Unexplored Potential of Mathematics and Geometry
in reframing psycho-social challenges

Introduction
The papers grouped below are those accessible on this website. They correspond to explorations over a number of decades which have sought to highlight the wider potential of particular themes in mathematics and geometry -- or loosely associated with such themes. The explorations are necessarily speculative -- raising questions and imagining answers. The themes may notably be used metaphorically. The commitment has been primarily to stimulate imagination. Some documents have however focused on (and resulted in) software implementations. The papers listed therefore include those relating to systems analysis, notably with respect to information systems.

The concern that better use had not yet been made of such mathematical insights has been strongly articulated in one case (*And When the Bombing Stops?* Territorial conflict as a challenge to mathematicians, 2000; *Reframing Relationships as a Mathematical Challenge: Jerusalem as a parody of current interfaith dialogue*, 1997). This argument has been further developed with regard to insights from symmetry group theory (*Dynamics of Symmetry Group Theorizing: comprehension of psycho-social implication*, 2008).

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Polyhedra and tensegrity

- [2008] Coherent Value Frameworks: pillar-ization, polarization and polyhedral frames of reference
- [2008] Topology of Vakking: psychodynamics of collective engagement with polyhedral value configurations
- [2008] Polyhedral Pattern Language: software facilitation of emergence, representation and transformation of psycho-social organization
- [2008] Polyhedral Conference Representation as a Catalyst for Innovation: polyhedral animation of IPRA 2008
- [2008] Polyhedral Empowerment of Networks through Symmetry: psycho-social implications for organization and global governance

- [2005] Union of Intelligible Associations: remembering the dynamic identity of a dodecamerinal mind * (194k, 152w)
- [2003] Evoking Authenticity: through polyhedral global configuration of local paradoxes (117k, 110w)
- [2002] Patterning Archetypal Templates of Emergent Order: implications of diamond faceting for enlightening dialogue (137k, 93w)
- [2002] Summary of Gemstone Faceting and Crystals: Patterning Archetypal Templates of Emergent Order (26k, 32w)
- [1995] Representation of Issue Arenas on Icosidodecahedral Net (Alternate A) (Configuring strategic dilemmas in intersectoral dialogue)
- [1995] Representation of Issue Arenas on Icosidodecahedral Net (Alternate B) (Configuring strategic dilemmas in intersectoral dialogue)
- [1984] From Networking to Tensegrity Organization (13k, 31w)
- [1980] Tensing Associative Networks to contain the Fragmentation and Erosion of Collective Memory (45k, 13w)
- [1980] Vector Equilibrium and its Transformation Pathways (65k)
- [1979] Implementing Principles by Balancing Configurations of Functions: a tensegrity organization approach (36k, 3w)
- [1978] Transcending Duality through Tensional Integrity: From systems-versus-networks to tensegrity organization (58k, 5w)
- [1978] Tensed Networks: Balancing and focusing network dynamics in response to networking diseases (28k, 3w)

Complex system dynamics and self-organization

- [2007] Imagining the Real Challenge and Realizing the Imaginal Pathway of Sustainable Transformation * (48k, 71w)
- [2007] In Quest of Mnemonic Catalysts -- for comprehension of complex psychosocial dynamics * (66k, 89w)
- [2007] Consciousness Self-reflective Global Initiatives: Renaissance zones, complex adaptive systems, and third order organizations * (130k, 158w)
- [2006] Complementarity and Self-reflectivity: between nuclear fusion and cognitive fusion * (61k, 72w)
- [2004] Dynamically Gated Conceptual Communities: emergent patterns of isolation within knowledge society
- [2002] Navigating alternative conceptual realities: clues to the dynamics of enacting new paradigms through movement
- [1998] Global Self-Organization: the systemic structural challenge of the exchange of meaning, dramatized by the Asian financial crisis (20k, 23w)
- [1998] From statics to dynamics in sustainable community: navigating through chaos by playing on polarities as attitude correctors
- [1995] Comprehending complexity and appropriateness (Challenge: Metaphor Project)
- [1995] Comprehending the complexity of the value surface (Complexity: Human Values Project)
- [1995] Envisaging the Art of Navigating Conceptual Complexity: in search of software combining artistic and conceptual insights (5k, 20w)
- [1995] System dynamics (Embracing difference: Global Strategies Project)
- [1995] Understanding value systems (Complexity: Human Values Project)
- [1995] Beyond "equilibrium" values (Complexity: Human Values Project)
- [1983] Alternating between Complementary Conditions: dialogue, vision, conference, policy, network, community and lifestyle (43k, 3w)
- [1983] Networking Alternation: an alternation network of 384 pathways of organizational transformation (81k, 69w)
- [1977] Complexity: its constraints on social innovation (2k, 7w)
- [1977] La Complexité: ses contraintes pour l'innovation sociale (3k, 7w)
- [1977] La Complexité: ses contraintes pour l'innovation sociale (30k, 3w)

Strange attractors and the Mandelbrot set

- [2007] Framing the Interplay of Leadership and Misleadership: in the light of the coaction cardioid and the Mandelbrot set * (44k, 16w)
- [2005] Cardioid Attractor Fundamental to Sustainability: 8 transactional games forming the heart of sustainable relationship * (89k, 80w)
- [2005] Features of Mandelbrot and Julia Sets * (86k, 4w)
- [2005] Imagination, Resolution, Emergence, Realization and Embodiment: iterative comprehension ordered via the dynamics of the Mandelbrot set * (9k)
- [2005] Psycho-social Significance of the Mandelbrot Set: a sustainable boundary between chaos and order * (74k, 48w)
• [2005] Sustainability through the Dynamics of Strategic Dilemmas: in the light of the coherence and visual form of the Mandelbrot set * (150k, 147w)
• [1995] Values as attractors (Comments: Human Values Project)
• [1995] Values as attractors (Complexity: Human Values Project)
• [1993] Human Values as Strange Attractors: Coevolution of classes of governance principles (80k, 7w)

Integration, synthesis, system unification
• [1994] Transdisciplinarity-3 as the Emergence of Patterned Experience (Part I) (42k, 2w)
• [1994] Transdisciplinarity-3 as the Emergence of Patterned Experience (Part II) (36k, 25w)
• [1983] Complexification of Integration (58k, 78w)
• [1981] Integrative Dimensions of Concept Sets (21k, 2w)
• [1978] Emergence of Integrative Processes in a Self-reflective Assembly (44k)
• [1968] Application of Model: Functional Synthesis of Viewpoints (Part III) (72k, 26w)
• [1968] Development of Model: Functional Synthesis of Viewpoints (Part II) (23k, 26w)
• [1968] Functional Synthesis of Viewpoints: a conceptual model based on purpose (28k, 29w)

Cycles
• [2007] Emergence of Cyclic Psycho-social Identity: sustainability as "psychically" defined * (109k, 111w)
• [2002] Psychology of Sustainability: Embodying cyclic environmental processes * (110k, 130w)
• [1995] C Characteristics of phases in 12-phase learning / action cycles
• [1995] Cycles of dissonance and resonance (Patterns of alternation: Global Strategies Project)
• [1995] Cycles of winning and losing (Patterns of alternation: Global Strategies Project)
• [1995] Transformative policy cycles (Configuring: Transformative Approaches Project)
• [1995] Transformative policy cycles (Patterning: Transformative Approaches Project)
• [1990] Towards Another Order of Sustainable Policy Cycles
• [1988] Atlas of International Relationship Networks: Phased Cycles (7k, 5w)
• [1988] Reordering Networks of Incommensurable Concepts in Phased Cycles (80k, 21w)
• [1988] Sustainable Cycles of Policies: Crop Rotation as a Metaphor (7k, 1w)
• [1988] Sustainable cycles of policies: Crop Rotation as a Metaphor (8k, 1w)
• [1990] Towards Another Order of Sustainable Policy Cycles: insights from the I Ching (2k, 2w)
• [1984] Participant Entrapment (Repetition of Learning Cycles): Towards Transformative Conferencing and Dialogue (Part S) (3k, 1w)

Sets, numbers, patterns, symmetry group theory
• [2008] Dynamics of Symmetry Group Theorizing: comprehension of psycho-social implication
• [2007] Potential Psychosocial Significance of Monstrous Moonshine: an exceptional form of symmetry as a Rosetta stone for cognitive frameworks * (226k, 136w)
• [2007] Sustainability through Magically Dancing Patterns
• [2007] Governance through Patterning Language: creative cognitive engagement contrasted with abdication of responsibility
• [2005] Resolving the Challenge of Faith-based Terrorism: Eliciting the dynamic of two-body, three-body and n-body variants * (81k, 78w)
• [2003] 9-fold Higher Order Patterning of Tao Te Ching Insights
• [2003] Tao Te Ching Interpreted Succinctly a 9-fold pattern of 81 insights presented as phrases
• [1998] Varieties of Dialogue by Number: Experimental overview by number of perspectives represented (9k)
• [1995] Global configuration from number theory (Patterning: Transformative Approaches Project)
• [1983] Threshold of Comprehensibility: a fourfold minimal system? (77k, 78w)
• [1980] Patterns of N-foldness: Comparison of integrated multi-set concept schemes as forms of presentation (60k, 7w)
• [1978] Example of an elaboration of a number-based sequence of systems (14k)
• [1978] Representation, Comprehension and Communication of Sets: the Role of Number (8k)
• [1978] Representation, Comprehension and Communication of Sets: the Role of Number (Notes) (50k)
• [1978] Representation, Comprehension and Communication of Sets: the Role of Number (Parts 1-3) (143k)
• [1978] Representation, Comprehension and Communication of Sets: the Role of Number (References) (25k, 12w)
• [1978] Clarification of Specific Sets (7k)

Sets: number-based
• [1984] Examples of Integrated, Multi-set Concept Schemes (12k, 23w)
• [1984] Examples of Integrated, Multi-set Concept Schemes: Art of colour (12k, 2w)
• [1984] Examples of Integrated, Multi-set Concept Schemes: Catastrophe Theory (19k, 2w)
• [1984] Examples of Integrated, Multi-set Concept Schemes: Chinese art of war (9k, 2w)
• [1984] Examples of Integrated, Multi-set Concept Schemes: Chinese Communist terminology (3k, 2w)
• [1984] Examples of Integrated, Multi-set Concept Schemes: Chladni patterns (7k, 2w)
[1984] Examples of Integrated, Multi-set Concept Schemes: Generic code and amino acids (4k, 2w)
[1984] Examples of Integrated, Multi-set Concept Schemes: The Geometry of Meaning (21k, 3w)
[1984] Examples of Integrated, Multi-set Concept Schemes: GPID (9k, 3w)
[1984] Examples of Integrated, Multi-set Concept Schemes: I Ching (15k, 3w)
[1984] Examples of Integrated, Multi-set Concept Schemes: Islamic cosmological doctrine (9k, 2w)
[1984] Examples of Integrated, Multi-set Concept Schemes: Language and transformational-generative grammars (15k, 2w)
[1984] Examples of Integrated, Multi-set Concept Schemes: Movement and dance notation (36k, 2w)
[1984] Examples of Integrated, Multi-set Concept Schemes: Periodic classification of chemical elements (2k, 2w)
[1984] Examples of Integrated, Multi-set Concept Schemes: Periodic coaction coordinate system (4k, 2w)
[1984] Examples of Integrated, Multi-set Concept Schemes: Polygons and polyhedra (12k, 2w)
[1984] Examples of Integrated, Multi-set Concept Schemes: Synergetics (81k, 2w)
[1984] Examples of Integrated, Multi-set Concept Schemes: Systematics (14k, 2w)
[1984] Examples of Integrated, Multi-set Concept Schemes: Thermodynamics (12k, 2w)
[1984] Examples of Integrated, Multi-set Concept Schemes: Tibetan Buddhism (28k, 2w)
[1984] Examples of Integrated, Multi-set Concept Schemes: Tonal patterns of Rg Veda poetry (51k, 2w)
[1984] Examples of Integrated, Multi-set Concept Schemes: Topological features of polyhedra (2k, 2w)

Polarization, duality

[2007] Psychosocial Energy from Polarization: within a cyclic pattern of Enantiodromia * (188k, 159w)
[2007] Theories of Correspondences -- and potential equivalences between them in correlative thinking
[2007] Dynamics of Not-Two Embodiment of the Other as the Peace beyond Understanding
[2007] Psychosocial Energy from Polarization -- within a Cyclic Pattern of Enantiodromia
[2006] Polarities as Pluckable Tensed Strings: Hypercomprehension through harmonics of value-based choice-making * (49k, 41w)
[2004] Encoding emergent and hidden distinctions: reflective representation of polarized thinking * (5k, 4w)
[1998] Discovering richer patterns of comprehension to reframe polarization (71k)
[1978] Transcending Duality through Tensional Integrity: A lesson in organisation from building design (45k)
[1978] Transcending Duality through Tensional Integrity: From systems-versus-networks to tensegrity organization (58k, 5w)

Matrices and classification

[2007] Tuning a Periodic Table of Religions, Epistemologies and Spirituality: including the sciences and other belief systems * (172k, 131w)
[2007] Beyond the Matrix: becoming other wise
[2006] Comprehension of Requisite Variety for Sustainable Psychosocial Dynamics: transforming a matrix classification onto intertwined tori (147k, 150w)
[2000] Is the House of Mathematics in Order? - are there vital insights from its design (14k)
[1995] Systems of categories distinguishing cultural emphases (Comments: Integrative Knowledge Project)
[1993] Systems of Categories Distinguishing Cultural Biases: with notes on facilitation in a multicultural environment (19k, 4w)
[1990] Towards a general typology of relationships (between people, concepts, etc) * (42k)
[1987] Dimensions of the Information Society (Table) (25k)
[1987] Dimensions of the Information Society (Table for UIA) (13k)
[1986] Dimensions of Comprehension Diversity (26k)
[1982] Experimental matrix used to order functional areas (68k, 1w)
[1982] Functional Classification in an Integrative Matrix of Human Preoccupations (85k, 17w)
[1982] Functional Classification in an Integrative Matrix of Human Preoccupations (80k, 4w)
[1982] Integrative Matrix of Human Preoccupations (48k, 1w)
[1982] Matrix organization of subject fields (18k, 1w)
[1978] An Approach to Systematic Classification of Interpersonal Relationships (23k)
[1971] Matrix Organization and Organizational Networks (63k, 13w)

Methodology and formalization

[1982] Presentation of inter-relationships of different levels of inquiry (18k, 1w)
[1981] Checklist of Nasty Methodological Questions -- regarding development analyses and initiatives (12k)

Catastrophe theory

[2006] Cognitive Feel for Cognitive Catastrophes: Question Conformality * (53k, 45w)
[2006] Conformality of 7 WH-questions to 7 Elementary Catastrophes: an exploration of potential psychosocial implications (188k, 151w)
Hyperspace

- [2006] Hyperaction through Hypercomprehension and Hyperdrive: necessary complement to hypertext proliferation in hypersociety (184k, 218w)
- [2006] 9-fold Higher Order Patterning of Tao Te Ching Insights * (137k, 71w)
- [2003] Hyperspace Clues to the Psychology of the Pattern that Connects in the light of 81 Tao Te Ching insights * (104k, 77w)

Simulation and modelling

- [2005] Simulation Possibilities for Complementary Currencies * (5k, 2w)
- [2004] Dynamically Gated Conceptual Communities * (163k, 158w)
- [2001] Simulating a Global Brain: using networks of international organizations, world problems, strategies, and values (138k, 129w)

Geometry, configuration, complementarity

- [2007] From Lateral Thinking to Voluminous Thinking: unexplored options for subterranean habitats in dense urban areas
- [2007] Psychosocial Work Cycle: Beyond the plane of Möbius
- [2006] Comprehension of Requisite Variety for Sustainable Psychosocial Dynamics: transforming a matrix classification onto intertwined tori
- [2004] Spherical Accounting: Using geometry to embody developmental integrity * (110k, 124w)
- [2004] Functional Complementarity of Higher Order Questions: psycho-social sustainability modelled by coordinated movement * (74k, 49w)
- [2004] Twistedness in Psycho-social Systems: challenge to logic, morality, leadership and personal development
- [1998] Spherical configuration of interlocking roundtables: Internet enhancement of global self-organization through patterns of dialogue (42k, 41w)
- [1997] Sacralization of Hyperlink Geometry (11k)
- [1995] Geometry of organizations, policies and programmes (Configuring: Transformative Approaches Project)
- [1995] Competing Models and Visions of Global Order via Function Dominance (Configuring strategic dilemmas in intersectoral dialogue)
- [1995] Configuring Relationships between world problems and cognitive resources (5k)
- [1995] Representation of Interlocking Elements for a Sustainable Global System (Configuring strategic dilemmas in intersectoral dialogue)
- [1995] Spherical Representation of Icosidodecahedral Net of Strategies (Configuring strategic dilemmas in intersectoral dialogue)
- [1994] Spherical Configuration of Categories to Reflect Systemic Patterns of Environmental Checks and Balances (43k, 7w)
- [1994] Design Considerations for Spatial Metaphors: reflections on the evolution of viewpoint transportation systems (12k)
- [1994] Sustainable Development: a system of 14 complementary concepts (16k)
- [1992] Using Disagreements for Superordinate Frame Configuration (12k, 5w)
- [1992] Configuring Globally and Contending Locally: shaping the global network of local bargains (9k, 44w)
- [1992] Geometry of Organizations, Policies and Programmes (12k, 1w)
- [1985] Alternation between Variable Geometries: a brokership style for the United Nations (16k, 1w)

Systems analysis, network analysis, mapping

- [2006] Preliminary NetMap Studies of Databases on Questions, World Problems, Global Strategies, and Values
- [2006] Complementary Knowledge Analysis / Mapping Process
- [2000] Feedback loop analysis in the Encyclopedia Project (36k, 6w)
- [1999] Applying Mathematical Insights to Comprehension of World Problems (31k, 2w)
- [1998] Horrorscope: exploring cross-sectoral systemic relationships * (22k)
- [1995] Examples of vicious problem cycles and loops (Transformative Approaches Project)
- [1995] Feedback loops and dependent co-arising (Strategic ecosystem: Global Strategies Project)
- [1995] Network analysis (Analysis: Transformative Approaches Project)
- [1995] Network maps (Visualization: Transformative Approaches Project)
- [1995] Network strategy (Strategic ecosystem: Global Strategies Project)
- [1993] Towards an Ecology of Spiritual Traditions as Articulated by a Dynamic System of Metaphors. (26k, 7w)
- [1992] Computer Mapping: Analysis of Networks (17k)
- [1992] Systemic Mapping of Strategic Dilemmas (18k, 2w)
- [1991] Towards an Ecology of Spiritual Traditions: experimental articulation through a dynamic system of metaphors (25k, 9w)
Simplicial complexes and q-analysis

- [1995] Social organization determined by incommunicability of insights (Analysis: Transformative Approaches Project)

Uncertainty and probability

- [1995] Probabilistic vision of the world (Pattern learning: Global Strategies Project)