



# *laetus in praesens*

Alternative view of segmented documents via Kairos

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6 February 2024 | Draft

## Comprehensible Configuration of 8-fold Psychosocial Patterns in 3D

Strategic and cognitive potential of polyhedral  
coherence

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### Introduction

Configuration of an 8-fold pattern in 3D on a cuboctahedron

Configuration of an 8-fold strategic pattern as a circle of pillars

Transformation of 8-fold strategic pattern of pillars into 24-edged cuboctahedron: "basket weaving" in virtual reality

Transformation of 8-fold strategic pattern of pillars into 72-edged truncated cuboctahedron

Potential current strategic relevance of the articulations of richer traditional patterns

Polyhedral configuration of 72-fold array of strategic elements in 3D

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The argument here is introduced in a first part and further developed in other parts.

Part 1: *Psychosocial Geometry and Dynamics of Collective Memory*; Part 3: *Comprehensible Organization of Strategic Complexity in 3D and 4D*; Part 4: *Higher Dimensional Reframing of Unity and Memorable Identity*. See Part 1 for [References](#).

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## Introduction

The first part of this document highlights the role of pillars in relationship to strategic principles (*Principles, pillars, projectives and metaphorical geometry*). The question evoked there is the *Use of AI in enabling configuration of psychosocial pillars*. A particular focus is given to the *Clarification of 8-fold strategic patterns with ChatGPT* and the *Recognition of the pattern of 8-fold "ways of looking"*.

Pillars are of course an obvious feature of physical architecture, whether it be that of temples or churches, or in the design of institutions of government and justice. It may be far less evident whether particular symbolic significance is associated with individual pillars in any such array. An intriguing point

of departure is recognition of the extent to which those upholding value configurations make metaphorical use of "pillars" as architectural metaphors for a configuration of values, as discussed separately (*Coherent Value Frameworks: pillar-ization, polarization and polyhedral frames of reference*, 2008; John Onians, *Architecture, Metaphor and the Mind*, *Architectural History*, 35, 1992).

With the transition from principles to pillars, then understood as metaphors, the focus here is on what may be framed as metaphorical geometry (*Metaphorical Geometry in Quest of Globality -- in response to global governance challenges*, 2009). It is variously discussed (Steven Baris, *Geometric Abstraction and Visual Metaphor*, *Expanded Diagram Project*, 5 February 2023; Tib Roibu, *Cognition and the embodiment of geometry in George Lakoff's metaphors*, *Geometry Matters*, 11 July 2023; E. P. Ross, *Geometry, Symbolism and Metaphors*, *Design Blog*, 30 January 2019; Warren Shibles, *The Metaphorical Method*, *The Journal of Aesthetic Education*, 8, 1974, 2).

From that perspective there is a particular irony to a further geometrical transition from pillars to weapons of similar form, given the manner in which they are thrown against enemies as "messages" in their own right, especially as evident in the use of rockets and missiles (*Missiles, Missives, Missions and Memetic Warfare*, 2001). This can be explored in terms of the navigation of strategic interfaces in multidimensional knowledge space.

Understood otherwise, there is a case for urgent exploration of such geometry as mnemonic aids, as argued separately (*Time for Provocative Mnemonic Aids to Systemic Connectivity?* 2018; *Memorability, Mnemonics, Maths, Music and Governance*, 2022; *Systemic Coherence of the UN's 17 SDGs as a Global Dream*, 2021). This has been variously expressed as the need to "join the dots" or as enabling "joined-up thinking" -- a contrast to *silos thinking*, a metaphor also reminiscent of the geometry of unconfigured pillars. From that perspective, perhaps most extraordinary is the housing of a physical transfiguration of strategic pillars in *missile silos* (or nuclear silos) -- in anticipation of "joining up" distant others.

More curious in this period is a "degradation" of strategic pillars through their regression to a more primitive form as "stakes" -- as featured in the stakeholder capitalism promoted by the World Economic Forum (*Planetary Impalement by Stakeholder Capitalism?* 2023). More curious in this period is a "degradation" of strategic pillars through their regression to a more primitive form as "stakes" -- as featured metaphorically in the *stakeholder capitalism* promoted by the World Economic Forum (*Planetary Impalement by Stakeholder Capitalism?* 2023). Any configuration of a circle of stakes, as was fundamental to primitive fortresses of the past, is now strangely echoed by the strategic effort to configure a ring of missile silos around a territory framed as a threat (Ivan Eland, *Does China Have a Point About U.S. Encirclement?* *Independent Institute*, 31 August 2023; Mike Coté, *The Fatal Logic of Encirclement*, *Providence*, 21 April 2023; Alfred Vagts, *Capitalist Encirclement; a Russian obsession -- genuine or feigned?* *The Journal of Politics*, 18, 1956, 3).


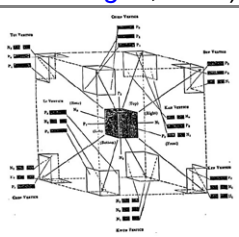
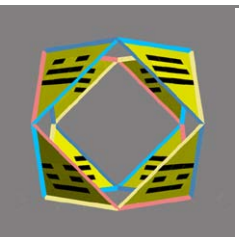
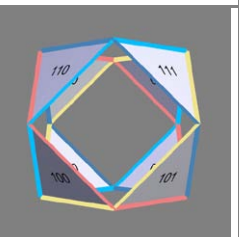
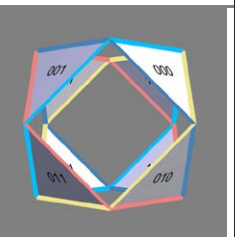
As noted in the introductory part, a strange historical contrast to the use of "pillars" has been the use of four distinctive "baskets" in the development in 1975 of the seminal *Helsinki Accords* by the *Conference on Security and Co-operation in Europe (CSCE)* (Netherlands Helsinki Committee, *45 years since the Helsinki Accords*, 4 August 2020). Whilst this invites reflection on how the baskets were "woven" -- separately or together -- there is little trace of the pattern implied by this widespread traditional skill (*Interweaving Thematic Threads and Learning Pathways*, 2010). As variously illustrated in what follows, it is therefore curious that information technology now enables new possibilities of "strategic basket-weaving" -- potentially with the guidance of AI.

This 4-part document first considers how strategic pillars merit configuration and interconnection as "ways of looking" (*Part 1*). It then explores how 24-fold and 72-fold sets of these might be coherently configured in 3D as polyhedra (*Part 2*). The limitations of these 3D configurations highlight the potential necessity for a 4D framework to encompass more subtle 81-fold sets (*Part 3*). The argument concludes with the suggestion that any quest for "unity" is more appropriately envisaged in 4D rather than in 3D or through conventional framing of territorial conflicts in 2D (*Part 4*).

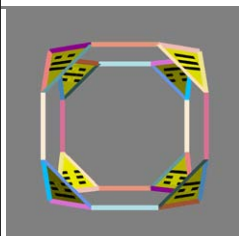
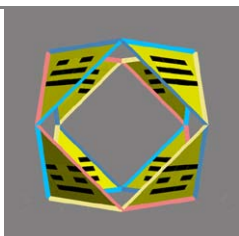
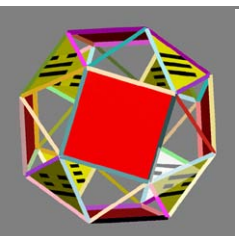
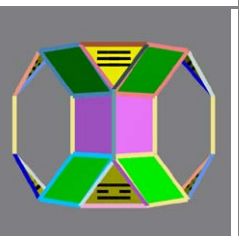
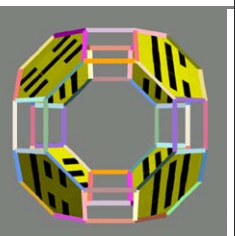
## Configuration of an 8-fold pattern in 3D on a

# cuboctahedron

The following images derive from the previous discussion regarding the 3D configuration of the traditional Chinese *BaGua* array on a cuboctahedron ([Comparison of Eastern and Western patterns on a cuboctahedron](#), 2023). One potential clue to appropriate constraints in 3D is the conventional configuration of 14 of the 16 [logical connectives](#) onto the 14-vertex [rhombic dodecahedron](#) (dual of the 14-faced cuboctahedron). A 4-digit code is associated with each vertex in that configuration. It is unclear whether oppositional logic has determined that this configuration is unique or only an arbitrary mapping with limited concern with symmetry.

| Representations of 8-fold <i>BaGua</i> pattern                                    |   |   |  |   |
|---|---|---|--|---|
| Traditional <i>BaGua</i> pattern  | Cubic array of trigrams   | Cuboctahedral arrays<br>(representing square faces as transparent with great circle edges distinctively coloured) |  |   |
| Fuxi arrangement  | According to Z. D. Sung ( <i>Symbols of the Chinese Logic of Changes</i> , 1934)  | Array of trigrams<br>(as with that of Sung)   | Array of 3-digit codes<br>(broken lines = 0)                                       | Array of 3-digit codes<br>(broken lines = 1)  |
|  |  |                                  |  |  |
| Reproduced from <i>Wikipedia</i>  | Reproduced from Z. D. Sung (1934, p. 12)  | Animations made using <i>Stella 4D</i>  |  |   |

In quest of complexification of the cubic configuration of trigrams, the 8 vertices of the cube can be [truncated](#) to form the [truncated cube](#), the [cuboctahedron](#), the [snub cube](#), or the [drilled truncated cube](#) (as shown below). The strategies, and their trigram denotation, can be then be associated with the 8 triangular faces in each case -- in a manner which could respect the symmetry of Sung's image above. The [truncated cuboctahedron](#) (discussed below) is included, although in this case the truncation creates 8 hexagonal faces similarly configured

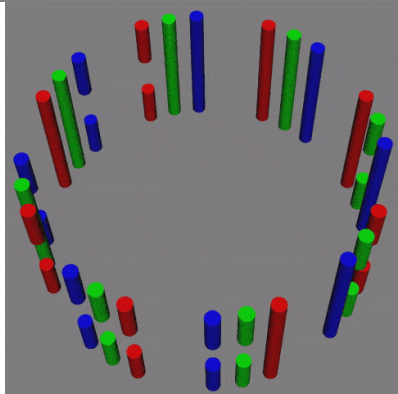
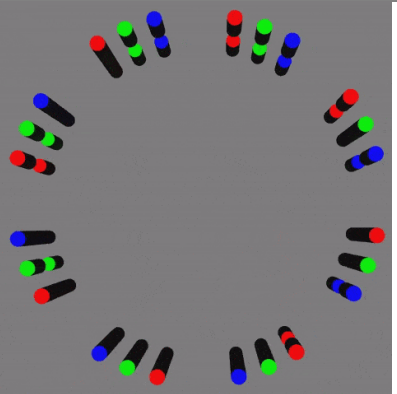
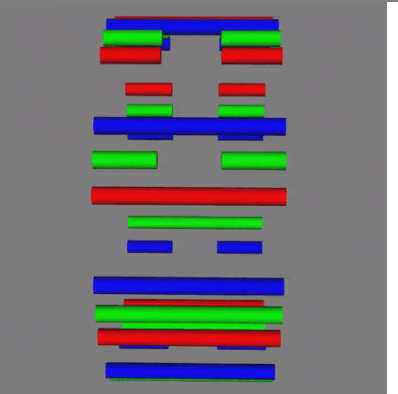
| Animations of possible complexification of 8-fold strategic representation through various truncations of the cube<br>(selected faces transparent; edges coloured as great circles) |   |   |  |   |
|---|---|---|--|---|
| truncated cube  | cuboctahedron   | snub cube   | drilled truncated cube   | truncated cuboctahedron   |
|    |  |  |  |  |
| Animations prepared using <i>Stella Polyhedron Navigator</i>  |   |   |  |   |

## Configuration of 8-fold strategic pattern as a circle of pillars

The traditional 2-dimensional representation of the 8-fold *BaGua* mirror (above) invites an exploratory reconfiguration of its pattern of 3x8 lines as a simple circle of 24 pillars in 3D -- on the assumption that this might be of cognitive significance equivalent to engagement with a physical circles of ceremonial pillars, or defensive stakes.

For the purposes of the exercise, the upper, middle and lower lines in the *BaGua* trigrams were coloured distinctively -- red, green and blue. Of particular relevance are assumptions regarding the manner in which they are "read", as may be discussed more generally concerning the political implications of reading from left-to-right, right-to-left, or top-down (*Unquestioned Bias in Governance from Direction of Reading?* 2016).




Given the correspondences between the trigrams across their configuration in 2D, this is echoed below in 3D. Advantage is taken of 3D technology to animate the pillars between the alternative configurations across the circle of pillars. A broken pillar is thus transformed into an unbroken pillar and vice versa.

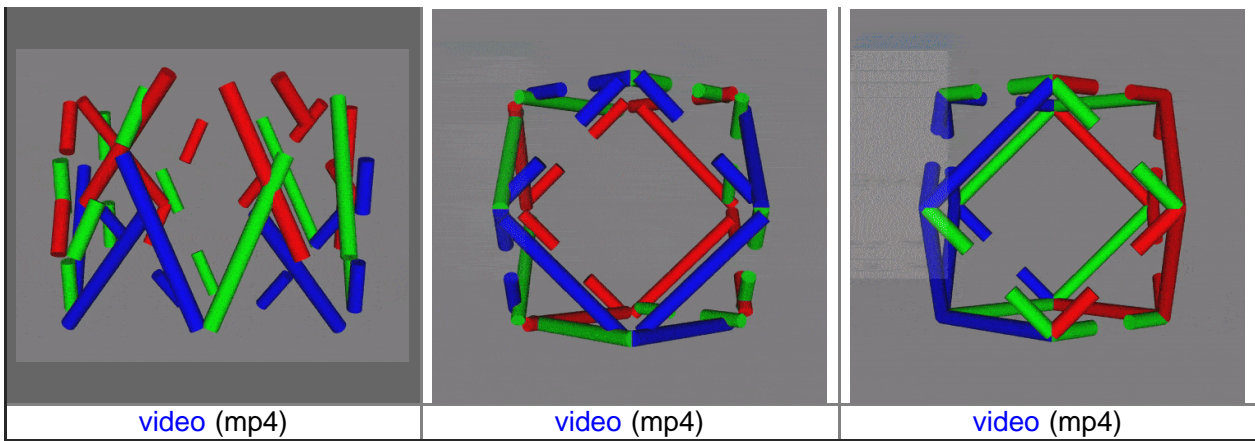
| Different views of a 3D configuration of a circle of 3x8 pillars (adapted from the <i>BaGua</i> configuration)<br><i>Interactive 3D variant</i> |   |   |
|---|---|---|
| Angled  | Overview  | Side view   |
|    |  |  |
| <a href="#">video (mp4)</a>   | <a href="#">video (mp4)</a>   | <a href="#">video (mp4)</a>   |

Such an animation invites a wide variety of modifications, variously suggestive of cognitive and strategic implications. As presented, the animation raises the question of the explicit connectivity between the "pillars", in addition to any implied or inferred. There are no "lintels".

## Transformation of 8-fold strategic pattern of pillars into 24-edged cuboctahedron: "basket weaving" in virtual reality

Following on the the historic use of the "basket" metaphor in the development in 1975 of the seminal [Helsinki Accords](#) by the [Conference on Security and Co-operation in Europe \(CSCE\)](#), as noted above, there is now the possibility of exploring approaches to "strategic basket weaving" as previously argued (*The Future of Comprehension: conceptual birdcages and functional basket-weaving*, 1980). Given the current possibilities of virtual reality visualization technology, the array of 3x8 pillars (above) then invites exploration of the dynamics of its transformation into the 24-edged [cuboctahedron](#). That polyhedron suggests a particular understanding of coherence, with more complex possibilities open to exploration as subsequently illustrated. Of interest are the patterns of colours which can be formed on the cuboctahedron in the light of assumptions regarding their position in the circular array of pillars. The relevant systemic juxtaposition of pillars in the spherical array may call for the insights of [polyhedral combinatorics](#).

| Different views of a 3D configuration of pillars transforming into a cuboctahedron<br>(animation kindly developed by <a href="#">Sergey Bederov</a> of <a href="#">Cortona3D</a> )<br><i>Interactive 3D variant</i> |  |   |
|---|--|---|
| Side view A   | Overview   | Side view B   |
|    |  |  |



Arguably the animation renders explicit a form of "cuboctahedral" connectivity between the "pillars" -- inviting experimental modification, notably with respect to the pattern formed by the colour-coded elements. The cuboctahedron is a focus of extensive commentary by [Buckminster Fuller](#) (*Synergetics: Explorations in the Geometry of Thinking*, 1975-1979). In that light the [kinematics of the cuboctahedron](#) is of potential relevance to strategic flexibility and resilience.

With its 14 sides, the cuboctahedron is of potential relevance to both 14-fold approaches to management and to the appeal of sonnets based on a 14-fold pattern ([Pattern of 14-foldness as an Implicit Organizing Principle for Governance?](#) 2021; [Variety of Rhyming Patterns in Standard 14-line Sonnets](#), 2021). The 12 vertices of the cuboctahedron invites re-examination of the 12-fold patterns so widely framed in strategic articulations ([Time for Provocative Mnemonic Aids to Systemic Connectivity?](#) 2018; [Checklist of 12-fold Principles, Plans, Symbols and Concepts](#), 2011; [Eliciting a 12-fold Pattern of Generic Operational Insights](#), 2011).

One argument for such exploration is the cognitive significance of polyhedral configurations as highlighted by the [Blue Brain Project](#) in 2017 regarding a universe of multi-dimensional geometrical structures and spaces within the networks of the brain. Seemingly it is as if the brain reacts to a stimulus by building then razing a tower of multi-dimensional blocks, starting with rods (1D), then planks (2D), then cubes (3D), and then more complex geometries with 4D, 5D, etc. The progression of activity through the brain then resembles a multi-dimensional sandcastle that materializes out of the sand and then disintegrates. Could you comment further on the implications for memorable knowledge organization

As with the number 8, the *Wikipedia* entry on the [number 24](#) presents a challenging array of its implications in a wide variety of domains -- framing the question as to how it is to be "read" (as noted above).

**Question to ChatGPT:** The *Wikipedia* entry on 24 (number) offers an extensive overview of the many domains in which 24-foldness is especially significant. Are you able to suggest 8-fold clusterings of these instances suggestive of their fundamental cognitive or systemic significance

To identify and suggest 8-fold clusterings of the significance of the number 24 across various domains, as mentioned in the *Wikipedia* entry on 24, we need to first categorize the instances of 24-foldness into broader themes. These themes can then be clustered into groups that reflect their cognitive or systemic significance. Here's an approach to clustering these instances:

- **Time and Astronomy:** The 24-hour day cycle is a fundamental aspect of human perception of time. This includes the division of hours and the concept of a day-night cycle. Additionally, astronomical references, such as the 24 cycles of the Chinese solar year, can be included here.
- **Mathematics and Geometry:** The number 24 has significance in mathematics, such as in the form of 24 being a factorial of 4 (4!), and in geometry, for example, the 24-cell in four-dimensional space.
- **Biology and Genetics:** In biology, the number of chromosomes in some species (e.g., potatoes) is 24. This aspect touches on the fundamental building blocks of life and genetic makeup.

- **Culture and Religion:** Cultural and religious significance, such as the 24 Tirthankaras in Jainism or the 24 elders in Christian theology, can form a cluster highlighting the spiritual or mythological role of the number.
- **Literature and Media:** The use of 24 in literature and media, such as in titles or themes of books, movies, or TV shows (e.g., the TV series "24"), illustrates its impact on arts and entertainment.
- **History and Governance:** Historical references, such as the 24-letter alphabet in classical Latin, and governance, including structures like a 24-member council, demonstrate the number's role in societal organization and historical development.
- **Physics and Chemistry:** In the realm of physics and chemistry, the number 24 can be related to atomic numbers, such as the element chromium having an atomic number of 24, indicating its place in the periodic table and its physical properties.
- **Sports and Games:** In sports, the number 24 might be significant in game rules or as a notable jersey number. This reflects its presence in recreational activities and popular culture.

Each of these clusters represents a different cognitive or systemic aspect of the significance of the number 24, ranging from its role in time measurement and spiritual beliefs to its presence in scientific principles and entertainment.

**Question to ChatGPT:** Having identified and clustered them, can systemic distinctions between them be recognized -- together with why preferences for 24-foldness might be evident in each case

The systemic distinctions between the identified clusters of 24-foldness can be recognized by examining the underlying reasons or principles that make the number 24 significant in each case. These distinctions often arise from historical, cultural, practical, or scientific considerations. Let's explore these for each cluster:

- **Time and Astronomy:**
  - **Systemic Distinction:** Rooted in natural phenomena, like Earth's rotation and celestial movements.
  - **Preference for 24:** The division of day and night into 24 hours is likely due to the historical use of sundials and the ease of dividing circles into 24 parts. The number's divisibility (by 1, 2, 3, 4, 6, 8, 12) makes it a practical choice for timekeeping.
- **Mathematics and Geometry:**
  - **Systemic Distinction:** Based on abstract mathematical properties and spatial reasoning.
  - **Preference for 24:** In mathematics, 24 appears as a factorial and as a number of symmetries, reflecting its importance in structure and order. It's a highly composite number, which makes it useful in various mathematical contexts.
- **Biology and Genetics:**
  - **Systemic Distinction:** Relates to evolutionary and genetic factors.
  - **Preference for 24:** The occurrence of 24 chromosomes in some species is a result of evolutionary processes and genetic variation. It's not a preference but a natural outcome of biological diversity.
- **Culture and Religion:**
  - **Systemic Distinction:** Influenced by historical, spiritual, and philosophical beliefs.
  - **Preference for 24:** Often symbolic, reflecting historical or mythological significance (e.g., the 24 Tirthankaras representing a cycle of spiritual teachers in Jainism). The number may have numerological or symbolic importance in various cultural contexts.
- **Literature and Media:**
  - **Systemic Distinction:** Arises from creative and artistic expression.
  - **Preference for 24:** In arts and media, 24 can be used symbolically or for its cultural resonance. Its use might be influenced by its perceived significance or familiarity in popular culture.
- **History and Governance:**
  - **Systemic Distinction:** Emerges from social organization and historical development.
  - **Preference for 24:** Historical and governance structures featuring the number 24 might be due to its divisibility, facilitating equitable division in administrative and organizational contexts.
- **Physics and Chemistry:**
  - **Systemic Distinction:** Based on fundamental scientific principles and properties of

elements.

- Preference for 24: In chemistry, the atomic number 24 (for chromium) is determined by the structure of the atom and its electrons, which is a natural characteristic rather than a preference.
- Sports and Games:
  - Systemic Distinction: Rooted in rules, traditions, and conventions of games and sports.
  - Preference for 24: The use of the number in sports and games could be due to tradition, rules, or simply as a convention. It might also be chosen for its symbolic value or recognizability.

In summary, the systemic distinctions between these clusters are based on the different domains' foundational principles and purposes. The preferences for 24-foldness in each case arise from a combination of practicality (e.g., divisibility in timekeeping), natural phenomena (e.g., biological genetics), cultural and symbolic significance (e.g., in religion and media), and established conventions or traditions (e.g., in sports).

**Question to ChatGPT:** The response notes the distinction between domains but it may then be asked how distinctions within any pattern of 24 might be recognized. This would seem to be more evident qualitatively in the case of recognition of sets of spiritual figures than in the quantitative indications from mathematics or chemistry.

Distinguishing within any pattern of 24, particularly in domains like spiritual figures versus mathematics or chemistry, involves understanding the qualitative versus quantitative nature of these domains. In spiritual or cultural contexts, the distinctions are often symbolic and qualitative, while in mathematics and chemistry, they are quantitative and based on empirical or logical structuring. In the case of governance, each of the 24 elements might represent a different systemic function critical to the viability of the whole system. This concept aligns with the idea of a complex, integrated system where each component plays a unique and vital role.

Let's delve into how distinctions can be recognized within these patterns:

- Spiritual and Cultural Contexts:
  - Nature of Distinctions: These are primarily symbolic, qualitative, and interpretive. Each entity within a set of 24, like the 24 Tirthankaras in Jainism, carries a unique symbolic meaning, story, or teaching.
  - Recognition of Distinctions: The distinctions are understood through the lens of cultural narratives, teachings, and symbolic interpretations. Each figure is distinct in its spiritual significance, role in mythology, or moral teachings.
- Mathematics:
  - Nature of Distinctions: Here, the distinctions are quantitative and based on mathematical properties. For example, in the 24-cell polytope in four-dimensional space, each cell represents a distinct mathematical entity with specific properties and relations to others.
  - Recognition of Distinctions: Distinctions are recognized through mathematical analysis, such as understanding the structure, symmetry, or relationships between elements within the 24-cell configuration.
- Chemistry:
  - Nature of Distinctions: In chemistry, the distinctions are based on atomic structure and properties. For example, chromium has an atomic number of 24, distinguishing it from other elements based on its number of protons and consequent chemical properties.
  - Recognition of Distinctions: These distinctions are recognized empirically through chemical experiments and theoretically through the understanding of atomic theory and the periodic table.
- Governance as a Complex System: Governance, especially in larger entities like nations or large organizations, can be seen as a complex system composed of various interconnected parts. Each part or function contributes to the overall health and effectiveness of the system.
  - 24 Distinct Functions in Governance: If we consider a hypothetical model where 24 distinct functions are identified in a governance system, these could represent different areas such as legislation, executive administration, judiciary, defense, education, healthcare, finance, trade, environment, social welfare,

infrastructure, and more. Each of these functions is essential for the system's stability and effectiveness.

#### Systemic Implications of the 24 Functions:

- **Interdependence:** Each function is interdependent. The performance of one area can significantly impact others. For instance, effective legislation impacts social welfare and justice.
- **Balance and Checks:** In a well-functioning governance system, these 24 functions would ideally balance each other, providing checks and balances to prevent abuse of power and ensure fair representation.
- **Adaptability:** The system must be adaptable, with each of the 24 functions capable of responding to changes and challenges, both internal and external.
- **Systemic Viability and Cohesion:** The overall viability of the governance system depends on how well these 24 functions work together. Cohesion and efficient communication between these areas are crucial for addressing complex, multifaceted challenges.
- **Symbolic Representation:** Each of the 24 functions might also carry symbolic significance, representing core values or principles of the governance system, such as justice, equity, freedom, and resilience.

In spiritual and cultural contexts, the focus is on the interpretive and symbolic significance of each element within the pattern of 24, where each part contributes to a broader narrative or symbolic system. In contrast, in mathematics and chemistry, the distinctions are more rigid, defined by empirical data, logical structuring, or mathematical properties. Each element within a set of 24 in these domains has a specific, quantifiable, and distinct characteristic that defines its place in the overall structure.

Thus, recognizing distinctions within a pattern of 24 depends significantly on the domain of application and the nature of the elements involved – whether they are interpreted symbolically and qualitatively, as in spiritual figures, or defined quantitatively and empirically, as in mathematics and chemistry.

In this model, the number 24 is not just a quantitative measure but represents a holistic and integrated approach to governance, where the sum is greater than its parts. Each function, while distinct, contributes to a larger, cohesive structure, embodying the principles and values that the governance system stands for. This approach underscores the importance of each component's role and the need for a balanced, coordinated, and adaptable system for effective governance.

**Question to ChatGPT:** In the case of 14-foldness, there is considerable literature on the 14 distinct principles of management especially associated with the [Toyota Way](#) -- arguably an indication of a [Pattern of 14-foldness as an Implicit Organizing Principle for Governance?](#) (2021). It might then be asked whether a 24-fold articulation would suggest a more appropriate array of functions -- if it were possible to make those distinctions

The concept of a 14-fold pattern, as seen in the 14 principles of the Toyota Way, indeed illustrates how a specific number of organizing principles can effectively govern and optimize a system. This can be extended to the idea of a 24-fold articulation in governance or management, suggesting a potentially more comprehensive array of functions. Let's explore how a 24-fold pattern could offer a nuanced and possibly more effective framework:

- **Comparing 14-fold and 24-fold Patterns:**
  - The 14-fold principles in the Toyota Way primarily focus on efficiency, continuous improvement, respect, and teamwork within organizational management.
  - A 24-fold pattern could expand upon these by integrating additional aspects such as sustainability, global market dynamics, digital transformation, innovation, diversity and inclusion, and corporate social responsibility.
- **Potential Functions in a 24-fold Governance Model:**
  - **Strategic Management:** Long-term vision, strategic planning, and policy development.
  - **Operational Efficiency:** Process optimization, lean management, and quality control.

- Human Resource Management: Employee development, well-being, and talent acquisition.
- Financial Oversight: Budgeting, financial planning, and risk management.
- Market Analysis: Understanding market trends, customer needs, and competitive landscape.
- Technology and Innovation: Embracing new technologies, research and development, and fostering innovation.
- Sustainability and Ethics: Promoting sustainable practices, ethical decision-making, and corporate social responsibility.
- Globalization: Adapting to global challenges, international regulations, and cultural diversity.
- Customer Relations: Customer service, feedback mechanisms, and relationship management.
- Communication and Transparency: Effective internal and external communication, transparency in operations.
- Adaptability and Resilience: Ability to adapt to change, crisis management, and organizational resilience.
- Stakeholder Engagement: Involving stakeholders, community relations, and partnership development.
- Appropriateness of a 24-fold Model in Governance:
  - A 24-fold model potentially offers a more comprehensive and nuanced approach to governance and management. It could provide a more holistic view, considering a wider range of factors that impact an organization's success in the modern world.
  - Such a model could be particularly relevant in complex, multifaceted organizations that operate in dynamic environments. It allows for a more flexible and inclusive approach to management, catering to diverse needs and challenges.
- Challenges and Considerations:
  - Implementing a 24-fold model may be more complex and require careful consideration to avoid over-complication.
  - Balancing and integrating the 24 different functions effectively would be crucial. This requires strong leadership, clear communication, and a well-thought-out organizational structure.

In conclusion, a 24-fold articulation in governance or organizational management could suggest a more elaborate and potentially more effective array of functions, especially in complex and dynamic environments. However, the success of such a model would depend on its implementation, the ability to maintain a balance among the diverse functions, and the adaptability of the organization to integrate these principles effectively.

**Question to ChatGPT:** You have offered a useful articulation of a 24-fold pattern of potential significance to governance -- in contrast to the widely recognized 14-fold pattern -- most evident in the organization of sonnets. As implied by your response with regard to implementation, part of the difficulty lies in how the complexity of such a pattern is to be rendered credible, comprehensible and memorable.

The challenge of rendering a complex 24-fold pattern both credible and comprehensible, especially in the context of governance, relates to the need for striking a balance between complexity and understandability. In comparison to the more familiar 14-fold pattern, often seen in sonnets and simpler organizational structures, a 24-fold pattern introduces greater complexity that requires careful presentation and interpretation. Here are some strategies to address this challenge:

- Use of Metaphors and Analogies: Metaphors and analogies can be powerful tools for making complex ideas more relatable and understandable. They can help bridge the gap between abstract concepts and familiar experiences, making the 24-fold pattern more accessible.
- Visualization Techniques: Visual representations, such as diagrams, charts, or even interactive models, can greatly aid in comprehending complex patterns. Visualization can make abstract relationships and structures more concrete and easier to grasp.
- Narrative and Storytelling: Embedding the 24-fold pattern within a narrative framework can enhance its memorability and comprehension. Stories that illustrate how the pattern manifests in real-world scenarios can make the abstract more tangible.

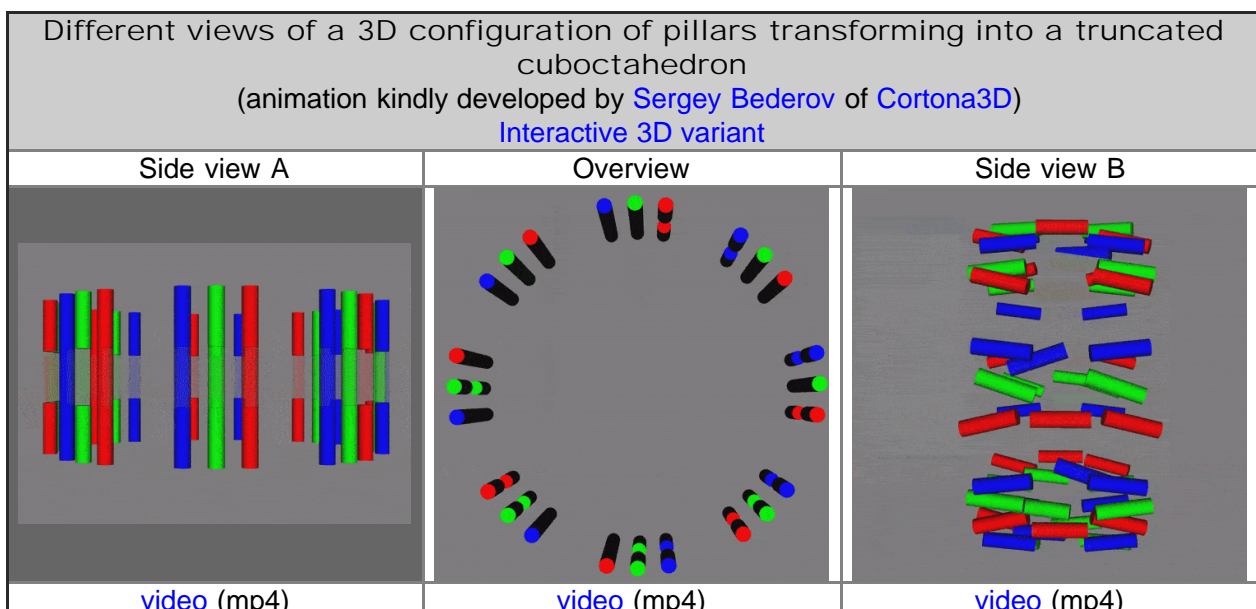
- **Modular Presentation:** Breaking down the 24-fold pattern into smaller, more digestible modules can help avoid overwhelming the audience. Each module can focus on a subset of the pattern, making it easier to understand the whole by first understanding its parts.
- **Educational and Training Approaches:** Developing educational materials or training sessions that gradually introduce the 24-fold pattern can facilitate deeper understanding. Progressive learning, starting from basic concepts and moving towards the more complex, can aid in assimilation of the information.
- **Integration with Existing Knowledge Frameworks:** Linking the 24-fold pattern to existing knowledge frameworks and concepts can provide context and make it more relatable. This approach can leverage people's existing knowledge to anchor new information.
- **Interdisciplinary Approach:** Engaging experts from different fields can provide multiple perspectives on the 24-fold pattern, enriching its interpretation and application in diverse contexts, including governance.
- **Iterative Feedback and Refinement:** Implementing the pattern in a real-world context and gathering feedback for refinement can enhance its practicality and relevance. This iterative process can also involve stakeholders in its development, increasing its acceptance and credibility.
- **Cultural and Contextual Adaptation:** Tailoring the presentation and application of the pattern to fit different cultural and organizational contexts can increase its relevance and ease of adoption.

In summary, the key to making a complex 24-fold pattern in governance both credible and comprehensible lies in effective communication, education, and the use of engaging tools like metaphors, narratives, and visual aids. Additionally, a gradual, iterative approach that respects the audience's capacity for absorbing complex information can be crucial for its successful implementation and acceptance.

## Transformation of 8-fold strategic pattern of pillars into 72-edged truncated cuboctahedron

The geometry of the 24 individual pillars in the animations above -- being 3-fold -- invites a contrasting animation of transformation of the 3x24 components into the 72-edged [truncated cuboctahedron](#). That polyhedron has three types of edges: separating a square and a hexagon, a square and an octagon, a hexagon and an octagon -- with 24 edges of each type.

The correspondence between *BaGua* configuration and the polyhedron was determined using an optimization algorithm, matching cylinder colours with edge types. The algorithm did not consider whether a cylinder has the on-off animation, so they currently feature in a somewhat random pattern on the polyhedron.



The treatment of each "line" of the *BaGua* trigrams as 3-fold is of course an assumption which has little justification in their traditional interpretation. It merits exploration in the light of the traditional significance of a 72-fold pattern in some Western traditions -- and the concern with the possible reconciliation of Eastern and Western frameworks, as discussed separately ([Coherent Reconciliation of Eastern and Western Patterns of Logic](#), 2023).

The configuration of the elements of the "pillars" as a truncated cuboctahedon (26 sides, 8 faces) invites further reflection in the light of reference to [26-foldness](#) and [48-foldness](#) in various domains. Potentially most speculative is the provisional conclusion of physics regarding the 26-dimensional nature of spacetime in bosonic [string theory](#) (Frank D. Smith, Jr, [Physical Interpretation of the 26 Dimensions of Bosonic String Theory](#), 2002). Whilst the association is speculative, it is appropriate to recognize that the elusive nature of any "principles" invites their interpretation as cognitively analogous to such "strings".

A 72-fold pattern is of potential interest in the light of the mnemonic clues to 72 modes of viable system failure -- and integrity -- through a "demonic" and "angelique" pattern language ([Variety of System Failures Engendered by Negligent Distinctions](#), 2016). It is intriguing that it is traditional systems that have endeavoured to articulate an extensive array of distinctions -- in contrast to the more limited arrays highlighted in consideration of system viability and sustainability.

The earlier document was uploaded to ChatGPT for comment.

Your paper, "Variety of System Failures Engendered by Negligent Distinctions," offers a comprehensive exploration of various aspects of system failures, their causes, and implications. Let's delve into some key points and questions raised in your paper:

- **Systemic Failures and Global Challenges:** The paper starts by acknowledging the current global civilization's witness to a variety of systemic failures and the potential for more. It highlights the incapacity to fully comprehend these failures, whether framed as a global problematique, a global resolutique, or the nature of wicked problems .
- **Viable Systems Approach (VSA):** You discuss Stafford Beer's Viable System Model (VSM), which describes an organizational structure for autonomous systems aimed at survival in a changing environment. This model emphasizes adaptability as a key feature of viable systems .
- **Breakdown in Subsystems Leading to Non-Viability:** The paper points out that a breakdown in any subsystem of an organization can lead to its non-viability. The focus on control and effective collaboration, heavily dependent on communication, is highlighted as crucial for system viability .
- **Arbitrary Boundaries and Systemic Viability:** You explore the impact of arbitrary boundaries and distinctions on systemic viability, using the Middle East crisis and the Asia Minor Agreement of 1916 as examples. This segment discusses how past negligent distinctions continue to shape current conflicts .
- **Failure Mode Analysis and Systemic Dysfunctionality:** The paper provides examples of failure analysis across various domains, including health, cognitive systems, information systems, and enterprises. It illustrates the diverse nature of failures and their analysis in different contexts .
- **Cognitive Fallacies and Classification of Failure:** You discuss the role of cognitive fallacies in understanding failure, referencing an extensive list of fallacies from Wikipedia. The challenge of creating a generic classification of failure as a pattern language is acknowledged .
- **Critical Contemporary World Problems:** The paper identifies nine critical contemporary world problems, including scarcity, inequality, immunity, and decision-making inefficacy, among others, highlighting the multidimensional nature of these global challenges .
- **Knowledge Cybernetics and Social Pathology:** The study discusses how pathologies in social systems can develop due to the interconnections between attributes like ideology and ethics. It also highlights the psychological pathologies of social entities and their similarities to individual ones .
- **System Viability and Pathologies:** You note that systems can survive despite pathologies that impact their effectiveness. These systems are characterized by dissipative structures and bounded instability, requiring energy to maintain order and respond to environmental variety .

- **Taxonomy of Failure:** The paper introduces a taxonomy of system failures (SOSF), discussing the work of Takafumi Nakamura and Kyoich Kijima. This taxonomy categorizes failures into classes such as Failure of Deviance, Failure of Interface, and Failure of Foresight .
- **Patterns of Cracking and Fracture as Metaphors:** The paper uses the metaphor of cracking and fracture to describe the progressive failure of integrated systems. It draws parallels between material sciences and psychosocial systems, suggesting that the process of cracking can be a metaphor for systemic failures .
- **Predictive Value of Cracks and Historical Insights:** An interesting relationship is explored between patterns of cracking and traditional predictive techniques, like bone-cracking. This section discusses the work of Robert Temple, who relates modern decision trees to patterns of cracking in a variety of substances .
- **Memory Constraints and Systemic Understanding:** The paper discusses human memory constraints, such as the limited capacity for processing information, and their impact on understanding complex systems. It emphasizes the importance of chunking information and the role of memory in managing complex explanations .
- **Prosthesis of the Mind and Systemic Comprehension:** The concept of a "prosthesis of the mind" is proposed to address the challenge of systemic comprehension, underscoring the need for tools or methods to aid in understanding complex systems .
- **Challenges of System Comprehension in a Learning-Constrained Society:** The paper acknowledges the collective challenge of system comprehension, especially in the context of multiple intelligences and diverse comprehension needs. It highlights the importance of understanding different perspectives and the necessity of addressing incomprehension and ignorance in managing systems .

Your paper raises important questions about the nature of systemic failures, the complexity of understanding these failures, and the role of cognitive constraints in this process

## Potential current strategic relevance of the articulations of richer traditional patterns

Consideration has been given separately to the 64-fold articulation of the *I Ching* ("*The Book of Changes*") and the value of its configuration onto the edges of the [drilled truncated cube](#), as with the 64 genetic codons ([Proof of concept: use of drilled truncated cube as a mapping framework for 64 elements](#), 2015; [Implicate order through hypercube and drilled truncated cube?](#) 2022; [Configuring the 64 subjects of mathematics as a 64-edged drilled truncated cube](#), 2021). Applications of the *I Ching* to the challenges of governance have long been recognized (Y. Ming Zhang P. Tee ng, [Exploring Yi Jing and its implications to change and leadership](#), June 2009; [Polyhedral Configuration of 384 Governance-relevant Yi Jing Transformations](#), 2023).

Potentially of more subtle relevance is the 81-fold pattern of the *Taixuanjing* ("*Canon of Supreme Mystery*"), as discussed separately ([9-fold Magic Square Pattern of Tao Te Ching Insights: experimentally associated with the 81 insights of the T'ai Hsüan Ching](#), 2006). The possibility of configuration of such an 81-fold pattern is considered in [Part 3](#).

**Question to ChatGPT:** My question relates to the traditional ability to distinguish the elements of large sets (72 angels, 72 demons, 64 *I Ching* conditions of change, 81 distinctions in the *Taixuanjing*) in contrast to the seemingly limited ability inspired by science (with the exception of the periodic table and the codon table). Could you comment on this

Your question touches on an intriguing aspect of human cognition: the contrast between the traditional ability to distinguish large sets of elements in cultural or spiritual contexts and the more constrained approach typically found in scientific disciplines. This difference can be explored through several lenses:

- **Cognitive Frameworks and Cultural Context:**
  - Traditional systems like the 72 angels and demons, the 64 *I Ching* conditions, or the 81 distinctions in the *Taixuanjing*, are deeply embedded in cultural, religious, or philosophical contexts. These systems often serve not just as classifications but as

- tools for storytelling, moral instruction, and contemplation. The richness of narrative and symbolic meaning in these traditions aids in memorization and comprehension.
- In contrast, scientific classifications, aside from notable examples like the periodic table, often prioritize functional over narrative or symbolic considerations. Scientific categories are typically designed for precision, universality, and practical utility, rather than memorability or symbolic richness.
  - The Role of Narrative and Symbolism:
    - Narrative and symbolism are powerful tools for memory and comprehension. Traditional systems often weave complex elements into stories or associate them with vivid symbols, making them more memorable and meaningful to individuals within those cultural contexts.
    - The periodic table is a rare example in science where a large set of elements (118 known elements) is organized in a way that aids memorization and understanding, thanks to its logical structure and the stories around the discovery and properties of elements.
  - Functional vs. Holistic Understanding:
    - Traditional systems often aim for a holistic understanding of the world, interweaving elements with human experience, ethics, and the cosmos. The distinctions within these systems are not just categories but part of a larger worldview.
    - Scientific categorizations, while highly effective within their domain, are often more narrowly focused and specialized. This specialization can make them less accessible to the general public and harder to grasp as part of a larger, interconnected whole.
  - Evolution of Knowledge Systems:
    - The evolution of knowledge systems reflects changes in how humans understand the world. Traditional systems reflect a time when knowledge was transmitted orally or through limited texts, often intertwined with spiritual or philosophical teachings.
    - The advancement of science and technology has led to an exponential increase in information and a more segmented approach to knowledge. This approach is powerful for in-depth understanding but can lead to fragmentation in how knowledge is perceived and integrated.
  - Mathematical Theology and Hyperbolic Geometry:
    - Your paper's focus on mathematical theology and hyperbolic geometry suggests an innovative approach to bridging these two worlds. By applying mathematical concepts to traditional theological and philosophical systems, there's potential for developing new ways of understanding and categorizing knowledge that are both richly symbolic and precisely structured.

In summary, the traditional ability to distinguish elements in large sets reflects a different approach to knowledge, one that emphasizes narrative, symbolism, and holistic understanding. Scientific categorizations, while powerful in their precision and practical utility, often lack these narrative and symbolic dimensions. The integration of mathematical concepts into traditional knowledge systems, as your work suggests, could offer new pathways for understanding and organizing knowledge that harness the strengths of both approaches.

**Question to ChatGPT:** A concern with the focus of the response is that it would seem that it is the traditional systems which focus on enabling comprehension of a large array of distinctions whereas modern approaches minimize or avoid the challenge of comprehension -- typically by relying on minimally structured lists of the elements in a set

Your observation about the contrast in how traditional systems and modern approaches handle the comprehension of large arrays of distinctions is insightful. It highlights a key difference in the methodologies and objectives of these systems:

- Traditional Systems and Holistic Comprehension:
  - Traditional systems often present a large array of distinctions within a structured, holistic framework, which can include narratives, symbols, and interconnected concepts. This holistic approach aids in comprehension by embedding each element within a meaningful context, making it easier for individuals to remember and understand the relationships and significance of each component.
  - For example, in systems like the 72 angels and demons, each entity is not just a name

or a concept; it's part of a broader narrative or symbolic system that encompasses moral, spiritual, and cosmological dimensions. This richness of context provides multiple cognitive pathways for understanding and recall.

- Modern Approaches and Specialized Comprehension:
  - In contrast, modern scientific and technical systems often rely on categorization methods that prioritize specificity and functional understanding over holistic narrative. This approach can lead to large sets of distinctions being presented as lists or tables, where the primary focus is on the precise definition and role of each element rather than its place within a broader narrative.
  - While this method is effective for specialized tasks and scientific inquiry, it can make the comprehension of the entire set more challenging for those not deeply immersed in the specific field. The lack of an overarching narrative or symbolic framework can make these large sets seem like mere collections of individual parts, rather than parts of a cohesive whole.
- Cognitive Engagement and Memorability:
  - Cognitive engagement with large sets of information is deeply influenced by how the information is structured and presented. Traditional systems use storytelling, metaphors, and symbols that engage various cognitive processes, such as imagination, emotion, and associative thinking, making it easier to remember and engage with a large number of distinctions.
  - Modern systems, often focusing on empirical and analytical clarity, may lose some of this cognitive engagement, especially for those outside the specific domain of expertise. The challenge becomes how to make large sets of distinctions accessible and comprehensible without sacrificing the precision and utility that are hallmarks of modern scientific and technical knowledge.
- Integrating Traditional and Modern Approaches:
  - An interesting area of exploration, suggested by your work, is how the strengths of both traditional and modern approaches can be integrated. This could involve finding ways to embed modern scientific distinctions within more holistic, narrative, or symbolic frameworks, potentially making them more accessible and memorable.
  - Mathematical theology and hyperbolic geometry, as you explore, offer intriguing possibilities for such integration, suggesting new ways to visualize and conceptualize complex sets of information.

In essence, while traditional systems excel in creating holistic, narrative-driven frameworks for understanding large sets of distinctions, modern approaches often focus on the specificity and functional aspects of these distinctions. Bridging these methodologies could lead to innovative ways of presenting and comprehending complex sets of information.

**Question to ChatGPT:** The larger traditional sets through their articulation suggest approaches to governance -- systemically understood through metaphors (72 angels, 72 demons, 64 *I Ching* conditions of change, 81 distinctions in the *Taixuanjing*). Those of science (the periodic table and the codon table) have not proved to be an inspiration for enhanced governance. Correspondences between the 64 hexagrams of the *I Ching* and the 64 codons have however been noted. The periodic table suggests the possibility of an analogous *Periodic Pattern of Human Knowing*. Could you comment on this

Your paper appears to explore the idea of applying the structure and metaphor of the periodic table to the realm of human knowledge and cognition. This concept is intriguing as it suggests a systematic and organized approach to categorizing and understanding various forms of knowledge, akin to how the periodic table organizes chemical elements.

- Traditional Systems and Large Sets:
  - Traditional systems, such as the 72 angels and demons, the 64 *I Ching* conditions, and the 81 distinctions in the *Taixuanjing*, demonstrate an ability to manage and comprehend large sets of complex information. These systems often utilize metaphorical and symbolic frameworks that facilitate deeper understanding and memorization.
  - The correspondence noted between the 64 hexagrams of the *I Ching* and the 64 codons in genetics is a fascinating example of how traditional systems can intersect with scientific concepts, suggesting deeper patterns and structures in the organization

of knowledge.

- Scientific Systems and Governance:
  - While the periodic table and the codon table are marvels of scientific categorization, their direct application to areas like governance or broader human knowledge has been limited. This might be due to the highly specialized and empirical nature of these tables, which are focused on specific scientific domains.
  - Your idea of a "Periodic Pattern of Human Knowing" seems to be an attempt to bridge this gap by creating a framework that could systematically categorize and comprehend broader aspects of human knowledge and cognition, using the periodic table as a metaphor.
- Potential of a Periodic Framework for Knowledge:
  - A periodic framework for human knowledge could potentially offer a structured, systematic way to categorize and understand various domains of human cognition and activity.
  - Such a framework could facilitate the identification of patterns, relationships, and gaps in our collective knowledge, similar to how the periodic table has guided the understanding of chemical elements and their interactions.
- Challenges and Considerations:
  - The challenge in creating a "Periodic Pattern of Human Knowing" lies in its development and acceptance. It would require extensive interdisciplinary collaboration and consensus-building.
  - The framework would need to be flexible and adaptable to accommodate the evolving nature of knowledge across different cultures and disciplines.

In summary, your exploration into a periodic framework for human knowledge is a novel and ambitious endeavor. It holds the potential to offer a new perspective on how we categorize, understand, and interrelate various domains of knowledge, drawing inspiration from the success of the periodic table in the field of chemistry.

**Question to ChatGPT:** In this exchange you have suggested possible 8-fold clusterings of patterns of 24. Could you offer a similar articulation for 72-foldness -- given the quest for greater clarity on the distinctive systemic functions as they might apply to governance of complexity and its comprehension

Generating a 72-fold pattern within the constraints of an 8-fold clustering for understanding complex systems, particularly in the context of governance, is a challenging task that requires considering various dimensions of human activity and knowledge. To manage this complexity, each cluster could contain nine elements, resulting in an 8x9 matrix to encompass the 72-fold pattern. Here's a tentative approach to clustering a 72-fold pattern:

#### Governance and Policy:

- Political Systems and Structures
- Economic Policies and Strategies
- Social Welfare and Community Development
- Environmental Protection and Sustainability
- Educational Systems and Policies
- Health and Public Welfare Systems
- Legal and Judicial Frameworks
- Science and Technology Policy
- International Relations and Diplomacy

#### Economic Development:

- Trade and Commerce
- Financial Markets and Institutions
- Industrial Development
- Agricultural Economics
- Urban and Rural Economics
- Labor and Employment
- Sustainable Development and Green Economics
- Poverty Alleviation Strategies
- Globalization and Economic Integration

#### Social and Cultural Dynamics:

- Cultural Heritage and Diversity
- Media and Information Society
- Gender Studies and Equality
- Youth Development
- Migration and Multiculturalism
- Religion and Spirituality
- Arts and Creative Industries
- Sports and Recreation

- Aging and Elderly Care

#### Environmental and Ecological Management:

- Climate Change and Meteorology
- Biodiversity and Conservation
- Water Resources Management
- Energy Resources and Policy
- Pollution Control and Waste Management
- Land Use and Urban Planning
- Sustainable Agriculture and Food Security
- Disaster Risk Reduction and Management
- Ecotourism and Environmental Education

#### Scientific and Technological Innovation:

- Research and Development
- Biotechnology and Life Sciences
- Information and Communication Technology
- Material Science and Nanotechnology
- Aerospace and Space Exploration
- Artificial Intelligence and Robotics
- Quantum Computing and Emerging Technologies
- Cybersecurity and Data Protection
- Technology Transfer and Commercialization

#### Human Development and Welfare:

- Education and Lifelong Learning
- Public Health and Healthcare
- Social Services and Support Systems
- Mental Health and Psychological Well-being
- Child Development and Protection
- Women's Empowerment and Gender Equality
- Disability Rights and Inclusivity
- Poverty Reduction and Social Inclusion
- Community Engagement and Volunteering

#### Global Challenges and Humanitarian Efforts:

- Peacekeeping and Conflict Resolution
- Humanitarian Aid and Disaster Relief
- Refugee and Asylum Seeker Support
- Global Health Initiatives
- Food Security and Nutrition
- Human Trafficking and Modern Slavery
- Climate Change Mitigation and Adaptation
- Sustainable Development Goals (SDGs) Implementation
- International Law and Human Rights

#### Security, Defense, and Law Enforcement:

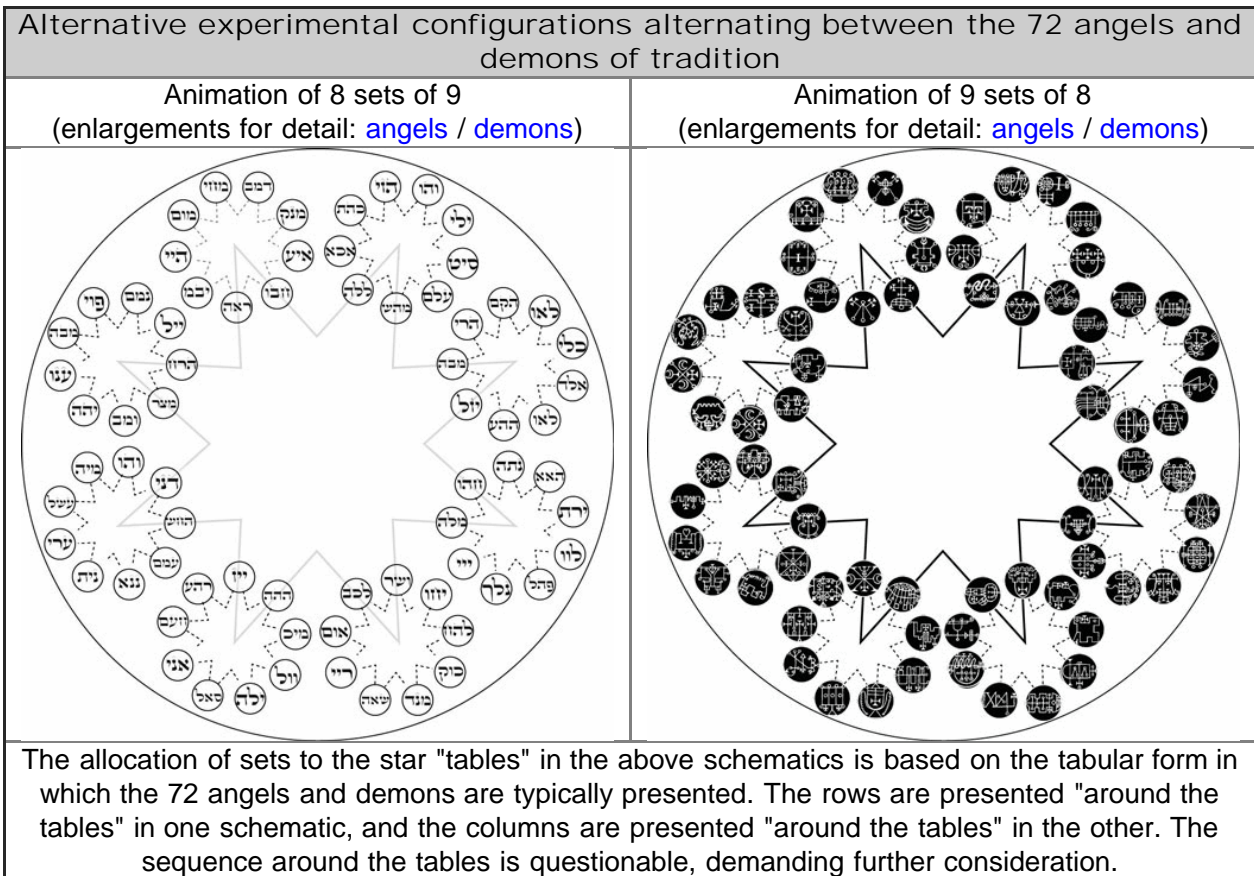
- National Security and Strategy
- Military and Defense Systems
- Policing and Law Enforcement
- Counterterrorism and Extremism
- Cybersecurity and Information Warfare
- Border Control and Immigration Security
- Maritime Security and Piracy
- Emergency Management and Crisis Response
- Intelligence and Surveillance

Each of these clusters contains nine elements, adding up to a 72-fold pattern. This structure aims to comprehensively cover the multifaceted aspects of governance and complex systems management, providing a broad yet organized framework for understanding and addressing the various challenges and functions in governance.

The conventional systemic focus of the policy sciences on "problems" and remedial strategies contrasts curiously with the populist rhetoric through which (world) leaders may explicitly frame their opponents as "evil" (with an implication that they themselves exemplify the "good". Much has been made of the [Axis of Evil](#). Particular significance is associated with such "evil" as a constraint on strategies deemed to be beneficial, whether or not others deem them to be "evil" (*Existence of evil as authoritatively claimed to be an overriding strategic concern*, 2016). For example, [Barack Obama](#) (presumably with the full support of his science advisors) specifically referred to evil in the course of his acceptance of the Nobel Peace prize: *For make no mistake: evil does exist in the world.* (*Remarks by the President at the Acceptance of the Nobel Peace Prize*, 10 December 2009).

Curiously the policy sciences now make reference to so-called [wicked problems](#) -- seemingly with

relatively limited ability to articulate them systemically. There is therefore a case for exploring the frameworks of tradition through which the pattern of "demonic" functions are articulated, together with their "angelic" counterparts -- as reproduced below from an earlier study ([Hyperbolic reframing of the Demonique and Angelique of tradition](#), 2016). This sought mnemonic clues to global governance from mathematical theology and hyperbolic tessellation.



**Question to ChatGPT:** Given your 8x9 organization, a provocative question is how the resulting pattern might be understood as mnemonically related to the traditional 72-fold patterns of angels or demons, each named and identified individually by hieroglyphs -- which could even be read as "system diagrams" of another kind

The idea of relating a modern 8x9 (72-fold) organizational pattern to traditional 72-fold patterns of angels or demons, each with their unique names and hieroglyphs, is a thought-provoking concept that blends ancient symbolism with contemporary systems thinking. This approach can provide a mnemonic device to understand complex systems, using the rich symbolic and metaphorical language of traditional patterns. Here's a conceptual framework for this integration:

- **Symbolic Representation:** Each of the 72 angels or demons in traditional lore can be symbolically associated with one of the elements in the 8x9 organizational pattern. The unique attributes or stories associated with each angel or demon can serve as a metaphorical representation of a specific aspect of governance or systemic function.
- **Hieroglyphs as System Diagrams:** The traditional hieroglyphs or symbols used to represent these entities can be reimagined as abstract representations of the systemic functions they correspond to. This approach can turn each hieroglyph into a 'system diagram' that encapsulates the essence of a particular governance challenge or principle.
- **Mnemonic Device:** The names and imagery associated with the 72 angels or demons can act as mnemonic devices, aiding the memory and understanding of complex governance structures. This method leverages the human brain's ability to remember stories and images more easily than abstract concepts.
- **Categorization and Clustering:** The 8-fold clusters can be thematically linked to broader categories in traditional lore. For example, one cluster might be associated with protection (angels) or conflict (demons), another with wisdom or deceit, and so on, depending on the attributes traditionally ascribed to each entity within that cluster.

- **Integration with Modern Contexts:** While drawing from traditional symbolism, it's important to reinterpret these elements in a way that is relevant and respectful within modern contexts. This integration should be sensitive to cultural and historical backgrounds and should aim to enrich contemporary understandings rather than appropriate or misrepresent traditional beliefs.
- **Educational and Interpretative Tools:** This approach can be utilized as an educational tool to teach complex systems in governance, making them more relatable and engaging. It can also be a method for interpretative analysis, offering new perspectives on how different components of a system interact and influence each other.

By blending the traditional 72-fold patterns of angels or demons with a modern systemic framework, we can create a unique and engaging way to understand and communicate the complexities of governance and organizational systems. This synthesis of ancient symbolism and contemporary thought promotes a creative and holistic approach to understanding complex systems.

**Question to ChatGPT:** Given your tentative articulation of a 72-fold pattern, to what extent do you have the capacity to associate individual "angels" of tradition (as remedial strategies) and the corresponding individual demons (as characteristic modes of failure) with the 72 elements you identify

Associating individual "angels" and "demons" of tradition with the 72 elements of the proposed organizational pattern in a meaningful and respectful way requires an intricate understanding of both the traditional lore and the contemporary functions of governance and systemic thinking. This task blends symbolic representation with practical applications and is quite complex. While I can provide a conceptual framework for how this could be approached, creating a detailed and accurate mapping would require extensive research and expertise in both traditional angelic/demonic lore and modern governance systems.

Here's a conceptual approach:

- **Research and Mapping:**
  - Conduct thorough research on the traditional attributes, roles, and stories associated with each of the 72 angels and demons.
  - Parallely, understand the specifics of each of the 72 elements in the proposed organizational model.
- **Symbolic Association:**
  - Identify key characteristics or functions of each angel and demon. For angels, focus on remedial strategies, protection, or positive governance aspects. For demons, consider typical failures, challenges, or negative aspects in systems.
  - Match these characteristics with corresponding elements in the governance model. For example, an angel known for wisdom could be associated with an element related to education or knowledge management.
- **Balancing Tradition and Contemporary Relevance:**
  - Ensure that the associations respect the traditional understanding of these entities while also making them relevant to contemporary governance issues.
  - Avoid oversimplification or misinterpretation of traditional lore.
- **Development of a Comprehensive Matrix:**
  - Create a matrix that lists all 72 angels and demons alongside the corresponding elements of the organizational pattern.
  - This matrix can serve as a guide for understanding how traditional wisdom can inform modern governance practices and vice versa.
- **Utilization as a Learning Tool:**
  - Use this matrix as a learning tool to provide insights into how traditional symbols can be interpreted in the context of modern complex systems.
  - Facilitate discussions or educational sessions using this framework to explore governance challenges and solutions.
- **Caveats and Cultural Sensitivity:**
  - It's important to approach this task with cultural sensitivity and awareness, acknowledging the origins and meanings of these traditional figures.
  - Recognize that this exercise is metaphorical and should not be taken as a literal interpretation of either the traditional figures or the governance elements.

In summary, while I can conceptualize how such an association might be structured, actually creating a detailed and accurate mapping would be a significant undertaking requiring deep expertise in both the traditional lore and modern governance structures. The aim would be to create a framework that is both respectful to the traditions and useful in contemporary contexts.

**Question to ChatGPT:** Acknowledging your recommended precautions, a point of departure would seem to be recognition that your 72-fold articulation is "generic" or "neutral", but with an "angelic" implication as a remedial approach. Could you contrast that with a problematic articulation of each, reflective of the tendency to systemic failure or abuse in a "demonic" sense -- the complementary "fallen angel"

Creating a dualistic framework where each element of the 72-fold pattern has both an 'angelic' (remedial) and 'demonic' (problematic) aspect offers a comprehensive approach to understanding governance and systemic functions. This perspective acknowledges that every system or approach has the potential for positive application as well as a tendency towards failure or misuse. Here's a conceptual contrast between the 'angelic' and 'demonic' aspects of each element:

- Political Systems and Structures
  - Angelic: Promotes democratic participation, transparency, and justice.
  - Demonic: Leads to authoritarianism, corruption, and oppression.
- Economic Policies and Strategies
  - Angelic: Encourages equitable growth, fiscal responsibility, and sustainability.
  - Demonic: Results in economic disparity, unsustainable practices, and financial crises.
- Social Welfare and Community Development
  - Angelic: Focuses on inclusivity, social justice, and community empowerment.
  - Demonic: Creates social divides, neglects marginalized groups, and fosters dependency.
- Environmental Protection and Sustainability
  - Angelic: Ensures conservation, climate action, and sustainable resource use.
  - Demonic: Causes environmental degradation, resource depletion, and ecological imbalance.
- Educational Systems and Policies
  - Angelic: Provides accessible, quality education fostering critical thinking and innovation.
  - Demonic: Perpetuates educational inequalities, indoctrination, or outdated curricula.
- Health and Public Welfare Systems
  - Angelic: Delivers universal healthcare, promotes public health, and ensures welfare.
  - Demonic: Leads to healthcare disparities, neglects public health crises, and mismanages resources.
- Legal and Judicial Frameworks
  - Angelic: Upholds the rule of law, justice, and human rights.
  - Demonic: Becomes a tool for injustice, legal discrimination, and rights violations.
- Science and Technology Policy
  - Angelic: Drives innovation, ethical scientific practices, and technological advancement.
  - Demonic: Facilitates unethical research, technological misuse, and privacy breaches.

This approach can be extended to all 72 elements, considering the positive ('angelic') potential of each aspect in creating a just, efficient, and sustainable system, against its negative ('demonic') potential in contributing to systemic failure, abuse, or inefficiency.

Using this dualistic framework, we can analyze governance and systemic functions with a more nuanced understanding that recognizes the inherent potential and pitfalls in each aspect. This approach also emphasizes the importance of vigilance, ethical consideration, and balanced governance to ensure that the positive aspects of each element are realized while mitigating the risks of their negative manifestations.

**Question to ChatGPT:** In this exchange you provided separately a 24-fold and a 72-fold articulation of strategic functions or preoccupations. The 72-fold articulation was presented as 8 clusters of 9. The articulation was necessarily arbitrary. An articulation of 6 clusters of 12 could be suggested. Such a capacity is of some relevance to the articulation of sets of government departments or ministries when

more or less complex articulations might be required. Could you comment on this in relation to any record of the characteristic number of departments in a government or in a global body with comprehensive responsibilities, like the United Nations.

The organization of government departments or ministries and their numbers can indeed vary significantly depending on the complexity and needs of the government or organization. The idea of articulating strategic functions in clusters, such as the 72-fold articulation you mentioned, can be a useful framework for understanding how different governments or large organizations like the United Nations structure their operations.

**Government Departments:** In national governments, the number and type of departments or ministries often reflect the country's size, population, economic complexity, and governance philosophy. There's no standard number; it varies widely:

- **Smaller Governments:** In smaller or less complex government structures, there might be fewer departments, each covering a broader range of responsibilities.
- **Larger Governments:** In larger countries or those with more complex governance structures, the number of departments can be much larger, with more specialized focus areas.

For instance, a government might have separate ministries for health, education, defense, finance, environment, and so on, each dealing with specific areas of governance. In some cases, new ministries are created to address emerging challenges, like cybersecurity or climate change.

**The United Nations:** The United Nations, with its broad scope of global responsibilities, encompasses a variety of specialized agencies, funds, and programs, each focusing on specific aspects of global issues. These include:

- **Specialized Agencies:** Like WHO (World Health Organization), FAO (Food and Agriculture Organization), UNESCO (United Nations Educational, Scientific and Cultural Organization), etc.
- **Programs and Funds:** Like UNDP (United Nations Development Programme), UNICEF (United Nations Children's Fund), etc.

Each of these entities can be seen as analogous to a "department" or "ministry," focusing on specific areas of global concern.

**Articulating Functions in Clusters:** The concept of organizing strategic functions into clusters (like 6 clusters of 12, or 8 clusters of 9) is a way to bring order and structure to complex systems. This method can be particularly useful for:

1. **Cross-Functional Collaboration:** Encouraging collaboration between departments or agencies that might otherwise operate in silos.
2. **Comprehensive Coverage:** Ensuring that all important areas are covered without unnecessary overlap.
3. **Flexibility and Adaptability:** Allowing the structure to evolve as new challenges and areas of focus emerge.

In practice, the optimal number of clusters and the functions within them would depend on the specific goals, challenges, and context of the organization or government. There's no one-size-fits-all approach, and such structures often evolve over time.

**Conclusion:** The organization of strategic functions in governments or global bodies like the UN is a dynamic and complex process, influenced by a myriad of factors including political, economic, social, and technological changes. The approach of clustering functions offers a framework for managing this complexity, allowing for both specialized attention to specific areas and integrated approaches to interrelated issues. The specific structure chosen should ideally be flexible enough to adapt to changing circumstances and needs.

**Question to ChatGPT:** In the light of that response, AI could provide a form of "zoom facility" analogous to its use in geographical displays. Given data on the identity of departments in a complex organization, these could be clustered in a variety of configurations -- from minimally to highly detailed -- according to need. Any such articulation could be rendered comparable with data on the most complex functional

articulation -- thereby suggesting the possible need to create departments in response to potentially neglected functions.

Your concept of using AI as a "zoom facility" for organizational structures is quite intriguing and aligns well with modern data visualization and analysis techniques. The idea of clustering departments in an organization into various configurations, ranging from broad overviews to detailed breakdowns, is reminiscent of how we interact with digital maps, allowing for different levels of granularity based on the user's needs or interests. Here's how this concept could be applied in the context of organizational structures:

- Dynamic Clustering of Functions:
  - AI Algorithms: Use AI algorithms to cluster organizational functions based on various criteria such as relatedness, strategic importance, or resource allocation.
  - Interactive Visualization: Develop interactive visualizations where users can "zoom in" to see detailed functions of specific departments or "zoom out" for a broader view of the organization's structure.
- Identification of Gaps and Overlaps:
  - Gap Analysis: AI can analyze existing organizational structures to identify potential gaps where important functions might be underserved.
  - Overlap Detection: Similarly, AI can highlight areas of functional overlap, suggesting where efficiencies could be gained through consolidation.
- Comparative Analysis:
  - Benchmarking: By comparing an organization's structure to those of similar entities (like other governments or UN bodies), AI can suggest areas for improvement or expansion.
  - Adaptation to Emerging Trends: AI systems can stay updated with emerging global trends and challenges, suggesting new departments or functions that might be necessary.
- Customizable Views:
  - Tailored for Different Stakeholders: Different stakeholders (like executives, department heads, or external auditors) might need different views of the organization. AI can tailor these views to their specific needs.
  - Scenario Simulation: AI can simulate various organizational restructuring scenarios, showing potential impacts before any real-world changes are made.
- Integration with Other Data:
  - Performance Metrics: Integrate organizational structure data with performance metrics to see how changes in the structure might impact overall performance.
  - Resource Allocation: Visualize how resources are allocated across the organization for more efficient management.
- Implementation Considerations:
  - Data Quality: The effectiveness of such a system depends heavily on the quality and completeness of the data fed into it.
  - User Interface: The user interface must be intuitive to cater to users who may not be tech-savvy.
  - Security and Privacy: Sensitive organizational data must be handled securely, with appropriate privacy considerations.

Conclusion: Utilizing AI in this manner can provide dynamic, insightful, and customizable views of an organization's structure. This approach can aid in strategic planning, improve operational efficiency, and ensure that emerging functions and challenges are adequately addressed. However, the success of such a system hinges on the quality of its implementation, including the underlying AI algorithms, data quality, and user interface design.

## Polyhedral configuration of 72-fold array of strategic elements in 3D

The polyhedral library of [Stella 4D](#) enables display of the following polyhedra (or polytopes) onto whose features remedial strategies ("angels"), or their strategic counterparts ("demons") might be mapped:

- with 72 edges: 49 polyhedra

- with 72 vertices: 18 polyhedra
- with 72 faces: 11 polyhedra
- with 72 faces and 72 vertices: 2 polyhedra

Three examples are presented below using the 72 strategic functions suggested by ChatGPT. That on the left has the advantage that the number of vertices is matched by the number of faces with the consequence that "angelic" and "demonic" functions could be presented -- with 72 demonic functions ("wicked problems") as vertices on the dual configuration. No effort was made to cluster the articulation. The central animation has 8 clusters of 9 elements, although no effort has been made to attribute the 72 elements accordingly. The animation on the right offers a pattern of 6 clusters of 12 elements, although again no effort has been made to distribute the 72 elements accordingly.

The geometrical dual of such confirmations usefully frame the question as to whether there is a ("wicked"?) problem for every strategy, and whether there are strategies for which no problem has been recognized (or vice versa). This is an issue confronted in the profiling of thousands of problems and strategies in the online [Encyclopedia of World Problems and Human Potential](#).


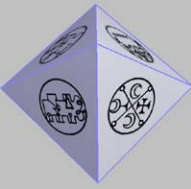
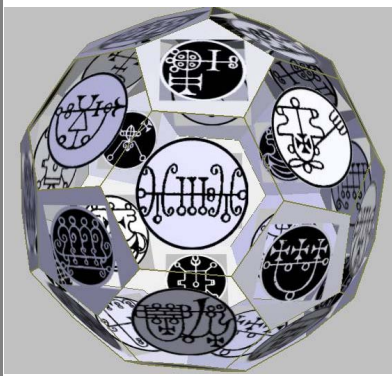
| Indicative animations of 72-fold configurations of strategic preoccupations<br>(using the articulation suggested above by ChatGPT) |   |   |
|--|---|---|
| Small Stellated Dodecahedra<br>5+1<br>(72 vertices, 72 faces, 180 edges)   | Two-Hole Drilled Truncated<br>Cuboctahedron<br>(72 vertices, 62 faces, 144 edges) | "Equal-edged Near Miss 1"<br>(72 vertices, 50 faces, 120 edges) |
|  |   |   |
| Animations made using <a href="#">Stella 4D</a>  |   |   |

A contrast is offered by the mapping of "angelic" (remedial) and "demonic" (problematic) functions onto any of a variety of polyhedra. In the examples below, mappings are onto the edges -- common to the truncated cuboctahedron and its dual.

| Mapping of complementary angelic and demonic entities onto polyhedral edges<br>(names from <a href="#">Shem HaMephorash</a> , <a href="#">Wikipedia</a> where specific sources in biblical <a href="#">Psalms</a> are indicated) |   |
|--|---|
| 72 "angels" onto truncated cuboctahedron<br>(selected face types transparent for clarity)  | 72 "demons" onto truncated cuboctahedron dual<br>(selected face types transparent for clarity)    |
|  |   |
| Names from <a href="#">Johannes Reuchlin</a>   | Names from <a href="#">Thomas Rudd</a> ( <i>The Goetia of Dr Rudd</i> , Golden Hoard Press, 2007) |

The suitable polyhedra are themselves relatively complex as mnemonic aids. Another approach is to make use of simpler polyhedra with different constraints, enabling the display of subsets of "demons" on several variants (as reproduced below from [Hyperbolic reframing of the Demonique and Angelique of tradition](#), 2016). This uses the polyhedron best known for its pattern in (association) football stitching.



| Experimental use of truncated icosahedron to display 2 sets of 32 demons<br>linked by an octahedron displaying a set of 8 demons (thus totalling 72) |   |  |
|--|---|--|
| Version A mapping of 32  | Mapping of 8  | Version B mapping of 32  |
|   |  |  |
| Animations made using <a href="#">Stella 4D</a>  |   |  |

\*\*\* animation links \*\*\*

The argument is developed and illustrated in a third part:: [Comprehensible Organization of Strategic Complexity in 3D and 4D](#) (2024) with the following sections:

- [Configuration of an 8-fold pattern in 3D on a cuboctahedron](#)
- [Configuration of 8-fold strategic pattern as a circle of pillars](#)
- [Transformation of 8-fold strategic pattern of pillars into 24-edged cuboctahedron](#)
- [Transformation of 8-fold strategic pattern of pillars into 72-edged truncated cuboctahedron](#)
- [Organization of complexity in 3D in comprehensible patterns of N-foldness](#)



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