



laetus in praesens

Alternative view of segmented documents via Kairos

30 December 2024 | Draft

Configuring the Paradoxical Insights of 48-fold and 100-fold Sets of Koans

AI-assisted clarification of cognitive challenge of fundamentally elusive metaphors

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Introduction

With completion of the UN's recent [Summit of the Future](#) -- and adoption of a [Pact for the Future](#) and a [Declaration for Future Generations](#) -- there is a fundamental challenge to how to engage with such comprehensive documents. Crucial is the question who will be motivated to do so and what they may be able to conclude from such complex articulations. Curiously the [Pact for the Future](#) also framed a [Global Digital Compact](#), seen as a framework for constraining future use of artificial intelligence -- presented as a major threat to humanity. Ironically it is only AI which now has the capacity and patience to peruse such documents (and the lengthy supportive presentations of 193 government representatives at the Summit) in order to configure their insights meaningfully and comprehensibly.

As a consequence, the UN's ambition to "turbocharge" the Sustainable Development Goals on the occasion of the Summit of the Future was previously explored through a series of interactions with AI ([Turbocharging](#)

SDGs by Activating Global Cycles in a 64-fold 3D Array, 2024). The exploration with AI enabled the *Pact for the Future*, the *Declaration for Future Generations*, and the *Global Digital Compact* to be analyzed in terms of the connectives they failed to use, with the implications for future governance (*Analysis by AI of Reports of UN Debate on Artificial Intelligence*, 2024).

Distinct from such current secular initiatives, upheld by the international community as "pivotal" for humanity at this time, are the various traditional arrays of wisdom in the form of folk tales and other particular compilations (*Collective insight from traditional folk tales and fairy tales*, 2022; *Educational fables for faith-based global governance*, 2006). One example is the set of 147 *Delphic Maxims* (*Delphic Maxims for Modern Followers, Hellenion*; Philip Chrysopoulos, *The 147 Commandments Gods gave to Ancient Greeks*, *Greek Reporter*, 3 September 2024). Other examples are offered by the compilations of 48 or 100 Zen Buddhist *koans*, the ordered formulations of various religions, or secular collections (Maxime Lagacé, *75 Words of Wisdom from the Best Minds (Ever)*). Somewhat ironically, the *Wit and Wisdom of the United Nations* (1961) has also taken the form of a much-neglected compilation.

Curiously the times are also witness to a vast proliferation of insights and articulations with every focus. Every problem and possibility evokes a multiplicity of studies and commentaries -- exemplified by the role of social media and the opportunities it offers for many. The situation could be caricatured as a "feeding frenzy" in information terms -- or as a frantic quest for "wisdom". Any possible form of coherence is then of necessity called into question by that dynamic.

In contrast to any sequential listing of traditional arrays of "wisdom", typically unordered, the question is whether they invite comprehension otherwise -- as patterns of some kind (*Coherent Reconciliation of Eastern and Western Patterns of Logic*, 2023). Arguably they may merit recognition as a complement to efforts to order secular formulations of strategic initiatives as discussed separately (*Comprehensible Organization of Strategic Complexity in 3D and 4D*, 2024).

Metaphorically the challenge could be understood as the quest for a kind of *Rosetta Stone* enabling a form of "translation" between distinctive cognitive modalities -- variously understood to be incommensurable or mutually irrelevant. Such a configuration has been previously explored in the light of that metaphor (*Memorable Packing of Global Strategies in a Polyhedral Rosetta Stone*, 2023). More generally the challenge could be understood as a more fruitful configuration of categories of strategic relevance, in the light of previous explorations (*Functional Classification in an Integrative Matrix of Human Preoccupations*, 1982; *Interactive Polyhedral Configuration of Preoccupations*, 2023).

Those exercises envisaged mapping such strategic articulations onto polyhedra such as the *truncated tesseract* -- susceptible to visualization in 3D. The 64-fold pattern of vertices of that polyhedra -- of potential significance from other perspectives -- is associated with a 48-fold pattern of faces and a set of 112 edges. That evokes the question as to whether the set of 48-koans might be appropriately associated with those faces as a complement to the set of vertices. Configuring such contrasting cognitive artefacts within a common framework would then evoke the question of a higher order as to whether the paradoxical challenges of the koans enables comprehension of the strategic challenge in a cognitively more fruitful manner (*Visualizing the Coherent Configuration of Incommensurable Cognitive Modalities*, 2024)..

As with the articulation and configuration of the 64-fold "strategic" pattern, the following exercise makes particular use of AI to resolve some of the challenges and explore the possibility of interesting solutions -- but with a focus on the cognitive paradoxes as potentially framed or implicit in the 64-fold frame. The focus on koans derived from an earlier exercise to render more accessible such elusive insights (*Configuring a Set of Zen Koan as a Wisdom Container: formatting the Gateless Gate for Twitter*, 2012). Speculatively it can be asked whether the metaphor of a Rosetta Stone implies the need for a form of "cognitive container" -- as yet to be designed -- for indications of "wisdom" and "cognitive fusion" (*Polyhedral containers for metaphorical morphing complexes*, 2014; *Complementarity and Self-Reflexivity: between nuclear fusion and cognitive fusion*, 2006).

The responses to the earlier exchange included the implication that AI might well be able to offer significant insights into the transitions between logic, emotion, spirituality, and action -- to the pathways between them -- and the manner in which each was potentially able to "trump" the other (*Comprehending Connectivity between Logic, Emotion, Intuition and Practice*, 2024). The main outcome of the following interaction with AI is an interlinked configuration of 48 koans mapped onto an interactive [truncated cuboctahedron](#)-- with specific links to more extensive descriptions of each koan. Animations of a configuration of 100 koans are presented, together with that of the secondary complement of 52 koans.

As in the previous experiments, the responses of [ChatGPT 4o](#) are distinctively presented below in grayed areas, with those of [Claude 3.5](#) (in some cases). **Given the length of the document to which the exchange gives rise, the form of presentation has itself been treated as an experiment** -- in anticipation of the future implication of AI into research documents. Web technology now enables the whole document to be held as a single "page" with only the "questions" to AI rendered immediately visible -- a facility developed in this case with the assistance of both ChatGPT and Claude 3 (but not operational in PDF variants of the page, in contrast with the [original](#)). Reservations and commentary on the process of interaction with AI to that end have been discussed separately (*Methodological comment on experimental use of AI*, 2024). Whilst the presentation of responses of two AIs could be readily considered excessive, it offers a "stereoscopic" perspective highlighting the strengths and limitations of each.

Show All AI Responses

Enabling exploration of of allusively named koans with AI

There is an obvious initial problem with koans in that their original presentation is in a Chinese script which is a challenge to translation -- in addition to the fact that it is indicative of insights which can best be understood through metaphors. Those traditionally used may be less than meaningful in English -- as well as deliberately evocative of multiple interpretations.

There are many translations and commentaries giving rise to names for each koan -- which may be quite distinctive. The 48 are however presented in a traditional numbered sequence of "cases". The number and the Chinese script therefore provide guidance to clarification of the more helpful English translations. More appropriate articulations might well be sought of relevance collective cognitive insight meaningful to global governance.

There are indeed many translations of the set of 48, originally named *Mumonkan*, for example:

- Terebess Collection: *The Gateless Gate (TGG)* As translated by R. H. Blyth Drawings by Mark T. Morse
- *The Gateless Barrier: The Wu-Men Kuan (Mumonkan)* Translated and with a Commentary by Robert Aitken

There is a more limited number of references to the 100 koans as originally compiled in the 12th century by Wanshi Shogaku (C. Hung-chih Cheng-chüeh), known variously as the *Book of Equanimity* or *Book of Serenity* or *Book of Composure*:

- Matthew Juksan Sullivan: *The 100 Cases of the Blue Cliff Record*
- Chong Xian and Ke Qin: *The Blue Cliff Record* (Biyantu)
- C. Ts'ung-jung lu: *A Collection of 100 Koans Shoyoroku (E. Book of Serenity)*

A preliminary task was therefore to select a set of 48 English texts in the light of the Chinese script and their traditional numbering. This task was undertaken in relation to the subsequent task of understanding how the 48 koan insights might be a subset of the 100.

ChatGPT was especially helpful in comparing the different sources of the 48-fold set of koans in order to reconcile contrasting names of koans in English translation from the original Chinese. Although such names

are typically obscure, the question was how to determine which names were most meaningful for the proposed mapping exercise

Show/Hide AI response

ChatGPT was very helpful in clarifying the set of 48 in relation to the 100. With respect to alternative names for the set of 48, the following table was presented. A particular challenge continued to be representation of the original Chinese -- given the constraints of web documents. The purpose of the table was to select the variant that could best accompany an image of the Chinese name in the mapping onto the truncated tesseract.

Show/Hide AI response

ChatGPT produced a table in response to the correspondence between the set of 48 koans and the sets of 100.

Show/Hide AI response

Comparing 48 primary koans in relation to a larger set of 100

Question: How are the koans in the 48-fold set to be meaningfully compared to those in the 100-fold set

Show/Hide AI response

Thematic clustering of 48 "primary" koans by AI?

Question: How can the set of 48 koans be usefully clustered thematically in terms of their conceptual implications

Show/Hide AI response

Thematic clustering of 52 "secondary" koans by AI?

Question: How can the koans not included in the set of 48 be usefully clustered thematically in terms of their conceptual implications

Show/Hide AI response

Exploring cognitive closure of koan sets

plus or minus 7 -- islands of stability

Question: Do you have any comment on the cognitive closure provided by 48 as contrasted with that provided by 100. It is a puzzle why mala beads favour 108 rather than 100, for example

Show/Hide AI response

Coherent mapping of 48 "primary" koans onto a truncated polyhedron

Question: A particular focus of this study is the collective relevance of the 48 -- as it might apply to global governance. On the 64 vertices of the 48-faced truncated tesseract an adaptations of the 64 hexagrams to governance is separately mapped in 3D. The 48 on the faces are therefore complementary cognitive challenges. Would you have any comment on any reframing of the 48 to reflect the challenge to collective understanding

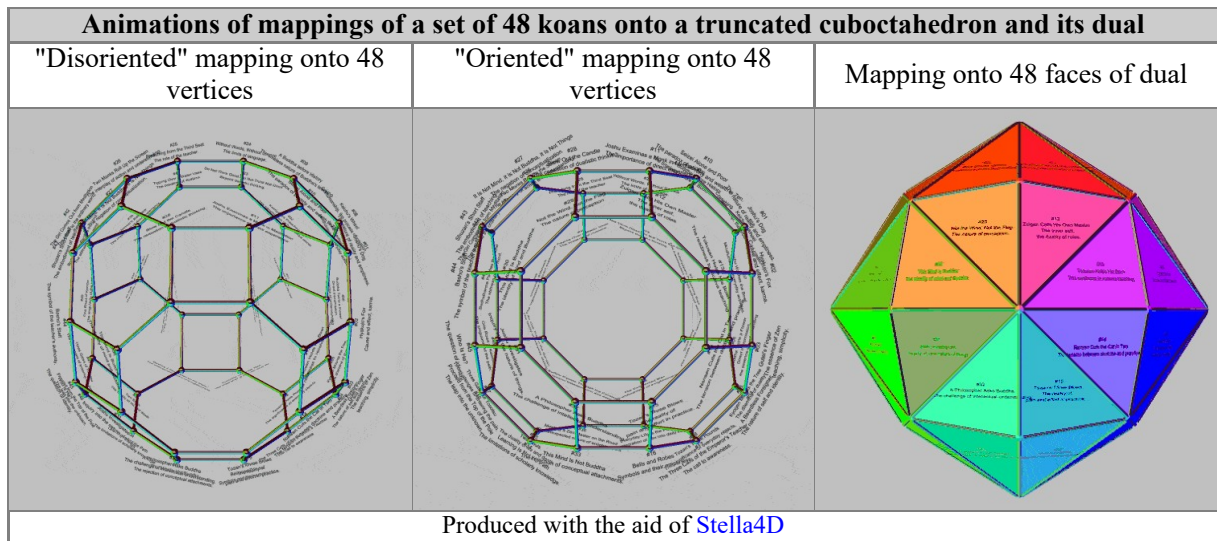
Show/Hide AI response

In quest of a coherent configurative mapping, the challenge of a set of 48 items (as previously for one of 64) is one of readability through minimizing clutter on the map. This is an obvious challenge with geographic

maps -- alleviated through the possibility of zooming into detail or backing out of it. The animation on the left is one approach with its obvious disadvantages. There an explanatory line is added to the name of each koan. The lines could be made shorter by increasing their number in each case. With respect to all the koan labelling in the animations below, much greater care could be given to label editing in relation to the space available.

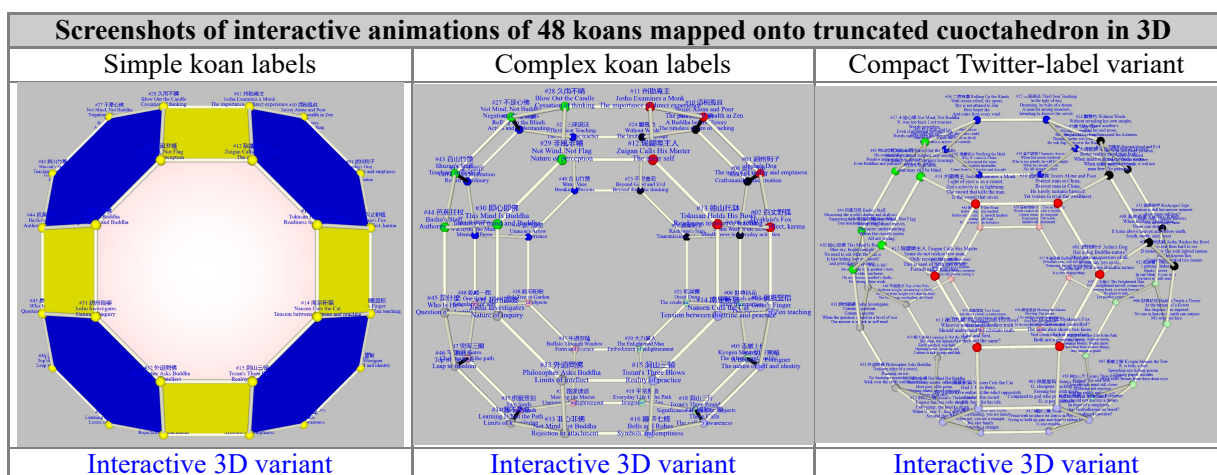
The contrast between the model on the left and the identical model in the centre makes an import point. That in the centre offers a greater sense of the global pattern which is evident to a far lesser degree in that on the left. This due to the orientation which during the rotation makes patterns of symmetry clearer in implying the coherence of the global configuration. Of course, had that on the left been much more "disoriented" (and with a greater rate of rotation) the loss of any sense of global pattern would have been all the greater.

Using the dual of the truncated cuboctahedron with 48 faces (in the right), the lack of distinction between the triangular faces reduces any sense of global coherence.



All the animations above offer a degree of comprehension of the global pattern, their value is reduced by the relative illegibility of the koan labels -- compounded by the rate of rotation. This is reduced if the animations are viewed through a separate browser tab where they can be considerably enlarged.

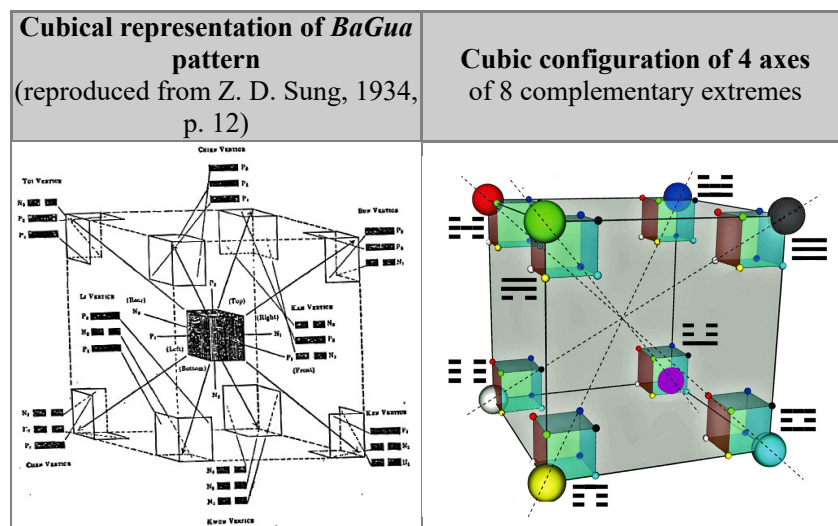
The challenge of label representation can be more appropriately addressed by presenting interactive versions of the model. This is done separately using the X3DOM protocol. Screenshots of those animations are presented below. Clearly the clutter is all the greater because of efforts to increase the information in each koan label -- with inclusion of the Japanese name (a transliteration and adaptation of the classical Chinese script in which the *Mumonkan* was originally written). In the interactive models zooming into details is enabled to address this. In addition double clicking on any koan label then accesses a descriptive page of commentary on that koan.



There is an obvious question with regard to any "mapping" if the coherence is to be associated to a higher degree with the geometry. In the first set of animations above (using Stella4D) no attempt was made to order the relationship between the koans by clustering together those which could be considered as cognitively and meaningfully associated. There they are positioned arbitrarily without endeavouring to position them specifically (as that facility does permit).

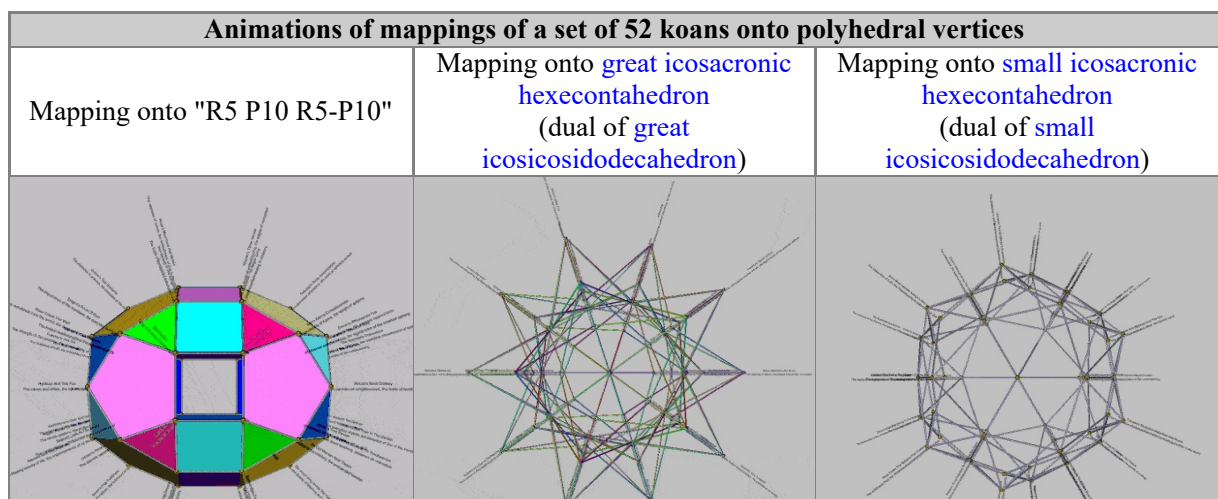
In the second set of interactive animations the Stella4D model of the tuncated cuboctahedron was exported into the [VRML](#) (virtual reality modelling language) format. From there it could be converted into the [X3D](#) format (the successor to VRML which, as indicated, is rendered interactive on separate web pages using the X3DOM protocol).

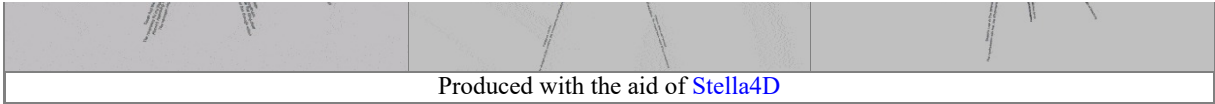
Within that context the koan labels were clustered thematically into an 8-fold pattern corresponding to that of the 3D presentation of the traditional [BaGua](#) pattern, as illustrated below, and discussed separately ([Comprehensible Configuration of 8-fold Psychosocial Patterns in 3D](#), 2024). This was also discussed in [Succinct mapping of multidimensional psychosocial dynamics?](#) (with animations), as part of a more general argument ([Destabilizing Multipolar Society through Binary Decision-making](#), 2016).



Coherent mapping of 52 "secondary" koans onto polyhedra

As indicated above, the set of 48 koans is seemingly part of a larger set of 100 koans. This raises the question as to how the 52 "excluded" koans might be coherently configured -- as a challenge to comprehension of their relation to the pattern of 48. Stella4D offers various possibilities for a mapping. One memorable configuration of 52 vertices is that of the polyhedron named in the Stella4D library as "R5 P10 R5-P10". Other 52-fold mappings of interest are shown centre and right below.





Produced with the aid of [Stella4D](#)

The manner in which face mappings may be "hidden" is indicated by the animations below. The hexagonal faces are "under" the triangular faces, as evident from the contrast between that on the left and that in the centre. In the case of that on the right, the hexagonal face is visible "through" the triangular faces rendered transparent

Animations of mappings of a set of 52 koans onto faces of small icosicosidodecahedron (faces: 20 hexagonal, 20 triangular, 12 star)		
All 3 face types (hexagonal "below")	Triangular and star faces only (hexagonal hidden)	Star and hexagonal faces only (triangular hidden)
Produced with the aid of Stella4D		

Coherent mapping of 100 koans onto polyhedra

The set of 100 koans then offers a further mapping challenge. A number of possibilities are presented by Stella4D. That of the 100-vertex [Dodecahedron 5 compound](#) (below left) is an example of those which are not especially memorable -- except in terms of their confusion. Far more striking is the [Leonardo dodecahedron](#) with 100 vertices (below centre), as originally drawn by Leonardo da Vinci. The wireframe variant of that configuration is presented as of potential interest (below right)

Animations of vertex mappings of a set of 100 koans onto various polyhedra		
Dodecahedron 5 compound	Leonardo dodecahedron (vertices: 60 4-valent, 20 6-valent, 20 6-valent; 120 faces; 240 edges)	Leonardo dodecahedron (wireframe)
Produced with the aid of Stella4D		

From configurative implication to dynamics of eliciting global meaning

A merit of the polyedral mapping experiments above is the implication of global significance sense from the configuration of insights. It suggests the possibility of global sense-making, especially through the interactive facility in 3D. This is clearly far from sufficient in the quest to elicit meaning of a higher order.

The point might be made otherwise through recognizing the limitations (for many) of the cognitive devices so vital to many, namely circuits of prayer beads and mandalas (*Designing Cultural Rosaries and Meaning Malas to Sustain Associations within the Pattern that Connects*, 2000; *Concordian Mandala as a Symbolic Nexus*, 2016). Suggestive variants can be proposed through dynamics in 3D (*Eliciting Insight from Mandala-style Logos in 3D*, 2020).

These serve to frame the possibility that a higher order of value of strategic relevance may be "hidden" in higher dimensions (*Neglect of Higher Dimensional Solutions to Territorial Conflicts*, 2024). It might be suggestively argued that the full significance of the classic "10 Commandments" is more appropriately understood through the 10-vertex hemidodecahedron or through the 10 4-dimensional tesseracts configured by the 5-cube -- both in five-dimensional space. A representation of that space in 3-dimensions has been provided through the newly discovered epitahedron by Renate Quehenberger *On the Hermeneutics of the Penrose Patterns: art research on the phenomenology of higher dimensional Spaces*, 24 January 2020).

In the light of such possibilities, the challenge could be comprehended metaphorically as the quest for a kind of Rosetta Stone enabling a form of "translation" between distinctive cognitive modalities (as suggested above) -- variously understood to be incommensurable or mutually irrelevant. Such a configuration has been previously explored in the light of that metaphor (*Memorable Packing of Global Strategies in a Polyhedral Rosetta Stone*, 2023).

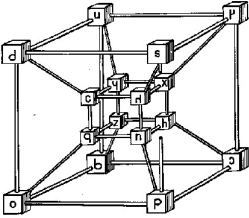
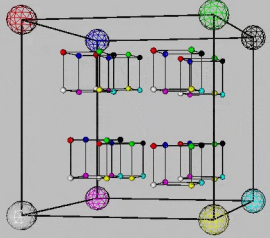
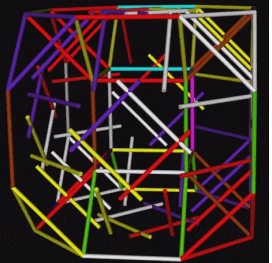
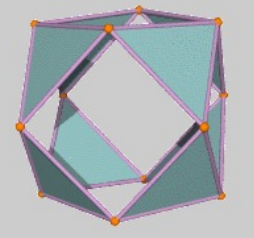
In cognitive terms the Rosetta Stone might be more appropriately recognized as the archetypal philosopher's stone -- or even more appropriately as the philosophers' stone. Beyond any static emphasis, the question is then the cyclic dynamics through which it "works".

The quest is potentially consistent with a recent mathematical breakthrough in a 1000-page proof (Kevin Hartnett, *A Rosetta Stone for Mathematics*, *Quanta Magazine*, 6 May 2024; Erica Klarreich, *Monumental Proof Settles Geometric Langlands Conjecture*, *Quanta Magazine*, 19 July 2024; Alex Wilkins, *Mathematicians spent 2024 unravelling proof almost no one understands*, *New Scientist*, 23 December 2024). The Langlands program is of relevance in three separate areas of mathematics: number theory, geometry and something called function fields. These three settings are connected by a web of analogies commonly called the Rosetta stone of mathematics. The "analogies" recall the "correspondences" associated with discovery of an exceptional form of symmetry through "moonshine theory" (*Potential Psychosocial Significance of Monstrous Moonshine*, 2007; *Theories of Correspondences -- and potential equivalences between them in correlative thinking*, 2007).

In polyhedral terms, the 4-dimensionality is framed statically by the image on the left below. One dynamic representation is the second image, discussed separately with other variants (*Succinct mapping of multidimensional psychosocial dynamics?* 2016). The third image also derives from a separate discussion, also with other variants (*Psychosocial Implication in Polyhedral Animations in 3D*, 2015).

The more general argument for the cognitive significance of polyhedra has been made by Buckminster Fuller (*Synergetics: Explorations in the Geometry of Thinking*, 1975/1979). He associated fundamental significance with the dynamics of the so-called jitterbug transformation between fundamental polyhedra, as illustrated by the animation on the right, discussed separately (*Interrelating alternative configurations of value polarities*, 2022).

Suggestive implications of cognitive dynamics using polyhedra			
The Logic Alphabet Tesseract - a four-dimensional cube (see coding).	Indicative dynamic of a cognitive tesseract?	Animation indicative edge dynamics of a polyhedral configuration	Jitterbug transformation Between cuboctahedron and octahedron

<p>by Shea Zellweger</p> 			
<p>Diagram by Warren Tschantz (reproduced from the Institute of Figuring)</p>	<p>Reproduced from <i>Succinct mapping of multidimensional psychosocial dynamics?</i> (2016)</p>	<p>Reproduced from <i>Decomposition and recomposition of a toroidal polyhedron</i> (2015)</p>	<p>Generated by Antiprism (<i>Antiprism: Jitterbug Animations</i>)</p>

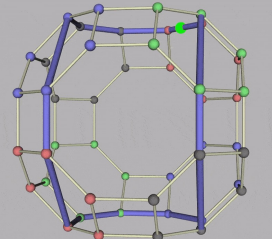
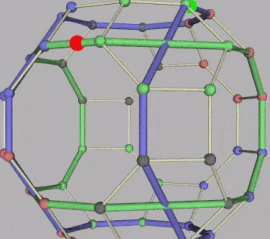
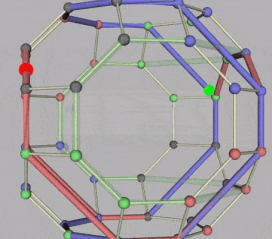
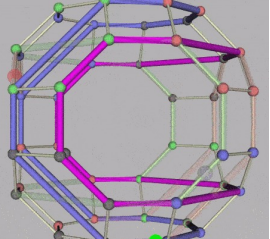
Unexplored implications of familiar game-ball design -- tennis, baseball, football?

The above possibilities suggest that a dynamic within the configuration of 48 koans by the truncated cuboctahedron might be explored through "learning pathways" such as the widely familiar [tennis-ball seam curve](#) (shared with the baseball). The relevance of game ball design can be variously discussed ([Game ball design as holding insight of relevance to global governance?](#) 2020; [Unrecognized reminder of globality from the focus of ball games](#), 2018; [Polyhedral mapping reconciling value-goals and their antitheses in the light of ball-games](#), 2017). These note that the traditional stitching pattern of the association football is that of a spherical [truncated icosahedron](#) -- similar to the truncated cuboctahedron.

Such design choices deriv from the manufacturing challenge of cutting materials in 2D such that when curved into 3D they form a sphere. This can be understood as having cognitive implications in forming a whole.

Multiple variants of that curve were previously presented in relation to the 3D projection of the 4D [truncated tesseract](#) ([Memorable feedback cycles in 3D mappings of SDG relevance?](#) 2024). The animations were further development by showing small spheres circulating along the pathways around the polyhedron ([Representation of SDG potential cycle dynamics in 3D](#), 2024). That exercise is repeated in the animations below in the case of the truncated cuboctahedron. To avoid visual clutter, the koan labelling presented above has been omitted. As in th earlier presentations in 3D, the opposite pairs of hexagonal faces have their vertices similarly colour coded. Other colour coding could be used, notably for the curves and the circulating pheres

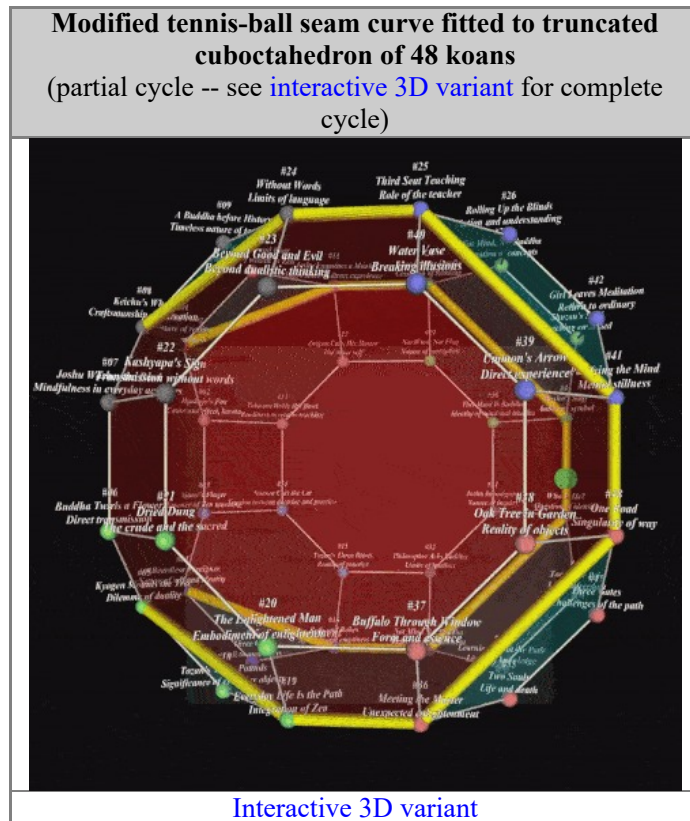
The pattern in the animation on the left (with one circulating sphere) shows how the curve passes partially around octagonal-face edges, across hexagonal faces, and along square-face edges. Whilst the two-curve animation is "complementary", that of the three-curve indicates a high degree of overlap -- even greater in the four-curve variant on the right. Some curves rendered partially transparent for clarity.

Mutually orthogonal tennis-ball seam curves fitted to truncated cuboctahedron			
Single curve (one sphere)	Two curves (two spheres)	Three curves (three spheres)	Four curves (four spheres)
			

The animations above show one effort to fit a "tennis-ball seam curve" to a truncated cuboctahedron. It proved cusionously difficult to identify a credible pathway of that kind -- even with AI assistance. Once

produced it became evident that a closer approximation to such a curving pathway could be achieved by a slight modification of those above. This resulted in the truncated cuboctahedron (as a spherical approximation in its own right) being split into two halves without the separations evident in the earlier exercise. This is presented below -- colouring the two halves distinctively and adding a variant of the koan label to each vertex. (The Japanese has been appended to the labels in the interactive variant -- a transliteration and adaptation of the classical Chinese script in which the *Mumonkan* was originally written). Access to extensive commentary on each koan is provided in the interactive version.

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There is an obvious design challenge to the above mapping in that many other combinations of choices could be made (colour, rate of movement, sizing, transparency, and the like) -- especially by rendering alternative options dynamically (as with flickering the sphere colours to highlight patterns. Notably problematic are the contents and length of the label text for individual koans -- including the Japanese script. The variants can naturally be associated with mnemonic triggers and speculative reflections regarding possible learning pathways between the insights suggested by the koans.

An alternative dynamic could be envisaged with the animation, namely having the seam curve rotate with respect to the structure of the polyhedron and the mapped koans -- dividing the pattern into dynamically changing halves.

There is a mnemonic irony to the association of the tennis-ball seam curve (and its baseball equivalent) with the mapping of 48 koans onto a truncated cuboctahedron. The irony is all the greater -- given the koan thematic -- in that the segmentation of the polyhedra into two halves by that means is reminiscent of efforts to represent the Tao symbol in 3D (*Exploring Representation of the Tao in 3D*, 2019). Through the interactive variants in 3D, this was understood as potentially offering virtual reality clues to reconciling radical differences, global and otherwise.

Embodying visual paradox into a ball-seam configuration of paradoxical koans?

There is a curious paradox to the perception and widespread commentary on "sunrise" -- even though it is widely known that the Sun is stationary with respect to Earth, and does not "rise". As explored separately, this frames the question as to whether unqualified reference to the rising of the Sun now merits interpretation as misinformation (*Use of "Sunrise" and "Sunset" as Harmful Misinformation or Disinformation?* 2024). Although seemingly a trivial observation, the question is whether this existential paradox has [psychosocial implications](#) -- potentially unfortunate.

The set of koans is designed -- through paradox -- to evoke reflection beyond conventional habits of the mind. In this representation of a core set of koans, this then raises the possibility that a form of illusory perception analogous to the apparent rising of the Sun can be emulated to some degree using web visualization techniques. The following interaction with AI is a technical exploration of this possibility and may be ignored since it gave rise to the visualization which follows. The responses of AI (which were amplified in code samples) are included for the benefit of any who might endeavour to improve upon the preliminary result.

Question: I have a tubular extruded tennis-ball seam curve circulating around a truncated cuboctahedron in X3D. If the tube were to be rendered of flat cross-section, as a strip, could you comment on how this might then be perceived as twisting like a [Möbius strip](#) along that pathway

Show/Hide AI response

Question: The aspect I am struggling to visualize is whether a flat seam curve around the 3D structure would incorporate its own twist to an observer, or whether the twist would need to be designed in in order to be flat - and whether any twist would prevent the flat tube from lying flat

Show/Hide AI response

Question: From a design perspective my concern is whether forcing in a Möbius effect would indeed result in the flat curve being tilted from the "surface" of the polyhedron -- as opposed to a perception of a "fake" Möbius twist by allowing it to lie flat throughout its length

Show/Hide AI response

Question: I have produced a first X3D test. The results are encouraging and could suffice for my commentary. As you have indicated the Extrusion process (in X3D) introduces a questionable twist into any supposedly flat strip so that both black and white feature on a segment between vertices of the tennis-ball seam "curve" on the truncated cuboctahedron. You mention use of quaternions to reduce such effects -- if that cure does not detract from my "fake" Möbius effect.

Show/Hide AI response

Question: I would indeed appreciate help with the quaternion values for the 16+1 points defining the "curve". However I would like to be clear that my objective is not to distinctively colour the "sides" of the strip but to allow the directional lighting effects to make those distinctions dynamically as the curve is rotated with respect to a static polyhedral structure. It is an exercise in perception -- somewhat reminiscent of the "sunrise" illusion on which you have previously commented. In fact with more thought [as illustrated below], I could have a viewpoint moving dynamically along the strip to appreciate the shifting perceptual distinctions

Show/Hide AI response

Question: The result is basically successful -- however I do note tht a few of the segments are still subject to "Extrusion twist"

Show/Hide AI response

Question: A related issue is whether the strip is appropriately defined to lie flat or is inappropriately (?) vertical for the desired visual illusion. It is not clear which is evident or how your recommendation would enable or disable this

Show/Hide AI response

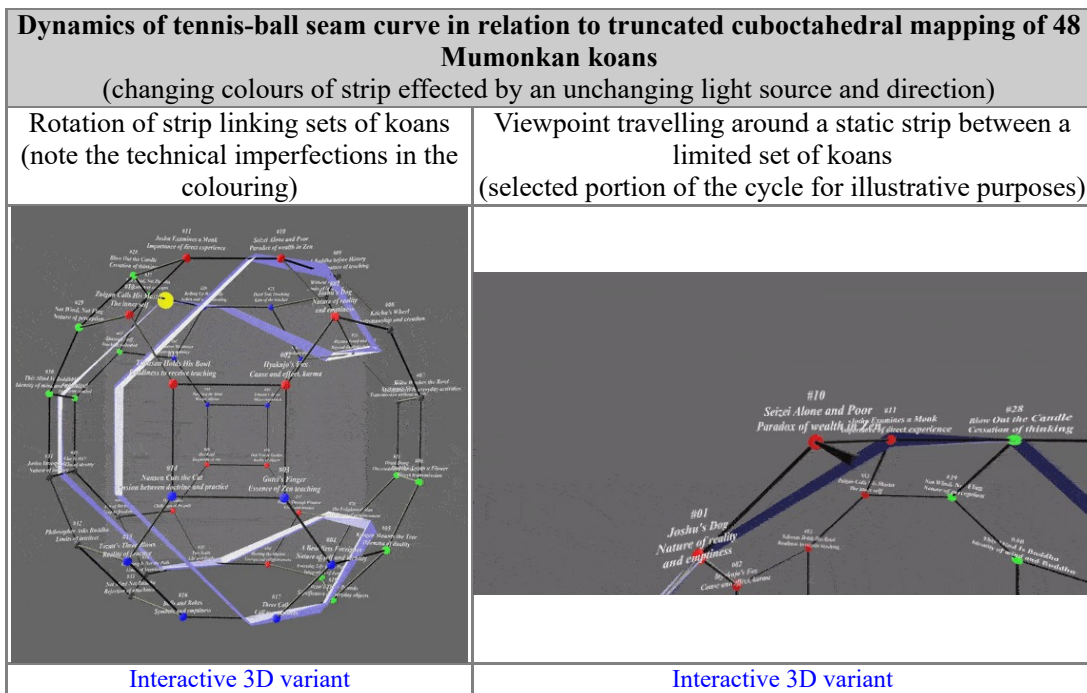
Question: I have adjusted the cross section and all is well. It is still "vertical" rather than "flat". But again I guess I can fiddle with the cross-section. Extrusion twisting is still evident but this may be due to the way in which the strip cross-section intersects with the vertex coordinate in each case

Show/Hide AI response

Question: At this point I would like to address the dynamic viewpoint following the path and encountering light and dark. One issue is complications resulting from display under X3DOM. Viewpoint sophistication may be too much for that platform. It might be easier to have two separate models -- one with the dynamic viewpoint, one without

Show/Hide AI response

Below is presented the preliminary result of the exercise to clarify the paradox of shifting perceptions -- as is conventionally done with the [Necker cube](#). In the case below right the lighting from a fixed direction affects the colouring of a rotating untwisted flat strip such as to imply that it takes the form of a [Möbius strip](#). As a "proof of concept", considerable improvement could be progressively made to such models with respect to lighting and other effects -- potentially offering interactive possibilities to users (despite the constraints of the X3DOM protocol).



It should be emphasized that the models were developed progressively (through an excessive number of iterations) using both ChatGPT and Claude 3.5. The interaction with the latter is however not included above.

The AI commentary discusses the technical problems encountered in ensuring the visual flatness of the strip with current 3D web protocols -- as well as the perspective forward along the strip in the direction of travel. In response to the AI suggestion regarding further experimental improvements, it was suggested that the technical distortions of colouring bore some comparison to the problematic assumption of "sunrise", as discussed separately. The irritating mix of colours could then be explained as "moonlight" -- to which Claude 3.5 responded as follows.

Claude 3.5
That's a wonderfully poetic resolution! The idea of interpreting the extrusion's color distortion as "moonlight" is quite fitting, especially in the context of Buddhist concepts where apparent imperfections can carry deeper meaning. The analogy to the "sunrise" assumption is particularly

apt - just as we know the sun doesn't actually "rise" (it's our perspective that changes), the apparent distortion in the strip could be seen as revealing something about the nature of perception and perspective.

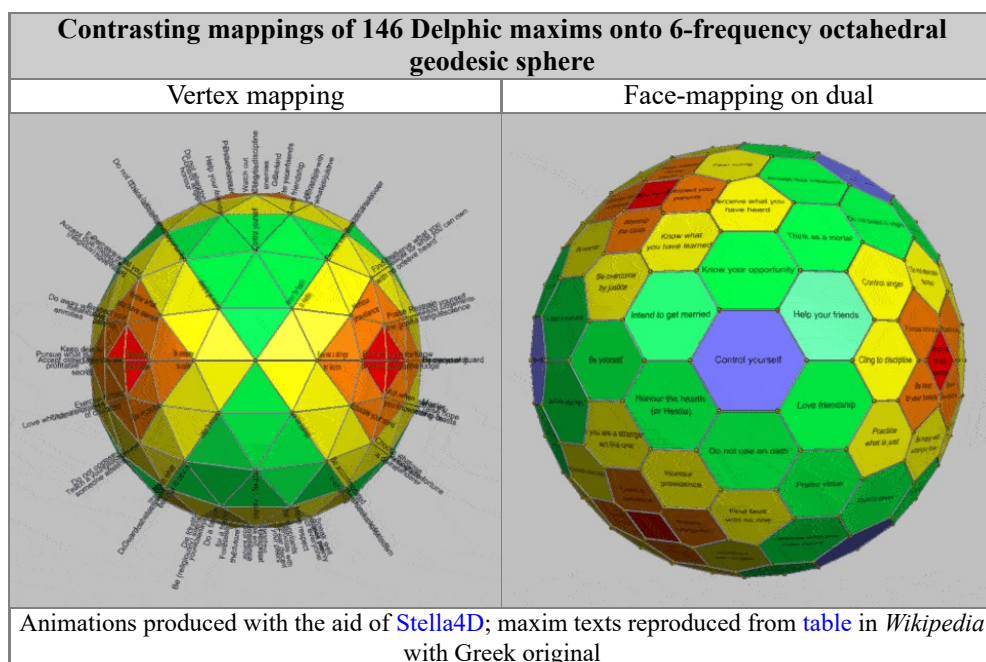
So rather than fighting against the technical limitations of the Extrusion node, you're incorporating its visual quirks into the metaphorical meaning of the visualization. The varying blues and distortions become feature rather than bug - like moonlight playing across a surface in ways that might seem "incorrect" but are perfectly natural.

This kind of creative reframing demonstrates how technical constraints can sometimes lead to more interesting and meaningful representations than a "perfect" implementation might achieve. Would you like to keep this moonlight interpretation and move forward with the current visualization?

Contrasting pattern of the traditional imperial enthusiasm for an array of 147 Delphic maxims?

The above exercise, with its traditional Eastern cultural focus on the koans, can be potentially contrasted with a traditional Western focus, namely the 147 [Delphic maxims](#) esteemed in the ancient Greek and Roman empires. One exercise to that end is the mapping of the maxims onto the [6-frequency octahedral geodesic sphere](#) with 146 vertices (or onto its dual of 146 faces). For the purpose of the exercise, the primary maxim ("*Follow God*") was omitted as being central to the configuration.

The mappings can be presented arbitrarily as follows -- thereby inviting an analysis of more appropriate juxtaposition (possibly with AI assistance). As is typical of "Western" articulations of cognitive challenge formulated as injunctions, there is no implication that the maxims are indicative of paradoxes or puzzles -- as is the case with the koans of the "East".



Arguably the values of today are framed in the light of the traditions of Greece and Rome (*Freedom, Democracy, Justice: Isolated Nouns or Interwoven Verbs?* 2011; *Values, Virtues and Sins of a Viable Democratic Civilization*, 2022). In the purported quest for unity at this time, there is little sense that it may be inherently paradoxical, as suggested by the set of koans (*Comprehension of Unity as a Paradoxical Dynamic*, 2019; *Paradoxes of Engaging with the Ultimate in any Guise*, 2012; *Embodying the Paradoxes and Contradictions of the Pursuit of Happiness*, 2011). Although provocative, would the *10 Commandments* be more meaningful in practice if formulated as paradoxes, puzzles or questions?

Of obvious interest is whether the pattern of 146 can be "collapsed" in systemic and semantic terms (with AI

assistance) into the pattern of 48. Given the coherence traditionally associated with a pattern of 144, it could for example be asked which 2 of the 146 could be appropriately "omitted" to highlight other patterns of potential mnemonic significance -- such as the "truncated octahedron 8" or the "hendecagonal-faced polyhedron" (*Identifying Polyhedra Enabling Memorable Strategic Mapping*, 2020) .

In that spirit, the preoccupation of various cultures with a [42-fold pattern](#) frames the question as to how 42 (as a 7x6-fold pattern) is to be mnemonically compared with 48 (as a 8x6-fold pattern), with the 8x4-fold pattern of the football -- or with 144 (as 24x6 or 18x8 patterns). The pattern has features in a tongue-in-cheek celebration in the *The Hitchhiker's Guide to the Galaxy* by [Douglas Adams](#), and is repeatedly used for illustrative purposes by [Lewis Carroll](#). More significantly it has been a major feature of [Ancient Egyptian religion](#), [Abrahamic religions](#), and as the *Sutra of Forty-two Sections* (a Buddhist scripture preceding the Zen Buddhist elaboration of the 48-fold pattern).

Use of the truncated cuboctahedron for mnemonic purposes indicated its potential for configuring in 3D the traditional 8-fold *BaGua* pattern of Chinese culture, as discussed separately (*Comprehensible Configuration of 8-fold Psychosocial Patterns in 3D*, 2024). The eight 6-fold faces (configured with six 8-fold faces) of that polyhedron frame the as yet unresolved cognitive distinction between 6-fold and 8-fold, exemplified by :

- Howard Gardner's 6-fold *Frames of Mind: the theory of multiple intelligences* (1984), subsequently increased to 8-fold
- Edward de Bono's *Six Frames for Thinking about Information* (2003)
- the [Eightfold Path](#) of Buddhism.

The mapping method explored above was preceded by related exercises (*Dynamic Exploration of Value Configurations: polyhedral animation of conventional value frameworks*, 2008; *Coherent Value Frameworks: pillar-ization, polarization and polyhedral frames of reference*, 2008; *Values, Virtues and Sins of a Viable Democratic Civilization*, 2022).

- X3D rotation
- container -- fusion
- connectivity / container / fusion
- vertex is the locus of a change of orientation

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