



# *laetus in praesens*

Alternative view of segmented documents via Kairos

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5 February 2024 | Draft

## Psychosocial Geometry and Dynamics of Collective Memory

Coherent configuration of knowledge through  
architectural metaphors

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The argument here is developed and illustrated in later parts:

Part 2: [Comprehensible Configuration of 8-fold Psychosocial Patterns in 3D](#); Part 3: [Comprehensible Organization of Strategic Complexity in 3D and 4D](#); Part 4: [Higher Dimensional Reframing of Unity and Memorable Identity](#)

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## Introduction

Despite being acclaimed as a "learning society" by UNESCO and OECD, it can be argued that both society as a whole and individuals face a form of "learning challenge" (*Knowledge Management in the Learning Society*, OECD, 2000; Moosung Lee, *The History of UNESCO's Lifelong Learning Policy Discourses*, 2008). This is exemplified by commentary on the emergence of current violent conflicts characterized by the phrase "we never learn" or the question as to why society fails to learn -- as noted with respect to repeated [cycles of violence](#).

There is a degree of anticipation of relevant learning in response to new forms of disaster -- an assumption that finally it will be possible to learn from them. The track record in that regard cannot be described as optimistic. Whether it be the drama of violence and suffering (as with the conflicts in Gaza,

Ukraine, Yemen or Sudan) or the ineffectual gatherings in anticipation of disastrous climate change, there is little evidence of significant learning.

Since memory is so fundamental to learning, one approach to the matter is through collective memory ([Societal Learning and the Erosion of Collective Memory](#), 1980). This has taken the form of a critique of an overly optimistic report to the Club of Rome ([No Limits to Learning](#), 1979). Curiously there is seemingly a well recognized approach to many disasters of the past through commemorative memorials and cenotaphs ("[Lest We Forget](#)"). It is less evident how these hold insights of relevance to the future and its anticipated disasters. Unfortunately the memorials could well be explored in terms of selective memory -- as a distraction associated the slogan "[Lest We Remember](#)".

Despite their intention, it is not clear how people are expected to learn from "memorials" as collective constructs ([Being Spoken to Meaningfully by Constructs](#), 2023). In a period when Gaza is in process of being systematically bombarded, the point can be argued with respect to the renowned painting by Pablo Picasso ([Guernica](#), 1937). What function could a "new Guernica" perform and how could its enhancement of collective memory be enabled ([Reimagining Guernica to Engage the Antitheses of a Cancel Culture](#), 2022). Where are the memorials to those "on both sides" of any collective violence -- and what form could they take ([Towards Inclusive Multi-Massacre Memorials to Victims of Conflict](#), 2022).

There is no lack of reference to the cultivation of memory -- the "[art of memory](#)" -- and preoccupation with its challenge over centuries past ([Frances Yates, The Art of Memory](#), 1966). Of potential relevance to further insight are the traditional collective memory techniques now associated with Stonehenge, Easter Island and ancient monuments the world over, as clarified by [Lynne Kelly](#) ([The Memory Code](#), 2016).

A common feature to such techniques and the associated rituals is the construction and configuration of pillars. The role of pillars is strangely echoed in that of Aboriginal "[message sticks](#)", now ironically evident in reference to [USB memory sticks](#) within which information is held and configured in binary form. Especially given the case for [Enrolling Winnie-the-Pooh's Companions in Climate Change Discourse](#) (2019), not to be forgotten is the much-celebrated childrens game of [poohsticks](#) -- for which the annual World Poohsticks Championships have been held since 1984.

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 pilars 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. Reference to "missive" in that title suggests the further sense in which pillars and missiles have been transmogrified into the "projectiles" now exchanged (even violently) in communication space -- with the purpose of radically transforming the perspective of others. Curiously the association has been recognized by the much-cited poet [Robert Frost](#) ([A Missive Missile](#), 1936) as well as by [Jacques Derrida](#) ([No Apocalypse, Not Now: full speed ahead, seven missiles, seven missives](#), *Diacritics*,

14, 1984, 2), further discussed by James Cahill (*Derrida and the "fabulously textual" bomb*, *Ephemera*, 13 July 2010). The association is otherwise recognized in the sense of *getting (or being given) a "rocket"*.

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; *Neglect of Higher Dimensional Solutions to Territorial Conflicts*, 2024). 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 -- and their "burial" underground. From that perspective, perhaps most extraordinary is the housing of a physical transmutation of strategic pillars in *missile silos* (or nuclear silos) -- in anticipation of "joining up" distant others.

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*).

## Principles, pillars, projectiles and metaphorical geometry

As noted above, pillars are of course an obvious feature of physical architecture, whether it be that of temples or churches, or in the frontal design of institutions of government. 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). Arguably the conventional relationship between pillars and lintels is transformed within a polyhedral context.

Many religions and secretive societies have credos that may specifically identify values in relation to pillars:

- Christianity (*Five Pillars of Christianity*; *Disciples of All Nations: Pillars of World Christianity*; *The Seven Pillars of Aquarian Christianity*)
- Islam (*Five Pillars of Islam*)
- Judaism (*Four Pillars of Second Temple Judaism*; *Seven Main "Pillars" of Ancient Judaism*; *Five Pillars of Orthodox Judaism*)
- Buddhism (*Ten Pillars of Buddhism*)
- Freemasonry: *Boaz and Jachin* (*Behind the Symbol: The Twin Masonic Pillars*)
- Hinduism: specifically does not have defined Pillars of Faith, nor does it have any fixed pillars or principles which are obligatory for its followers to practice; however in the *Arthashastra* (a classic text of statecraft from 350–283 BCE) *seven pillars of any organization* are defined.

Intergovernmental institutions have developed various sets of strategic "pillars" (for example, *Three Pillars of the European Union*, to which "additional pillars" have been subsequently added; *The 4 Pillars of the United Nations*; *The OECD Four Pillars of Compliance*). These might be understood as the implicit value architecture of a number of strategic initiatives, as discussed elsewhere (*Strategic "pillars"* in: *Towards Polyhedral Global Governance complexifying oversimplistic strategic metaphors*, 2008). Not surprising perhaps is the *EU Pillar Assessment* process of institutional compliance required of partner organizations by the European Commission before engaging in indirect management cooperation with them.

Reference to pillars is fundamental to the strategy of the United States -- as for example with the words engraved on the lintel over the Greek pillars of the Supreme Court embodying one of America's founding principles: *Equal Justice Under Law*.

- Paul D. Miller: [Five Pillars of American Grand Strategy](#) (*Survival: Global Politics and Strategy*, 54, 2012, 5)
- Oleksandra Mamchii: [5 Key Pillars of American Diplomacy In Action In 2024](#) (*Best Diplomats*, 22 May 2023)
- Charles Kuchan: [Grand Strategy: The Four Pillars of the Future](#) (*Democracy: a journal of ideas*, 23, 2012)

It is perhaps even more surprising to note the extent to which pillars are considered to be fundamental to business strategy, as indicated by the following:

- Ben Wann: [Strategic Pillars: What Are They, Why They Matter](#) (19 April 2023)
- Greg Githens: [What are the Strategic Pillars that Support the Vision?](#) (*Leading Strategic Initiatives*, 11 March 2011)
- Alexis Perry: [The 7 Strategic Pillars Of Your Business](#) (*LinkedIn*, 11 January 2021)
- Andrew Beattie: [The 3 Pillars of Corporate Sustainability](#) (*Investopedia*, 24 April 2023)
- [Strategic Pillars: A Tool To Help You Articulate Your Strategy](#) (Zokri)

Despite the degree to which they are considered to be strategically fundamental, varying numbers of pillars are held to be vital to that end, with some even held to be "missing":

- Lydia Kostopoulos: [How to Build a Strategy: 4 Key Pillars](#) (*Vunela*, 17 June 2017)
- Jackie Wiles: [The 5 Pillars of Successful Strategy Execution](#) (*Gartner*, 17 July 2023)
- Gemma Burford, et al: [Bringing the "Missing Pillar" into Sustainable Development Goals](#) (*Sustainability*, 5, 2013, 7)
- [The Six Pillars of a Complete Marketing Strategy](#) (*Melotti Media*)

Far less evident is any concern with how such pillars are configured, whether metaphorical or otherwise - - potentially to be explored as [knowledge architecture](#) or [cognitive architecture](#). Specifically how does the geometry of their configuration, if any, enhance and focus collective memory?

The focus in what follows is on the cognitive implications of pillar configuration -- their geometry, as usefully framed by [David Borkenhagen](#) ([The Geometry of Other People](#), *Aeon / Psyche*, 11 January 2024). A related question is whether particular symbolic significance is associated with individual pillars in any such array and with the links between them. For example, the circle of 30 [Sarsen stones at Stonehenge](#) was previously topped by lintel stones (of which two remain in place). Given the role of such pillars, it is curious that Frost's poem (*A Missive Missile*, 1936) is understood as evoking a sense of majesty (Lesley Lee Francis, [Robert Frost and the Majesty of Stones upon Stones](#), *Journal of Modern Literature*, 9, 1981, 1)

Given the value associated with pillars across cultures, there is a case for reconciling the insights which may be associated with them, as argued more generally by [Susantha Goonatilake](#) ([Toward a Global Science: mining civilizational knowledge](#), 1999) and discussed separately ([Enhancing the Quality of Knowing through Integration of East-West metaphors](#), 2000; [Coherent Reconciliation of Eastern and Western Patterns of Logic](#), 2023).

There is of course a curious contrast to the geometry of "pillar" in the "ring" used in the much-cited classical articulation of strategy in the Eastern martial arts by [Miyamoto Musashi](#) ([The Book of Five Rings](#), 1545). The curiosity is all the greater in that the focus there is on swordsmanship, given its geometrical correspondence to the weaponisation of a pillar -- a weaponisation now evident in the manner in which pillars are effectively thrown at others in the form of projectiles, most obviously missiles.

With the emergence of insubstantial [memetic warfare](#), principles, pillars and projectiles are readily conflated ([Conversion of Strategic Bullets into Global Accomplishment](#), 2009). The confusion is most evident in the conflation of a principled strategic goal and a target ([Reframing a fundamental attractor as a target](#), 2014; [Health and sustainability misleadingly framed as target acquisition](#), 2012; [Definition -- through target elimination](#), 2002).

Is there a case for recognizing that, pillars as the embodiment of principles in strategic declarations, are cognitively "weaponised" in the detail of such instruments -- as typographical "[bullet points](#)"? These invite

a potential association to "pillar" through the etymology of "pill", as deriving from *pilula* (the Latin for "little ball"). For a civilization increasingly dependent on pills and their use, model-making, strategic advocacy and the myth of the "red pill" are then variously entangled ([Psychosocial Transformation by "Pill Pushing"?](#) 2017).

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; Michael Klare, ["Encircling" China is a very bad idea](#), *Jacobin*, January 2022; Alfred Vagts, [Capitalist Encirclement; a Russian obsession -- genuine or feigned?](#) *The Journal of Politics*, 18, 1956, 3).

## From systemically unrelated strategic pillars to strategic basket-weaving with AI

It is to be expected that a further transition in the articulation and representation of principles will become evident through the role of AI, namely in their configuration in virtual reality. The "steadfastness" of principles may well be called into question, as in variants of the assertion of Groucho Marx: *Those are my principles, and if you don't like them... well, I have others*. Although deprecated in many contexts, their "flexibility" may be especially enabled by AI (Christophe Carugati, [Preparing for the virtual AI revolution: EU's flexible principles imperative](#), *Euractiv*, 10 October 2023). This would be consistent with the proposal for a [variable institutional geometry for Europe](#) ([Alternation between Variable Geometries](#), 1985).

The "cross-pillar strategies" articulated by the East-West Center contrasts with the typical absence of any cognitive significance to the relationship between pillars ([East-West Center Strategic Pillars](#), *East-West Center*). AI may be especially useful in enabling such recognition when there is a perceived need for "flexibility" (Jan Ballast, [Merging Pillars, Changing Cultures: NATO and the Future of Intelligence Cooperation Within the Alliance](#), *International Journal of Intelligence and CounterIntelligence*, 31, 2018, 4).

A strange historical contrast to the use of "pillars" was 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). It is therefore curious that information technology now enables new possibilities of "strategic basket-weaving" as illustrated separately ([Comprehensible Configuration of 8-fold Psychosocial Patterns in 3D](#), 2024).

By contrast, in negotiation of a new treaty for European economic and political union, use was later made of "pillars", "hats", "temples", "trees" and "ivy". The pillars were separate chapters of the treaty, the hat was the prologue creating a European union embracing three pillars. The alternatives were described in a "temple-versus-trees" debate in which the Commission argued that the treaty should look more like a "tree trunk with branches" than a "shaky temple supported by pillars". Others criticized a revision as "pillars covered in ivy", namely with largely cosmetic changes (*Independent*, 17 June 1991; Andrea Enria, [Of Temples and Trees: on the road to completing the European banking union](#), *European Central Bank*, 17 May 2022).

As a metaphor for requisite interdisciplinarity, the nature of any lintel between pillars has been evoked by [Colin Graham](#):

Interdisciplinary working requires that all science subjects should continue to be founded on deep and coherent pillars of knowledge and understanding. Interdisciplinary understanding will lack

rigour and utility if it is not part of a structure in which the disciplines are pillars with interdisciplinary work as lintels. Without the pillars, the lintels will fall. In other words, to be of long-term value the delivery of interdisciplinary learning must provide substantial rigorous disciplinary knowledge and understanding that is transferable into different contexts. (*Pillars and Lintels: the what's, why's and how's of interdisciplinary learning*, The Royal Society of Edinburgh Education Committee, August 2017)

Especially intriguing is the sense in which pillars define a "portal" -- a strategic passage way -- especially when linked by a lintel. This is notably recognized by Freemasonry, as clarified by R. W. Robert Palazzo:

Passing through these pillars represents a chance for a new beginning... Thus, when a candidate passed between them, he in essence becomes harmony, and enters a life in which the spiritual dominates the physical... Since the dawn of civilization, two pillars have guarded the entrance of sacred and mysterious places. Whether in art or architecture, twin pillars are archetypal symbols representing an important gateway or passage toward the unknown. (*The Esoteric Meaning of the Twin Pillars Boaz and Joachim*, Masonic News, 2017)

Contrasting with a "portal" is the defensive arena which may be framed and defined by any circle of stakes -- as a degradation of the symbolic role of any circle of pillars -- noted above as a feature of the stakeholder capitalism promoted by the World Economic Forum.

The following argument is a development of that made in several earlier papers (reviewed below) in which extensive use was made of ChatGPT as an experimental "cognitive prosthetic" anticipating future assistance from AI -- including early possibilities in the configuration of images using DALL-E (which continue to develop rapidly). Relevant precautions and reservations were indicated there, including concerns with so-called "hallucinations" and default platitudes. Curiously there is little corresponding concern with the "hallucinations" and platitudes which could be recognized as characteristic of conventional global governance and its summits.

Of particular interest here is the use of AI in reinforcing [confirmation bias](#) in the following process through what could be described as [leading questions](#), and whether and how the extensive incorporation of responses from ChatGPT in such documents may be deprecated beyond this transition period. Is their relative verbosity to be valued as instructive in an experimental period, or as a mode of providing context on elusive topics? As a mode of research and commentary, the possibility for readers of testing any response by asking the same question opens a new mode of engaging with such documents -- as with revision of documents no longer perceived as static. Notably questionable in such citation is the "synthetic appreciation", which typically introduces responses in order to encourage user engagement, and the use of personal pronouns by ChatGPT and in formulating a question.

In the organization of the responses below, these have been placed in shaded areas for clarity -- and to enable them to be readily skipped by the reader. However when the documents are presented as PDFs, this shading may be lost (as with hyperlinks). One future possibility for inclusion of AI commentary is to offer readers the capacity to switch between showing and hiding such responses -- as a means of focusing only on the prompts and other commentary.

As part of that experiment it is therefore appropriate to present a summary of the earlier arguments -- as requested of ChatGPT (Version 4.0 and [Scholar AI](#)). Editing of the responses has been limited to removal of stock expressions of appreciation of the question.

Your three papers... present a comprehensive and interrelated exploration of cognitive modalities, strategic thinking, and the role of AI in understanding and applying these concepts.

- [Coherent Reconciliation of Eastern and Western Patterns of Logic: Towards a polyhedral Rosetta Stone in aid of a paradigm shift respecting opposition](#) ,presents a comprehensive exploration of various multi-fold patterns, their implications for cognitive variety, and potential

applications in strategic thinking and conflict resolution. Here are some key insights and reflections from your work:

- **Multidimensional Strategic Frameworks:** You propose using multidimensional arrays, such as cubic and 4D configurations, for strategic thinking. This includes the use of a cubic array of Z.D. Sung and a 4D tesseract developed by Shea Zellweger for representing binary truth functions of logic, offering a more cognitively ergonomic approach to understanding complex relationships .
- **Mapping of Eastern and Western Logical Patterns:** You explore the integration of Eastern and Western logical frameworks, such as the mapping of the 8-fold BaGua trigrams and 14-fold logical connectives onto geometric shapes like the cuboctahedron and rhombic dodecahedron. This approach seeks to bridge disparate cultural and philosophical perspectives through geometric and symbolic representation .
- **Application in Conflict Resolution:** Your work also touches on applying these multidimensional frameworks to real-world conflicts, such as the Israel-Palestine issue. You suggest that a set of eight strategic conditions could be arrayed in terms of the BaGua configuration to provide new ways of framing conflicts .
- **Complexification of Cubic Configurations:** You discuss the potential for complexifying cubic configurations, such as truncating the cube to form different geometric shapes like the cuboctahedron or the snub cube, and associating strategies with the faces of these shapes .
- **Binary Coding and Symmetry:** The idea of assigning binary codes to geometric configurations, like the cuboctahedron, is explored. This approach aims to establish unique and symmetrical patterns that might aid in visualizing complex logical or strategic relationships .
- **Exploration of 16-fold Patterns:** Your paper delves into the significance of 16-fold patterns in various domains, including physics, mathematics, public health, and governance. This exploration includes a discussion on the memorability of such patterns and their potential applicability in strategic and cognitive contexts .
- **Memorability in Strategic Models:** You highlight the importance of memorability in the design of strategic models and frameworks, pointing out that more memorable models might be more effective in guiding human behavior and decision-making .
- **Correspondence and Cognitive Frameworks:** The paper discusses the potential for finding "monstrous moonshine" type correspondences in governance and cognitive frameworks, drawing parallels to mathematical discoveries and their implications for understanding complex systems .
- **Challenges of Representation:** You acknowledge the difficulty in representing the coherence of 16-fold arrays in 3D and the challenge it poses to comprehension, emphasizing the need for more innovative approaches to visualizing and understanding these complex patterns .
- ***Sustainable Development Goals through Self-reflexive Root Cause Analysis:*** This paper extends the exploration to self-reflective analysis of the Sustainable Development Goals (SDGs), highlighting the cognitive dimensions of understanding and organizing complex strategic frameworks. It delves into the significance of patterns and their memorability in strategic thinking, while also touching on the complexities and challenges of representing coherence in such frameworks .
- ***Artificial Intelligence as an Aid to Thinking Otherwise -- but to what End?:*** This paper builds upon the previous ones by exploring the role of AI, specifically ChatGPT, in aiding the understanding of complex cognitive and strategic frameworks. It discusses the interaction with AI as a unique form of dialogue, examining its potential to offer insights and the implications of this engagement for understanding nature and natural disasters. The paper raises critical questions about the nature of AI-assisted intelligence, the potential for confirmation bias in AI-human interactions, and the suitability of AI in addressing complex global issues .

Your work collectively offers a novel approach to understanding and applying complex cognitive and strategic frameworks, integrating insights from diverse disciplines and exploring the potential of AI as a tool in this process. Each paper builds upon the ideas of the previous ones, creating a comprehensive narrative that spans from theoretical frameworks to practical applications in AI and global strategy.

Overall, your work offers a unique and thought-provoking exploration of multi-fold patterns, their

symbolic and geometric representations, and their applications in various cognitive and strategic domains. The integration of Eastern and Western perspectives, along with the emphasis on memorability and cognitive ergonomics, provides valuable insights for those seeking to understand and navigate complex systems and conflicts.

## Clarification of 8-fold strategic patterns with ChatGPT

Detailed responses to the following questions to ChatGPT are included as a means of progressively focusing the argument on the potentially fundamental nature of the pattern of 8-foldness as a cognitive organizing principle. The point of departure is the articulation on the relevance of [8-foldness](#) in a wide variety of domains, as presented in *Wikipedia*. A key question is how this variety might be "read" to elicit a comprehensible range of cognitive modalities. The quest for such a pattern follows from the argument of Jeremy Lent (*The Patterning Instinct: a cultural history of humanity's search for meaning*, 2017).

**Question to ChatGPT:** An extensive variety of 8-fold patterns is indicated by *Wikipedia*. In the light of [the earlier] summary, can you suggest an 8-fold classification of 8-foldness which would be indicative of requisite cognitive variety. As a development of the earlier argument, I am looking for 8 highly disparate classes or modes or "ways of looking" -- possibly informed by [general systems research](#) at one extreme, the 8-fold [BaGua](#) organization of trigrams, and the arguments of [George Lakoff](#) on [Where Mathematics Comes From: How the Embodied Mind Brings Mathematics into Being](#)

... here are eight proposed categories:

- **Systemic Patterns and Dynamics:** This category explores cognitive variety through the lens of general system theory, emphasizing the interconnectedness and interdependence of components within a system. It involves understanding complex systems, feedback loops, and emergent properties.
- **BaGua Trigrams and Symbolic Logic:** Inspired by the BaGua trigrams, this class delves into ancient wisdom and its relevance to modern cognitive processes. It combines the symbolic interpretation of trigrams with contemporary logical frameworks, offering a bridge between ancient and modern cognitive paradigms.
- **Embodied Cognition and Mathematics:** Drawing from George Lakoff's work, this category focuses on the embodiment of mathematical concepts. It explores how mathematical thought processes are grounded in physical experiences and how abstract mathematical ideas are conceptualized through bodily interactions with the world.
- **Cultural and Linguistic Diversity in Cognition:** Here, the emphasis is on understanding how culture and language shape cognitive processes. This category explores diverse ways of thinking and problem-solving strategies that arise from different cultural and linguistic backgrounds.
- **Neurocognitive Diversity:** This approach examines cognitive variety through the study of brain function and neurodiversity. It includes understanding how different neural structures and pathways contribute to diverse cognitive abilities and styles.
- **Computational and Algorithmic Thinking:** In this category, cognitive variety is explored through computational models of thought, including algorithmic thinking and artificial intelligence. This involves understanding how computational processes can mimic or augment human cognitive capabilities.
- **Philosophical and Ethical Perspectives:** This class includes traditional and contemporary philosophical approaches to cognition, incorporating ethical considerations. It explores how philosophical inquiry and ethical reasoning contribute to diverse cognitive landscapes.
- **Artistic and Creative Cognition:** This category examines cognition through the lens of art and creativity, exploring how artistic processes and creative thinking contribute to cognitive diversity. It includes the study of aesthetics, creativity, and the role of the arts in cognitive development and expression.

These eight categories represent a spectrum of cognitive modalities that span from ancient wisdom to contemporary scientific understanding, offering a comprehensive framework for exploring and understanding the rich diversity of human cognition.

**Question to ChatGPT:** I am especially curious about the extent to which 8-fold frameworks are proposed within each case -- thereby rendering the whole self-reflexive

To create a self-reflexive 8-fold framework within each of the eight cognitive categories, we can explore how each category can be further subdivided into eight aspects or dimensions. This approach not only deepens our understanding within each category but also reflects the inherent complexity and diversity of cognitive processes.

- Systemic Patterns and Dynamics:
  - Feedback Loops / Interconnected Subsystems / Emergent Properties / Homeostasis and Equilibrium
  - Nonlinearity and Chaos / Adaptation and Evolution / Scale and Hierarchy / Network Structures and Relationships
- BaGua Trigrams and Symbolic Logic:
  - Eight Fundamental Elements / Dynamic Yin-Yang Balances / Transformation Cycles / Symbolic Representations
  - Binary Oppositions / Interactions and Relationships / Integration with Western Logic / Application in Decision-Making
- Embodied Cognition and Mathematics:
  - Spatial Reasoning / Temporal Understanding / Numerical Representation / Physical Metaphors in Math
  - Conceptual Blending / Embodied Interaction with Tools / Perceptual and Motor Experiences / Cognitive Linguistics in Math
- Cultural and Linguistic Diversity in Cognition:
  - Linguistic Relativity / Cultural Constructs of Time and Space / Social and Collective Cognition / Rituals and Symbolic Systems
  - Narrative and Storytelling / Cross-cultural Communication / Cultural Influences on Memory / Ethnopsychology
- Neurocognitive Diversity:
  - Brain Hemispheric Specialization / Neurodevelopmental Variations / Sensory Processing Differences / Cognitive Styles and Strategies
  - Memory Systems / Emotional and Social Cognition / Executive Functions / Neuroplasticity
- Computational and Algorithmic Thinking:
  - Algorithmic Problem Solving / Data Structures and Patterns / Computational Models of Mind / Machine Learning and AI Algorithms
  - Simulation and Modeling / Decision Trees and Flowcharts / Heuristic Methods / Programming Paradigms
- Philosophical and Ethical Perspectives:
  - Epistemology and Knowledge / Ethics and Moral Reasoning / Metaphysics and Reality / Logic and Argumentation
  - Philosophy of Mind / Political and Social Philosophy / Aesthetics and Beauty / Existential and Phenomenological Thought
- Artistic and Creative Cognition:
  - Visual Arts and Perception / Musical Composition and Interpretation / Literary Creativity and Narrative / Dance and Bodily Expression
  - Theatrical and Performance Arts / Creative Problem-Solving / Innovation and Design Thinking / Intuition and Inspiration

By structuring each category into an 8-fold framework, we create a self-reflexive model that not only encapsulates the variety within each domain but also mirrors the overarching 8-fold theme of the entire conceptualization. This approach enables a more nuanced understanding of cognitive variety, emphasizing the multi-dimensional and interconnected nature of human cognition.

**Question to ChatGPT:** To what extent is this articulation arbitrary and inherently artificial, as a response to the request

The articulation of the 8-fold classifications across different domains in response to your request is, to a considerable extent, both arbitrary and inherently artificial. This is due to several reasons:

Conceptual Construction: The concept of '8-foldness' itself is a constructed framework. It's not inherently present in all domains of knowledge or activity. Applying it across diverse fields requires a degree of conceptual stretching and creative interpretation.

- Forced Categorization: In some domains, an 8-fold division may not naturally or commonly exist. For instance, dividing technology into an 8-step innovation cycle or identifying eight distinct spiritual paths is more a matter of fitting these domains into the 8-fold mold rather than these domains intrinsically exhibiting an 8-fold structure.
- Subjective Selection: The choice of categories and their subdivisions into eight parts is subjective. Different experts or scholars might choose different categories or subdivide them differently based on their perspectives and knowledge.
- Simplification: Each field is complex and multi-dimensional. Reducing them to eight aspects can oversimplify these domains, potentially overlooking other important elements or nuances.
- Lack of Universality: The 8-fold framework may not equally apply or be relevant across all cultures, disciplines, or contexts. What seems a valid categorization in one cultural or academic context might not hold the same relevance in another.

In conclusion, while the approach aims to create a diverse and comprehensive classification, it does so by superimposing an arbitrary structure (8-foldness) onto various domains. This exercise is more about intellectual creativity and structuring knowledge for a specific purpose rather than uncovering or reflecting an inherent 8-fold structure in these fields.

**Question to ChatGPT:** If it is arbitrary to that degree, how is [requisite variety](#) to be understood in that respect. In each case examples of fundamental 8-foldness could be cited, with the 8-fold ways of physics and Buddhism as extremes, and the 8-fold set of multiple intelligences. Other than the [magic number 7 \(plus or minus 2\)](#), why 8?

The concept of "requisite variety" in the context of an 8-fold classification, and the choice of the number '8' itself, merit reflection, especially considering examples like the 8-fold way in physics, the Noble Eightfold Path in Buddhism, Howard Gardner's theory of multiple intelligences, and the 8-fold octave in music. Miller's "7 Plus or Minus 2" rule from cognitive psychology suggests that the average human can hold about 7 (ranging from 5 to 9) items in their working memory. This range is considered optimal for cognitive processing and retention.

- Requisite Variety: This concept, from cybernetics and systems theory, suggests a model or controller must match the complexity of the system it aims to manage or respond to. In 8-fold classifications, the categories should cover the domain's complexity comprehensively yet remain manageable and distinct.
- Why 8?: The number '8' is often chosen due to cultural, historical, or practical reasons rather than inherent superiority. The "magical number 7 (plus or minus 2)" suggests a cognitive processing limit in short-term memory, but broader classifications can go beyond this range.
- Examples of 8-Fold Classifications:
  - The 8-Fold Way in Physics: A classification scheme for hadrons, based on physical properties and symmetries in particle physics.
  - Noble Eightfold Path in Buddhism: A spiritual guideline, deeply rooted in Buddhist teachings, divided into eight parts leading to enlightenment.
  - Multiple Intelligences: Gardner's eight intelligences, chosen based on theoretical analysis and research into cognitive abilities.
  - 8-Fold Octave in Music: The octave in music theory, consisting of eight notes, is fundamental to musical scales and harmony. The octave represents a complete cycle in pitch, returning to a new cycle at the eighth note, which is harmonically aligned with the first. This concept of an 8-fold structure is foundational in music and has deep cultural and mathematical significance.
  - Byte in Computing: A byte consists of 8 bits and is a basic unit of information in computer science and digital communications. This 8-bit structure was adopted due to its balance between simplicity and utility, allowing for a wide range of data representation (256 possible values, from 0 to 255) while remaining manageable and efficient for processing.
- Significance of Number 8: The number '8' might be perceived as complete or balanced,

with cultural significance or empirical observations in specific domains. In some cases, it provides a comprehensive yet manageable framework. While the choice of 8 bits for a byte could be seen as somewhat arbitrary, it has become a standard due to its practical effectiveness. The size of a byte was influenced by various factors, including early computer architectures and the need for a balance between data granularity and processing capability.

- 5-Fold and 9-Fold Models in Context of Miller's Rule from cognitive psychology suggesting that the average human can hold about 7 (ranging from 5 to 9) items in their working memory. This range is considered optimal for cognitive processing and retention.
  - Five Elements (Wu Xing) in Chinese Philosophy: A 5-fold conceptual scheme used to explain a wide array of phenomena. Its simplicity and coherence make it easily manageable within the cognitive limits suggested by Miller.
  - Belbin's Team Roles: Identifying 9 distinct roles in a team, this model is at the upper threshold of Miller's rule. It provides a comprehensive framework for understanding team dynamics while still being cognitively manageable.
  - De Bono's 6 Thinking Hats: This 6-fold model fits comfortably within the cognitive range suggested by Miller. It offers a structured and accessible way to navigate different aspects of thinking and problem-solving.

In summary, these frameworks demonstrate how a range of 5 to 9 elements can be effectively used in various conceptual models and systems. Whether it's the harmonious cycle of an octave in music, the philosophical depth of the Wu Xing, the collaborative insights of Belbin's Team Roles, or the structured thinking approach of De Bono's 6 Hats, each system leverages the cognitive manageability of this range to facilitate understanding and application in its respective field.

The byte exemplifies how an 8-element structure can be fundamental in a technical field like computing, influencing everything from data storage to software design. Its adoption showcases the balance between complexity and cognitive manageability, aligning with the principles outlined in Miller's rule.

In conclusion, while the number '8' and 8-fold classifications can be seen as somewhat arbitrary, their effectiveness and "requisite variety" depend largely on the context. The significance of '8' varies across disciplines, reflecting observed realities or serving as a chosen framework for organizing knowledge or practice. The 8-fold octave in music is an excellent example of this, illustrating how the concept of '8' can encapsulate a cycle or a complete set of elements in a harmonious and structured manner.

The organization of supercomputer memory through the [torus interconnect](#) suggests an approach to the connection of an 8-fold pattern of disparate functions, as separately discussed, notably with respect to strategic implications ([Framing Cognitive Space for Higher Order Coherence](#), 2019; [Dynamics of N-fold Integration of Disparate Cognitive Modalities](#), 2021; [Global Coherence by Interrelating Disparate Strategic Patterns Dynamically](#), 2019)

**Question to ChatGPT:** Could the organization of computer memory be understood as especially dependent on 8-foldness as in the [torus interconnect](#) in a switch-less network topology for connecting processing nodes in a parallel computer system. Is that an embodiment of requisite variety

The organization of computer memory and certain network topologies like the torus interconnect indeed often exhibit an affinity for 8-foldness, primarily due to the fundamental role of binary systems in computing. The connection to "requisite variety" in these contexts can be understood in terms of efficiency, performance optimization, and the inherent properties of digital systems.

- Binary Systems and 8-Foldness: In digital computing, binary is the foundational language, with everything ultimately reduced to 0s and 1s. The significance of the number 8 comes particularly into play with the byte, which is composed of 8 bits. This 8-bit structure has been a standard in computing due to its balance between complexity and manageability, and it aligns well with the range of values needed for various computing tasks (like representing ASCII characters).
- Torus Interconnect and 8-Foldness: The torus interconnect is a network topology used in high-performance computing. It's designed to efficiently connect processors in a grid pattern that loops back on itself both horizontally and vertically, resembling a torus. This structure can be seen as embodying "requisite variety" in the sense that it provides an

optimal balance between the number of connections each node must maintain and the maximum distance data must travel across the network. However, the connection to 8-foldness specifically is more indirect. The torus topology is not inherently 8-based, but it embodies the principles of efficiency and balanced complexity that also underlie the use of 8-bit bytes in computing.

- **Requisite Variety in Computing:** In the context of computer design and network topology, "requisite variety" refers to the system having enough complexity and adaptability to effectively handle the demands placed on it. In computing, this often translates into structures that balance processing power, speed, memory capacity, and energy efficiency. While not always explicitly 8-fold, these designs often align with binary principles, where powers of 2 (including 8) play a significant role.

In conclusion, while the organization of computer memory and certain network topologies like the torus interconnect are deeply influenced by binary systems and thus indirectly related to 8-fold principles, their connection to "requisite variety" is more about achieving an optimal balance of complexity and efficiency rather than adhering to an 8-fold structure per se. The choice of certain structures, like 8-bit bytes, reflects a balance between simplicity and the capacity to represent a sufficiently diverse range of information.

**Question to ChatGPT:** Given that response, reflecting a non-arbitrary design constraint, is it possible that similar considerations apply to preferences in practice for other patterns of 8-foldness

Your observation about the potential for non-arbitrary design constraints influencing preferences for 8-fold patterns in various practices is insightful. Indeed, it's possible that in many fields, the preference for 8-fold structures or classifications could be influenced by factors that go beyond mere convention or arbitrariness. Let's consider a few key aspects:

- **Efficiency and Balance:** In many systems, the number 8 might represent an optimal balance between complexity and manageability. Just as in computer memory where 8 bits form a byte, providing a practical and efficient unit for data representation, other domains might find that an 8-part division allows for sufficient complexity without overwhelming simplicity or manageability.
- **Cognitive Processing:** The human brain's ability to process and remember information might also play a role. While George Miller's theory famously suggests a limit around  $7 \pm 2$  items for our working memory, the number 8 could be within this optimal range for cognitive processing and retention, making 8-fold patterns practical for learning, teaching, and understanding.
- **Cultural and Symbolic Significance:** In some cases, the choice of an 8-fold pattern may be influenced by its cultural or symbolic significance. For example, in many Eastern cultures, the number 8 is associated with prosperity and luck. Such cultural values can influence the adoption of 8-fold patterns in practices ranging from architecture to ritual.
- **Historical Precedents:** Historical and traditional practices might also influence the preference for 8-fold structures. For instance, the Buddhist Noble Eightfold Path has deep historical roots and has influenced various aspects of Eastern philosophy and practice.
- **Natural Patterns:** There might be natural or physical phenomena that inherently exhibit or are optimally described by 8-fold patterns. Just as the 8-fold way in physics was influenced by the properties of subatomic particles, other domains might find that an 8-fold division aligns well with natural patterns or phenomena they observe.
- **Practicality in Design and Function:** In design, architecture, and engineering, 8-fold patterns might be chosen for their practical benefits in terms of stability, symmetry, and aesthetics. Similarly, in organizational or management theories, an 8-fold framework might provide a comprehensive yet concise structure that is easy to implement and communicate.

In summary, while the preference for 8-fold patterns in various domains might initially appear arbitrary, often there are underlying reasons related to efficiency, cognitive processing, cultural significance, historical precedents, natural patterns, and practicality that influence this choice. These considerations suggest that 8-fold patterns might be more than a mere conceptual imposition, serving as useful and meaningful structures in diverse contexts.

**Question to ChatGPT:** A review of [Systems of Categories Distinguishing Cultural Biases](#) (1993), notes

category schemes proposed by [Magoroh Maruyama](#), [Geert Hofstede](#), [Kinhide Mushakoji](#), [Will McWhinney](#), [Stephen Pepper](#), [Mary Douglas](#), [Howard Gardner](#), [W T Jones](#), and [Emmanuel Todd](#). These are either 4-fold or 8-fold but such fundamental patterns evoke little comment as to their appropriateness

The review of "Systems of Categories Distinguishing Cultural Biases" (1993) that notes category schemes proposed by various thinkers highlights a significant point: the choice of 4-fold or 8-fold patterns in these frameworks is indeed noteworthy, yet often the rationale behind selecting these specific structures is not extensively discussed. This observation opens up an interesting area of inquiry into why certain numerical patterns, like 4-fold or 8-fold, are frequently chosen and what this implies about our cognitive and cultural biases. Let's delve into this:

- Choice of 4-Fold or 8-Fold Patterns:
  - Cognitive Manageability: These patterns align with the cognitive processing capabilities suggested by Miller's "7 plus or minus 2" rule. They are complex enough to capture a range of perspectives or phenomena but simple enough to be cognitively manageable.
  - Cultural and Symbolic Significance: The numbers 4 and 8 often hold cultural and symbolic significance in various traditions. For instance, the number 4 is associated with completeness or stability in some cultures (e.g., the four cardinal directions), while 8 can symbolize balance and harmony (e.g., the 8-fold path in Buddhism).
- Examples from the Review:
  - The thinkers you mentioned, such as Maruyama, Hofstede, and Gardner, have developed frameworks for understanding complex phenomena like cultural dimensions, patterns of thought, and multiple intelligences.
  - These frameworks, whether 4-fold or 8-fold, provide structured ways of categorizing and analyzing diverse aspects of human behavior, thought, and culture.
- Appropriateness of the Patterns:
  - The appropriateness of a particular numerical pattern often depends on the specific domain and the purpose of the framework. For instance, Gardner's 8 types of intelligences are designed to cover a broad spectrum of human cognitive abilities, while Hofstede's cultural dimensions model originally identified four key dimensions (later expanded) to categorize national cultures.
  - The lack of extensive commentary on the choice of these patterns might be due to a focus on the practical applications of these frameworks rather than on their underlying numerical structure.
- Reflecting on Numerical Choices:
  - It's important for scholars and practitioners to reflect on why certain numerical structures are chosen and how these choices influence our understanding and interpretation of the frameworks.
  - Understanding the rationale behind the use of 4-fold or 8-fold patterns can provide deeper insights into the cognitive and cultural biases that shape our categorization systems.

In conclusion, while the use of 4-fold and 8-fold patterns in categorization systems is common, the reasons for these choices often go unexamined. Exploring these reasons can reveal much about our cognitive preferences and cultural influences, and can enhance our understanding of these frameworks' utility and limitations.

**Question to ChatGPT:** Extensions of the periodic table of chemical elements envisage "[islands of stability](#)", could 8-foldness be understood as an analogous island from a cognitive perspective -- especially given the [magic number 7 \(plus or minus 2\)](#)

The concept of "islands of stability" in the periodic table of chemical elements and its potential analogy to an "island of 8-foldness" from a cognitive perspective is a fascinating idea. Let's explore this analogy:

- Islands of Stability in Chemistry: In the periodic table, the "island of stability" refers to a theoretical set of superheavy elements (transuranium elements) that are hypothesized to have relatively stable atomic structures despite their high atomic numbers. This stability is

believed to arise from certain 'magic numbers' of protons and neutrons that form complete nuclear shells, making these elements more stable than those surrounding them.

- 8-Foldness as a Cognitive Island of Stability: Drawing an analogy to cognitive processes, the 'magic number 7 (plus or minus 2)' as proposed by psychologist George Miller, suggests a limit to the number of objects an average human can hold in working memory. This range (5 to 9) can be seen as a cognitive 'island of stability' where information processing and memory retention are optimally balanced. Within this range, 8 stands out as a particularly stable and manageable number for cognitive organization and structuring of information.

Implications of this Analogy:

- Efficiency in Processing: Just as elements in an island of stability in the periodic table are more 'manageable' due to their relative stability, an 8-fold classification might be cognitively more efficient for learning, remembering, and organizing information.
- Practicality in Design: In various design principles, educational structures, and organizational frameworks, using an 8-fold structure might align well with this cognitive 'sweet spot', making the information more accessible and retainable.
- Cultural and Historical Resonance: The prevalence of the number 8 in various cultural, religious, and historical contexts might also be related to its position within this cognitive island of stability, making it a number that resonates well with human perception and memory.
- Limitations of the Analogy: While this analogy provides an interesting perspective, it's important to remember that cognitive and chemical processes are fundamentally different. The 'islands of stability' in chemistry are based on physical properties and atomic structures, while cognitive 'stability' is more about psychological and neurological capabilities. Moreover, the choice of 8 as a structuring principle in various domains may also be influenced by factors other than cognitive efficiency, such as tradition, practicality, or aesthetic considerations.

In conclusion, the idea of 8-foldness as an analogous 'island of stability' from a cognitive perspective provides a thought-provoking way to understand why this structure might be prevalent and effective in various contexts. It highlights the interplay between cognitive capabilities and how we organize and process information, suggesting that certain numerical structures might be inherently more aligned with human cognitive processes.

**Question to ChatGPT:** You acknowledge the accepted role of 8-foldness in various domains, but you have framed it as somewhat arbitrary in other domains -- and yet it would appear to be a matter of cognitive preference in detection of order in the periodic system. Is it appropriate to argue that its role in computing is itself somewhat arbitrary although there would not appear to be non-binary alternatives, ternary, etc

Your observation about the role of 8-foldness in various domains, including computing, raises an important question about the balance between cognitive preference, practicality, and potential arbitrariness in the adoption of numerical structures.

8-Foldness in Computing: In computing, the significance of the number 8, particularly as it relates to bytes (8 bits), is not entirely arbitrary. This choice was influenced by several factors:

- Historical Development: Early in computing history, different systems used various word sizes. The adoption of 8-bit bytes was partly influenced by the practicality and sufficiency of 8 bits for representing a wide range of characters (e.g., ASCII uses 7 or 8 bits).
- Balance Between Complexity and Utility: 8 bits strike a balance between having enough combinations (256 in a byte) to represent useful information and being small enough for efficient processing and memory use.
- Standardization: As the computing industry grew, the standardization around 8-bit bytes became more entrenched, driven by compatibility and interoperability considerations.
- Alternatives to Binary Systems: While binary (base-2) systems dominate computing, alternatives like ternary (base-3) have been explored. For example, the ternary computer uses three states (often -1, 0, +1) instead of two. However, these systems have not become mainstream due to factors such as:

Technical and Economic Constraints: Binary systems are easier to implement with existing electronic technology, which naturally handles two states (on/off, high/low) more reliably and economically than three or more states.

- Momentum and Infrastructure: The vast infrastructure and body of knowledge built around binary systems make shifting to a different base system a significant challenge.
- Cognitive Preference and Detection of Order: Humans have a tendency to seek patterns and order in information. The prevalence of 8-fold structures in various domains might be partly influenced by cognitive preferences for manageable and meaningful patterns. In the periodic table, for instance, the recognition of patterns and the anticipation of undiscovered elements were crucial in its development. However, in computing, the dominance of binary and the prevalence of 8-bit bytes are more a result of practical considerations and historical development than cognitive preferences.
- Appropriateness of Arguing for Arbitrariness: While there's a degree of arbitrariness in the choice of any numerical system or structure, in the case of computing, the use of binary and the 8-bit standard are less about arbitrary choice and more about technological and practical constraints. It's appropriate to argue that while there might be other possible systems (like ternary), the prevailing use of binary and its derivatives in computing is grounded in practicality, efficiency, and historical development, rather than being purely arbitrary.

In summary, while cognitive preferences for detecting order and patterns play a role in many domains, the prevalence of binary systems and 8-bit structures in computing is primarily driven by practical considerations, historical context, and technological constraints. The role of 8-foldness in computing, therefore, can be seen as a blend of practical necessity and historical development rather than a purely arbitrary choice.

**Question to ChatGPT:** This has been a useful exchange. I understand that it is possible to request that you review it in order to produce a summary

Certainly, I can provide a summary of our discussion:

- 8-Fold Classifications Across Domains: Initially, we explored the idea of creating an 8-fold classification system across various domains like science, philosophy, art, etc. This concept aimed to cover a broad spectrum of disciplines and perspectives, with each category defined around an 8-part framework relevant to its field.
- Arbitrariness and Artificiality: We then discussed the extent to which this 8-fold classification system is arbitrary and artificial. While such a classification aims for diversity and comprehensiveness, it often involves a degree of conceptual stretching and subjective interpretation to fit various domains into an 8-fold structure.
- Requisite Variety and Non-Arbitrary Design Constraints: The discussion then shifted to the concept of "requisite variety" and the potential non-arbitrary nature of 8-fold patterns in certain contexts, such as computer memory organization and network topologies like the torus interconnect. We explored how these patterns might be influenced by efficiency, balance, and the inherent properties of digital systems.
- Cognitive Preferences for 8-Fold Patterns: We also examined the possibility that preferences for 8-fold patterns in various practices could stem from cognitive efficiency and balance, as seen in the analogy to 'islands of stability' in the periodic table and the cognitive 'sweet spot' of the number 8 within the range of  $7 \pm 2$  items in working memory.
- 8-Foldness in Computing: Finally, we discussed the significance of 8-foldness in computing, particularly the use of 8-bit bytes. We considered whether this was an arbitrary choice or influenced by practical and historical factors. The discussion concluded that while alternatives like ternary computing exist, the binary system and 8-bit standard in computing are primarily driven by practicality, efficiency, and historical development, rather than cognitive preference or arbitrariness.

Overall, our exchange highlighted the nuanced role of 8-fold patterns in various domains, balancing between arbitrary conceptual constructs and practical necessities influenced by historical, cognitive, and technological factors.

Recognition of the pattern of 8-fold "ways of looking"

The focus on "ways of looking" has been curiously inspired by references to the poem of [Wallace Stevens](#) (*Thirteen Ways of Looking at a Blackbird*, 1917), as is evident from its use by other poets, and discussed separately (*Thirteen ways of apprehending blackbird song*, 2014). It frames the question of the variety of lenses through which anything may be viewed -- Beyond the pandemic discipline of the one right way (*Interrelating Multiple Ways of Looking at a Crisis*, 2021).

**Question to ChatGPT:** It could be argued that the binary approach was reinforced for Leibniz through exposure to the *BaGua* configuration of trigrams, extended to the *I Ching*. Somewhat speculatively it could then be argued that a degree of analogy, if only as a metaphor, could be recognized between the 8-fold "ways of looking" that you presented in response to the initial request

Your reference to Leibniz's exposure to the *BaGua* configuration of trigrams and its potential influence on his appreciation of binary systems opens an intriguing perspective on the historical and philosophical interplay between different knowledge systems and their impact on modern technology and thought.

- **Leibniz and the BaGua:** Gottfried Wilhelm Leibniz, a prominent philosopher and mathematician, is known for developing the binary numeral system fundamental to modern computing. His encounter with the *BaGua* – an ancient Chinese system of eight trigrams used in Taoist cosmology and the *I Ching* (Yijing, "Book of Changes") – is often cited as a possible influence on his work. The *BaGua* symbols consist of three lines (either broken or unbroken), representing various natural concepts, and they can be seen as an early form of binary representation.
- **Binary Systems and I Ching:** The *I Ching*'s trigrams and hexagrams (combinations of two trigrams) can be interpreted in a way that resembles binary code, where the broken line represents '0' and the unbroken line represents '1'. This parallel, whether directly influential or not, shows an intriguing historical connection between ancient symbolic systems and modern binary code.
- **Analogy to 8-Fold "Ways of Looking":** Drawing an analogy between this and the 8-fold "ways of looking" we discussed earlier, we can see a metaphorical connection. Just as the *BaGua* offers a framework for understanding the universe through a set of fundamental principles, the 8-fold classifications across different domains provide a framework for comprehending various aspects of knowledge and experience. Each "way of looking" in our 8-fold classification can be seen as a distinct lens or perspective, analogous to how each trigram in *BaGua* symbolizes a fundamental aspect of reality.
- **Metaphorical and Philosophical Implications:** While this analogy should be understood as more metaphorical than literal, it highlights the depth and interconnectedness of human thought across cultures and eras. It suggests that our efforts to categorize and understand the world, whether through ancient symbolic systems or modern scientific classifications, share a common goal of seeking order, meaning, and comprehensibility in the complexity of our experiences.

In summary, the potential influence of the *BaGua* on Leibniz's binary system and the metaphorical analogy to the 8-fold "ways of looking" demonstrate the rich tapestry of human knowledge. They reveal how ancient wisdom and modern concepts, though developed in different times and cultures, can converge and resonate in their attempts to decode the mysteries of the world and the human mind.

**Question to ChatGPT:** It would appear that what is missing is an ability to recognize, in the spirit of [general systems research](#), the elusive fundamental distinctions potentially indicated by the 8-fold set of trigrams. Reference to 8-fold ways and other such clusters could then be understood as distinctive instances of [misplaced concreteness](#)

Your observation about the potential for a more profound understanding of the 8-fold set of trigrams, in the context of general systems research, raises an important point about the nature of knowledge classification and the risk of what Alfred North Whitehead called "misplaced concreteness."

- **Fundamental Distinctions in Trigrams:** The 8 trigrams (*BaGua*) in Chinese

philosophy represent fundamental principles or elements of reality, each embodying a unique set of qualities and associations. These trigrams have been used for millennia as tools for divination, philosophical inquiry, and understanding the natural world. They are abstract symbols that represent dynamic processes and interactions rather than concrete entities.

- **General Systems Research Perspective:** From a general systems theory perspective, which seeks to understand the principles and patterns common to systems of all kinds (whether in physics, biology, sociology, etc.), the BaGua could be seen as an early systemic framework. It attempts to capture the fundamental dynamics and interactions within the universe. The challenge in this field is to distinguish between the symbolic representation of these systems and their actual, concrete manifestations.
- **Misplaced Concreteness:** Whitehead's concept of misplaced concreteness refers to the error of treating abstract concepts as if they were concrete realities. In the context of the 8-fold patterns (such as the BaGua, the 8-fold way in physics, and others), there's a risk of interpreting these abstract frameworks as literal or exclusive representations of reality. Instead, they should be seen as models or tools to help understand and navigate complex systems and phenomena.
- **8-Fold Clusters as Symbolic Frameworks:** The various 8-fold ways, including those in physics, Buddhism, and other domains, can be understood as symbolic frameworks or heuristic devices. They offer a means to conceptualize and categorize aspects of the world, but they are not concrete entities in themselves. The significance of these frameworks lies in their utility in facilitating understanding, rather than in their being definitive or exhaustive representations of reality.
- **Integrating into a Broader Understanding:** Recognizing the value of these 8-fold systems within a broader epistemological context requires a balance between appreciating their symbolic and heuristic utility and avoiding the pitfall of treating them as concrete or exclusive truths. This approach aligns with the principles of general systems theory, which acknowledges the interconnectedness and complexity of various types of systems and seeks to understand them through integrative and abstract models.

In conclusion, the exploration of 8-fold systems, like the trigrams of the BaGua, can offer valuable insights, especially when approached from a systems theory perspective. However, it's crucial to remember their abstract nature and to avoid the fallacy of misplaced concreteness, instead appreciating these systems as tools for understanding the complex interplay of elements within the broader tapestry of reality.

**Question to ChatGPT:** In the light of that response is it to be expected that general systems research would have recognized a requisite variety of systems. Could you confirm this or explain why it may not have proven to be the case

- **General Systems Theory (GST),** pioneered by Ludwig von Bertalanffy and others in the mid-20th century, indeed aims to identify and understand common principles that can be applied across various systems, whether in biology, sociology, physics, or other fields. However, the question of whether GST has recognized a "requisite variety" of systems or why it might not have fully achieved this goal involves several considerations:
- **Objective of General Systems Theory:** GST seeks to develop a framework that is universally applicable across different types of systems. This involves identifying common patterns, structures, and behaviors in systems, regardless of their specific nature or context. The theory posits that systems share certain fundamental characteristics and that these can be studied in a generalizable way.
- **Recognition of a Variety of Systems:** GST has indeed recognized a wide variety of systems. It acknowledges the existence of simple, linear systems as well as complex, nonlinear systems; open and closed systems; static and dynamic systems, among others. The theory emphasizes that different systems can exhibit similar properties or behaviors due to their systemic nature, rather than their specific content.

**Challenges in Applying GST Widely:**

- **Complexity and Diversity:** One challenge is the immense complexity and diversity of systems in the real world. While GST provides a valuable framework, the specificities and intricacies of individual systems can sometimes defy easy categorization or analysis within a single theoretical framework.

- **Interdisciplinary Barriers:** GST is inherently interdisciplinary, but academic and professional disciplines often operate in silos, with their own methodologies and terminologies. This can hinder the application and development of a unified systems theory.
- **Evolving Understanding:** As our understanding of complex systems (like ecological, social, and technological systems) evolves, so too must the theories that attempt to describe them. GST, while foundational, is part of an ongoing process of understanding the nature of systems.
- **Requisite Variety:** The concept of "requisite variety," as formulated by cybernetician W. Ross Ashby, states that a control system must be as diverse and adaptable as the system it seeks to control. While GST recognizes the diversity of systems, applying the concept of requisite variety effectively to every system is challenging, particularly in highly complex or adaptive systems.
- **Current State of GST:** Today, GST continues to influence various fields, from management to ecology. However, its application is often more conceptual than practical. The theory provides a valuable lens through which to view the interconnectedness and commonalities of different systems, but it may not always provide specific or detailed guidance for managing or understanding every individual system.

In conclusion, while General Systems Theory has significantly contributed to our understanding of systems in a broad sense, recognizing a wide variety of systems, applying it to encompass the "requisite variety" needed for every specific system or field remains an ongoing challenge. This is partly due to the inherent complexity of systems, interdisciplinary barriers, and the continuously evolving nature of our understanding of systems.

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The argument is developed and illustrated in the following parts:

- Part 2: [Comprehensible Configuration of 8-fold Psychosocial Patterns in 3D: cognitive potential of polyhedral coherence](#) (2024):
  - 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: "basket weaving" in virtual reality
  - Transformation of 8-fold strategic pattern of pillars into 72-edged truncated cuboctahedron
  - Organization of complexity in 3D in comprehensible patterns of N-foldness
- Part 3: [Comprehensible Organization of Strategic Complexity in 3D and 4D](#)
- Part 4: [Higher Dimensional Reframing of Unity and Memorable Identity](#)

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## References

Ronald Atkin:

- Multidimensional Man; can man live in 3-dimensional space? Penguin, 1982
- Combinatorial connectivities in social systems: an application of simplicial complex structures to the study of large organizations. Birkhauser Verlag, 1977
- From cohomology in physics to q-connectivity in social science. *International Journal of Man-Machine Studies*, 4, 1972

R. H. Atkin and J. L. Casti. Polyhedral dynamics and the geometry of systems. International Institute for Applied Systems Analysis, 1977.

Gregory Bateson and Mary Catherine Bateson. Angels Fear: towards an epistemology of the sacred. University of Chicago Press, 1988

Stafford Beer. Beyond Dispute: the invention of team synteegrity. John Wiley, 1994

James W Botkin, Mahdi Elmandjra and Mircea Malitza. No Limits to Learning; bridging the human gap.

Oxford, Pergamon, 1979

J. L. Casti. Connectivity, Complexity, and Catastrophe in Large-Scale Systems. John Wiley, 1979

John Horton Conway, Heidi Burgiel, and Chaim Goodman-Strauss. The Symmetries of Things. A K Peters, 2008 [\[summary\]](#)

Konstantin Y. Degtiarev. Systems Analysis: mathematical modeling and approach to structural complexity measure using polyhedral dynamics approach, *Complexity International*, vol. 7, 2000 [\[text\]](#)

Buckminster Fuller with E. J. Applewhite. Synergetics: Explorations in the Geometry of Thinking, Macmillan, 1975-1979

P. Gärdenfors. Conceptual Spaces: the geometry of thought. The MIT Press, 2004

Susantha Goonatilake. Toward a Global Science: mining civilizational knowledge. Indiana University Press, 1999

Larry Guth. Metaphors in Systolic Geometry. *Proceedings of the International Congress of Mathematicians*, 2010 [\[text\]](#)

Jay Kapraff. Connections: the Geometric Bridge between Art and Science. McGraw Hill, 1990 [\[text\]](#)

Lynne Kelly. The Memory Code. Allen and Unwin, 2016

George Lakoff with Rafael Núñez. Where Mathematics Comes From: How the Embodied Mind Brings Mathematics into Being. Basic Books, 2000

I. Lee and B. Portier. An Empirical Study of Knowledge Representation and Learning Within Conceptual Spaces for Intelligent Agents. 6th IEEE/ACIS Int. Conf. Computer and Inf. Science, 2007

Jeremy Lent. The Patterning Instinct: a cultural history of humanity's search for meaning. Prometheus, 2017

Rupert Sheldrake and Matthew Fox. The Physics of Angels: exploring the realm where science and spirit meet. Monkfish Book Publishing, 2014

M. L. G. Show and B. R. Gaines. Kelly's "Geometry of Psychological Space" and Its Significance for Cognitive Modeling, 1992 [\[text\]](#)

Mark Starel (Ed.). Discursive Geometry and More. Goldenmark Publications, 2023 [\[text\]](#)

Z. D. Sung. Symbols of the Chinese Logic of Changes. Kessinger Publishing, 1934/2010

Guillermo Pineda Villavicencio. Polytopes and Graphs. Cambridge University Press, 2024

Frances Yates. The Art of Memory. Routledge and Kegan Paul, 1966



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