



# laetus in praesens

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## Correlating a Requisite Diversity of Metaphorical Patterns

### Entuning the dynamic of cognitive eases and diseases

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#### Introduction

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## Introduction

This is an exploration of a methodological possibility of dynamically interweaving disparate threads which might thereby offer integrative insight. This follows from an earlier discussion (*Interweaving Thematic Threads and Learning Pathways*, 2010). Threads considered are:

- hopes and despair in information terms, as characterized by widespread depression, disillusion, denigration and denial, and their opposites
- cyclic patterns of eases and diseases, readily modelled by variants of the traditional game of snakes and ladders
- challenge of polarity in which the significance of information "slithers", "flips" and "twists" between possible interpretations
- memorability, mnemonic devices in a time of reduced attention span and information overload
- comprehensive patterns of metaphors, especially those cultivated by different traditions
- necessary shift from static to dynamic understanding of patterns
- potential implications of a rotating positive-negative psychosocial field
- cognitive implication in formal indications of boundaries and distinctions
- reflexivity and the relevance of higher orders of cybernetics to the complexities of global governance

The central focus is on the varieties of psychosocial unease and how engagement with them might be more fruitfully articulated through weather as a metaphor -- given the extent to which weather metaphors are used to frame social crises. There is a familiarity and coherence to weather which suggests that its patterns may offer ready access to greater experiential insight than is offered by more conventional models. It could be considered extraordinary that a term like "depression" is used to explain both weather and economic phenomena at a time when it is also recognized as an increasingly widespread form of individual unease and personal agony..

The question is whether there is a recognizable pattern of any value to such connectivity -- and for whom. The question might itself be framed through a metaphor of animal movement and how it is enabled or constrained in a natural environment. The organization of knowledge is readily compared to tree structures ([Humberto Maturana](#) and [Francisco Varela](#), *The Tree of Knowledge: the biological roots of human understanding*, 1992). Understood as [information silos](#), what kind of movement between such "trees" is possible and by whom? Clearly some apes can travel easily by swinging from tree to tree. For others movement is constrained to branches of individual trees, with aversion to the risk of going to ground level in order to climb another. For birds there is much less constraint on connectivity. Ground dwellers are faced with different kinds of constraint, notably when faced with water barriers to movement, unless able to swim.

The issue can also be explored through correspondences as enabling cognitive transitions, as clarified separately (*Theories of Correspondences -- and potential equivalences between them in correlative thinking*, 2007). This has been highlighted in the case of so-called [moonshine mathematics](#) associated with [symmetry group theory](#) -- now extended with regard to a mysterious connection between number theory, algebra and string theory (Erica Klarreich, *Mathematicians Chase Moonshine's Shadow*, *Scientific American*, 7 April 2015). In the case of symmetry, this focused on the existence of a mysterious entity called the [monster group](#), a gargantuan algebraic object that, mathematicians believed, captured a new kind of symmetry. The concern here is whether such insights have as yet

unexplored psychosocial implications (*Potential Psychosocial Significance of Monstrous Moonshine: an exceptional form of symmetry as a Rosetta stone for cognitive frameworks*, 2007). The question to be asked is what kinds of connectivity are deprecated using single terrain modalities -- in the absence of an all-terrain cognitive vehicle or pentathlon-enabled skills? How does such cultivated inhibition fail those facing despair and a sense of meaninglessness?

Although such incredible complexity could be set aside as unnecessarily abstruse, the need to engage with it is evident in the increasing recognition of so-called **wicked problems**. These exemplify the challenge of connectivity across multiple conventional domains and knowledge trees. Curiously the point is made by extension of **small world theory** to the global problematique. Not only is everyone connected to anyone through six intermediaries, but so too are the problems of society (Duncan J. Watts, *Six Degrees: the science of a connected age*, 2004; Albert-László Barabási, *Linked: how everything is connected to everything else and what it means for business, science, and everyday life*, 2003). It is in this sense that the insights into "cognitive weather" and "experiential weather", offered by personal recognition of its complexity, suggest ways of engaging otherwise with any change in the global climate -- whether in physical or metaphorical terms.

There is therefore a case for recognizing the exploration of such "cognitive metabolic pathways" as constituting a discipline which might be appropriately named "path-ology" -- namely the study of experiential "snakes and ladders" as this may relate to the many forms of unease in a period of questionable public hope-mongering.

## Systemic organization of diseases and eases?

It is remarkable that so much is made of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) as a categorization of individual diseases -- whether in appreciation or criticism thereof. There is little comparable effort to distinguish the characteristics of "eases" as might be implied by such detailed recognition of "dis-eases". A case has even been made that any use of "dis-ease" is an indicator of quackery (*Disease, "dis-ease", what's the difference?* ScienceBlogs, 19 March 2013). Curiously the implication is that "health" is not to be interpreted in terms of "healths", which could presumably be usefully understood as multiple -- whatever the degree of (dis)harmony between them. This recalls the adage: *the operation was a success but the patient died*.

Similar examples are evident in the case of intelligence for which only minimal distinction is made in terms of **multiple intelligences** (Howard Gardner, *Frames of Mind: the theory of multiple intelligences*, 1983). Ignorance offers a more striking example in that little explicit distinction is made of "ignorances" -- presumably remedied by the implications of specific knowledge qualifications ("knowledges"?), ignoring the ignorances thereby left unidentified. Are there indeed different "healths" -- like different intelligences -- calling for a "theory of multiple healths"? Could an equivalent to the DSM be derived in terms of memetic diseases (*Memetic and Information Diseases in a Knowledge Society: speculations towards the development of cures and preventive measures*, 2008)?

These points frame the issue of the significance of "ease", given the current widespread emphasis on the tangles of **quantitative easing**. Nothing is said of "qualitative easing". The latter might however be considered appropriate, given the abuses associated with the quantitative variant and the disastrous conditions that many face, as argued separately (*From Quantitative Easing (QE) to Moral Easing (ME): a stimulus package to avert moral bankruptcy?* 2010). It is especially significant that quantitative easing is enabled by fiat -- as **fiat money** -- raising the question as to whether the qualitative variant could be similarly enabled. The role of exemplars in this respect contrasts usefully with that of various forms of moral directive and *fatwa*.

The argument can be taken further in the light of the widespread preoccupation with "healing", accompanied by relatively little matching concern for "illness" -- except in terms of side-effects. Whilst "ease" is adapted to "easing" in quantitative terms, there is a lack of concern with "diseasing". The reverse is evident in recognition of **easement** (with respect to tangibles), in that there is a lack of focus on widespread forms of "diseasement" (especially in the case of intangibles). The period is witness to an easing of pain through medication and psychotropic drugs -- to alleviate the unease leading to ever greater incidence of suicide..

There is a desperate quest for wholeness, wellness and wellbeing as an undifferentiated condition of integration -- but one that is undermined by processes enabling illness and being-ill (Juliet Michaelson, *In Defence of Wellbeing*, *Open Democracy*, 21 May 2015). In terms of intangibles this may be challenged as the quest for happiness for commercial purposes (William Davies, *The Happiness Industry: how the government and big business sold us well-being*, 2015). There is however little recognition of the "sadness industry", represented by emotional blackmail in funding appeals and disaster tourism. The point is well-made by James Hillman and Michael Ventura (*We've Had a Hundred Years of Psychotherapy -- And the World's Getting Worse*, 1992).

Missing is any systemic framework through which the variety of eases and diseases can be fruitfully interrelated, notably in terms of the transitions between them. A relevant metaphor is the traditional board game of **snakes and ladders**, through which transition from forms of empowerment to those of disempowerment (or vice versa) can be understood in dynamic terms. It has evoked mathematical analysis as an **absorbing Markov chain**.

As noted by *Wikipedia*, that game is a central metaphor of Salman Rushdie's *Midnight's Children* (1981). The narrator describes the game as follows:

All games have morals; and the game of Snakes and Ladders captures, as no other activity can hope to do, the eternal truth that for every ladder you hope to climb, a snake is waiting just around the corner, and for every snake a ladder will compensate. But it's more than that; no mere carrot-and-stick affair; because implicit in the game is unchanging twoness of things, the duality of up against down, good against evil; the solid rationality of ladders balances the occult sinuosities of the serpent; in the opposition of staircase and cobra we can see, metaphorically, all conceivable oppositions, Alpha against Omega, father against mother.

## Relevance of weather metaphors to existential unease

**Models and metaphors:** There is considerable debate about "climate change", paralleled by recognition of need for a "change of climate" -- metaphorically understood (*Climate Change as a Metaphor of Social Change*, 2008; *Climate of Change Misrepresented as Climate Change: insights from metaphorical confusion*, 2008). It is appropriate to recognize the contrast between understanding of "climate" (as a global technical and strategic focus) and understanding of "weather" (as people experience it locally and personally).

Curiously this contrast is partially highlighted by [Paul Krugman](#) in a discussion of *Metaphors and Models (The Fall and Rise of Development Economics)* (2012, and elsewhere titled as *The Rise and Fall of Development Economics*):

The objective of the most basic physics is a complete description of what happens. In principle and apparently in practice, quantum mechanics gives a complete account of what goes on inside, say, a hydrogen atom. But most things we want to analyze, even in physical science, cannot be dealt with at that level of completeness. The only exact model of the global weather system is that system itself. Any model of that system is therefore to some degree a falsification: it leaves out some (many) aspects of reality. How, then, does the meteorological researcher decide what to put into his model? And how does he decide whether his model is a good one? The answer to the first question is that the choice of model represents a mixture of judgment and compromise. The model must be something you know how to make -- that is, you are constrained by your modeling techniques. And the model must be something you can construct given your resources -- time, money, and patience are not unlimited. There may be a wide variety of models possible given those constraints; which one or ones you choose actually to build depends on educated guessing....

Krugman then cites [Dave Fultz](#), widely admired for his pioneering work on laboratory models of the general [circulation of the atmosphere](#) (through understanding of the patterns formed by rotating fluids in response to various mechanical and thermal forces):

Dave Fultz was a meteorological theorist at the University of Chicago, who asked the following question: what factors are essential to generating the complexity of actual weather? Is it a process that depends on the full complexity of the world -- the interaction of ocean currents and the atmosphere, the locations of mountain ranges, the alternation of the seasons, and so on -- or does the basic pattern of weather, for all its complexity, have simple roots? He was able to show the essential simplicity of the weather's causes with a "model" that consisted of a dishpan filled with water, placed on a slowly rotating turntable, with an electric heating element bent around the outside of the pan. ....

In fact, we are all builders and purveyors of unrealistic simplifications. Some of us are self-aware: we use our models as metaphors. Others, including people who are indisputably brilliant and seemingly sophisticated, are sleepwalkers: they unconsciously use metaphors as models.

What to do when the models are experienced as inadequate for engagement with reality?

## Psychosocial unease and cognitive weather

The concern for many is the weather they experience -- especially when it is unusual and extreme. The focus of global debate on climate may well be an unrecognized device for avoiding attention to the personal experience of what it may imply. Failure to attend to this dimension in a period of increasing psychosocial unease could be seen in the light of Krugman's own concern in relation to the recent global financial crisis (*How Did Economists Get It So Wrong? The New York Times*, 2 September 2009).

With respect to psychosocial unease there is a curious sense of preoccupation with one's own "cognitive weather" -- and with how better to engage with it. A term of concern is being "[under the weather](#)". Evident changes to the "psychosocial climate" -- as a theme of social commentary -- furnish parallels readily described through weather metaphors.

Climate change is readily characterized as exposure to increasingly unseasonal weather -- to abnormal weather conditions. An equivalent change is evident in psychosocial terms, then characterized by extremes of cognitive weather -- termed social unrest.

It is somewhat ironic that the "dishpan" dynamic of Fultz's experiment (as mentioned above) reflects the complexity of cognitive weather -- at least to some degree. Ironically everybody is then appropriately to be considered as a dishpan in cognitive terms.































**Weather classification?** Given the focus on climate change, it might be expected that there is universal clarity with regard to the distinction of varieties of weather. However it would appear that any exploration of "varieties of weather", as might be experienced by an individual, is confused with "varieties of climate". As noted by *Wikipedia*, "[climate](#)" is indeed understood to be distinct from "[weather](#)", in that weather only describes the short-term conditions of variables in a given region. Individual experience is strangely entrapped in the short-term with the relation to the longer-term constituting a somewhat complex challenge: anticipation, memory, fear, and the like.

A region's climate is generated by the climate system, which has five components: [atmosphere](#), [hydrosphere](#), [cryosphere](#), [lithosphere](#), and [biosphere](#). The difference between climate and weather is usefully summarized by the popular phrase: *Climate is what you expect, weather is what you get*. This could be fruitfully understood as a valuable qualification on consideration of global climate in contrast with the weather as individually experienced. It is also a reflection on the value of meteorological forecasting and the distinctions it makes. A corresponding phrase might take the form of: *Remedial action is what you expect from global strategic plans, unforeseen problems are what you get*.

There is a curious disconnect between the various ways of classifying climate into similar regimes and the distinctions made which are meaningful to individual experience -- especially when exposed to [severe weather phenomena](#), or to [extreme weather](#) (usefully distinguished by *Wikipedia*). The [Bergeron classification](#) is the most widely accepted form of air mass classification and uses a

combination of three letters. In the [Spatial Synoptic Classification system](#) (ssC) there are six categories. In discussion of it, six weather types are proposed by Scott C. Sheridan (*The Redevelopment of a Weather-Type Classification Scheme for North America. International Journal of Climatology*, 2002): dry polar (DP); dry moderate (DM); dry tropical (DT); moist polar (MP); moist moderate (MM); moist tropical (MT). These could be considered seriously unrelated to weather as experienced.

The most widespread system used to classify the climates of places is the [Köppen Climate Classification System](#). This is an empirical system based on observable features. The first level recognizes from 5 to 9 major climatic types with each group being designated by a capital letter. Numbers vary due to modifications and extensions to the system in the light of new proposals and recognition of deficiencies

Köppen-Geiger climate classification											
 Af	 BWh	 Csa	 Cwa	 Cfa	 Dsa	 Dwa	 Dfa	 ET	 EF		
 Am	 BWk	 Csb	 Cwb	 Cfb	 Dsb	 Dwb	 Dfb				
 Aw	 BSh	 Cwc	 Cfc	 Dsc	 Dwc	 Dwc	 Dfc				
 BSk					 Dsd	 Dwd	 Dfd				

Other systems are either "genetic" classification systems (based on the causes of the climate like solar radiation, air masses, pressure systems, etc) or "applied" classification systems created for, or as an outgrowth of, a particular climate-associated problem. (e.g., [Trewartha climate classification](#) based on potential evapotranspiration).

A recognized shortcoming of these classification schemes is that they produce distinct boundaries between the zones they define, rather than the gradual transition of climate properties more common in nature. The local experience of weather is indeed especially sensitive to such transitions. Of some relevance is reference to "subjective" in the analysis of so-called "Lamb Weather Types" by [Hubert Lamb](#) (Phil Jones, *The Development of Lamb Weather Types: from subjective analysis of weather charts to objective approaches using reanalyses*, 2013)

Such classification initiatives recall the early [stages in the emergence of the tabular periodic classification of chemical elements](#), especially issues regarding the number of groups and distinctions within groups.

## Crises framed by weather metaphors

There are detailed studies of the extent to which weather metaphors are used to frame crises (Maria Enriqueta Cortes de los Rios, *Cognitive Devices to Communicate the Economic Crisis: an analysis through covers of The Economist*. Iberica, 2010; Antonella Luporini, *Metaphor in Times of Crisis: metaphorical representations of the global crisis in The Financial Times and Il Sole 24 Ore 2008*, 2013; Daniele Besomi, *Tempests of the Business World: weather metaphors for crises in the Nineteenth Century*, 2014).

It is appropriate to emphasize again that in practice -- as indicated in *The Economist*, *The Financial Times*, and the business press in general -- use is made of weather metaphors rather than climate metaphors, irrespective of any other discussion of the politics and economics of "climate change" and reference to the "business climate" -- but not to "business weather" (cf. [Ifo Business Climate Index](#)). It could be emphasized that **it is through weather that people experience globality -- not through climate**.

In the case of the continuing crises of politics, use of a range of metaphors has been noted by Andrew J. Gallagher (*A Perfect Storm! Metaphors of Weather, Metaphor in American Politics*, 28 July 2014):

weather, climate, rain money, rain check, rain on the parade, get wind of, windfall, swirling rumors, cloudy skies, black cloud hanging over, clouded judgment, stormy weather, brainstorming, perfect storm, storm back, storm out, lightning round, distant thunder

As a means of referring indirectly (if not surreptitiously) to crisis conditions, the role of weather metaphors has been noted by Ping-hui Liao (*Weather as Metaphor in Modern Chinese Literature*, 2007):

However, modern Chinese writers and artists do deploy from time to time bitter weather conditions as metaphors to give expression to people's struggles against hardships and interregna, against alienation or pollution. [Cao Yu's](#) theatrical treatment of thunder and storm immediately comes to mind, while many other literary references to drought and flood abound to suggest that Chinese modernity is filled with tensions and difficult transitions. But most surprising of all is that quite a few modern Chinese literary texts, together with some by prominent Japanese poets and novelists who visited such colonies as Taiwan, highlight heat and humidity as a modern albeit colonial (or even postcolonial) theme of cultural predicament... In Cao Yu, the storm serves as an allegorical background to raise question of the condition of possibility for liberation that does not take place. The sentiment of entrapment and despair functions to keep critical enterprises of modernity in check. Weather is used here metaphorically, as a critical trope, to address risks and anxieties embedded in social change....

Literal or figurative, the allusions to weather conditions in modern Chinese literature appear to be operant on exposing the limits of pre-modern cosmology and moral-political orders. Detailed descriptive accounts of drought, incessant rain, and heat, among others, function to lay bare the traditional belief that heaven provides holistic support to the people. But the miserable weather conditions also serve to criticize Chinese (or, in the case of Taiwan) and Japanese regime for their misdirected modernity projects. Bad weather sums up as a metaphor of entrapment and despair. Pollution and poverty, along side with new energy generated by hot money and speed, are often issues surrounding the weather conditions and human miseries. Of course, these literary expressions call attention to problems embedded in Chinese modernity. And Chinese intellectuals are now urging us to do something about the strange weather we are having

**Intelligent analysis through weather metaphors:** Given the above-mentioned comments by Krugman (2012), it is remarkable to note the case made for the use of weather as a framework for systemic analysis, as presented by Phillip J. Ayoub, et al (*Weather Systems: a new metaphor for intelligence analysis*. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 2007):

With the recent catastrophic outcomes in U.S. intelligence capabilities we suggest that current design metaphors are inadequate to address the changing reality of U.S. intelligence needs. In-depth interviews and concept mapping efforts with intelligence analysts suggest that the intelligence domain be characterized as a distributed cognitive work system. Current mechanical or information processing metaphors that encourage techno-centric system design solutions neglect the emergent, pluralistic and distributed nature of information that supports situational awareness and decision making in the intelligence domain. Instead, we suggest that weather systems are a more appropriate metaphor for understanding the cognitive activity of intelligence analysts and to guide the design of cognitive aides, information sharing and knowledge management systems, and data processing tools used to support intelligence work.

Especially intriguing, in the light of Krugman's reference to the "dishpan" simulation by Fultz, is the initiative at the MIT Media Lab to construct a "weathertank" (Stefan Marti, Deva Seetharam and Hiroshi Ishii, *WeatherTank: a tangible interface using weather metaphors*, 2001), framed in the following terms:

Metaphors -- concrete images that illuminate abstract ideas -- are common in user interface design. We propose to use the rich and well-understood natural phenomena of weather as metaphors to represent abstract information from other domains. Many people, irrespective of educational level, literacy, and profession, understand weather metaphors intuitively. In this paper, we present WeatherTank, a tangible visualization system that uses weather metaphors to give an overview over information, employing our visual, tactile, and -- indirectly -- aural and olfactory senses. WeatherTank conveys a weather metaphor in a different way than a verbal description does, because it predominantly uses cognitive resources of our spatial/visual thinking (right hemisphere), conflicting less with our busy verbal/vocal brain processes (left hemisphere). Furthermore, unlike pictures and movies of weather, WeatherTank also employs our tactile and olfactory senses, taking advantage of the richness of multimodal human senses and skills developed through our lifetimes of interaction with the physical world

Applications for the approach have been explored by the authors (Stefan Marti and Deva Seetharam, *WeatherTank: interface for non-literate communities and ambient visualization tool*). Within the context of this argument, the challenge lies in the literacy required to read "the writing on the wall", given the script in which it may be written, and the contrast between non-literate and experiential.

The recognized relevance of metaphor to national security is made apparent by the launch of a major new programme -- *The Metaphor Program* of the US *Intelligence Advanced Research Projects Activity* (Alexis Madrigal, *Why Are Spy Researchers Building a 'Metaphor Program'?*, *The Atlantic*, 25 May 2011). A significant participant is the *US Army Research Laboratory* -- slogan: *Technology Driven - Warfighter Focused*.

Ironically the focus on metaphor in the Media Lab "weathertank" experiment serves to reinforce the point made above with respect to the dishpan experiment. To an unexplored degree, people are now both "dishpans" and "weathertanks". The Media Lab effectively offers a metaphor of its operations as a renowned "think tank" which merits separate attention in this context (*"Tank-thoughts" from "Think-tanks": metaphors constraining development of global governance*, 2003; *Meta-challenges of the Future for Networking through Think-tanks*, 2005). Given this preoccupation with forecasting and decision-making, think tanks illustrate the ambiguity between "weather tank" and "whether tank".

**Weather, emotions and psychosocial unease:** The relationship between weather and emotion has long been a theme of research (Alan E. Stewart, *Assessing Human Dimensions of Weather and Climate Saliency*, 2005). It is usefully noted by Tina B. Tessina (*Emotions as Weather*).

In a period of intense global modelling of climate change, it is to be expected that the use of simulation should be extended to tendencies to "social unrest", now of increasing concern to security services. These tendencies are now gleaned from use of characteristic phrases in social media and other electronic communications mined for such purposes -- as an extension of surveillance for security purposes.

One useful summary of modelling and simulation in relation to social unrest is provided within the context of the OECD /IFP Project on "Future Global Shocks" (Ortwin Renn, Aleksandar Jovanovic and Regina Schröter, *"Social Unrest"*, 2011). It might be asked whether their reference to "weather" is usefully distinguished from "climate" in the following:

Agent-based models run computer simulations to explore emerging dynamical patterns, free from any top-down assumptions. In contrast to conventional models, ABMs make no assumptions about the existence of efficient policies or general equilibrium, these may or may not emerge due to the dynamical rules. The policies and social behaviors that they generate are more like the weather system, subject to constant storms and seizures of all sizes. Big fluctuations and even crashes are often inherent features. That is because ABMs allow feedback mechanisms that can amplify small effects, such as the herding and panic that generate bubbles and crashes. In mathematical terms the models are -- non-linear, meaning that effects need not be proportional to their causes...

Nevertheless, a real-time simulation, fed by masses of data that would operate rather like the current traffic or weather forecasting models (projecting various possible futures!) is the only way to go in the future and if a suite of such models is to be used, such a suite will probably have to be built step-by-step, probably around a core system which will serve as a reference.

How "emotional weather" patterns are to be simulated globally as a means of detecting "unease" may then prove to be a preoccupation of ambitious initiatives such as:

- the **Sentient World Simulation** (SWS), intended as a "synthetic mirror of the real world with automated continuous calibration with respect to current real-world information" with a node representing "every man, woman and child"
- the **FuturICT Knowledge Accelerator**, a multidisciplinary international scientific endeavour with focus on techno-socio-economic-environmental systems.

**Weather metaphors in poetry and prose:** As indicated with respect to use of weather metaphors to articulate understanding of crisis conditions in Chinese society, it is in literature and poetry that subtler distinctions may be meaningfully made between the experience of many different kinds of weather. One remarkable study is that of Judit Nagy (*Metaphors of Weather in Canadian Short Prose, Brno Studies in English*, 2011) summarized as follows:

The first part of the paper presents some theoretical grounding, proceeding from the overt-covert and direct-indirect relationship of tenor and vehicle to Lakoff's cognitive concept of metaphor (1980, 1993). Based on this concept, the linguistic Great Chain of Weather Metaphors is created. The second part of the paper makes an attempt at examining the most typical source and target domains of weather, and, based on a pilot sample, it also looks into conceptual weather metaphors built by mapping at each level of the Great Chain of Weather Metaphors

This offers two orderings, as indicated below. In that on the left Great Chain characters are projected onto weather, whereas in the second type, weather is projected onto Great Chain characters.

### The Great Chain of Weather Metaphors

- | x<w correspondences   | w<x correspondences  |
|---|--|
| <ul style="list-style-type: none"> <li>• G&lt;w (God-to-weather correspondences)</li> <li>• p &lt;w (person-to-weather correspondences)</li> <li>• a&lt;w (animal-to-weather correspondences)</li> <li>• pl&lt;w (plant-to-weather correspondences)</li> <li>• o&lt;w (object-to-weather correspondences)</li> <li>• abstr&lt;w (abstract-notion-to-weather correspondences)</li> </ul> | <ul style="list-style-type: none"> <li>• w&lt;G (weather-to-God correspondences)</li> <li>• w&lt;p (weather-to-person correspondences)</li> <li>• w&lt;a (weather-to-animal correspondences)</li> <li>• w&lt;pl (weather-to-plant correspondences)</li> <li>• w&lt;o (weather-to-object correspondences)</li> <li>• w&lt;abstr (weather-to-abstract-notion correspondences)</li> </ul> |

A related study has been made by Izabela Zolnowska (*Weather as the source domain for metaphorical expressions. Avant: the Journal of the Philosophical-Interdisciplinary Vanguard*, 2011)

The aim of the study is to demonstrate the pervasiveness of concepts related to "weather" that indicate the presence or absence of problems in human mind. The linguistic material that is the subject of the analysis is the language used in everyday communication. An additional claim is that the directionality of metaphorical transfer is uniform and proceeds from concrete to abstract concepts. Furthermore, I will try to show that talking about the presence or absence of problems in terms related to "weather" is systematic and forms a coherent network of metaphorical expressions whose structuring is partial. The final claim I would like to make is that the expressions that reflect the concept have a common experiential basis, and it is only because of its presence that the metaphor can be comprehended

The paper categorized the examples collected into certain conceptual metaphors. The source domain for all these concepts constitutes the lexicon describing "weather conditions", whereas the target domain constitutes the presence or absence of problems. The following conceptual metaphors were identified by Zolnowska:

- |  |  |  |
|--|--|--|
| <ul style="list-style-type: none"> <li>• rain is misfortune</li> <li>• fog is confusion</li> <li>• storm is aggressive behaviour / reaction</li> <li>• storm is hard times</li> <li>• heavy weather is problems</li> </ul> | <ul style="list-style-type: none"> <li>• grey skies is difficult period</li> <li>• clear skies is lack of problems</li> <li>• sunny is optimistic</li> <li>• anything that shines is happiness</li> <li>• haze is problematic</li> </ul> | <ul style="list-style-type: none"> <li>• thunder is negative emotions</li> <li>• thunder is sudden action</li> <li>• hurricane is negative state of mind</li> <li>• cloud is a symbol of present or forthcoming problem</li> </ul> |
|--|--|--|

A valuable checklist of common **weather metaphors** is provided by John D. Casnig (*A Language of Metaphors. Knowgramming.com*, 1997-2013), who also has more extensive examples in each case:

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>• <b>Shower:</b> <i>He showered her with gifts.</i> Giving is dropping from above.</li> <li>• <b>Cloud:</b> <i>The event was clouded over by protests.</i> Protests are an intrusion of light.</li> <li>• <b>Fog:</b> <i>My memory is a little foggy.</i> Memory is a visible object.</li> <li>• <b>Rain:</b> <i>Into each life some rain must fall.</i> Hardship is a precipitate (from above).</li> <li>• <b>Hail:</b> <i>A hail of bullets.</i> (Cold, hard and driven).</li> <li>• <b>Wind:</b> <i>The winds of change.</i> Change is the product of (lateral) forces.</li> </ul> | <ul style="list-style-type: none"> <li>• <b>Grey skies:</b> <i>Grey skies are gonna' clear up!</i> Rain is bad (see "cloud").</li> <li>• <b>Cold:</b> <i>A cold reception.</i> A gathering has a climate.</li> <li>• <b>Dry spell:</b> <i>Business suffered a long dry spell.</i> Revenue is the welcome rain of business.</li> <li>• <b>Chilly:</b> <i>It's been a little chilly around the office since Mr. Ironbritches became boss!</i> An office has an emotional climate, which may be invaded by a cold front.</li> <li>• <b>Blizzard:</b> <i>There was a blizzard of activity at the emergency room.</i> (Seemingly erratic movement).</li> <li>• <b>Whirlwind:</b> <i>It was a whirlwind romance that spun out of control.</i></li> </ul> |
|--|--|

- **Sunshine:** *You are the sunshine of my life.* Happiness is light (see "cloud").
  - **Sunset:** *He'd entered his sunset years.* One's life is a single day.
  - **Clear skies:** *It's gonna' be clear skies from now on.* Clear skies are not a threat.
  - **Lightening rod:** *He became a lightening rod for party criticism.* Criticism is (negative) energy from above.
  - **Blow:** *You'll be blown away!* Our position is susceptible to sudden change.
  - **Gust:** *Criticism began to gust in from all sides.* Critics are blow-hards!
  - **Thaw:** *Relations between the two countries began to thaw.* Relationships can be frozen solid, making change or growth impossible.
  - **Thunder:** *The boss thundered into the room.* Anger is hostile weather.
  - **Breeze:** *This homework is a breeze.* Challenge is an opposing force.
  - **Dawn:** *The dawn of civilization.* Civilization has its day.
- Romance may be phenomenal and brief.
  - **Drift:** *He was a drifter, of origin unknown.* A lack of will is a lack of destination.
  - **Misty:** *Misty, water-coloured memories...* Memories are neither solid nor distinct.
  - **Season:** *It is the season of change.* Change is natural, occurring in phases, spaced by a lack of change.
  - **Winter:** *She entered a spiritual winter.* Our spirit has seasons, and may cause us to hibernate.
  - **Autumn:** *They had entered their autumn years.* One's life is a single year (see "sunset")
  - **Twilight:** *He entered his twilight years a broken man.* (see "sunset")
  - **Darken:** *The skies of his future began to darken.* Darkness is a threat.
  - **Weather:** *His face was weathered by a long, troubled life.* Bad events wear the youth from our face.
  - **Storm:** *She was unsure if her proposal could weather the storm of scrutiny.* Scrutiny is harsh weather to one's ideas.

## Cognitive implication in a Chinese system articulated through weather-related metaphors

The relative lack of clarity with regard to climate classification, as noted above, and the extensive use of weather metaphors to frame existential "ease" and "dis-ease", suggest a reevaluation of the classic Chinese pattern of *BaGua* as a device for holding and interrelating weather as existentially experienced.

**Weather and Whether:** As the "Book of Changes", the *I Ching* (an articulation of the *BaGua* pattern) is known to have been influential in Chinese politics over several thousand years (Tze-ki Hon, *The Yijing and Chinese Politics*, 2012). It offers an explicit interplay between weather and decision-making through the metaphors on which it based. Ironically, whether it is to be recognized as the earliest *Global Weather Model*, it could also be recognized as the earliest *Global Whether Model* -- to be compared with modern exploratory simulations of relevance to forecasting, decision-making and governance.

Drawing inspiration from a Chinese framework could be seen as consistence with the argument of [Susantha Goonatilake](#) (*Toward a Global Science: mining civilizational knowledge*, 1999). This draws attention to the creativity from which non-western cultures may benefit in drawing upon the connectivity enabled by metaphors engendered by their culture.

**Why 8?** Whilst Chinese literature has long accepted the following articulation into an 8x8 pattern of 64 conditions denoted by hexagrams, much attention has focused on the various ways in which these might be most fruitfully arranged. This is not the concern in what follows, but is discussed separately (*Strategic patterns in terms of knowing, feeling and action: using a Chinese perspective*, 2008). It is ironic to note that debate continues with regard to [alternatives ways of organizing the periodic table of chemical elements](#), especially now that this 8-fold pattern is informed by new insight into the associated mathematics (Dennis H. Rouvray and R. Bruce King, *The Mathematics of the Periodic Table*, 2006)

Of particular interest is "why 8"? Seemingly this follows from the insight in the much-cited paper of [George Miller](#) (*The Magical Number Seven, Plus or Minus Two: some limits on our capacity for processing information* *Psychological Review*, 1956). It is extraordinary that this constraint is so widely evident in categorization, but with relatively little comment on its implications, as discussed separately (*Representation, Comprehension and Communication of Sets: the role of number*, 1978; *Patterns of Conceptual Integration*, 1984). It would seem to be "natural" that both "climate" and "weather" distinctions should reflect this constraint in some way. The pattern is of course evident both in the organization of the periodic table of chemical elements and in the octave structure of a particular tuning system of music (and the instruments by which it is played).

**Memorability:** Since a concern in what follows is that any "weather categories" should be memorable, some preliminary attention can be given to the terminology by which the 8 conditions are distinguished in order to derive unique single letter abbreviations -- following the coding approach favoured with respect to climate regimes. Possibilities include:

- Heaven (H), Creative (C), Unconstrained (U) or **Sky (S)**. The last seems to be the best in that it combines both an association with weather ("clear skies") and creativity ("blue sky"), whilst avoiding the spiritual associations alienating to some
- Receptive (R), Ground (G) or **Earth (E)**. The last seems most appropriate and is most common.
- **Wind (W)** or Breeze (B). The first seems most appropriate and is most common, despite the constraint on the following
- Water (W), Gorge (G), River (R), or **Abysmal (A)**. Of these Gorge and Abysmal are common associations in Chinese commentary. River may be too specific. There is therefore a preference for Abysmal (but in the form of Abyss) as the invisible underwater depths -- avoiding confusion with use of Wind (W)
- **Lake (L)** has Marsh (M) as a common alternative. The first seems more appropriate
- **Thunder (T), Mountain (M), and Fire (F)**, as commonly used. require no modification for distinctive mnemonic purposes

With respect to memorability, the question might be asked as to how memorable is any conventional classification of climates, irrespective of how recognizable are the categories of weather. A similar question can be asked of the clusters of the periodic table of chemical elements, recognized as a challenge to memory (Kyle Buchanan, *Memorize the Periodic Table: the fast and easy way to memorize chemical elements*, 2013).

A better recognized challenge is that of the [multiplication table](#), given the importance it now has in a quantitative society (*How to Easily Memorize the Multiplication Table; Teach the Times Tables with Pictures and Stories*). Learning the complex set of interrelated [metabolic pathways](#) is enabled by a set of songs (Harold Baum, *The Biochemists' Songbook*, 1995). What might be the corresponding challenges for a qualitative array of relevance to "cognitive weather"? Are there (cognitive) weather pattern songs?

As with multiplication tables and the periodic table, how is the following pattern to be remembered? The form of the trigram coding is traditionally held to offer some indication, but the combination of two trigrams in the body of the table is a far greater challenge -- as in the case of the chemical elements. Given its importance in training for the civil service in various stages of Chinese governance, it would be useful to explore how the pattern was learned and taught (Geoffrey Redmond and Tze-Ki Hon, *Teaching the I Ching (Book of Changes)*, Oxford University Press, 2014). This could be usefully compared with how conditions of governance were ordered and arranged in the prestigious degree course at the University of Oxford -- [Psychology, Philosophy and Physiology](#) ("PPP") -- valued as preparatory to engagement in the British civil service.

**Weather-patterned conditions:** The table below is a presentation of the traditional combination of the 8-fold pattern of weather-related conditions. In terms of "weather", it is interesting to explore whether it is capable of holding the extended variety of [extreme weather](#) and [severe weather](#) conditions discussed above -- especially in terms of extremes of "unseasonal weather", **as experienced** rather than as conventionally categorized. *Wikipedia*, for example, distinguishes: [heat waves](#), [cold waves](#), [heat bursts](#), [tornados](#), [downburst](#) and [derecho](#), [squall lines](#), [cyclones](#), [waterspout](#), [dust storms](#), [wildfires](#), [hail](#), [heavy rain \(monsoons\)](#), [heavy snowfall](#), [ice storms](#), [drought](#). Inclusion of "mountain" (M) in the pattern of the table is of interest given the major role played by mountains in engendering weather, as with the microclimates engendered by rivers (A).

However, of equal interest is the **exclusion** of some so-called [natural disasters](#) (landslides, earthquakes, volcanoes, flooding, lightning, tsunamis) from the conventional categories of severe or extreme weather. These could however be considered as usefully encompassed by the following table. This exemplifies the distinction between climate framed from an external, global observational perspective and weather as experienced locally as **including** such phenomena. Ironically, with respect to the discussion of "dis-ease" (above), "dis-aster" derives etymologically from "ill-starred", offering a traditional association of "ease" to auspiciously starred.

This challenging correspondence is the first of **5 correspondences** tentatively correlated in this discussion. It is interesting that those with most skills in populating the table below with distinct forms of weather might include poets and the locally weather-wise. From a Chinese perspective, the literature on this correspondence is notably associated with the traditional geomantic discipline of [feng shui](#). Indicative in this respect is the government fact sheet provided by the Hong Kong Observatory (*Weather Feng Shui?*). As with those of a poet, the methodological concern would be how to disassociate most fruitfully any such insights from the magical beliefs with which they may be more popularly associated (Jerry Alan Johnson, *Daoist Weather Magic and Feng Shui*, 2012)

Combinations of 8 trigrams forming the pattern of 64 hexagrams of the I Ching								
	Sky (S)	Thunder (T)	Abyss (A)	Mountain (M)	Earth (E)	Wind (W)	Fire (F)	Lake (L)
Upper								
Lower								
	Sky (S) Sky (S) 01	Thunder (T) Sky (S) 34	Abyss (A) Sky (S) 05	Mountain (M) Sky (S) 26	Earth (E) Sky (S) 11	Wind (W) Sky (S) 09	Fire (F) Sky (S) 14	Lake (L) Sky (S) 43
	Sky (S) Thunder (T) 25	Thunder (T) Thunder (T) 51	Abyss (A) Thunder (T) 03	Mountain (M) Thunder (T) 27	Earth (E) Thunder (T) 24	Wind (W) Thunder (T) 42	Fire (F) Thunder (T) 21	Lake (L) Thunder (T) 17
	Sky (S) Abyss (A) 06	Thunder (T) Abyss (A) 40	Abyss (A) Abyss (A) 29	Mountain (M) Abyss (A) 04	Earth (E) Abyss (A) 07	Wind (W) Abyss (A) 59	Fire (F) Abyss (A) 64	Lake (L) Abyss (A) 47
	Sky (S) Mountain (M) 33	Thunder (T) Mountain (M) 62	Abyss (A) Mountain (M) 39	Mountain (M) Mountain (M) 52	Earth (E) Mountain (M) 15	Wind (W) Mountain (M) 53	Fire (F) Mountain (M) 56	Lake (L) Mountain (M) 31
	Sky (S) Earth (E) 12	Thunder (T) Earth (E) 16	Abyss (A) Earth (E) 08	Mountain (M) Earth (E) 23	Earth (E) Earth (E) 02	Wind (W) Earth (E) 20	Fire (F) Earth (E) 35	Lake (L) Earth (E) 45
	Sky (S) Wind (W) 44	Thunder (T) Wind (W) 32	Abyss (A) Wind (W) 48	Mountain (M) Wind (W) 18	Earth (E) Wind (W) 46	Wind (W) Wind (W) 57	Fire (F) Wind (W) 50	Lake (L) Wind (W) 28
	Sky (S) Fire (F) 13	Thunder (T) Fire (F) 55	Abyss (A) Fire (F) 63	Mountain (M) Fire (F) 22	Earth (E) Fire (F) 36	Wind (W) Fire (F) 37	Fire (F) Fire (F) 30	Lake (L) Fire (F) 49
	Sky (S) Lake (L) 10	Thunder (T) Lake (L) 54	Abyss (A) Lake (L) 60	Mountain (M) Lake (L) 41	Earth (E) Lake (L) 19	Wind (W) Lake (L) 61	Fire (F) Lake (L) 38	Lake (L) Lake (L) 58

The **weather**-related distinctions associated with the pattern above are presented below with their traditional metaphorical connotations basic to the use of the *I Ching* as a "**whether** model" in articulating psychosocial tendencies to change. This challenging correspondence is the second of the **5 correspondences** tentatively correlated in this discussion.

Upper	Sky (S)	Thunder (T)	Abyss (A)	Mountain (M)	Earth (E)	Wind (W)	Fire (F)	Lake (L)
	<b>creative,</b>	<b>arousing, thunder,</b>	<b>abysmal,</b>	<b>mountain, keeping</b>	<b>earth,</b>		<b>clinging, fire radiance,</b>	<b>joyous,</b>

Lower	force, heaven, sky	shake, initiative, inciting, movement	water, gorge, dangerous, in-motion	still, bound, resting, stand-still, completion	receptive, devoted, yielding, field	gentle, wind, ground, penetrating	light giving, clarity, flame adaptable dependence	open, tranquil, lake
<b>S: creative, force, heaven, sky</b>	Creative (S/S) [1]	Power of the great (T/S) [34]	Waiting (A/S) [5]	Taming power of the great (M/S) [26]	Peace (E/S) [11]	Taming power of the small (W/S) [9]	Possession in great measure (F/S) [14]	Break- through (L/S) [43]
<b>T: arousing, thunder, shake, initiative, inciting, movement</b>	Innocence (S/T) [25]	Arousing (T/T) [51]	Difficulty at the beginning (A/T) [3]	Corners of the mouth (M/T) [27]	Return (E/T) [24]	Increase (W/T) [42]	Biting through (F/T) [21]	Following (L/T) [17]
<b>A: abysmal, water, gorge, dangerous, in-motion</b>	Conflict (S/A) [6]	Deliverance (T/A) [40]	Abysmal (A/A) [29]	Youthful folly (M/A) [4]	Army (E/A) [7]	Dispersion (W/A) [59]	Before completion (F/A) [64]	Oppression (L/A) [47]
<b>M: mountain, keeping still, bound, resting, stand-still, completion</b>	Retreat (S/M) [33]	Preponderance of the small (T/M) [62]	Obstruction (A/M) [39]	Keeping still (M/M) [52]	Modesty (E/M) [15]	Development (W/M) [53]	Wanderer (F/M) [56]	Influence (L/M) [31]
<b>E: earth, receptive, devoted, yielding, field</b>	Standstill (S/E) [12]	Enthusiasm (T/E) [16]	Holding together (A/E) [8]	Splitting apart (M/E) [23]	Receptive (E/E) [2]	Contemplation (W/E) [20]	Progress (F/E) [35]	Gathering together (L/E) [45]
<b>W: gentle, wind, ground, penetrating</b>	Coming to meet (S/W) [44]	Duration (T/W) [32]	Well (A/W) [48]	Work on what has been spoiled (M/W) [18]	Pushing upward (E/W) [46]	Gentle (W/W) [57]	Caldron (F/W) [50]	Preponderance of the great (L/W)[28]
<b>F: clinging, fire radiance, light giving, clarity, adaptable dependence</b>	Fellowship with men (S/F) [13]	Abundance (T/F) [55]	After completion (A/F) [63]	Grace (M/F) [22]	Darkening of the light (E/F) [36]	Family (W/F) [37]	Clinging (F/F) [30]	Revolution [49]
<b>L: joyous, open, tranquil, lake</b>	Treading (S/L) [10]	Marrying maiden (T/L) [54]	Limitation (A/L) [60]	Decrease (M/L) [41]	Approach (E/L) [19]	Inner truth (W/L) [61]	Opposition (F/L) [38]	Joyous (L/L) [58]

**Varieties of emotional experience:** Clarifying the distinctions in the table would again be aided through associations offered by poets (and song lyrics). Whilst there have been many efforts to clarify the varieties of [religious experience](#), it is curious that in a world in which many suffer from their experience in relationships, that so little effort is made to clarify the variety of emotional experiences systematically. This is despite the suggestions of William James in that respect (Phil Oliver, *Varieties of Emotional Experience: James's Radical Turn, American Philosophy*, 2002). The challenge of doing so has been noted by William Cunningham and Jay Van Bavel (*Varieties of Emotional Experience: differences in object or computation?*, *Emotion Review*, 2009) following a century of research, as noted by P. J. Lang (*The Varieties of Emotional Experience: a meditation on James-Lange theory*, *Psychological Review*, 1994).

Similarly with regard to the experiential challenge of relationships, there is little effort to clarify the spectrum of relational experience in any ordered manner, as previously noted (*An Approach to Systematic Classification of Interpersonal Relationships conceived as essential to alternative life styles, social and personal transformation*, 1978). The above table suggests the possibility of a more complex patterning. The evolution of [transactional analysis](#) to [relational transactional analysis](#) offers pointers in this respect. Useful also are the indications of Carmen Lynch and Victor Daniels (*Patterns of Relationships: the relational gestalt: which movie are we in?* 2000).

The association of the distinctions to the experience of weather accords with the common framing of relational conditions (thunderous, stormy, cold, hot) and with idiomatic expressions such as "[raining on my parade](#)". Given the "severe weather" characteristic of many relational experiences, there is a case for an analogue to any study of severe weather processes (cf. Amy McGovern, et al, *Understanding Severe Weather Processes through Spatiotemporal Relational Random Forests*, 2010 Conference on Intelligent Data Understanding).

## Interpretations of patterns of empowering and disempowering conditions

**Cognitive adaptation of the *IChing* conditions for the existentially challenged:** The following exercise is an adaptation of portions

of texts offering a sense of the "conditions of change" (above) in various domains, as previously presented (*Transformation Metaphors derived experimentally from the Chinese Book of Changes (I Ching) -- for sustainable dialogue, vision, conferencing, policy, network, community and lifestyle*, 1997). The intent of this adaptation is however to highlight the "cognitive weather conditions" of the increasing numbers of people faced with conditions of despair, depression, nothingness, and the like (as indicated in a section below). With this concern, the wording in the earlier exercises appeared to lack this sense of angst -- although the Chinese original claims specifically to frame the relationship between fundamental conditions of uncertainty and the associated decision-making dilemmas.

As typically expressed the conditions recall too readily a form of moralistic, deterministic, "motherhood statement", namely directives ("shoulds" and "musts"). Although these appear unquestionably appropriate, they are readily experienced as objectionable by many in existential agony -- namely as too bland for those who are living "on the edge", under conditions framed by such terms as depression, disillusion, despair, disgust, denigration and denial.

The point is well made by the protest of Jack Nicholson (in the movie *As Good As It Gets*): *I am drowning here and you are describing the water*. Such concerns, with similar references, are reflected to a higher degree in the compilation by Jon Jenkins and Maureen Jenkins (*The Other World, in the Midst of Our World*, 2001) describing 64 states of being experienced in ordinary life -- as excerpted below.

The approach taken was therefore to use portions of the previous exercise for the 64 traditionally recognized conditions, but to amend the text using two "devices":

- substitution of "??;??" for the "cognitive operator" in each case (*Defining the objective & Refining the subjective ?!* *Explaining reality & Embodying realization*, 2011)
- reconfiguring each derived comment as a question in its own right, ideally as a "deadly question" (*In Quest of the Most Deadly Question*, 2013)

The result is far from satisfactory since it leaves the reader with the (useful) challenge of associating meaning with "??;??" -- otherwise typically over-defined. Ideally this might imply dimensions such as:

- knowing or unknowing in the face of experiential reality, each constituting its own kind of trap (as with any assumptions relating to knowledge and ignorance, certainty and uncertainty) helpfully publicized via the notorious "poem" of Donald Rumsfeld during his capacity as US Secretary of Defense (*Unknown Undoing: challenge of incomprehensibility of systemic neglect*, 2008; *Going Nowhere through Not-knowing Where to Go*, 2013)
- attention or inattention under conditions of information overload, limited attention span, and particular preference (*Investing Attention Essential to Viable Growth: radical self-reflexive reappropriation of financial skills and insights*, 2014)
- a sense of information experienced as energy, and of energy experienced as information, as might be associated with feelings of cognitive empowerment or disempowerment. This could complement psychosocial understanding of energy as separately discussed (*Reframing Sustainable Sources of Energy for the Future: the vital role of psychosocial variants*, 2006)
- a sense of cognitive strategy as would be recognized by the streetwise, in martial arts, or in many games (most notably go and chess)
- a sense of undetermined identity, or even existence, which may well characterize the experience of many faced with dilemmas as to who they are (other than "nobody") and in what way they really exist (if that can be unquestionably assumed by them). Such issues can be explored in terms of radicalization, liminality, or a wave theory of being (*Being a Waveform of Potential as an Experiential Choice: emergent dynamic qualities of identity and integrity*, 2013; *Living as an Imaginal Bridge between Worlds: global implications of "betwixt and between" and liminality*, 2011; *Radicalisation of Existence and Identity: recognizing the global emergence and influence of daimonic dynamics*, 2015)
- understandings of harmony, as most notably articulated through the Japanese cultural concept of *wa*. This implies a peaceful unity and conformity within a social group, in which members prefer the continuation of a harmonious community over their personal interests. Here it would be the disruption of *wa* which merits attention as suggested by the work of Christopher Alexander (*Harmony-Comprehension and Wholeness-Engendering: eliciting psychosocial transformational principles from design*, 2010).
- the experience of nothing and nothingness as it might manifest with respect to 8 conditions (*Configuring the Varieties of Experiential Nothingness*, 2012)

Of particular interest, given the contrast with "climate" as a more enduring characteristic, is the sense in which there are likely to be cultural preferences and biases with respect to interpretations and emphases. These can be explored in the light of the articulations proposed by various authors, as summarized separately (*Systems of Categories Distinguishing Cultural Biases*, 1993). Most notable are the mindscapes of Magoroh Maruyama (*Mindscapes, social patterns and future development of scientific theory types*. *Cybernetica*, 1980). Of further relevance, given the preoccupation here with ease and disease, is the commentary on Maruyama's work, and its development (Maurice Yolles and Gerhard Fink, *Personality, Pathology and Sagiv-Schwartz Mindscapes, Social Science Research Network*, 2012).

The wording in the interpretations remains unsatisfactory, and perhaps necessarily so, if the qualities of the "cognitive weather conditions" listed thereafter are somehow to be associated with the pattern.

<b>Indicative list of first 4 adapted interpretations of conditions of I Ching sequence</b> (for complete table see <a href="#">Annex 2</a> )	
S/S	1 Creative ( <i>Ch'ien</i> ) [primal power]: As a result of ??;??, can creative energy and inspiration engender new patterns? <ul style="list-style-type: none"> <li>• [In order to bear fruit, creativity eventually requires the existence of a receptive environment. (<i>Resulting in: Receptivity</i>).]</li> </ul>
	Earth ( <i>K'un</i> ) [receptivity / primal structuring]: Can ??;?? respond to the actions and opportunities of its environment and

E/E	2	thereby bring about change? <ul style="list-style-type: none"> <li>[Initiatives emerging in a receptive environment first experience difficulties. (<i>Resulting in: Initial difficulty</i>). ]</li> </ul>
A/T	3	Initial difficulty ( <i>Chun</i> ) [beginning growth / sprouting]: Can a cooperative response bring order out of chaos as a result of the profusion of changes being brought about by ??? -- constituting confusing obstacles to its further development? <ul style="list-style-type: none"> <li>[When first launched, initiatives tend to be handicapped by inexperience. (<i>Resulting in: Inexperience</i>). ]</li> </ul>
MA	4	Inexperience ( <i>Meng</i> ) [enveloping / clouded awareness / young shoot]: Aided by enthusiasm, can ??? succeed despite inexperience, provided appropriate guidance is sought with the right attitude? <ul style="list-style-type: none"> <li>[After overcoming problems of inexperience, initiatives await further support. (<i>Resulting in: Waiting</i>). ]</li> </ul>

**Psychosocial dis-eases and the eases they imply:** The concern here is to recognize in more appropriate language the nature of eases and diseases -- of which the latter are framed conventionally by the above-mentioned *Diagnostic and Statistical Manual of Mental Disorders* (DSM). This of course uses the conventions of a purportedly healthy, detached observer -- a "normal" person unchallenged by any such uneases. In that sense it is especially unhelpful to those who have to live in a world challenged by the pattern of dis-eases and eases -- as usefully highlighted by the game of snakes and ladders.

The previous section interpreted the language of the *I Ching* in the metaphorical terms of its traditional weather-related pattern. However, as noted, that language remains inadequate to the existential experience of someone somewhere "in the game". The concern here is whether other vocabulary can be used to approximate more closely to that experience. It is in this sense that the above-mentioned work of [Jon Jenkins](#) and [Maureen Jenkins](#) (*The Other World, in the Midst of Our World*, 2001) is especially relevant in describing 64 states of being experienced in ordinary life. This is effectively the result of a collaborative effort of hundreds of people associated with the [Institute of Cultural Affairs](#) (ICA) in the 1970s. It took an earlier form as *The Other World: a spirit journal* (1987).

Use of the phrase "other world" helpfully distinguishes the **internal** existential focus on personal "cognitive weather" from the detachment of the **external** perspective -- echoing the distinction made above between "climate regimes" as categorized globally and "weather" as experienced locally and personally. Stressing that the sense of an "other world" is not particularly religious, it is considered there as a poetic image pointing to the finally incomprehensible dimension of reality.

The authors indicate their sense of a "state of being" as an experience which is simultaneously an awareness, a feeling and a resolve. They offer a description of such a state in the words of [Joseph Wesley Mathews](#) (*The Recovery of the Other World*, from a speech given on 3 July 1972):

One day a man [sic] is driven by whatsoever vicissitudes of life into the consciousness that he himself must die. It is like being in a state of shock. A strange force intrudes. Suddenly he is submerged in awe; he feels it hovering all about him; he feels its penetration into the deepest corners of his innermost being. In quiet terror, and with an inexplicable fascination, he knows the fragility of his total existence; he feels his contingency, and beholds the passingness of all things. It is like a mortal wound from which he knows he will never recover. As the absurdity, the irrationality of it all seeps deep within, a burning objectless anger rises and rages until futility itself turns into a heavy numbness and everything becomes disoriented; all is nothingness; and there is no place any more to stand, just terrifying mystery. And hanging helplessly, swirling in emptiness, engulfed in awe, it dawns at long last, like the rising of a black sun, that exactly here is the final real before which he is fated and invited to live and die his life. This is the great encounter with the aweful mystery.

The question raised in what follows is the nature of any correspondence between the 64-fold pattern of the *I Ching* and the 64-fold pattern articulated in the participative ICA context. This challenging correspondence is the third of the **5 correspondences** tentatively correlated in this discussion. As with the *I Ching*, each of the numbered conditions is accompanied by extensive commentary. The states of being are clustered into groups of four, termed "treks". Four such treks form an area, of which there are four, making a total of 64 conditions. As with the *I Ching*, the pattern constitutes a map. There is no particular starting or ending point -- resembling snakes and ladders to a degree -- rather it frames a perpetual journey.

The move from awareness of surface appearance to profound consciousness of the self and of reality is never finally achieved. People always face new crises which challenge their assumptions, violate their expectations and demand their creativity, regardless of the perceptual level they have achieved.

A major contrast with the *I Ching* is that no effort is made to indicate pathways between conditions -- along which a journey could be recognized. This might be implicit to a degree in the clustering by "treks" -- possibly to be considered as circuits, with some suggestion of being patterned cognitive feedback loops or metabolic pathways.

Indicative presentation of first 16 of 64 states of being in terms of four of 13 defining categories (excerpted from <i>The Other World: a spirit journal</i> , 1987; for complete table see <a href="#">Annex 3</a> )				
Areas / Treks	Reflective (concept)	Affective (a sense of...)	Affective (like being...)	Analogy (it's like...)
1/1	1radical contingency	terrifying numbness	mortally stunned	hearing the worms cough
	2absurd existence	benign madness	critically disoriented	riding a tilt-a-whirl
	3ultimate reality	intense shock	irrevocably outcast	wandering in a thick fog
	4primordial wonder	total paralysis	helplessly suspended	hanging over molten lead
	5incarnate living	double identity	fatally split	experiencing bi-location

1/2	6	ubiquitous otherness	constant pursuit	under surveillance	having nowhere else to run
	7	final limits	chronic weakness	perpetually conquered	racing in a field of tar
	8	total exposure	deep guilt	perpetually embarrassed	standing nude in Times Square
1/3	9	vibrant powers	eerie strength	intensely enlivened	opening the floodgates
	10	transformed existence	joyful anxiety	radically relocated	waking up on another planet
	11	second birth	trustful expectation	unconditionally recast	recovering from amnesia
1/4	12	dynamic selfhood	forever surprised	ceaselessly evolving	watching a pinwheel explode
	13	essential dubiety	irrational self-doubt	shatteringly ridiculed	feeling you've really been had
	14	cryptic disclosure	secret resentment	totally injured	being finally excommunicated
	15	transcendent immanence	insatiable yearning	chronically homesick	knowing you'll never go home
	16	singular adoration	burning desire	hopelessly enamored	being reluctantly love-sick

The contrast between the two is intriguingly evident in the first being framed as conditions, implying the potential for change (hence *The Book of Changes*), with the second emphasizing "states of being" -- but as stages on a journey (possibly to nowhere). The *I Ching* could even be considered as a map of a complex network of cognitive snakes and ladders. The particular transitions between conditions in the numbered sequence forms a continuous circuit in that case (as indicated by the animation below).

**Insights from comparable ordering initiatives:** In the process of any effort to map either of the above patterns onto the other, of particular interest is what could be considered (by some) to be emphases (or dimensions) missing from both. In this respect a useful test would be provided by comparison with the insights formulated in the *Brahmajala Sutta*. This is considered to be one of the Buddha's most important and profound discourses, weaving a net of 62 cases capturing all the philosophical, speculative views on the self and the world (Bhikku Bodhi (Tr). *The Discourse on the All-Embracing Net of Views; the Brahmajala Sutta and its commentarial exegesis*, 1978). A summary is presented separately (*Comprehensive set of ways of knowing: the All-Embracing Net of Buddhist culture*, 2009).

Relevant insights might also be derived from use of the periodic table as a metaphor to order modes of human knowing, as discussed separately (*Periodic Pattern of Human Knowing: implication of the Periodic Table as metaphor of elementary order*, 2009; *Periodic Pattern of Human Life: the Periodic Table as a metaphor of lifelong learning*, 2009; *Tuning a Periodic Table of Religions, Epistemologies and Spirituality -- including the sciences and other belief systems*, 2007).

Given the poetic form through which the Chinese metaphorical description is traditionally expressed (notably for mnemonic purposes), could some form like *haiku* -- with its "cutting edge" emphasis -- be adapted to carry (in English) the poignancy of each condition (*Ensuring Strategic Resilience through Haiku Patterns: reframing the scope of the "martial arts" in response to strategic threats*, 2006). This would go further in framing the existential nuances of the respective conditions.

As a cognitive challenge, as mentioned with respect to learning the multiplication table, it is appropriate to note the skills required and widely developed in response to *Rubik's Cube*. This 3x3x3 cube can be explored as a metaphor for engaging with the relationships between the cognitive weather conditions variously represented in the above tables -- but presented in three dimensions (with surfaces to be appropriately marked or colour-coded, possibly according to the *BaGua* mirror pattern). There are different *variants of Rubik's Cubes* with up to seventeen layers: the 222 (*Pocket/Mini Cube*), the standard 333 cube, the 444 (*Rubik's Revenge/Master Cube*), and the 555 (*Professor's Cube*), the 666 (*V-Cube 6*), and 777 (*V-Cube 7*). Virtual variants also exist in 4D and 5D. Arguably these suggest possible designs of forms of "wellness/illness" cubes through which patterns of coherence can be explored.

## Path-ology: eliciting dynamic patterns of empowering and disempowering conditions

**Board games:** References were made above to the sense in which engagement in board games such as snakes and ladders can be understood as serving a representative and instructive function, notably including chess and *go*, as discussed separately (*Sustainability through Magically Dancing Patterns: 8x8, 9x9, 19x19 -- I Ching, Tao Te Ching / T'ai Hsüan Ching, Wéiq? (Go)*, 2008). The association with relational insights through other systematically organized Chinese classics has long elicited commentary (*Hyperspace Clues to the Psychology of the Pattern that Connects -- in the light of the 81 Tao Te Ching insights*, 2003). The Western-framed challenge of recognizing the "pattern that connects" is necessarily relevant (*Walking Elven Pathways: enactivating the pattern that connects*, 2006).

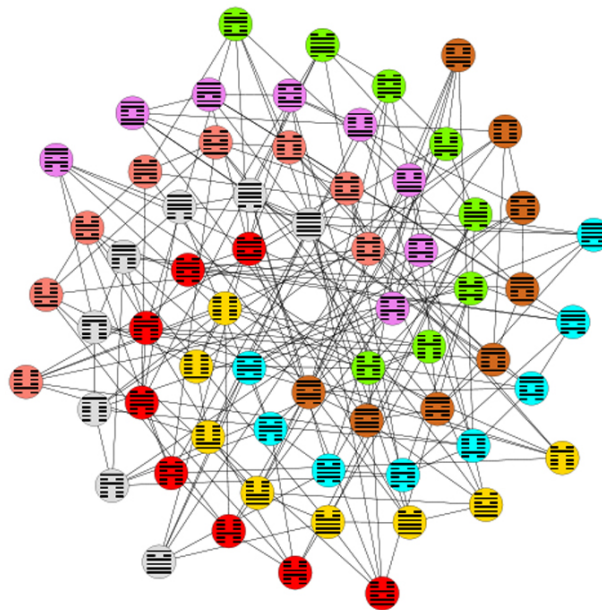
There is therefore a case for recognizing the exploration of such "cognitive metabolic pathways" as constituting a discipline which might be appropriately named "path-ology" -- as reflection on experiential engagement in the pathways of snakes and ladders, and the like. As noted above, in a period characterized by widespread depression, disillusion, despair, disgust, denigration and denial, understanding the pathways in which these are embedded merits particular attention. These conditions complement the unquestioned focus on their opposites in an era named by John Michael Greer (*The Era of Pretense, Resilience*, 14 May 2015). The increasing recognition accorded to *bipolar disorder* is one reflection of this.

As discussed separately (*Playing the Great Game with Intelligence*, 2013), such associations offer curious echoes to the elaboration of a "game of spheres" by Nicholas de Cusa (*De Ludo Globi*, 1463), written as a contribution to both a literature and a practice of moral game-playing. This formed part of the tradition of the forgotten chess-like game *Rithmomachia* ("The Battle of Numbers" or *Rythmomachy*), which combined the pleasures of gaming with mathematical study and moral education. Intellectuals of the medieval and Renaissance periods who played this game were not only seeking to master the principles of *Boethian mathematics* but were striving to improve their own understanding of the secrets of the cosmos (Ann E. Moyer, *In The Philosophers' Game*, 2001). This was undoubtedly an inspiration for the magnum opus of Nobel Laureate Hermann Hesse, as noted by Todd R. Harris (*The Interplay of Opposites, the Language of Experience, and the Geometry of Ascent: a comparison of Hermann Hesse's "Das Glasperlenspiel" and Nicholas of Cusa's "De Ludo Globi"*, 2001).

**Animations:** Underlying the pattern of the *I Ching*, the traditional circular pattern of the *BaGua* (termed the BaGua Mirror) necessarily lends itself to animations consistent with the dynamics between its various conditions, as presented and discussed separately (*Animation of Classical BaGua Arrangements: a dynamic representation of Neti Neti*, 2008). The latter illustrated the dynamics of a related mapping of the hexagrams (*Mapping of I Ching hexagram coding onto Star of David*, 2008). The argument can be developed as an explicitly cross-cultural exercise, using a circular configuration of the hexagrams (*Dynamic Exploration of Value Configurations: interrelating traditional cultural symbols through animation*, 2008).

Another approach is to explore the dynamics between the conditions indicated by the hexagrams in forming a *hypercycle* (*Adaptive Hypercycle of Sustainable Psychosocial Self-organization: designing a mapping of a Chinese metaphorical pattern language*, 2010). This offers a reminder of the subtle complexity of the pattern with which individual experience is required to engage -- irrespective of the more constrained frameworks promoted conventionally as adequate models to explain that process.

**Spiral configuration of hexagrams**  
 (8 arms to the spiral, one for each of the 8 hexagram "house" clusters, namely 8 hexagrams per spiral arm)  
 [provisional image in anticipation of resolution of technical issues -- Disabled]

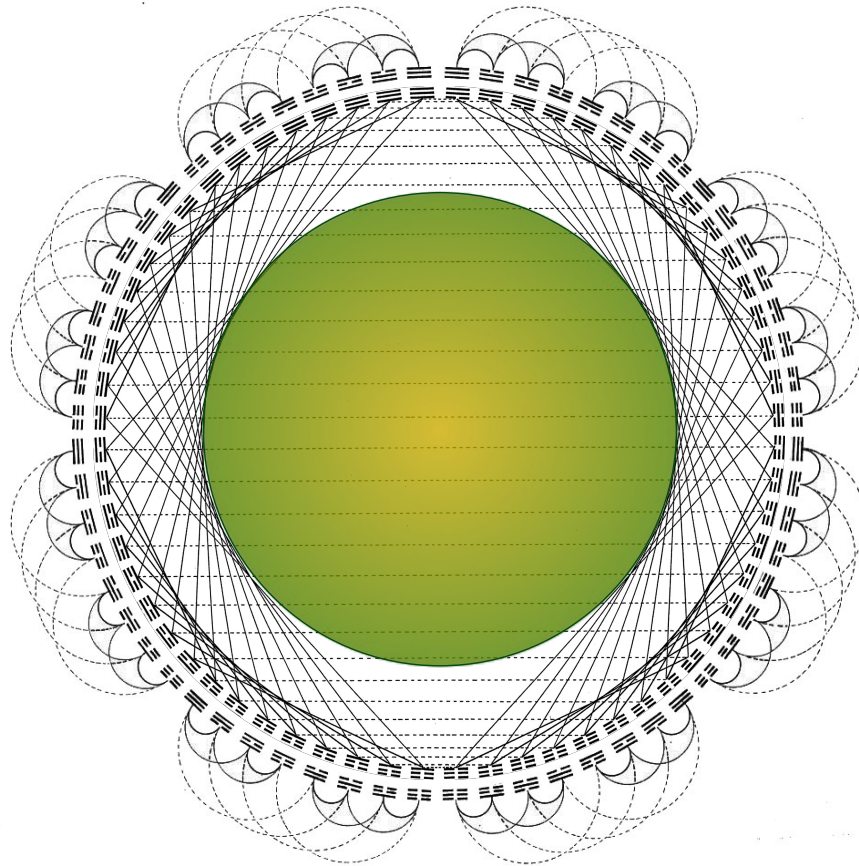


**Transcending polarity:** Of particular interest in such exercises is the manner in which polarity is handled and the possibilities of its transcendence are indicated. This concern is of special relevance in a period preoccupied by *full-spectrum dominance* and *global hegemony* of a particular nature -- to which no challenge is admissible. This framework plays out in the bloody conflicts engendered by an us-or-them logic (*Us and Them: Relating to Challenging Others: patterns in the shadow dance between "good" and "evil"*, 2009).

As a foreign policy articulated as *You're either with us, or against us* it favours retrogression to Stone Age mindsets (Nick Cullather, *Bomb them Back to the Stone Age: an etymology*, History News Network, 10 June 2006). However, switching metaphors, there is always value in using "first-gear" during start-up operations and in engaging with problematic terrain -- even though this may be completely inadequate for "take-off", as argued separately (*Counteracting Extremes Enabling Normal Flying: insights for global governance from birds on the wing*, 2015).

It is within this context that the argument can be taken further through an exercise in rendering **dynamic** the circular arrangement of the 64 *I Ching* hexagrams as shown below (based on the *original static depiction*). The two levels of the hexagrams are separated to allow an inner ring of trigrams to rotate with respect to an outer ring. This brings trigrams successively into association with one another in order -- indicative of the distinctive condition engendered. It can be understood as framing and sustaining an elusive transcendent condition indicated by the central circle.

**64 Hexagrams of *I Ching* formed by animation of inner circle of trigrams relative to outer circle**  
 (also mp4 version)



Aside from technical defects, this animation lends itself to a variety of indicative improvements to highlight those relationships which might be considered "activated" under certain conditions (as suggested in the experiments below). It is interesting to note the degree to which such a cognitive device is reminiscent of the form of the traditional [geomantic feng shui compass](#), which may have many separate rings (Stephen Skinner, *Guide to the Feng Shui Compass*, 2008). It also strangely resembles the [circular logarithm table](#). In an information context, this would then raise the question of any understanding of the cognitive [psychogeography](#) of cyberspace -- or of any information context.

**Prayer beads:** Whether static or dynamic, this circular presentation usefully recalls the experiential significance associated by some religions with the practice of progression through circlets of beads (*Designing Cultural Rosaries and Meaning Malas to Sustain Associations within the Pattern that Connects*, 2000). As noted there, it is intriguing that the number of beads in such experiential circlets is of a similar order to the number of hexagrams:

- 108 mala beads of the Buddhist rosary or more (112 in Japan), although lay persons may use only 30 to 40 -- as with European 'worry beads'.
- The Tibetan variant has 108 plus 3 (separating groups of 27) plus 1. The 'wrist mala' is usually made up of 22 beads.
- In Hinduism, the number of beads varies from 18, 27, 54 to 108 -- with an extra bead inserted -- called the *meru*, to indicate when the chanting cycle (*japa*) is finished
- For Muslims the bead-string (*Tasbeeh* or *Subha*), consists of 33, 66, or 99 beads, and is used for counting devotionally the names of Allah -- a 100th bead terminating the cycle.
- Catholic rosaries have 50 beads, namely 5 groups of 10; Eastern Orthodox may use 100.
- Anglican prayer beads may comprise four groups of seven beads called Weeks which are divided by four Cruciform beads

As mnemonic aids, these raise the question of what devices reflecting equivalent diversity are developed or envisaged with respect to personal management of ease and dis-ease.

**Rotation of magnetic field:** The relatively simple animation above suggests a relationship to the thinking of Nikola Tesla which gave rise to his insight into the [rotating magnetic field](#), as discussed separately (*Reimagining Tesla's Creativity through Technomimicry: psychosocial empowerment by imagining charged conditions otherwise*, 2014). This notably included sections on:

- [Visual thinking as indicated by Tesla and by consideration thereof](#)
- [Potential implications of alternation and rotation in psychosocial fields](#)

- Psychosocial relevance of Tesla's creative process
- Imagining a method for adapting Tesla's insights to a psychosocial context
- Detecting a meta-pattern of connectivity amongst Tesla's insights
- Patterns of patterns: towards dynamic integrative mapping of inventions
- Insight into global dynamics through Tesla's focus on the sphere
- Psychosocial insights from the electrical War of Currents -- AC versus DC
- Encycling positive and negative for future sustainability

As described there, the breakthrough in Tesla's thinking with respect to alternation/rotation is eloquently described by John J. O'Neill (*Prodigal Genius: the life of Nikola Tesla*, 1968):

- The conception of a rotating magnetic field was a majestically beautiful one. It introduced to the scientific world a new principle of sublime grandeur whose simplicity and utility opened a vast new empire of useful applications... Alternating currents motors had heretofore presented what seemed an insoluble problem because the magnetic field produced by alternating currents changed as rapidly as the current. Instead of producing a turning force they churned up useless vibration.

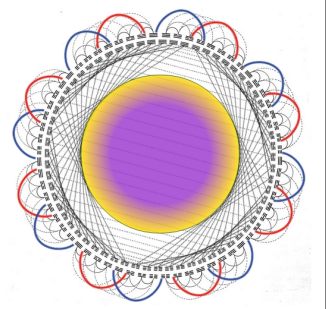
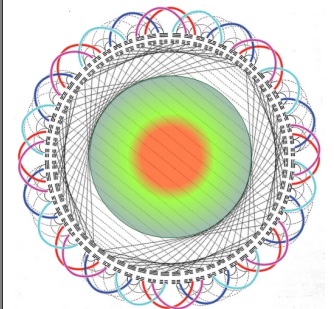
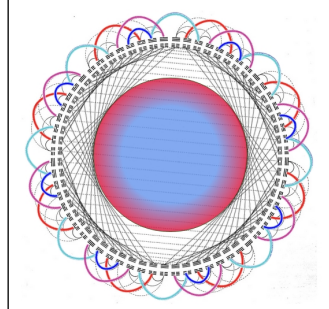
Up to this time everyone who tried to make an alternating current motor used a single circuit, just as was in direct current. As a result the projected motor proved to be like a single cylinder steam engine, stalled at dead center, at the top or bottom of the stroke.

What Tesla did was to use two circuits, each one carrying the same frequency of alternating current, but in which the current waves were out of step with each other. This was equivalent to adding to an engine a second cylinder. The pistons in the two cylinders were connected to the shaft so that their cranks were at an angle to each other which caused them to reach the top or bottom of the stroke at different times. The two could never be on dead center at the same time. If one were on dead center, the other would be off and ready to start the engine turning with a power stroke. (p. 50)

- This analogy oversimplifies the situation, of course, for Tesla's discovery was much more far-reaching and fundamental. What Tesla has discovered was a means of creating a rotating magnetic field, a magnetic whirlwind in space which possessed fantastically new and intriguing properties. It was an utterly new conception. In direct-current motors a fixed magnetic field was tricked by mechanical means into producing rotation in an armature by connecting successively through a commutator each of a series of coils arranged around the circumference of a cylindrical armature. Tesla produced a field of force which rotated in space at high speed and was able to lock tightly into its embrace an armature which required no electrical connections. The rotating field possessed the property of transferring wirelessly through space, by means of its lines of force, energy to the simple closed circuit coils on the isolated armature which enabled it to build up its own magnetic field that locked itself into the rotating magnetic whirlwind produced by the field coils. The need for a commutator was completely eliminated. (pp. 50-51)
- He worked out the design of dynamos, motors, transformers and all other devices for a complete alternating-current system. He multiplied the effectiveness of the two-phase system by making it operate on three or more alternating currents simultaneously. This was his famous polyphase power system.

As separately discussed, **the question is whether there is an analogous form of "rotation" which would prove significant to the transcendence of the Stone Age world view now actively seeking to dominate global strategic governance** (*Massive Elicitation of Psychosocial Energy Requisite: technology for collective enlightenment*, 2011). Can the indicated transformations between conditions in the animation above be understood as equivalent in some way to the **wiring pattern on the electromagnetic coil** of motors and dynamo?

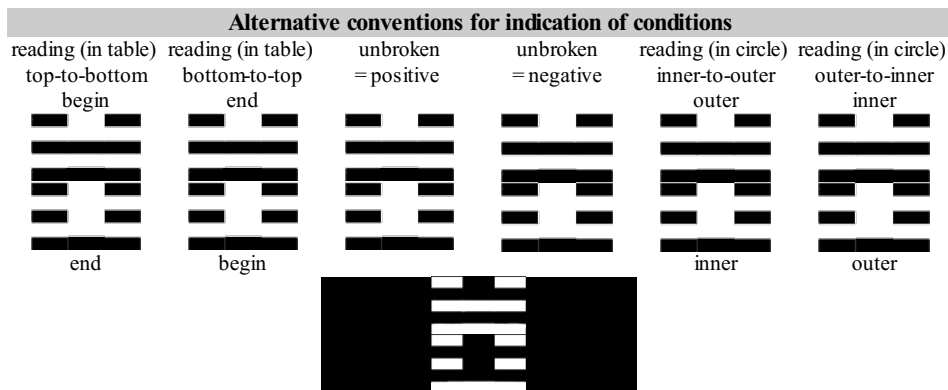
As indicated by the screen shots below, experimental modifications of the animation above are suggestive in this respect, potentially as catalysts for further reflection (*In Quest of Mnemonic Catalysts -- for comprehension of complex psychosocial dynamics*, 2007).

Screen shots of experimental animations of 64 hexagrams of I Ching (presented separately in Annex 4: <i>Experimental Revolutionary Animations of a Chinese Pattern of Metaphors</i> )		
With rotation of outer ring [slower] [faster]	With counter-rotation of 2 outer rings [slower]	With counter-rotation of 4 outer rings [faster]
		

**Paradoxical indication of polarity:** The challenge of positive vs negative in electromagnetism is indicative of an equivalent challenge with respect to controversial psychosocial insights into duality, whether positive-negative, objective-subjective, internal-external, upper-lower, inner-outer, right-wrong, etc -- with the valued and deprecated associations they elicit. In the case of electromagnetism, it is a matter of convention -- a technical fiat -- as to what is "positive" and what is "negative" (as it is with respect to electrons and protons). It

is curious that that the disorder of "bipolarity" (noted above) is also recognized as a feature of both electromagnetism and of international relations.

The reading of a hexagram, and its indications, can be challenged in such terms -- whether presented in isolation or configured with others in a circle.



Whilst seemingly trivial, the direction of reading and the manner in which significance is then attributed to it, may go to the heart of the slippery, paradoxical nature of polarity and duality. This is evident in the associations with "top", and the striving to be "top-most" -- with the deprecation of the "bottom-most". It is evident with respect to those in any "inner" circle -- and those consequently deprecated as "not-in", who may be striving to be "in". This becomes more problematic when "inner" is associated with "subjective" (or internal) and "outer" with "objective" (or external) -- as with many of the natural sciences.

There is also the strange convention of associating an "unbroken" line with "positive", in contrast with the alternative of associating it with "negative" -- with all the consequent implications for "male" and "female". More intriguing still is the inversion in which the lines are marked in white, rather than black -- on a black background rather than a white one. This has implications for the "good" being associated with "white" and the "evil" with "black".

It is appropriate to note that another Chinese classic also makes use of a diagram of broken and unbroken lines. In the case of the 64 insights of the *I Ching*, each is represented by six such lines, each of which may be unbroken (*yang*), or broken **once only** (*yin*). By contrast, in the case of the *T'ai Hsüan Ching* (or *Canon of Supreme Mystery*), these are represented by four such lines, each of which may be unbroken, or broken **once or twice**, as discussed separately (*9-fold Magic Square Pattern of Tao Te Ching Insights: experimentally associated with the 81 insights of the T'ai Hsüan Ching*, 2006).

Curiously these issues, notably commentary on the origins of the *I Ching* notation, recall the famed arguments of **George Spencer-Brown** (*Laws of Form*, 1969). This is highly relevant to the vexatious issue of how boundaries are established and defined -- with all the controversy that can result. *LoF* is introduced by use of a symbolic element termed a mark or a cross. As explained in *Wikipedia*,

In Spencer-Brown's inimitable and enigmatic fashion, the Mark symbolizes the root of cognition, i.e., the dualistic Mark indicates the capability of differentiating a "this" from "everything else but this." In *LoF*, a Cross denotes the drawing of a "distinction", and can be thought of as signifying the following, all at once:

- The act of drawing a boundary around something, thus separating it from everything else;
- That which becomes distinct from everything by drawing the boundary;
- Crossing from one side of the boundary to the other.

All three ways imply an *action* on the part of the cognitive entity (e.g., person) making the distinction. As *LoF* puts it: *The first command: Draw a distinction can well be expressed in such ways as:*

- Let there be a distinction,
- Find a distinction,
- See a distinction,
- Describe a distinction,
- Define a distinction,

Or: *Let a distinction be drawn...*

The counterpoint to the Marked state is the Unmarked state, which is simply nothing, the void, represented by a blank space. It is simply the absence of a Cross. No distinction has been made and nothing has been crossed. The Marked state and the void are the two primitive values of the *Laws of Form*. The Cross can be seen as denoting the distinction between two states, one "considered as a symbol" and another not so considered. From this fact arises a curious resonance with some theories of consciousness and language. Paradoxically, the Form is at once Observer and Observed, and is also the creative act of making an observation. *LoF...* closes with the words:

*...the first distinction, the Mark and the observer are not only interchangeable, but, in the form, identical.*

**Reflexivity and higher orders of cybernetics:** So framed it is interesting to speculate on the relevance of such insights -- and the potentially "slippery" reading of the marks constituted by any hexagram -- with respect to currently emerging distinctions between

different orders of cybernetics. Insights into more appropriate means of managing connectivity and disagreement are now suggested by exploration of higher orders of cybernetics (Maurice Yolles and Gerhard Fink, *A General Theory of Generic Modelling and Paradigm Shift: cybernetic orders*, *Kybernetes*, 44, 2015).

These notably take account of self-reflexivity -- itself to be distinguished in varying degrees meriting exploration and recognition. As phrased by the authors:

- **First-order cybernetic feedback** is typically seen to be associated with Newtonian mechanical objectivity. It is therefore positivist, centring on systemic objects being observed by some external objective observer
- **Second-order cybernetics** embraces radical constructivism, allowing for instrumental learning and agnosticism towards objective reality..
- **Third-order simplex cybernetic spaces** should be seen to represent the observed and observing systems together forming another system, from which a new relativistic interactive worldview arises from self-observing viewers that have self-observed worldviews. Third-order cybernetics is also characterised by the way it resolves undecidabilities, these being constituted in the logic of the present moment by the anticipations of the system.
- It is possible to formulate a statement of **fourth order cybernetics** in terms of the higher levels of relationship between observed and observing systems.... However, a more pragmatic and satisfactory... approach allows one to respond to the variety in a complex situation with an invariant generic construct more capable of generating requisite variety. Higher orders of simplex modelling have this capability since they provide new ways of explaining complexity by representing external influences as internal imperatives, thereby creating greater complexity for the immanent agency dynamics, but reducing undecidability. To explain the use of higher order models, rather than use observers relationships, a more minimal way is to adopt a concept of generic loop learning..., even if this redirects us away from... adaptability. Here then, fourth order cybernetics could be represented as triple loop generic learning (beyond the double loop generic learning of third cybernetics), referring to the way in which knowledge is not only acquired but also identified.
- On the way to developing our general theory, the paper gave examples of first, second, third and fourth order simplicity. Higher orders of simplex modelling under complexity exist through the conceptual generic concepts that define them. This is the result of conceptual emergence, important to processes of systemic modelling. So far we have not attempted to move beyond fourth order simplicity, awaiting for new concepts able to generate **fifth and higher orders of simplicity**. However, we have shown that higher order simplex models can be generated through the use of recursion

Especially relevant is the earlier collaboration of the principal author with a Chinese scholar (Ye Zude and Maurice Yolles, *Cybernetics of Tao*, *Kybernetes*, 39, 2010). As noted there:

Here, **autopoiesis** is a term that can now be simply seen as a network of processes that enables noumenal activity to become manifested phenomenally, and in autonomous systems this is conditioned by **autogenesis** -- a network of principles that create a second order form of autopoiesis that guides autopoietic processes. Autopoiesis may be thought as a process in which virtual images are manifested phenomenally. Autogenesis provides a network of principles that ultimately drives autopoiesis.

## Beyond dispute in 5-dimensional space: *Pentagramma Mirificum*?

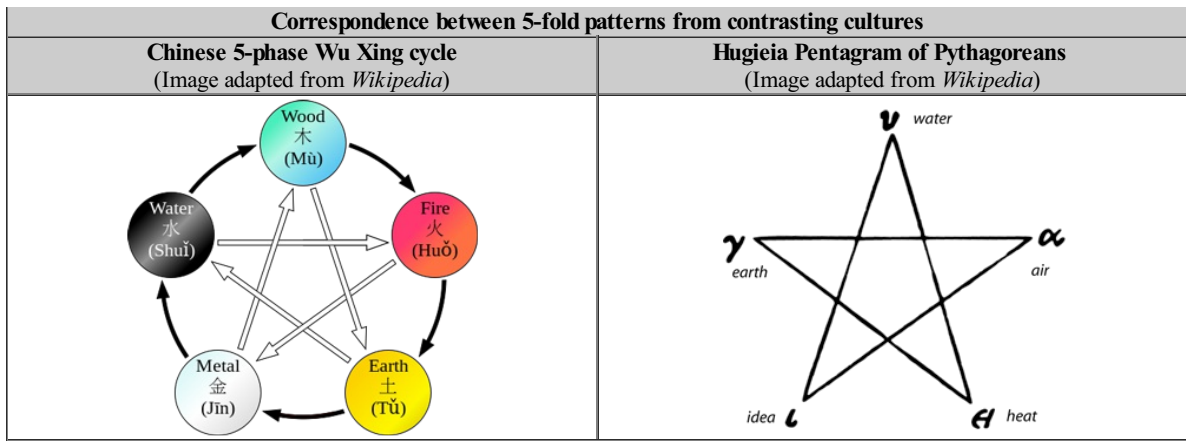
The cybernetician **Stafford Beer** is known for his application of such insights to new patterns of dialogue (*Beyond Dispute: the invention of team synteegrity*, 1994). These processes were organized in terms of the 3-dimensional structure of the **icosahedron**, notably characterized, by **15 great circles**. Given the questions raised by "dis-" in relation to "ease", a degree of closure to the pattern of correspondences of this argument can be explored through recalling the etymology of "dispute" -- from the Latin *dis-*"separately" with *putare*"to count or consider".

**Wu Xing**: A speculative closure to the pattern of **5 correspondences** tentatively correlated in this discussion could be consistent with the arguments of A. C. Graham (*Yin-Yang and the Nature of Correlative Thinking*, 1986). Given the above-mentioned conventional recognition that a region's climate is generated by a climate system of five components (atmosphere, hydrosphere, cryosphere, lithosphere, and biosphere), these can be associated through a circular pattern fundamental to Chinese thinking, namely the dynamics of 5-phase **Wu Xing**.

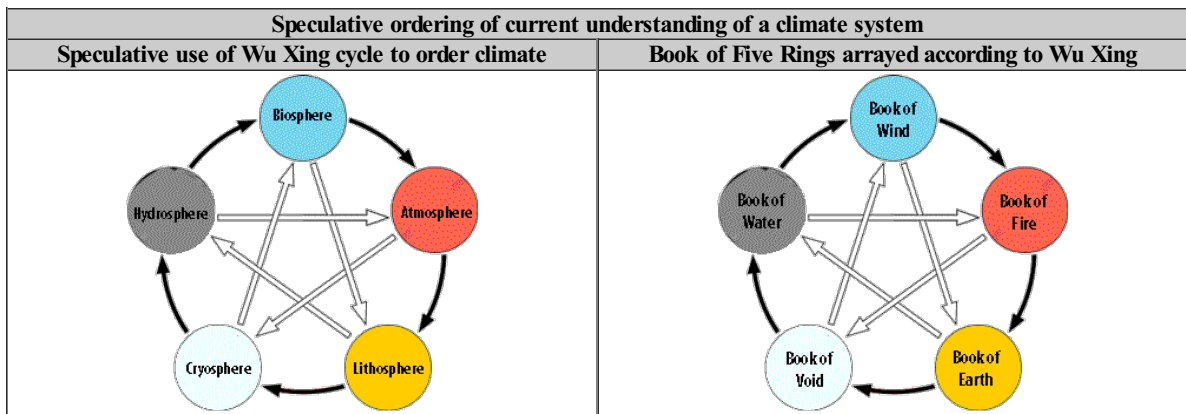
The trigrams of *BaGua* are related to the five elements of **Wu Xing**, used by *feng shui* practitioners and in **traditional Chinese medicine**. The elements correspond with the trigrams: water and fire directly; earth corresponds with two (earth, mountain), wood with two (wind, thunder), and metal with two (heaven, lake). Hence the implied relationship to the pattern of *I Ching* hexagrams -- suggesting the possibility of a "collapsed" variant of the latter.

Curiously this pattern is very similar to a diagram fundamental to the Pythagoreans. The former continues to be valued with respect to understanding of **health**, the latter is at the origin of the understanding of **hygiene**, as may be variously discussed (*Cycles of enstoning forming mnemonic pentagrams: Hygiea and Wu Xing*, 2012; *Memorable dynamics of living and dying: Hygiea and Wu Xing*, 2014).

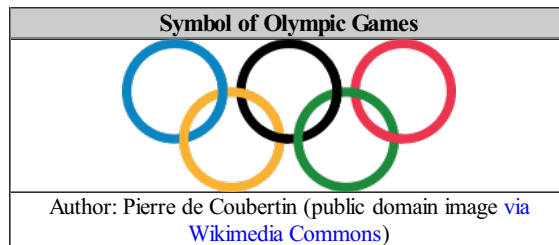
The pattern is now being explored from a mathematical perspective in China (Ziqing Zhang and Yingshan Zhang, *Mathematical Reasoning of Economic Intervening Principle Based on "Yin Yang Wu Xing" Theory in Traditional Chinese Economics. Modern Economy*, 2013; Yingshan Zhang and W. Shao, *Image Mathematics: mathematical intervening principle based on "Yin Yang Wu Xing" theory in traditional Chinese mathematics, Applied Mathematics*, 2012; Guang-hong Ding and Tao WanG, *Mathematical analysis of Yin-Yang Wu-Xing Model in TCM, Journal of Acupuncture and Tuina Science*, 2008; Zhaoxue Chen, *Researches on Mathematical Relationship of Five Elements of Containing Notes and Fibonacci Sequence Modulo 5. The Scientific World Journal*, 2014).



The pattern can be speculatively used to order current understanding of a climate system. It is closely associated with the requisite attitudes identified in the organization of the famed Japanese strategic study *The Book of Five Rings*.



The original use of rings in this depiction, and with respect to strategic attitudes, invites reflection on its relevance to the adequacy of comprehension of any system of climate. The question acquires greater focus through the symbolic value associated worldwide with the Olympic Games



"Sparsity" of the "pattern that connects": The juxtaposition of the above patterns, with the suggestion that they are indicative of an underlying pattern, raises the question as to how disparate and "disconnected" can the elements of the "pattern that connects" appear to be in correlative thinking, as suggested by research on structured sparsity (Junzhou Huang, Tong Zhang, et al, *Learning with Structured Sparsity*, *Journal of Machine Learning Research*, 2011).

This returns to the indications of **small world theory** of **six degrees of separation**, cited in the introduction. Whereas connection to any "other" may indeed be possible through six intermediaries -- as with the problems of society -- is this also the case amongst seemingly disparate categories characteristic of **requisite variety** in cybernetic terms? How unrelated may distant intermediaries be credibly asserted to be? A corollary to that theory might then call for recognition that **there are 5 (or 6) degrees of "cognitive separation" from an experiential sense of globality, namely its comprehension -- despite the expressed belief that "everything is connected to everything"**.

The challenge to comprehension of the coherence of global patterns -- aided by "path-ology" -- may lie in the confusing "subliminal" intuitions regarding the elusive nature of that complexity, so dimly apprehended. This challenge is clarified to a degree by the mathematics of Ron Atkin (*Multidimensional Man: can man live in 3-dimensional space?* 1981) and by the arguments of Magoroh Maruyama (*Peripheral Vision: polyocular vision or subunderstanding?* *Organization Studies*, 2004).

Is weather a valuable key to engaging with patterns of a higher order (*Engaging with Insight of a Higher Order: reconciling complexity and simplicity through memorable metaphor*, 2014)?

**Embedding in higher dimensional space:** In commemoration of the tragic death of Nobel Laureate **John Nash** at the time of writing, further speculation is justified in the light of his work on the mathematics of **isometric imbedding**, This resulted in the discovery that any surface can be embedded into **5-dimensional space** (Daniel Mathews, *Every world in a grain of sand: John Nash's astonishing geometry*,

*The Conversation*, 27 May 2015; Ben Andrews, *Notes on the Isometric Embedding Problem and the Nash-Moser Implicit Function*). For [John Conway](#): *Nash's result is one of the most important pieces of mathematical analysis in the 20th century.*

Might this have implications for the "superficial" cognitive possibilities by which the above 5-fold speculations are indicated? Of relevance to this argument is the considerable [psychological unease](#) from which Nash suffered for many decades -- possibly not unrelated to his remarkable innovations in game theory and his later quest for more collaborative games.

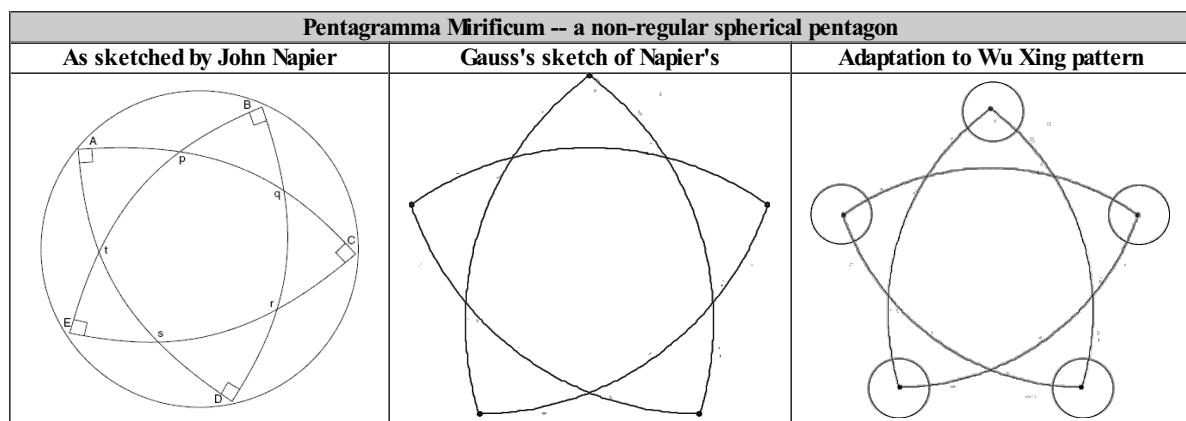
Of particular relevance is the comment of the physicist [Gerard 't Hooft](#) with regard to a [holographic principle](#), which explains that the *information about an extra dimension is visible as a curvature in a spacetime with one fewer dimension*. Such "curvature" is clarified in a discussion of *Is the universe 5 dimensional space-time or 4?* (Carlos Romero, et al, *The Embedding of General Relativity in Five Dimensions. General Relativity and Gravitation*, 1996). How might this be recognized in efforts to comprehend the coherence of globality?

**Pentagramma Mirificum:** Potentially relevant to such considerations is the unusual 5-fold structure known as the *Pentagramma Mirificum*, so named by the mathematician [Carl Friedrich Gauss](#) -- after its discovery by [John Napier](#) in exploring the hypergeometric origin of spherical action (deriving what are termed [Napier's rules for right spherical triangles](#)). Gauss later showed how the spherical pentagramma, and its projection, are both artifacts of an elliptical function, which itself is an artifact of a superseding hypergeometry. **The argument relating to this pattern is developed separately in further detail with animations** (*Annex 5: Global Psychosocial Implication in the Pentagramma Mirificum*, 2015)

Related details and epistemological implications of non-Euclidean geometry are articulated by various authors (Joel Silverberg, *Napier's Rules of Circular Parts*, 2008; *Fragmentary Notes from Carl F. Gauss' Work on the Pentagramma*; Bruce Director, *From Plato's Theaetetus to Gauss's Pentagramma Mirificum: a fight for truth*, *EIR*, 7 October 2005; *Pentagramma Mirificum: investigations in geometry*, *ScienceLarouchePAC.com*). The latter includes many helpful schematics and animations. As noted by Bruce Director ( *Riemann for Anti-Dummies: Part 65 : On the 375th Anniversary of Kepler*, *LYM Canada*, 16 November 2005)

Gauss was intrigued by the relationship of Napier's spherical pentagram to his elliptical transcendentals. He realized that Napier's pentagramma mirificum established that a spherical surface had an intrinsic five-fold periodicity.

**Recognizing metaphorical self-closure:** The point to be stressed is that this unusual form is generated by 5 great circles. It derives from the most fundamental characteristic of spherical geometry, the "great circle-pole" relation, making of it a reflection of spherical geometry itself. It thereby makes evident a 5-fold periodicity as being intrinsic to the sphere and to globality.



Napier's diagram indicates the unusual self-closure of a **chain of 5 spherical right triangles** to form a non-regular spherical pentagon. The spherical pentagon is self-polar, which means that each vertex is the pole of the opposite side. The form offers an insight into globality in non-Euclidean terms, which otherwise remain even more elusive.

There is a degree of irony to the sense in which a sequence of perspectives, each upheld as "upright" in contrast to that preceding it, suggests that the progression brings one back to the point of departure -- but seen from a "humbler" angle. This recalls the insight of [T. S. Eliot](#):

*We shall not cease from exploration  
And the end of all our exploring  
Will be to arrive where we started  
And know it for the first time.  
(Little Gidding, 1942)*

**Comprehension of globality through 5-fold patterns of metaphor?** Exploration of the possible relationship between the pattern of *Wu Xing*, *Hygeia* and the *Pentagramma Mirificum* can be usefully related to that of the *non-sequiturs* of so-called [Knight's Move](#) thinking. As a move in chess, with its [correspondence in go](#), it offers a pattern for metaphor as being orthogonal to conventional linearity. The *Wikipedia* entry on [orthogonality](#) offers a valuable summary of the challenges this constitutes to communication in various domains. For example: *In communications, multiple-access schemes are orthogonal when an ideal receiver can completely reject arbitrarily strong unwanted signals from the desired signal using different basis functions*. Metaphor enables this conventional constraint on connectivity to be transcended -- notably that between information silos. Ironically it might be said, following the argument of the introduction with

respect to birds, metaphors enable arguments to "fly". The point is carefully argued by [Douglas Hofstadter](#) and [Emmanuel Sander](#) (*Surfaces and Essences: analogy as the fuel and fire of thinking*, 2013).

Appropriately Knight's move thinking is both valued as such for strategic creativity and deprecated as a thought disorder -- a [pathology of disconnected thinking](#), notably categorized in DSM (*Knight's move thinking: appreciated or deprecated*, 2012). Consequently **the Knight's move can be considered as a valuable indication of use of metaphor in reframing linearity in complex systems**. As a feature of spherical geometry, the self-closing sequence of right angles is the defining characteristic of Napier's pentagon -- the *Pentagramma Mirificum*. Aspects of the argument can be explore in terms of the relation between "planarity" and "globality" (*Adhering to God's Plan in a Global Society: serious problems framed by the Pope from a transfinite perspective*, 2014).

The experience of the abnormal is necessarily a matter of surprise -- as extensively explored by [Nassim Nicholas Taleb](#) (*The Black Swan: the impact of the highly improbable*, 2007). The surprising nature of the abnormal -- in contrast with linear "business as usual" -- can be creatively envisaged through metaphor as an exercise in cognitive preparedness. Alternatively, any disaster (consequent on failure to do so) may also be framed through metaphor -- typically weather metaphors (as indicated above), for lack of any more meaningful framework. Strategically, the orthogonal transformation of direction is indicative of the need to see the process "in another way" -- an indication of the creative challenge of "new thinking".

Related arguments were developed in separate sections (*Insights from Knight's move thinking; Alternative representations: Naturomimicry: sourcing nature for strategic metaphors; Stratagems and ploys characteristic of Knight's move thinking*). The Knight is part of the emblem for the [US Psyops](#) as a traditional symbol of "special operations" -- signifying the ability to influence all types of warfare. A challenging comparison may be made between the Knight's move, *BaGua* and the Swastika, illustrated by separate animations (*Knight's move, Swastika and BaGua?* 2012).

There is a case for recognizing that the [10 Napier's Rules](#) for navigation in spherical geometry are indicative of the distinctive forms of metaphor required for the navigation of globality (*Napier's Nifty Rules, ThatsMaths*, 12 August 2012). Ironically these are associated with what are termed [Napier's Analogies](#) (*What is the analogy in Napier's Analogy? Quora*).

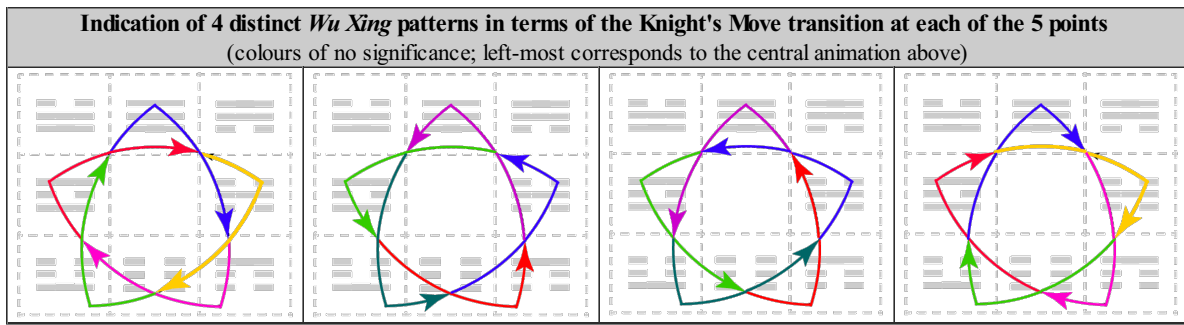
**Cycle of self-closure:** A [knight's graph](#) is a representation of all legal moves of the Knight over the board. A [Knight's tour](#) is the mathematical problem of determining the path the Knight may follow in order to visit each square on the board only (see animation in [Wikipedia](#) article). Further insights into the contrast between *Predictability and pattern-breaking* with respect to the Knight's move are presented separately (*Implication of Toroidal Transformation of the Crown of Thorns: design challenge to enable integrative comprehension of global dynamics*, 2011). Of potential relevance in this respect, in the light of development of the work of Nash, is progress in the visualization of *Flat tori in three-dimensional space and convex integration* -- the focus of the [Hevea Project](#).

The animation on the left below derives from the argument regarding the Knight's moves. It was notably used to address the challenges of the "blame game" in public discourse -- and the use of [weasel words](#) (namely the "slithers", "flips" and "twists" between possible interpretations). In the animation on the right, both forms of the Swastika: left-facing (green) and right-facing (red) are engendered (note the switch in colour and direction -- to the "other" Swastika -- following each "move"). The animations do not necessarily take account of additional patterns of directionality or arrangement. In the case of the *BaGua* mirror, these are clarified by the screen shots which follow the animations.

Experimental animations indicative of a cyclic pattern of metaphors (each use of metaphor within an animation is associated with an orthogonal direction)		
8 of the Knight's moves across neighbouring cells of a chess board	<i>Wu Xing</i> cycle (one direction) superimposed on one <i>BaGua</i> mirror arrangement	Knight's moves superimposed on one <i>BaGua</i> mirror arrangement

These animations together highlight the role of orthogonality, as indicative of the metaphorical connectivity required to achieve self-closure -- in a global context. **Orthogonality is thus indicative of a creative leap of association to a new framework** -- engendered at each of the 5 **right-angled points** of the *Wu Xing* cycle. There are 4 possible metaphorical transformations at each such right angle, as indicated by the following screen shots -- each of the 5 points constituting a 4-fold nexus. This makes a total of 20 such transformations, suggesting a further correspondence meriting exploration (*Memetic Analogue to the 20 Amino Acids as vital to Psychosocial Life?* 2015).

The 5 circles on the traditional depiction could be considered a reminder that **the *Wu Xing* pattern is a spherical pentagram -- not planar**. Of related significance is the fact that on a sphere the points of the *Pentagramma Mirificum* are not visible from each other, being effectively "over the horizon" in terms of any "flat earth" perspective from each -- suggesting a fundamental challenge for the comprehension of globality and the implementation of any "global plan"..



The formal contrasts and commonalities between the animations recall arguments regarding the value of exploring the relationship between the 5- and 6-pointed stars that are held to be so profoundly symbolic in the conflicts in the Middle East (*Middle East Peace Potential through Dynamics in Spherical Geometry: engendering connectivity from incommensurable 5-fold and 6-fold conceptual frameworks*, 2012). The possibility that belief systems of any significance are necessarily embedded in a 5-dimensional cognitive space then reinforces the arguments for investment in mathematical theology (*Mathematical Theology: Future Science of Confidence in Belief: self-reflexive global reframing to enable faith-based governance*, 2011).

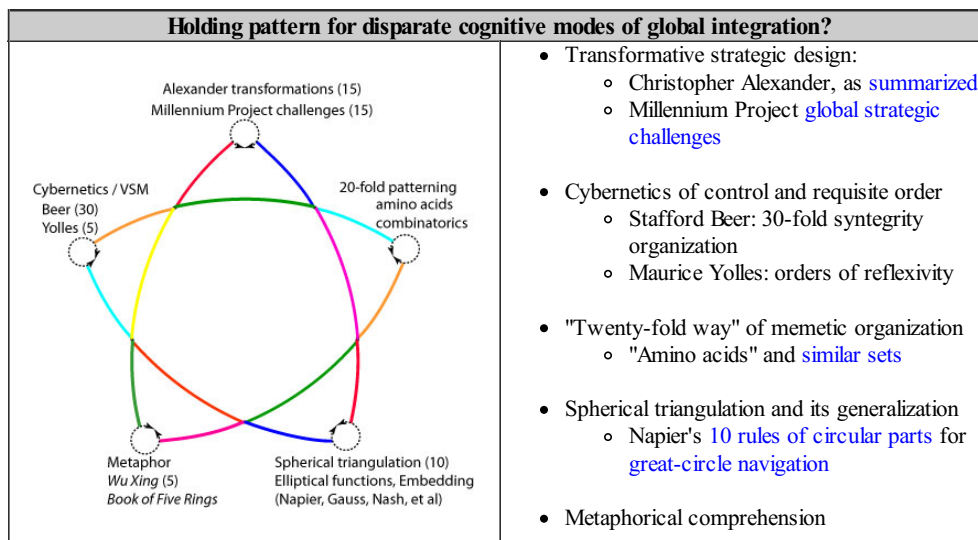
**Integrative inversion:** Missing from such 2-dimensional animations is the sense implied by the *Pentagramma Mirificum* framed by the spherical geometry of globality. There is therefore the implication that only through recognizing the operation of such connectivity on a 3-dimensional surface that the alternative directionalities (indicated by the screen shots above) can be integrated into a single global pattern.

Of relevance in this sense is the fact that the *Pentagramma Mirificum* has an inverted variant on the reverse side of the sphere -- both being connected by the 5 great circles around the sphere (namely the extension of the 5 curves in the middle animation above). This geometry is remarkably illustrated by the interactive animations of the LaRouche group (*Full Circle; The Pentagramma Solid*). Less evident are the cognitive, epistemological and experiential significance. Rather than being understood as circles in terms of spherical geometry, **the 5 great circles are more appropriately understood as 5 cyclic processes** through which the two variants of the *Pentagramma Mirificum* / *Wu Xing* are globally integrated.

The nature of the sphere onto which the complementary forms of the *Pentagramma Mirificum* may be mapped is usefully indicated by exploration of the possibility of mapping the 64 *I Ching* hexagram conditions onto a sphere (József Drasny, *The Reconstruction of the Yi-globe: the spherical arrangement*, 2011) as discussed separately (*Correspondence between blastosphere and spheroidal I Ching?* 2010).

**Requisite global connectivity requiring 5-dimensionality?** It is through such devices that it may be appropriate to explore the nature of the connectivity characteristic of 5-dimensional space -- and the challenge to its comprehension. Self-closure is presumably a characteristic of the coherence of a "pattern that connects". Indeed **if Napier's insights proved vital to navigation around a sphere, why should such insights not be of some relevance to cognitive navigation in a (virtual) global context** -- if not a necessity?

It could be argued that this characteristic is helpful with respect to the ordering of cybernetics through the greater degrees of self-reflexivity, implying increasing degrees of cognitive closure. The following schema exploits the *Pentagramma Mirificum* to offer a tentative holding pattern for seemingly disparate cognitive modalities. It derives in part from the 15 elements of that pattern (separately coloured) which compose the Knight's Move style transformations (3 segments per move), with 4 types of move passing through each pentagram point. Not to be forgotten is that on the other side of the globe there is a second such pattern indicative of a totality of 30 elements of the pattern as a whole, variously associated with the 5 great circles.



Of particular interest is the manner in which 5, 10, 15, 20 and 30 can be transformed between each other, most comprehensibly through mappings onto polyhedra and their duals, as separately illustrated (*Global strategic significance of 20-fold configurations*, 2015; *Geometrical configuration of Alexander's 15 transformations*, 2010). The work of Beer inspired an effort to map the 1992 Earth Summit

issues in that way (*Spherical Representation of Icosidodecahedral Net of Strategies: configuring strategic dilemmas in intersectoral dialogue*, 1992)

Given the references to chess, go and the Olympic games, to what extent is the complexity of global governance intuitively understood through play (at least to some degree), as separately argued with respect to "*Playing" with interrelated metaphors*" (in *Playfully Changing the Prevailing Climate of Opinion; climate change as focal metaphor of effective global governance*, 2005; *Enacting Transformative Integral Thinking through Playful Elegance*, 2010)? It is in this sense that there is a delightful irony to the strategy of the "Pentagon" in seeking to achieve global hegemony through monopolar comprehension.

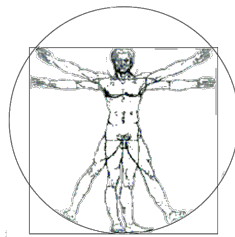
**Poetics of cognitive weather patterns:** This argument has emphasized the value of weather in facilitating comprehension of complexity through its multiple manifestations -- beyond those promoted by conventional models. The self-reflexive cognitive mirroring offered by "weather" (and its relation to "whether") is succinctly framed in terms of poetry by biologist/anthropologist [Gregory Bateson](#) in explaining why "we are our own metaphor" to a conference on the effects of conscious purpose on human adaptation:

One reason why poetry is important for finding out about the world is because in poetry a set of relationships get mapped onto a level of diversity in us that we don't ordinarily have access to. We bring it out in poetry. We can give to each other in poetry the access to a set of relationships in the other person and in the world that we are not usually conscious of in ourselves. So we need poetry as knowledge about the world and about ourselves, because of this mapping from complexity to complexity. (Cited by Mary Catherine Bateson, *Our Own Metaphor*, 1991, pp. 288-9)

Curiously it could be said there is a long tradition of representing humans as "5-dimensional", as exemplified by the [Vitruvian \(hu\)man](#) of [Leonardo da Vinci](#). -- although little is made of the cognitive dimensionality corresponding to that visual metaphor. As remarked by [Kenneth Boulding](#):

Our consciousness of the unity of the self in the middle of a vast complexity of images or material structures is at least a suitable metaphor for the unity of a group, organization, department, discipline, or science. If personification is only a metaphor, let us not despise metaphors -- we might be one ourselves. (*Ecodynamics; a new theory of societal evolution*, 1978, p. 345)

#### Vitruvian animation?



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## References

Christopher Alexander:

- The Nature of Order: an essay on the art of building and the nature of the universe. Center for Environmental Structure, 2003-4. [\[summary\]](#)
- New Concepts in Complexity Theory: an overview of the four books of the Nature of Order with emphasis on the scientific problems which are raised. 2003 [\[text\]](#)
- Harmony-Seeking Computations: a science of non-classical dynamics based on the progressive evolution of the larger whole. *International Journal for Unconventional Computing (IJUC)*, 5, 2009 [\[text\]](#)

Ron Atkin. *Multidimensional Man: Can man live in three dimensional space?* Penguin, 1981 [\[review\]](#)

Phillip J. Ayoub, Irene J. Petrick and Michael D. McNeese. Weather Systems: a new metaphor for intelligence analysis. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 51, 2007, 4, pp. 313-317 [\[abstract\]](#)

Albert-László Barabási. *Linked: how everything is connected to everything else and what it means for business, science, and everyday life.* Plume, 2003 [\[contents\]](#)

Mary Catherine Bateson. *Our Own Metaphor.* Hampton Press, 1991

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

Daniele Besomi. *Tempests of the Business World: weather metaphors for crises in the Nineteenth Century.* In: Roberto Baranzini and François Allisson (eds), *Economics and Other Branches*, Pickering and Chatto, 2014. [\[abstract\]](#)

Bhikku Bodhi (Tr.). *The Discourse on the All-Embracing Net of Views; the Brahmajala Sutta and its commentarial exegesis.* Kandy, Buddhist Publications, 1978

Kenneth E. Boulding. *Ecodynamics; a new theory of social evolution.* Sage, 1978

Kyle Buchanan. *Memorize the Periodic Table: the fast and easy way to memorize chemical elements.* Memory Worldwide, 2013

Zhaoxue Chen. Researches on Mathematical Relationship of Five Elements of Containing Notes and Fibonacci Sequence Modulo 5. *The Scientific World Journal*, 2014, Article ID 189357 [[text](#)]

William A. Cunningham and Jay J. Van Bavel. Varieties of Emotional Experience: differences in object or computation? *Emotion Review*, 1, 2009, 1, pp. 56-57 [[abstract](#)]

William Davies. *The Happiness Industry: how the government and big business sold us well-being*. Verso, 2015

Guang-hong Ding and Tao WanG. Mathematical analysis of Yin-Yang Wu-Xing Model in TCM. *Journal of Acupuncture and Tuina Science*, 6, 2008, 5, pp 269-270 [[text](#)]

Maria Enriqueta Cortes de los Rios. Cognitive Devices to Communicate the Economic Crisis: an analysis through covers of *The Economist*. *Iberica*, 20, 2010, pp. 81-106 [[text](#)]

John L. Epps:

- *The Theology of Surprise: exploring life's mysteries*. Resurgence Publishing, 2013
- *Bending History: selected talks of Joseph W. Mathews*. Resurgence Publishing, 2005

Gabriel Felley. Yintelligence™: The Mapping of the Pre-Heaven or FuXi Hexagrams to the Post-Heaven or King Wen Hexagrams. *Chinese Studies*, 2, 2013, 4, pp. 197-203 [[abstract](#)]

Andrew J. Gallagher. A Perfect Storm! Metaphors of Weather. *Metaphor in American Politics*, 28 July 2014 [[text](#)]

Howard Gardner. *Frames of Mind: the theory of multiple intelligences*. Basic Books, 1983

- *Toward a Global Science: mining civilizational knowledge*. Indiana University Press, 1999
- *Evolution of Information: lineages in gene, culture and artifact*. Thomson Learning, 1991
- *Aborted Discovery: science and creativity in the Third World*. Zed Books, 1984

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

A. C. Graham. *Yin-Yang and the Nature of Correlative Thinking*. Singapore, The Institute of East Asian Philosophies, 1986 [[review](#)]

Todd R. Harris. *The Interplay of Opposites, the Language of Experience, and the Geometry of Ascent: a comparison of Hermann Hesse's "Das Glasperlenspiel" and Nicholas of Cusa's "De Ludo Globi"*. California State University, 2001

Edward Haskell. Generalization of the structure of Mendeleev's periodic table. In: E. Haskell (Ed.), *Full Circle: The Moral Force of Unified Science*. Gordon and Breach, 1972 [[text](#)]

I. Hargittai. *Symmetry 2: Unifying Human Understanding*. Elsevier, 2014

B. M. Harvey, et al. Topographic Representation of Numerosity in the Human Parietal Cortex. *Science*, 341, 2013, 6150, pp. 1123-1126 [[excerpt](#)]

James Hillman and Michael Ventura. *We've Had a Hundred Years of Psychotherapy -- And the World's Getting Worse*. HarperCollins, 1992 [[summary](#)]

Douglas Hofstadter and Emmanuel Sander. *Surfaces and Essences: analogy as the fuel and fire of thinking*. Basic Books, 2013

Tze-ki Hon. *The Yijing and Chinese Politics*. SUNY Press, 2012

Junzhou Huang, Tong Zhang and Dimitris Metaxas. Learning with Structured Sparsity. *Journal of Machine Learning Research*, 12, 2011, pp. 3371-3412 [[text](#)]

Jon Jenkins and Maureen Jenkins:

- *The Other World, in the Midst of Our World*. Institute of Cultural Affairs, 2001
- *The Other World: a spirit journal*. Institute of Cultural Affairs, 1987

Jerry Alan Johnson. *Daoist Weather Magic and Feng Shui*. Redwing, 2012 [[contents](#)]

P. J. Lang. The Varieties of Emotional Experience: a meditation on James-Lange theory. *Psychological Review*, 101, 1994, 2, pp. 211-221 [[abstract](#)]

Ping-hui Liao. *Weather as Metaphor in Modern Chinese Literature*. Taiwan National Tsinghua University, 2007 [[text](#)]

Antonella Luporini. *Metaphor in Times of Crisis: metaphorical representations of the global crisis in The Financial Times and Il Sole 24 Ore 2008*. University of Pisa, 2013 [[text](#)]

Magoroh Maruyama:

- *Mindscapes, social patterns and future development of scientific theory types*. *Cybernetica*, 1980, 23, 1, pp. 5-25 [[text](#)]
- *Peripheral Vision: polyocular vision or subunderstanding?* *Organization Studies*, 25, 2004, 3, pp. 467-480 [[abstract](#)]

Stefan Marti, Deva Seetharam and Hiroshi Ishii. *WeatherTank: a tangible interface using weather metaphors*. MIT Media Lab, 2001 [[text](#)]

Humberto R. Maturana and Francisco J. Varela. *The Tree of Knowledge: the biological roots of human understanding*. Shambhala, 1992 [[reviews](#)]

Ann E. Moyer. *The Philosophers' Game: Rithmomachia in Medieval and Renaissance Europe*. University of Michigan Press, 2001

[[summary](#)]

Judit Nagy. Metaphors of Weather in Canadian Short Prose. *Brno Studies in English*, 37, 2011, 1 [[text](#)]

Mark Newman, Albert-László Barabási and Duncan J. Watts. The Structure and Dynamics of Networks. Princeton University Press, 2006.

Nicholas of Cusa:

- De Ludo Globi: The Game of Spheres. Abaris Books, 1463/1986
- De Ludo Globi: The Bowling-Game. The Arthur J. Banning Press, 2000 (Translated by Jasper Hopkins from Nicolai de Cusa *Opera Omnia*. Vol. IX: *De Ludo Globi*. Edited by Hans G. Senger. Hamburg: Meiner Verlag, 1998) [[text](#)]

Phil Oliver. Varieties of Emotional Experience: James's Radical Turn. *American Philosophy*, 2002 [[text](#)]

John J. O'Neill. Prodigal Genius: the life of Nikola Tesla. Neville Spearman, 1968

Lenny Rachitsky. The top 7 most overused cloud metaphors, sorted by weather pattern. *Transparent Uptime*, 26 February 2010 [[text](#)]

Geoffrey Redmond and Tze-Ki Hon. Teaching the I Ching (Book of Changes). Oxford University Press, 2014

Carlos Romero, Reza Tavakol and Roustam Zalaletdinov. The Embedding of General Relativity in Five Dimensions. *General Relativity and Gravitation*, 88, 1996, 3 [[abstract](#)]

Dennis H. Rouvray and R. Bruce King (Eds.). The Mathematics of the Periodic Table. Nova Science, 2006

Scott C. Sheridan. The Redevelopment of a Weather-Type Classification Scheme for North America. *International Journal of Climatology*, 22, 2002, pp. 51-68 [[text](#)]

Stephen Skinner. Guide to the Feng Shui Compass. Golden Hoard Press, 2008

Charles Stevens. Construction of the Non-numeric Value of the Golden Section from the Gauss Pentagramma Mirificum. *Scribd*, 2013 [[text](#)]

Alan E. Stewart. Assessing Human Dimensions of Weather and Climate Salience. 2005 [[text](#)]

Nassim Nicholas Taleb. The Black Swan: the impact of the highly improbable. Random House, 2007

Glen Van Brummelen. Heavenly Mathematics: the forgotten art of spherical trigonometry. Princeton University Press, 2013

J. W. Walls. The I Ching as a Paradigm for Understanding Corresponding States in Fundamentally Different Systems. *Journal for Advances in Human Factors/Ergonomics*, 20, 1995, pp. 1047-1053

Duncan J. Watts:

- Six Degrees: the science of a connected age. Vintage, 2004
- The Structure and Dynamics of Small-world systems. 1997 [[text](#)]

Maurice Yolles. Implications for Beer's ontological system/metasystem dichotomy. *Kybernetes*, 33, 2004, 3, pp. 726-64

Maurice Yolles and Gerhard Fink:

- Personality, Pathology and Sagiv-Schwartz Mindscapes. *Social Science Research Network*, 2012 [[abstract](#)]
- A General Theory of Generic Modelling and Paradigm Shifts (part 2): cybernetic orders. *Kybernetes*, 44, 2015, 2, pp. 299-310 [[abstract](#)]
- The Changing Organisation: an agency modelling approach. *International Journal of Markets and Business Systems*, 2015 (forthcoming)

Maurice Yolles and Zude Ye. Taoist Viable Systems. Paper presented at the International Society for Systems Science Conference, Cancun, 2005

Maurice Yolles, B.R. Frieden and G. Kemp. Toward a Formal Theory of Socioculture: a yin-yang information-based theory of social change. *Kybernetes*, 37, 2008, 7, pp. 850-909 [[text](#)]

Izabela Zolnowska. Weather as the Source Domain for Metaphorical Expressions. *Avant: the Journal of the Philosophical-Interdisciplinary Vanguard*, II, 2011, 1 [[text](#)]

Zude Ye and Maurice Yolles:

- Cybernetics of Tao. *Kybernetes*, 39, 2010, 4, pp. 527-552 [[text](#)]
- Holistic Viable System Theory. IssS, Shanghai, 2002.

Zude Ye. The Fractal Structure of Time in Chinese Thinking. Qimendunjia International Workshop, 2003

Ziqing Zhang and Yingshan Zhang. Mathematical Reasoning of Economic Intervening Principle Based on "Yin Yang Wu Xing" Theory in Traditional Chinese Economics. *Modern Economy*, 2013, 4, 130-144 [[text](#)]

Yingshan Zhang and W. Shao. Image Mathematics: mathematical intervening principle based on "Yin Yang Wu Xing" theory in traditional Chinese mathematics. *Applied Mathematics*, 3, 2012, 6, pp. 617-636 [[text](#)]

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