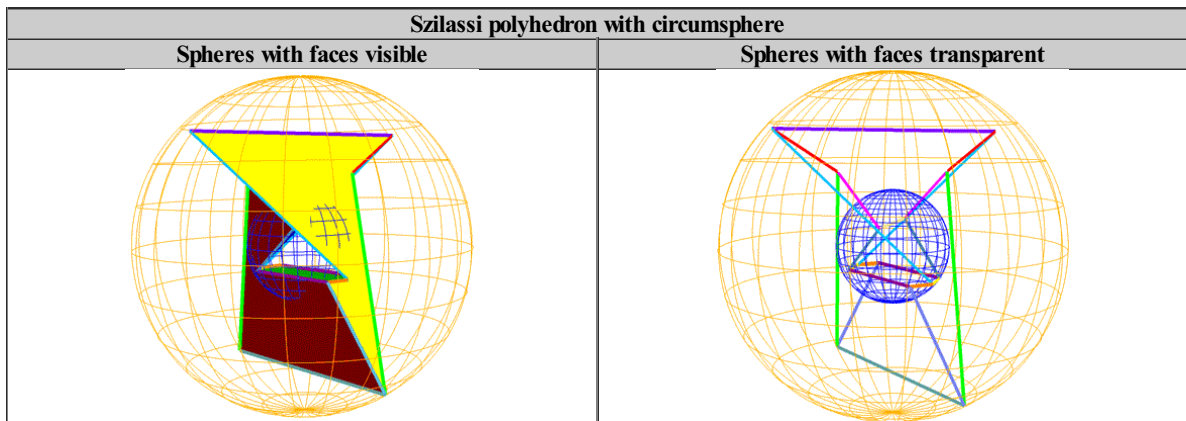
- the hole is framed by 3 question **surfaces** (Who? What? Why?) , with 4 remaining WH-questions being "invisible" from within it - namely the pairs Where? / When? and How? / Which? (in the current mapping). This could be consistent with a sense in which the 3 framing the hole are those more complex, having been provisionally associated (above) with the umbilic catastrophes.

- the hole is bounded by 11 question-pairs as **edges**:
 - the 6 necessarily framing Why? (given the properties of the polyhedron): Where-Why, When-Why, How-Why, Which-Why, Who-Why, What-Why
 - the 5 not directly relating to Why?: Which-Who, What-Where, Who-When, How-What, Who-What
- the hole has 4 distant edges which meet it only in a **vertex point**: Which-Where, How-When, How-Who, What-Which
- the 6 edges **completely dissociated** from the hole are then: Where-When, Where-How, Where-Who, When-Which, When-What, Which-How

Of potential significance is the meaning of (in)visibility in this context, especially if it is suggestive of question-pairs whose nature is ignored or characterized by a unquestioning assumption. Being especially characteristic of (executive) decision, Where-When and Which-How (although notably orthogonal) may be deliberately or inadvertently dissociated from those potentially subtler questioning processes directly associated with the central hole.

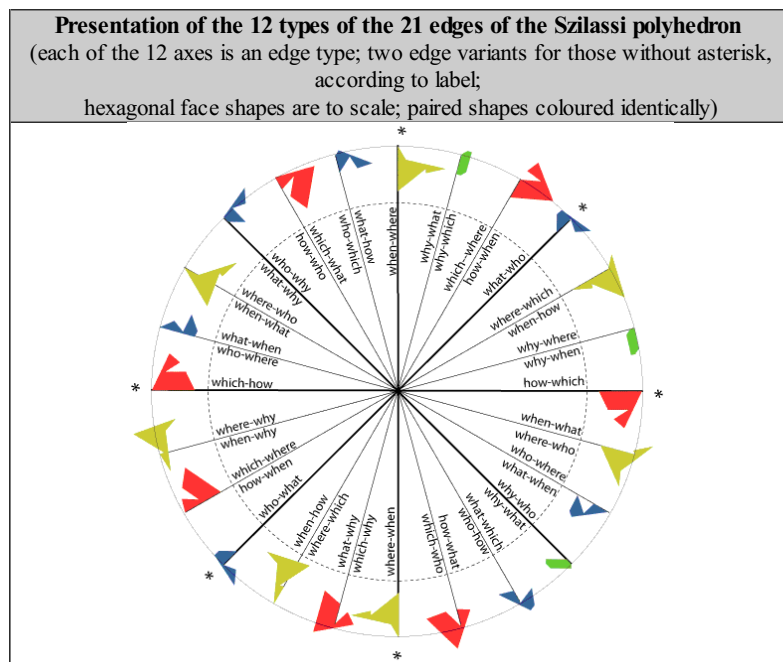
The pattern of question-pairs is fruitfully suggestive of a system of cognitive decision processes whose integrative nature is lost when mapped into the 2 dimensions of any systems diagram or semantic map. It can be understood as indicative of the flow of attention associated with the sense of "now" -- and sustaining it.

Bounding spheres: The following images display the Szilassi polyhedron with circumsphere and midsphere.

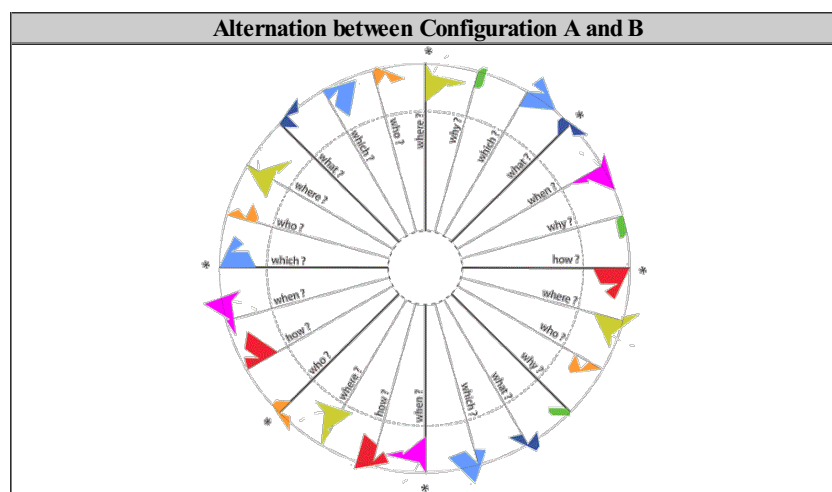
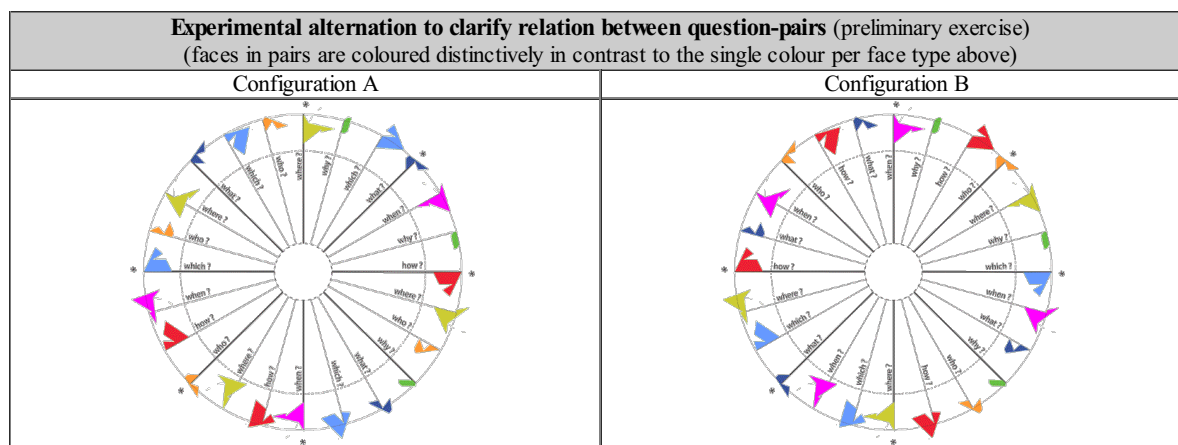


Of potential relevance is the sense in which the outer sphere relates to externalities (objective knowns) typical of conventional executive decision-making, whereas the inner sphere relates to questions otherwise held to be implicit or abstract (mysteriously subjective and paradoxically self-reflexive) -- a contrast between explication and implication.

Types of edges as question-pairs: The Szilassi polyhedron is also of interest as a mapping surface because it offers insights into the relationship between the 12 types of its 21 edges. This can be more readily understood in two dimensions through the following schematic. This treats the 12 types as axes through the centre of a circle -- a focus for the sense of "now". The edges common to the two distinct nets are used as the primary orthogonal axes -- marked with an asterisk. The face shapes are then positioned at the 24 positions on the circumference -- with the contiguous edges on that axis. There are two separate variants of each in the polyhedron -- implying an alternation between the two in the image (with the exception of those marked with an asterisk). The 24 circumferential positions are therefore reduced by 3 due to those marked with the asterisk.



The distribution of shapes/axes could no doubt be improved to render the pattern more memorable -- especially through an animated variant. The criteria for an improved distribution include: significant positioning of the 3 axes marked with an asterisk; special (related treatment) of unpaired (green) element; handling of colouring of paired face types and their distinction as individual types; achieving memorable patterning of colours/shapes within quadrants (or **octants**), maximizing variety and minimizing replication of colour or shape within them; exploitation of animation to hold more complex significance (and render the display visually attractive). Given the seeming simplicity (only 4 face types), the challenge is somewhat reminiscent of the arrangement of codons in the **genetic code**, or of the 8-fold arrangement of trigrams in the Chinese **BaGua** system -- suggestive of the possibility of a **memetic code** (M. Pitkänen, *Could one find a geometric realization for genetic and memetic codes?* 2013).



The focus on 12 can be associated with the mapping above onto the truncated icosahedron with its 12 pentagonal faces -- providing centers for a configuration totalling 20 hexagonal faces. However the focus on 12 is especially important given the strategic preference for 12-fold articulations and the systemic possibility of integrative approaches (*Checklist of 12-fold Principles, Plans, Symbols and Concepts: web resources*, 2011; *Eliciting a 12-fold Pattern of Generic Operational Insights: recognition of memory constraints on collective strategic comprehension*, 2011; *Implication of the 12 Knights in any Strategic Round Table*, 2014). Potentially valuable to this possibility is the clarification of the relation of WH-question pairs to preferences for a 12-fold pattern.

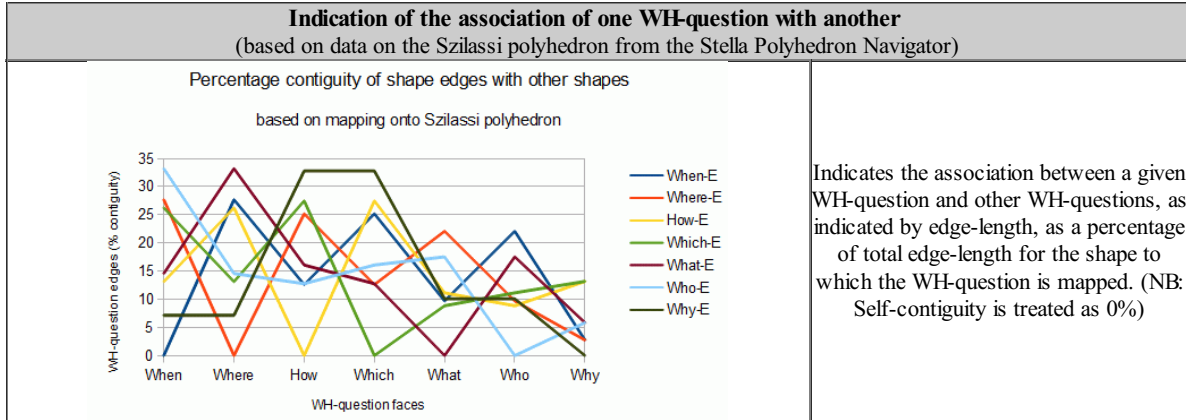
Further mapping possibilities: Various indications can be taken into account in elaborating a more memorable pattern -- potentially with mathematical assistance. Of interest is whether each quadrant offers a distinctive "story" by suitably sequencing the items there according to possibilities such as: edge length on axis, area of face, variation of faces between first and second net, positioning of unpaired face. There are various design possibilities for the animation: timing, changing direction, of forms, and colouring. As noted above, although matching edges to shapes derives directly from the properties of the polyhedron, attribution of "questions" to faces is somewhat arbitrary (despite the suggestions from catastrophe theory).

Use of the **cubeoctahedron** as a mapping surface would seem to offer a number of complementary possibilities. As with the **Császár polyhedron** (the dual of the Szilassi polyhedron), it has 14 faces corresponding to the 14 vertex types of the Szilassi polyhedron. It is however a **quasiregular polyhedron**, with more symmetry properties, potentially an aid to memory with appropriate colouring. The 24 edges correspond to the mapping of Szilassi edges to the circle (prior to the special the reduction by 3). The cubeoctahedron is central to the reflections of R. Buckminster Fuller (*Synergetics: explorations in the geometry of thinking*, 1975/1979), as discussed separately (*Geometry of Thinking for Sustainable Global Governance: cognitive implication of synergetics*, 2009).

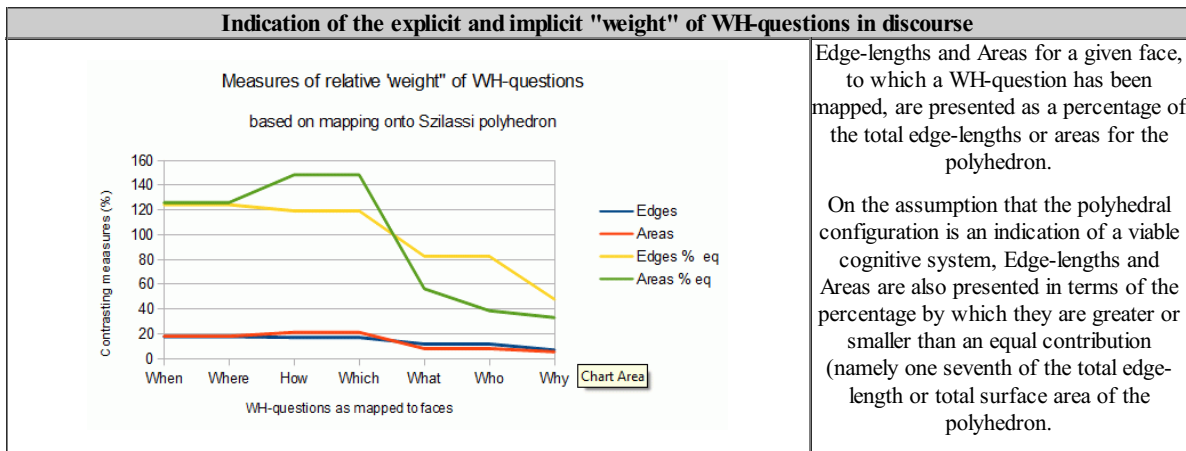
Related insights could be derived from the work on **management cybernetics** of **Stafford Beer** (*Beyond Dispute: the invention of team syntegrity*, 1994; *Platform for Change*, 1978). This combined the mapping applications of the **icosahedron** with the development of a **viable system model** (Gunter Nittbaur, *Stafford Beer's Syntegration as a Renaissance of the Ancient Greek Agora in Present-day Organizations*, *Journal of Universal Knowledge Management*, 2005). This raises the question as to whether a fruitful experience of "now" could be understood as enabled by a "viable cognitive system" of which the dynamic configuration of questions offers an

indication.

This cybernetic approach has been notably developed by Maurice Yolles (*Knowledge Cybernetics: a new metaphor for social collectives* 2005; *Exploring Mindset Agency Theory*, 2013), taking account of both Chinese frameworks and the mindscape perspective of Magoroh Maruyama. There is a case for associating the distinctive "cognitive feel" of WH-questions -- framing "now" -- with the distinctive sense of different mindscapes (*Mindscales, social patterns and future development of scientific theory types*, *Cybernetica*, 1980, 23, 1, pp. 5-25; *Context and Complexity: cultivating contextual understanding*, 1992). It is in this light that Maruyama could be understood as arguing for "polyocular vision" (*Polyocular vision or subunderstanding? Organization Studies*, 2004). Such arguments are indicative of the possibility of a "cybernetics of now", potentially consistent with various philosophies.



Clearly evident is the relative lack of "involvement" of the cluster What, Who and Why in When and Where, or How and Which. This is seemingly indicative of the relative lack of significance of the latter questions to the earlier cluster. The following schematic assumes that the set of WH-questions constitutes a viable system, meaning that the contribution of each is vital to the cognitive operations of the whole. In such terms, apparent over-representation may well be an indication of relative lack of significance, whereas relative under-representation may be indicative of greater proportionate "weight".



Current research on word association makes use of **MRI brain scanning** (Morgan Kelly, *Word association: Princeton study matches brain scans with complex thought*, *News at Princeton*, 31 August 2011). There is a case for applying such methods to clarify the nature of the "cognitive feel" associated with use of WH-questions, and issues relating to under-use or over-use of particular sets of of such questions. Of particular interest is any relation to the sense of "now", especially in comparison with uses of corresponding words in other languages (*maintenant, ahora, jetzt, nunc*, etc). Current work on the conversion of brain waves to music is expected to give rise to an application that can be run on a mobile device for personal experimentation within a year, as has already been done with biofeedback (Kat Austen, *We turn brainwaves into sound for music and medicine*, *New Scientist*, 12 April 2014).

Potential insights for operation of the "winged self": As developer of the Bell helicopter, **Arthur M. Young** was concerned with the decision-making and information processes in piloting one -- as they might apply to the development of a "psychopter". This was envisaged as the "winged self", requiring an analogue to "seat of the pants" skills in the moment (*Geometry of Meaning*, 1976), as discussed separately (*Engendering a Psychopter through Biomimicry and Technomimicry: insights from the process of helicopter development*, 2011). His analysis is potentially of relevance to reconciling the cognitive implications of catastrophe theory (as semi-physics) to any discussion of a 12-fold pattern of question-pair types. Its particular importance lies in the "cognitive feel" the pilot of the helicopter must necessarily have for the knowledge management in the moment.

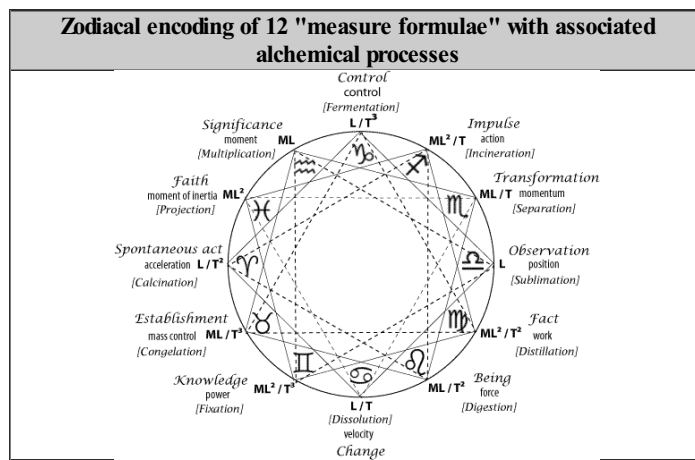
The relevance can be explored through an argument presented separately in a section on *Geometry of meaning: an alchemical Rosetta Stone?* in the conclusion to a more general discussion (*Eliciting a Universe of Meaning -- within a global information society of fragmenting knowledge and relationships*, 2013). This included the following table.

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

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

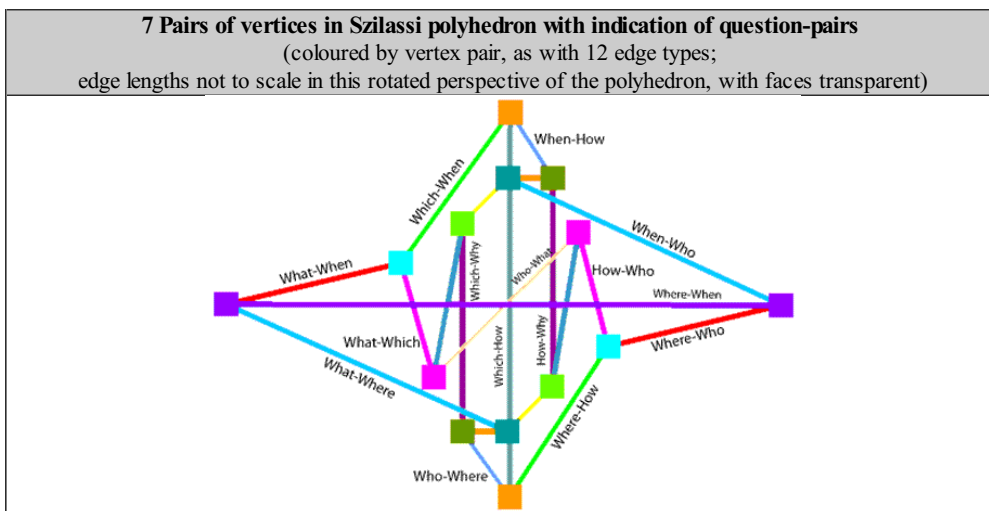
As indicated there, Young comments extensively on the significance of each of these 12 in terms of the cognitive processes of learning/action cycles. Of relevance to the above argument is the co-presence of "states" and "actions" -- the latter implying the process dimension otherwise lacking in a "state-focus". Recognition of a "relationship" dimension suggests a valuable means of transcending that duality.

With the reservations indicated there regarding the tricky cognitive nature inherent in the creativity of the alchemical process, it was argued that there is a case for reviewing the 12 phases of the process as they have been traditionally associated with the signs of the zodiac (although other patterns of phases are also identified). The names for these **alchemical processes** (as indicated by *Wikipedia*) have been added to the circular representation in the schematic below. This combines the triangular and square patterns of connectivity in the schematics articulated by Young in relation to the zodiacal pattern -- valuable to many for for mnemonic purposes, if not otherwise.



These distinctions have been interpreted separately for a variety of psychosocial contexts (*Typology of 12 complementary strategies essential to sustainable development*, 1998; *Characteristics of phases in 12-phase learning / action cycles*, 1995; *Typology of 12 complementary dialogue modes essential to sustainable dialogue*, 1998).

As indicative of the kinds of information of relevance to the control of a helicopter, the 12 types of question-pairs could then be very tentatively explored in relation to Young's configuration -- thereby framing the nature of their relevance to the sense of "now" potentially required for the imaginative control of the "winged self". An obvious approach would be to use the distinction between the 3 "inner" faces and the 4 "outer" faces of the polyhedron (above) to frame a table corresponding to Young's 3x4 table (above). Given the subtle nature of the "cognitive feel" involved, a potentially more appropriate approach could be to use the 7 types of vertices of the Szilassi polyhedron -- of which there are 14. With the current mapping these are as follows.



7 Pairs of vertices in image above (distinguished by associated mapping of question-pairs onto the Szilassi polyhedron)	
What-Where / What-When / Where-When	Where-When / Where-Who / When-Who

Which-Where / Which-How / Where-How	Which-How / When-How / Which-When
How-Who / How-What / Who-What	Who-What / What-Which / Which-Who
Which-Why / Which-Where / Where-Why	When-How / How-Why / Why-When
When-Who / When-Why / Who-Why	What-Where / Where-Why / Why-What
How-Why / How-What / Why-What	Which-Why / Which-Who / Why-Who
Where-How / Where-Who / How-Who	Which-When / What-Which / What-When

It is the characteristic of the qualitative nexus, shared within a pair, which could then (in future) be used to dimension the 3x4 table of question pairs as suggested by the pattern below (and as explored in the previous typologies relating to learning/action cycles). For example, Young himself offers various indications (p. 154) including a fourfold distinction between spontaneous act, reaction, observation, and control.

Potential reconciliation of Young's pattern of cognitive functions with that based on questions (uncompleted)						
		Vertex type D	Vertex type E	Vertex type F	Vertex type G	
		T ⁰	T ¹	T ²	T ³	
Vertex type A	Actions	Who-What	Which-When Where-How	Where-Who What-When	Which-Where When-How	M ⁰ L
Vertex type B	States	Which-How	When-Who What-Where	How-What Which-Who	How-Who What-Which	ML
Vertex type C	Relationships	Where-When	How-Why Which-Why	Why-What Why-Which	Why-Where Why-When	ML ²

Given Young's helicopter inspiration, there is a certain charm to the resemblance of the Szilassi polyhedron to the twisted rotor blades of a [helicopter rotor](#) through which lift and control are ensured. This reinforces implications as to the possibility of a "winged self" -- centered on "now".

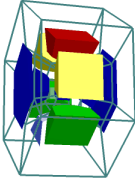
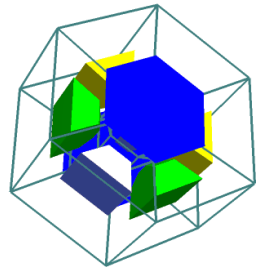
Potential insights into the Szilassi configuration of WH-questions from 4D

There is the possibility that the seeming complexity of the Szilassi configuration could be comprehended otherwise from a 4-dimensional perspective. The Stella software package specifically permits such exploration. As noted by its developer Robert Webb (*Stella 4D Manual*, 2014) with respect to *The Fourth Dimension?: Although we can't experience a four-dimensional object directly in its original form, there are several ways we can get a glimpse of them in 3D*. The software supports the following methods: [4D Projection](#), [Cross-Sections](#), [4D Nets](#), Cells, and Vertex Figures.

The issue here is whether such an interactive facility could trigger imaginative exploration of forms suggestive of integrative insights -- in this case into the cognitive configuration of the questioning environment framing the experience of "now". The possibility builds on the sense in which the space-time continuum is understood to be necessarily 4-dimensional.

In any simulation of 4 dimensions the 21 question-pair edges are transformed from lines into 21 planes. The questions associated with the 7 faces of the configuration are transformed into as many volumes -- of which one encompasses the 6 others (as represented in 3 dimensions, below).

The argument here is that the 21 question-pairs -- each understood as a continuum -- suggest an even greater degree of multidimensionality. The [number of dimensions](#) is of similar order to that argued by physics as being of relevance to the integrative potential of [string theory](#) whether the 11-dimensional form called [M-theory](#) or the 26 spacetime dimensions for the [bosonic string](#). It remains to be comprehended what "dimensions" might mean in a psycho-social context. The issue has been discussed separately in relation to the concept of [brane](#) in string theory (*Global Brane Comprehension Enabling a Higher Dimensional Big Tent? Strategic implication in encompassing nothing and coming to naught*, 2011).

Experimental projection of Szilassi 3D question configuration into 4D (using Stella software options to create a duoprism based on a 6-sided polygon)	
Animation of rotation in 3D	Animation of simulated rotation in 4D
	

With respect to the space-time continuum, the imagination of many has of course been triggered by [spaceships](#) -- with some possibility of travel through time. There is some speculation regarding the nature and implication of "[timeship](#)" in contrast to "spaceship" (*Timeship: Conception, Technology, Design, Embodiment and Operation*, 2003; *Embodying a Timeship vs. Empowering a Spaceship*, 2003). With

respect to the many more dimensions cognitively associated with the questioning dynamic (as implied here), it might be asked whether there is a case for focusing on "questships" -- reminiscent of travel framed as a "vision quest". Potentially more suggestive might be "imagination-ship", "image-ship" or "imaginal-ship", as considered separately with respect to the "magic carpets" required for "noonautics" (*Magic Carpets as Psychoactive System Diagrams*, 2010).

Could such travel be understood metaphorically as a form of "sailing through life" in which the configuration of questions serves as a form of cognitive vessel -- with the "dimensions" indicated by the question-pairs constituting the "rigging" through which navigation is enabled? Curiously there is a tendency to decorate such rigging with lights and flags (**bunting**), as with the use of strings of Christmas **fairy lights** or of **prayer flags** in Tibetan sacred places -- perhaps a faint reminder of such intangible dimensions. There is a certain charm to the circumferential pattern of faces of the Szilassi polyedron -- arrayed above -- which bear a resemblance to a string of prayer flags - especially if animated.

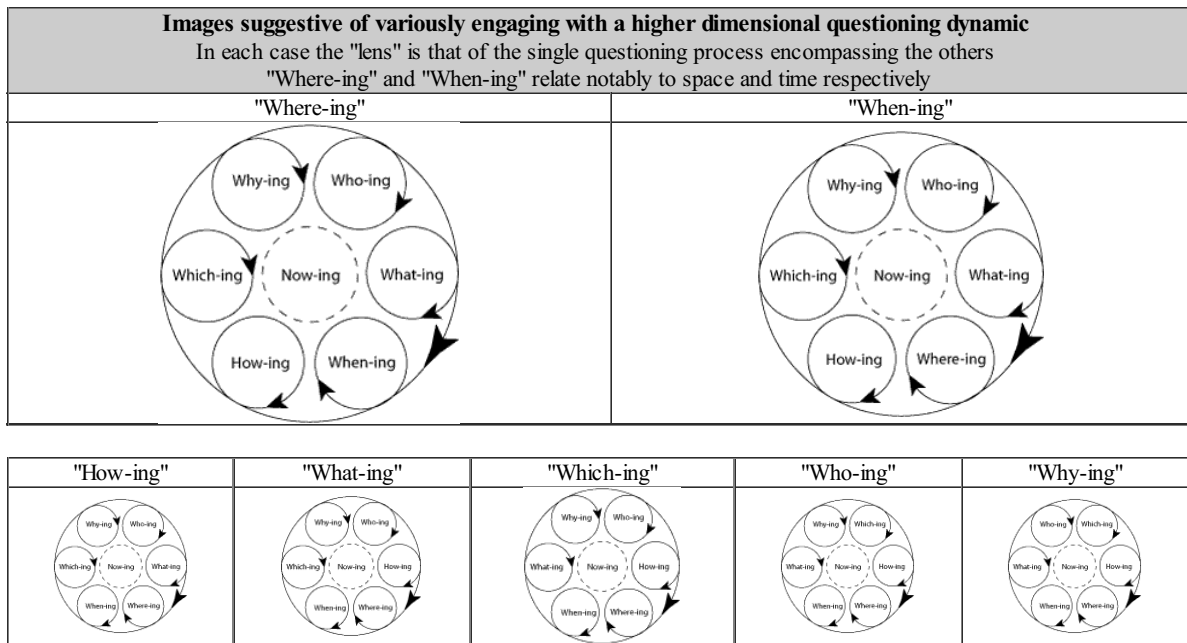
Despite the lack of any pattern of "rigging", could some think tanks then be fruitfully understood as "questships", as might be separately inferred (*Meta-challenges of the Future for Networking through Think-tanks*, 2005)?

Such arguments highlight the paradoxical relation between the simplicity, supposedly associated with appreciation of "now", and the complexity it may imply, whether experientially or according to theoretical insights. Intuition may offer a degree of comprehension of such complexity, but without the capacity to articulate and explicate it. Geometrical forms offer a means of navigating between various degrees of complexity, much as with the zooming facilities in interactive exploration of maps. The issue is the degree of simplicity/complexity appropriate to different circumstances.

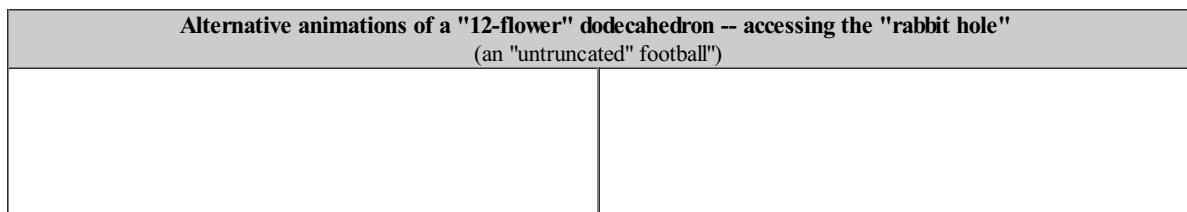
With respect to the adequacy of any representation of "now", a particular concern is whether it offers an alienating, sterile insight -- one that is "boring" rather than essentially attractive. A related concern is the counter-productive tendency to "grasp" any such insight possessively (*Paradoxes of Engaging with the Ultimate in any Guise: living life penultimately*, 2012; *Beyond Harassment of Reality and Grasping Future Possibilities*, 1996).

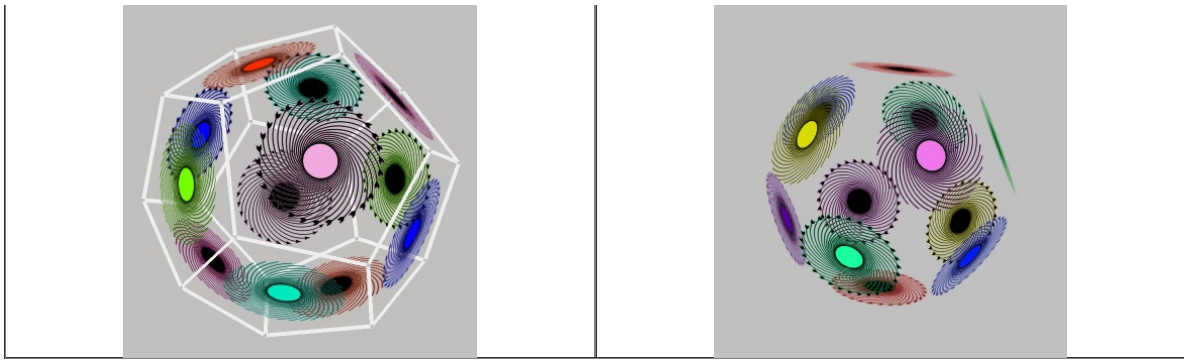
It is from such perspectives that the Szilassi mapping can be considered a questioning complex -- an appropriately enigmatic challenge to conventional comprehension, especially through enabling interaction with it in 4D.

With respect to achieving greater comprehension of the dynamics of that complex of higher dimensionality, the following images are suggestive.



The arrows in the images are indicative of a form of directionality to the dynamic -- with the suggestion that in each case the encompassing dynamic "meshes" with those encompassed, although the directionality between them "clashes". The higher dimensional condition in which such clashing is resolved is associated with the 12-fold typing of the 21 edges with which the question pairs are associated (as discussed above). It is here that mapping of those hexagonal circular arrangements onto a dodecahedron of 12 faces is helpful -- with the suggestion that there is a dynamic alternation in the directionality. This approach was developed separately (*Flowering of Civilization -- Deflowering of Culture: flow as a necessarily complex experiential dynamic*, 2014) in a section on *Arranging the flowers to engender an ecosystem?*. This representation offers a sense of "now" as accessible through 12 "rabbit holes" of more comprehensible nature, rather than through a singular one more challenging to comprehension.





Reframing nothing as a vital generative focus for sustainability

Nothing: The argument has highlighted the association between the sense of "now" and the nature of "nothing" through suggesting that there is particular value in understanding any experiential focus in terms of a central "hole" -- implying a virtual centre rather than a central "point". The topological form most appropriate to this understanding is the torus -- in its most general terms. The toroidal Szilassi polyhedron is an exceptional form for the exploration of this possibility.

Mapping questions and question-pairs onto a toroidal form then "reframes nothing" in a way which is potentially more meaningful experientially -- especially in the light of the attention activated by a dynamic complex of questions. The potential significance of a hole has been succinctly highlighted in a classic Chinese quotation -- with which Stafford Beer's 30-fold icosahedral focus is consistent.

Value of nothing

*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*).*

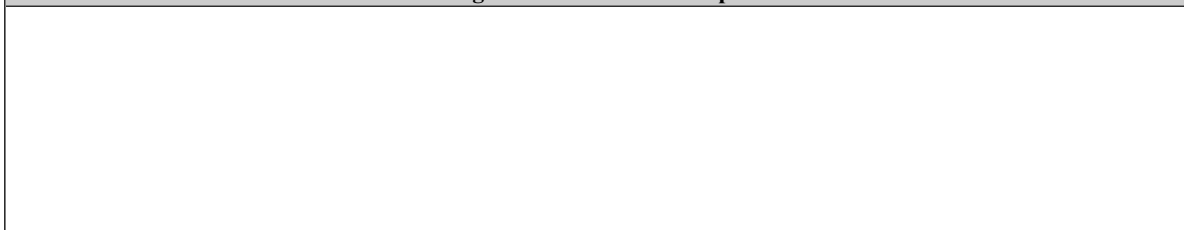
Framing nothing using more complex topological forms, by which experiential significance can be articulated, offers further possibilities -- of which the above quotation is indicative. The approach contrasts with the focus on changing from "something" to another "thing" without exploring the possibility that the role of "nothing" may offer richer possibilities. This applies to arguments for a paradigm shift and in the advocacy of alternatives as caricatured separately (*Responsibility for Global Governance Who? Where? When? How? Why? Which? What?* 2008). Centering on nothing may prove more viable -- and more consistent with a sense of "now" and immediacy, namely with life in the moment.

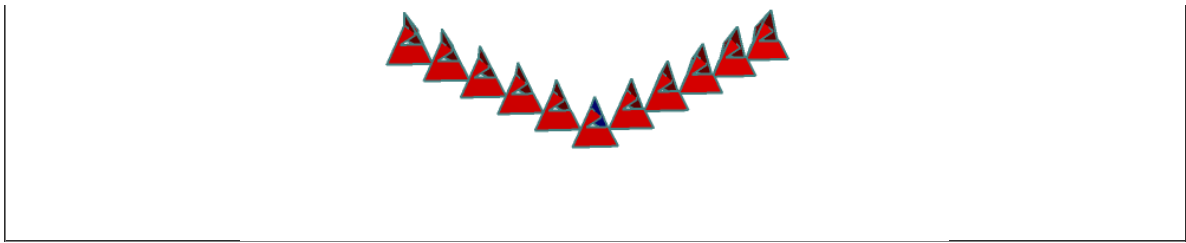
Of particular relevance is the relatively unexplored nature of [holes](#) and the attraction they exert -- hence the reference in the subtitle to going down the "rabbit hole", notably referring to the documentary (*What the Bleep! Down the Rabbit Hole*). In the latter case, the nature of the associated "nothingness" becomes more mysterious, as remarkably discussed by Roberto Casati and Achille C. Varzi (*Holes and Other Superficialities*, 1994) -- with respect to the borderlines of metaphysics, everyday geometry, and the theory of perception (as they summarize in the [entry on holes](#) in the *Stanford Encyclopedia of Philosophy*).

Expressed otherwise, it is not that global civilization needs a "hole in the head", but rather that a "hole in the mind" may elicit new forms of insight. Hence the case for a "whole in the globe". Humanity may be in a condition characteristic of some animals, namely under pressure to change skin or carapace -- in cognitive terms. Again the football is suggestive in that respect. It "works" because of "what is not there" -- in the terms of the *Tao Te Ching*. Of related relevance may be the arguments of [Terrence W. Deacon](#) (*What's Missing from Theories of Information?* 2010) and of [Abraham Flexner](#) (*The Usefulness of Useless Knowledge*, *Harper's Magazine*, 1939).

If the [noosphere](#) is to be understood as being encompassed by some analogue to the ionosphere -- so vital to global telecommunication and remote sensing -- it is then curiously appropriate to note that the use of so-called [loop antenna](#) for such purposes could be understood to be of toroidal form. Given the role of circlets of beads in many cultures, there is a certain charm to their comparison with the functions of such an antenna (*Designing Cultural Rosaries and Meaning Malas to Sustain Associations within the Pattern that Connects*, 2000). As a mapping of decision processes characteristic of the moment, a set of Szilassi polyhedra could be readily strung together as a memento of any so-called "string of decisions" -- or possibly of the challenge of any "vicious cycle" of decisions.

Animation of implied "necklace" of Szilassi polyhedra "commemorating" instances of "now" -- past and future?





Beyond the simple movement represented above, a fuller animation is reminiscent of a flight of birds. Associating the polyhedra in this way is also reminiscent of Buddhist and Hindu metaphors of **Indra's Net** (or necklace) and its interest from a mathematical perspective as the continuous limit sets generated when pairs of generating circles touch (David Mumford, et al, *Indra's Pearls: The Vision of Felix Klein*, 2002).

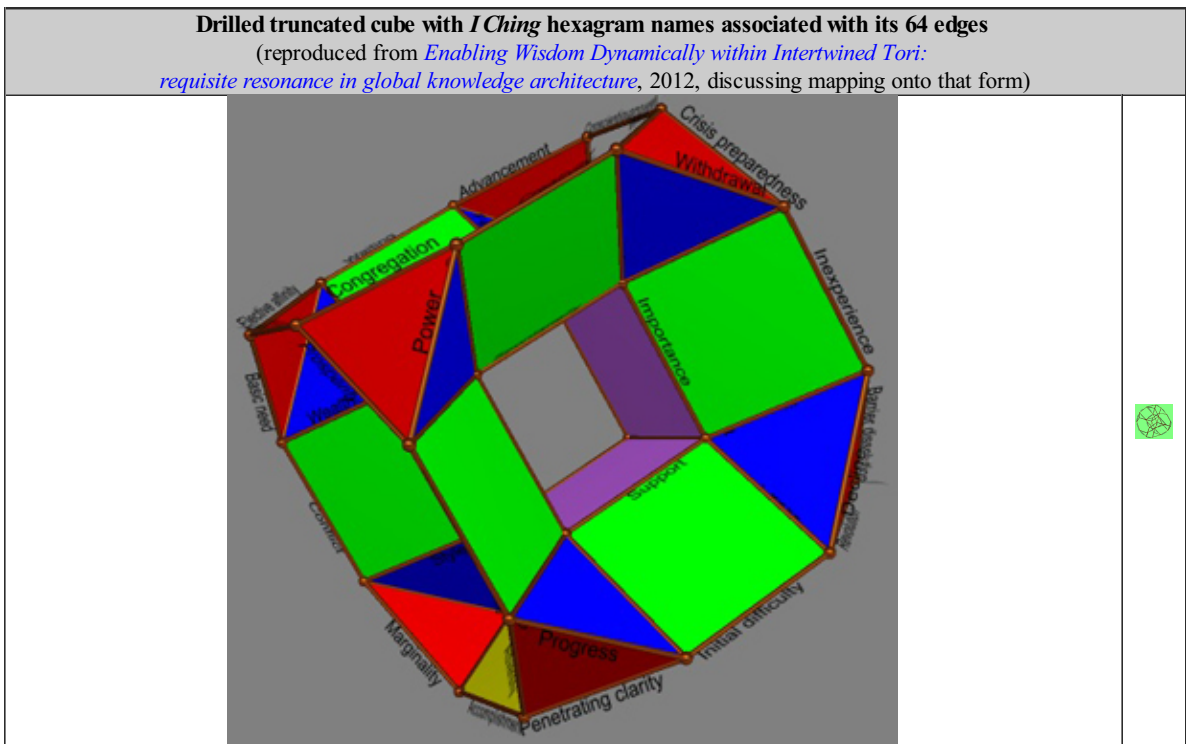
Toroidal framings: The Szilassi polyhedron is presented above as offering unusual possibilities -- if only in terms of mapping. A previous exercise explored the use of another toroidal polyhedron, namely the **drilled truncated cube** (another of the **Stewart toroids**). This is unique in having 64 edges, suggesting the possibility of mapping the much-studied 64 conditions of change encoded by the system of *I Ching* hexagrams (*Enabling Wisdom Dynamically within Intertwined Tori: requisite resonance in global knowledge architecture*, 2012). Of interest in that respect is whether these constitute challenges to decision-making -- typically of "which" -- and how these relate to both questions and answers. The sections in that exploration are:

- | | |
|--|---|
| Toroidal mappings of wisdom questions and answers | Embodying paradox |
| Torus as a mapping surface | Beyond fat tree global knowledge management |
| Relating configurative mappings of 64 <i>I Ching</i> conditions and 48 koans | Packaging wisdom for global governance? |
| Resonance as essential to both life and wisdom | Enabling software for insight packaging |

It is intriguing that engagement with "wisdom" can be explored through the **questions** which are the primary characteristic of each of the 48 *koans* of *The Gateless Gate*. In that culture they can, alternatively, be explored through the nature of the **answers** which are a primary characteristic of decision-making in relation to the conditions indicated by the 64 hexagrams of the *I Ching* (*Transformation Metaphors -- derived experimentally from the Chinese Book of Changes (I Ching) for sustainable dialogue, vision, conferencing, policy, network, community and lifestyle*, 1997).

There is of course a degree of debatable ambiguity in this distinction raising the issue of the nature of question and answer in relation to wisdom. Potentially interesting is then the possibility of relating the mapping of 48 koans to a mapping of the 64 hexagrams of the *I Ching* (*Relating configurative mappings of 64 I Ching conditions and 48 koans*, 2012). This possibility suggests an extension of use of geometrical metaphors to integrate any polyhedral representation of questions (*Geometry of Thinking for Sustainable Global Governance: cognitive implication of synergetics*, 2009).

The names mapped into the image below derive from an extensive adaptation identifying the "causal loops" by which the conditions indicated by the hexagrams are traditionally related (as noted above).



Paradoxical focus of now: As with the attribution of questions and question-pairs to the Szilassi polyhedron, the **attributions to the polyhedral form are necessarily tentative**. Of particular interest in the Szilassi case is any choice made for the unpaired question of

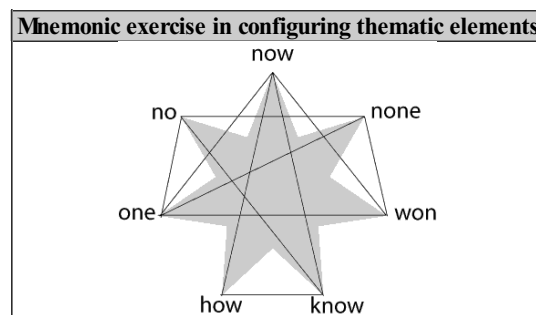
the seven -- the only one of the seven with a degree of symmetry in its own right. It should of course be stressed that "now" is understood in relation to the toroidal hole that the polyhedron frames. This suggests that the choice of any unbalanced question is part of the experiential dynamic. It may emerge as unique in the moment.

Whilst a sense of "now" is framed by the configuration of questions, continuing consideration is required regarding the dynamic implied by that configuration -- as suggested above with respect to mapping onto the football pattern. One possible clue is offered by a degree of correspondence with the six-fold circular structure of the [benzene molecule](#) so fundamental to organic life. This is renowned for being dependent for its integrity on [resonance](#) -- leading to its recognition as a so-called [resonance hybrid](#), as discussed separately (*Patterns of Alternation: cycles of dissonance and resonance*).

This is suggestive of the possibility that, from a cognitive perspective, the Szilassi configuration of questions might well be best understood as a resonance hybrid. This could be especially appropriate to the dynamic quality of the sense of "now" and "feeling alive". It could be consistent with transcending the conventional binary modality (*Transcending Simplistic Binary Contractual Relationships*, 2012). In that sense "now":

- is neither question nor answer, as with any associated sense of identity (*Am I Question or Answer?* 2006)
- exemplifies neither "feeling alive" nor "feeling dead" (as discussed in the main paper)
- is neither a preoccupation with "knowing" nor with "not-knowing"
- offers neither a sense of "nothingness" nor with "fullness" (plenitude)

Memory aid: Provocatively -- and with the poetic licence appropriate to going down the "rabbit hole", and given the quest for mnemonic catalysts -- it may be appropriate to explore aesthetic twists, transformations and resonances between focal terms of this discussion through imaginative word play, consistent with the riddle by which the sense of "now" may be characterized. This is partially suggested by the essay of William S. Huff (*Homonym, Homonym and Homonym, and Other Word Pairs, Symmetry: Culture and Science*, 1992). The terms variously related through such devices might then include:



Suggestive associations and correspondences

- | | |
|---|--|
| • none-won: nobody -- no single body -- wins | • none-one: no integrative singularity |
| • no-know: ignorance; not knowing | • now-know: learning in the moment |
| • know-how: applied knowledge; practice | • how-now: art of now |
| • one-won: success through integration | • now-one: integrity in the moment |
| • now-won: achievement in the moment (Grail, Pearl) | • no-none: Omar Khayyám quatrain (cited above) |

Is "to know" to be recognized as the verb "to now" -- to make now?

With respect to memory aids, there is a certain elegant appropriateness to the possibility of using the common football as a mapping surface. This is all the more so in that the game of football, and the attention it attracts worldwide, is especially emblematic of the experiential preoccupations with the feeling of "being alive" in the moment -- with the "now" which is the focus of this exploration. There is of course a degree of irony to its "global" form and the manner in which it is so desperately kicked around -- globally. Conversely, to have "won" in the process significantly enhances the sense of "feeling alive" -- whereas losers are readily framed as "dead".

Experiential sense of "now"? A major limitation in the above argument is the descriptive nature of the articulation of the existential experience of "now". This may be partially remedied through questioning in the moment:

- **which "now"** characterizes the moment? --- with some sense that a distinction is possible between modalities of "now" that have been previously recognized, and therefore enabling a mode of engagement to be framed
- **what "now"**? -- with the contrasting sense that an as yet unrecognized modality is emerging (one possibly previously unknown) -- essentially a surprise, with the potentially catastrophic implications as framed by [Nassim Nicholas Taleb](#) (*The Black Swan*, 2007; *Antifragile*, 2012)
- **how "now"**? -- namely consideration of how best to reconfigure in the moment to "handle" the situation (without "grasping" it inappropriately) -- well described by the need for strategic nimbleness, so as best to dance with an emerging reality
- **when "now"**? -- namely a focus on timing enabling appropriate engagement with the emerging moment -- entrainment by it, going with the flow, knowing when "the time is now"
- **where "now"**? -- namely a recognition of the subtle directionality implied by the moment -- a sense of the "way things are going" and any direction of shift
- **why "now"**? -- namely a sense of implication within the dynamics of a more encompassing context
- **who "now"**? -- namely a sense of who one is becoming, or the role one is taking on for the moment

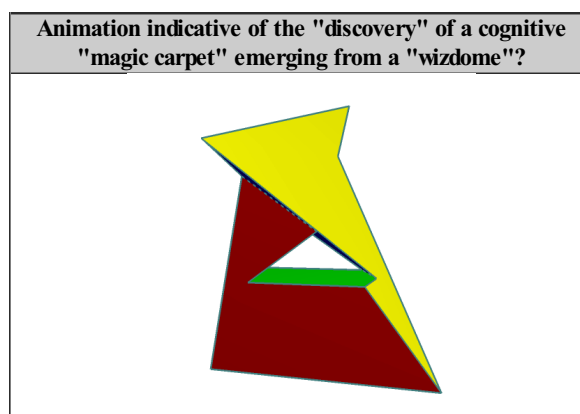
These experiential indicators are rendered even more subtle through the question pairing discussed above -- and the experience of "now"

with respect to any continuum, most obviously where-when (with its correspondence to space-time). Various metaphors may be used to frame the moment in which the questioning applies, and the potentially relevant skill sets:

- **piloting a helicopter**, discussed above as the preferred metaphor of [Arthur M. Young](#) (developer of the Bell helicopter), who applied the associated insights to the development of a "psychopter" as the "winged self" requiring an analogue to "seat of the pants" skills in the moment (*Geometry of Meaning*, 1976). As discussed separately (*Engendering a Psychopter through Biomimicry and Technomimicry: insights from the process of helicopter development*, 2011), from a decision-making perspective his approach is potentially of relevance to any discussion of a 12-fold pattern of question-pairs.
- **navigating hyperspace**, as imagined by writers of science fiction -- the art being to sense, imaginatively, the quality of the complex space in the moment and to reconfigure information inputs so as to be able to "swim", "climb", "tunnel" or "fly" through it, whichever was most metaphorically appropriate (*Engaging with the Inexplicable, the Incomprehensible and the Unexpected*, 2010)
- **martial arts**, variously attentive to the practice, the articulation and the philosophy of engagement with an unpredictable, challenging "other" in the moment (*Ensuring Strategic Resilience through Haiku Patterns: reframing the scope of the "martial arts" in response to strategic threats*, 2006).
- **dancing with a pearl of wisdom**, as exemplified by elusive dynamics of the [dragon dance](#) of Chinese culture. More generally, engagement with the movement of light through precious stones, and especially through the further insight offered by the mythology of the diamond (*Patterning Archetypal Templates of Emergent Order: implications of diamond faceting for enlightening dialogue*, 2002).
- **game-playing**, as most notably explored from a cultural perspective by [Hermann Hesse](#) (*The Glass Bead Game*, 1943). As discussed separately, some strategically transformative use of games is now made by communities, somewhat in that spirit (*Imaginal Education: game playing, science fiction, language, art and world-making*, 2003). Potentially most suggestive, given the paradoxes explored, is the fictional account by [M. A. Foster](#) (*Gameplayers of Zan*, 1977). The experiential potential of game-playing is powerfully argued by [James P. Carse](#) (*Finite and Infinite Games*, 1987).
- **humour**, as offering a widely recognized existential engagement with the moment, especially since humour may be framed by a leading question. Humour featured as an early theme of artificial intelligence ([Marvin Minsky](#), *Jokes and their Relation to the Cognitive Unconscious*, 1980). The unusual approach, using it to reverse engineer the mind, could fruitfully explore humour in terms of the dynamic framing offered by questions, given their fundamental role in framing jokes ([Matthew M. Hurley](#), et al., *Inside Jokes: using humor to reverse engineer the mind*. 2011). Whilst the study raises questions as to "what" humour is, and "why" it is enjoyed -- identifying twenty questions that a humor theory should be able to answer -- it does not address the role of questions in relation to humour. The integrative potential of humour, as a universal human trait, has been discussed separately (*Humour and Play-Fullness: essential integrative processes in governance, religion and transdisciplinarity*, 2005).
- **cognitive exoskeleton**, as offering a cognitive analogue to current development of the [powered exoskeleton](#). This approach to patterns of questions could be understood as implied by that of [Edward de Bono](#) with respect to "thinking hats", "action shoes", and more generally (*Six Frames For Thinking About Information*, 2008).

The above indications can be considered as part of a more general set relating to movement -- potentially "down the rabbit hole" (*Clues to Movement and Attitude Control*, 2002; *Navigating Alternative Conceptual Realities*. 2002; *Towards an Astrophysics of the Knowledge Universe: from astronautics to noonautics?* 2006). With respect to a web-enhanced knowledge environment, further possibilities may be imagined (*From Information Highways to Songlines of the Noosphere: global configuration of hypertext pathways as a prerequisite for meaningful collective transformation*, 1996; *Transforming Static Websites into Mobile "Wizdomes": enabling change through intertwining dynamic and configurative metaphors*, 2007).

Is the Szilassi configuration suggestive of the cognitive organization of a "wizdome" as a form of vessel for the navigation of knowledge space -- or perhaps as a "magic carpet" -- as framed by the following animation? The alternative abbreviation -- as "whiz" -- suggests a complex of associations with WH-questions and the sense of "isness" which is a characteristic of "now" (*The Isdom of the Wisdom Society: embodying time as the heartland of humanity*, 2003).




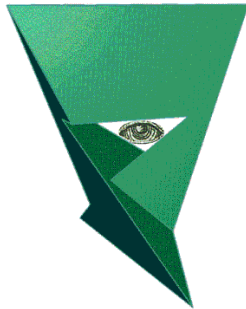
Relevant to use of the "carpet" metaphor here is the attention given to carpet design by architect [Christopher Alexander](#) in the seventh in a series of books on design, order and pattern (*Notes on the Synthesis of Form*, 1964; *A Pattern Language*, 1977; *A Foreshadowing of 21st Century Art: the color and geometry of very early Turkish carpets*, 1993). Surprisingly his work has had considerable influence on computer programming language design -- the essence of system comprehension. As discussed separately (*Magic Carpets as Psychoactive System Diagrams*, 2010), Alexander explores "carpet geometry" in terms of a set of 15 "transformations" (*Harmony-*

Seeking Computations: a science of non-classical dynamics based on the progressive evolution of the larger whole. International Journal for Unconventional Computing, 5, 2009). He emphasizes the importance of geometric adaptation in order to enable comprehension of a higher order, as discussed separately (*Harmony-Comprehension and Wholeness-Engendering: eliciting psychosocial transformational principles from design*, 2010) The potential implications can be taken further (*In Quest of a Dynamic Pattern of Transformations: sensing the strange attractor of an emerging Rosetta Stone*, 2012).

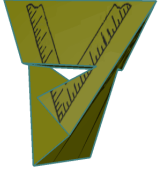
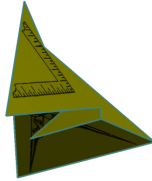
Cyclopean symbolism of "nowing"? The following images offer an interesting contrast in relation to the above argument. For global society, the **Eye of Providence** (notably figuring on the reverse of the **Great Seal of the United States** and on the **one dollar bill**), has implications for the condition of the world at this time. The left-hand image portrays a barren landscape dominated by an unfinished pyramid of 13 steps, topped by the Eye of Providence within a triangle.

That pyramid, with its detachable triangle, is reminiscent of the **Pyramid Ship** -- a "Cheops class warship" -- of the alien **Goa'uld**, featuring in the widely disseminated **Stargate** series. It also recalls the ambitions of dissociated elites to abandon "planet Earth" for gated communities, and for other parts of the galaxy. The visible "gap" is then clearly significant.

The image on the right, however, positions paradoxical cognitive functionality -- in the "now" -- within the eye of the toroidal form of the Szilassi polyhedron. People may themselves have the possibility of functioning as "stargates" (*People as Stargates: an alternative perspective on human relationships in space-time*, 1996; *World Introversion through Paracycling: global potential for living sustainably "outside-inside"*, 2013)

Symbolic locus of the Eye of Providence?	
On the one dollar bill	Within the Szilassi polyhedron
	

Given the masonic symbolism typically associated with that of the Great Seal (left above), it is surprising to note that one of the easiest ways to remember the complex geometry of the Szilassi polyhedron is as a 3-dimensional version of the **square and compasses** (otherwise overlaid in 2 dimensions), so widely recognized as the symbol most identifiable with freemasonry. The space they enclose -- to which such significance is attached -- can be associated with the hole in polyhedron, especially since variants of the symbol include a broken circle within it (in the form of the letter G). The square and the compasses can be mapped onto the polyhedron in two ways, as indicated in the animations below. Whilst such projections are an aid to memory, they also encourage reflection -- as so ably demonstrated by the popular appeal of the **Dan Brown** novels (*The Da Vinci Code*, 2003; *The Lost Symbol*, 2009), and the array of questions of which they are a focus, challenging the frameworks of convention regarding the externalities of where-when and which-how..

Projection of the square and compasses of Freemasonry on the Szilassi polyhedron as a mnemonic aid	
Variant A (animation around vertical axis)	Variant B (angled animation)
	

Paradoxical geometry: Of interest in making this contrast is the nature of the "pyramid" as a geometrical form in relation to the Szilassi polyhedron. The pyramid is **not** the simplest of the polyhedra, a 4-sided tetrahedron, as might be assumed; with the base, it is 5-sided. As noted above, the tetrahedron and the Szilassi polyhedron are the only two known polyhedra in which each face shares an edge with each other face. This has symbolic implications for the organization of the incommensurable worldviews of global society -- and a justification for its display in Reconciliation Place (Canberra) with the **Möbius strip** (as noted above). It is recognized that the next more complex polyhedron with equivalent properties has 44 vertices and 66 edges -- but it is not known whether such a polyhedron exists. The drilled truncated cube, featured above, is indicative of related mapping possibilities of cognitive significance (32 vertices, 64 edges, 32 faces).

The core experiential challenge is how cognition and identity are enabled and sustained by such geometry. Of relevance to this are the explorations of **Douglas Hofstadter** (*I Am a Strange Loop*, 2007) with respect to the **Möbius strip**, and also with respect to the **Klein bottle** by **Steven M. Rosen** (*Topologies of the Flesh*, 2006). The potentially paradoxical collective implications have been discussed

separately (*Sustaining a Community of Strange Loops: comprehension and engagement through aesthetic ring transformation*, 2010). On the assumption that insight is not "cyclopean", the eye metaphor may also be represented in the following image of a Möbius strip (as was presented there).



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